

School for Mentally Retarded Online System



Perpustakaan SKTM

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ABSTRACT
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ACKNOWLEDGEMENT



or a semi-automated system, in order to keep up with the changing era today, an online system is needed in order to manage the schools efficiently and systematically. Realizing the potential and the need of a new system, I have decided to develop this School for Nursery-Kindergarten Online System.

This system is a combination of web based and client-server architecture application system. Users of this system are able to access this system online.

The system is developed using Active Server Pages 2.0 technologies, SQL Server 7.0, as well as VBScript. This system is developed in order to replace the existing manual system in a semi-automated online system.

Using this system will improve the way of managing the schools and hopefully the system will be beneficial to everyone.

ABSTRACT & ACKNOWLEDGEMENT

ABSTRACT

Most of the school for mentally retarded are still using the old manual filing system or a semi-computerized system. In order to keep up with the computer era today, an online system is needed in order to manage the schools efficiently and systematically. Realizing the potential and the need of a new system, I have decided to develop this School for Mentally Retarded Online System.

This system is a combination of web based and client-server architecture application system. Users of this system are able to access this system online.

The system is developed using Active Server Pages 3.0 (ASP) technologies, SQL Server 7.0, as well as VBScript. This system is developed with intention to replace the existing manual system to a new computerized online system.

Using this system will improve the way of managing the schools and hopefully the system will be beneficial to everyone.

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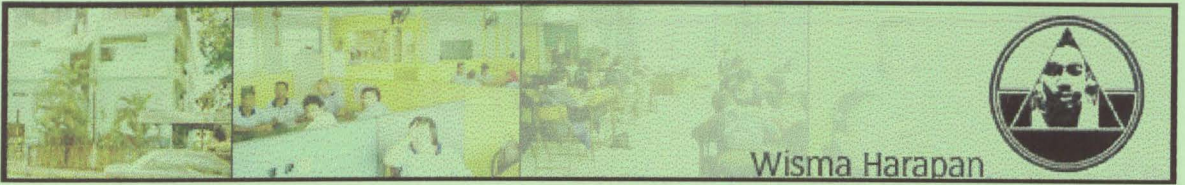
There are others who I missed, please accept my humblest apologies and my assurance that your help is greatly appreciated

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Wisma Harapan

project, and targeted users. Project objectives will be stated at the end of this chapter.

1.1 Overview

A school for mentally retarded is a charity organization which handles mentally ill students. The basic activities of this particular organization are mainly teaching the students, handling the donations, contributions, etc. Most of these organizations are non-profit organization. Mainly the objective of this school is to provide training in living skills that are needed to help those who are mentally retarded become independent and useful individuals.

Most of the current schools are still using the old manual filing systems to store all the data, financial transactions, or other necessary records. Some of the schools are starting to use computers but there is no database system for these schools. Existing system is too primitive and not efficient in this computer age.

An online computerized system that provides quality of service, speed in processing, accuracy, and efficient is badly needed by schools for the mentally retarded.

Chapter 1

Introduction

CHAPTER 1 INTRODUCTION

This chapter gives an introductory description of the project, definition, scope of the project, and targeted users. Project schedule will be stated at the end of this chapter.

1.1 Overview

A school for mentally retarded is a charity organization which handles mentally ill students. The basic activities of this particular organization are mainly teaching the students, handling the donations, consultations, etc. Most of these organizations are non-profit organization. Mainly the objective of this school is to provide training in living skills that are needed to help those who are mentally retarded to become independent and useful individuals.

Most of the current schools are still using the old manual filing system to store all the data, financial transactions, or even inventory records. Some of the schools are starting to use computers but there is no systematic system for these schools. Existing system is not practical and not efficient enough in this computer age.

An online computerized system that provides quality of service, speed of processing, productivity, and efficient is badly needed by schools for the mentally retarded.

1.2 Project Definition

The School for Mentally Retarded System is an online system allows users to view the information of the selected school, such as student profiles, employee info, etc. Administrators or the management of the school are able to modify the database online. Administrator's login will be used as a security measure.

This system is developed using client-server architecture. A web server will be used to process the web page, and a database server will be used to store and manage all the data and records. Users can access this system anytime, anywhere because this is an online system.

The system can produce reports for students, employees, inventory, as well as financial transactions of the organization. Online donations can be made using this system.

1.3 Objectives

These are the objectives of the School for Mentally Retarded system

- To develop a computerized and paperless system for a mentally retarded school that will help the administration procedures.
- To design an online system which manages the database regarding the patients, employees, inventory, as well as financial aspects of the organization.
- To increase the current management system to a more efficient, reliable and faster method of computerized management
- To create a simple, easy to learn, and a user friendly system. This includes an attractive Graphic User Interface (GUI), functions, etc.
- To design a system which allows users to view or modify the data using the internet.
- To design a system which produces full reports regarding a student, an employee, inventory control, and financial transactions of the organization.

1.4 Project Scope

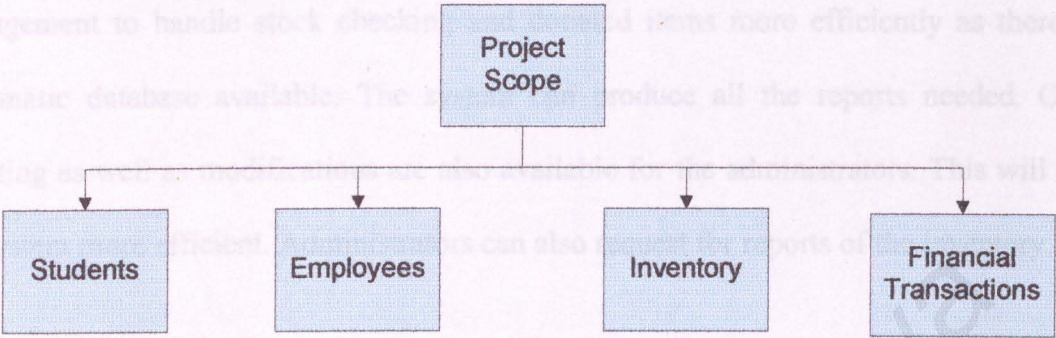


Figure 1-1 Project Scope

Students

The system will store the information or profile of the students in the database. Name, contacts, medical background, etc are the information stored.

Administrators are able to add or edit students profile online while normal users can only view the student profiles. Normal users are not permitted to make any changes to the database. The system is able to produce reports for the administrators.

Employees

The system will also cover the employee’s profile. Basic information such as name contact number, address, qualification, SOCSO number, EPF number, will be stored. Only administrators are permitted to modify or make any changes to the database. Reports can be viewed or printed.

Inventory

The system will store all the inventory of the database. This will help the management to handle stock checking and donated items more efficiently as there is a systematic database available. The system can produce all the reports needed. Online updating as well as modifications are also available for the administrators. This will make the system more efficient. Administrators can also request for reports of the inventory.

Financial Aspects

Financial transactions of the organization will be recorded by the system. This will help the accounts department to do their work easier. Reports of transactions can be made in a short period of time, without having to search in a whole rack of files, which is time consuming. Users can make donations online using credit cards. Financial transaction reports can be printed as requested, but this function is only available for the administrators.

1.5 Expected Outcome

This project will benefit a lot of people in every aspect. In general, this system will change the way of managing schools for mentally retarded dramatically. Factors such as level of service, availability, efficiency will improve using this system. This system will change the existing manual system or semi-computerized system into a fully computerized online integrated system.

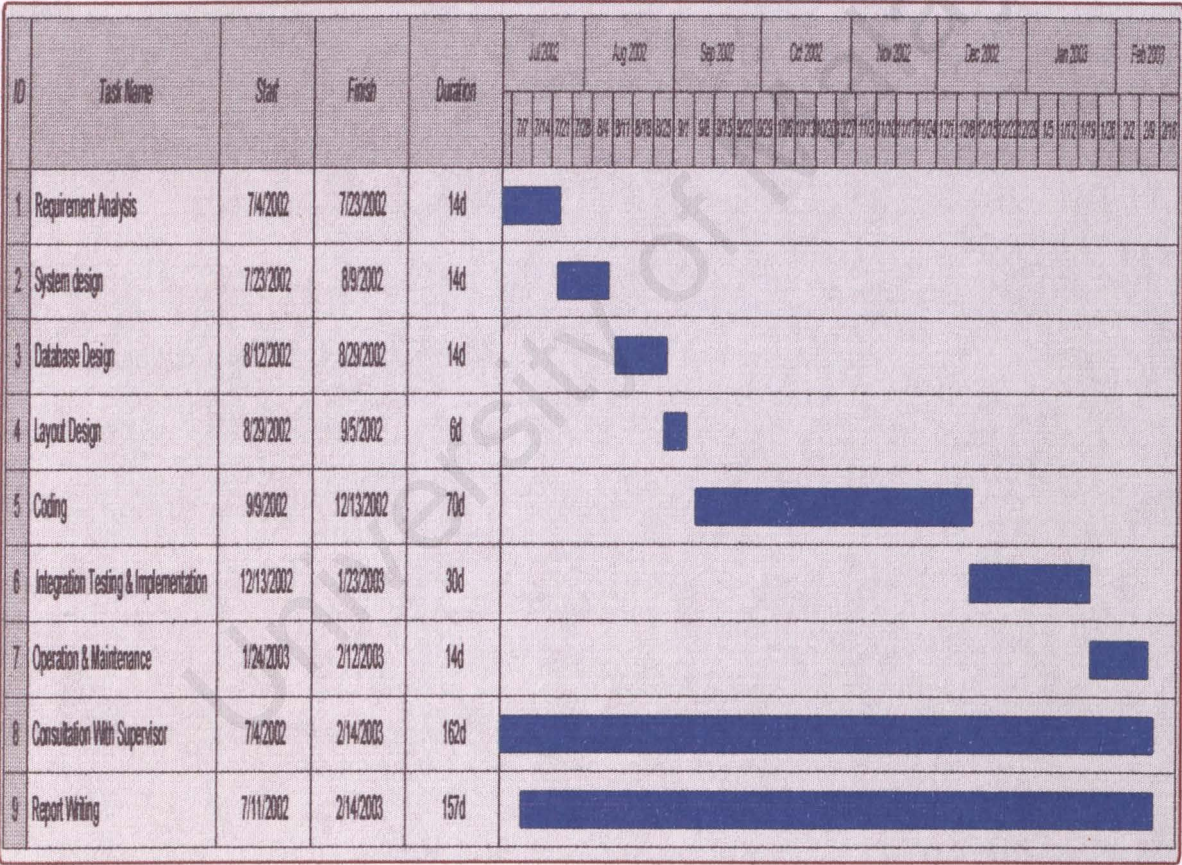
Management personnel or the school or administrators will benefit the most using this system. This system is designed as an online system, so the administrators will get all the flexibility they want, as long as they have internet connection. The system will also store all the data of information in a database so that the daily procedures or processes of this school can be settled in just a few keystrokes. Days of searching files a room full of racks will be long gone. Data can be retrieved easily and modifying the data is also can be done in a very simple manner.

Normal users also can use this system because this is an online system, but they are only permitted to view selected data only. Users are able to make online donations using the system. Online donations will make it easier for users, instead of going to the school and facing problems such as traffic jam, online donations can be made in the office or at home which is very convenient.

Figure 1-7 Part of School's for School for Mentally Retarded System

1.6 Project Schedule

Each project will need a project schedule. In order to achieve project objectives, a project schedule has been properly planned to manage the time and tasks that must be completed with a planned development phases. This is to ensure that the project will run smoothly and according to plan. Figure 1-2 below shows the project schedule for this development project.



1.7 Chapter Summary

This chapter gives the overall picture of the SCHOOL FOR MENTALLY RETARDED ONLINE SYSTEM. This chapter covers the project definition, the objectives, scopes, project schedule. This chapter also explains the basic understanding such as the functions, the benefits of using this system and what this system will provide to the organization. The following chapters will cover the literature reviews, methodologies, design, implementation, design, etc. Each topic regarding the system will be explained in detail.



development project. Each system will be analyzed. This chapter also covers the technologies that can be used for this development project.

2.1 Selangor and Federal Territory Association for Retarded Children

Wisma Harapan, Brickfields.

2.1.1 Introduction

The Selangor and Federal Territory Association for Mentally Handicapped Children was established in 1984 as a non-profit organization. Its headquarters, Wisma Harapan is located in Kuala Lumpur. The association was initiated by group of concerned parents and voluntary workers under the sponsorship of the then Rotary Club of Klang and Port Swettenham. From a humble beginning of 4 children and one teacher, the association now has 12 special schools and centres catering to more than 600 children with varying mental disabilities.

The aim of this organization is to provide education and training to mentally handicapped children and young adults so that they may realize their true potential.

The special schools is to provide training in living skills that the children who are mentally retarded can become independent and become useful to the society. They are also taught to the extent of their capabilities. The curriculum and programmes are individualized, systematic and structured.

Chapter 2 Literature Review

CHAPTER 2 LITERATURE REVIEW

This chapter will focus on analyzing the existing and similar system to the development project. Each system will be analyzed. This chapter also covers the technologies that can be used for this development project.

2.1 Selangor and Federal Territory Association for Retarded Children Wisma Harapan, Brickfields.

2.1.1 Introduction

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The aim of this organization is to provide education and training to mentally handicapped children and young adults so that they may realize their true potential.

The special school is to provide training in living skills that are needed to help those who are mentally retarded to become independent and become useful individuals. The 3R's are also taught to the extent of each child's ability to learn. The teaching and learning programmes are individualized, systematic and structured.

They are conducted by specially trained teachers. Parents and care providers are encouraged to participate in the class so that they can reinforce the learning at home.

Maintaining this centre involves a large sum of money and part of this budget met by grants from the Ministry of Unity and Social Development. The remaining amount has to be made up by contributions from supportive corporations, generous individuals and through fund raising projects.

2.1.2 The Programmes

Early Intervention Program

The early intervention program is for children of 4 years old and below. Individualized training plans are worked out and parents are encouraged to implement them at home to prepare for the children for programmes at the centre later. Talks and discussion sessions are organized for the benefits of the parents.

School Programme

This is a programme for 5-18 year olds. The students are divided into 4 levels that are ability oriented. The core-curriculum consists of cognitive and language programmes and motor sensor orientation activities. The applied curriculum include music and movement, housecraft, self helped skills, art and craft, pre-vocational skills, nature study, simple hygiene and science, and interpersonal and socialization skills. The main objective is to gradually equip the children with as many living skills as they can master so that they can lead a meaningful life.

Vocational Training/Adult Education Programme

This programme is designed for those who have completed the school programme and others who have meet the entry criteria. The vocational centre consists of the following units, initial assessment and training, domestic science, light carpentry, general craft, simple sewing and education.

Sheltered Workshops

This programme is for students who have completed their vocational training, but cannot be placed in the job market. Contract work such as packing, folding, fixing, soldering, assembling, sorting and others are undertaken to help in their productive use of their time. Academic training and community living skills are also taught.

At these sheltered workshops the students work for a salary and it is very encouraging, both themselves and their parents.

2.1.3 Existing Manual System in Wisma Harapan

Surveys has been carried out to understand how the current management system of the organization. Procedures as well as day to day activities were observed and questions were asked to the management staffs to understand basically how to run the place. Using the information gathered, requirements and constraints can be determined easily and precisely.

Current system is done manually by the management staffs. Mainly there are 4 basic activities, managing the students, employees records, managing the inventory, and finally, managing the financial aspect of the organization.

Managing the Students

Managing the students includes teaching the mentally retarded students and keeping their records. New student registration, change of profiles and procedures for student who completed their programme are also the activities involved in the activities of this organization.

Student's' record such as name, address, level or retardation, medical reports, etc are kept in files. Every changes or modifications are done by the management staffs manually.

Employee Records

Employee records include the profile of the particular employee such as name, salary, EPF Number, SOCSO Number are also kept in files. Every changes or modifications are done manually.

Financial Aspect

Financial Aspect involves managing the accounts of the organization. These include recording the income and expenditures. Income for the organization is from the government (in the form of grants), donations, fund raising events, etc. Examples of expenditure include the maintenance bills, buying assets, salaries for the workers, etc.

A ledger book will be used to do the book keeping and Microsoft Excel also be used to record all the transactions. Every receipt number or cheque number for every transaction involved will also be recorded for future reference.

Managing the Inventory

All the inventory records are stored in Microsoft Excel and all the necessary updates will be done by the management staff in-charge.

2.1.4 Weaknesses of the system

- Not Convenient

The organization handles large number of mentally retarded students as well as employee records. Using the filing system means the organization is dealing with a large stack of files. This will be not convenient for the management staffs in this computer era.

- Time Consuming

Every change that has to be made regarding the students or the employee will be time consuming using the filing system. Searching for records would be also use a lot of time using this method. This will indeed lead to low productivity.

- Not Systematic

Existing system is not systematic compared to the developed system. Every task will be done using separate different procedures. This shows that the whole management system is not fully integrated.

2.2 Pediatric Oncall

URL : www.pediatriconcall.com

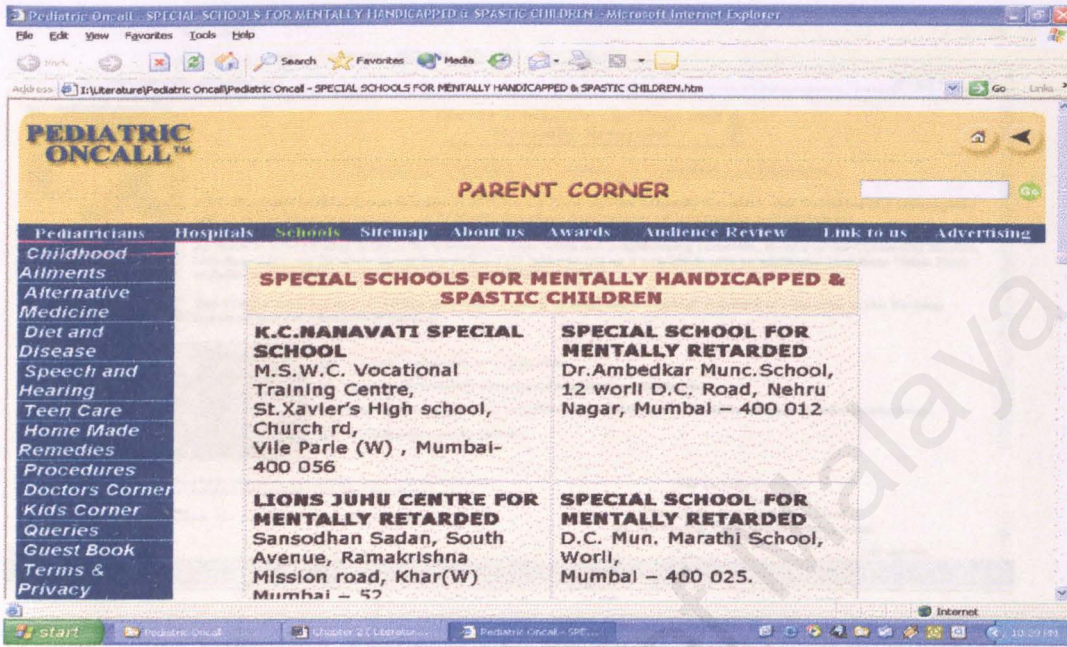


Figure 2-1 Pediatric Online

Pediatric On Call is one its kind child health website. It is an online system to view all information regarding health issue to healthcare. This website won a prestigious award in India for its brilliant website.

Strength of the system

- Very informative, full of information regarding health issues
- A group discussion for the users to discuss specific health topics
- Easy to use and user friendly interface

Weaknesses of the system

- Online donations are not available
- No detailed information for each school

2.3 Clarke School of Deaf and Mentally Retarded

URL : www.chennainet.com/clarkeschool

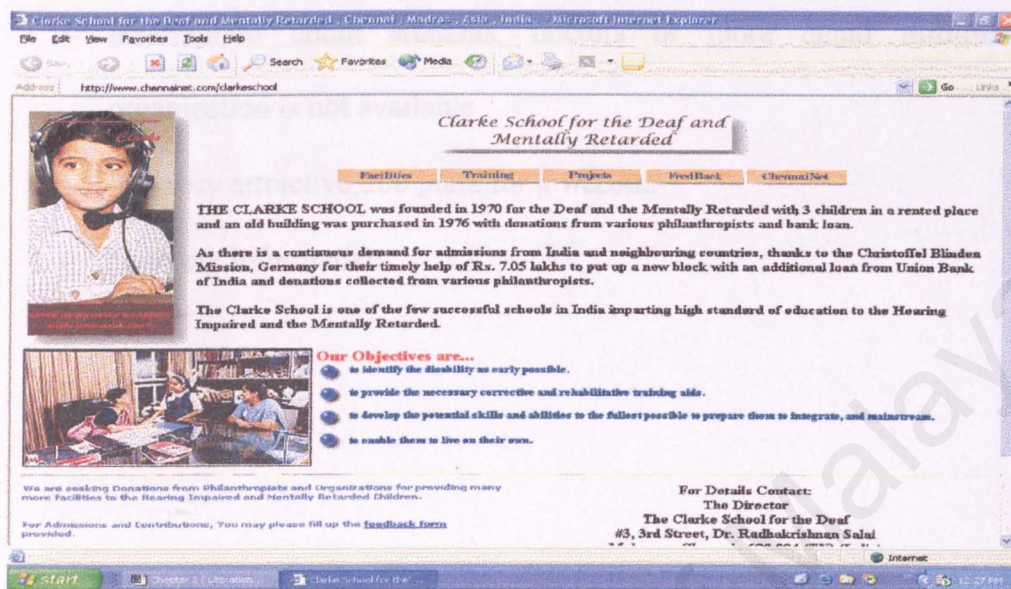


Figure 2-2 Clarke School for the Deaf and Mentally Retarded

CLARKE SCHOOL was founded in 1970 for the Deaf and the Mentally Retarded with 3 children in a rented place and an old building was purchased in 1976 with donations from various philanthropists and bank loan. It is one of the leading schools of the deaf and mentally retarded in India.

Strength of the system

- Very straight forward page
- Easy to navigate

Weaknesses of the system

- Online donations are not available
- Information about students, doctors or more detail information regarding organization is not available
- Not very attractive, too plain for a website
- Not very informative

Figure 2-3 AHRF Suffolk

Suffolk AHRF is a non-profit charity organization which basically a mentally retarded school. Suffolk AHRF is a part of NY SARC, Inc. (formerly the New York State Association for Retarded Children, Inc.) is a voluntary organization founded in 1949. This organization is very active in doing their charity works.

Strength of the system

- Nice layout and user friendly interface
- Very nice information

Weaknesses of the system

- Online donation not available
- Information about students, doctors or more detail information regarding the organization is not available
- Not very attractive and too plain

2.4 AHRC SUFFOLK

URL : www.ahrcsuffolk.org

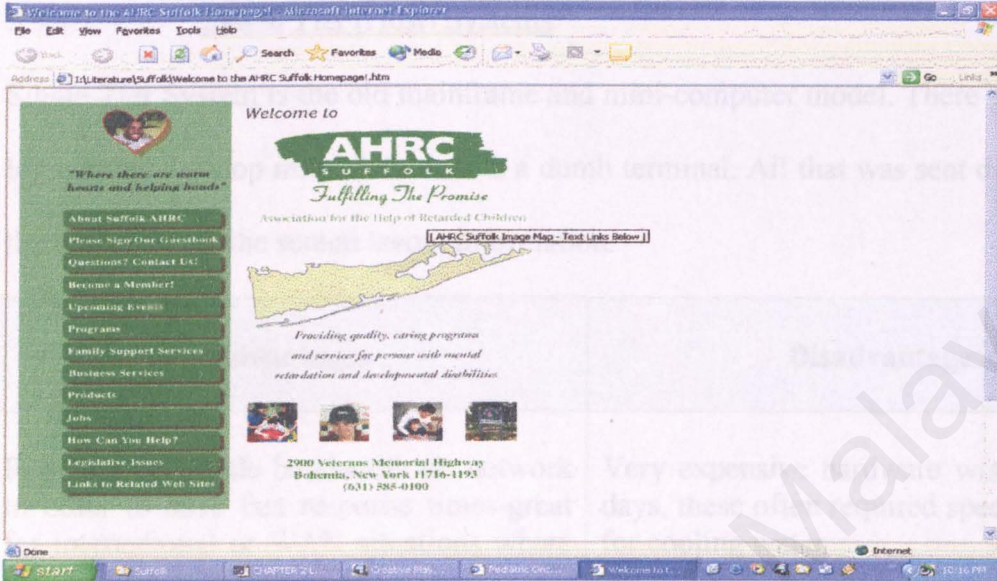


Figure 2-3 AHRC Suffolk

Suffolk AHRC is a non-profit charity organization which basically a mentally retarded school. Suffolk AHRC is a part of NYSARC, Inc. (formerly the New York State Association for Retarded Children, Inc.) is a voluntary organization founded in 1949. This organization is very active in doing their charity works.

Strength of the system

- Nice layout and user friendly interface
- Very rich in information

Weaknesses of the system

- Online donations are not available
- Information about students, doctors or more detail information regarding the organization is not available
- No information about retardation

2.5 Technology Consideration

2.5.1 Client-Server Technology

2.5.1.1 Single Tier (Host) Systems

Single Tier System is the old mainframe and mini-computer model. There was virtually no logic at the desktop instead, there was a dumb terminal. All that was sent down the wire to the terminal was the screen layout information.

Advantages	Disadvantages
Requires very little bandwidth on network in order to have fast response times-great for international or WAN situations where bandwidth can be expensive.	Very expensive hardware wise. In the old days, these often required special plumbing for cooling water.
Also exceptionally reliable.	Typically proprietary in nature-much more difficult to share information with other systems.
Deployment of new software is extremely easy-just install on the host system and every user has the new version-no running for machine for the upgrade.	Very limited number of “off-the shelf” software packages available. Since the number of potential customers is few, the cost of these packages tends to be extremely high.

Table 2-1 Single Tier Systems

2.5.1.2 2-Tier Architecture (Client/Server)

2-Tier or client/server systems first started becoming popular in the early 90's.

There were actually 2 sub-types to this architecture:

- Client-centric (smart client)
- Server centric (smart server)

Client-Centric

The client-centric version of client/server lived on the notion that PCs are cheap (the driving force behind most client/server development) and going to get the most power when distribute the computing requirements as much as possible. As such, whenever possible, only the data services piece of things was performed on the server. The business and U/I side of things was performed at the client-thus ensuring that no one system had to do all that much of the work. Every computer sort of did their fair share.

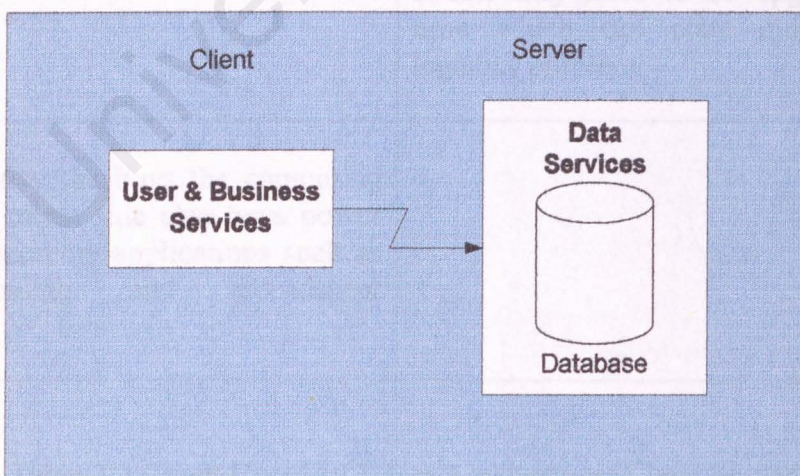


Figure 2-4 Traditional Client/Server
(Client – Centric)
2-Tier

The big problem with client-centric client/server was and is bandwidth. If all the business logic is on the client, there tends to be very large number of round trips. (Network send and receive) between the client and the server. Frequently, large chunks of raw data are sent to the client-quickly clogging the network and slowing down everyone else trying to get their own huge blocks of data back and forth.

Advantages	Disadvantages
Distributes the workload to a large number of relatively cheap clients.	Is a terrible bandwidth hog-clogs networks up very quickly.
	Installations are time-consuming and difficult to coordinate. New software or versions of software must be installed on multiple machines. Version upgrades can be particularly problematic since old clients are not always compatible with the new server components and vice versa. All clients may have to be upgraded at one time which can crate quite a serious logistics problem.
The same money the buys the computing power on the client side also buys power for other productivity applications such as word processing and spreadsheet applications.	

Table 2-2 Client-Centric - 2-Tier Architecture (Client/Server)

Server-Centric

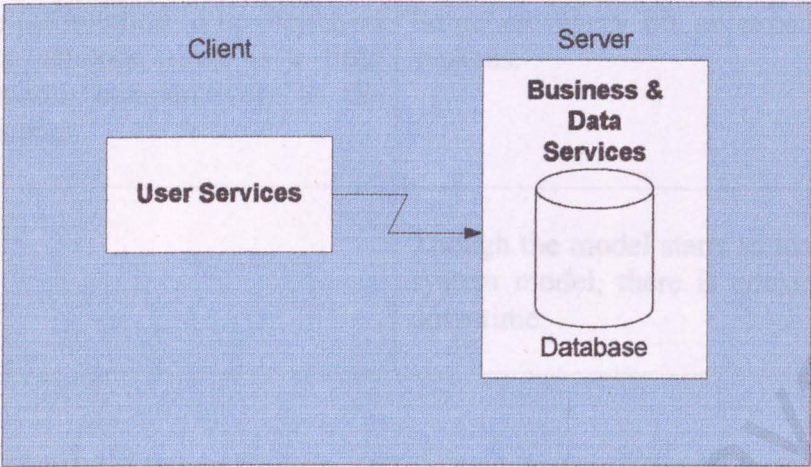


Figure 2-5 Traditional Client/Server
(Server – Centric)
2-Tier

This lives on the notion that computing power is cheaper in PCs than in host systems, but tries to gain some of the advantages of centralized systems. Only user services are distributed to the client. Only information that can actually need to be displayed on the screen is sent to the client. Business and data services remain at the server. Network bandwidth is far more host-system like.

Advantages	Disadvantages
Some upgrades can be done entirely at the server level	Other upgrades still require a touch on every client computer-upgrades and new installs are both very tedious and difficult logistically.
A large number of homogeneous products are available off-the-shelf – pre-made software is cheap.	Long-running and heavy load jobs by one user affect all users.

Since only the information to be displayed is sent on the network, there is a little network bandwidth comparatively to the client-centric model.	Large servers grow exponentially in price. Some are every bit as expensive as host systems.
	Though the model starts to look like a host system model, there is considerably more downtime.

Table 2-3 Server-Centric - 2-Tier Architecture (Client/Server)

2.5.1.3 Three-Tier

This model and the closely related one that follows (n-tier) are the hyped up architectures for the day. This model takes the approach of breaking up all three service levels into completely separate logical models. Clients are responsible for U/I issues only- just as they were under server-centric client/server. The difference is that the business and data services are logically separated from each other. In addition this approach moves the logical model into a distinctly separate realm from the physical model. This means that they can run on the same server, but do not have to. This adds a significant level of stability and scalability since it can be split onto two servers.

In addition, this model has a tendency to be more extensible, since changes and additions affect smaller pieces of code (instead of one huge build of everything, just rebuild the affected components).

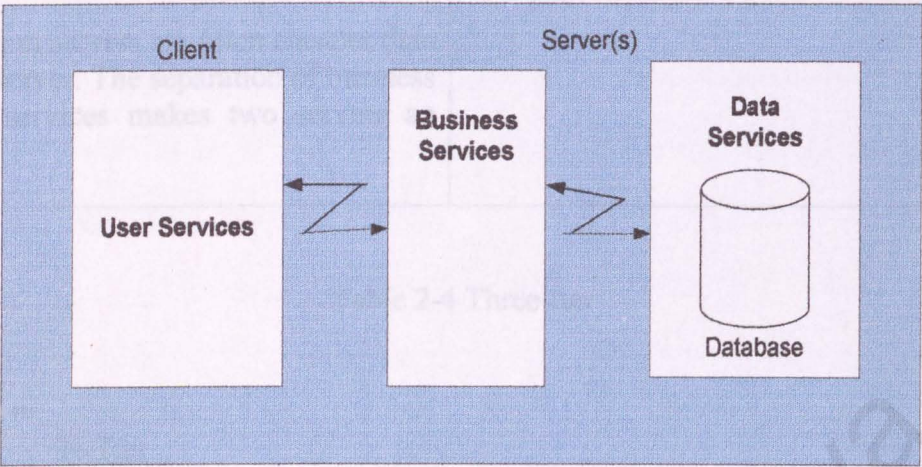


Figure 2-6 Traditional Client/Server
(Server – Centric)
3-Tier

Advantages	Disadvantages
Some upgrades can be done entirely at the server level.	Other upgrades still require a touch on every client computer-upgrades and new installs are both very tedious and difficult logistically.
An increasing number of homogenous products are available off the shelf-pre-made software is cheap.	There is typically still considerably more down time than in a host system.
Since only the information to be displayed is sent on the network, there is a little network bandwidth comparative to the client-centric model. The load may, however, be higher between the business-logic and data-services systems if they are on different servers.	
Allows for component-based development which can increase reusability.	

Two medium servers are often cheaper than one large server. The separation of business and data services makes two servers an option.

Table 2-4 Three-tier

2.5.1.4 N-Tier

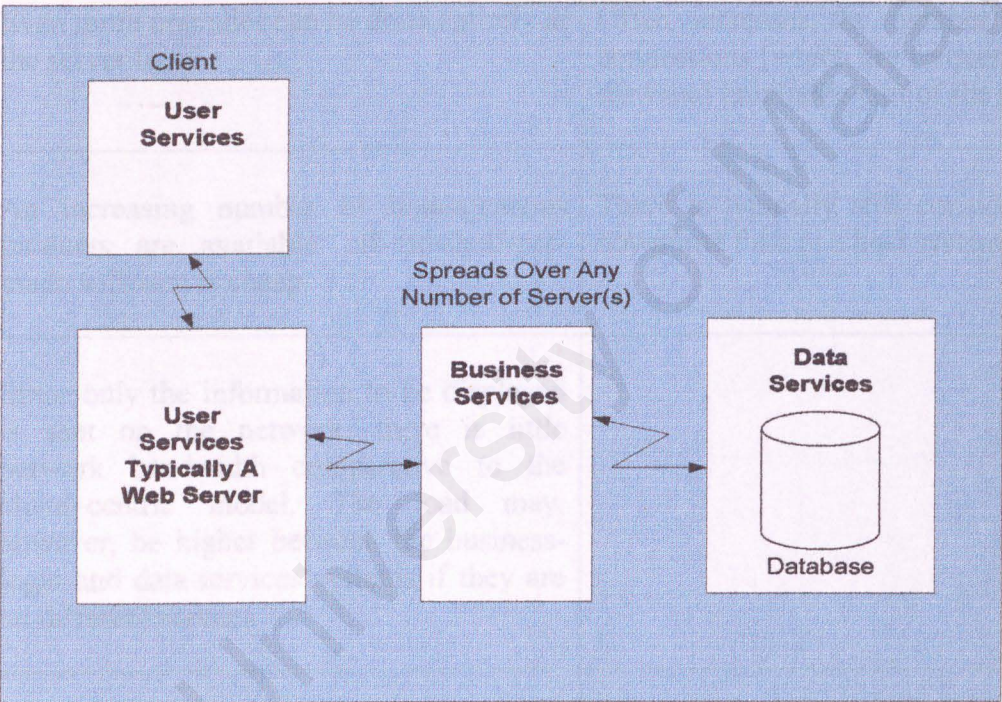


Figure 2-7 Traditional Client/Server N-Tier

Essentially like 3-tier and theoretically the best of all worlds. This model gets serious about implementing what looks like a three-tier model logically, but instead breaks the components down to their smallest reasonable logical unit of work. If the data services layer is done properly, even the database can be spread across multiple servers and moved

around a needed. The only impact is on the data services components that provide information to the moved data. The business services components are obvious to the move, since they only need to know the name of the data services components that supplies the data and what specific method to call.

Advantages	Disadvantages
Even more upgrades can be done entirely at the server level.	Often increases the number of network connections (which are frequently the most slow and unreliable part of the system).
An increasing number of homogeneous products are available off-the-shelf-pre-made software is cheap.	There is typically still considerably more downtime than in a host system.
Since only the information to be displayed is sent on the network, there is little network bandwidth comparative to the client-centric model. The load may, however, be higher between the business-logic and data-services systems if they are on different servers.	
Allows for component-based development which can increase reusability.	
Multiple medium servers are often cheaper than one on large server. The separation of business and data services makes two servers an option.	

Table 2-5 N-Tier

2.5.2 Web Server

2.5.2.1 Internet Information Server (IIS 5.0)

Internet Information Server (IIS) is a group of Internet servers (including a Web or Hypertext Transfer Protocol server and a File Transfer Protocol server) with additional capabilities for Microsoft's Window NT and Window 2000 Server operating systems. IIS is a Microsoft's entry to compete in the Internet Server market that is also addressed by Apache, Sun Microsystems, O'Reilly, and others. With IIS, Microsoft includes a set of programs for building and administering Web sites, a search engine, and a support for writing Web-based applications that access databases. Microsoft points out that IIS is tightly integrated with the Window NT and 2000 Servers in a number of ways, resulting in faster Web page serving.

IIS includes security features and promises that it is easy to install. It works closely with the Microsoft Transaction Server to access databases and provided control at the transaction level. It also works with Microsoft's Netshow in the delivery of streaming audio and video, delayed or live.

2.5.2.2 Personal Web Server (PWS)

Personal Web Server, an abbreviation for Personal Web Server, is a server program for individual PC users who want to share Web pages and other files from their hard drives. PWS is a scaled-down version of Microsoft's more robust Web server, Internet Information Server IIS. PWS can be used with a full time Internet connection to serve Web pages for a web site with limited traffic. PWS offers:

- **Integration.**

The Personal Web Server turns a Windows 95/98/NT-based personal computer into a low-volume Web server, making it as easy to share HTML and FTP files over intranets and the Internet as it is to share and print document files over a network. The software is fully integrated into the Windows 95/98/98SE/ME/NT taskbar and Control Panel, allowing users to start and stop HTTP and FTP services whenever they want, administer the server or change general options. Microsoft also designed the Personal Web Server to complement its larger and fully compatible Web server products, such as Microsoft Internet Information Server (IIS). The Personal Web Server is also fully complementary to Peer Web Services included with the Windows NT Workstation operating system version 4.0.

- **Easy to install, use and manage.**

The Personal Web Server is designed to install easily in minutes and includes an intuitive HTML-based administration utility that also supports full remote administration. It supports both user-level and local security, ensuring flexible and effective protection of sensitive corporate information. Users can set up the PWS to support Windows NT Challenge/Response encrypted-password transmission.

- **Standards-based technology.**

PWS fully supports existing standards such as CGI and includes the open Internet Server API (ISAPI) extension to the Win32[®] API that is up to five times faster than CGI-based applications. This enables any user to take advantage of ISAPI scripts and CGI scripts

2.5.3 Web Application Development

2.5.3.1 ASP (Active Server Pages 3.0)

ASP is a server based technology from Microsoft Corp. ASP is a famous tool for creating dynamic, interactive web pages.

ASP was first announced to the world by Microsoft on July 16, 1999. The codename for ASP was DENALI. After the launch, Beta version of ASP was released in November the same year. ASP version 1.0 was launched a month later, December 12, 1996. ASP was making headlines again when it was bundled with Microsoft Internet Information Server (IIS 3.0). In 1998, Microsoft launched new web server software, Personal Web Server 4.0 (PWS 4.0) and Internet Information Server 4.0 (IIS 4.0) which supports ASP 2.0. Later Windows 2000 was released and IIS 5.0 was integrated with the operating system. New version of ASP, ASP 3.0 was released.

ASP offers faster and better performance compared to other technologies. ASP can be viewed from any computer and any modern browsers. It is also easier to customize pages to meet individual needs and ASP is very easy to learn.

ASP editors are a lot in the market nowadays. The most commonly used is Microsoft Visual Interdev. Other editors are Microsoft FrontPage, Allaire's Homesite and of course, Notepad.

2.5.3.2 Java Server Pages (JSP)

Java Server Pages or JSP is a technology that is a part of Java family that allows rapid development, easily maintained, information rich dynamic web pages. JSP uses XML-like tags that encapsulate the logic that generates the contents for the page.

JSP is also an extension of Java Servlet technology. Servlets are platform independent, 100% pure Java server-side module that fit into a Web server framework and can be used to extend the capabilities of a Web server with minimal overhead, maintenance, and support. Servlets involve no platform-specific consideration or modifications. Using servlets and JSP technology provides a good alternative to dynamic scripting or programming. Sun Microsystems has made the JSP specification freely available to the development community.

2.5.3.3 CGI

The Common Gateway Interface (CGI) is a standard for interfacing external applications with information servers, such as HTTP or Web servers. For example, a UNIX database can be connected to the World Wide Web, to allow the people to query it. Basically, a CGI program will be executed to transmit information to the database engine, and get the result for the people who query it. This is called a Gateway. This means a CGI program is executed real-time and can output dynamic information. A CGI program can be written in any language that allows it to be executed on the system, such as:

- C/C++
- Fortran
- PERL
- TCL
- Any UNIX shell
- Visual Basic
- Apple Script

2.5.4 Programming / Scripting Languages

2.5.4.1 HTML

HTML is the acronym for the Hypertext Markup Language, which is one of the most widely used computer languages in the world. The popularity and importance of HTML is due to the fact that it is the coding technology used to publish content on the World Wide Web (also referred to as the Internet).

2.5.4.2 VBScript

Microsoft Visual Basic Scripting Edition language or know as VBScript, is a simplified version of the Visual Basic and Visual Basic for Applications family of programming languages. VBScript is a scripting language or more precisely a "scripting environment", which can enhance HTML Web pages by making them active, as compared to a simple static display. Specifically, VBScript was created by Microsoft to use either as a client-side scripting language for the Microsoft Internet Explorer (versions 3.0 and later) or as a server-side scripting language with the Microsoft Internet Information Server (versions 3.0 and later).

The advantage for using the server-side approach is that the VBScript is processed by the server before it is transmitted to the client. Therefore, the client only receives an HTML page and we do not have to concern ourselves as to whether the browser can interpret the VBScript. In contrast, by using the client-side approach, you purposely transfer the work load to the browser in order to reduce the work load of the server. Unfortunately, older or non-Microsoft browsers may not be able to correctly interpret and display the transmitted file. In addition to this, the source code is exposed to the browser

user. On the brighter side, a client-side program can produce a more-responsive application, since user input can be processed on the client machine, and not sent back to the server for processing. The true importance of VBScript is that it is the default language of Active Server Pages (ASP).

2.5.4.3 JavaScript

The JavaScript language was developed by the Netscape Communications Corporation. Microsoft recognizes JavaScript as JScript. JavaScript is a cross-platform, object-based scripting language that was originally designed for use in Netscape Navigator. Indeed, versions 2.0, and later, of Navigator can interpret JavaScript statements that are embedded within HTML code. When a request is made to see a page, the HTML code that defines the requested page along with the embedded JavaScript statements, are sent by the server to the client. Navigator interprets the HTML document and executes the JavaScript code. The resultant page is displayed for the client. It is important to understand that this interpretation occurs on the client-side rather than the server-side.

2.5.5 Database Management System

2.5.5.1 SQL Server 7.0

SQL Server was first launched by Microsoft 1988. the project was a joint venture between Microsoft and Sybase. In the early 1990s, Microsoft was developing SQL Server for the NT platform. Realizing the potential of SQL Server, Microsoft made the decision that SQL server should be tightly coupled with the Windows NT operation system in 1992. In 1993, Windows NT 3.1 and SQL Server 4.2 for NT were released. Microsoft's philosophy of combining a higher performance database with an easy to use interface proved to be very successful. Microsoft quickly became the second most popular vendor of high-end relational database software. In 1994, Microsoft and Sybase formally ended their partnership.

In 1995, Microsoft released version 6.0 of SQL Server. This release was a major rewrite of SQL server's for technology. Version 6.0 substantially improved performances, provided built in replication and delivered centralized administration. In 1996 Microsoft released version 6.5 of SQL Server. This version brought significant enhancements to the existing technology and provided several new features. In 1997, Microsoft released version 6.5 Enterprise Edition. This version included for GB RAM support, 8 way processor support and Microsoft Cluster support. In 1998, Microsoft released version 7.0 of SQL Server. This version is a complete rewrite of the core engine and administration components. According to the SQL Server development team, the changes to the database engine are designed to provide an architecture that will last for the next 10 years.

Stated below are the several key features of SQL Server 7.0:

- Architectural Enhancements
- Data Transformation Service (DTS)
- Security Enhancements
- Performance and Scalability Improvements
- Backup and Restoration Improvements
- Simplified Administration.
- Replication Enhancements.
- Internet Enhancements
- Distributed Queries
- Data Warehousing Enhancements.

2.5.5.2 Microsoft Access 2000

Microsoft Access 2000 is the relational Database Management System used to create relational databases. Together with the ODBC driver for Microsoft Access, data can be retrieved from the databases in Client-Server based system. With the new capabilities in the Microsoft Access 2000 database management system, data dropped into HTML pages that can be shared and manipulated on the World Wide Web, making it easy for users to get important information to others.

Microsoft Access 2000 also supports OLE DB, a data access standard that allows Access 2000 to connect directly to SQL Server. Access 2000 can be used as the interface for SQL Server database.

2.5.6 Data Access Models

There are five different access models that Microsoft considers being up to date for accessing data. These include:

2.5.6.1 RDO: Remote Data Objects

This is a very thin wrapper around ODBC. It was built specifically with VB in mind, but is also usable in J++. RDO is very easy to use in comparison to programming to the ODBC API directly, but doesn't lose all that much in the speed category. There is a ton of legacy code in place using this technology-it is fast and reliable.

2.5.6.2 ADO: ActiveX Data Objects

Each version of RDO seems to improve performance and add new features, but ADO still cannot be compared on a one-to-one basis RDO. RDO had a few features that will never be in ADO. (ODBC handles, for example, can't be added because of OLE DB being in between ADO and ODBC), and ADO has some really cool features with persistent record sets, filters, sorts (without going back to the server) and others that RDO never had.

Unlike RDO, which was based on ODBC, ADO is based on OLE DB. This provides a level of flexibility that ODBC alone cannot offer, but it comes with more than just a few headaches.

ADO is now competitive, if not faster, in speed compared to RDO and has a very robust feature set. It is nowhere near RDO in reliability, but Microsoft has made and continues to make a substantial investment in ADO and OLE DB.

2.5.6.3 ODBC: Open Database Connectivity

ODBC provides a way of gaining cross-platform access to database information. It is quite fast and allows most of the mainstream standard SQL statements regardless of what the back-end experts for syntax. The major shortcoming for ODBC is that it is very much oriented to tabular data and doesn't deal with non-standard data such as a directory structure or a multi-sheet database.

2.5.6.4 OLE DB

OLE DB is an attempt at having an open standard to communicate with both tabular and non-tabular data. OLE DB uses what is called a provider. A provider is a lot like an ODBC driver except that it is relatively self-describing. That is, it is able to tell the application which uses it what kind of functionality it supports.

OLE DB is the foundation under ADO. It is very fast indeed when not used with ADO, but, since it deals with a number of items that aren't compatible with VB, OLE DB being used directly by C++ programmers. It is far more of pain to program in than ADO, but it is much faster by itself than when used in conjunction with ADO.

Java Database Connectivity (JDBC)

2.5.6.5 DB-Lib

Prior to version 7.0, this was the native way in which the SQL Server did all of its talking between the main host and client and utility applications. It is actively supported, but only be enhanced to the extent necessary to maintain backward compatibility as SQL Server moves forward. Microsoft will pull support for this access method at some point in

the future, but they also acknowledge that there are too many legacy applications using DB-Lib to figure on dropping support for it.

2.5.6.6 VB-SQL

This was based on an old wrapper that was written for VB to make many DB-Lib functions available for VB programmers.

2.5.6.7 DAO: Data Access Objects

This object model can be considered clunky, slow and just plain outdated.

2.6 Summary

This chapter covers the literature review of this project. Existing systems are studied carefully to find out what are the advantages or weaknesses of each system. This is to create a better system for a mentally retarded centre.

This chapter also covered the technologies that can be used to develop the School of Mentally Retarded System. Each technology was analyzed and will be chosen based of certain criteria that will be explained in the next chapter.



Chapter 3

Research Methodology

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss about the methodology used to develop the system. This chapter covers the software development models, data collection techniques as well as the analysis of the system. Functional requirements and non-functional requirements will also be discussed in this chapter.

3.2 Software Development Model

3.2.1 Waterfall Model

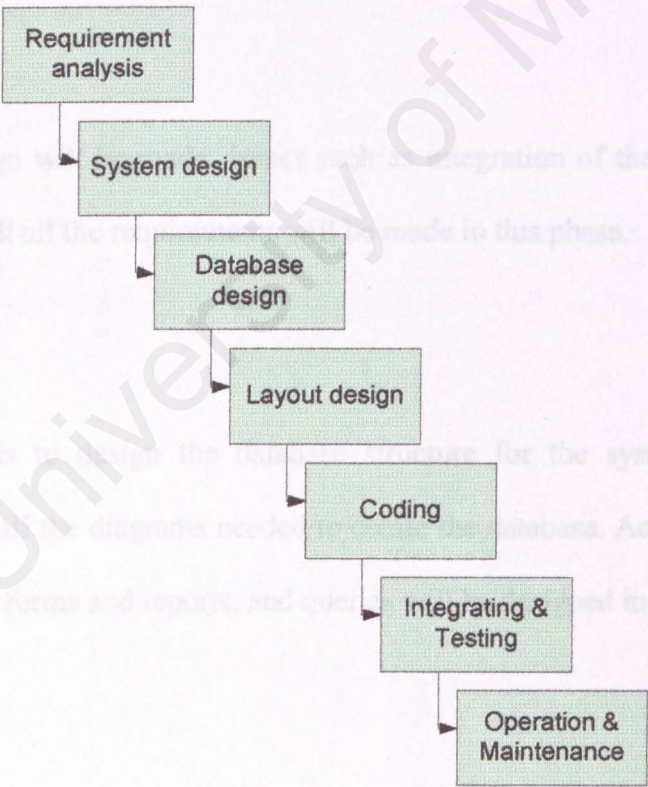


Figure 3.1 The Waterfall Model

The waterfall model is one of the first models to be introduced. The stages of this model are cascading from one another. Each development stage must be completed before the next stage begins. This model gives a high-level view of what goes on during development as well of the sequences of each activity.

Requirement Analysis

Requirement analysis is the first stage in the development process. All the information was gathered in this process. Functional requirements and non-functional requirements were also determined using various techniques.

System Design

Overall design will be made. Issues such as integration of the system and making sure the system fulfill all the requirements will be made in this phase.

Database Design

This phase is to design the database structure for the system. All the tables, relations, as well as all the diagrams needed to create the database. Activities like data that need to be collected, forms and reports, and queries will be designed in this phase.

Layout Design

This phase will design the interface for this system. The user is designed properly to ensure that it is highly interactive, user friendly and easy to use.

Coding

Coding is a process that will transform the algorithms defined during the design stages into a computer using programming languages.

Integration & Testing

Testing is exercising the developed software to check errors and to make sure the system meets the defined requirements and goals. This system used 3 different tests, unit testing, integration testing and system testing.

1. Unit testing is the testing process to check each module to check for bugs. Each module will be checked thoroughly to ensure each module behaves according to the designed specifications without any error.
2. Integration testing is the testing process that will test the interconnection of each tested modules. The main point of doing this integration testing is to make sure that the tested modules behave as well as independently tested during the unit testing previously.

Operation & Maintenance

Maintenance activities are a bit similar to development process, analyzing requirements, evaluating overall design, writing or reviewing code, testing changes, and updating documentation. There are 4 types of maintenance:

- Correcting maintenance
- Adaptive maintenance
- Perfective maintenance
- Preventive maintenance

Advantages of Using Waterfall Model

1. Easier to understand for customers who is not very familiar with software development project
2. This model gives the high level view of the software development
3. This model is the basis of other software development models

Disadvantages of Using Waterfall Model

1. The waterfall model does not explain how the coding is implemented
2. The model unable to explain changes for product or activities
3. The waterfall model is specifically hardware development model, it is unable to define software development model as a solution

3.2.2 The Prototyping Model

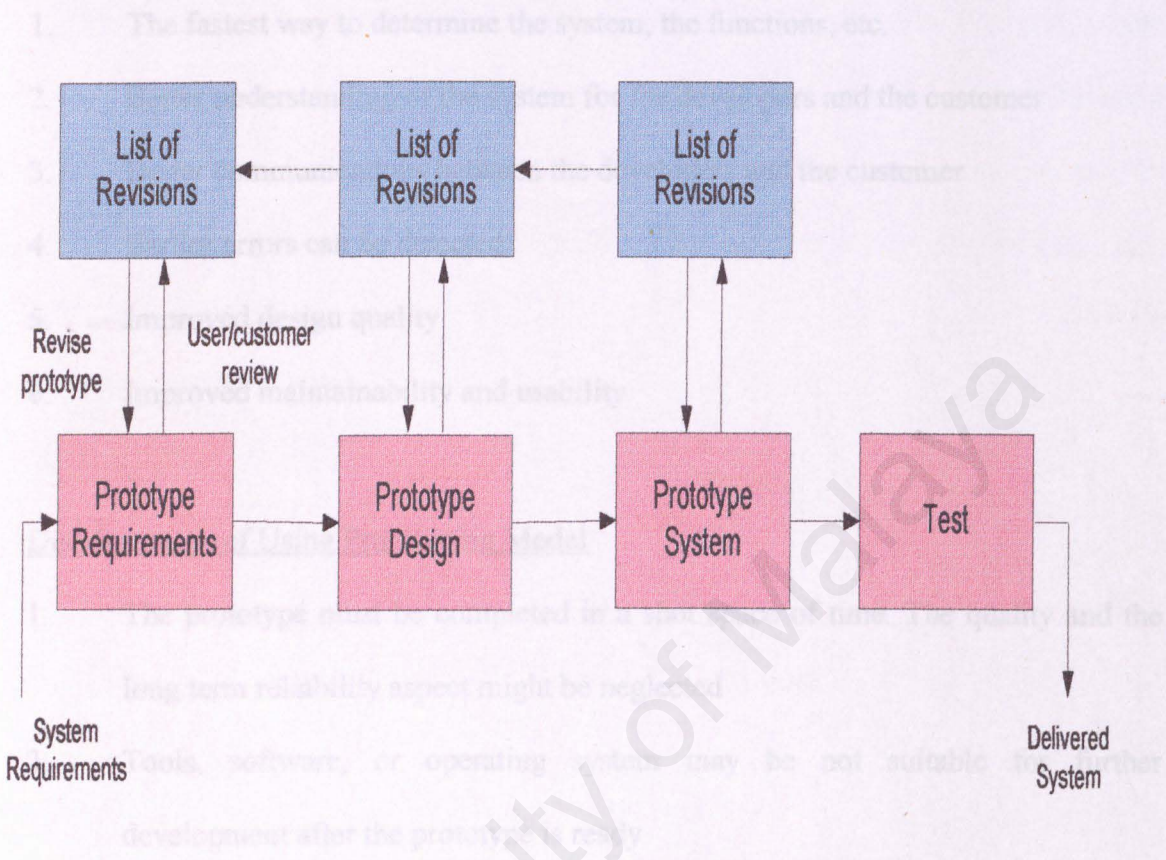


Figure 3.2 The Prototyping Model

Prototyping is a process to create a basic model of the system which demonstrates the concept, try out design options and find out more about the problem and its possible solutions. The prototyping model allows the system to be completed very quickly. The main purpose of doing the prototype is to understand and clarify certain issues. Developing a prototype usually leads to improvements in the specifications of the system.

Advantages of Using Prototype Model

1. The fastest way to determine the system, the functions, etc.
2. Better understanding of the system for the developers and the customer
3. Better communications between the developers and the customer
4. Earlier errors can be detected
5. Improved design quality
6. Improved maintainability and usability

Disadvantages of Using Prototyping Model

1. The prototype must be completed in a short space of time. The quality and the long term reliability aspect might be neglected
2. Tools, software, or operating system may be not suitable for further development after the prototype is ready
3. Cost of building a prototype is very high

Figure 2.3 The Waterfall Model with Prototyping

3.2.3 The Waterfall Model with Prototyping

The development model chosen for this system is a combination of Waterfall Model and Prototyping Model. Various factors such as time, type of system, and development techniques were considered before choosing this waterfall model with prototyping. The need of a prototype was also a factor choosing this development model.

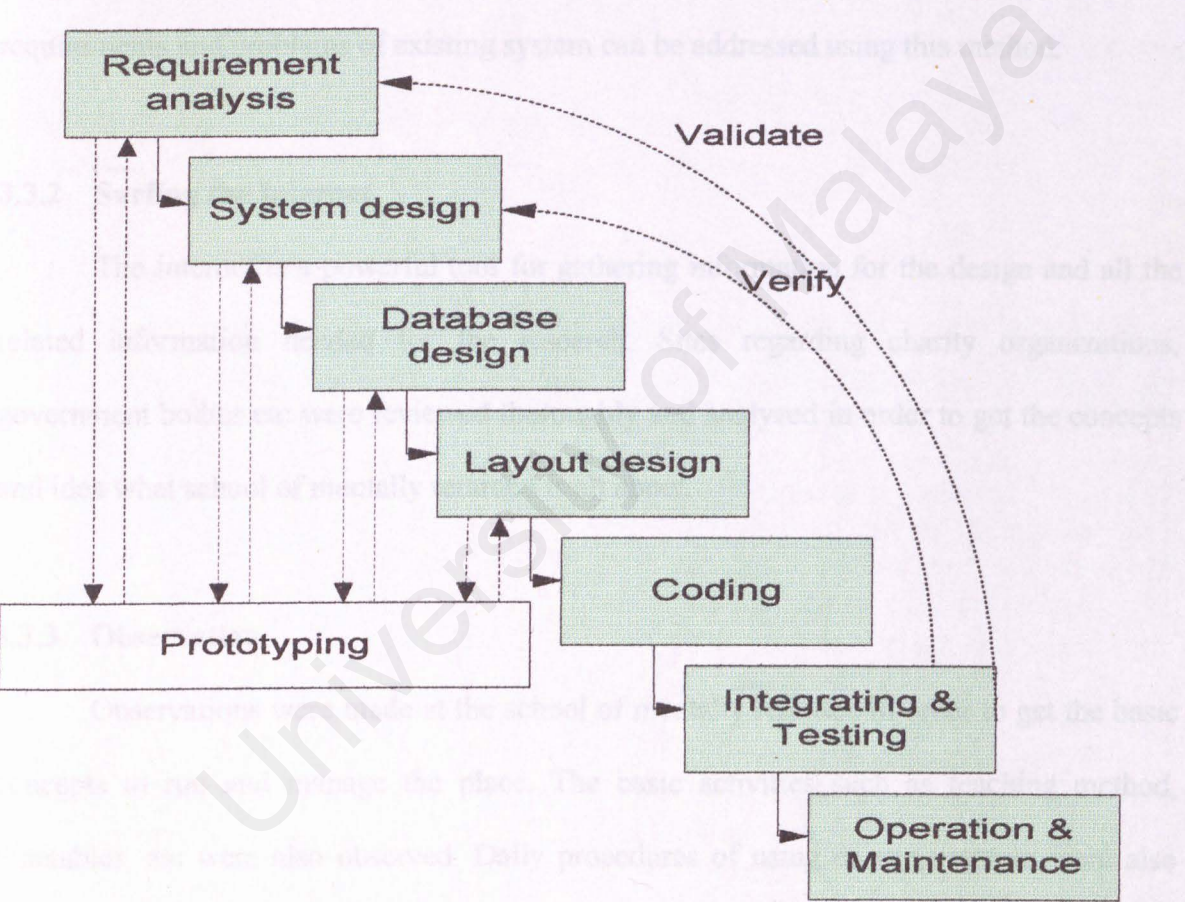


Figure 3.3 The Waterfall Model with Prototyping

3.3 Data Collection Techniques

3.3.1 Interview

A few interviews were conducted with the administrators of the selected mentally retarded centre, Rumah Harapan in Jalan Tun Sambanthan, Brickfields. Appointments were made and questions related to management of the school and the basic daily procedures and their problems, and what they really need was asked. Information such as system requirements and problems of existing system can be addressed using this method.

3.3.2 Surfing the Internet

The internet is a powerful tool for gathering information for the design and all the related information needed for the research. Sites regarding charity organizations, government bodies etc were reviewed thoroughly and analyzed in order to get the concepts and idea what school of mentally retarded is all about.

3.3.3 Observation

Observations were made at the school of mentally retarded in order to get the basic concepts to run and manage the place. The basic activities such as teaching method, timetables, etc were also observed. Daily procedures of using existing system were also observed in order to find solutions.

3.3.4 Reading

Books, magazines, newspapers and journals are excellent resources to get information regarding the system.

3.4 System Requirements

The requirements of the system can be identified or classified into 2 categories, functional requirements and non-functional requirements.

Functional requirement is the interaction between the system and the environment. It also defines how the system will behave given certain stimuli.

Non-functional requirement is the limits or the constraints for constructing a solution to the problem. Non-functional requirements also define system properties and constraints under which a system must operate.

3.4.1 Functional Requirements

Module	Requirements
Students Module	<ul style="list-style-type: none">• Administrators are able to make changes or modifications to the student’s module, such as change of address of new student profile.• Reports can be generated for the administrators.• Administrator’s login is required to make any changes to this module.• This module will provide the function to search the records.• Administrators are able to handle and manage the medical reports of the students. Logins can be given to selected doctors to use this system
Employee Module	<ul style="list-style-type: none">• Reports regarding the employees can be generated for the administrators.• This module will provide the function to search the records.

Financial Module	<ul style="list-style-type: none">• Modifications for this module are available for the administrators only.• Reports can be generated for the administrators.• Administrator's login is required to make any changes to this module• This module will provide the function to search the records
Inventory Module	<ul style="list-style-type: none">• Administrators are able to make modifications or changes online such as new inventory of any changes in the inventory lists.• Administrator's login is required to make any changes to this module.• This module will provide the function to search the records

Table 3-1 Functional requirement

3.4.2 Non-Functional Requirements

- User Friendly

The system developed must be user friendly and easy to use. These features will enable new users of the system spend less time to know about the system and how to use it. The user interface must be designed so that it can be used by the non-technical staffs or even new users can use it efficiently.

- Reliable

Reliability is an important issue for each system developed. Costly failures must be prevented and users or customers expect the system to be reliable.

- Secure

To maintain security of the system, only authorized user with login and password will be allowed to modify the database. Normal users are able to view selected data only. Administrator's Login will be required to make any modifications for this system.

- Systematic

The system must be able to produce reports requested by the users or administrators in a systematic way. Records can also be retrieved easily and effectively.

- Robustness

This system must be designed to be robust, or in other words the system is able to avoid disaster or behaves accordingly when facing unexpected circumstances such as given improper data by the users.

- Supported by most of the web server

ASP is a technology pioneered by Microsoft, so it is supported by most of the web servers including Internet Information Server (IIS) and Personal Web Server (PWS). ChiliSoft has a developer edition called ChiliSoft ASP which enables ASP to run on web servers from Apache, Lotus, Netscape, iRealty and Microsoft, running on Microsoft, Sun and IBM systems. Halcyon Software also developed a product called Instant ASP, which runs as Java service on a web server to provide ASP support.

- Language Integration

ASP supports with multiple scripting languages such as VBScript and JavaScript. This offers flexibility to the developers in the development process.

- Secure Access

ASP coding is not available for end-users to view through their browser. In other words, ASP is more secure than writing in pure HTML. Coding in ASP will ensure that web pages, database queries or formulas are kept away from users.

3.5 Tools Used

3.5.1 Web Programming Language

3.5.1.1 Active Server Pages 3.0

Active Server Pages or ASP is used to develop this system. Various factors were considered before choosing this ASP technology. Stated below are the advantages of using ASP.

- Supported by most of the web server

ASP is a technology pioneered by Microsoft, so it is supported by most of the web servers including Internet Information Server (IIS) and Personal Web Server (PWS). Chili!Soft has a developer edition called Chili!Soft ASP which enables ASP to run on web servers from Apache, Lotus, Netscape, O'Reilly and Microsoft, running on Microsoft, Sun and IBM systems. Halcyon Software also developed a product called Instant ASP, which runs as Java servlet on a web server to provide ASP support.

- Language-independent

ASP supports with multiple scripting languages such as VBScript and JavaScript. This offers flexibility for the developers in the development process.

- More secure

ASP coding is not available for end-users to view through their browser. In other words, ASP is more secure than writing in pure HTML. Coding in ASP will ensure that sensitive database queries or formulas are kept away from users.

- Browser independent

ASP is supported by most modern web browsers and ASP supports client-side scripting and server side scripting. ASP allows users to run a program in programming languages that are not supported by certain browsers, such as VBScript. ASP enables developers to create dynamic web pages without resource to client-side languages such as Java applets, DHTML, ActiveX controls, and all which is browser specific.

SQL Server is a Database Management System (DBMS) developed by Microsoft together with ASP and other Microsoft products.

- User Friendly Interface

SQL Server provides an easy menu-driven interface that will allow users to issue commands or queries easily.

- Easy To Use

SQL Server includes a set of administrative tools that can manage the database in large volume easily such as Enterprise Manager, SQL Agent, SQL Profiler and so on.

- Platform

The server software can be used both as platform or running from laptop computers running Windows 95 or higher or even multiprocessor servers running Windows NT Server.

3.5.2 Database Management System

3.5.2.1 Microsoft SQL Server 7.0

Microsoft SQL Server has been chosen as the database management system for this development project. Main reason of choosing SQL Server is it supports client-server technology magnificently. The other reasons of choosing SQL Server are stated below:

- Compatible with ASP

SQL Server is a Database Management System (DMBS) developed by Microsoft together with ASP and other Microsoft products.

- User Friendly Interface

SQL Server provides an easy menu driven interface that will allow users to issue commands or queries easily.

- Easy To Use

SQL Server includes a set of administrative tools that can manage the database in large volume easily such as SQL Enterprise Manager, SQL Agent, SQL Profiler and so on.

- Scalability

The same database can be used across platforms ranging from laptop computers running Windows 95 or higher or even multiprocessors servers running Windows NT Server.

3.5.3 Scripting Language

3.5.3.1 VBScript

VBScript is based on Visual Basic programming language developed by Microsoft.

VBScript is chosen as the scripting language and the reasons are as following:

- Easy to learn

The project duration is quite short, so time management is crucial to this project.

VBScript is easier to learn and master compared to JavaScript of Jscript as recognized by Microsoft.

- Features of VBScript

VBScript has all the abilities to provide scripting, automation and customization capabilities for web browsers. VBScript pages responds intelligently to user actions and VBScript is both client-side scripting as well as server-side scripting.

3.5.4 ASP Editor

3.5.4.1 Microsoft Visual Interdev 6.0

Numerous text editors and applications can be used to create ASP pages nowadays. Microsoft Visual Interdev 6.0 a part of Microsoft’s suite of development tools known as Microsoft Visual Studio. Advantages of Microsoft Visual Interdev:

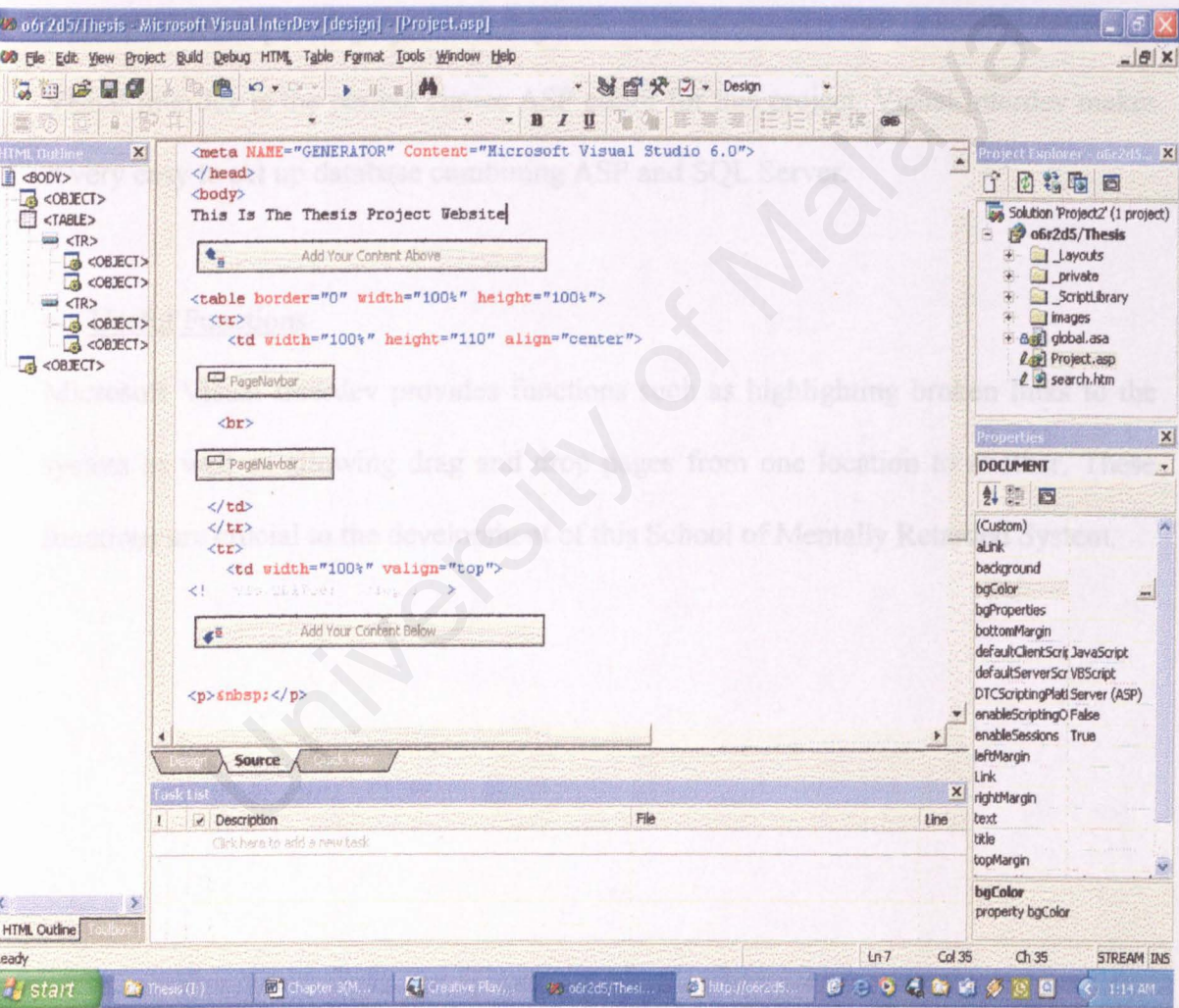


Figure 3-4 Screenshot of Microsoft Visual Interdev 6.0

- Good Graphical User Interface (GUI)

This development tool has a very good and user friendly interface. The approach for the interface is WYSIWYG (What You See Is What You Get). Links, pictures, sounds can be inserted without having to write a single line of HTML code.

- Strong links with SQL Server

Since this development project is using both SQL Server and ASP, choosing Microsoft Visual Interdev is the perfect choice ASP editor for this project. Visual Interdev makes it very easy to set up database combining ASP and SQL Server.

- Useful Functions

Microsoft Visual Interdev provides functions such as highlighting broken links to the system as well as allowing drag and drop pages from one location to another. These functions are crucial to the development of this School of Mentally Retarded System.

3.6 Software Requirements

This system will be implemented using a client-server technology, so the software requirements for this system will be categorized into 2 requirements, server side and client side.

Server Side

A server will need to run and host this system, so appropriate software should be installed in the server:

- Windows 2000 platform
- Internet Information Server (IIS 5.0)
- Microsoft SQL Server 7.0

Client Side

Requirements for the client side are not as complicated as the server. Given below are the software requirements for the client side:

- Windows 9x / Windows Me / Windows 2000 / Windows XP.
- Web browsers such as Internet Explorer, Netscape and Opera.

3.7 Hardware Requirements

The hardware requirements for this system can be categorized into 2, server side and client side as this system is using a client-server technology.

Server Side

Stated below are the server side hardware requirements of the system.

Processor	Pentium II or above
Memory	128 MB or above
Hard Disk	5 GB or above
Others	Internet Connection

Stated below are the hardware requirements for the client side.

Client Side

Processor	Pentium 166 or higher
Memory	32 MB or higher
Hard Disk	2 GB or higher
Others	Internet connection

3.8 Chapter Summary

This chapter explains the methodologies system requirements, tools used as well as software and hardware specifications

Software development model that was used to develop the system is the Waterfall Model with Prototyping. Requirements for the system can be categorized into 2, functional and non-functional. Tools used to develop this system are ASP, SQL Server, VBScript and Microsoft Visual Studio as the ASP editor. Software and hardware requirements specifications are divided into 2, client-side and server side.

University of Malaysia

Chapter 4
System Design



Wisma Harapan



flow and database design for the system. This covers of the design includes:

- The design must fulfil all the requirements that were documented in previous chapters.
- The design should provide a complete picture of the system, addressing the data, functional and behavior domains from an implementation perspective.
- The design must be understandable for the programmers, client and users.

4.1 System Architecture Design

The School of Mentally Retarded Online (SMRO) is designed to be a client-server web application to achieve the requirement specification. It can be divided into three different tiers.

The first tier, which is the presentation layer, is responsible for receiving input and presenting data, such as the student profile. The main component in this layer is Internet browser such as Internet Explorer.

The second tier is the application layer or service tier. It is responsible for linking the first and third tier together. This is where the web server resides.

The third tier is the data repository. This layer consists of a database management system. This is where the application stores all records.

The first layer communicates with the second layer using the Hypertext Transfer Protocol (HTTP). This protocol is used to transfer web pages from the web server at the second tier to the browser at first tier. The communication between the second and the third

Chapter 4 System Design

CHAPTER 4 SYSTEM DESIGN

This chapter elaborates on the system design including user interface design, data flow and database design for the system. This criteria of the design includes:

- The design must fulfill all the requirements that were documented in previous chapters
- The design should provide a complete picture of the system, addressing the data, functional and behavior domains from an implementation perspective.
- The design must be understandable for the programmers, testers, and users.

4.1 System Architecture Design

The School of Mentally Retarded Online System is designed to be a client server web application to achieve the requirement specification. It can be divided into three different tiers.

The first tier, which is the user interface layer, is responsible for retrieving input and presenting data, such as the student profile. The main component in this layer is Internet browser such as Internet Explorer.

The second or middle tier is the application layer or service tier. It is responsible for linking the first and third tier together. This is where the web server resides.

The third tier is the data repository. This layer consists of a database server and data store. This is where the application stores all records.

The first layer communicates with the second layer through Hypertext Transfer Protocol (HTTP). This protocol is used to transfer web pages from the web server at the second tier to the browser at first tier. The communication between the second and the third

tier is done through selected data access model connection. Figure depicts the system tier of the School of Mentally Retarded Online System.

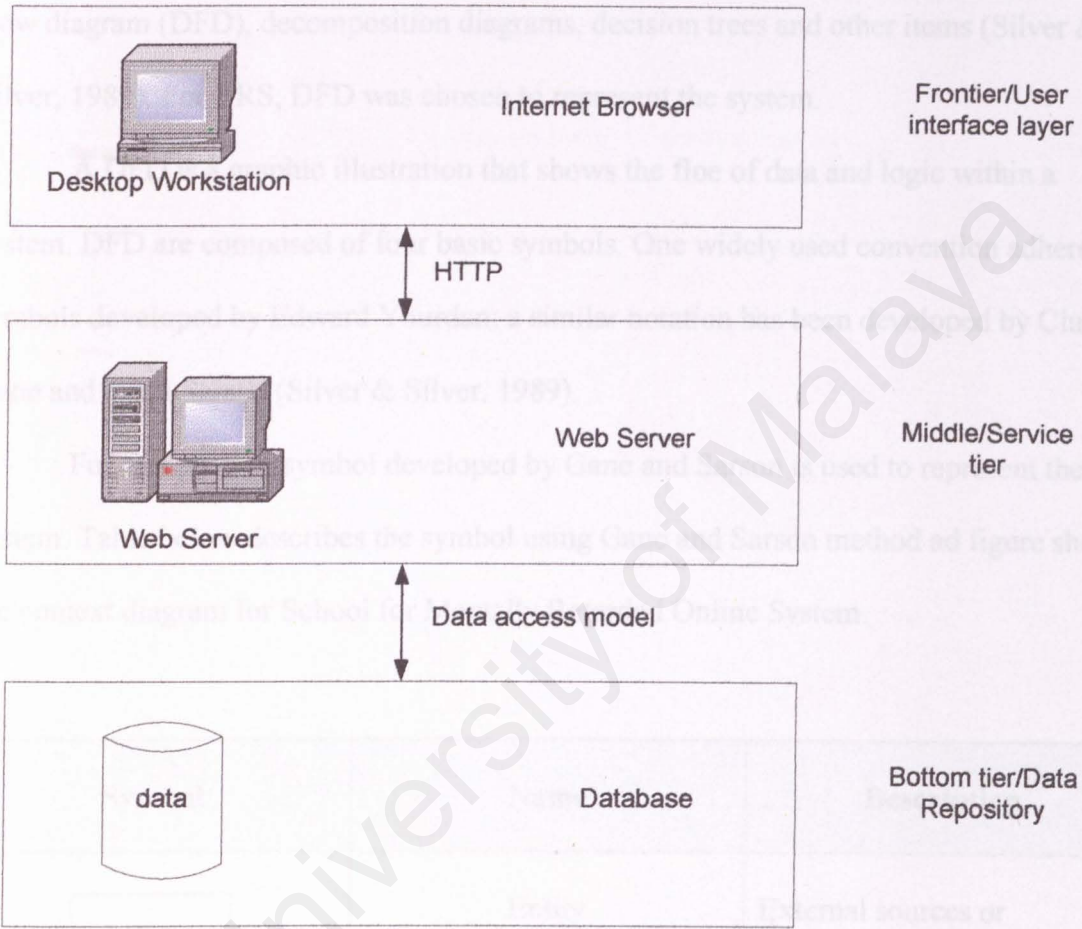


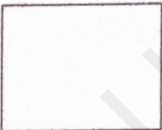
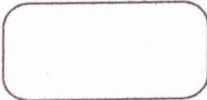
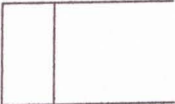
Figure 4-1 System tier of School of Mentally Retarded Online System.

4.2 Sections Design and Data Flow

The sections design is documented through a variety of design diagrams. A design diagram is a graphics or visual representation of a structure. A design diagram includes data flow diagram (DFD), decomposition diagrams, decision trees and other items (Silver & Silver, 1989). For RRS, DFD was chosen to represent the system.

A DFD is a graphic illustration that shows the floe of data and logic within a system. DFD are composed of four basic symbols. One widely used convention adheres to symbols developed by Edward Yourdan; a similar notation has been developed by Chris Gane and Trish Sarson (Silver & Silver, 1989).

For this project, symbol developed by Gane and Sarson is used to represent the system. Table below describes the symbol using Gane and Sarson method ad figure shows the context diagram for School for Mentally Retarded Online System.

Symbol	Name	Description
	Entity	External sources or destination of data, interact with the system but are outside the boundary.
	Process	It represents the transformation or processing of information within a system.
	Data Store	It is used for showing the data storage or referenced by a process.

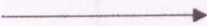
	Data Flow	It is use to show the movement of data from an origin to a destination with the head of arrow pointing towards the destination.
--	-----------	---

Table 4-1 Symbols using Gane and Sarson



Figure 4-2 Context Diagram for School of Mentally Retarded System

Diagram shown above is the context diagram of the system. Context diagram is the highest level in the Data Flow Diagram (DFD). There are 3 entities, Administrator, User, and Online Banking System. Given above are the basic requirements of the system. More detailed diagram will be shown in zero-level DFD.

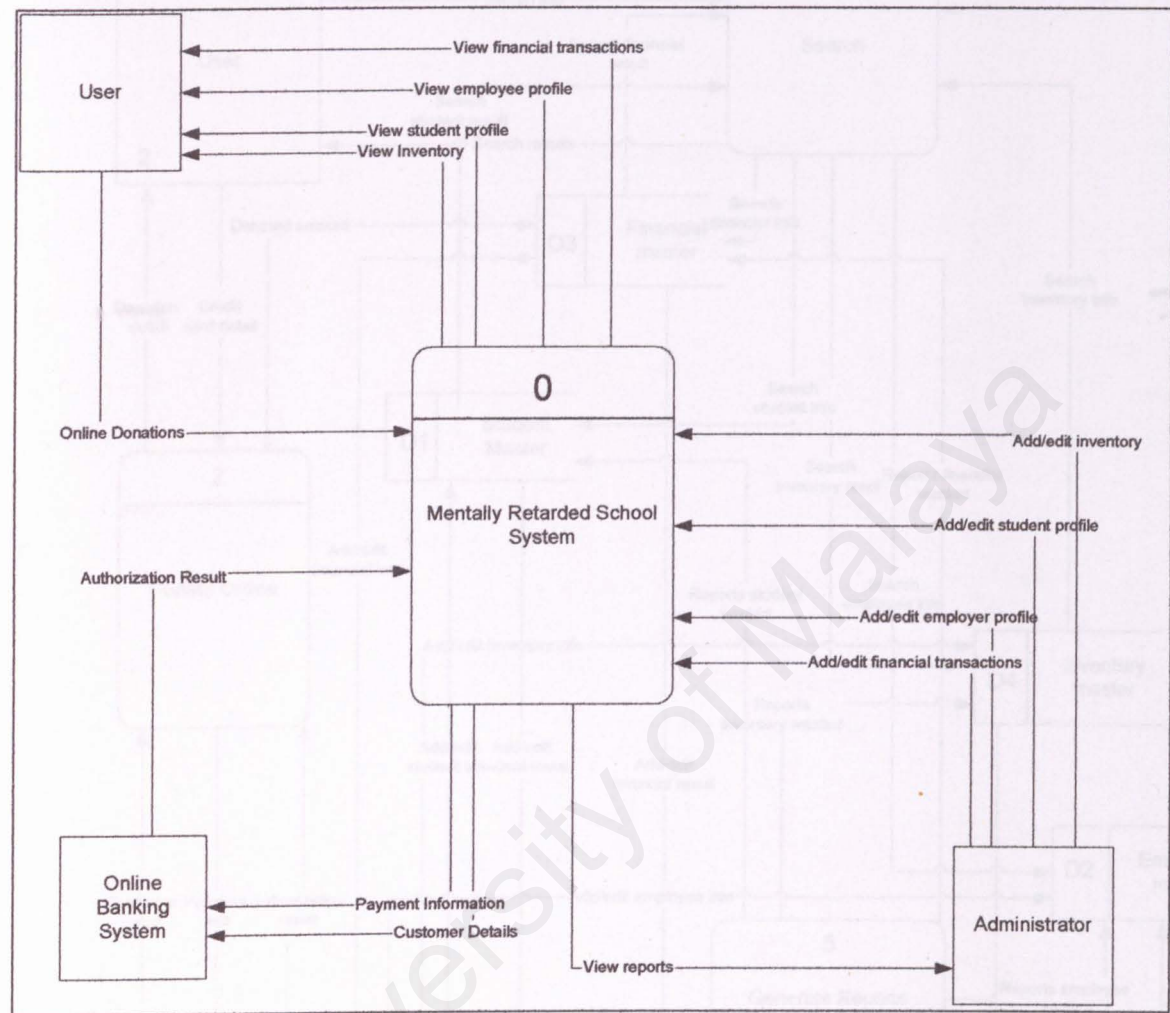


Figure 4-2 Context Diagram for School of Mentally Retarded System

Diagram shown above is the context diagram of the system. Context diagram is the highest level in the Data Flow Diagram (DFD). There are 3 entities, Administrator, User, and Online Banking System. Given above are the basic procedures of the system. More detailed diagram will be shown in zero-level diagram.

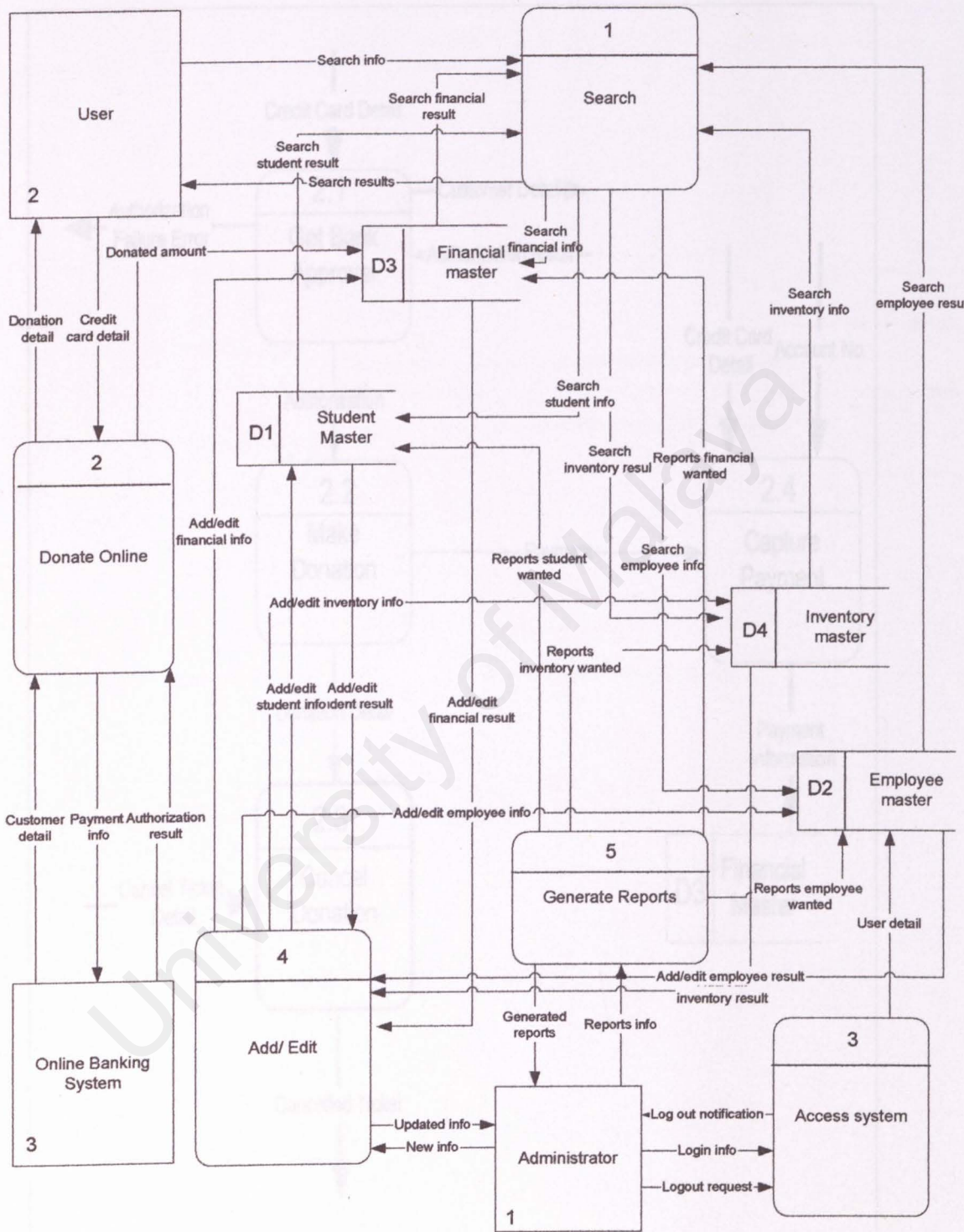


Figure 4-3 Zero Level Diagram

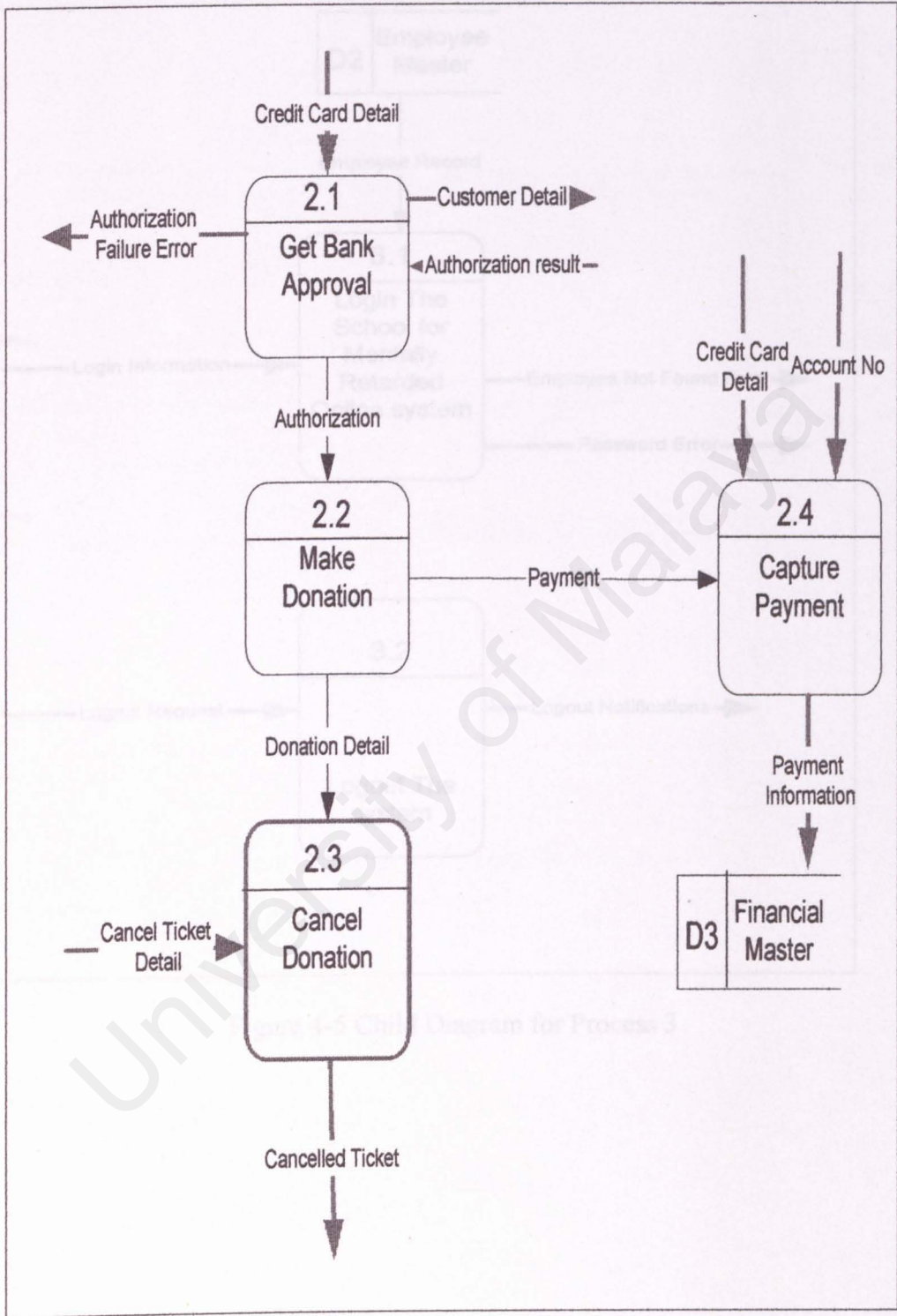


Figure 4-4 Sub Child Diagram for Process 2

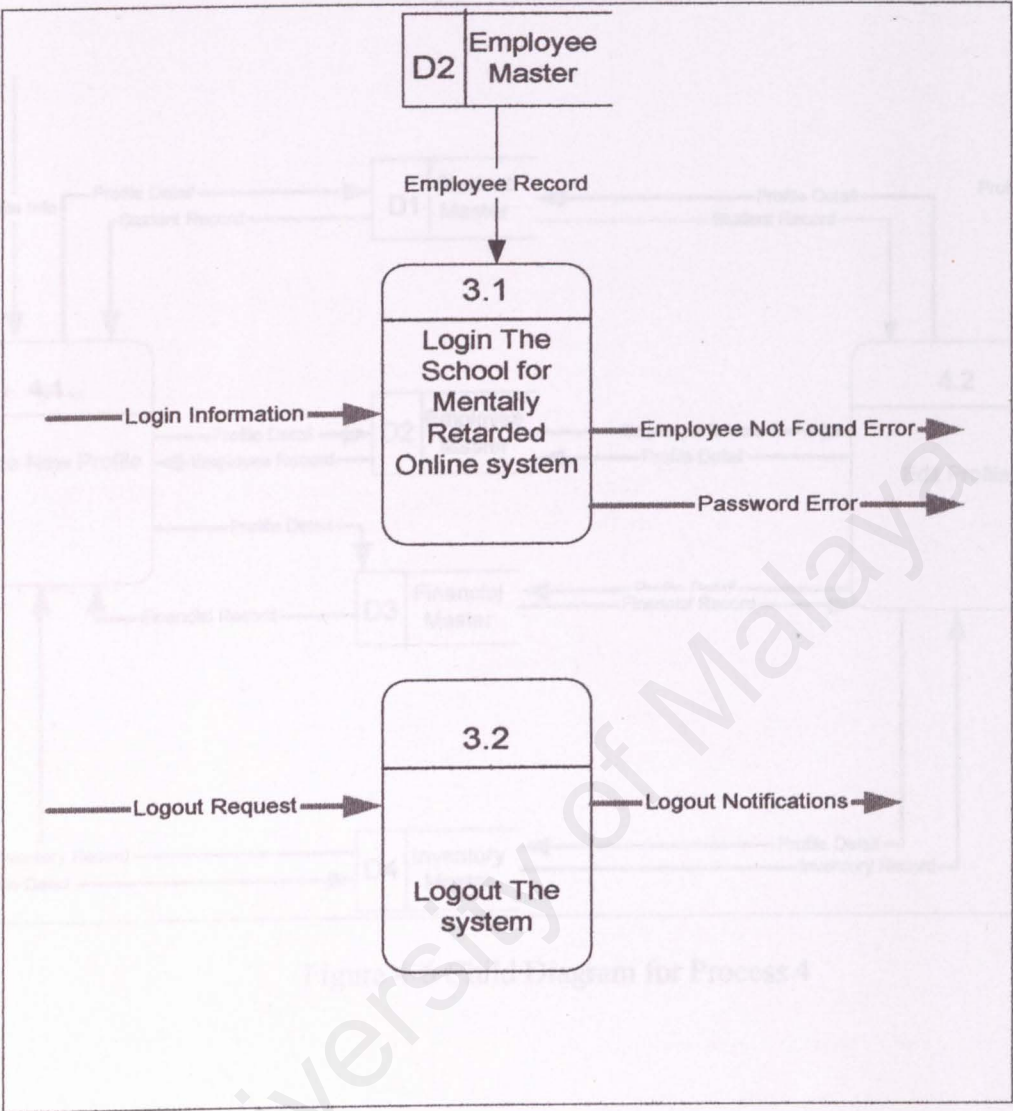


Figure 4-5 Child Diagram for Process 3

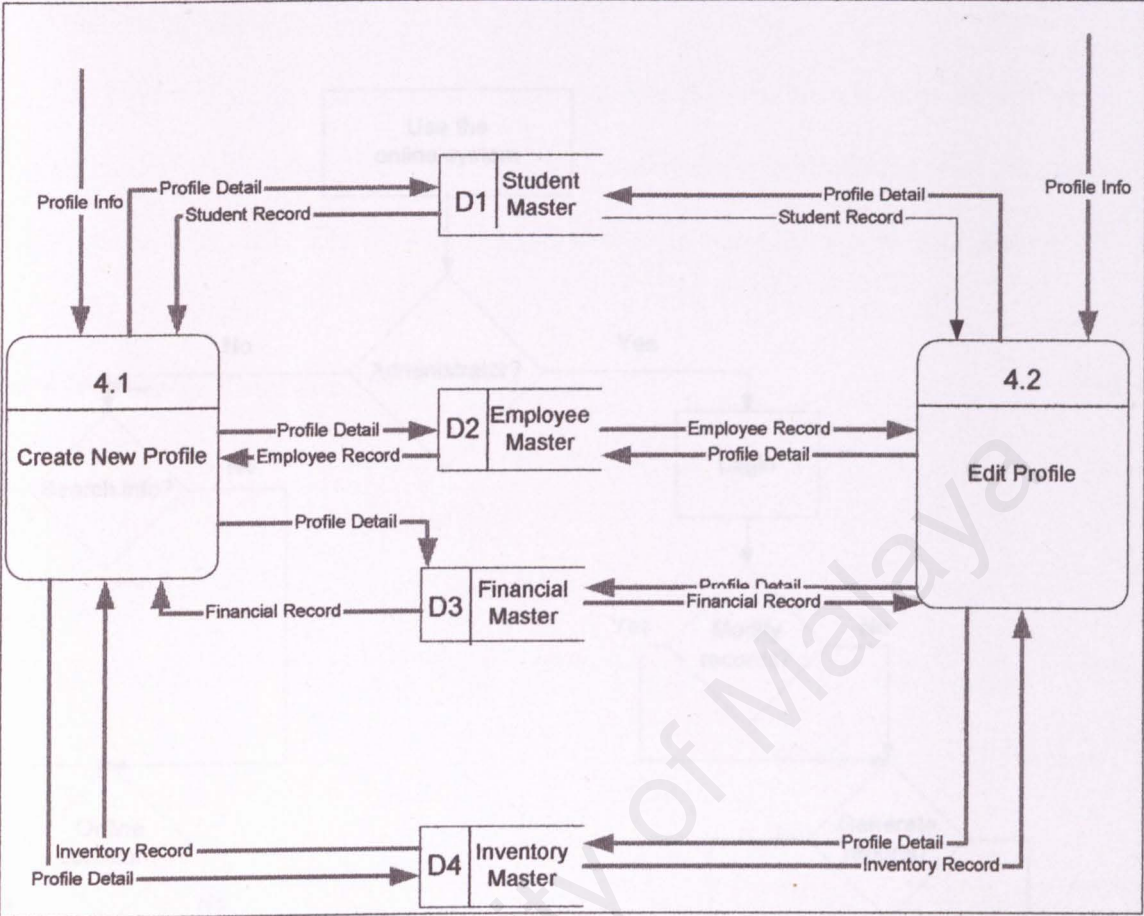


Figure 4-6 Child Diagram for Process 4

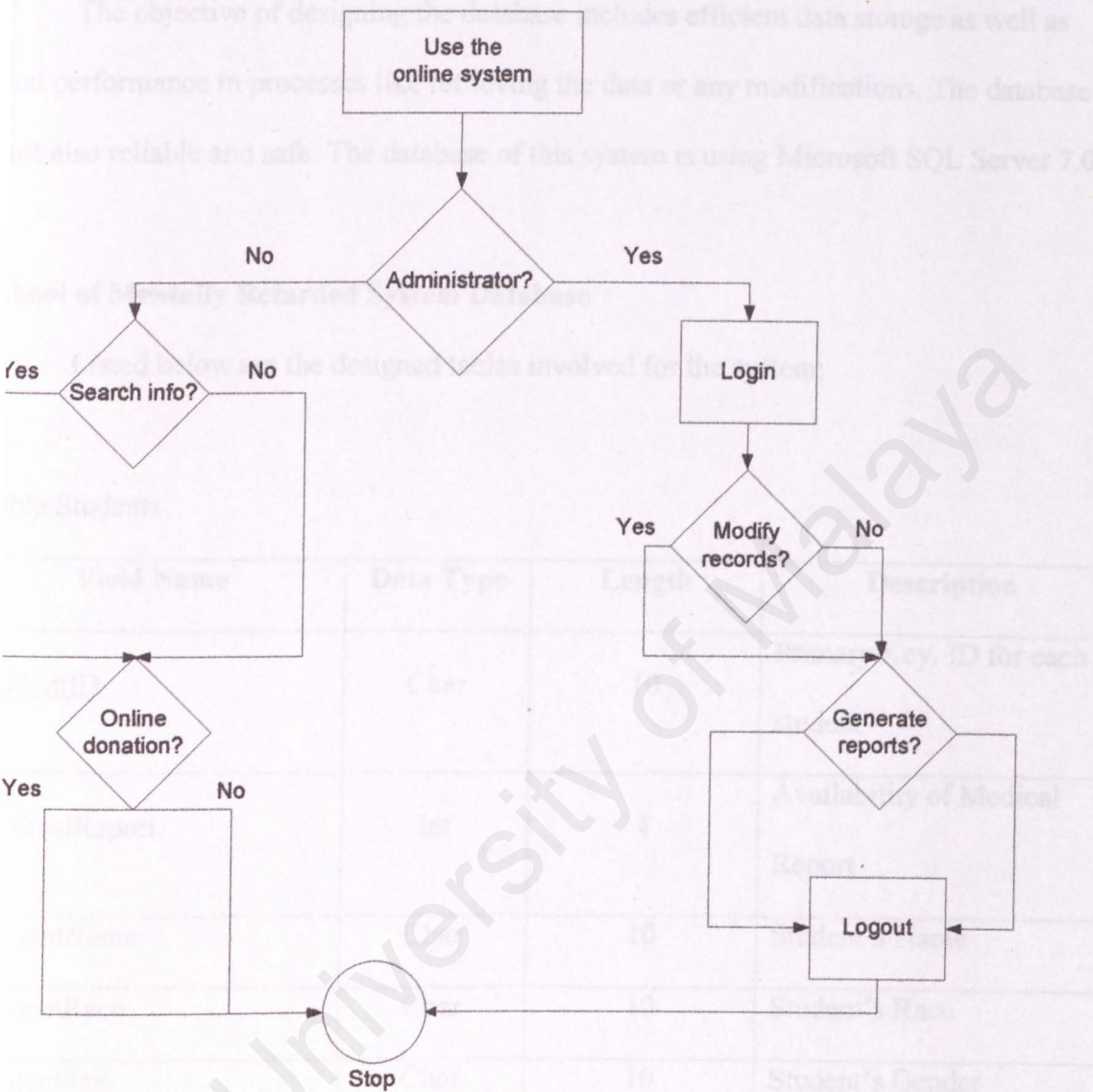


Figure 4-7 Flow Chart for the system

4.3 Database Design

The objective of designing the database includes efficient data storage as well as good performance in processes like retrieving the data or any modifications. The database must also be reliable and safe. The database of this system is using Microsoft SQL Server 7.0.

School of Mentally Retarded System Database

Listed below are the designed tables involved for the system:

Table Students

Field Name	Data Type	Length	Description
<u>StudentID</u>	Char	10	Primary Key. ID for each student
MedicalReport	Int	4	Availability of Medical Report
StudentName	Char	10	Student's Name
StudentRace	Char	10	Student's Race
StudentSex	Char	10	Student's Gender
DateBirth	Text	16	Date of Birth
StudentProgram	Char	10	Student Program
StudentAddress	Text	16	Address of student
ICNumber	Char	10	Student's IC number
AdmissionDate	Text	16	Date of Admission

RegistrationNo	Char	10	Registration number
StateWelfareRegNo	Char	10	Registration No at State Welfare Dept
Remarks	Text	16	Remarks

Table Student_Father

Field Name	Data Type	Length	Description
<u>FatherID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key. ID of Student
Name	Char	10	Name of father
Age	Int	4	Age of Father
Occupation	Char	10	Occupation of father
EmployerName	Char	10	Father's employer
EmployerAddress	Text	16	Employer Address
EmployerTel	Char	10	Office Telephone No
HouseTel	Char	10	Home Telephone No

Table Student_Mother

Field Name	Data Type	Length	Description
<u>MotherID</u>	Int	4	Promary Key
StudentID	Char	10	Foreign Key.ID of student
Name	Char	10	Name of mother
Age	Int	4	Age of Mother
Occupation	Char	10	Mother Occupation
Mother Employer	Char	10	Mother's Employer
MotherEmployerAddress	Text	16	Address of Employer

Table Medical_Birth

Field Name	Data Type	Length	Description
<u>Med Rep BirthID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for student
FullTerm	Text	16	Medical Term
Premature	Text	16	Medical Term
Birthweight	Char	10	Medical Term
NormalDelivery	Text	16	Medical Term
AbnormalDelivery	Text	16	Medical Term

ComplicationPregnancyAntenatal	text	16	Medical Term
ComplicationPregnancyPrenatal	Text	16	Medical Term
ComplicationPregnancyPostnatal	text	16	Medical Term

Table Medical_Development

Field Name	Data Type	Length	Description
<u>Med_Rep_DevelopmentID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for Student
Normal	Text	16	Medical Term
Delayed	Text	16	Medical Term
Retarded	Text	16	Medical Term

Table Medical_Health

Field Name	Data Type	Length	Description
<u>Med_Rep_HealthID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for Student
ImmunizationBCG	Text	16	Medical Term

mmunizationSmallPox	Text	16	Medical Term
mmunizationTripple	Text	16	Medical Term
mmunizationPolio	Text	16	Medical Term
mmunizationMeasles	Text	16	Medical Term
mmunizationBoosters	Text	16	Medical Term
PastIllnessMeninggitis	Text	16	Medical Term
PastIllnessEncephaliti	Text	16	Medical Term
PastIllnessHighFever	Text	16	Medical Term
PastIllnessComa	Text	16	Medical Term

Table Medical_Fits

Field Name	Data Type	Length	Description
<u>Med_Rep_FitsID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for Student
FitsType	Text	16	Medical Term
MedicationFits	Text	16	MedicalTerm

Table Medical_Hyperkinesis

Field Name	Data Type	Length	Description
<u>Med_Rep_HyperkinesisID</u>	Int	4	Primary Key
StudentID	Char	10	Medical Term
MedicationHyperkinesis	Text	16	Medical Term

Table Medical_Social_Skills

Field Name	Data Type	Length	Description
<u>Med_Rep_SocialSkillsID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for Student
ToiletTraines	Text	16	Medical Term
Dressing	Text	16	Medical Term
Feeding	Text	16	Medical Term
Mobility	Text	16	Medical Term
Others	Text	16	Medical Term

Table Medical_Communication

Field Name	Data Type	Length	Description
<u>Med_Rep_CommID</u>	Int	4	Primary Key

StudentID	Char	10	Foreign Key.ID for Student
CommunicationLevel	Text	16	Medical Term
Understanding	Text	16	Medical Term
FamilyHistoryConsanguity	Text	16	Medical Term
Fits	Text	16	Medical Term
MentallyRetardedation	Text	16	Medical Term

Table Medical_Examination

Field Name	Data Type	Length	Description
<u>Med_Report ExamID</u>	Int	4	Primary Key
StudentID	Char	10	Foreign Key.ID for Student
GeneralCondition	Text	16	Medical Term
Height	Text	16	Medical Term
Weight	Text	16	Medical Term
Nutrition	Text	16	Medical Term
Heart	Text	16	Medical Term
CNC	Text	16	Medical Term
Lungs	Text	16	Medical Term
Eyesight	Text	16	Medical Term
Abdomen	Text	16	Medical Term

Hearing	Text	16	Medical Term
Diagnosis	Text	16	Medical Term
TypeOfRetardation	Text	16	Medical Term

Table Medical_Doctor

Field Name	Data Type	Length	Description
MedicalDoctorID	Int	4	Primary Key
StudentId	Char	10	Foreign Key for student
Psychologicalassesment	Text	16	Medical Term
AssessmentYes	Text	16	Medical Term
Impression	Text	16	Medical Term
Recommendation	Text	16	Medical Term
Referral	Text	16	Medical Term
Review	Text	16	Medical Term
DoctorInCharge	Text	16	Medical Term
Date	Text	16	Medical Term
Clinic	Text	16	Medical Term

Table Employee

Field Name	Data Type	Length	Description
<u>EmployeeID</u>	Char	10	Primary Key.ID for employee
Name	Text	16	Employee name
ICNumber	Text	16	Employee IC Number
Address	Text	16	Address
TelHome	Text	16	Employee telephone no
TelHp	Text	16	Employee Hand phone no
Designation	Text	16	Employee Designation
SalaryScale	Text	16	Employee salary
EPFNumber	Text	16	Employee EPF Number
IncomeTaxNo	Text	16	Income Tax Number
AccountNo	Text	16	Account bank number
DateHired	DateTime	8	Date Hired
SOCSONo	Text	16	Employee SOCSO number

Table AdminLogin

Field Name	Data Type	Length	Description
EmployeeId	Char	10	Foreign Key
Username	Nvarchar	8	Username
Password	char	10	Password

Table Inventory

Field Name	Data Type	Length	Description
<u>InventoryID</u>	Char	10	Primary Key. ID for inventory
InventoryDescription	Char	10	Description of Inventory
InventoryType	Char	10	Inventory Type
DateAcquired	Datetime	8	Date Acquired
HowAcquired	Char	10	How it was acquired
Quantity	Int	4	Quantity
Cost	Text	16	Cost
TransID	Text	16	Transaction of buying
EmployeeID	Char	10	Employee In Charge

Table Financial

Field Name	Data Type	Length	Description
<u>TransID</u>	Char	10	Primary Key. ID for transactions
DayDate	Text	16	Day
DayMonth	Text	16	Month
DayYear	Text	16	Year
TransactionDescription	Text	16	Description of transaction
TransactionType	Text	16	Type of transaction
EmployeeID	Text	16	Foreign key. Employee ID
Cost	Text	16	
ChequeNo	Text	16	Cheque No of transaction
ReceiptNo	Text	16	Receipt Number of Transaction
EmployeeID	Text	16	Employee In Charge

4.4 Layout Design

The design of the layout must be planned carefully to make the system easy to understand and use. It should not make the users confuse and facing any difficulties while using it. Therefore, the graphical user interface for the School for Mentally Retarded Online System is designed to have the following features:

- **User friendly**

The interface is designed to suit the user needs and help the user familiarize with the system. Therefore, it should be designed in a way that will decrease the possibility of encountering any problem while using.

- **Well organized contents**

The contents of the web page should be organized to avoid confusing the user. For this reason, the content should be grouped according to their category and a menu is displayed to help the user in finding a page.

- **Easy to navigate**

The system should provide enough links for user to navigate from page to page. This will avoid the user in doing more steps to accomplish a single task and hence wasting the time.

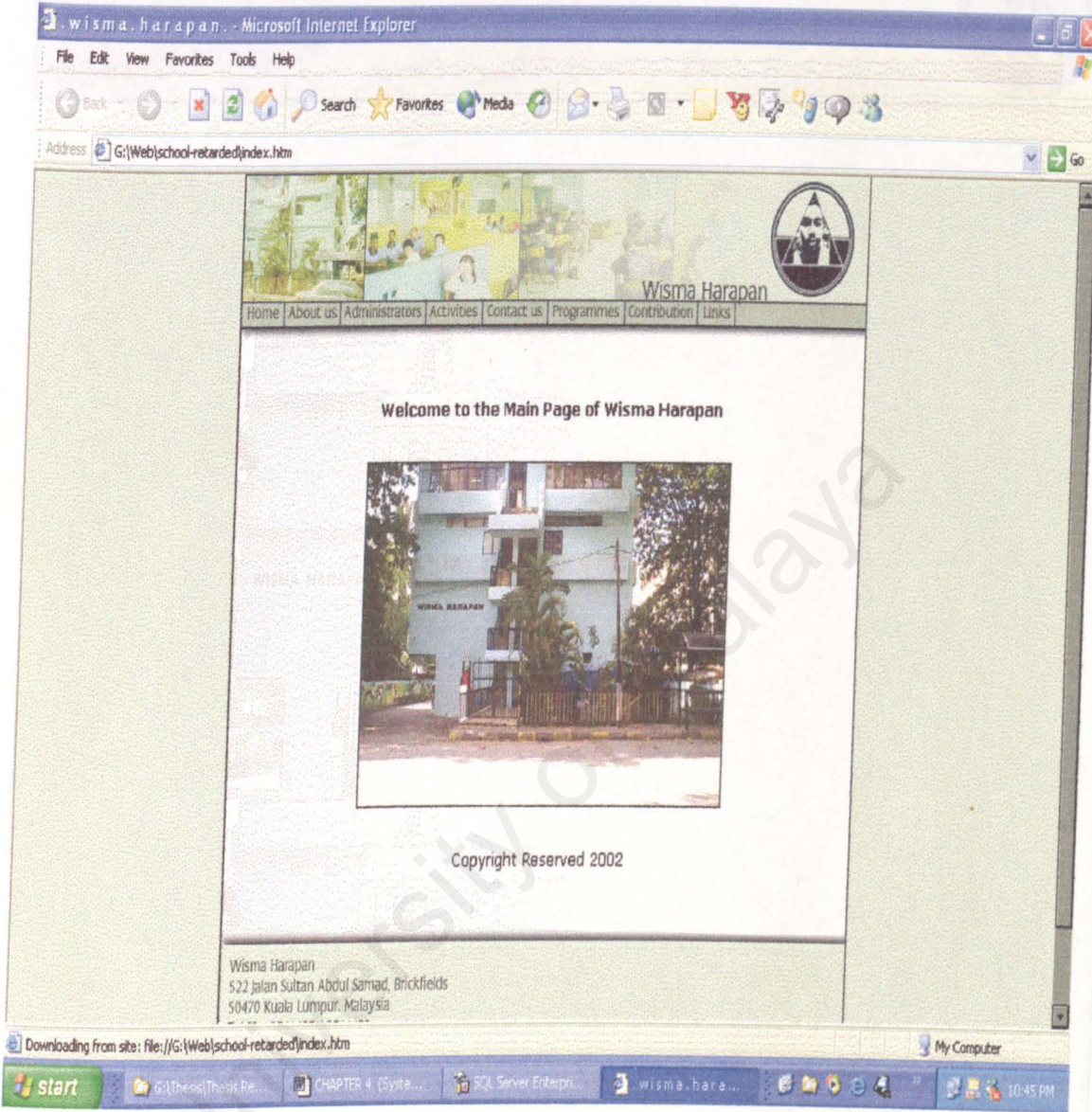


Figure 4-8 Layout Design



Wisma Harapan



Chapter 5

System Implementation

CHAPTER 5 SYSTEM IMPLEMENTATION

5.1 Introduction

This chapter covers all the aspects of implementing the system. Basically system implementation is a process of converting all the requirements and designs into program codes.

A good programming technique is essential for developers to ensure the quality of software. One of the advantages of good programming technique will make the codes easy to reuse, maintain as well as to modifying purposes in the future, which is very important factor for future software development. Coding process of this system was done using two standards:

Standard for the Developer

This standard is to help the programmer organize thoughts and avoid mistakes. Documenting codes usually helps locating errors and making changes to the program.

Standard for Others

It is essential for the program to be organized, formatted and documented to help others understand easily how the system works and what are the functions of each module. For example, the use of comment blocks to describe the functions of each module in the system.

5.2 Coding Formats

Several formats were applied in the implementation phase of this system. This is to ensure the programming standards and procedures are met.

Systematic Layout of the Coding

Codes were arranged to a systematic and neat layout. This layout will make the codes easy to read and understandable. Indentations and comment blocks are examples how the coding are done systematically.

Consistent-Meaningful Variable Names

Variables, constants and procedures were named accordingly for easy reference. This will make the coding easy to understand and easy to read.

For example, to add new medical report of a student, variables such as ObjrecMedicalBirth, ObjrecMedicalDevelopment and ObjrecMedicalHyperkinesis were used to represent the medical report respectively.

```
<%@ Language=VBScript %>
<HTML>
<HEAD>
<META NAME="GENERATOR" Content="Microsoft Visual Studio 6.0">
</HEAD>
<BODY>

%
tudentid=request.form("id")
```

```
Dim objconn
Dim objrecstudent
Dim objrecmedicalbirth
Dim objrecmedicaldevelopment
Dim objrecmedicalhealth
Dim objrecmedicalfits
Dim objrecMedicalHyperKinesis
Dim objrecMedicalSocialSkills
Dim objrecMedicalCommuncation
Dim objrecMedicalExamination
Dim objrecMedicaldoctor

sqltextstudent="UPDATE Students Set medicalreport =""&statusmedical&"" where
studentid like "" &studentid& "" "

.....(more coding)
```

Figure 5.1 Self Referencing-Meaningful Variables

Control Structures

It is very important that the control structures of the program reflect the design of the system. Thus, control structures were designed so that they will be readable and understandable easily from the top down.



analysis of test results as well as problems encountered during the testing phase were documented.

6.1 Testing

Testing is a process that will determine the errors in a system, and then find the cause of the errors and finally fix the errors. Costly errors of system failures will occur if systems that are not tested properly. The testing phase is crucial as to ensure the quality of software and to make use the system fully. The implementation as well as user satisfaction.

University of Malaya

Chapter 6 System Testing

CHAPTER 6 SYSTEM TESTING

This chapter covers the testing phase of the development process. Testing methods, analysis of test results as well as problems encountered during the testing phase were also documented.

6.1 Testing

Testing is a process that will determine the errors in a system, and then find the cause of the errors and finally fix the errors. Costly errors of system failures will occur to systems that are not tested properly. The testing phase is also crucial as to ensure the quality of software and to make use the system fulfils all the requirements as well as user expectations.

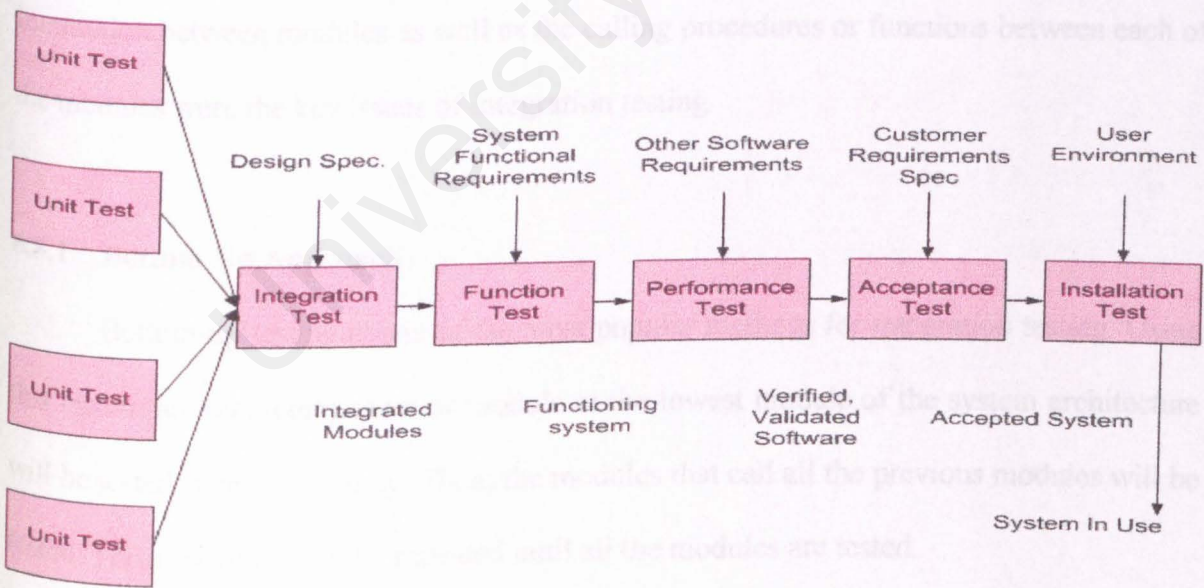


Figure 6.1 Levels of Testing

This system is designed into a few modules and all the modules are integrated to form a system. Three approaches of testing were used in this development process, unit testing, integration testing, and system testing.

6.2 Unit Testing

Unit testing or sometimes known as module testing was performed to detect errors in each and every module in the system. The four modules, Student, Employee, Financial and Inventory were tested separately using this approach. Unit testing involves code walkthroughs, code inspections; both are techniques to examine the codes.

6.3 Integration Testing

Integration of the system was done after the all unit testing were conducted. Interaction between modules as well as the calling procedures or functions between each of the modules were the key issues of integration testing.

6.3.1 Bottom Up Approach

Bottom-up testing is one of the most popular methods for integration testing. Using this technique, each component or module at the lowest module of the system architecture will be tested first individually. Then, the modules that call all the previous modules will be tested. This procedure will be repeated until all the modules are tested.

6.3.2 Top Down Approach

Top down testing is one of other method of integration testing.. This method is exactly the reverse method of bottom up approach. A simple way to explain this approach is firstly, the top level modules or controlling modules are tested and next the all the components called by the controlling module. This process will be repeated until all the modules are tested.

6.4 System Testing

The system testing was done after all the modules were integrated and tested thoroughly. The main objectives of system testing are to make sure the system meets customer's expectations and most important, it meets the entire objective of developing the system.

Function Testing

Function testing is the first step of system testing. It focuses on the functionality of the system, based on the system's functional requirements. Functional requirements such as updating students' records, new inventory record or new financial transaction fill be performed and verified.

Performance Testing

Performance testing is to determine the non-functional requirements of the system as defined in the requirement analysis. Issues such as user-friendliness, security, reliability, and consistency were verified time and time again in the performance testing.

6.5 Test Results and Analysis

Coding Errors

A number of errors occurred during the test, which lead to the failure of the system. One example is the failure to retrieve or add new record to the students table in the database. Common errors are SQL syntax errors and sometimes ASP coding errors. These coding errors were corrected and the system runs smoothly.

Unable to Access the Database

SQL Server has its own unique security measures and permissions to access the database must be done by the administrator. Failure to access the database was because the SQL Server was not configured and managed carefully.

Errors in DSN setup also lead to failure to access the database. Corrective measures to setup User DSN and System DSN were done to rectify the errors.



This chapter explains the overall strength and limitations of the system. Problems encountered, knowledge gained and the conclusion of the development will also be addressed in this chapter.

7.1 System Strengths

7.1.1 User Friendly and Easy to Use

The design of this School for Mentally Retarded Child System is user friendly and very easy to use. Users that are not computer literate can learn the system in a very short time. Targeted are the teachers and employees of the school, doctors who can give medical reports, as well as the administrative staff of the school. They will find the system easy and very simple to use.

7.1.2 Online Donations

Online donations can be made using this system. The success of charity websites such as American Red Cross (<http://www.americanredcross.org/usa/usa.htm>) and The Salvation Army (<http://www.salvationarmy.org/usa/usa.htm>).

Online donations can be made using this system.

Online donation function will also benefit all the organization because

and all over the world can contribute easily without having to visit the

Chapter 7 Future Enhancements & Conclusion

CHAPTER 7 FUTURE ENHANCEMENTS AND CONCLUSION

This chapter explains the overall strength and limitations of the system. Problems encountered, knowledge gained and the conclusion of the development will also be addressed in this chapter.

7.1 System Strengths

User Friendly and Easy to Use

The design of this School for Mentally Retarded Online system is user friendly and very easy to use. Users that are not computer literate can learn the system in a very short time. Targeted are the teachers and employees of the school, doctors who can give medical reports, as well as the administrative staffs of the school. They will find the system easy and very simple to use.

Online Donations

Online donations can be made using this system. The success of charity websites such as American Red Cross (<https://www.redcross.org/donate/donation-form.asp>) and The Salvation Army (<https://www.redcross.org/donate/donation-form.asp>) are examples how easy donations can be made using an online system.

Online donation function will also beneficial to the organization because people from all over the world can contribute easily without coming to Malaysia.

7.3 Future Enhancements

Online Medical Reports

Doctors will be able to make medical reports of the students easily using this system. The doctors will be given permission to edit or update student medical reports from their own clinic or hospital which will be very helpful to them. This function will save cost and time.

7.2 System Limitations

Work Shifts of the employees

The system does not cover the shifts of the cleaners, canteen workers, gardeners etc.

Timetable

Timetable of the activities conducted such as sheltered workshop programs and school classes are also not available in the system.

Scope of Financial Management

The system only provides basic financial activities of the organization such as monthly report statements and detailed information on each financial transaction. Wider scopes such as cash flow statement, balance sheet, etc will be useful additions to the system.

7.3 Future Enhancements

Work shifts of the workers

A module that will manage and monitor work shifts of every employee will be added later. This function will increase the productivity of the organization without having to face a lot of paper works.

Timetable

Timetable for each class and activities will be added in the future for the administrators. A few tables will also be added to the existing database as well as the coding.

Wider scope of Financial Management

More mathematical functions regarding the financial management of the organization will be considered in the future. Stated below are the considered functions for future upgrades:

1. Balance Sheet
2. Cash flow statement
3. Depreciation of each asset
4. Online Payment such as utility bills, taxes, etc.

Automated emails

Due to the information age, official letter will be done in e-mail. Functions to auto generate emails for administrative purposes such as a letter to apply for the use of a field to the local authority, newsletters to parents, etc will be done.

7.5 Problems Encountered

7.4 Knowledge Gained

Web Based Application Development

Knowledge gained in the development of the system includes ASP language, VBScript as well as JavaScript.

Client-Server Architecture

Client-Server architecture was studied and mastered during the development process. Besides, Client-side scripting and server-side scripting was also studied.

SQL Server

SQL Server is a very powerful DBMS compared to Microsoft Access. The functions as well as the tools were studied and very useful for future needs.

7.5 Problems Encountered

The development of the online system encountered a few problems during early stages as well as later stages in the development process.

7.5.1 Early Stages of Development

Difficulty in choosing web-based programming language

Due to many programming languages in 2web based application, detailed surveys were needed to choose the best one. After various surveys, consultations as well as reviews, ASP and VBScript were chosen as the programming language.

Difficulty in choosing DBMS

Like web-based programming languages, there are many types of DBMS in the market with each has its own pros and cons. This problem was solved by doing internet research, consultations with supervisor as well as working professionals, and discussions with the students of Faculty of Computer Science and Information Technology University Malaya (FSCIT)

7.5.2 Implementation and Testing Stage

Lack of experience in web-based in web-based application development

Web-based application development is different compared to the normal stand alone application development. New approach were learnt such as server and client side scripting, configuring Internet Information Service (IIS), and creating DSNs for the database connectivity just to name a few. This new approaches of web-based application development were quite difficult to learn at first, but internet research and discussions with friends helped to overcome the problem.

7.6 Conclusion

Overall, this School for Mentally Retarded Online System has fulfilled the objectives as in the requirement analysis. Users and the public will benefit from using this online system.

This project helped me a lot in learning web-based application development as well as handling a project which requires strict discipline and time management.

As a conclusion, there is still room for improvement for this online system in adding more features to the system as discussed earlier. Hopefully more and more similar web based application will be created by students to help the charity organization, it feels really good doing the right thing!

Amer Imran Kamaruzaman

WET 990242



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APPENDIX A

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(<http://www.devguru.com>)



Wisma Harapan

System Requirements

Users can access this system by typing the address of this web using Internet Explorer. Please make sure your system meets all the minimum hardware and software requirements as listed below.

Category	Requirement
Operating system	Windows 95 or later
Web browser	Internet Explorer 5.0 or above
Hardware	<ul style="list-style-type: none"> RAM 16 or above Hard disk 20 MB or above Internet Connection

Starting the Internet for Internet Restricted Office System

1. Launch the web browser first, for example by clicking the Internet Explorer icon in the desktop or by using the start menu.
2. Once the browser is loaded, type the following address in the address bar:

USER MANUAL

Chapter 1 GETTING STARTED

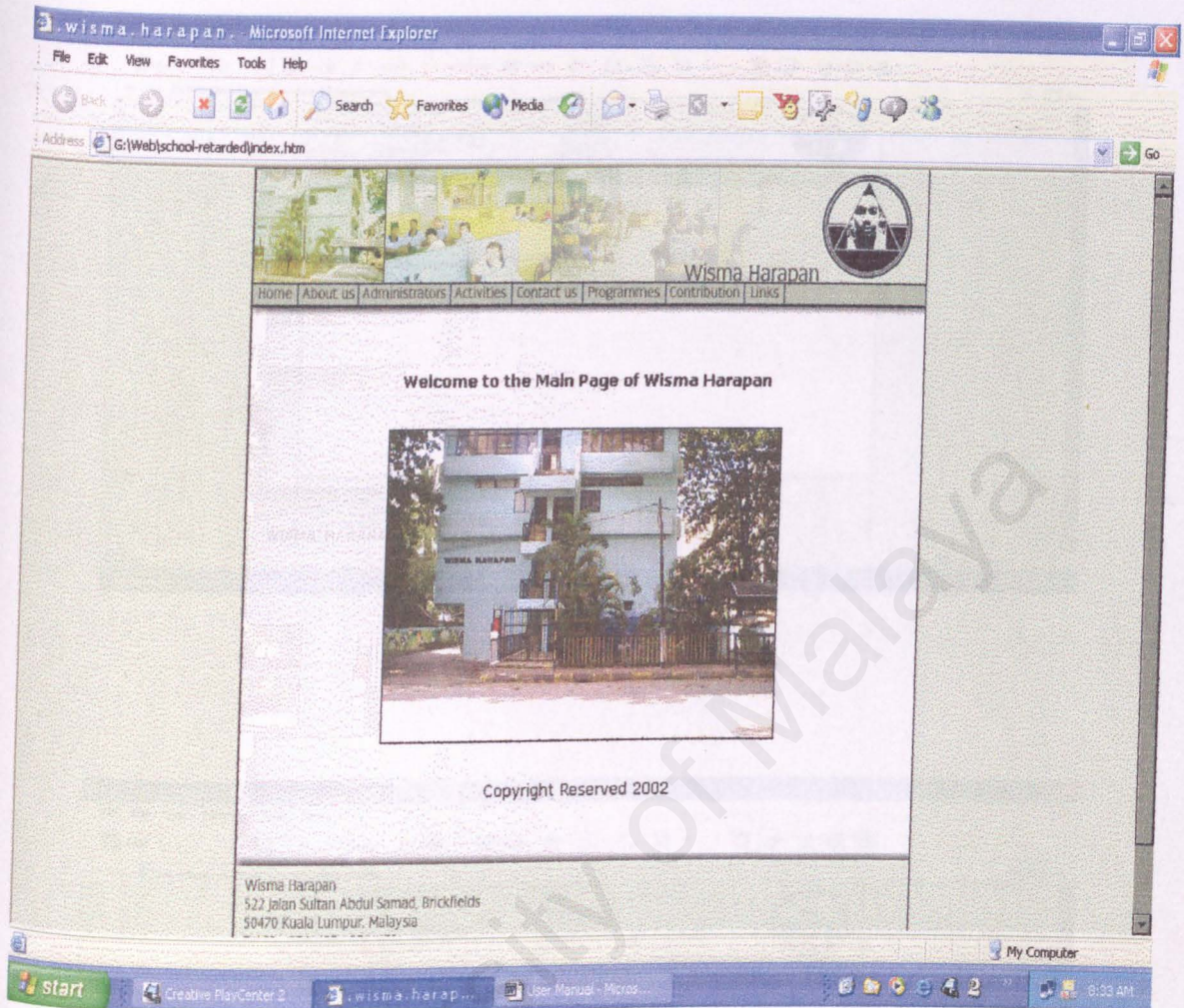
1.1 System Requirements

Users can access this system by typing the address of this site using browsers available. Please make sure your system meets all the minimum hardware and software requirements as stated below:

Category	Requirement
Operating system	Windows 98/NT/2000/ME/XP
Web browser	Internet Explorer 5.0 or above
Hardware	Pentium II or above 128 MB RAM Internet Connection

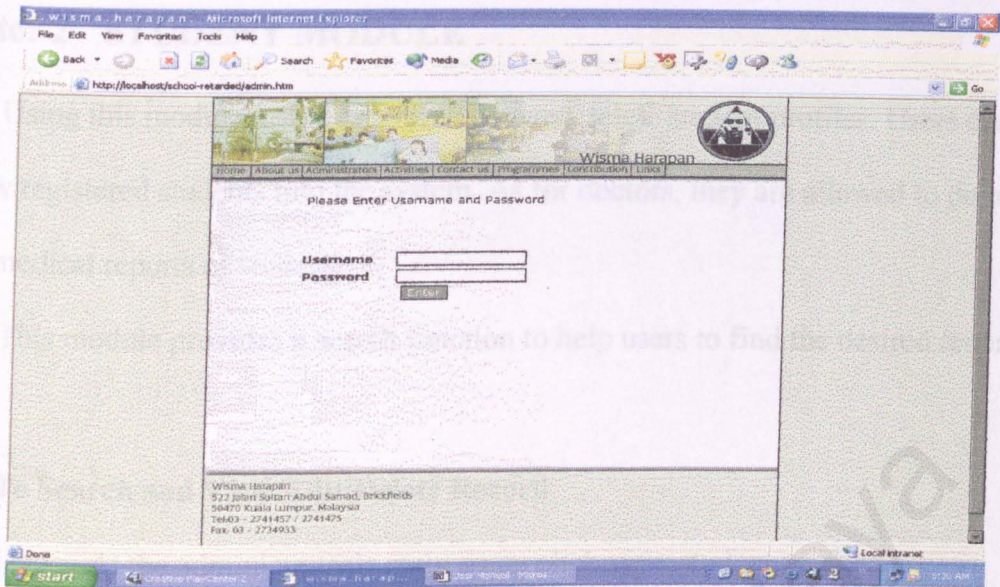
1.2 Starting the School for Mentally Retarded Online System

1. User must start the web browser first, for example by clicking the Internet Explorer icon in the desktop or by using the start Menu.
2. Once the browser is loaded, type the following address at the address bar :
<http://anx474/school-retarded/index.htm>
3. The browser will then display the main page of the charity organization, which is Rumah Harapan.

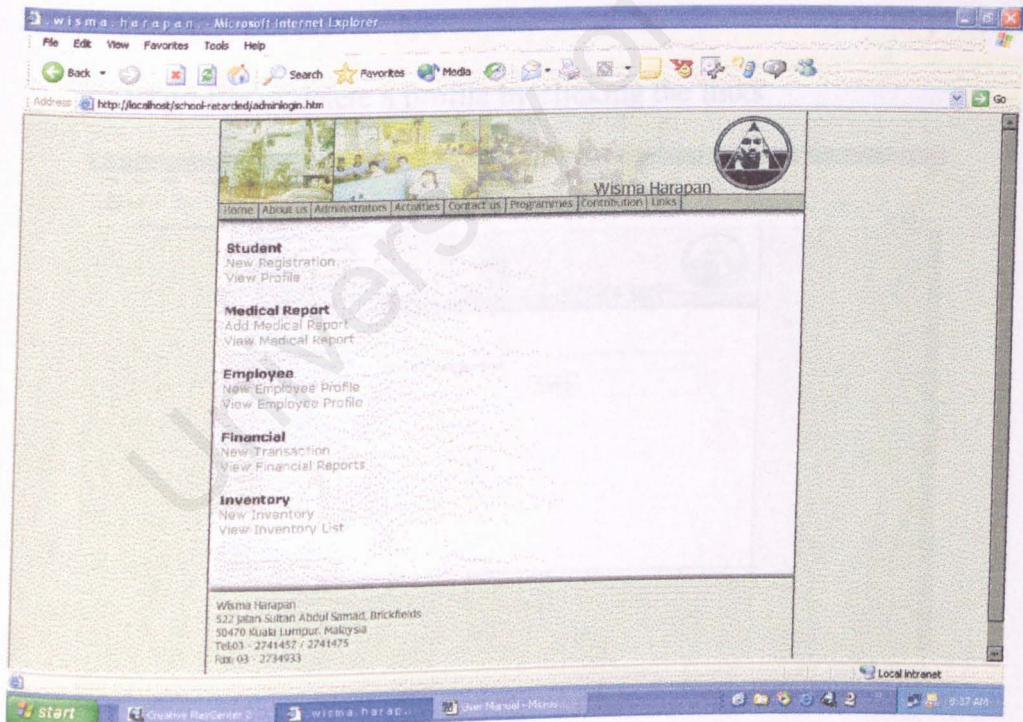


Main Page of Rumah Harapan

4. To continue, click the Administrators button and the login page will appear.
5. Key in your username and password and press Enter. If correct, you will be directed to the administrator's main page. If you entered an invalid username or password, you'll have to re-enter again and error messages will appear.
6. From the administrator's main page, you can choose which module to use, Students, Medical Reports, Financial, Inventory, and Employees



Login Page



Administrator's Main Page

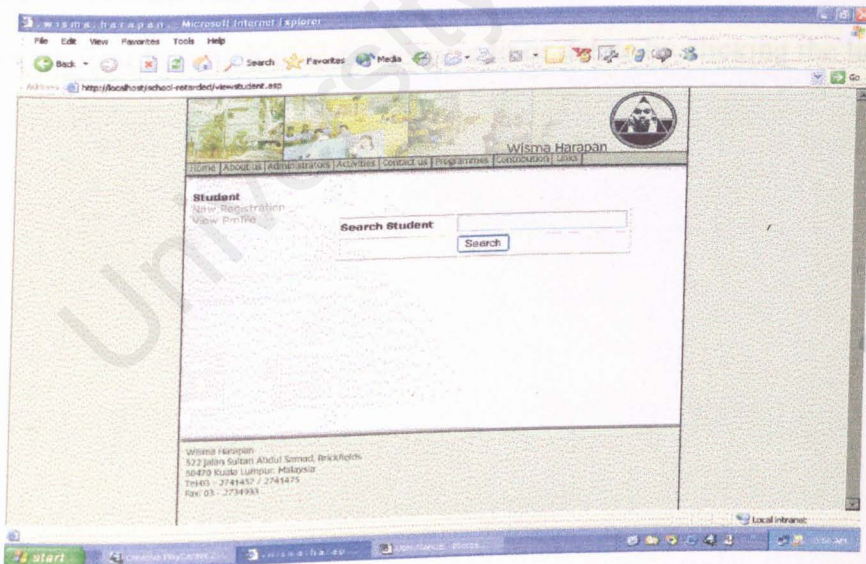
Chapter 2 STUDENT MODULE

Using this module, users can view, edit and delete student profiles. Users can also add new registered students into the system. As for doctors, they are allowed to do modify or add medical reports of students.

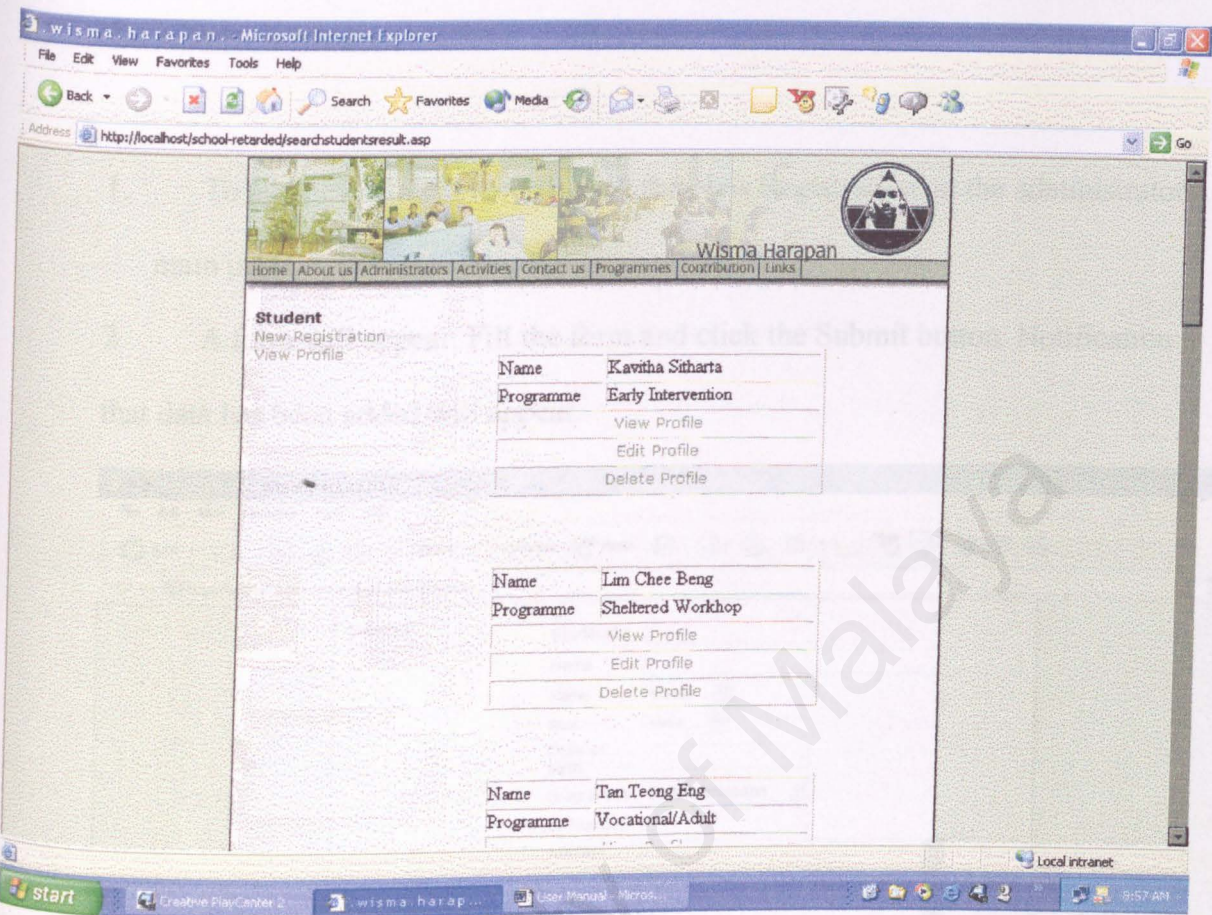
This module provides a search function to help users to find the desired record (s).

2.1 To Search and View/Edit/Delete Record

1. At the administrator's main page, click view student profile.
2. A search box will appear and type the student name desired and click the Search button
3. Search result (s) will appear and users can choose to view the profile, edit the profile or delete a profile by clicking the links



Search Student



Search Results which user can view, edit or delete by clicking the links.

2.2 To Add New Student

1. To add new student record, click the New Registration at the administrators main page.
2. A form will appear. Fill the form and click the Submit button. Notification that data has been added will appear.

The screenshot shows a web browser window titled "wisma.harapan - Microsoft Internet Explorer". The address bar shows "http://localhost/school-retarded/newstudent.htm". The page content is a registration form for a new student. On the left, there is a sidebar with the text "Student", "New Registration", and "View Profile". The main form area contains the following fields and options:

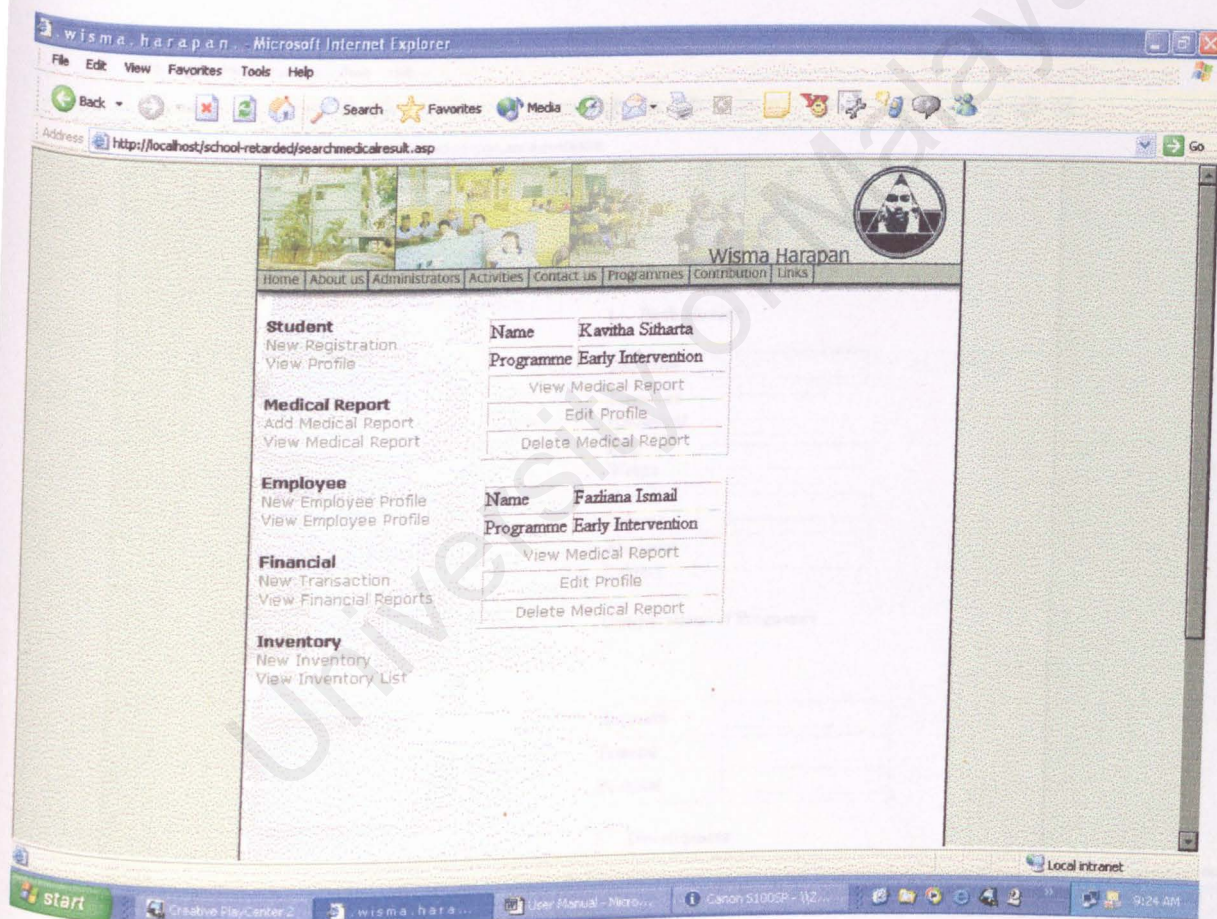
- StudentID:
- Name:
- Race:
- Sex:
- Date of Birth:
- Programme:
- IC Number:
- Address:
- Language At Home:
- Admission Date:
- Registration No:
- State Welfare Registration No:
- Remarks:

At the bottom of the form, there is a link labeled "Father Profile". The browser's taskbar at the bottom shows the "start" button, several open applications including "Creative PlayCenter 2" and "wisma.harapan...", and the system clock showing "9:01 AM".

New Student Registration Form

2.3 To View, Edit, Delete Medical Report

1. At the administrator's main page, click view medical report.
2. A Search box will appear.
3. Type in the student name and click the search button.
4. Using the result(s) given, users can view, edit or delete by clicking the links given.



Search Medical Report Result(s)

2.4 To Add New Medical Report

1. At the administrator's main page, click add medical report
2. A Search box will appear. Type in the student name you wish to add his/her medical report.
3. Click link at the search result to add the medical report.
4. Fill in the form, and click the submit button. Notification that new medical report has been added will appear.

wisma.harapan - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address http://localhost/school-retarded/Newmedicalreport.asp?item=Stu002 Go

Student
New Registration
View Profile

Medical Report
Add Medical Report
View Medical Report

Student ID Stu002
Name Lam Chee Beng

1. Birth History

Full Term
Premature (Gestation)
Birth Weight
Normal Delivery
Abnormal Delivery

Complications of Pregnancy

Antenatal
Prenatal
Postnatal

2. Development

Done

start Creative PlayCenter 2 wisma.harapan... User Manual - Micro... Canon S100SP - 162... Local intranet 9:33 AM

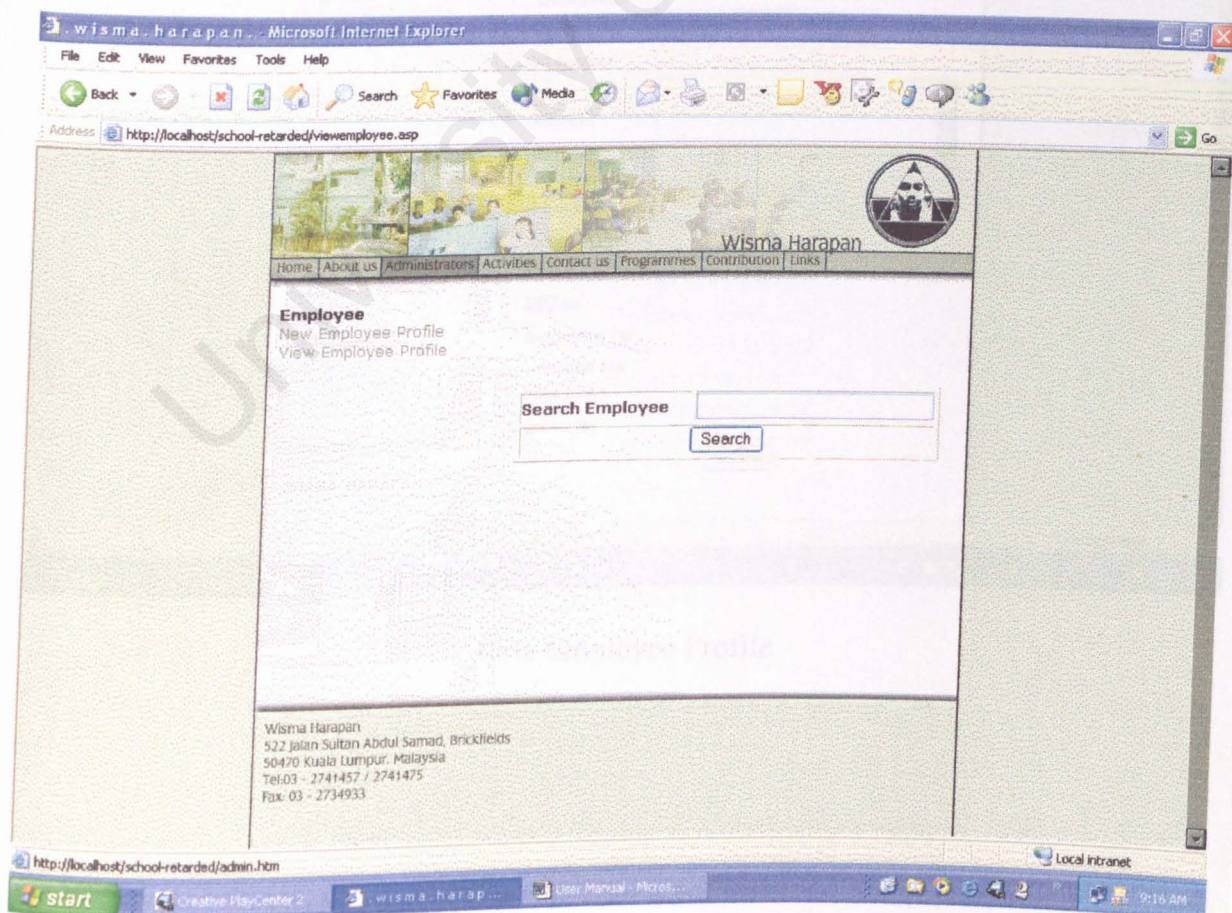
New Medical Report Form

Chapter 3 Employee Module

Users are allowed to view, edit and delete employee profiles using this system. This module also provides a search function.

3.1 To Search and View/Edit/Delete Record

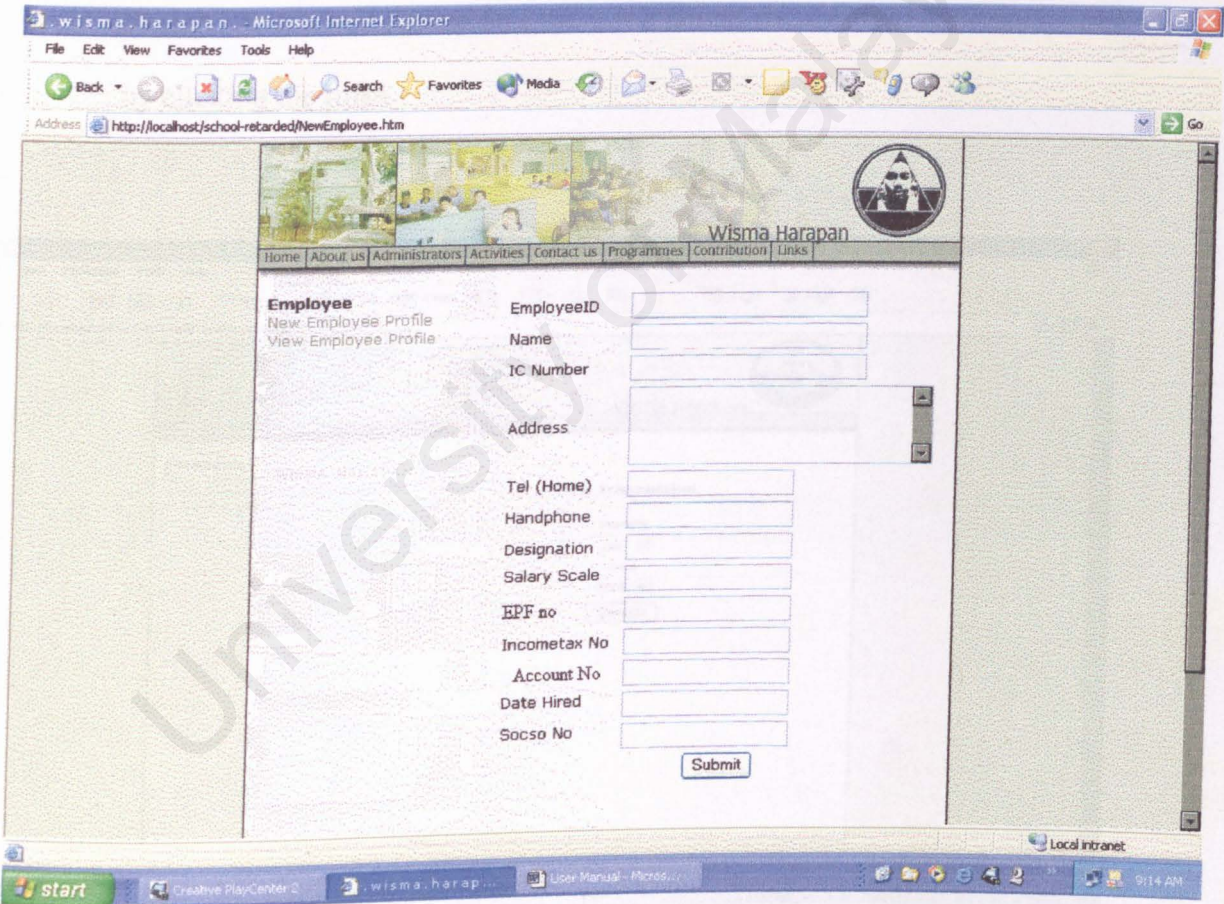
- 1 At the administrator's main page, click view Employee profile.
- 2 A search box will appear and types the student name desired and click the Search button
- 3 Search result (s) will appear and users can choose to view the profile, edit the profile or delete a profile by clicking the links at the search results.



Chapter 4 Financial Module

3.2 To Add new Employee

1. To add new Employee record, click the New Employee Profile at the administrators main page.
2. A form will appear. Fill the form and click the Submit button. Notification that data has been added will appear.



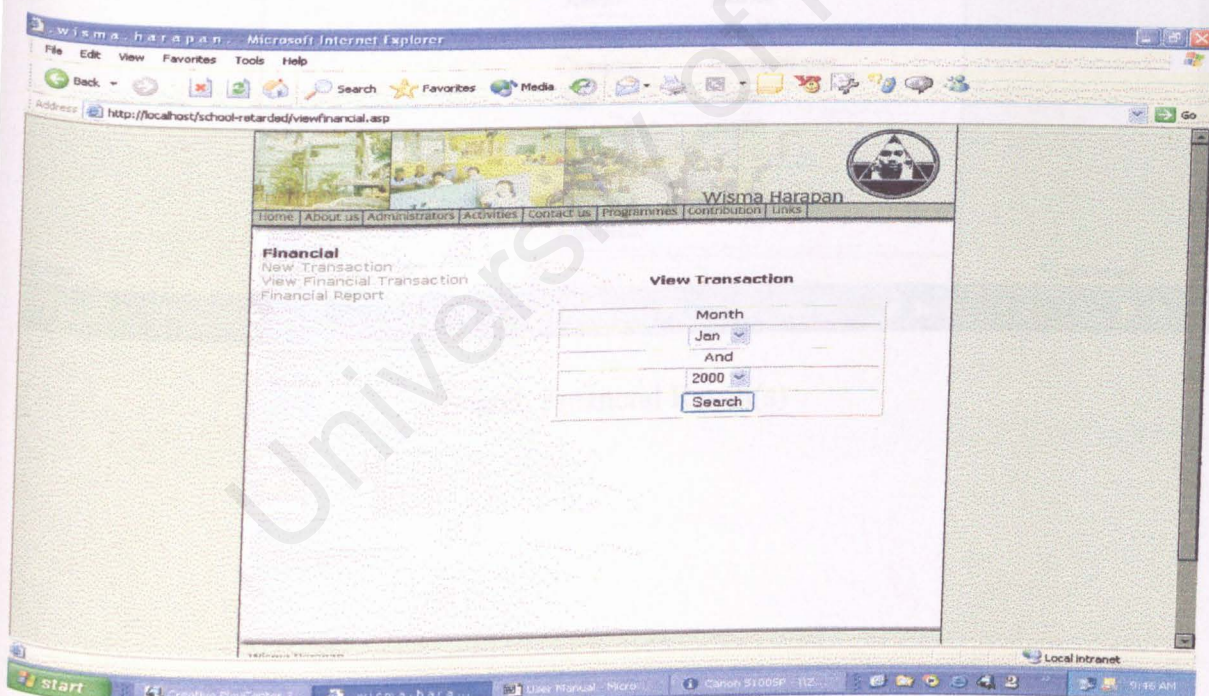
New Employee Profile

Chapter 4 Financial Module

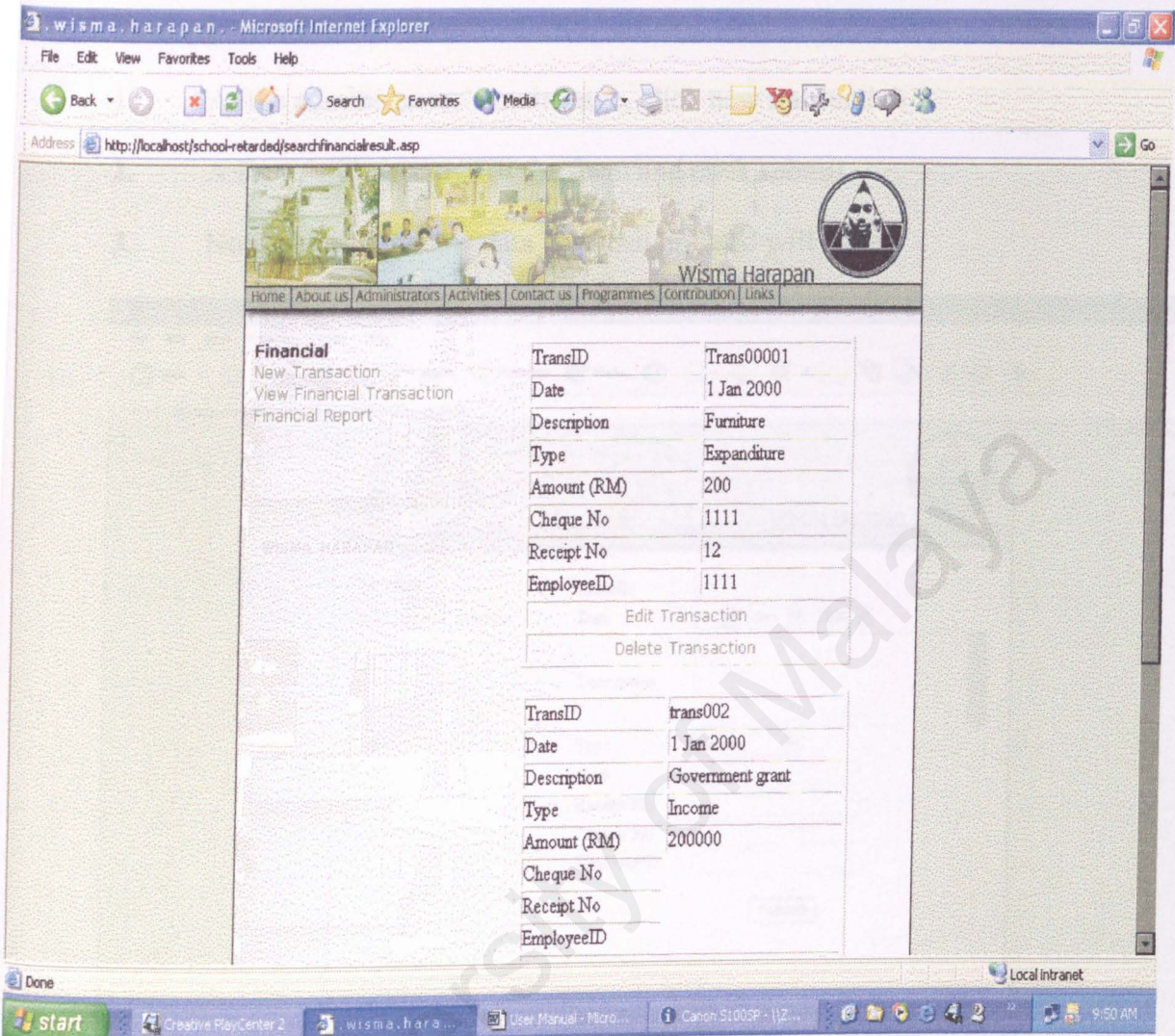
In this module, users can add, delete or edit financial transactions. Users can also view monthly reports as well as detailed single transaction.

4.1 To View, edit or delete single transaction

1. At the administrator's main page, click view financial transaction.
2. A search Box will appear, Select the month and year of transaction
3. Search Results will appear and users can delete, view or edit the transactions by clicking the links.



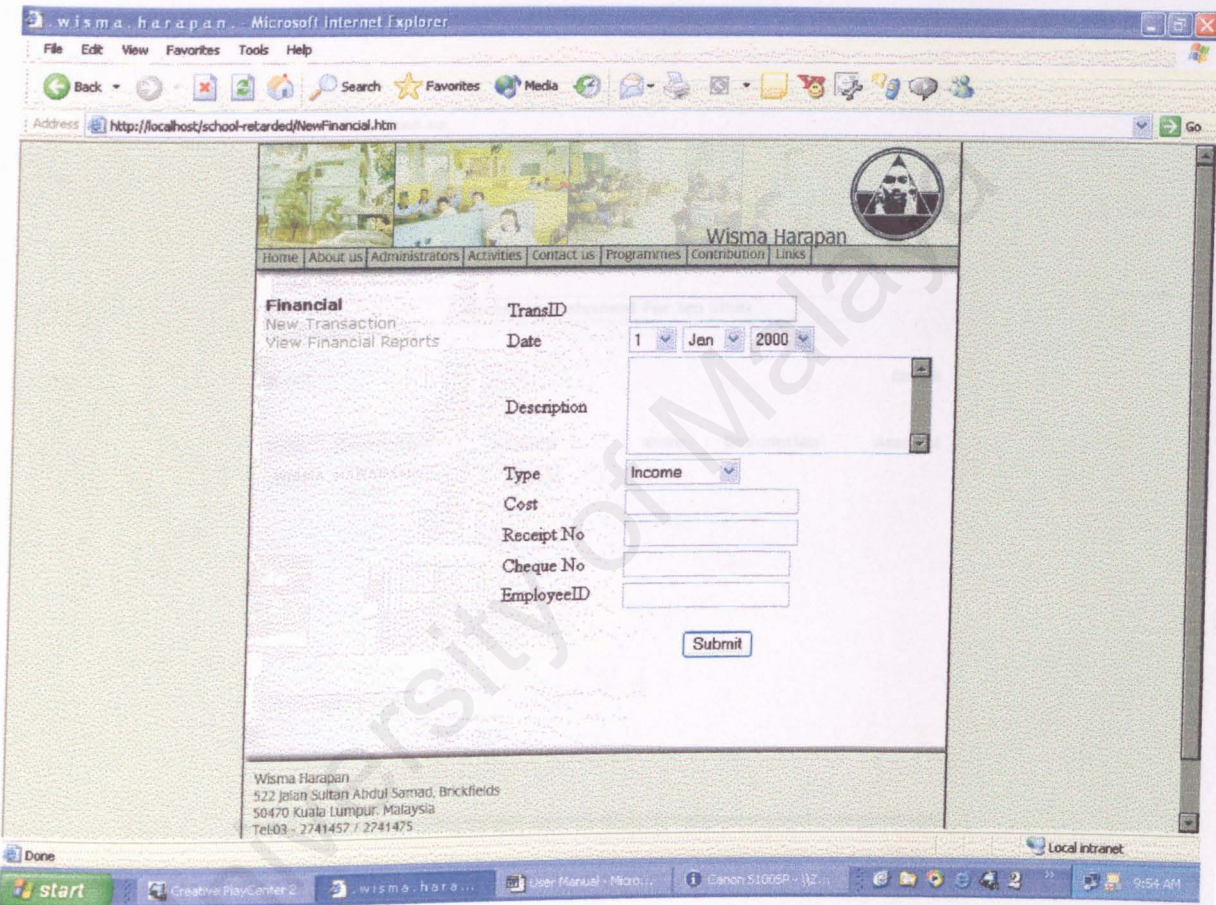
Search Box to Search A Transaction



Search Financial Result(s)

4.2 To Add New Transactions

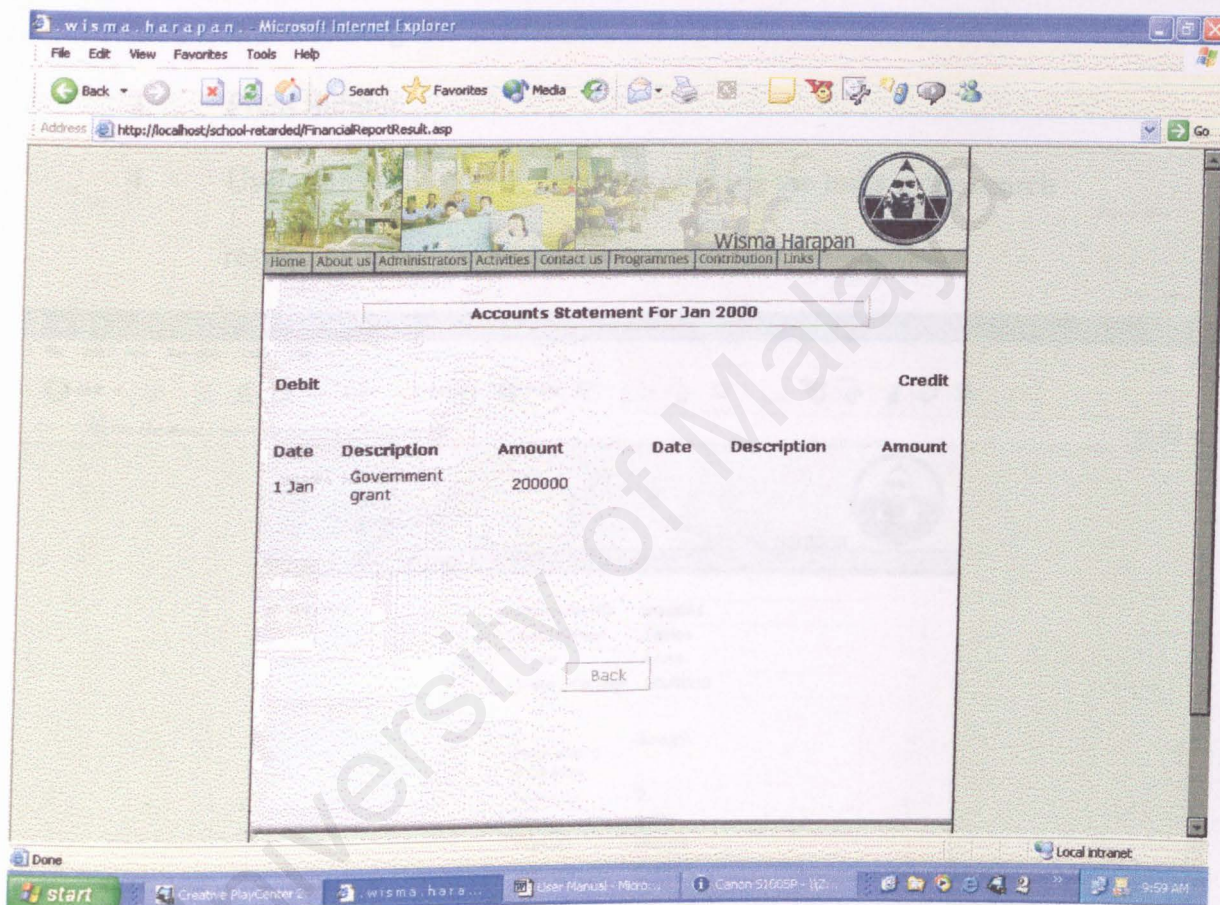
- 1. At the administrator’s main page, click new transaction
- 2. A Form will appear. Fill the form and click submit
- 3. Notification that new data has been updated will appear



New Financial Transaction Form

4.2 To View Monthly Report

1. Click view financial reports
2. A Drop down list will appear. Select month and year report
3. Press Submit. Result will be displayed.

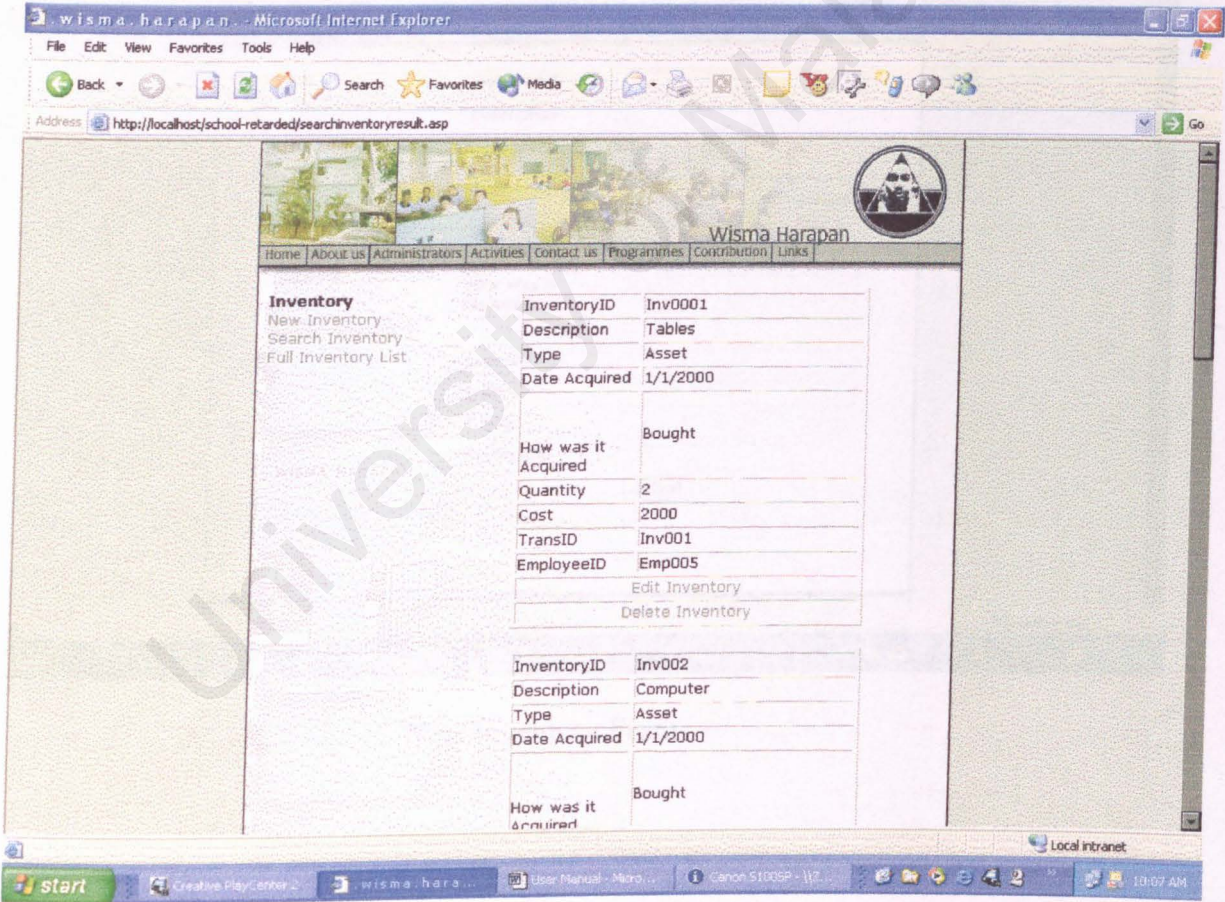


Example of a monthly Report

Chapter 5 Inventory Module

5.1 To View,Edit or delete inventory

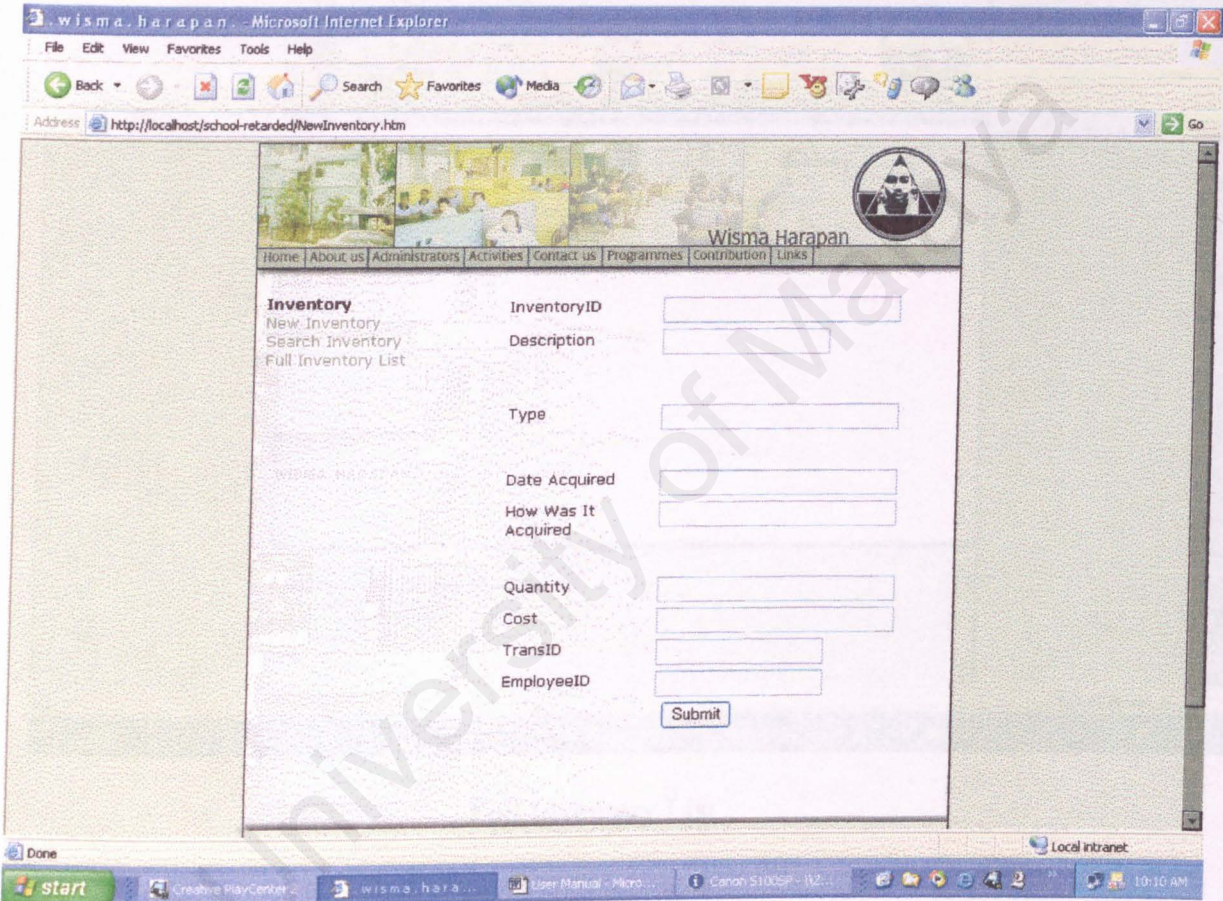
- 1. Click view inventory at the administrator’s main page
- 2. A Search box will appear. Users are able to search the inventory wanted using this search box.
- 3. Press Submit
- 4. Users can view, edit or delete by clicking the links at the search result(s)



Search Inventory Result(s)

5.2 To Add New Inventory

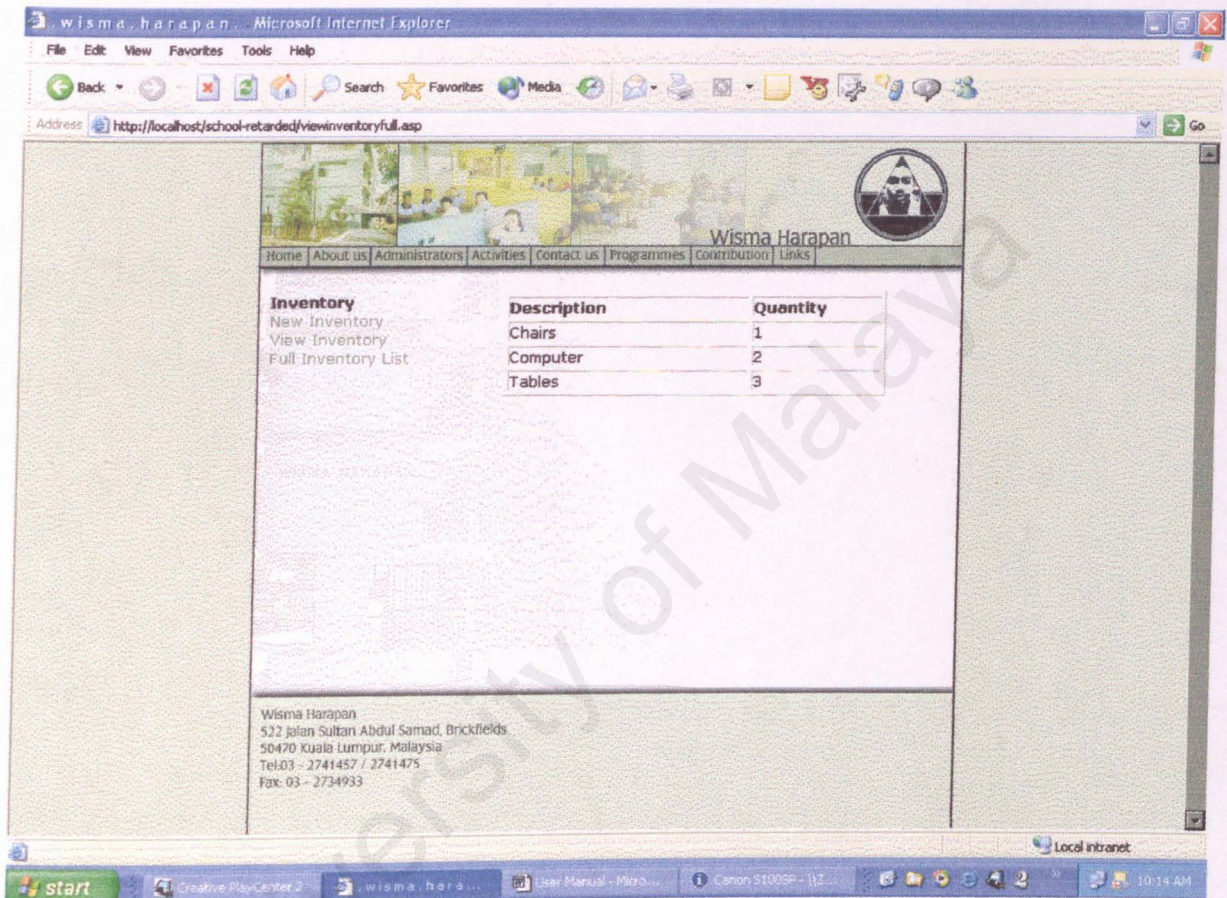
- 1. Click New Inventory
- 2. Fill the form given
- 3. Press Submit button
- 4. Notification will appear that shows that data has been added



New Inventory Form

4.3 To View Full Inventory List

1. Click Full Inventory List
2. Result showing full inventory list will appear.



Full Inventory List