

WEB-BASED COUNSELING SYSTEM
Thesis 2

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Abstract

There are a lot of website offering services particularly in psychology services ranging from online counseling, e-counselor, motivation to behavioral analysis. The responses from user are overwhelming for those kind of online services. However, the current web based counseling systems are mostly advertisement oriented. This is because, most of the website is playing role as a medium to advertise a particular physician business.

Therefore, the scope of web based counseling system for this thesis is vary from conventional idea of web based counseling system The objective of this thesis is to produce a system that independently can identify precisely a particulars characteristic, the way he/she thinks and try to help the person to solve their problems through in dept understanding the core of their problems.

But, the end system that we have produced in this thesis will only able to identify person's characteristics and their behavioral through a series of testing. Anyway, this system can be a stepping-stone for further future research to produce a pure web based counseling system.

In order to complete this thesis, we have interviewed a lot of expertise in psychology and web technology as listed in reference in this report. Basically, what we have done is just collection of idea of several experts. So, there should be a continuous research on this area to identify the suitable way to implement a proper web based counseling system.

To conclude, the objective of this thesis has been met by producing a system that can identify a person's mentality and other counseling issues such as motivation, relaxing and observation testing.

Acknowledgement

I would like to gratefully acknowledge the contributions of several people who helped me to complete this thesis successfully. First and foremost, I would like to extend my utmost gratitude to Professor Madya Dr. P. Sellapan, as my supervisor, for providing me support and idea for completion of this thesis. Secondly, my gratitude also goes to my moderator Professor Dr. Lee Sai Peck.

Third, special thanks to Dr. Kadeer Ibrahim, Mr. SivaSubramaniam and Mr. Bala where without their help and support I wouldn't able to complete this thesis within the time frame.

Fourth, my thanks to my partner Mr. Avinash. Our coordination was a first success in order to complete this thesis successfully.

Last but not least, my gratitude to the ONE who is always been there for me all the while.

Thanks for Everyone.

Description of Dr. Sellapan's Proposed Title

Title Proposed :

WEB-BASED COUNSELING SYSTEM

Deficiencies in our educational systems

Currently, there is lack of proper counseling services in the educational institutions in the country. There are thousands of schools, polytechnics, colleges and universities in the country. However, together they employ very few qualified, competent, and professional counselors. Some institutions have no counselors at all while others may have at most one or two counselors to service hundreds if not thousand of students. Very often, these counselors are actually teachers but they double up as counselors.

The reason for this state of affairs is because the owners or sponsors of these institutions (such as the government) cannot afford to employ so many professional counselors as the services of these counselors are often expensive. There is a lack of professional counselors to meet the needs of all the institutions in the country. Some of them may not even want to work in institutions of learning. Thus the students are not given professional counseling services. And this several implications:

- Lack of counseling services often in “square pegs in round holes” – a mismatch between individual interests of students and their fields of study. This results in students branching to fields of studies that they are not naturally gifted or interested. And if the students are not gifted or interested, they will not excel in their fields of studies. That is, they will

not properly developed, their contribution to the nation and society will not be optimal and this will result in the nation becoming poorer.

- Lack of counseling services often lead to social problems such as lack of motivation and poor performance, depression, poor interpersonal relationships, lack of career guidance, drug abuse, violence, sexual abuse and vandalism. Not only the students suffer, but also the parents, teachers, communities and the nation as a whole. This is certainly undesirable. The social cost is extremely high if these problems are not minimized.
- Cost of hiring professional counselors is very expensive.
- Even if all institutions can afford to employ professional counselors (which is almost impossible), not all students will make use of their services. Personal counseling can be threatening for some students. They would rather prefer to be counseled confidentially or anonymously. They don't want others to know about their problems.

INTRODUCTION

Project Overview

Cognitive-behavioral therapy is a structured form and important service for people, especially to support and assist people to overcome their difficulties. Changing beliefs, the objective is to find courage and confidence in facing their problems and

CHAPTER 1:

Constructing the many different types, which is often referred to as approaches.

1. Psychoanalysis

A model of human behavior that focuses on the inner world of the individual, and on the unconscious mind.

Introduction

2. Existential

Are concerned with the meaning of life and the choices individuals make, and the techniques related to a wide range of existential concerns.

3. Humanistic

A general term for approaches to counseling heavily influenced by the work of Carl Rogers and Abraham Maslow.

4. Transactional Analysis

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

INTRODUCTION

Project Overview

Globally, counseling is a common term and important service for people, basically to improve and assist people to overcome their difficulties. Counseling, basically the objectives is to find courage and confidence in facing their problems and guide them towards self-reliance.

Counseling has many different scopes, which is 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 you to achieve beneficial change.

Thus, counseling thru out the scope has many different criteria, services, dimension, theories and guidelines.

As we know there are many organizations, schools, educational centers and higher learning institutes offers various counseling help. In accordance to the objectives these organizations are also involve in many programs to develop a very good relationship to solve and help those who needs help.

Definition

A Web based Counseling is web-based informative application. It provides very useful information on counseling aspects for the users especially youths. This will be guidance to the youths to know what are the proper guidelines and supportive assistance they could find in solving their problems.

The user can retrieve the information on their issues, provided assistance, answers, required information and common questions related accordingly to the issues, guidance of the professional counselors and a lot more. User can get the information directly by clicking the appropriate icons. Users can also demand for any additional information through e-mail and voice their views through feedback postings. Forum section will be provided where users can interact with the counselors to discuss further about their problems.

The main objective of the site is to feed the requirement and solve the issues on the site itself without further links and help from the other channel as stated above.

This will be more useful and effective to the users in order to minimize their time, cost and others, which could be easily, handle without much procedures and work limit.

Project Motivation

Undoubtedly Internet has emerged as an effective communication channel in the late 20 century. With the introduction of browser such as Mosaic and Netscape, which features graphical user interfaces, the www has become readily accessible]. Organization, universities and schools rushed to become wired in order to provide information to of Internet usage among users.

This project has been suggested to study and develop a WEB BASED COUNSELLING INFORMATION SYSTEMS. In order to assist the target users

especially the youths to tackle and overcome their problems, based on the different criteria of the issues. These criteria, for example, can be parental crisis, academic achievement, social problems and others.

Expected Outcomes

Based on the preliminary research, current web based counseling in global does not have suitable solutions to help or assist youths to reconstruct and develop till the maximum of their capital.

This project is definitely feasible for implementation with the following reasons:

Internet has become a cheap mean of publicity and disseminating information. Nowadays, we can get access cost as well as low hardware cost. Therefore, it is wise to develop a web based counseling information system for youths.

Information can be acquired through and solutions in different prospect could be solved immediately.

Objective

The main objective of WEB BASED COUNSELLING SYSTEMS by maximizing human capital is to provide effective solution and information that is developed based on the needs of youths. Providing feedback and services for the youths will ensure this. This project also aims to develop a fulfilled information and requirement containing all required solutions for the problems. This web-based application should be

effective in presenting information to the users. By this project youth should be able to find accurate and positive outcome of their problems.

Project Team

Project Supervisor

Dr. P. Selappan
Associate Professor

Expected Outcome

A web-based counseling used to provide variety information on problems solving. Users can also give suggestion and request for additional information of their choice. They can send their comments regarding to this system. The system will ensure the *interactive* among the users to *maintain* and ever growing counseling system.

Web-site development

Task

This project is basically divided into two different scopes which is constructed by two person, where tackling the roots of the problems, designing, implementing, tracking the path of the problems and solving to minimize the youth capability in facing the outcome. This is dual person project.

Back-end development

Basically involving in the conclusion of implementing the project.

Project Team

Project Supervisor

Dr. P. Sellappan
Associate Professor
University of Malaya

Programmers

Avinash Prathap *WEK98256*

- Tackling (physiology), designing, constructing.
- Web-site development
- Debugging

Kiruban Poovan *WEK98273*

- Interface, constructing, implementing, Integration
- Psychology techniques
- Back-hand development

Basically combination of the workload is the conclusion in implementing the project.

Literature Review

Overview

In the process of developing a web-based counseling system, researchers have been able to understand the non-organized and unorganized system. Studies in this project also involves the field of microlevel development, in addition to web-based systems.

CHAPTER 2:

Literature Review

The Definition

Research has been able to get some information and ideas to construct the system. According to Professor Gill Jackson from United Kingdom who has a career in counseling, it is a big task to develop a system that could solve the youth problems precisely without proper understandings, feelings, positive assessment and many others.

Literature Review

Overview

In the process of developing a web-based counseling system, researches have been done to understand the non-computerized and computerized system. Studies in this project also involves the field of multimedia development, its evolution as well as various new concepts, which focus on the implementation of new application.

Basically the systems that we are working out conclude a very big scope, which we are only concentrating on counseling youth's directly different compare to the existing systems. Basically to create the proper solutions the first step taken to understand youths problems mainly understanding the psychology and extra human capabilities.

The Definition

Research had been done globally to get some information and ideas to construct the systems. According to *Professor Gill Jackman* from United Kingdom who runs a centre for counseling, it is a big task to develop a systems that could tackle the youths problems practically without proper understandings, feelings, positive treatment and many others.

In order to the statement, below is his written feedback about the systems:

Perhaps the short answer is:

“That therapy or counseling is usually about problems that people have in relating to other people. Therefore the real work or healing of that problem also comes about through relating directly to people. In this case, the therapist. If you assume that 'the problem' is the equivalent of some measurable scientific equation then perhaps it could be 'solved' but for me, people are not problems to be solved. However, exploration and the raising of awareness about who we are as individuals and even how we relate could, Potentially be opened up using the methods you describe. This would not necessarily is a good thing as, unless there is a professional to talk to who will provide the necessary caring needed, clients using solely software, as clients using self help books, can easily get hold of the wrong end of the stick and dig themselves an even deeper hole in their thinking. Therapy is about encouraging people to feel, and that needs someone who cares and understands to be around. Someone who was solely a cognitive therapist would probably find it the most useful. Cognitive therapy is an analysis of how a client is thinking, an identifying of that and a replacing with more positive or constructive way, depending on person's aims. It probably holds the greatest parallels with computer programming; particularly something called neuro linguistic programming. However, we are more than just our thoughts so unless there was also a real, trustworthy and professional relationship around, I'd consider this to be quite limited in its long-term effect. ”

Comparison

The system is developed with full specs and requirement where users could totally rely with one stop solution based which is differs from the others where the other website

Offers services like:

- ✦ Online counseling
- ✦ Fixing an appointment with counselors
- ✦ Definition and understanding of counseling.

The systems requirement is hi-techly done with all the psychology and therapy concepts, which is the real medicine for the systems to work..

System Analysis / Methodology

The objective of this chapter is to discuss about the methodologies, techniques and tools that we have adopted to develop that web-based monitoring system. This chapter will be divided into four major sub-topics, which are:

CHAPTER 3:

System Analysis / Methodology

3.1 Software requirements

3.1.1 Hardware requirements

System Methodology

A methodology may be defined as a collection of procedures, techniques, tools and documentation used. The procedures, techniques, tools and documentation used help the software developer to specify and control the software development process.

System Analysis / Methodology

The objective of this chapter is to discuss about the methodologies, techniques and tool that we have adopted to develop this web-based counseling system. This chapter will be divided into four major sub topics, which include:

3.1 System Methodology

3.2 Information Gathering Techniques

3.3 Requirements Analysis

3.3.1 Functional Requirements

3.3.2 Non Functional Requirements

3.4 System Requirements

3.3.3 Software requirements

3.3.4 Hardware requirements

System Methodology

A methodology may be defined as a collection of procedures, techniques, tools and documentation aids. The procedures, techniques, tools and documentation aids help the software developer to speed up and simplify the software development process.

Although this systematic approach sub phases is lengthy, we actually divided the system into several major phases, as shown in Figure 3.10.

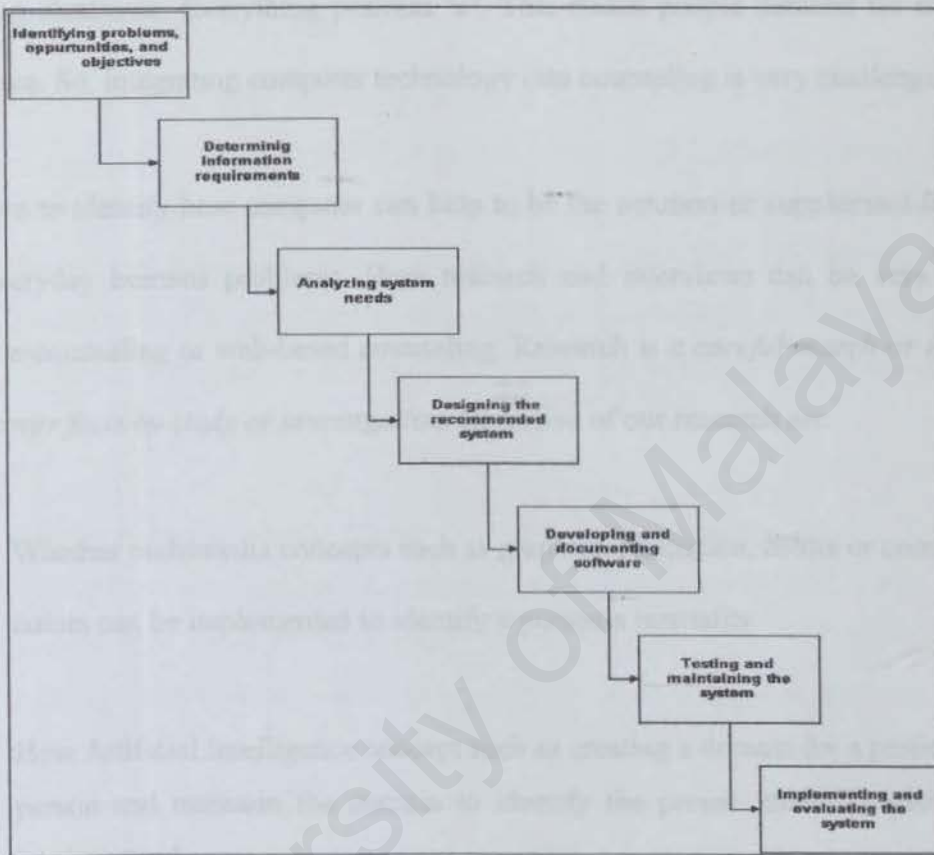
A methodology is a way of doing things. The main objectives of a methodology includes the following:

- Record accurately the requirements
- Provide a systematic method of development so that progress can be monitored
- Provide an appropriate time limit and an acceptable budget
- Produce a system that is well documented and easy to maintain
- Provide an indication of needed changes as early as possible in the development process
- Provide a system that is user-friendly

In order to select an appropriate methodology, a system developer must first know the requirements of the system. After a study that we have conducted, we have chose **Structured Systems Analysis and Design Methodology** to be the base for our web-based counseling system.

Structured Systems Analysis and Design Methodology is a systematic approach that analysts take to analysis and design the information systems. Much of this embodied in what is called the systems development life cycle or SDLC.

Although this systematic approach sub phases is laudable, we generally divided the cycle into seven major phases, as shown in Figure 3.0.



Information Gathering Techniques

Information gathering techniques or data collection include interviews, observations, documentation review, questionnaires, and research. It is not a mandatory to use all these techniques in order to obtain a very good data. We have to choose appropriate techniques according to the system we are developing because certain techniques such as interviews may be prejudice.

because it involves understanding of a complicated creature that is human being. Everything in this world becoming electronic. Everything prefixes 'e'. This makes people demand for more, better and faster service. So, integrating computer technology into counseling is very challenging job.

We have to identify how computer can help to be the solution or supplement for problem solving for everyday humans problems. How research and interviews can be very helpful in designing this e-counseling or web-based counseling. Research is *a careful search or inquiry into subject to discover facts by study or investigation*. Objective of our research are:

- Whether multimedia concepts such as graphics, animation, colors or combination of colors can be implemented to identify a person's mentality
- How Artificial Intelligence concept such as creating a domain for a particular person and maintain the domain to identify the person mentality growth can be implemented
- Will human finds a peace and privacy while they are communicating with e-counseling
- Whether a web-based counseling is an effective way for human to solve their problems

Interviews are a meeting with persons, which has expertise in a particular domain of subject with a motive of understanding, and exploring the latter's expertise. We have and going to interview experts in counseling field such as:

- **Prof. Dr. R. Kadeer Ibraheem** (MMsc., B. Tech., D.B.A., D.P.C., D.N.D., A.D., Psy., Ph.D.)
A professional Mind Science Consultant., Psychologist, Nutritionist and one of the leading speakers in Psychological Science In Malaysia. He holds honors degrees in Mind Engineering as well as in Psychology. He has attended many seminars locally and overseas in the field of Psychology and Para Psychology. He is the first person to introduce Telepathy through Spiritual Aura and Colour Theraphy in Malaysia.
- **Mr. Sivasubramaniam** (Master In Business Administration)
A consultant with expertise in business and human physiology. He has proven track record for developing CACHE SDN BHD from "0" capital to M 1,000,000 capital worth company. CACHE is the pioneer company in software development specializing in Tamil language type setting and their evergreen product called "MURASU" which is well popular all around the world. He his pursuing his PHD on Artificial Intelligence in Business Decision Making.
- **G. SuryaMoorthi**
An expert in mind mapping techniques

Using both of these techniques, we strongly believed that we would reach to certain understanding of how computer and counseling will work together to serve the human in a very effective and friendly way.

Requirements Analysis

A *requirement* is a feature of the system or a description of something the system must do in order to achieve the objectives of the system. Basically system requirements fall into two major categories:

- Functional Requirements
- Non functional requirements

Functional Requirements

Functional requirements are those requirements that are directly needed by the system. For web-based counseling, the ultimate aim of this system is to bring the user to certain stage where the user fully understand the root of their problems and able to make a decision by their own self. The functional requirements for web-based counseling are as listed below:

- To provide a screen or a layout which gives the user a piece of mind.
- This is very important because, even though how good the technology it is, all is depend on how the technology is “directed”.
- To provide total guides to user to go through a several question and answer session
- To provide a wizard where the user can obtain a global view of his/her problem

Non Functional Requirements

Non-functional requirements are those requirements that are not directly needed by the business but are nevertheless important. Looking into this, there is vast number of non-functional requirements for web-based counseling. The non-functional requirements for web-based counseling are as listed below:

- A good security measure to maintain the privacy of each user's particulars
- A constant update of new physiology methodology to our system
- The web page should be accessible round the clock all the time

System Requirements

System requirements can be divided to two major requirements, that are hardware requirements and software requirements to build this web-based counseling system. The hardware requirements are:

- Windows 98 Second Edition sufficient space must be made available for the project and ongoing maintenance of the system.

The software requirements are:

- The nature of the project requires using several software to develop the web-based Application. A research has been made to evaluate the types of database and programming language to be used, and we found that Microsoft Access Database 2000 Jet Engine, Microsoft Active Server Pages, Microsoft Internet Information Server, Microsoft FrontPage 2000, Microsoft Visual Basic 6.0 and Adobe Photoshop are required to build the web-based Application rapidly. In addition to that, the web-based Application requires the Database to be hosted on the Web Server.

System Design

The objective of this chapter is to discuss about the system design of the web-based monitoring system. This chapter will be divided into:

4.1 System Architecture

4.2 Database Design

CHAPTER 4:

4.3 Program Design

System Design

phase which is not a final product. It will extract and study the characteristics of the user and will put the user in the required system which will be Visual Basic application to do a certain type of the user problem. The result from the analysis will be used to design the user interface for the user display. Below is graphical representation of the system design.

System Design

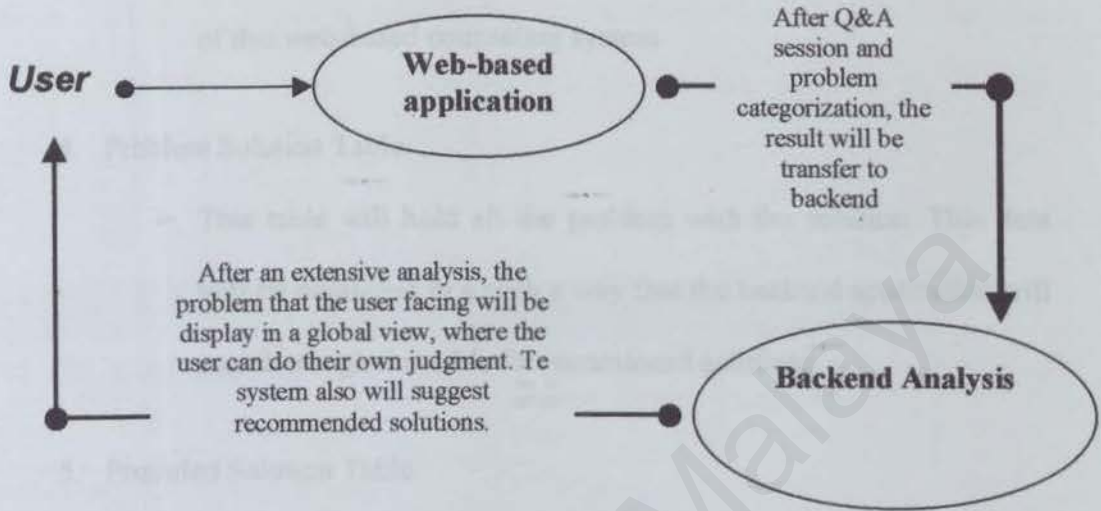
The objective of this chapter is to discuss about the system design of this web-based counseling system. This chapter will be divided into:

- 4.1 System Architecture
- 4.2 Database Design
- 4.3 Interface Design
- 4.4 Design Methods
- 4.5 Program Design

System Architecture

Basically, this web-based counseling system will be divided into two major phases which is web-based application which will extract and study the characteristic of the user and will pass this result to the backend system which will be Visual Basic application to do a extensive analysis of the users problem. The result from the analysis will transferred to the web-based application for the user display. Below is graphical representation of above explanation.

Figure 4.1 System Architecture



Database Design

This involves identifying the business entities, their attributes and their relationships. Other business rules (validation rules, triggers) can also be added. Below is description of the database design for web-based counseling system.

1. User Table

- This table will hold all the information about the user, including the most intimate information about the user.

2. Identified Problem Table

- This table is for hold all the possible problems. This table will extract the problem that a user facing from the "User Table", and categorize all the user base on the problem that they are facing.

3. Transaction Table

- This table will hold all the data about the user checking in and out of this web-based counseling system

4. Problem Solution Table

- This table will hold all the problem with the solution. This data will be organized in a such a way that the backend application will search through this table for recommend solutions

5. Provided Solution Table

- This table will hold data about all the solution given for each user with the user who provided the solution for future back tracks.

6. Unsolved Problem Table

- This table will hold data about user who their problem has not been solved by the system automatically.

7. ICU Table

- This table will hold data about user who in critical stage of mind stage.

8. Geographic Location Table

- This table will hold data about all the location information of Malaysia

DATABASE STORAGE

Access 2000 database will be used to manage tables, records, and product information. ActiveX Data Objects (ADO) and Active Server Pages (ASP) are the keys tool to manipulate data in Access 2000 to generate dynamic web pages for the Intranet Application. The following is the database general specifications.

Attribute	Maximum
Microsoft Access database (.mdb) file size	2 gigabytes. Total size is limited only by available storage capacity.
Number of objects in a database	32,768
Modules (including forms and reports with the Has Module property set to True)	1,000
Number of characters in an object name	64
Number of characters in a password	14
Number of characters in a user name or group name	20
Number of concurrent users	255

Interface Design

Interface design is the most crucial and important aspect that will carry the overall weight of this web-based counseling system. This is because, this web-based system will adapt to new approach of colour therapy to evaluate the user mind set. For this purpose, interface design will take concern about the usage of colours, layout design and animation in order not to disturb the users attentions. The interface also will be design in such a way to reduce the download time to a maximum level. The fundamental layout of

the web-based counseling system will be base from Dr. R. Kadeer Ibraheem's research, which is colour therapy.

The development of this web-based counseling system interface will be guideline by six major general human engineering factors, which are:

- *The screen should be formatted so that the various types of information, instructions, and messages always appear in the same general display area.*
- *The user should always be aware of what to do next*
- *Use display attributes sparingly*
- *Messages, instructions, or information should be displayed long enough to allow the system user to read them*
- *Anticipate the errors that users might make*
- *Default values for fields and answers to be entered by the user should be Specified*

The interface design will avoid several deadly sin interface design, which are:

- *Extensive usage of computer jargons*
- *Usage of synonyms for same action such as EDIT and MODIFY*
- *Complex language such as NOT CORRECT instead of INCORRECT*
- *Grammatical error which might confuse the user*

Design Methods

We will use the very latest technology in designing the web-based counseling system. Following is a brief description of the major tools and languages we will use.

JavaScript

HTML is fairly restrictive, so we use JavaScript to fill in the gaps. Older browsers do not support much of today's technology, so we use JavaScript to determine the visitor's browser type and then provide only the supported features. This enables us to use the latest technology without creating problems for older browsers.

Active Server Pages (Windows NT only)

Active Server Pages is Microsoft's server side scripting tool used to develop dynamic and interactive content sites. It is exactly what's needed to attract the visitors and advertisers attention with the aim of building the dynamic website rapidly without abandoning current CGI scripts or custom components.

HTML 3.0 & 4.0

We currently code to HTML 3.0 and 4.0 standards and are committed to a strict update policy, ensuring we stay on top of this rapidly developing language. Combined with our scripting, this ensures the Web-based counseling system take full advantage of the very latest available technology.

Cascading Style Sheet

Third generation website uses Cascading Style Sheet to produce a better-looking site. Cascading Style Sheet work in similar fashion, but it is more powerful and subtle at controlling web interface. We will use Cascading Style Sheet standards to enhance **the web-based counseling system.**

Unique Artwork

We will use and design graphics that are unique to our web sites. We will create unique artwork and graphics for each layout, in theme with the particular area of business and to their specific requirements.

Optimized Images

We will minimize graphics size to accommodate bandwidth requirements. Because bandwidth is the enemy of all site designers it can cause a trade-off between image qualities and download time. We will reduce complex graphics to small file sizes, while maintaining the quality of the original images. This in return, the Web-based counseling system will load faster.

Program Design

Web-based counseling system will consist of the following:

Web Based User Information

View, delete and update user information, around-the-clock, around-the-globe.

Web Based Counseling Methodology

To develop vivid, colorful, up-to-date counseling methodology and make it available 24 hours a day. To produce effective web based counseling methodology

Web based Search Administration

To develop 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.

Web based user management

Provide administrative functions to manage user details and contacts.

Solution Provider

Provide administrative functions to review solution given and quick access to detailed descriptions for each users stage.

Reports

Provide extensive reports over the web for the staff.

Printable Reports

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

Downloadable Reports into Excel CSV Format

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

Help Desk/FAQ Application

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

E-mail Notifications

To provide email notification functions for each batch update and transaction.

Admin Area

Provide a login menu so that admin can log in and use several functions provided

What's New Area

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

Web Security

The Web-Based Counseling System will 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.

System Implementation And Testing

Introduction 5.1

This chapter will discuss about system implementation and testing. System implementation is a process that converts the system requirements and design that have been done previously to suitable system or program code. There is an assumption that system requirements and design have been completed and approved before this phase.

CHAPTER 5:

System Implementation And Testing

Development Environment 5.2

The development environment is crucial for the rapid development of Web Based Operating systems. The hardware and software tools used to develop and distribute the entire system is as discussed below.

System Implementation And Testing

Introduction 5.1

This chapter will discuss about system implementation and testing. System implementation is a process that converts the system requirements and design that have been done previously to workable system or program codes. There is no assurance that system implementation has follow exactly as system requirement and design that have been draft. This is happening because; conceptual view on system requirements and design phase can be different from real time implementation in system implementation phase. Basically, I have face this conflict in developing my web base counseling system. In system requirement and design phase, my conceptual view of the system I'm going to develop was in different perspective but when I'm implementing my system, I have face a lot of difficulties because of time frame given, my knowledge about advance technology such as artificial intelligence and technology risks. System testing is a phase where various testing is done on the system that have been developed to identify its robustness, bugs, reliability, effectiveness and hardware dependability. I've adapted to top down approach in order to develop my web based counseling system.

Development Environment 5.2

The development environment is crucial for the rapid development of Web Based Counseling system. The hardware and software tools used to develop and document the entire system is as discussed as below:

Hardware Requirements 5.2.1

The hardware used to develop this web based counseling system are listed below:

- Pentium II Processor With 500 Mhz
- 32MB SDRAM
- 50x Cd-Rom
- 10.0Gb Hard Disk

Software Tools 5.2.2

Software tools can be discussed to two section which is:

- *Software tools for system development*

The software tools used for system development are vital to the successful implementation of web based counseling system.

Software	Module	Description
Microsoft Windows 98 Second Edition	System Requirements	Operating System
Microsoft FrontPage 2000	System Development	Web Page Design & Coding
Macromedia Ultra Dev	System Development	Web Page Design & Coding
Microsoft Access 2000	System Requirements	Database
Personal Web Server (PWS)	System Requirements	Virtual Web Server
Internet Explorer 5.0	System Development	Web Page Browsing

Table 5.1 Software Tools For System Development

- *Software tools for system design and documentation*

Microsoft Word 2000, Microsoft Vision Technical 5, Microsoft Paint Brush, Adobe Illustrator 5.0, Microsoft Project 2000 was the basic tools that ease my work in order to complete this project successfully.

System Testing 5.4

Program Coding 5.3

Methodology 5.3.1

Web based counseling system is developed using a modular approach where each module is developed separately and later integrated into a fully functional system. For each module, it is further refined into functions and procedures. By using a modular approach, future modification and enhancement are made easy and effective.

Web Page Development 5.3.2

Being a fully web based system, which makes use the maximum of the internet browser, web based counseling system has been coded using the Hypertext Markup Language (HTML). For scripting, VBScript are used. As for server scripting, ASP (Active Server Pages) technology and VBScript are used. ASP eases database retrieval and manipulation. VBScript is used for server side validation. ASP files are processed by the web server before being presented to the browser. The user will not be able to view the code written in ASP.

All ASP codes will be interpreted into HTML codes, by the web server whenever user requests the ASP files. Microsoft FrontPage 2000 is used to develop the web pages. It provides rapid development environment for building ASP, extensive database tools for

connecting a web site to any database via Open Database Connectivity (ODBC) and to create simple database driven web application.

System Testing 5.4

Software errors and failures occur mainly because of inadequate or improper testing. The purpose of testing is to detect the presence of errors in software – errors that have not been discovered yet.

For web base counseling system, I have adopted unit testing as one of the major approach for testing my system. Basically, web base counseling system doesn't involve that much of extensive programming. Only a certain part involve a extensive programming more or less to logic programming or rule base programming.

The major part I have tested is the user login, new user registration and editing the details. This is the part involves database communication with the front-end system. Testing was covering the area of validation, updating, communication with database. The later testing also has been done on different platform of database such as lower version of Microsoft Access.

Another critical testing was done on temperant sorter (personality grouping using 70 analytical question). These sorters involve 70 questions. After user answered all the 70 questions, they will sort it to four major groups and then will be divided into four more different groups from the former grouping. The testing was carried out whether the function created for evaluate the 70 questions meets the end result.

In order to achieve a good testing module, sample answers was design with designated output. Then we use this sample testing module and tested with the sorter whether it producing the expected output. This testing was very fruitful because it has helped a lot in identifying a lot of errors thus bringing the end product as reliable as now.

CHAPTER 6:

System Evaluation

University of Malaya

System Evaluation

Introduction 6.1

The chapter will discuss about system strength, system limitation, and future

CHAPTER 6:

System Evaluation

- 1. Programming (code)
- 2. Layout
- 3. Efficiency (weight of the code)

Programming (coding structure) 6.2.1

Most of the coding structure is the construction of user based programming system like user based system. For example, the user folder of the web based accounting system, which is described as "Feasible" which can be copied to any hard drive or to any folder and the system can work effectively after some minor personal adjustments. Hence, this work is very useful and important to the BPOC or BPOI in each company because the entire job has been taken care automatically by the code.

System Evaluation

Introduction 6.1

This chapter will discuss about system strengths, system limitation, and future enhancement. Basically, content of this chapter are from the review that have been done by my colleagues, third party user and my own personal views on the system.

System Strengths 6.2

The strength of web based counseling system can be divided to three major phases, which are:

- 1. Programming (coding structure)**
- 2. Laymen**
- 3. Effectiveness or concept of the web content**

Programming(coding structure) 6.2.1

Most of the coding involve in the construction of web based counseling system are not hard coded. For example, the main folder of the web based counseling system, which is described as "Personality" folder can be copied to any hard drive or to any folder and the system can work effectively after some minor personal web server (pws) configuration. Beside this, there is no manual configuration to the ODBC or DSN in each computer because this entire job has been taken care automatically by the code.

Beside of this, all the scripts written are not browser dependant. The system can run in major browsers very well. **Remark: Runs well in Beta Version of IE6 but not tested in Netscape 6.*

Laymen 6.2.2

The definition of laymen here is the user of web based counseling system without or minimal computer knowledge. From the review I have done, most of the user are comfortable to my system and understand what the system can cater for them. This system is designed with *simple registration method and also easier way to update personal details.*

Basically, the system is very user friendly, because the web page is system by it own after integration of couple of modules. Each module which is has its own task in terms of psychology was attracting to most of the user because it will help the user to identify who they are in a easier and effective method.

Effectiveness or concept of the web content 6.2.3

Generally, the web based counseling system are based on couple of psychology method. There are two proven methodology involve as major part of web based counseling which is:

- Colour Therapy
 - This methodology will identify a person brain usage. This therapy will identify which part of the brain a particular person using the most.

- Keirsey Temperant
 - This therapy will bring a user to answer seventy questions and will identify the person Temperant.

Beside this two therapy, there are couples of other Q&A session in a more multimedia mode and psychology games. This entire concept actually indirectly will examine the person characteristics. Even though the system does not solve or identify a persons problem, but it actually is a stepping stone system for more intelligent system in future because it can identify a person characteristic more precisely and output the result of each person in more understandable mode which is graphic.

System Limitation 6.3

As per objective of this thesis, I believe that web based counseling system able to met the objectives. As a computer student, what in my conceptual view of the ultimate web based counseling system is totally different from what I have developed for this thesis. This is because, in order a web to cater as a counselor or in other name a tool to help human being to solve their problem more lovingly or more humanly is something a long way to go. This is because; it will integrate a lot of new technology such as Artificial Intelligency concept, statistics and precise psychology method.

Ultimately, there is one major flaw in this web based counseling system. The system doesn't keep track how the user interacting with the each psychology model in terms of how many time they spend to answer the question, how many times they are

logging to the system in daily basis or weekly and the result of their characteristic study doesn't stored in database for future analysis. This involves quite a tough job but it is very important to keep track the user activity in order to understand the user more precisely.

Future Enhancement 6.4

As I have discussed earlier in the system limitation section, there is a lot of future enhancement should be implemented in order the web based counseling system worked as it is should work. 90% time frame given to complete this thesis was spend entirely to collaborate psychology method with computer technology. Finally, the system I have developed is the final outcome of this research.

The area of enhancement for this system is to tighten the database structure. The database should be designed using SQL, or Oracle in order for great efficiency because currently the backbone for web based counseling is supported by Microsoft Access. The structure of the database should be overhaul to group each person more identically and store all the data about the user; from the way he/she click the mouse to how they respond to the system. All the data should be ordered in great efficiency to ease data analysis.

I will be discussing more about enhancement of the system in conclusion chapter where I will be sharing what I have discovered during my research on developing this web based counseling system

Conclusion

Overall, this web based counseling system is the stepping-stone for future web based counseling system. What this system does is basically identify a person characteristic via psychology method and output the result in a graphic mode to let the person understand better what type of person he is. Beside this, the system also catering a lot of motivation parts, how to deal with tensions, and way to relax the mind with some sort psychology games. All the method are combination of several techniques introduce by various experts in psychology for example Dr. Kadeer Ibrahim to name a few.

The completion of this project was a great experience for me because, I believe I have understand what I have studied theoretically all the years in this campus life when I have personally tried my level best to implement those things I have learned into this thesis. Basically, what I have identified was, system analyst and design or can be said requirement capturing is a critical task. This is why because, after the requirement study, we have to build our own conceptual system. If we don't identify whether the current technology or experts can delivered the conceptual system; lets say by a certain time frame, the overall system will be halted or fail.

Web Based Counseling System is a wonderful topic to conduct a research. This is because; the latter system is coordination of a two major area that is computer technology and psychology technology. Psychology technology varied from each expert because the way each experts solve a problem depends on their belief system. So, in order to adopt dynamic approach to computer technology will involve great deal of time and study.

From the research I have done, I have brought my own theory of how to develop a pure web based counseling system. What I have discovered is, human being can't be judged as simple as what we think. They will change according their own belief system because *the only constant in this world is to change*. So, there must be sufficient amount of data should be collected before we analysis a person and then to identify the problem they are facing and later to solve it professionally.

Data can be collected by various method but we have to distinguish whether the data provided doesn't consist any biasness because human are very selfish to let know who the real they are even though the counselor is the computer itself.

After considering all this, I have come to understanding that, there should be a co-ordination between three major technologies, which is computer technology, psychology technology and statistic technology. Why? Computer technology that involve in this research is can be divided to two major area which is web technology and artificial intelligence technology. Web technology is the way in which the web is constructed. The latter will cover the area of designing an effective outlook of the web covering from various aspects. Artificial Intelligence technology will analyze the data that the system collected and will do the prediction, identification and forecast. So, the precise output of the artificial intelligence depends on the integrity of the data that it receives. So, in order to analyze the data whether it is highly reliable or not, statistics technology will come in. There are a lot of techniques in statistic to evaluate a certain data such as sampling technique. It means, all the data that the system collected should go through statistical

method before it passed on to A.I engine. Basically, what I have said here is mostly the mechanical part of web based counseling system. The abstract part of it is, the way how psychology method involve is still an unanswerable question.

I believe there is much room for how to implement a pure web based counseling system. Generally, I have gained a lot of knowledge by completing my thesis successfully.

- 1. New Therapy Magazine by Dr. Michael Yapko
- 2. Breaking The cycle of Depression by, (with ...)
- 3. It's a Kind of Solitude by William O'Connell and Richard Weiner-Davis
- 4. Inside the Mind by ...
- 5. Software Engineering by ... (University Malaya)
- 6. Statistik For Psychology by Arthur Aron & Elaine N. Aron
- 7. Cognitive Psychology by Robert L. Solso
- 8. The ... of the Mind by ...
- 9. Mind ... of Mind by Jerry A. Fodor
- 10. Perception: The Basic Processes in Cognitive Development by Rosalind H. Tharner
- 11. Design Statistics For Psychology by ...

Reference

Reference

In order to accomplish this project, the references that we had referred to are as stated below: -

Web-Sites

- www.counselling.org.sg/
- www.sunink.com/counselling/home.html
- www.2psych.com/

Books

- New Therapy Magazines by **Dr. Michael Yapko**
- Breaking The cycle of Depression by **Ivan Tyrrell**
- In search of Solutions by **William O'Hanlon and Michele Weiner-Davis**
- Battle for the Mind by **William Sargant**
- Software Engineering by **Dr. Sellapan (University Malaya)**
- Statistic For Psychology by **Arthur Aron & Elaine N. Aron**
- Cognitive Psychology by **Robert L. Solso**
- The science of The Mind by **Owen Flanagan**
- Modularity of Mind by **Jerry A. Fodor**
- Perception: *The Basic Process In Cognitive Development* by **Ronald H. Forges**
- Basic Statistic for Psychology by **Duxbury**

Reference

Consultant

- Prof. Dr. R. Kadeer Ibraheem
- Mr. A. Sivasubramaniam
- G. Surya Moorthi
- Ms. Pathmavathy
- Prof. Gill Jack Man
- Webtrent Technology (<http://www.webtrent.com.my>)
- Terence Lau

About This Manual

This manual will provide the reader for the following areas:

- Hardware & Software Requirements
- Configuration

ATTACHEMENT:

User Manual

- Platform (32-bit or 64-bit) (Intel or AMD processor)
- Minimum RAM 2GB
- Hard Disk requirement of 1GB free space

Software Requirements

Web Based Client (Internet Explorer)

- Windows 7/8/10 or Linux - Operating System
- Internet Explorer & Netscape 4.0 Above - Browser (Web Based Client and to the browser download)
- Microsoft Word Server

About This Manual

This manual will provide the guides for the following area:

- Hardware & Software Requirements
- Compatibilities
- Configuring Web Based Counseling System
- Tour Guide Through Web Based Counseling System

Hardware & Software Requirements

Hardware Requirements

Listed below are the minimum hardware requirements to run the web based counseling system:

- Pentium 133 Mhz or Above (*Runs well in AMD processor also*)
- Minimum 16MB RAM
- Other Basic requirement of desktop computer

Software Requirements

Web Based Counseling System runs well in:

- Windows 98 Second Edition – Operating System
- Internet Explorer 4 & Netscape 4 & Above – Browser (**Web Based Counseling Is Not Browser Dependant*)
- Personal Web Server

Configuring Web Based Counseling System **Compatibilities**

Web Based Counseling System has been tested in different platform of operating system. Below are the results of test conducted.

Operating System / Browser	WEB BASED COUNSELING SYSTEM		
	Compatible	Not Compatible	Not Tested
Windows 95 (Requires TO Configure PWS)	✓		
Windows 98 Second Edition (Requires TO Configure PWS)	✓		
Windows Millennium (Requires TO Configure PWS)	✓		
Windows NT4 (Requires TO Configure IIS)	✓		
Windows 2000 (Requires TO Configure IIS)	✓		
Windows XP Home Edition (32 Bit) – Beta version 2 (Requires TO Configure IIS)	✓		
Windows XP Home Edition (64 Bit) – Beta version 2 (Requires TO Configure IIS)			✓
Internet Explorer 4 To Internet Explorer 6	✓		
Netscape 4 To Netscape 6	✓		

Configuring Web Based Counseling System

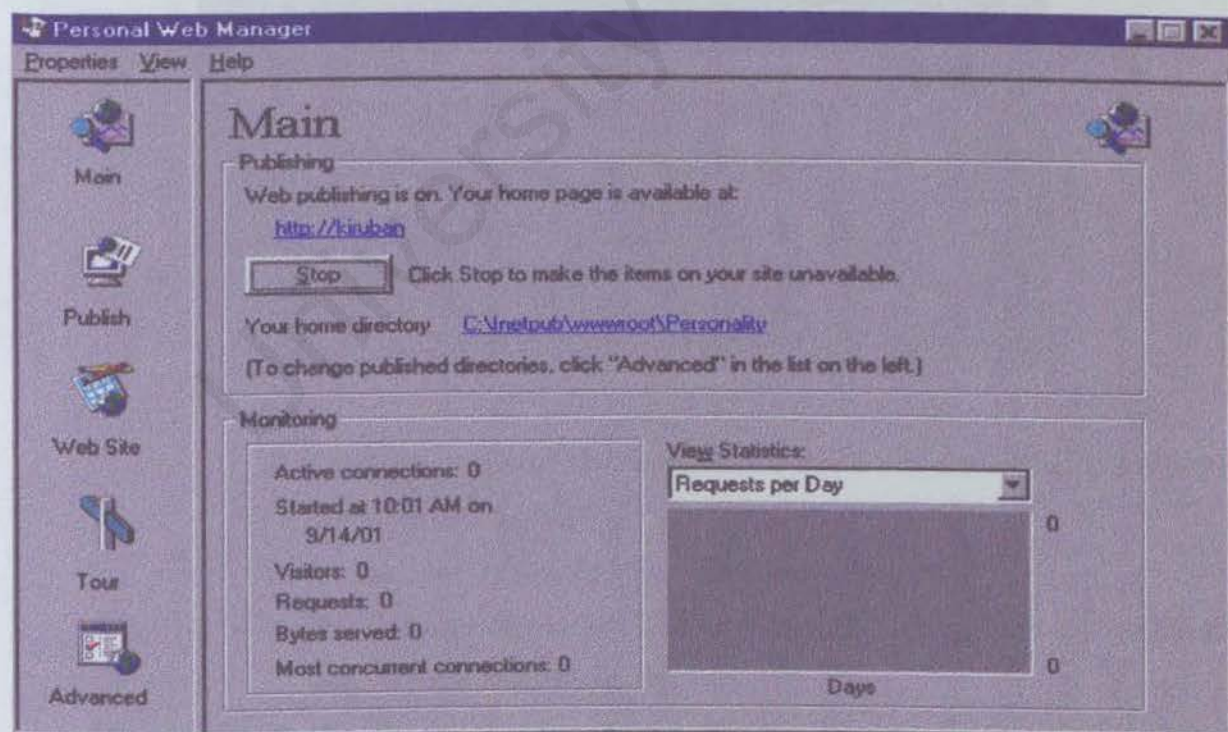
List below is a simple procedure to configure web based counseling system:

1. Insert the CD labeled "Web Based Counseling" into your cd drive
2. Copy the folder named "Personality" from the CD labeled "Web Based Counseling"
3. Paste the "Personality" folder into any hard drive.

After the above process, we have to configure personal web server (PWS). Below are the procedures to configure personal web server to run web based counseling system:

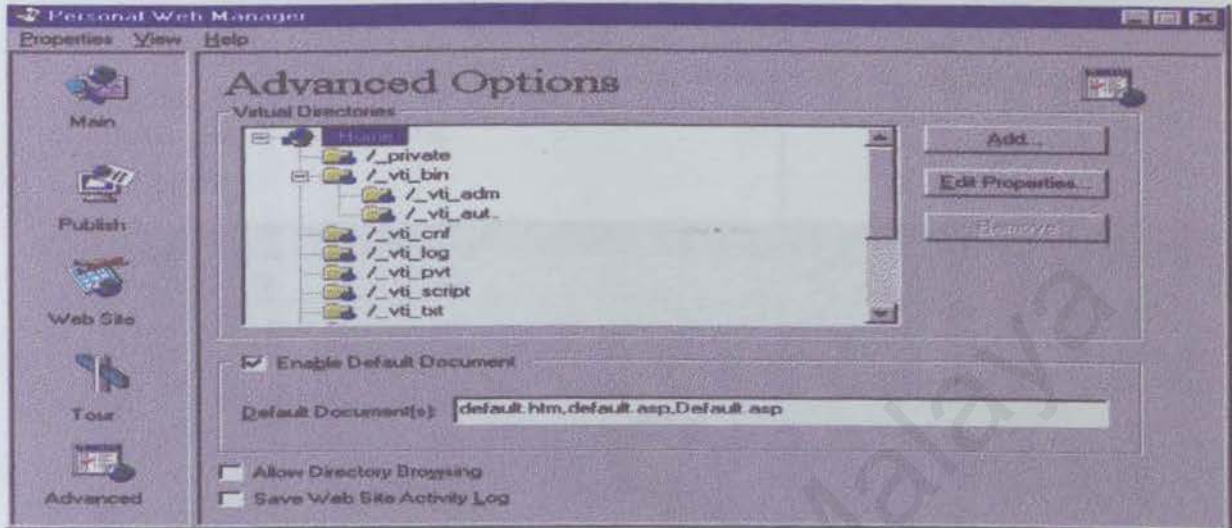
(*Remark: Assume that, personal web server is running in your computer.)

1. Start Your Personal Web Server
 - Below is the screen appear when PWS is started



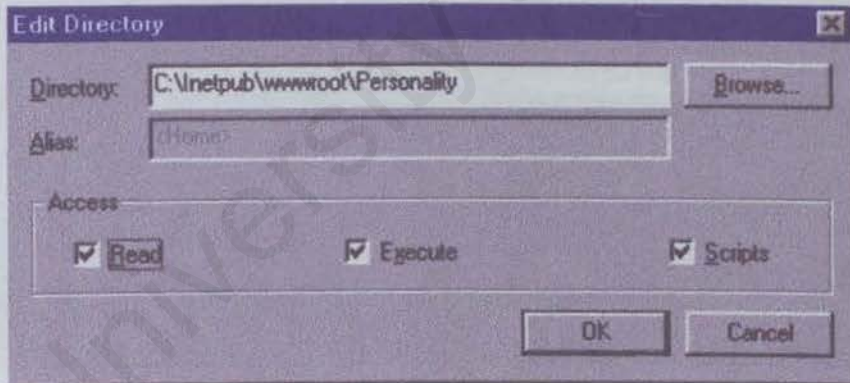
2. Click "Advanced" menu

- Below is the screen appear when "Advanced" menu is clicked



3. Click "Edit Properties"

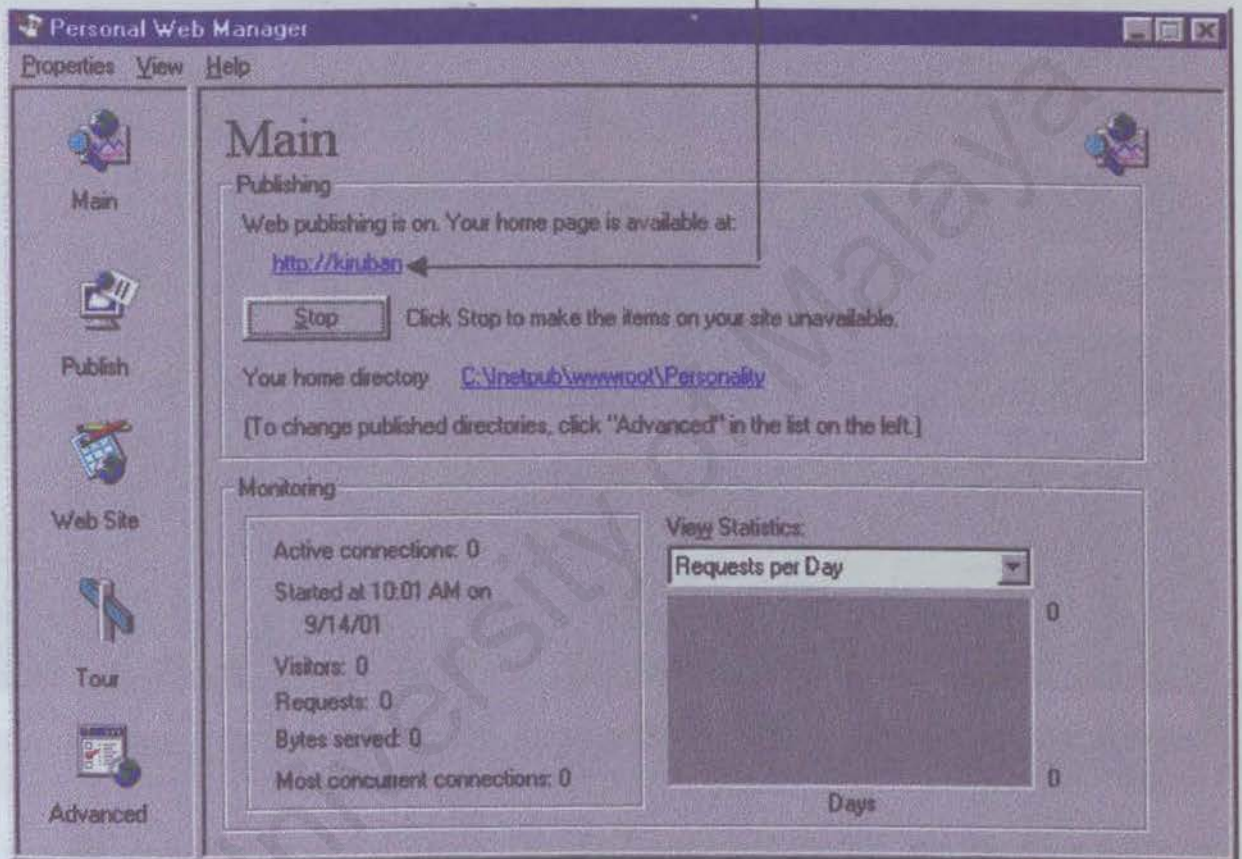
- Below is the screen appear when "Edit Properties" menu is clicked



4. Click the "Browse" button and locate where you copied the personality folder in your hard drive.
5. Please checked the "Enable Default Document"
6. In "Default Documents(s)" text box, please type, "default. asp" in the text box, if it not listed there.
7. Finally, just start button from the Main document from the Personal Web Server. Now, personal web server is successfully configured.

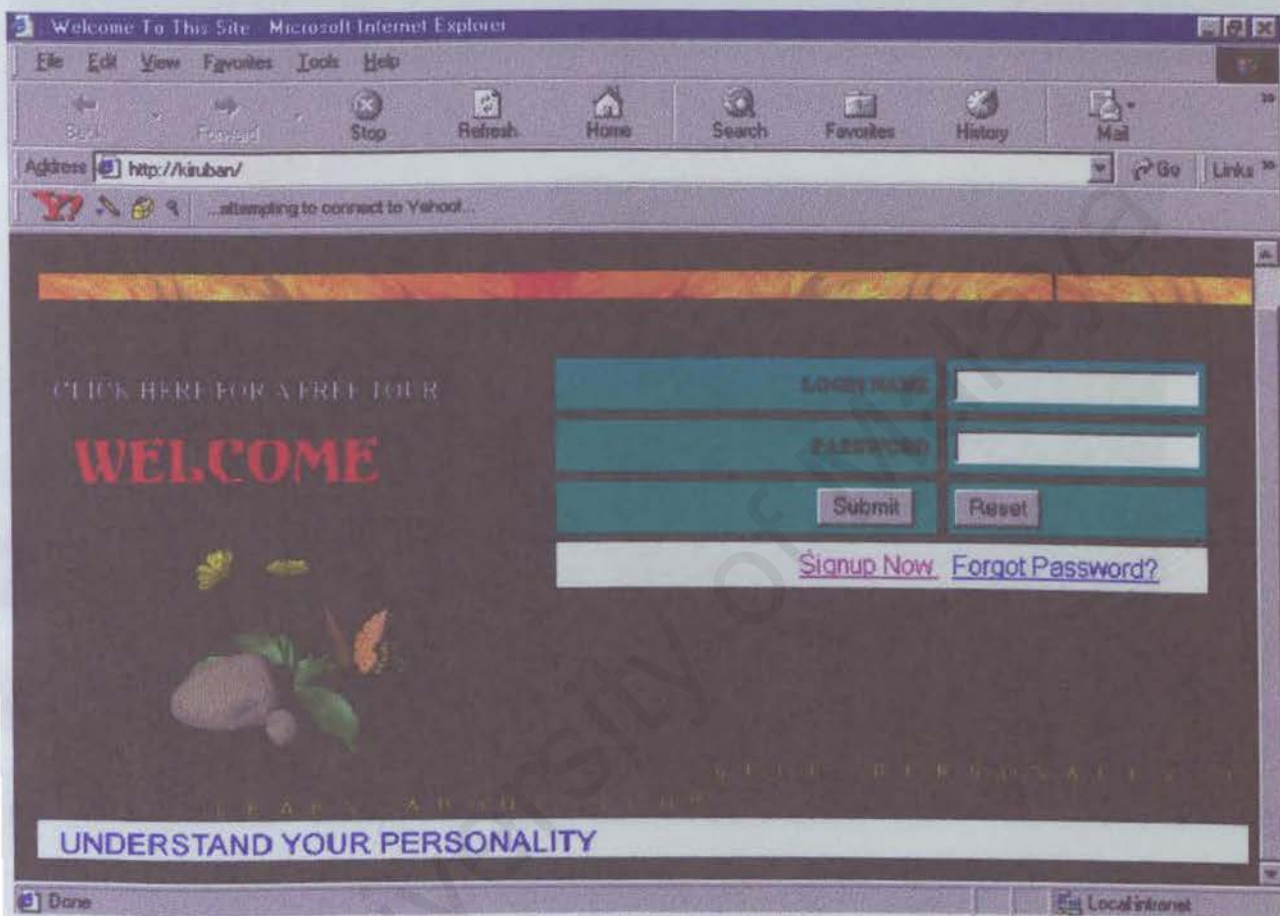
To Launch Web Based Counseling:

1. Just point your cursor as shown below. The URL varies from computer to computer. Click the URL displayed and it will launch web based counseling.

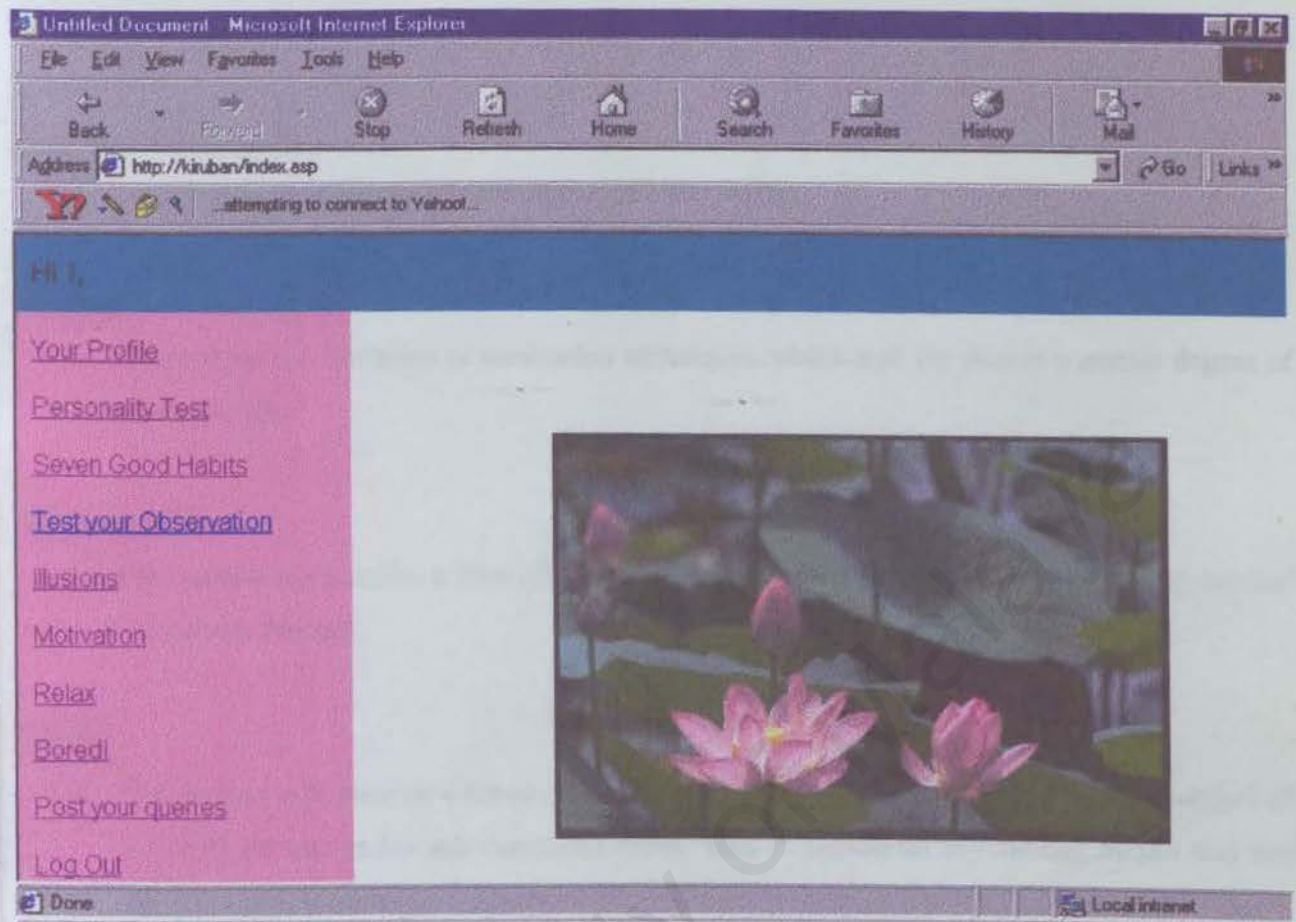


2. Default browser will open and display the web based counseling system.

Tour Guide Through Web Based Counseling System



This is the startup screen of web based counseling system. Registered user can login using their login name and the password. For new user, they have registered themselves using "Signup Now" menu from the startup screen. After a successful login, user will brought to the main page as shown in below.



This is the main page displayed when user login. Left hand side frame is the navigation bar from one module to the another. Below are the explanation for each module:

Your Profile

- Is where user can edit their own profile and change their login password.

Personality Test

- In this module, there are three section which is divided to "Colour Test", "Temperant" and "Quiz". All this section is a proven psychological test that should be carried out by user in order for the system to understand the user characteristic and their belief system.

Seven Good Habits

- A text base tips for proven successful habits that can be practiced in everyday life.

Test Your Observation

- This section will examine users degree of observation.

Illusion

- This section is a imitation of meditation techniques which lead the user to a certain degree of concentration.

Motivation

- This section is basically, a PowerPoint presentation which presented in eye catching method to motivate the user.

Relax

- This section will provide a tongue twister text that will entertain the user and indirectly will recorded the text to his sub conscious mind. This is wonderful psychology mixed text that carries a lot of meaning.

Bored

- Here, user can relax their mind with a wonderful flash game.

Post Your Queries

- Here, the user can post their suggestion to the webmaster.

Log Out

- The user will be logged out from web based counseling system.