

Web-based Counseling System

By

GOI LAI YOONG WEK 990096

Under Supervision Of PROF. MADYA DR. P. SELLAPPAN

Faculty of Computer Science And Information Technology University Malaya

A Graduation Exercise Submitted To The Faculty of Computer Science & Information Technology University of Malaya

> In Partial Fulfillment of the Requirements For The Bachelor of Computer Science Degree

Abstract

Web-based Counseling System is a web-based system develop with the objectives to globally help the people who faced psychological problems reduce or eliminate their difficulties. The system allows authorize user search freely for counseling approach according to their needs. It can be accessible through common web browser and no installation of application in the users' workstation is needed.

The system is project proposed by Dr. P. Sellappan. The purpose of Webbased Counseling System is to help the government handle the people who needs counseling services with the objectives achieving better the efficiency and effectiveness. Most of the counseling approach will be computerize and also will be integrated with each other through Internet.

This Web-based Counseling System will be develop using Active Server Page to create the web program, Microsoft SQL Server 2000 as database server and IIS 5.0 as web server. Visual Basic 6.0 will be used to create the backend administration application for administrator usage to maintain and enhance the web system.

Acknowledgement

This Web-based Counseling System is designed and proposed through advice, assistance and contributions of many individuals. First of all, I would like to express my deepest gratitude to the project supervisor, Dr. P. Sellappan, for his unlimited support, guidance and advice throughout the whole progress of designing this system. Same gratitude also been expressed to Mr. Chiew Thiam Kian for all the valuable and effective guidance and advises.

Besides, I would like to express my deepest gratitude for Cik Zaiton Mamat (Pegawai Rundingcara) from Counseling and Career Section of University Malaya for her guidance and explanation. Next, I also like to thanks to all my course mates and friend for sharing their knowledge throughout the duration of the system design. Their advice, guidance and moral support are very meaningful to me.

Finally, I also like to express my sincere thanks to all the faculty staff in Faculty of Computer Science and Information Technology for their assistance and tolerance.

Table of Contents

No.	Contents	Page
1.	Abstract	i
2.	Acknowledgement	ii
3.	Tables of Contents	iii
4.	List of Tables	v
5.	List of Figures	vi
6.	Chapter 1 – Introduction	1
	 1.1 Project Overview 1.2 Definition 1.3 Project Motivation 1.4 Objective 1.5 Project Scope 1.6 Research Plan and Method 1.7 Development Strategy 1.8 Project Schedule 1.9 Executed Outcome 	1 2 3 4 5 5 6 7 8
7	1.9 Expected Outcome Chapter 2 – Literature Review	10
10	 2.1 Overview 2.2 The Definition 2.2.1 What can be expected from counselors 2.2.2 Counseling Approaches (From Counseling and Career Section of University Malaya) 2.3 Software Development Life Cycle 2.4 Introduction to Internet 2.4.1 A Brief History of World Wide Web 2.4.2 TCP/IP 2.5 Client Server Computing 2.5.1 Why Client Server 2.5.2 Operational of Client Server 2.5.3 Types of Client Server Architecture 2.6 User Interface 2.7 Web Server 2.7.1 Internet Information Server v5.0 (IIS) 2.8 Operating System 2.8.1 Windows 2000 Server 2.8.2 Windows NT 2.8.3 Unix 2.9 Database 2.9.1 Advantages of database 2.9.2 Microsoft SQL Server 2000 2.9.3 Microsoft Access 97/2000 	$ \begin{array}{c} 10\\ 10\\ 10\\ 11\\ 11\\ 11\\ 14\\ 16\\ 16\\ 16\\ 17\\ 18\\ 19\\ 19\\ 20\\ 21\\ 22\\ 22\\ 23\\ 23\\ 23\\ 23\\ 23\\ 23\\ 23\\ 23$
	2.9.3 Microsoft Access 97/20002.10 Programming Tools2.10.1 Active Server Page 3.0 (ASP)	26 26 26

	2 10 2 Java Server Page (JSP)	26
	2 10 3 Java	27
	2 10 4 Visual Basic 6 0	28
	2 10 5 ActiveX	28
	2.10.5 ActiveA	28
	2.11 web blowser	20
8.	Chapter 3 – Methodology and System Analysis	30
	3.1 Introduction	30
	3.2 System Development Methodology	30
	3.2.1 Prototyping	31
	3.3 Analysis on Existing System	34
-	3.3.1 Modules Included in Existing System	34
	3.3.2 Existing System's Strength	34
	3.3.3 Existing System's Weakness	35
	2.4. Requirement Analysis	36
	2.4.1 Eurotional Requirements	37
	2.4.2 Non Eunctional Requirements	38
	3.4.2 Non-Functional Requirements	30
	3.5 Development Strategy	30
	3.5.1 Windows 2000 Server	39
	3.5.2 Microsoft SQL Server 2000	39
	3.5.3 Active Server Page 3.0 (ASP)	40
1015186	3.5.4 Microsoft Visual Basic 6.0	41
	3.5.5 Hypertext Markup Language (H1ML)	42
	3.5.6 Dynamic HTML	42
	3.5.7 VBScript	42
	3.5.8 JavaScript	43
	3.5.9 ODBC	43
9.	Chapter 4 – System Design	45
	4.1 Overview	45
	4.1.1 Logical Design	45
	4.1.2 Physical Design	46
1725.25	4.2 User Interface Design	46
	4 2 1 Web Page Design	47
	4.3 Program Hierarchy Chart	50
	4.4 Data Flow Diagram (DFD)	54
	4.4.1 Data Flow Diagram for Proposed System	54
	4.5 Database Design	57
	T. J Dambuse Design	
10.	Chapter 5 – Implementation	62
	5.1 Implementation	62
	5.2 Development Environment	62
	5.2.1 Hardware Requirement	62
	5.2.1 Flattware Tools/Components requirements	63
	5.2. Development of Proposed System	63
	5.5 Development of Proposed System	64
	5.3.1 Database Development	64
	5.3.2 User Interface Development	04

	5.3.3 Application Development		64
	5.4 System Testing		65
	5.4.1 Testing procedure		65
	5.4.2 Verification procedures		66
Na	5.4.3 Validation procedures	Page	66
	5.4.4 Testing Techniques		67
	5.4.5 Testing Strategies	57	68
	5.5 Problem Encounter		69
11.	Chapter 6 - System Evaluation and Conclusion	58	70
12			
3	6.1 Problems Encountered	59	70
	6.1.1 Difficulty in defining the system scope		70
1	6.1.2 Difficulty in choosing a programming	39	70
	language		
3	6.2 System Strengths	60	71
	6.3 System Limitations		72
5.	6.4 Future Enhancements	60	73
-	6.5 Knowledge Gained		74
7.819	6.6 Overall Conclusion	60	75
12.	Reference		
13.	Appendix – Interview Section	NY	

List of Tables

No.	Name of Table	Page	
1.	Table 1: User Registration Table	57	
2.	Table 2: Feedback Table	58	
3.	Table 3: Analysis Table	59	
4.	Table 4: User Personal Record Table	59	
5.	Table 5: Problems Table	60	
6.	Table 6: Problem Solution Table	60	
7.	Table 7: Message Board Table	60	
8.	Table 8: Pen-pal Table	61	
9.	Table 9: Job Table	61	

List of Figures

No.	Name of Figure	Page	
Figure 1.1:	Classic Life Cycle Paradigm	9	
Figure 1.2 :	Project Schedule	10	
Figure 2.1:	SDLC Phases	15	
Figure 4.1:	Default Page for Web-Based Counseling System	45	
Figure 4.2 :	Interface for Pen-pal Column	48	
Figure 4.3 :	Interface for Backend Administrator Application	49	
Figure 4.4:	Menu Choices for Administrator	49	
Figure 4.5:	Interface for Database Update by Administrator	50	
Figure 4.6:	Web-Based Counseling System hierarchy chart Part I	51	
Figure 4.7:	Web-Based Counseling System hierarchy chart Part II	52	
Figure 4.8:	Web-Based Counseling System hierarchy chart Part III	53	
Figure 4.9:	Context Diagram	54	
Figure 4.10:	Data Flow Diagram Level-1	55	
Figure 4.11:	Data Flow Diagram Level-2	56	
Figure 4.12:	Data Flow Diagram Level-3	57	

Chapter 1

Introduction

Chapter 1 Introduction

1.1 Project Overview

Counseling system is meant to provide services to improve and assist people to overcome their difficulties. Counseling is actually the objectives to find courage and confidence in facing those people problems and guide them towards self-reliance. By implementing web-based counseling system, clients or users may access the counseling information and solution to their difficulty by just clicking a button. Next, most of the people currently are busying with their daily work and their social live are very dull. Thus, they have lack of time to gather around for friends. Our Web-based Counseling system will provide facilities to overcome their loneliness and doleful life. Web-based Counseling System is basically a search engine for counseling approach and also act as a partner to the person who need it. Base on the human neutrality that is shamed to tell their problem directly to the counselors, this web-based counseling is suitable to overcome this problem.

Counseling has many different scopes, which can be divided into 6 main approaches:

1. Person-centered

A way of working in counseling that puts the client at the center of the activity and has the belief that the client knows best how to solve their problems.

2. Eclectic

Any counseling theory or practice that uses and combines beliefs, findings and techniques selected from a wide range of theoretical systems.

3. Psychodynamic

A general term for approaches to counseling heavily influenced by the work of Sigmund Freud.

4. Transactional Analysis

Therapeutic work with individuals and their relationships originating in the work of Eric Berne.

5. Gestalt

A humanistic psychotherapy approach based on the work of Fritz Perls.

6. Psychotherapy

Psychotherapy means working on problems using psychological methods. Depending on the question, the approach used may be through counseling, listening, relaxation, dream-work, fantasy work, story telling and many other techniques, all with the aim of assisting your deeper self to help your to achieve beneficial change.

Thus, counseling throughout the scope has many different criteria, services, dimensions, theories and guidelines.

1.2 Definition

Web Based Counseling System is a web-based application that provides services same as counselors but does not involve human interaction directly. The system may provide many helpful information on counseling aspects for all the users around the world. The Web-based Counseling System is meant to guide its user the proper routine to find out their problems solutions and give them supportive assistance they could find in solving their problems.

The system is designed where the users can

- Retrieve the information on their problems by specifying their difficulties.
 Then proper guidance and solution will be automatically shown to give them more ideas.
 - Use our chat room and forum service to discuss their problems by chatting individually with the counselors or with other people who met the same problems. The problems and solution will be shown in the forum if it's needed.
 - Users can also demand for any additional information or any private question through e-mail to our counselors and also voice their feedback through posting the e-mail.
 - Other services such as job listing, career planner, pen-pal column and others useful information.

The main objective of the site is to help the people solve their problems and thus to reduce social problems. If the information in this site is not enough, they will be guided to others useful link from other channel. This web development will be useful to reduce time and cost to handle problems and works with least procedures.

1.3 Project Motivation

In this 20 centuries world, Internet services have become one of the important communication tools and also a repository to store information and knowledge. Using Internet services has become part of the daily life for most of the people nowadays. Besides, most of the organization such as schools, universities, and business center rushed to become wired in order to provide information of Internet usage among users. Thus, web-based counseling is a better way to provide counseling services if compare to traditional counseling.

This final-year project is proposed to study and develop a WEB-BASE COUNSELING SYSTEM. This project is mainly to assist the target users to tackle and

overcome their problems based on the different criteria of issues such as academic problems, family crisis, employment pressures, social problems and others. Although, there are several counseling sites in global, they seems not suitable enough to assist the user to reconstruct and develop till the maximum of their capital.

Implementation of this project will be best feasible on the reason of most of the users spent most of their time browsing the web and therefore web counseling will be the easiest way to achieve counseling services. Next, web base counseling will help on the problem of lack of counselors because information can be acquired through and problems in different prospect could be solved immediately.

The real challenge in this project is to carry out research and analysis before a final decision is made to start developing the system. Studies on the scripting languages, counseling information, web servers and database is very interesting and knowledgeable. It may also be very helpful for future challenges.

Web application requires a totally new development environment compared to the conventional client-server applications. According to some studies, web application would eventually take over most of the current commercial homepages. Knowledge gained through research and in the process of developing such system would serve, as an advantage should anyone in the community who requires such a system.

1.4 Objective

The initial objective of this project is to:

• Maximize human capital

To provide the most effective information and solution to tackle human daily problems and pressures by providing professional ideas and resources by less human job.

- Help clients free from loneliness and unhappy life
 - Providing services such as chat room, forum and email to listen to the users problems and free them from loneliness.
- Provide proper routine for problems users
 - Guide the users to a proper routine to find out the best solution for their problems.
- Help problem users to get rid of psychological problems.
 - Many of the problem users get serious psychological problems when their problems cannot be solved properly. Thus, the system will provide effective solution to tackle their problems.

At the end of this project, public should be able to find accurate and positive outcome of their problems

1.5 Project Scope

- The system maintains counseling information for clients around the world and also help the administrator easily to analysis on the people emulsion and psycho
- All counseling data will be preview to the users by using the search engine.
- The counseling data will be gathered by finding on books, magazine and Internet resources.
- Providing security for the page by maintaining user login procedure with password encryption.
- Providing chat room and forum for problems encountered that couldn't find the best answer through search engine.
- Facilities such as job listing, pen-pal column are additional attraction of the system
- Providing Analysis system to show to the public the common problems face by the users

• Handles counseling data updates and user profile update by maintaining a backend application for administrator.

1.6 Research plan and method

- Research via Internet (counseling information and perspective given by professional counselors and lecturers)
- Study books on how to maintain good counseling scales and effective problem solution.
- Survey on how available system of this type had been developed and how it functions. Visiting some of the web site done regarding counseling and also pay visits to counseling associations does this.
- Acquire knowledge on software and hardware, which will be used to develop and reside the system.
- Research on how this system can be developed using current or latest emerging technologies.
- Research on development tools like Microsoft SQL 2000, Microsoft Visual Basic, Active Server Pages and operating system such as Windows NT or Unix system.

1.7 Development Strategy

The development strategy adapted in Web-based Counseling System is the Classic Life Cycle paradigm. This model is chosen based on the nature of the system that demands a systematic, sequential approach to software development that begins at the system analysis phase and progresses through system design, coding and testing. The final phase will be documentation. Figure 1.1 illustrates the Classic Life Cycle paradigm for software engineering.



Figure 1.1: Classic Life Cycle Paradigm

1.8 Project Schedule

1.9

Figure below shows the schedule for the development and implementation of this project.

Project Schedule	;								
Activity	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb
	2001	2001	2001	2001	2001	2001	2001	2001	2001
System Study									
Project Modern	107								
Requirements									
Analysis	w This	milde							
Design							2		
Coding				=					
Testing					K				-
Documentation	e Henn			X	0				

1.9 Expected Outcome

This project should develop a fully functioned web-based counseling system that may provide professional information and resources on problems analyzing and solving. The system has the ability to receive user request and suggestion for additional information of their choice. Interactivity among users and the system will guarantee an ever-growing counseling system.

Project Team

Project Supervisor

Dr. P. Sellappan

Project Moderator

Mr. Chiew Thiam Kian

Programmers

Goi Lai Yoong	WEK 99009		
Woo Swee Hong	WEK 990094		
Suvarna a/p Supramaniam	WEK 990135		

Chapter 2

Literature Review

Chapter 2 Literature Review

2.1 Overview

The process of developing the Web-based Counseling System involves researches based on understanding counseling concepts and currently most popular psychology problems. This research also includes computerized information for system building and also non-computerized information for data gathering.

2.2 The Definition

Research has been carrying out globally to get some information and ideas to construct the systems. According to information gathered, it is an important and rather big task to develop a counseling system that could meet all the users needs. Perhaps according to **Dr. David Santoro** (*Ph.D, Psychologist, Cleveland, Ohio*) the definition of the counseling would be:

Simply stated, counseling is any relationship in which one person is helping another person to better understand and solve some problem. Friends and relatives provide a type of counseling, as do clergy, academic advisors, teachers, and many others. Counselors have a broad range of experience in developing "helping relationships" and working with many different situations.

In counseling we look for what we find good in ourselves. The good can be used as a model for the things we would like to change. Counseling is a change (growth: healing) process in which people (individuals, groups, couples, and families) are helped to:

• *express themselves (catharsis) in a safe, supportive, collaborative, nonjudgmental climate*

- identify, sort-out, clarify their problem laden "stories" (deepened awareness of past & present story and alternative future stories)
- identify non-helpful patterns (e.g. "crisis" pattern);
- learn, where appropriate, more helpful coping skills (e.g. "assertive skills")
- identify and achieve goals that are important to them.

For those with a humanistic bent, the ultimate goal for counseling is to help people to recognize and accept their own internal worth, i.e., to integrate their learned habits of thinking about themselves (their internal messages and images) and their learned behaviors (feelings, physical responses, & actions) to be congruent with who they really are in their essence (beautiful, loving people).

2.2.1 What can be expected from counselor

Most of the people expect someone who is interested in listening to their concerns and in helping them develop a better understanding so that they may deal with the counselors more easily and effectively. Counselor will take seriously and be willing to openly discuss anything the people wish to discuss. Counselors have no "magical" skills or knowledge, and will be unable to solve problems directly. Counselors will want to work with the people, but won't do for them for what that is capable of doing for them.

2.2.2 Counseling Approaches (From Counseling And Career Section of University Malaya)

Counseling services include individual counseling and group counseling. The principles regarding individual counseling are:

a.) Level one - pre-session

Clients who attend counseling session normally don't realize that they have psychological problems. So, in this first level of counseling process it is important to build a better relationship between clients and counselors. This will give some encouragement and confident to the clients.

b.) Level two – starting relationship

This level is an important level where counselor has to build a trustworthy relationship between client and counselor. Topics of discussion will be more on the clients feeling, their characteristics and also includes moral principles. The counselors have to start or build the relationship through a harmonies way to avoid hurting the client's feeling.

c.) Level three - Understanding

After the client familiar and confident enough with the counselor, they will easily tell the counselor what was actually happened that disturb their feelings. Normally, at this level, the client will try to explain thoroughly all the incidents that happened to them. The counselor's responsibility is to be a patient listener. They also need to reflect the incidents, feelings and experience, ask for clearer explanation and make confrontations if it is needed. The counselor will keep determining the client problems until the counselor and client is really clear about the problems.

d.) Level four – define the problem

At this level, the counselor and client will discuss about every problems and difficulties faced by the client. The counselor and client will discuss about the definition of the problem, factors and sources of the problems.

e.) Level five – Alternative

After the problems have been defined, the counselor needs to discuss thoroughly about every risk and effects that the client will face for each of the alternatives. Alternatives should come from the client and will be discuss thoroughly so that the client will get insight and choose the alternatives that may help in solving their problems and difficulties.

Among the alternatives are:

- Derive mission of life that are realistic.
- If the client are lack of caring their health, changes should be done on the client's daily habits such as changes in diet and do more exercise at home.

- Space out a litter bit of time for relaxation and to "allow yourself time to just let it happen."
- Change the ways of mixing around with friends or other peoples. Try
 to tell them your feelings and don't keep all the angers and
 disappointment.
- Analysis on how to spend the time daily. Learn to divide properly every period of time for certain jobs.
- Try to say "no" if the things can't be handle properly.
- Learn to jokes around and smile always to reduce stress.
- Learn to divide jobs to other people.
- Lastly, make yourself clear. Clear about every single things you are doing and what you actually wanted to do. You must have a clear life mission.

f.) Level six – Action

Taking action is more concentrate on selection of alternatives that have been thoroughly discussed with the counselor. Action to be taken is out of the counseling session. While taking an action, three considerations are:

- The successful of taking the action
- The failure of taking the action
- Dare not take the action.

g.) Level seven - Abortion

The counseling process is abort when the client is ready to stop the counseling session. The client is ready to take action which is not under the counseling session control to reduce or eliminate the problems. The counselor will stop the session and plan the next appointment.

h.) Level eight – Following guidance

Counselor and client will meet and discuss about the action taken by the client. This session is held to determine whether the user face a positive or negative effects after their actions.

2.3 System Development Life Cycle (SDLC)

The System Development Life Cycle (SDLC) is intended to provide a set of guidelines for the successful completion of application system development projects. The SDLC consists of seven distinct phases as shown in Figure 2.1 below:

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	
Planning	Definition	Analysis	Design	Build	Transition	Warehouse	

Figure 2.1: SDLC Phases

Planning

This phase of the SDLC is required to determine the feasibility of a particular project proceeding, or not. This phase will produce a high-level overview document of the proposed project. It will contain information relating to the project's requirements and will enable the formalization and definition of the scope of the project.

Definition

This phase of the SDLC defines exactly what, who, when and how the project will be carried out. This phase will take the deliverable from the previous phase, expand on the high-level project outline and provide a specific and detailed project definition.

This phase is the first activity of the project after obtaining approval and funding to proceed. The description of this phase here assumes that the following associated activities have been completed:

- the preparation and distribution of an RFP
- the selection of a contract development team
- the appointment of a Project Manager.

This phase provides an effective way of communicating to project stakeholders, the project scope and schedule as well as any risks or constraints related to the project.

Analysis

This phase of the SDLC is required to understand and document the users' needs for the system. This phase will document, in significantly more detail than the project statement, the scope, objectives and requirements of the current or proposed system.

The emphasis throughout this phase is on what the system is to do. During the analysis and specification, the technical aspects and constraints should be considered, but should not be influenced by implementation characteristics. The technical aspects of the system are addressed in the Design Phase.

During this phase the data conversion requirements, at a high level, will become known. This will commence a parallel set of SDLC phases for the data conversion associated with the system. Data conversion will follow Phases 3 to 6 of the SDLC. Depending on the size and complexity of the total project (system and data conversion) the data conversion application could be either incorporated as a section or component of the main system design deliverable, or a separate data conversion deliverable of its own.

Design

This phase of the SDLC continues on from the Detailed System Analysis and describes how the proposed system is to be built. The design is specific to the technical environment that the system will be required to operate in and the tools to be used in building the system. The results of this phase will significantly impact the Build and Implementation Phases of the system.

Build

This phase of the SDLC deals with the development, unit testing and integration testing of the system (application) modules, screens and reports. In addition, this phase will address the preparation and establishment of the technical environment for development, testing and training of user representatives.

This phase is usually carried out in parallel with the development of user procedures and user documentation from the Implementation Phase. Both of these will be required for module testing, upon the completion of the Build Phase. Coordination of the

activities of the Build and Implementation Phases is a key responsibility of the Project Manager.

Transition

This phase of the SDLC is to prepare for and carry out the implementation of the developed system through user and acceptance testing to a full production system.

Warehouse

This phase of the SDLC addresses the publication of the system's data into the Ministry's Data Warehouse for manipulation and decision support. The Warehouse Phase actually comprises, as appropriate, all the deliverables associated with SDLC Phases 1 [Planning] through 6 [Implementation].

2.4 Introduction to Internet

The Internet is the largest computer network in the world – "a network of networks". The Internet consists of thousands of interconnected networks of computers that allow all sorts of computers to interact to one another. The Internet first began back in 1960's when the United States Department of Defense researched ways of decentralizing computer networks to survive military attack.

From the humble beginning (there were initially only a handful of large computers "on the Net), today we have a massive network-of-networks, growing at such a phenomenal rate that providing any usage figures would be meaningless.

The Internet provides a myriad of services, such as the World Wide Web (WWW), e-mail, USENET, FTP, Gopher and Telnet. During the early '90s, the WWW started taking off. Today WWW is one of the fastest growing services on the Internet.

2.4.1 A Brief History of World Wide Web

The web was born in early 1989 as a result of efforts by researches at the European Laboratory for Particle Physics (CERN) in Geneva, Switzerland [McGee,

1996]. Their goal was to create an online system that would allow non-technical users to share data without the need to use arcane commands and esoteric interfaces. Within two or three years, users outside CERN were designing and creating powerful browsers. By 1993, the Web and its browsers had become the way to move around the Internet.

World Wide Web uses hypertext and multimedia techniques to make the Web easy for anyone to roam, browse and contribute to Applications like Mosaic, Netscape created the capability to "browse the Web" and see a mix of text and graphics all tied together with hypertext style links. This created the current wave of interest in the Internet, and the demand for access spurred numerous small companies to start provider services. Two protocol architectures have served as the basis for the development of interoperable protocol standards: the TCP/IP protocol suite and the OSI reference model.

2.4.2 TCP/IP

TCP/IP is an Internet based standard and is the framework for developing a complete range of computer communications standards. Communication task for TCP/IP can be organized into five relatively independent layers:

- Application layer contains the logic needed to support the various user applications. For each different type of application, such a file transfer, a separate module is needed that is peculiar to that application.
- Transport layer the two most important protocols in this layer are TCP and User Datagram Protocol (UDP). TCP provides reliable data delivery service with endto-end error detection and correction. UDP provides low-overhead, connectionless datagram delivery services.
 - TCP TCP is reliable, connection-oriented and byte-stream protocol. It is the most commonly used protocol for services on the Internet. Telnet, FTP, SMTP and HTTP are some of the TCP based services. TCP provides a reliable, bi-directional connection between two end points.
 - UDP provides a connectionless service for application-level procedures. UDP does not guarantee delivery, preservation of sequence, or protection against duplication. UDP enables a procedure to send messages to other

procedures with a minimum of protocol mechanism. Some transactionoriented applications make use of UDP; one example is SNMP (simple network management protocol), the standard network management protocol for TCP/IP networks.

- Internet Layer Procedure to allow data to traverse multiple interconnected networks, in the case where two devices are attached to different networks.
 - 4. Network Access Layer is concerned with the exchange of data between an end system and the network to which it is attached. The sending computer provides the network with the address of the destination computer, so that the network may route with the data to the appropriate destination.
 - 5. Physical Layer covers the physical interface between a data transmission device and a transmission medium or network. This layer is concerned with specifying the characteristics of the transmission medium, the nature of the signals, the data rate and related matters.

2.5 Client Server Computing

A Client-Server system is a network of computers in which some of the computers (called clients) process applications while other computers (the servers) provide services to the clients. This way, workloads of computers are distributed evenly, depending on the function of each computer. The workloads can be of anything, from file processing, database processing, to a more complex workload like mail management (e-mail).

2.5.1 Why Client Server

In legacy systems, the processing of data is done only at the host computer (in the mainframe computer). Processing is never before done at the satellite computer-level because the dumb terminals are not designed to process information. It is only designed to send or pass information to the mainframe. The mainframe then will take care of the processing, and the retransmission of the processed information back to the dumb terminal that requested the processing to display the output. In client server architecture,

the satellite computers (client) are designed to do immediate processing before passing the information/requested processing to the host (server). This way, the burdens of the host's resources (CPU and memory) are reduced. The hosts are now needed to do only some of the processing because the other portions of processing were already done at the client levels. The main idea of Client server is to distribute data storage, data access logic (processing required to access data), application logic (computer applications), and presentation logic (presentation of information to the user and the acceptance of the user's command) to improve the performance of processing user's task.

2.5.2 Operational of Client Server

The Server machine contains the server operating systems, database management systems (DBMS), and the network communications software to connect the many clients to the server. On the other hand, the clients consist of the application program, DBMS driver, and network communication software. This way, if one party wants to do queries of databases, the client computer will access the database using the programs installed in it (presentation logic). Next, the query command - processing and formatting will take place on the client computer (data access logic). Lastly, the query of the database will be done at the server computer using the DBMS programs installed (application logic and data storage). This kind of a system configuration is more efficient compared to a teleprocessing computer systems, where the host have the entire component contained in a client computer and a server computer installed in it. It is the application programs, DBMS, Operating systems, and the database itself. It is a burden the host CPU will have in processing both the query command processing and formatting and the query of the database itself

Major key points of why implementing Client Server architecture:

- Price/performance ratios
- Shared processing
- Application control
- Scalability based on company needs

GUI (Graphical User Interface),
 highly interactive end-user interface

2.5.3 Types of Client Server Architecture

Client Server Architecture can be of any configuration, depending on the purpose and the need of the systems. The principal of distributing client server architecture is to improve performance. The first type of client server configuration is the 2-tier client.

This type of architecture is the simplest and the most common configuration found in client server models. It is called 2-tier client architecture because it has only 2 tier or layer of networked computer. In this model, network operating system has to be in both sides (client and server) in order to have communications among all of the computers. GUI interfaces that are linked to application programs are loaded at client side. GUI is one of the most important aspects of Client server computing. With GUI, less training is needed to train users on how to run the systems because GUI is relatively easy to use and navigate. The application programs at the client side then have to be connected to another application program at the server for the specified task (e.g.: database query) via an application program driver (DBMS driver) that resides on the client side. Without the corresponding task-specified application programs on the server side and its driver on the client side, client server architecture will not accomplish the designated task. In client server architecture, we can always choose different program from different vendors to be loaded to the servers and client computers as long as they can interface with each other.

3 -Tier Client:

This type of architecture is a lot more complicated compared to the 2-tier client architecture. The basic understanding of 3-tier client is the same as the 2-tier client model the only difference is that there are another layer of servers between the main servers and the clients. Compared to 2-tier client architecture, 3-tier architecture operates more efficiently. With 3 tier client, the workload of the central server is distributed over other servers before it actually interacts with the clients.

The second tier servers are usually distributed over a Wide Area Network (WAN), or distributed based on the tasks of each server (database server, mail server, file server, etc.). The complications are added with more network application programs, operating systems, and task application programs, which connect all of the servers and clients over a wider range of computer networks. All of these can be accomplished by using programs from a single vendor or many different vendors. These kind of configurations have the most likeliness to have association with multiple task-specified application programs, creating more complex systems to manage.

N-tier Client

If there is more than 3-tier layer of networked computers, it is projected in numerical progression as a 4-tier client model, 5-tier client model, and so on. The more tier there is, the more efficient the processing will be. The more servers we have, the more network complications also we will have. This problem need to be considered seriously because adding more servers will not benefit us if the networks we have does not have the capability to support more servers.

2.6 User Interface

An user interface allows one or more individuals to have access to and command the computer systems. User interface that is most implemented today is graphical user interfaces (GUI) where it is an interface that uses pictures or icons on the screen and menus to send commands to the computer system. GUI's are easier to learn and use because complicated commands are not usually required. Advantages of using a graphical user interface:

- Performing tasks in a GUI environment is intuitive.
- The applications are consistent
- The applications are flexible
- GUIs support multitasking
- The applications can be easy to use.

- GUI allows a user to cancel or undo if mistakes are done.
 - GUI's often ask user to confirm important operations.

2.7 Web Server

Web server is a piece of software running on a computer that distributes web pages to users on demand, and provides an area in which to store and organize the pages of a web site. The machine that runs the web server software could be a remote sitting at the other side of your network, or even on the other side of the world, or it could very own home machine. The term client-server probably overuse but in fact when use to describe the working of the web, it's almost perfect.

2.7.1 Internet Information Server version 5.0 (IIS 5.0)

Microsoft's Internet Information Server can be used to perform as the web server on the Service Tier of the Web-based Counseling System. Primarily, the advantage of using Internet Information Server is:

- Simple to configure and use
- Being a powerful tool that runs well on windows 2000 server
- Supports the usage of other Microsoft technologies, such as ASP that allows the Web-based Counseling System achieve the requirement of being scalable, portable and flexible.

The usage of the Internet Information Server is rather important as it is responsible for tying together the separate modules, since all the application have portions requiring web transport and script execution. The final integration of all the separate modules will enquire all the modules to be accessible through the Internet Information Server. In other words, the Internet Information Server will be one of the base means of information flow. Also the security features of the Internet Information Server are tied with windows 2000 server and therefore user consolidation is simplified.

2.8 Operating System

2.8.1 Windows 2000 Server

The Windows 2000 Server operating system integrates Internet technologies across all services, from File and Print to advanced application services. This helps ensure organizations can more effectively exchange information with users worldwide.

Windows 2000 Server meets the needs of a broad spectrum of users, from corporate intranets to Internet Service Providers hosting Web sites receiving millions of hits per day. Because Internet Information Server 5.0 (IIS) is fully integrated at the operating system level, Windows 2000 Server lets organizations add Internet capabilities that weave directly into the rest of their computing infrastructure.

2.8.2 Windows NT

Windows NT is a Microsoft Windows personal computer operating system designed for users and businesses needing advanced capability. NT's technology is the base for the Windows 2000. Windows NT is actually two products: Microsoft NT Workstation and Microsoft NT Server. The Workstation is designed for users, especially business users, who need faster performance. The Server is designed for business machines that need to provide services for network-attached computers. The server is required, together with an Internet server such as Microsoft's Internet Information Server (IIS), for a Windows system that plans to serve Web pages.

2.8.3 Unix

UNIX is an interactive time-sharing system. UNIX has evolved as a kind of large freeware product, with many extensions and new ideas provided in a variety of versions of UNIX by different companies, universities, and individuals.

Partly because it was not a proprietary operating system owned by any one of the leading computer companies and partly because it is written in a standard language and embraced many popular ideas, UNIX became the first open or standard operating system that could be improved or enhance. UNIX operating systems are used in widely-sold

workstation products from Sun Microsystems, Silicon Graphics, IBM, and a number of other companies. The UNIX environment and the client/server program model were important elements in the development of the Internet and the reshaping of computing as centered in networks rather than in individual computers.

2.9 Databases

A database is an organized collection of data in form of records. It can also be defined as an organized collection of data in form of records in an organization common to all users, and is stored with minimal or no duplication.

2.9.1 Advantages of databases

From the definition of the term database, it has the following advantages:

• Enhanced security

Due to the fact that all the data in an organization from different departments is stored in a central place it is easy to ensure that maximum security is implemented.

Reduced redundancy

Redundancy comes about when data is duplicated. This is a major disadvantage because it will mean additional costs of storing the same data and also security expenses.

Organization structure

Databases present the real working of an organization on the basis that the output of one department can very likely be the input of another department.

2.9.2 Microsoft SQL Server 2000

Microsoft SQL Server 2000 is a product that meets the data storage and analysis requirements of the largest data processing systems and commercial Web sites. The same

products can provide easy-to-use data storage and analysis services to an individual or small business. SQL Server 2000 offers:

- A modern relational database engine that can scale from running on an individual desktop to running the largest Web sites. SQL Server 2000 is integrated with Microsoft Windows 2000 fail over clusters to provide exceptionally reliable data servers, and integrated with Windows 2000 authentication and encryption to implement secure systems.
- Integration into the Microsoft data access environment. SQL Server 2000
 provides native support for ADO, OLE DB, and ODBC. SQL Server also
 introduces integrated support for Web-based application development, supporting
 HTTP access using URLs, and returning data as XML documents.
- An integrated set of Analysis Services tools for performing complex data analysis and data mining of data warehouses.
- Replication services, which allow sites to place copies of data on multiple computers to improve overall system performance while keeping the data synchronized.
- Data Transformation Services (DTS) that make it easier to build OLAP data warehouses. DTS provides powerful services that allow records of individual transactions to be transformed into summary information stored in a data warehouse.
- English Query, which applications can use to answer ad-hoc user questions. When given a string containing a question about the data in a database or data warehouse, English Query returns an SQL or MDX statement that can be run to get the answer.
- Full-Text Search, which extends the pattern matching capabilities of SQL Server 2000 beyond the simple pattern matching available in the SQL language, including searches in files stored outside of SQL Server databases.

 Meta Data Services, which provide facilities for storing, viewing, and retrieving descriptions of the objects in your applications and system.

2.9.3 Microsoft Access 97/2000

The Microsoft Access 97/2000 is a full-featured multi-user relational database management system that designed for the Microsoft Windows operating systems (such as Windows 9x, Windows NT, Windows 2000). Access 97/2000 is extremely visually oriented and easy to use. It makes extensive use of drag-and-drop and visual design for queries, forms, and reports.

Access 97/2000 comes with an integrated development environment (IDE), including incremental compilation, a fully interactive visual debugger, breakpoints, and single step-through. These capabilities combine to make Microsoft Access an extremely powerful platform for developing client-server database solutions.

2.10 Programming Tools

2.10.1 Active Server Page (ASP)

An Active Server Page (ASP) is an HTML page that includes scripts that are processed on a Microsoft Web server before the page is sent to the user. An ASP is similar to a server-side include or a common gateway interface (CGI) application in that all involve programs that run on the server, usually tailoring a page for the user. Typically, the script in the Web page at the server uses input received as the result of the user's request for the page to access data from a database and then builds or customizes the page before sending it to the requestor.

2.10.2 JSP

Java Server Page (JSP) is a technology for controlling the content or appearance of Web pages through the use of servlets. Sun Microsystems, the developer of Java, also refers to the JSP technology as the Servlet application program interface (API). JSP is
comparable to Microsoft's Active Server Page (ASP) technology. Whereas a Java Server Page calls a Java program that is executed by the Web server, an Active Server Page contains a script that is interpreted by a script interpreter before the page is sent to the user.

An HTML page that contains a link to a Java servlet is sometimes given the file name suffix of .JSP.

2.10.3 Java

Java is a programming language expressly designed for use in the distributed environment of the Internet. It was designed to have the visualization of the C++ language and enforces an object-oriented programming model. Java can be used to create complete applications that may run on a single computer or be distributed among servers and clients in a network. It can also be used to build a small application module or applet for use as part of a Web page. Applets make it possible for a Web page user to interact with the page.

The major characteristics of Java are:

- The programs that is created are portable in a network. The source program is compiled and can be run anywhere in a network on a server or client that has a Java virtual machine. The Java virtual machine interprets the bytecode into code that will run on the real computer hardware.
- The code is robust, unlike programs written in C++ or some other languages, the Java objects can contain no references to data external to themselves or other known objects. This ensures that an instruction can not contain the address of data storage in another application or in the operating system itself, either of which would cause the program and perhaps the operating system itself to terminate. The Java virtual machine makes a number of checks on each object to ensure integrity.
- Java is object-oriented, among other characteristics, an object can take advantage of being part of a class of objects and inherit code that is common to the class.

• In addition to being executed at the client rather than the server, a Java applet has other characteristics designed to make it run fast.

2.10.4 Visual Basic 6.0

Visual Basic is a programming environment from Microsoft in which a programmer uses graphical user interface to choose and modify preselected sections of cod written in BASIC programming language.

Since Visual Basic is easy to learn and fast to write code with it, it is sometimes used to prototype an application that will later be written in a more difficult but efficient language. Visual Basic is also widely used to write working programs

2.10.5 ActiveX

ActiveX is a set of strategic object-oriented programming technologies and tools. The main technology is the Component Object Model (COM). It is used in a network with a directory and additional support, COM becomes the Distributed Component Object Model (DCOM). The main thing that is created when writing a program to run in the ActiveX environment is a component, a self-sufficient program that can be run anywhere in ActiveX network. This component is known as an ActiveX control. An ActiveX control is roughly equivalent to a Java applet.

One of the main advantages of a component is that it can be re-used by many applications. A COM component object (ActiveX control) can be created using one of several languages or development tools, including C++ and Visual Basic, or PowerBuilder, or with scripting tools such as VBScript.

2.11 Web Browser

A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web. The word "browser" seems to have originated prior to the Web as a generic term for user interfaces that let us navigate through and read files online. Technically, a Web browser is a client program that uses the Hypertext Transfer Protocol (HTTP) to make requests of Web servers throughout the Internet on behalf of the browser user. Two most useful web browsers are Netscape Navigator and Microsoft Internet Explorer. These two browsers are the only two browsers that the vast majority of Internet users are aware of.

Chapter 3

Methodology And System Analysis

Chapter 3

Methodology and System Analysis

3.1 Introduction

System analysis is a procedure that needs to be undergoing before designing a system. This procedure helps in defining a problem, determine requirements of the system, gathering pertinent information, developing alternative solutions and choosing among those solution. The primary deliverable from system analysis was a listing of systems requirements and priorities. The purposes of this analysis phase are:

- To determine the needs or requirement of the user of the system.
- To acquire the knowledge on how does a web-based counseling system works.
- To find out the software and hardware need to develop and build up the system.
- To determine which methodology to used for analyzes and develops the system.
- To collect appropriate data and requirements and identify major components to be included in the system.

3.2 System Development Methodology

In order to perform implementation of the project using a standardized approach, a system development model would have to be followed. The methodology for the Webbased Counseling System implementation follows a system development model that is the synthesis of the Waterfall, Prototyping and Incremental development models.

Basically, the overall development is broken into distinct phases much like the waterfall model, with the exception that during the development of the Web-based Counseling System, prototypes are used.

The incremental aspect of the model comes in when additional functions are added iteratively to each of the module prototypes. Prototypes, which are basically working models of the system application, are used here to aid in identifying and clarifying the requirements and features that are needed. Functions are added incrementally so that, the framework is quickly developed and later on added with more features.

The initial stages of the development model are conducted on a general basis, covering most of the Counseling system as a whole. Upon reaching the prototyping stage, individual modules are developed separately and prototyping is also conducted separately from each other. During this time, the future integration needs of the separate modules also have to be catered for and are handled during this time for future needs.

Once each of the individual modules has been sufficiently developed to a reasonable stage of completeness, they are brought together for final integration into the Counseling system unifying the separate parts and forming a coherent system. Final testing is then conducted on the Web-based Counseling System for public used may be further added with more modules to increase its functionality.

3.2.1 Prototyping

Prototyping is a new and continuously emerging methodology to software development. Prototyping is useful in developing on-line systems because on-line systems are very difficult for systems designers to visualize if they are only working on paper. Using some kind of prototyping, at least for the flow of information to and from screens, is a natural solution to this problem for many designers.

Prototype is first full-scale and usually functional form of a new type or design of a construction and software prototyping is an information system development methodology based on building and using a model of a system for designing, implementing, testing, and installing the system.

Prototyping is done in a systematic way that can be described like it can be taught, scheduled, measured, compared, and modified - which are the components of any methodology. The characteristics of prototyping are :

- Prototyping is based on building a model of a system to be developed
- Prototyping uses the model for designing the system
- Prototyping uses the model to implement the system

• Prototyping uses the model to perform both the system and the acceptance testing of the system

There are several steps in the Prototyping Model:

- 1. The new system requirements are defined in as much detail as possible. This usually involves interviewing a number of users representing all the departments or aspects of the existing system.
- 2. A preliminary design is created for the new system.
- 3. A first prototype of the new system is constructed from the preliminary design. This is usually a scaled-down system, and represents an approximation of the characteristics of the final product.
- 4. The users thoroughly evaluate the first prototype, noting its strengths and weaknesses, what needs to be added, and what should to be removed. The developer collects and analyzes the remarks from the users.
- 5. The first prototype is modified, based on the comments supplied by the users, and a second prototype of the new system is constructed.
- 6. The second prototype is evaluated in the same manner as was the first prototype.
- 7. The preceding steps are iterated as many times as necessary, until the users are satisfied that the prototype represents the final product desired.
- 8. The final system is constructed, based on the final prototype.

The final system is thoroughly evaluated and tested. Routine maintenance is carried out on a continuing basis to prevent large-scale failures and to minimize downtime.

Prototyping Methodology presents the following principal advantages:

- Reduces development cost
- Decreases communication problems
- Lowers operations costs
- Slashes calendar time required
- Produces the right system the first time
- Cuts manpower needed.



Figure 3.1 : Prototyping Model

plication de application and accommodate relevant enswarts for questions3.3 Analysis on existing Counseling System

3.3.1 Modules included in existing system

Existing Web-based counseling system consist of the following :-

a.) Web based User Information

- view, delete and update user information, around-the-clock, around-theglobe.

b.) Web based Search Administration

a comprehensive search engine based on name, description or any other criteria to retrieve handle number, release schedules and other relevant information instantaneously. Users information can be easily modified through simple forms on the system and immediately sent to all users. Staff can make modifications to the forms and database on the central server and from there reach all users.

c.) Web based user management

provide administrative functions to manage user details and contacts.

d.) Solution provider

 provide administrative functions to review solution given and quick access to detailed description for each users stage.

e.) Report

- provide extensive reports over the web for the staff.

f.) Printable reports

- provide simple and custom made forms to print reports from the web page.

g.) Downloadable Reports into Excel CSV Format

provide administrative functions to download reports into Excel CSV format for review.

h.) Help Desk/FAQ Application

 develop sub module application and accommodate relevant answers for frequently asked questions.

i.) E-mail Notifications

provide email notification functions for each batch update and transaction.

j.) Admin Area

provide login menu so that admin can log in and use several functions provided.

k.) What's New Area

 provide a bulletin board so user can receive news, memo and notification from different counselor.

I.) Web Security

 provide relevant application security to prevent fraudulent access to website. These include the proper method to allow registered user, administrative functions to prevent illegal access and login to the system.

3.3.2 Existing System's Strength

- Search Engine to enhance searching for solutions
 The existing system provides a effective search algorithm to find out relevant information easily and fast.
- Better Maintenance for Information and File Keeping
 Information in the system's database can be view, update and delete by the administrator. The counseling information is kept under controlled and ease for maintenance.
 - Representing analysis in report format

The existing system provides forms to print reports from the web page where the administrator can view the report easily after analysis have been done.

E-mail Notifications

The existing system provides email notification functions to inform the users for system updating.

3.3.3 Existing System's Weakness

Does not support real time information exchange

The current system only receive request from the user and provide counseling information through search engine. It does not support real time information exchange between counselors and users by using chat room.

- No record of the users activity When the user access the page, there is no algorithm to keep the user activities and therefore the characteristics of the users can not be easily know. This is very hard for counselors to be more familiar with the user characteristics.
- Does not involve professional counselors
 The existing system does not involve any professional counselors. Therefore, the users may not thrust fully on the system.

3.4 Requirement Analysis

The IEEE standard 610 (IEEE Standard Glossary of Computer Languages, 1993) defines a requirement as a condition or capacity needed by the system developer to solve a problem or to achieve an objective. Another synonym for requirement is a condition that must be met or possessed by a system or system component to satisfy a contract, standards, specification or other formerly imposed documents.

According to the Standard, requirements are partitioned into functional requirements and non-functional requirements. Functional requirements are associated with specific functions, tasks or behaviors the system must support, while non-functional requirements are constraints on various attributes of these functions or tasks. In terms of the ISO quality characteristics for evaluation, the functional requirements address the quality characteristic of functionality while the other quality characteristics are concerned with various kinds of non-functional requirements.

Because non-functional requirements tend to be stated in terms of constraints on the results of tasks which are given as functional requirements(e.g., constraints on the speed or efficiency of a given task), a task-based functional requirements statement is a useful skeleton upon which to construct a complete requirements statement. It can be helpful to think of non-functional requirements as adverbially related to tasks or functional requirements: how fast, how efficiently, how safely, etc., is a particular task carried out by a particular system.

3.4.1 Functional Requirements

The functional requirements specify what actions a design must provide in order to benefit the users of the system enough to justify its existence. Web-based Counseling System functional requirements covering the following specifications:

• Search Module

The main purpose of developing Web-based Counseling System is concentrate in the Search Module. This system prepares a search engine for user to key in search words. The search words will be search through the related databases to find for suitable solution and principles regarding the search words. This is the fastest way to help user find out their solution.

Pen-pal Module

Pen-pal column section is only available for teenagers and youngsters. This is a simple utility to help teenagers to meet with more friends. If the user agrees to add their name to the pen-pal column they need to fill in a simple form as agreement.

Backend Administration Module

Backend Administration Module is another section of the system use to maintain the front-end system. The sub module of the Backend Administration Module are:

User/Counselor/Administrator profile module

This is to allow the administrator to view the general profile of the users, counselors or administrators. This section also include add new administrators and counselors.

o Database Update Module

Counseling information stored in the database can be view, add, delete or update by the administrator. They even can add new table or delete table in the database.

o Message Board Module

Message board will be control by counselors or administrators to add new announcements or information updates which will be shown to the users in the web page. They can update the Message board as often as they want.

• Feedback Review Module

Users comments will be store in the database after they sent it. The administrator or counselors may view the feedback and enhance the web system to meets users needs.

3.4.2 Non-Functional Requirements

The non-functional requirements specify certain criteria, which the system must satisfy in order to be useful and/or successful. While these criteria are not actual actions taken by the system, they are further restrictions on what the system must be able to handle. The non-functional requirements that have to be embedded into Web-based Counseling System can be categorized in the following aspects :

User friendliness

The system interface design should be user-friendly to let users master Web-based Counseling System easily, without causing any difficulties in manipulating the required functions.

Maintainability

The problems that occur in the system should be easily detected, understood, debugged and recovered.

Reliability

- System should be reliable involving the availability and integrity of information maintained and supplied to Web-based Counseling System.
- Security

The user-name and password are added features that will permit only an authorized user to access the system periodically.

Performance

Time/space bounds, such as workloads, respond time and throughput are factors considered in order for Web-based Counseling System to function at its optimum performance.

Expandability

The degree of expandability should be high in order for the system to be enhanced into better version in the future.

3.5 Development strategies

3.5.1 Windows 2000 Server

Windows 2000 Server is selected for the Web-Based Counseling System because it lets organizations:

Share information more efficiently using the Web.

In the past, performing standard file operations on a network file share was much easier than performing similar operations on a remote Web site. Now, Windows 2000 Server technologies such as Web Distributed Authoring and Versioning (WebDAV) make it as easy to carry out standard file operations on a Web share.

Create Web-based business applications.

Creating Web-based applications that integrate well into traditional business applications can be difficult. Windows 2000 Server overcomes this burden by sharing internet-aware application development tools with IIS, an efficiency that extends applications to the Web and eliminates awkward bridges between internal and external processes.

Bring server operating system functionality to the Web.

In addition to allowing organizations to extend basic file and print services to the Web, Windows 2000 Server supports applications, media, and communications and networking services from a common server platform. This convergence means that everything a company can do with Windows 2000 Server is automatically supported in a fully integrated Web environment

3.5.2 Microsoft SQL Server 2000

Microsoft SQL Server 2000 is selected as the data storage for counseling information and user profile. Microsoft SQL Server is an enterprise-level database. As a client/server database, provides greater scalability and reliability for mission-critical data. Microsoft SQL Server can support thousands of users with terabytes of information and provide other enterprise-level database capabilities. For example, SQL Server offers support by providing the ability to conduct administration and maintenance while the database is online. It also protects against data loss with a two-phase commit, which can be useful if a particular transaction is interrupted midstream due to power outage.

MSDE is fully compatible with the SQL Server 2000 code base, enabling developers to write one application that scales from a PC running the Windows 95 operating system to multiprocessor clusters running Windows NT Server, Enterprise Edition. Several technologies are included in MSDE, such as dynamic locking, which automatically chooses the optimal level of lock (row, key range page, or table) for all database operations. This maximizes the tradeoff between concurrency and performance, resulting in optimal usage. Dynamic self-management enables the server to monitor and manage itself, allowing for hands-off standard operations. Merge replication allows users to modify distributed copies of a database at different times, online or offline, and combine all the work later into a single uniform result.

Through its use of SQL Server 2000 technology, MSDE allows users to pose questions in English instead of forming queries with complex SQL statements. In addition, MSDE supports parallel queries, allowing steps in a single query to be executed in parallel

3.5.3 Active Server Page 3.0 (ASP 3.0)

After analysis, Microsoft Active Server Pages (ASP) is selected to develop the web system. It is a server-side scripting environment that can be used to create and run dynamic, interactive Web server applications. With ASP, we can combine HTML pages, script commands, and COM components to create interactive Web pages or powerful Web-based applications, which are easy to develop and modify. Several advantages of ASP 3.0 :

Active Server Pages Are Browser Independent

An Active Server Page is executed on a Web server and not within a browser. This means that an Active Server Page is not dependent on the capabilities of a browser. Unlike Javascript, Active Server Pages can be written so they work with any browser.

- Active Server Pages Use Scripting Languages
- An Active Server Pages is written using scripts. This means that an Active Server Page is easy to modify. Bugs discovered in an Active Server Page page can be opened with notepad and make a quick modification without recompiling the application.
- Active Server Pages Provide Easy Database Access

Capability of easily perform complex database tasks within an Active Server Page. It uses the same database access technology in an Active Server Page as would within Visual Basic or Visual C++ (the ActiveX Data Objects).

3.5.4 Microsoft Visual Basic 6.0

For backend administration application, Microsoft Visual Basic is suitable because it is the fastest and easiest way to create applications for Microsoft Windows. It provides a complete set of tools to simplify rapid application development. Visual Basic has evolved from the original BASIC language and now contains several hundred statements, functions, and keywords, many of which relate directly to the Windows GUI. Tools. It has advantages such as:

- Data access features to create databases, front-end applications, and scalable server-side components for most popular database formats, including Microsoft SQL Server and other enterprise-level databases.
- ActiveXTM technologies allow the uses of the functionality provided by other applications, such as Microsoft Word word processor, Microsoft Excel spreadsheet, and other Windows applications.
- Internet capabilities make it easy to provide access to documents and applications across the Internet or intranet from within application, or to create Internet server applications.
- The finished application is a true .exe file that uses a Visual Basic Virtual Machine that can be freely distribute.

3.5.5 Hypertext Markup Language (HTML)

In order to successfully develop a web page, HTML is the language used to define the content of Web pages. In its basic structure, HTML is quite simple, consisting of tags that precede or bracket various types of information. A web browser is able to read the HTML language in a page and translate it a displayable image.

3.5.6 Dynamic HTML (DHTML)

One of the ways to ideally develop a web page that is attractive is using Dynamic HTML. It represents the combination of HTML, cascading style sheet (CSS) and scripting languages DHTML enabling authors to dynamically change the rendering and content of a document and it gives authors the ability to create visually outstanding HTML documents that interact with the user without the burden of relying on server-side programs or complicated sets of HTML pages to achieve special effect such as:

- Hide text and images in document and keep this content hidden until a given time elapses or the user interacts with the page.
- Animate text and images in your document, independently moving each element from any starting point to any ending point, following a path that you choose or that you let the user choose.
- Create a ticker that automatically refreshes its content with the latest news, counseling information or other data.
- Create a form, then instantly read, process and respond to the data the user enters in the form.

3.5.7 VBScript

VBScript lets the user interact with a Web page rather than simply view it. There are many possible scenarios for this interaction. For instance this capability to interact makes it possible for web pages to ask questions and respond to how the user answers them. VBScript can then take input from the user and check the data to make sure it is valid or meets certain criteria. Then, it can put an Internet server to work either by

actually storing the data or causing some action to take place on the server based on the information given.

Another important aspect of this programming model is that we can also use the intrinsic HTML form controls and Microsoft's ActiveX controls with VBScript to give Web pages an attractive look and feel. We can also use Microsoft's vast array of OLE controls in VBScript, which opens up a whole world of possibilities for Web pages.

With VBScript and the right controls, we can even create 3D animation effects, making the web page come alive with moving objects in response to certain events.

3.5.8 JavaScript

JavaScript is a scripting language for HTML and the web browsers. JavaScript "scripts" are small programs that interact with web browsers and the HTML content of a page. JavaScript can be used to create program to add sound or simple animation, pre-validate a form before the user's response is sent to the system's administrator, search through database, set options based on user preferences and much more.

JavaScript offers a scripting language accessible to "mere mortals" allowing almost anyone to use it in the web pages. JavaScript closely follows the web principle of bringing electronic publishing to the general public.

3.5.9 ODBC

ODBC allows a single uniform language to access different databases, instead of using the propriety language of each database by designing a standard set of API's. By using ODBC, we can deal with a level of abstraction above the particular database. Specifically, ODBC is an API for accessing, manipulating and creating databases. It is based on the X/Open Call-Level Interface and uses SQL.

When we access a database through ODBC, the database must be registered as an ODBC datasource. By registering the database as a datasource, the application only needs to know its datasource name. The location of the database makes no difference, nor even what the type of database it is.

There are three types of data sources can be created :

- i.) System datasource one that is available to any user of the system.
- ii.) User datasource one that is only available to that user.
- iii.) File datasource a description of the database. It can be used to hook up to the database without having to register the database itself with the system.

Chapter 4

System Design

Chapter 4: System Design

4.1 Overview

System design is a process through which requirements are translated into a model or representation of the software. System design is a very important factor in a system development as it determines the success of a system. The system specification describes the features of a system, the components or elements of a system and their appearance to users. The purpose of system design is to select and plan system that meets the requirements needed to deliver the problem solution. System design results in a new or modified system and thus results in change.

The Web-based Counseling System is designed along two dimensions: logical and physical.

4.1.1 Logical Design

The logical design describes the functional requirements or purpose of Web-based Counseling system. Its specifications that are determined and documented include:

- Output design Output design describes all outputs from the systems and includes the types, format, content and frequency of outputs.
- Input design Once output design has been completed, input design can begin.
- Processing design The types of personality of users, comparisons and general data manipulations required of the system are determined during processing design.
- Files and database design Web-based Counseling system requires the use of files and database systems.
- Telecommunication design the network and telecommunication systems should be specified.
- Procedure design All systems require procedures to run applications and handle problems if they occur. Once designed, procedures can be described by using text and word processing programs.

 Controls and security design – another important part of the logical design is to determine the required frequency and characteristics of backup systems.

4.1.2 Physical Design

The physical design specifies the characteristics of the system components necessary to put the logical design into action. The physical design must specify the characteristics of each of the important system components below:

- Hardware design all computer equipment including input, processing and output devices must be specified by performance characteristics.
- Software design all software must be specified by capabilities.
- Database design the type, structure and function of one or more database must be specified. The relationships between data elements established in the logical design must be mirrored in the physical design as well.

4.2 User Interface Design

GUI approach has been applied to the entire application. Some other principles of consistency, responsiveness and reverse action are also included.

This phase careful design of the arrangement of functionality and modules to avoid having a page with too many functions.

The user interface for this system is developed using Microsoft FrontPage. Multimedia tools such as Adobe Photoshop and Macromedia Flash is used to create some beautiful images and animation to make the interface more attractive.

4.2.1 Web Page Design

The following will show some example of the screen design for the web page.



Figure 4.1: Default Page for Web-Based Counseling System

This is the initial page where the users first access to our web page. This main page includes search box for user type in problems, login section for user login to access all the services we provided, message bulletin to inform the updates announcements, description of various problems regarding academic, career and teenage and finally there are buttons to link to another part of our system such as chat room, forum, analysis feedback, extra and help.

_101×1

Am DIGLE 4 11	g g g search g	Inavolues Carlistory 23* 2		
uddress [@] hu	p://localhost/foryou_1/login_success	.htm		(PGOLinks >>
Tor	You*	Welcome to For)	fou Counseling Syste	1
1	Register Ma	Meet with them	e Remove Me	What's New ?
26-2			Email	Qoss (des in the Parure - (\$2/13/3091)
	Wong Kok Seng	32 Male	kokseng@hotmail.com	
	Meow Ching Sim	40 Male		Try oun our chas norm, chas with consultar ordine (22/21/2001)
				New Counteding Software weating for you as explored (33/1390)

Figure 4.2 : Interface for Pen-pal Column

Pen-pal column is one of the extra utilities to increase the attraction of the web system. It is special design for teenagers and youngsters to mix around with more friends. Using this pen-pal column, they can easily find new friends by just sending emails. The design of the interface is more colorful in order to attract the teenagers.

Login Name :	Administrator	
Password :	4.1.5	
	Lagin	K
	ANT THE T	99

Figure 4.3 : Interface for Backend Administrator Application

The backend administrator application is developed mainly for administrator to maintain the efficiency of the web page. Only the administrator and counselors who has password will be able to access this system.

ForYou ^x Counseling System		
Services		
Database Update		
View User Profile		
Message Board Update	A N	
Feedback Review	1 22 0	

Figure 4.4: Menu Choices for Administrator

After the administrator or counselor has login, the system will direct them to the menu of choices where it consists of choices such as:

Database updates - to updates the counseling information in the database.

View user profile - to view the profile of the users who have registered to our system.

Message board update – for administrator or counselor to add the update announcement for user reference.

Feedback review – the administrator or counselor may view the comments sent by the Users.

	Database Update
Problems Keyword	Tabalan
alcohol prevention	Solution
Contraction of the second s	Explore emotions of hurt and fear unde Remember that anger stems from fear and a
communicate with kids	Develop empathetic understanding Understanding their situation point of view
druga	Assume the best intentions Try to assume the best intentions from neonly
estan	Is "Farmess" or "Justice" an underlying The farmers doctrine states that "Life should
family	Estamine underlying expectation Examine your underlying expectations about
fear	Choose happiness instead of anger Holding on to anger has other call destaution
good marnage	Click as the Fachland Karley
holday depression	Click britise Problems Keyword
moral rules	
nervous	
notes	
reading	Charles and the second frankling and sail of States
relationship	
nme	Add New Problems
America	the second se

Figure 4.5: Interface for Database Update by Administrator

This is one of the important part of the administrator system where the administrator or counselor who wish to make changes to the counseling information can easily do it here. They can add new table, add new records, delete records or update records if there is a need.

4.3 Program Hierarchy Chart

Web-based Counseling System is constructed by a collection of independent but interacting modules. The following figures show those modules in hierarchy charts. The system is mainly divided into two sections, which is user section and administration section. User section is the front-end section that is visible and accessible by all the users and administration section is the back-end section which is only visible to counselors and administrator who has the rights to access the administration system.

User section will includes sub-sections such as authentication and authorization, search, chat room, forum, analysis, message board, feedback and help. The administration section will have sub-sections such as authentication and authorization, database maintenance, client profile, message board updates and feedback review. The combination of the two section will be our complete Web-based Counseling System.



Figure 4.6: Web-Based Counseling System hierarchy chart Part I



Figure 4.7: Web-Based Counseling System hierarchy chart Part II

52



4.4 Data Flow Diagram

Data flow diagrams are a network representation of a system. They are the cornerstone for structured systems analysis and design. The diagrams use four symbols to represent any system at any level of detail. The four entities that must be represented are:

- data flows movement of data in the system
- data stores data repositories for data that is not moving
- processes transforms of incoming data flow(s) to outgoing data flow(s)
- external entities sources or destinations outside the specified system boundary

Data flow diagrams do not show decisions or timing of events. Their function is to illustrate data sources, destinations, flows, stores, and transformations. The capabilities of data flow diagramming align directly with general definitions of systems. Data flow diagrams are an implementation of a method for representing systems concepts including boundaries, input/outputs, processes/sub processes, etc.

4.4.1 Data Flow Diagram for Proposed System

To have a rough idea about how the system flow before the development of the system is put into action, a rough DFD diagram is built according the user expectations and needs.



Figure 4.9 Context Diagram



Ignore 4.11. Dana Klew Duggrom Land



Figure 4.11: Data Flow Diagram Level-2

4.5 Database Design

Database for Web-based Counseling System is a relational database model. A relational database is perceived to be a collection of tables on which data are stored. Each table is a matrix consisting of series of row and column intersections. Tables are related back to each other by sharing common entity characteristics. For example, keyword is the common field name in most of the tables. The common link between these tables, make it easy to connect data from these tables which is completely independent of one other.

Normalization reduces data redundancies but does not eliminate it. It also helps to eliminate data anomalies that result from data redundancies. The database for Web-based Counseling System is normalized to third normal form.

The tables in Web-based Counseling System are as follow:

Field Name	Data Type	Length	Description
userID	nvarchar	12	User identification
password	nvarchar	8	User password
firstname	nvarchar	20	User first name
lastname	nvarchar	20	User last name
dob	smalldatetime	4	Date of birth
age	int	4	User age
gender	char	6	Gender
occupation	nvarchar	30	User occupation
phone	nvarchar	20	Telephone number
email	nvarchar	40	Email address
address	nvarchar	50	User permanent address
postcode	numeric	5	Postcode number
state	nvarchar	15	State name

Table 1: User Registration Table

country	nvarchar	15	Country name
usertype	nvarchar	1	Type of user such as
Scope	menuchine	10, 11,	counselor or user
counselor	nvarchar	12	Counselor's ID
secret question	nvarchar	100	Question that help
Keywords	a varehar	104	user to remember password
answer	nvarchar	100	Answer to the secret
	-		question

This table will store all the relevant personal data of the WBCS users. The user_ID is unique for every user and the password is determined by the user. All the personal data that the user provides are highly confidential. The user can change the information when there is a need.

Table 2: Feedback Table

Field Name	Data Type	Length	Description
Ender	nvarchar	12	User ID of the user who send the feedback
Date	smalldatetime	8	Date of the feedback sent
Title	nvarchar	30	Title of the comment
Comments	nvarchar	200	Contents of the feedback

This table will store all the feedbacks that the users sent through the WBCS web

page.

Table 3: A	nalysis	Table
------------	---------	-------

Field Name	Data Type	Length	Description
Scope	nvarchar	30	Scope of information that
	nvarehar	100	WBCS provides such as career, academic
Keywords	nvarchar	200	Keywords that belong to that scope such as academic can have school, teacher
no_of_hit	int	4	It will store how many times that this scope of information is needed by the user

This table is used to calculate the percentage of users who seek for information on the same topic. When the user enters a string of words in the search box, the string of words will be checked whether it matches with the word in keywords column. If it is matched, the no_of_hit will increase one. This table is used to draw a bar graph to show the percentage of information that the users needs when they access to WBCS.

Table 4: User Personal Record Table

Field Nama	Data Type	Length	Description
Date	smalldatetime	8	The date that the user enter WBCS web page
Problem	nvarchar	100	The whole string that the user type into the search box

This table will keep the whole string of words that the user type in the search box. So, every user will have his own table to keep his search string. So the table's name is the same as userID.

Table 5: Problems Table

Field Name	Data Type	Length	Description
Problem	nvarchar	50	Problem's title
keyword	nvarchar	100	Keywords of that problem
solution_link	nvarchar	25	The name of the table to store all the
	Dets Type	Longib	solutions for that
	nearchar	1	particular problem.

This table will list out all the problems under a particular table.

Table 6: Problem Solution Table

Field Name	Data Type	Length	Description
Solution	nvarchar	50	Title of the solution
description	nvarchar	500	Description of the

This table will store all the solutions for a particular problem.

Table 7: Message Board Table

Field Name	Date Type	Length	Description
writedate	smalldatetime	4	The date the message write
Message	nvarchar	100	The contents of that message

This table will store all the messages that will show on the WBCS. The administrator is responsible to write the message to tell the users of WBCS about the major events that will happen on WBCS.
Table 8: Pen-pal Table

Field Name	Data Type	Length	Description
userID	nvarchar	12	Username

This table will store the userID that was registered to the pen-pal column.

Table 9: Job Table

Field Name	Data Type	Length	Description
CompanyName	nvarchar	40	The name of the company
Position	nvarchar	30	Name of the Position
TotalVacancy	nvarchar	2	How many vacancy available
Fmail	nvarchar	30	Company's Email
Expired days	nvarchar	2	Publish duration
Register date	smalldatetime	4	Register date

This table is used to store the company details that want to publish its vacancies to the WBCS users.

Chapter 5

Implementation

Chapter 5

Implementation

5.1 Implementation

System implementation is a process of developing a system based on the given requirements. In order to do that, appropriate tools and suitable languages are needed to code the programs. A number of software was chosen in this case.

5.2 Development Environment

Development environment has certain impact on the development of a system. Using suitable hardware will help speed up system development. The hardware and software tools used to develop and documented the entire system is as discuss below.

5.2.1 Hardware Requirement

The hardware used to develop this project are listed below :

- 1.5 GHz Pentium 4 Processor
- 256 MB RAM
- 52X CD-ROM Drive
- 20 GB Hard Disk
- Canon 210 BJC Printer
- Voodoo Banshee 3D Accelerator Card
- 15" Color SVGA Monitor
- Standard Keyboard
- Mouse
- 1.44 MB Floppy Drive

5.2.2 Software Tools/Components requirements

Software Tools for Design and Report Writing

Microsoft FrontPage and Adobe Photo Shop was used to do the graphical design and Microsoft Word 2000 was used to do the documentation and user manual.

Software Tools for Development

A few software tools were used to develop the FYCS system. They are listed as below:

Software/Tools	Purpose	Description
Windows 2000 Server	System Requirement	Operating System (OS)
Microsoft SQL 2000	Database	Use as system database to store user information and counseling data.
Microsoft InterDev 6.0	Coding the system	Coding ASP and HTML
Microsoft FrontPage 2000	Interface design and coding	Design web page interface and coding HTML
Adobe Photoshop	Interface design	Create image
JASC Animation 3.0	Graphics design	Create animate graphics
Xara 3D	Text design	Create animate and 3D text
Microsoft Visual Basic 6.0	Backend application coding	Develop the Administrator application system

5.3 Development of Proposed System

The following section will discussed the development of this system which is more on focusing on the analysis of the usage of the technology and development tools that had been used.

5.3.1 Database Development

FYCS required a large and powerful database and therefore Microsoft SQL 2000 is used on developing this system. Microsoft SQL 2000 is a very powerful database server which can support unlimited amount of record and its security features are very reliable. Due to the information stored for FYCS are highly confidential, Microsoft SQL 2000 security features meets the requirement.

5.3.2 User Interface Development

The user interface for this system was developed using Microsoft FrontPage 2000 whereas the animate graphics is created using JASC Animation 3.0. In order to make an attractive web-page interface, animation is very important and JASC Animation 3.0 is very suitable for this purposes. Then Xara 3D is used to create the animate text for the system logo and others. Adobe Photoshop is used mainly to enhance the image of all the overall graphics and images.

The coding for this system is done using Microsoft InterDev and also Microsoft FrontPage 2000.

5.3.3 Application Development

The application of FYCS involve two parts which is the main web-page (frontend) and the administration application(back-end). The development of both application required creating and designing the user interfaces, coding and liking the application to the database.

Structured Programming

Structured Programming is a technique for organizing and coding computer programs in which a hierarchy of modules is used, each having a single entry and a single

Web-Based Counseling System

exit point, and in which control is passed downward through the structure without unconditional branches to higher levels of the structure. Three types of control flow are used: sequential, test, and iteration. Structured programming reduces the complexity created when programs jump forward and backward to other parts of the program, obscuring the logic and flow of the program.

Both ASP (Active Server Pages) and Visual Basic 6.0 support structured programming by providing sequential, iteration (FOR, WHILE, DO-WHILE statement and etc.).

Modular Programming

Modular programming is the concept that similar functions should be contained within the same unit of programming code and that separate functions should be developed as separate units of code so that the code can easily be maintained and reused by different programs. In ASP and Visual Basic, this can be done by using the function and sub function based on the events occurred.

When the application is composed of small function that only perform a single task at a time, then maintenance will be much more easier and the code is easier to be referred later. Function can be shared among other files which include the file in the header.

5.4 System Testing

Testing is a process of verification and validation of a system. Somehow, verification and validation have different activities.

5.4.1 Testing procedure

- Unit test to confirm that the code matches the specification
- Functional testing to confirm the defined functions perform as required by the

business

- Negative testing to prove that the system will deal with program exceptions and erroneous data
- Performance, stress and volume testing to ensure that the systems function within pre-defined acceptable tolerances
- Operational testing to ensure that the system can be managed
- Integration testing to confirm that the new application will work successfully without adversely impacting on other operational systems

5.4.2 Verification procedures

- Following a defined process to cover all the activities within the systems development life cycle development where each stage is reviewed and signed off prior to the commencement of the next stage
- Standards guiding the structure and content of all deliverables to ensure completeness and conformity (which aid readability and understanding)
- Presentations to the user for understanding of the business requirements
- Prototypes to evolve and improve the product being built and to confirm that the communication between IT and the business has been successful
- Monitoring of time and money spent during the development process t ensure that the business case for doing the development is still solid
- Management of change to the system being developed either for additional or different business requirements to meet revisions to the design or technology being used

5.4.3 Validation procedures

- Personal review by the author of all deliverables
- Peer review of deliverables
- Code inspection against the specification
- Entry and exit criteria for each stage of development

5.4.4 Testing Techniques

There are two techniques applied in testing this system : white-box testing and black-box testing.

White-box Testing

White-box testing is control structures of a procedural design. It can derive test cases to ensure all independent paths are exercised at least once, all logical decisions are exercised for both true and false paths, all loops are executed at their boundaries and within operational bounds and all internal data structures are exercised to ensure validity. It also may find assumptions about execution paths incorrect, and so make design errors. White box testing can find these errors. Typographical errors are random. Just as likely to be on an obscure logical path as on a mainstream path. White box testing is sometimes referred to as structural testing. Because white box tests involve the individual components of a system, they require an implicit knowledge of the system's inner workings. In implementation, white box tests introduce a given set of inputs to a component or individual function of a system and compare the outputs to an expected result. Testing is generally not done through a user interface, but by using the debugging features of the given development environment.

Black-box Testing

Black box testing is testing that is focused on what the software is supposed to do. Thus, in black box testing we are checking to see if the functionality is correct, without concerning ourselves with how the software achieves this.

Black-box testing attempts to find errors in the following categories :

- Incorrect or missing functions
- Interface errors
- Errors in data structures or external database access
- Performance errors
- Initialization and termination errors

5.4.5 Testing Strategies

The testing process is implemented throughout the development of this system. It is implemented in stages because the system itself is composed of procedure and functions. The testing process consists of unit testing, integrating testing and system testing.

Unit testing

Unit Testing also called module or component testing which consists of:

- Testing individual software units independently of the other units in the same software application
 - Software component integration testing.

Unit Testing is recognized as one of the most efficient ways to reduce the density and proliferation of errors in a software application. Unit Testing used to be expensive because of all the effort spent manually extracting individual source code modules from a program, writing stubs and drivers, running test cases, decrypting traces and redoing all this once sources have changed. The unit testing involves :

- Testing the interfaces to ensure that the information flows properly into and out of the program unit.
- Testing the boundary conditions to ensure that the component is operating correctly at boundary values.
 - Make sure that all independent paths in a control structure are tested at least once.
 - Testing all error handling paths.

Integration testing

Testing of combined parts of an application to determine if they function together correctly. The parts can be code modules, individual applications, client and server applications on a network. This type of testing is especially relevant to client/server and distributed systems.

System Testing

System testing is actually a series of different test whose primary purpose is to fully exercise the computer-based system. At the final stage, the software is incorporated into a larger system. System testing is to ensure that the system is functioning well under a large system. Performing system testing on this system is to ensure that all system elements have been integrated and perform the function as required.

5.5 Problem Encounter

There are a few kinds of errors that encountered during the testing phase of the development of Web-based Counseling System.

• Problem of System Performance

Because this system is a web-page application, it performance will be limited by the bandwidth of the network connecting between client PC and Server, the processing speed of the server and the workload on the server and network. The user's system have suffer the problem of performance to load out all the pictures.

Compile errors

Compile error will occurred when incorrect keyword or missing some punctuation when constructing the code. This type or errors also include all the syntax errors.

• Run-time errors

When a statement attempts an operation that is impossible to carry out then run-time errors occur. For example, division by zero.

Logic errors

When an application does not perform the way it was intended to perform then logic errors occur.

Chapter 6

System Evaluation And Conclusion

Chapter 6

System Evaluation and Conclusion

6.1 **Problems Encountered**

6.1.1 Difficulty in defining the system scope

To build a fully-fledged system is quite difficult with lack of experience and information in the counseling field. This is due to the fact that most of the developers and users are reluctant to disclose any internal information on the webbased counseling system as it is developed for commercial purposes. At the beginning phase, it was doubtful that what features and functions that should included because of limited information gathered and experience. Discussions were held with the project supervisor and other project members to outline the scope of the project. Research and further reading on counseling handbooks and referencing the counseling web site online helped to define the features and functions of the web-based counseling system.

6.1.2 Difficulty in choosing a programming language

In the initial stage, it is very difficult to decide which languages is used. In the market, there are many programming languages such as ASP, JSP, Visual Basic, Java and etc.

To decide which languages to use, seeking advices from project supervisor and course mates are carried out. After much seeking, references and studies, ASP (Active Server pages) and JavaScript are chosen prior to develop this web-based counseling system and Visual Basic is choose to develop the administration system.

70

6.2 System Strengths

Security

Like most systems, security is one of the most important aspects in the system. System security is implemented using ID and password. A valid login ID and password is required to access and make changes in the system database. All the information are highly confidential and therefore security of the system is very important. The system provides three levels of user login controls which are the use, administrator and counselor. Every logins have their own privilege and the privilege will determine the task that the user can handle in the system. With Microsoft Windows 2000 server as the server operating system, all client machine that connect to it must be have a trusted connection or granted permission to manipulate the database stored inside it.

Consistency

The screen design maintains its consistency throughout the system. All the colors of the background and the font type is the same throughout the whole system. All the buttons and hyperlinks are always displayed at the same position although the user switches from one document to another. Thus users faced less difficulty seeking for a particular option, which there require.

Independent of Operating Platform

This system can operate in any platform as long as the browser been used support JavaScript. JavaScript has been used as client scripting for interface design and form validation and data manipulation. Using client side scripting can reduce the workload on the server and JavaScript has been used because of it is the most widely use scripting among others.

• System Transparency

System transparency refers to the condition where the users do not need to know where the database resides, how is the system structure, its database management system and anything related to the system built. This feature is very important to avoid confusion that could lead to destruction of the important data.

Maintainability

The system is easy to maintain because some of the functions are stored in files. Meanwhile every object type is written in standard form and the file name of every component also rename in a standard way. This is important for administrator in doing maintenance work.

6.3 System Limitations

WBCS does not support all the functions like other commercial web counseling system. This is due to lack of experience and exposure to counseling perspective and also lack of improvement in skill.

• User can not obtain password through web

The user cannot directly obtain their password if they have forgotten their password. This limitation exists due to the central maintenance by administration and also for the security purposes.

• Response time

WBCS required a reasonable duration to load all the graphics and buttons because graphics and animate buttons are needed to enhance web-page attraction. Although the response time is not too fast, but it seems reasonable considering most of the web-pages nowadays also need reasonable time to load the whole page completely.

Lack of functional modules

The available function module for WBCS is very limited. This is because lack of counseling information collected during data collection. The understanding for user needs is not enough to make the system fully meets users need.

6.4 Future Enhancements

System development is a dynamic process. This system was developed in less than three month. While developing this system, new ideas have come across. However, due to time constraint, not all the new ideas can be incorporated into the system. Some of the new ideas that come across are as follow:

- i.) The interface of the system should be enhance to be designed in more standardized way which show the professional of designing a system.
- Provide more efficient online user guides to guide user to use the system efficiently.
- iii.) An email services can be integrated into the system to benefit all the users, counselors and administrators as well. If there are new and important announcement or events, then the user may received latest notification through email.
- Provide password encryption to protect the password from "Hackers".
 Passwords are store directly into the database and if the password can be encrypted, the system security will increase.
- v.) The system should provide database backup to restore the data if the database is corrupted. Due to the information inside the database is very important and therefore database backup is required.
- vi.) Build up the system firewall to protect the system and database. This can help to increase the reputation of the system to the users.

6.5 Knowledge Gained

Valuable knowledge was gained throughout the development of this system. Author has expose to client-server development environment, database distributed system, programming and concepts as well as LAN configuration.

User have learn many skills on how to develop application using software tools like Microsoft Visual Basic 6.0, Microsoft SQL 2000, Microsoft FrontPage and others.

User also gain a thorough understanding about counseling concepts and approach. There is also improvement in skill of finding information and classifying facts besides improving skill of problem solving and trouble-shooting.

6.6 Overall Conclusion

Overall, the main objectives of the project had been achieved though there are still plenty rooms for improvements. WBCS has being developed to fulfilled the purposes as a web search engine for counseling approach and also providing facilities as counseling services.

WBCS is consider user friendly and easy to use due to it's simpleness and consistency. This system will be beneficial for users who is computer literate and needs counseling system as well.

The system maintenance will be a one-step easy work for administrator because there is a administration application provided for the administrator to maintain the page and data.

As a conclusion, Web-Based Counseling System is an interactive web system that may helps the users who needs counseling and also users who want to make closer relationship with people all around the world.

Appendix

Web-based Counseling System

Reference:

[Alan, 1993]	Alan, M.Davis, "Software Requirement: Objects,
[5 and]	Functions, and States", Prentice Hall, Inc., 1993
5.4.1x	Some Public have Scoone Dahan
[Alter, 1996]	Alter, S., "Information System: A Management
	Perspective", The Benjamin/Cummings Publishing
	Company, Inc., 1996
	Sommerville, L. Software Englisherm & O
[Chris]	Chris Ullman, David Buser, Jon Duckett, Brian
	Francis, John Kauffman, Juan T. Llibre and David
	Sussman, "Beginning ASP 3.0", Wrox Press Ltd,
	April 2000
[David]	David M. Kroenke, "Database Processing,
	Fundamentals, Design & Implementation", Prentice
	Hall International, Inc., Seventh Edition 1999
[Deitel]	H.M. Deitel & P.J. Deitel, "JAVA: How To Program",
	Pentice Hall, Inc., 1999
[Jeffrey]	Jeffrey L. Whitten, Lonnie D. Bentley & Kevin C.
	Dittman, "System Analysis & Design Methods",
	McGraw Hill Irwin Inc., Fifth Edition, 1998
[Kendall, 1996]	Kendall, K. E. and Kendall, J.E, "System Analysis and
	Design". 3rd edition, CA, Prentice-Hall International,
	Inc. 1996
[Pressman, 1997]	Roger S. Pressman, "Software Engineering A
[]	Practitioner's Approach", MacGraw-Hill, Inc., 1997
Ralph 19961	Ralph, M.S., "Principles Of Information Systems: A
framhai tasal	Managerial Approach", Second Edition, Thompson

i

	Publishing Company, Inc., 1996
[Robert]	Robert W. Sebesta, "Concepts of Programming
	Lanuages", Addison Wesley Longman Inc., Fourth
Acdva Se	Edition 1999
[Sams]	Sams Publishing, "Teach Yourself SQL in 21 Days",
Database	Sams Publishing, Second Edition
[Shari, 1998]	Shari Lawrence Pfleeger, "Software Engineering
Demain 1	Theory and Practice",. Prentice-Hall, Inc., 1998
[Sommerville]	Sommerville, I., "Software Engineering", Fifth
	Edition, Addison-Wesley Publishing Company, 1996
[Scott]	Kendall Scott, "UML Explained" Prentice Hall, Inc.,
	March 2001
[The Snippet Library for	Introduction to JavaScript.
Javascipt]	http://www.freqgrafx.com/411/library.html
	Services digitie Quest
[William Stallings,1999]	William Stallings, Richard Van Slyke, "Bussiness
	Data Communications", Prentice Hall International,
	Inc, 1999
[Microsoft]	Microsoft Corporation, http://www.Microsoft.com

Terminology and Acronyms

ASP	Active Server pages	
API	Applications Programming Interface	
DBMS	Database Management System	
DLL	Dynamic Link Libraries	
DNS	Domain Name Server	
FTP	File Transfer Protocol	
GB	Giga Byte	
HTML	Hyper Text Markup Language	
Http	Hyper Text Transfer Protocol	
IP	Internet Protocol	
IEEE	Institute of Electrical and Electronics Engineers	
ISO	International Standards Organization	
ISDN	Integrated Services digital Network	
MB	Mega Byte	
MPEG	Motion Picture Experts Group	
OSI	Open System Interconnection	
OOP	Object Oriented Programming	
Packet	Transmission of Data in Short Blocks	

Web-based Counseling System

Interview Section with Cik Zaiton Mamat (Pegawai Rundingears) from

Protocol	Astinal	Procedures for the interchange of electronic messages between
		communicating devices.
RAM	unci sin	Random Access Memory
SMTP		Simple Mail Transfer Protocol
Server	Millert	A computer that provides services through a network to other
	Britis	computers.
SAPs	rememb	Server Access Points
Socket		Combination of an IP address and a port number.
TCP		Transmission Control Protocol
TELNET		Terminal Emulating Program
UDP		User Datagram Protocols
URL		Uniform Resource Locator
UTP	Nural	Unshielded Twisted Pair

Interview Section with Cik Zaiton Mamat (Pegawai Rundingcara) from **Counseling and Career Section of University Malaya**

Question 1: What are the important techniques used in counseling?

Actually, technique of communication is very important to understand Answer the client. The way of directing, reflecting and explaining will help the counselor to understand the client.

Ouestion 2: What is the important aspect of counseling?

Privacy is a very important aspect that every counselor should Answer remember. The information of the client should be kept confidentially.

The information includes client's profile and problems.

What is important in asking client question? **Ouestion 3:**

Always ask question with "What" and "How" Answer :

- Normally what are problems that the students in University **Question 4:** Malaya faced?
- Normally they will face with some personal cases like pressure in Answer academic, love, relationship with friends and parents and negative thinking about life.
- If the client takes some negative actions after getting some Question 5: misunderstanding information from the counselor, do the counselor need to responsible for that?
- Every time before the counseling session, the counselor should explain Answer to the client that this is just a discussion. If there are any further actions after the discussion, it will be the client's responsibility.

What is the duration of a counseling session? Question 6: Normally, the counseling session will takes about 45 minutes to one Answer : hour

V



Web-Based Counseling System User Manual

Contents of WBCS User's Guide

Contents	i
List of Figures	iii
Por Administration	
Chapter 1 : Introduction	25
.1 Introduction	1
.2 Hardware Requirements	4
.3 Software Requirements	4
Chapter 2 : Web-Based Counseling System Main Menu	2
.1 Starting WBCS	5
.2 Logon	6
2.2.1 Error Logon	7
2.2.2 New User	8
2.2.3 Forgot Password	9
2.2.3.1 Secret Question and Answer	10
.3 Search	11
2.3.1 Solution to Search Problems	12
2.3.2 No Matches for Search String	13
.4 Chat Room	14
.5 Pen-pal	17
6 Employment	18
2.6.1 Register Company to publish vacancies	19
7 Analysis	20
8 User Info	21
2.8.1 Change Password	22
2.8.2 Change User Information	23
9 Feedback	24

Chapter 3: Web-J	Based Counseling System – Administration System	
3.1 Introduction	TRic	25
3.2 Starting Web-	Based Counseling Administration Application	25
For Adminis	trator	5
a.) Login	Login Successfully Page	25
b.) Main Me	enu Enter Login Pres	26
c.) Database	Update	27
d.) View Us	er Profile	28
e.) Message	Board	29
f.) Feedback	Scoreth for Protilieron and Boliera at	30
For Counsel	or	12
a.) Login		31
b.) Main Me	enu	31
c.) View Us	er Profile	32
d.) View Us	er Activity List	33
e.) Print User Information		33
f.) Change	Password	34
Figure 2.14	Entitoria Cara and	10

Web-Based Counseling System User Manual

List of Figures

Figure	Title	Page
Figure 3.8	Web-Based Counseling System (WBCS) Web System	
Figure 2.1	WBCS Main Page	5
Figure 2.2	Login Successfully Page	6
Figure 2.3	Error Login Page	7
Figure 2.4	New User Registration Form	8
Figure 2.5	Forgot Password Page	9
Figure 2.6	Remind Password	10
Figure 2.7	Search for Problems and Solutions	11
Figure 2.8	Solutions to Problems	12
Figure 2.9	No Matches for Problems	13
Figure 2.10	Chat Room Type Selection	14
Figure 2.11	Private Chat Room	15
Figure 2.12	Public Chat Room	16
Figure 2.13	Pen-pal Column	17
Figure 2.14	Employment Section	18
Figure 2.15	Company and vacancies details	19
Figure 2.16	Analysis Page	20
Figure 2.17	User Info Selection Menu	21
Figure 2.18	Change Password	22
Figure 2.19	Change User Information	23
Figure 2.20	Feedback	24
We	b-Based Counseling System Administrator Application	
Figure 3.1	Administrator Login Page interface	25
Figure 3.2	Main Menu (all services) interface	26
Figure 3.3	Database Update	27
Figure 3.4	View User Profile interface	28

Web-Based Counseling System User Manual

Figure 3.5	Message board interface	. 29
Figure 3.6	Feedback Interface	30
Figure 3.7	Counselor Main Menu interface	31
Figure 3.8	User Profile interface	32
Figure 3.9	User Activity List	33
Figure 3.10	Print User Information Interface	33
Figure 3.11	Change Password interface for Counselor	34

he Web-Rased Country

iv

Chapter 1

Introduction

1.1 Introduction

The Web-Based Counseling System is a web-page counseling system that help users to search for their problems & solution and access some other services that is available during normal counseling section. Web-Based counseling system is an electronic way of counseling services.

This system consists of 10 modules.

1. Login Module

- This module provides function to validate the users before they can access our service. Users need to register as a user of Web-Based Counseling System and login to the system every time they access our page. This is a security purpose of the web system.

2. Search Module

- This module provides function for users to key in the search word which is the problems they faced. The system will perform intelligent checking through databases and view the solutions available to the users.

3. Chat Room Module

- This module provides real-time chat function for users to chat with counselor (single chat) or to chat with other users that faced the same problems (group chat).

4. Forum Module

- This module provides function for users to post their question or discussion topic to the system. Then users from all around the world may participate in this discussion and provide valuable ideas & suggestions.

5. Pen-pal Module

- This module provides pen-pal service for users who want to meet with more friends. They may view the pen-pal list, add themselves in the pen-pal column or delete them if they don't want to be appeared in the pen-pal list.

6. Analysis Module

- This module provides analysis function to analyze the most critical faced by all the users. This module will capture what the users search most often and calculate the percentage of the problems encounter. Then a comparison graph will display the result of the analysis.

7. User Info Preview Module

- This module lets the users to view their personal information they provide to the system when they registered. They can modify the information and update the information.

8. Message Board Module

- This module provides function for the users to be informed for the latest information announced by counselors or administers.

9. Feedback Module

- This module provides function for the users to send their comments to the web administrator.

10. Backend Administration Module

 this module provide function for the counselors and administers of Web-Based Counseling System to maintain & enhance the usability of the web page.

- This module consist of 6 sub modules which are:

For administrator:

1. Login sub module

- This sub module will validate the administrator before allow them to connect to our database.

2. Database update sub module

- This sub module allows the administrator to modify the contents of the counseling data in the database. This include add new, delete and modify the existing data.

3. User info sub module

- This sub module helps the administrator to maintain the user profile for counselors and administrator. This include add new counselors/administrators, delete or modify the existing profile.

4. Message board sub module

- This sub module helps the administrator to announce the latest information to the users. Administrator also can preview the previous messages.

5. Feedback preview sub module

- This sub module allows the administrator to preview the comments provided by users in order to be more understanding users need and proceed with enhancement.

For counselor:

1. Login sub module

- This sub module will validate the counselor before allow them to connect to our database.

2. Change password sub module

- This sub module allows the counselor to change their password if they feel that there is a need to do so.

3. User info sub module

- This sub module help the counselor to view the users registered to him/her. This includes viewing the users info and all the search word they provided during their search.

1.2 Hardware Requirement

The minimum requirements to run Web-Based Counseling System are :

- A IBM compatible PC with 486 processor and above
- 8 MB RAM (16MB recommended)
- SVGA Graphic Adapter (able to support 800x600 resolution)
- Keyboard
- Mouse
- Network card

1.3 Software Requirement

The software requirements to run Web-Based Counseling System are :

- Any JavaScript-enabled browser (Microsoft Internet Explorer 3.01 and above recommended)
- Microsoft Windows 95, 98, NT, Me and 2000

Chapter 2

Web-Based Counseling System (WBCS) Main Menu

2.1 Starting WBCS

To start Web-Based Counseling System, user needs to start their web browser. It is recommended that the display setting for the client computer is set to 600x800 resolution to maximize WBCS functionality. Then user type http://commerce/ForYou/ForYou.htm and press Enter Key.

Elle Edit Yew Flavorites Iools Help		67)
+Back)] A Search IF	Favorites SHistory - 1- 1 - 1	
Address http://localhost/foryou/default.htm		T PGO Links *
tor Yout	Welcome to ForYou Counseling Syste	Ø
		Login Corner Login Hese :
10		Pursent :
the way quant a described private, secure answer	to your question, we will be glad to help. There is a	Login
nominal fee for this service so I can devote the insure.	time to give you a thorough specific, well thought out	New User
in responding to your question, we will try to a other resources that you can turn to, including r substitute for professional counseling. We will donever, it hopefully can help you get sterted	ensuer as fully as possible. That includes pointing you to aferral information when appropriate. This service is not a be providing information and education. not therapy. on finding new solutions to your problems.	Forgot Peanword?
manual de la companya		141 14

Figure 2.1: WBCS main page

2.2 Logon

To logon, the user has to key in a valid login identity (ID) and a valid password. After typing your access ID and password, you may click the login button to allow the system to process the verification. After login, the following will be displayed with the login section replaced by message board section.

A N 🚰 ForYou Counseling System - Microsoft Internet Explorer 🚬 Elle Edit Yiew Favorites Iools Help 4 Back - +)]]] Search Favorites Shistory .- -- 260 Links ** Address http://localhost/foryou/login_success.htm Welcome to ForYou Counseling . What's New ? Post ides in the Porum Find out jobe in Job listing column - (11/13/2001) If you want a detailed, private, secure answer to your question, we will be glad to help. There is a Try out our chat room , that nominal fee for this service so I can devote the time to give you a thorough, specific, well thought out with counselor online (12/11/2001) answer Here Counseling Service is In responding to your question, we will any so enswer as fully as possible. That includes pointing you to other resources they you can term to including referral information when appropriate. This service is not a waiting for you to explore). (1/1/1900) substitute for professional counseling. We will be providing information and education, not therapy. However, it hopefully can help you get started on finding new solutions to your problems (Hardington) @] Done Figure 2.2 : Login Successfully page

Login Section replaced by Message Board Section

2.2.1 Error Logon

If the user key in the wrong user ID or password the following page will be shown to ask for user ID and password again. Due to responsibility purposes, we attached the terms and condition together for user reference

Back - 🗤 - 🕽) 1 (1 Qisearch) Fa	workes Stillstory - J- J J		
Address 2 http://loc	calhost/foryou/LOGIN/login.asp?typ	30-rfalse		· ciso Links "
		For Louis		S
	Login Name :		The	
	Password:			
	Concernant and and and and and	A recommendation of a second design of the second second		
			Submit	
		Enjoy the services we provided Have a nice day!		
	Terms & Condition			
	Terms & Condition The information that our Equ sensitive information is behing guaranthee total security from	uippers (counselon) pass on to you is password-protected in da firewall in our service setter and our ISP. Althrough roldry's haker, we elidigently work to prevent such activi	t on our end. All we cannot fly.	
	Terms & Condition The information that our Equipaensitive information is behing guarantee total security from Per your pretection, we also b periodically to ensure that ou accountable. This is for your	uppers (counselon) pass on to you is password-protected of a freewall in our secure sever and our 15P. Attonoph today's harden, we diligently work to prevent such activ here a hard copy of all messages, and a supervisor revit or Equippers are following all of the guidelines to which protection as well as theirs.	t on our end. All we cannot Ay. and them they are held	-
e] Derm	Terms & Condition The information that our Equ renvitive information is behing guarantee total security from Por your pretection, we also be periodically the neares that or accountable. This is for your	wippers (counselon) pass on to you is password-protected of a freewall in our secure server and our 15P. Attrough today's karker, we eliligantly work to prevent such activ here a hard copy of all messages, and a superviser revis or Equippers are following all of the guidelines to which protection as well as theirs.	I as our end. All we cannot fy: me: them they are held	ocal intranet

Message indicates the or login ID

Terms and Condition for user agreement

*

2.2.2 New User

If the user is new to WBCS then the user need to register to become WBCS member before the user can enjoy all the services provided. After the user click on the "New User" button in the login column, the following page will be displayed and the user are required to complete the registration form providing all his/her personal information to WBCS.

1 Call	T 3, T			
dress [@] http://localhost/fo	xyou_1/REGISTRATION/NEW_USE	R.ASP	± c ³ Go Link	
ccount Information:				
ogin Name :		Minimum 5 & Maximum 1	2 characters	
assword :		Must be 6-8 characters	t be 6-3 characters	
onfirm Password :				
ersonal Information		Last Name :		
ate of Birth		Are		
lender	Male V			
hone :		Email		
ccupation :				
occupation :				
occupation : ddress : tate :		at este a la calendaria. Se tracestrativas		

Figure 2.4 : New User Registration Form

Forgot Password 2.2.3

If the user forgot his/her password, he/she may click on the "Forget Password" button. The following page will be appeared to ask for user ID and email address. If the user forgot his/her user ID also, then he/she may need to contact the WBCS administrator for further action.

↓= Back •)]] GSearch JFavontes SHistory	
Address H	itp://localhost/foryouldefault.htm	€ C>Go Links
(Éi)i	You Counseling System	200
Surgerster.	· Annual · Andrease · Independent · Annual · · · · · · · · · · · · · · · · · · ·	- Login Comer
		Login Hame :
	Forgot Your Password?	
	Just fill in the following information and we will inform you your password as soon as possible	Pisswad :
	Login Name :	Logi
	Email:	New User
Curs .	Submit	Forgot Peaseord?
	Remind: If you can't remember your login name as well, kindly contact our advances advant Administrator@MoreYou con for further information	
	STREED, SU, S. AUGHERSTANNY, OF OWNERS OF MERICAN	11
2] Done		같은 Local intranet
	Figure 2.5 : Forgot Password P	age

SS for those who forgot their user ID as well.

2.2.3.1 Secret Question and Answer
Once the system validate the User ID and email address is correct, the system will display the user secret question and answer to remind the user. If the user still can not remember the password, he/she need to contact the administrator for further actions.

A For You Counseling Syste IF X Elle Edit View Favorites Tools Help ¥0. +Back · · · · · · · · · · · · · · · Address 2 http://localhost/foryou/default.htm · do Links » V thorsto . Login Corner Login Name Remind Your Password Password : Following is the secret question in your password. Try to remember your password (If you still fail is remember your password, kindly contact our administrator at Administrator@ForYou.com Login New User Secret question : boyfnend name Pargat Answer: cookies+2 Permund? * 4 4 11 2] Done 但 Local intranet Figure 2.6 : Remind Password Secret question and answer to remind user password

2.3 Search

The main purpose or the WBCS is to provide search engine for counseling perspective for the users. The user may key in a string containing their problems and the system will generate possible link to the page that containing the solution to the problems. For example, if the user key in "fear, emotion and drink alcohol problems" the system will display three types of possible solution which is solution for fear, emotion and prevent alcohol. The user need to choose a link to preview the solution.

🚰 ForYou Counseling System - Microsoft Internet Expl FX Eile Edit View Favorites Tools Help + Back - -> -)] [] [] QSearch Favorites History]-] -· Go Links » Address 2 http://localhost/foryou/logn_success.htm Welcome to For Hor You's tear, emotion and drink alcohol 4 What's New ? fear Hello I am in Ipoh now can 304 come? - (1/1/1900) emotional alcohol prevention Wack out our new Analyst cystem - (11/21/2001) Try out our char room to get real time advice from ou waterional counsilor Today's counselor will be available only in the ofternoon - (11/18/2001) HE Local Intranet 2] Done Figure 2.7 : Search for Problems and Solutions Search String **Solution Link**

2.3.1 Solution to Search Problems

The solution for the selected solution link will be displayed to help the user to solve their problems. The solution provided is just a guideline for the user to solve their problem. If the user does not satisfy with the answer, he/she may continue to search again using different search string.



Solutions guideline for user to preview

2.3.2 No Match for Search String

If the user search for something that is not provided by WBCS, then the system will display a page to inform the user that there is no matches found for his/her search. The user may type in different search string to search again.

🐴 ForYou Counseling System - M 5 X Elle Edit View Favorites Icols Help -+Back - -)]]] Search Favorites Shistory - -Address 2 http://localhost/foryou/login_success.htm * PGO Links » System no SORRY, NO MATCHES! Hello I an in Ipoh now can you come? - (1/1/1900) PLEASE SEARCH AGAIN. systen - (11/21/2001) Try out out that room to get real time edvice from our profess onal counselor (\$ \$/19/2001) Today's counselor will be available only in the afternoon - (11/18/2001) (Local intranet 2] Done Figure 2.9 : No Matches for Search

13

2.4 Chat Room

WBCS provide two kinds of chat rooms for the user :

I. Private Chat Room

Three private chat room is available for the user to chat with the counselor online in the real time environment. The room is only restricted to one user and one counselor at a time. This is built on privacy purposes. Before the user select a room to go, he/she may look at the "counselor on duty" to confirm whose counselor is available and the column "status" indicates that whether the room is available for that time.

Elle Edit View Favorites Iools Help	I
+Back - O C Search Favorites History	
Address [#] http://localhost/foryou_1/login_success.htm	→ Go Links »
Hor You Counseling System	
Please select type of chat room you want to enter: Counselor on duty is : Survana Supramanian Status : Available Counselor on duty is : Status : Not Available Counselor on duty is : Status : Not Available	What's Stew 1 Post idea is she Sown - (12/15/2091) Find one jets in Job listing colorin - (11/14/20101) Thy out no chai sown, chai with concertion solver- the All (Jone)
Public Chal. Room Public Chal. Room No of chatters : 2	Men Counseling Service is waiting for you so england - (1/1/1909)
Done	僅 Local intranet
Figure 2.10 : Chat Room Type Selec	tion
	7
Indicates whose counselor is in the room	Indicates how man chatters are in the public room

The user ID of the user will be appeared in the "chatters" column and the counselor ID will be appeared in the "counselor" column. The contents of their chat are shown in the middle column. Twelve lines of previous chat will be shown on the screen. If the user wants to log out, he/she may click on the "logout" button or just simply close the browser. If the counselor left before the user left, then the user in the room will automatically be directed back to the main page.

Ere Lak View Favorites Loois Help	and the second
Address http://jocalhost/forvou/chatroom/ChatRoom 1/chatroom1.asp?user=c	▼ c∂Go links »
- 1 a Tadlass Clare	
PARE TOMOUVUNU	· · · · · · · · · · · · · · · · · · ·
kikiyap : I'm fine thank you	
sitwoo ; rielo, now are you?	kikiyap
king have been	
G	ports -
	and the second
0.	
Logont	_
201 Done	任 Local intranet
Figure 2.11 : Private Chat R	loom
	•
Figure 2.12 Public Ched IL	ogout Button
ting.	
Text box to key in what the user	Counselor I

Contents of

15

User ID

-

II. Public Chat Room

Public Chat Room is open for all the user to discuss their problems and solution together. There was no limits on how many people is allow to access the public chat room. User may chat with other users that may came across the problem before and get the solution from them.

Before user come in the public chat room they may look at the "number of chatters" column shown in Figure 2.10 to preview number of users currently are inside the public chat room.

🗿 ForYou Counseling Public Chat Room - Microsoft Inte AX Elle Edit View Favorites Icols Help 4-Back - A D Search JFavorites History - - - - -Address http://localhost/foryou/chatroom/Public_Room/public_room.asp - ~ Go Links » 奉城東京縣 华城康谷藏 shwoo : I'm 25 years old kikiyap : how old are you? shwoo : nice to meet you too kikiyap kikiyap : Nice to meet you! Logout 武 Local intranel 2] Done Figure 2.12 : Public Chat Room

Contents of users' chat

Chatters ID

2.5 Pen-pal Column

Pen-pal column is designed to help the WBCS members to meet with each others. The users can add their name in the pen-pal column by clicking the "Register Me" button. The system will automatically search for the user profile and add to the pen-pal column. This will minimize the user work to key in their name and details again.

The user may just click on the email address and send an instant email to the selected pen-pal. This can bring closer the relationship between WBCS members. If the user want to stop his/her name from appearing in the pen-pal column, he/she may just click on the "Remove Me" button and all the particulars will be remove from the pen-pal column.



Register Button

Pen-pal details

2.6 Employment

If users are looking for vacancies, they can click on the "Employment" button to look for jobs available. The Employment section published the company's name, total vacancies, position and company's email to help the user to find for their favorite jobs. If the user is representing a company, he/she may post a job in this Employment section to look for employee. This can be done by a click on the "Post Job" button.



2.6.1 Register Company to publish vacancies

This page is designed mainly to help the company to publish their company vacancies. The company needs to provide all the necessary information like company's name, position, total vacancies, company email and expiring days for the WBCS. The WBCS will store all the information and publish the job on the employment section as stated above. The duration to publish the job will follow the expiring days.

Elle Edit View Favorites Ion	ols Help		
+Back	Search SFavorites Stillstory 5-) ∰ • 🗐	
ddress 2 http://localhost/foryou/lo	ogin_success.htm		▼ r Go Lin
9.6Md	seling System		
• •	aa		· ·
Looking For	Employee?		What's New ?
Leeking Fer Please fill in the informa Job Listing Column.	Employce? tion below to display your company's	information on the	What's New? Hello I an in Ipok new cae you com? - (84/1900) Wack outo our new Redges meter (82/19/1901)
Looking For Please fill in the informa Job Listing Column. Company Name :	Employce? ntion below to display your company's	information on the	What's Herv? Hells I an in Jook now an yeu cane? - (1/1/1900) Wark out, our new Andyw gaten - (1/1/1/2001) et
Looking For Please fill in the informa Job Listing Column. Company Name : Position :	Employee? nion below to display your company's	information on the	What's New? Halls I are in Jook now are you cone? - (1/1/1900) Wark out our new Andyso ysten - (11/21/2001) Try out out char now to ge red three solvies from our
Lecking Fer Please fill in the informa Job Listing Column. Company Name : Position : Total Vacancy :	Employee? ntion below to display your company's s	information on the	What's How? Halls I am in Spok new cae you cone? - (3/1980) Watch out new Andyso green - (13/21/201) Try was ano char room co go red three schirol outeder - geoferional outeder (11/19/2001)
Leeking Fer Please fill in the informa Job Listing Column. Company Name : Position : Total Vacancy : Company's Email : C	Employee? ntion below to display your company's s	information on the	What's Hew? Hells I an in Jook new can you com? (1/1/1900) Wark out our new Andyw gater. (1/1/1/2001) Ny out our chai rown io ge ned time schied from ou professional counder - (1/1/1/2001) Naday's counselor suit be
Leeking Fer Please fill in the informa Job Listing Column. Company Name : Position : Total Vacancy : Company's Email : Expired in day(s) :	Employce? ntion below to display your company's : 	information on the	What's New? Halls I an in Jook new any you could - (1/1/1900) Wack out our new Andyto system - (1/1/21/2001) Thy out our char room to get ned time schrite from our profetional counseler - (1/1/19/2001) Today's counseler will be available only in the afterioon (1/11/2001)

Figure 2.15 : Company and vacancy details

2.7 Analysis

Every time the user use the WBCS search engine to search for the solution to their problems, the search string will be stored in user's personal table. Then, the WBCS system will compare the problems entered by every user and calculate the statistics of the problems. The analysis page will show a graph indicates the statistics of the result. All the comparison will be converted to percentage for user to preview.

- <u></u>			
Por Youx		Welcome to ForYou Coi.	C
.			1
	Analysis Graph	Anna Service T	1 _ What's Wow ?
his graph shows the percentage	of information that the clients need	when they access to Our ForYou Cou	Post idea in the Torum - (32/15/2001)
outh Problem 7.48%			Find out-jobs in 5ab Oning calamn - (11/15/2905)
arcer	20.56%	52.34%	Try ous ono chas room, chas with counselor online - (12/11/2001)
umily 10.2	8%	1	Dino Counseling Service is woising for you to explore! - (1/1/1900)
JWE 7.48%	and and marked	/	
arriage 1.87%	- Sold - Contraction - Contraction	And president and the	
Done			일본 Local intranet
	Figure 2 1	6 · Analysis Page	
	1 ipure 2.10). Analysis I age	

Comparison in terms of percentage

2.8 User Info

Sometimes users may want to make changes to their personal details for example phone number or address. They may click on the "User Info" button to preview their previous personal information. Then they will come to a page which contains a menu for selection for "change password" or "change user info" as below.



Figure 2.17 : User Info Selection Menu

2.8.1 Change Password

If the user wish to change his/her password, they may feel free to do it here. The only steps is they need to fill in their old password to validate their identity and then fill in the new password. The confirm password fill is required to prevent the user from keying the different password. When the use click on the "change" button, the system will indicates that the password is changed successfully or failed.

Elle Edit Yiew Favorites Iools Help	
4-Back - I I I Search I Favoritas SHistory	
Agdress http://localhost/foryou/login_success.htm	· 2Go Uni
You Counseling System	
(Construction) * Excellence - Excellence (Construction)	
CHANGE PASSWORD	What's New ?
CHANGE TASSNOND	Post idea in the Forum - (12/15/2001)
Old Password:	Find out jobs in Job baing
	colicern - (11/13/2001)
New Password:	Try out ow chap room, cha with counselor online -
Confirm Password:	(12/11/2001)
Figure 2:19 : Chimge User Info	New Counteding Service is waiting for you to explore! (1/1/1900)
Change Reset	v
and the second se	1 oral internet

All three text boxes must be filled in order to change password

2.8.2 Change User Information

If the user select the "change user information" from the menu, then he/she will be directed to the page displaying all the profile that was stored in the WBCS. The user can may any changes to the profile and click the "update" button to update the user profile.

🕂 Back + 🚽 - 🥥 📑) 🖞 🔍 Search 🔄 Favorites 🏈 Histo	ry -5- 1 -		
Address http://localhost	/foryou/logn_success.htm	un - Adamarki Antania ila hakarai atau		▼ d'Go Lin
and the	stem		q	X
Personal Information				
First Name :	Meow Ching	Last Name :	Sim	What's New?
Date of Birth :	5 - 2 - 1975	Age :	40	(12/15/2001)
	Male V			Find out jobs in Job listing
Gender :	I WILL AND			
Gender : Phone	0126602302	Email	catdevil@hotma	совите - (11/13/2001)
Gender : Phone : Occupation :	0126602302	Email	catdevil@hotma	совитя (11/13/2003) Тту оне оне скан гооте, скл
Gender : Phone : Decupation : Address :	D126602302	Email	catdevil@hotma	совите - (11/13/2001) Try our our chas room, cha with courselor online - (12/11/2001)
Gender : Phone : Docupation : Address : State :	0126602302 IT professional Cheras Kuala Lumpur	Ernail	catdevil@hotme	column = (11/13/2001) Try our our ches room, ches with counselor online - (12/11/2001) Here Counseling Service as
Gender : Phone : Docupation : Address : Nate : Postcode/Zip Code :	0126602302 IT professional Cheras Kuala Lumpur 66500	Ernail Country :	catdevit@hotme	column - (11/13/2001) Ty out our chevroen, che with conversion online - (12/11/2001) New Conversion Service a waiting for you to explore - (1/1/1900)
Gender : Phone : Occupation : Address : State : Postcode/Zip Code : Postcode/Zip Code :	0126602302 IT professional Cheras Kuala Lumpur 66500	Email . Country :	catdevil@hotme	oolinen - (11/13/2001) Try out our ches voore, chet with consessor online - (12/11/2001) Here Cremeding Service a wating for you to explore - (1/1/1900)

Figure 2.19 : Change User Information

2.9 Feedback

Fe

The users are welcome to give comments and feedback to the WBCS. The user only need to fill in the title of the feedback and fill in the comments or feedback and click the "send" button to send the feedback to the WBCS administrator. The WBCS will automatically send the feedback together with date and the user ID and send it to the Administrator. The administrator will preview the feedback using the administration system.

Address http://localhost/foryou/login_success.htm	<u>•</u> 260
Hor You'	Welcome to Fo
If u have any comment about our Web-Based Onerseling System, k comments in order for us to enhance our system and continue to pro to all our dearest users. Thank You. Tittle : Comments & Suggestions :	indly poot us your vide best services
El Done Figure 2.20	: Feedback

Title for the feedback

Chapter 3:

Web-Based Counseling System – Administration System

3.1 Introduction

Web-Based Counseling Administration System is a standalone application which means to provide maintenance services to both administrators and counselors. This section consists of two different parts which is:

- I. Administrator Section
- **II.** Counselor Section

Both the parts have different services provided by the system.

3.2 Starting Web-Based Counseling Administration Application

Administrator or counselor who wants to access this system need to install the Web-Based Administration Application to their own computer. Then they must have connection to the Internet to connect remotely to the Web-Based Counseling System database.

For Administration Section

a.) Login

s. Web-Based Counseling System Login

Login Name :	Administrator	-
Password :	*** ***	
	Login	J E.
		in the
		10 2

Figure 3.1 : Administrator Login Page interface

- 5 X

X

Administrator need to key in his/her login ID and password to validate his/her identity before he/she is allow to enter the system. This is the security purposes where only authentic person are allow to connect to the database.

b.) Main Menu

	For You* Counseling System	
Se	ervices	
	Database Update	
	<u>V</u> iew User Profile	
	Message Board Update	
	Foodback Deview	44

Figure 3.2 : Main Menu (all services) interface

This is the main menu that the administrator will come to when he/she successfully log in to the system. There are four choices which is :

1. Database Update

- database maintenance

- 2. View User Profile
 - user (administrator, counselor, user) information maintenance
- 3. Message Board Update
 - update the current message board
- 4. Feedback Review
 - retrieve the feedback and comments

c.) Database Update



Figure 3.3 : Database Update

Database Update is used mainly for the administrator to maintain the counseling data inside the database. The administrator may add new problems and solution or edit the value of the stored data inside the database remotely.

- the purpose of this clearance is to allow the administrator to housekeep the database. Whenever the users' Activity List exist 200 rows, the system will automatically clear out the old 200 list. d.) View User Profile

Admini	strator	Counselor		User
Account Inform	nation		Counselor	Name
Member ID		Find	First Name :	
Password .	- Hand the Th	Update	Last Name :	l
Profile Informa	ation			
Phone No.				
Email Address			Tau	m. This a CAla
Date of Birth :	05- Jan -2002 💌	Age:	Eve De	ary Ining we
Gender :	C Male	C Female		ForYou
Occupation :	For You Counseling	System Administrator		For You* Counsel
Address :				
State :				and

Figure 3.4 : View User Profile interface

The view user profile page is to allow the administrator to :

- 1. find(administrator, counselor, user) information
- 2. add new(administrator, counselor) information
- 3. delete(administrator, counselor) information
- 4. update(administrator, counselor) information
- 5. reset (administrator, counselor) password
- 6. clear users' Activity List

- the purpose of this clearance is to allow the administrator to housekeep the database. Whenever the users' Activity List exist 200 rows, the system will automatically clear out the old 200 list.

X

Message Board

Select a date : 2001 • Sun Mon Tue Wed Thu Fri Sat 1 4 5 6 7 8 9 10	
Select a date : November 2001 November - 2601 - Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat 4 5 6 7 8 9 10	
November 2001 November - 2001 - Sun Mon Tue Wed Thu Fri Sat 4 5 6 7 8 9 10	
Sun Mon Tue Wed Thū Fri Sat 4 5 6 7 8 9 10	
23 24 1 2 3 4 5 6 7 8 9 10	
4 5 6 7 8 9 10	
11 12 13 14 15 16 17	
<u>18</u> <u>19</u> <u>20</u> <u>21</u> <u>22</u> <u>23</u> <u>24</u>	
25 26 27 28 29 30	
dd New Message	
Massara ta Indata	R
Date :	1

Figure 3.5 : Message board interface

Most of the time, administrator may want to announce to the web-page user about some newly added information. The administrator may do it here. The previous can be view by clicking on the calendar's date. The message will be shown on the column beside the calendar. If the administrator need to publish a new message, he/she can simply type in the message in the column entitle "Add New Message" and then click "Add". The message will automatically added to the database together with the message written date.

e.)

e.) Feedback

e

Date	Sandar	7:0-	and the second
11/29/2001 2:18:22 AM	Weo	Good Performance	
□1/13/2002 2:04:05 AM □1/18/2002 12:26:11 PM	shvoo shvoo fongyue]	Low Loading Time Low Loading Time The information is enough	-
Delete			Click on the List to preview the
The second se			Feedback or dick the Delete
Feedback			Feedback or click the Delete

Figure 3.6 : Feedback Interface

Users in the web-page will send in feedbacks and comments to the administrator. The administrator can retrieve the users' feedbacks and comments using this application. All the feedbacks will be shown on the top column together with sender's name, title and date whereas the contents of the feedback will be shown on the column below when the administrator click on one of the feedback from the list. The administrator also can delete all the feedback which is seen by click on the "delete" button.

II For Counselor Section

a.) Login

The login page interface for counselor will be same as figure. The counselor needs to fill in their counselor ID and password to be validate to enter this system.

b.) Main menu

ForYou* Counseling System	
Yiew User Profile	Please select the services provided by us!
Change Password	K
	12

Figure 3.7 : Counselor Main Menu interface

For counselor, only two services are provided currently which is :

1.) View users' profile

- only users who register under his/her name will be visible to the counselor. This is security purposes where clients information is confidential to others.

- 2.) Change password
 - Counselor can change his/her password here at any time.

c.) View User Profile

際に

Please Select User :			
akayap	Account Informa	ation	User Name
ofchow	User ID : kiki	yap	First Name : Wen Ki
	Password: 123		Last Name : Yap
	Profile Informati	ion	
	Phone :	0124533227	Email Address : kikiyap@hotmail.cor
	Gender :	Female	Date of Birth : 3/30/1978
	Age :	23	*
	Occupation :	student	
	Address :	18, Jalan Semarak	Serdang
	State :	Selangor	Poskod / 46400
	Country :	msia	Lip Coue.

Figure 3.8 : User Profile interface

All the users who registered under the counselor's name when the users register will be list out in the list at the left column. Counselor may click on one of the user's ID to preview the user's information. The counselor may also view the user's Activity List (figure)to preview the user's activity (every search words that the users provide at the web-page)

d.) View User Activity List

Date 5/8/2001	Activity how to study better
4/15/2000 3/6/2000 5/8/2001	how to make better relationship w can not get good result how to study better

Figure 3.9 : User Activity List

e.) Print User Information

unseling System	R.		Date: 20-Jan-02	
Account Inform	ation	User Name		
User ID : kik	yap	First Name : Last Name :	Wen Ki Yan	
Profile Informat Phone :	ion 0124533227	Email Address	kikiyap@hotmail.com	
Gender :	Female	Date of Birth :	3/30/1978	
Age : 🦽	23			à
Occupation :	student			12 × 7
Address :	18, Jalan Semarak	Serdang		

Figure 3.10 : Print User Information Interface

If the counselor wants to keep a hard copy (print out) of the user's information, he/she may click on the "print" button to print out the information.

f.) Change Password

Old Password :	*****	
New Password :	***	
Confirm New Password :	***	
	ок	Cancel

figure 3.11 : Change Password interface for Counselor

If the counselor wants to change his/her password for security purposes, the counselor may update the password information any time.