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Online Diary System

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ABSTRACT

This project documentation is submitted to the Faculty of Computer Science and Information Technology, University of Malaya as a report for the Final Year Project, which in turn serves as a partial fulfillment of the requirement for the Bachelor of Information Technology Degree.

Online Diary System is a web-based application that will change the traditional way of writing diary which is using papers and pens. With this system, users can enjoy writing their diary as long as they have an Internet connection. It is also built for the reason of security where only the users can access their own diary. There is no way that one can view the private diary written unless he or she is given permission by the diarist.

With the studies made on existing systems, comparison has been made to evaluate each of them on their features and other aspects such as user friendliness, navigation and functions provided. It is found that a diary system is not only an ordinary diary for writing down every sweet and sour moments, but there are also some functions that can be added to ease users. Proposed system will include a reminder with SMS alert and addressbook too.

This project is continued with the next advancement of the Final Year Project WXES 3182. The actual WXES 3182 is based on the proposal in WXES 3181, the first stage of the Final Year Project.

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Chapter 1

Project Overview

1.1 Project Definition

1.1.1 Overview

Diary, a book which has a separate space for each day of the year. It has been used since early age to write down things we plan to do, or to record sweet or sour things that happen in our daily life. The traditional way of writing diary is by using papers and pens. But in today's society, where there are many new improved technologies, diary writing has evolved over the years. Since the day when computer and Internet are introduced, our community is heading gradually for a paperless environment. Diary is now widely written and saved in computer, Personal Digital Assistant (PDA) or Internet.

Due to the development of Information Technology, there are countless things that can be carried out through Internet. This includes an Online Diary System, as proposed in this project. Online Diary System would be a web-based software application developed to ease users where they can access their own diary anywhere as long as there is Internet connection. It is created based on the functions of a paper diary with some extra special features which will help us to store, manage and retrieve personal information like notes, address, contacts easily. It will also provide an excellent way to keep track of day-to-day activities, thoughts, goals, feelings, dreams, ideas and important events in life.

The content is kept strictly private. So Online Diary System will help us maintain the diary that is secured from others by a strong protection scheme. With this, we can store our cherished memories forever easier than ever before.

1.1.2 Project Objectives

This project is developed to meet the following aims:

- Users can login to access their diary wherever they are by just surfing the Internet.
- To record private moments and dreams for any day with complete privacy
- Flexible where users feel free to do any modification as they wish
- Provide users an alternative to manage their important information, contacts, special events and reminders in a more tidier way
- Remind users on special events by SMS
- For security reason where no one can access the diary without permission (username and password protected)/
- To create a user-friendly environment for Online Diary System
- To introduce a paperless environment

1.1.3 Problems and Inconveniences

- *Not fully supported by different browser*

The system is developed using Microsoft Internet Explorer, so it does not support other Internet browser.

- *Not support multi language*

The system can support only one language, which is English.

1.1.4 Expected Outcome

As we see that it is so important for us to keep in touch with loved ones, Online Diary System definitely will be a good choice. Due to this reason, there will be some requirements. So developer has come out with some expectation as well:

- *User Friendly*

The application must be easy to use and can be understood by users from any levels, in order to ease them in navigation and control.

- *Attractiveness*

The graphical user interface (GUI) must be nice and comfortable to see to increase the attractiveness of the application.

- Easy for Enhancement and Maintenance

The coding has to be written in a systematic and tidy way so that the system is flexible. If there is any problem, it will be easy to enhance and maintain.

1.2 Project Scope

1.2.1 Features

The Online Diary System basically consists of two main modules namely User Module and Administrative Module.

User Module

User Module can only accessed by registered users. However, there are a few pages that can be accessed by public users, who have not yet registered themselves as members to enjoy the service. The pages are Home, FAQ and Help. The features of the module are:

- Main menu
- Online registration
- Diary content which shows the dates and the titles of entries
- Entering daily memories
- Jot down ideas
- Store, manage and retrieve personal information like address, contacts etc from Addressbook

- Set Alarm / Reminder for meeting, appointment, To-Do list or date
- FAQ or Help file
- Feedback form

Administrative Module

Administrative Module is prepared for the higher level of user to maintain the system.

The features of the module are:

- Perform housekeeping on old information in database
- Respond to feedback questions from users
- Update website for new ideas, design or any other forms of modifications
- Fix system if there is any bug reported
- Add new administrator if necessary

1.2.2 Conceptual Design

Conceptual design means to describe the system in simple words that the customers can understand. In this session, developer tells customers exactly what the system will do and how it will benefit them.

Online Diary System is an application that enables users to create an account to become a member. Therefore they are entitled to store their important information online. The important information can be friends' or relatives' personal details, contacts, special events such as anniversaries, birthdays, meetings and appointments. Users can set reminders so that the system will remind them few days before the events according to their preference through SMS. This brings benefits, as they will no longer bring along their diary books wherever they go. They can access their Online Diary System to jot down their thoughts or memories with no constraint of time and place. There is no more "Oops! I've forgot to bring my diary!". Users will just need Internet connection to do so, and that is much more easier than the traditional way.

Besides, they can save the detail contacts their loved ones using the Address Book to ease future reference at any time, sharing their precious moment no matter it is sweet or sour. People are connected and tied to their relationships. That is what everyone has been looking for. Online Diary System is willing to provide them the service and benefits.

1.3 Project Schedule

Figure below illustrates the Project Schedule Timeline:

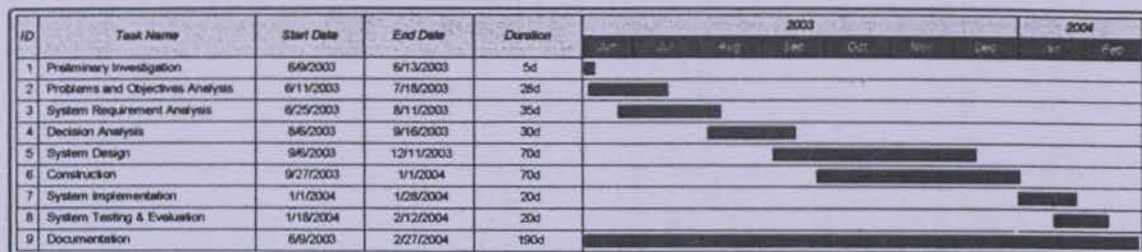


Figure 1.1: Project Schedule Timeline

Chapter 2

Chapter 2

Literature Review

2.1 Introduction Existing Systems

Before starting developing the Diary System, information and knowledge about current systems are necessary for the developer to gain better understanding. Researches are done in the fields that are related to this thesis. A few current systems were found online. Reviews are done on them after been used for some time. From observation and testing, it is found that all the systems have their own pros and cons. Some of them may introduce new ideas or better features than other systems. There are also systems that are either too complex or too simple. Therefore, comparison among the systems is needed as a reference, guidance to design a better system that can suit users' requirements well. The existing systems found are listed as below:

1. My Diary
2. DiaryLand
3. The Open Diary
4. DearDiary.Net
5. Travellerspoint
6. HotDiary
7. Diary-x.com
8. Digital Expressions
9. MyDearDiary
10. My-Life.CC

2.2 Reviews On Existing Systems

2.2.1 My Diary

URL: <http://www.my-diary.org>

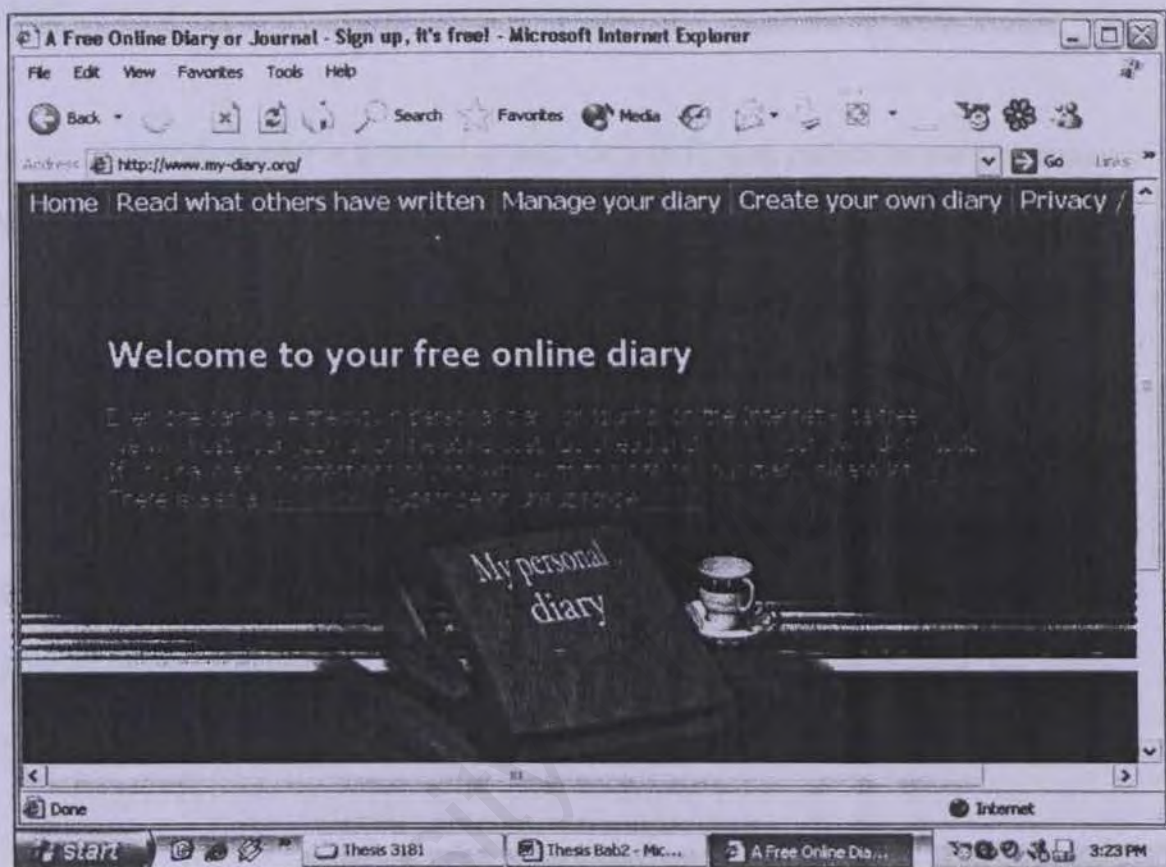


Figure 2.1: Print Screen from My Diary

My Diary is a free online diary for all users to express their feelings. It provides all the basic functions that a diarist needs, without any extra features that will bother users. It can be classified as a “Nice and Clean” type of online diary. It is so simple that there is only a picture found, which is in the homepage. This definitely reduces the loading time.

Users can set their own privacy properties to **Public** or **Private**, depending on their preference. But in this diary system, if the "Public" option is checked, it shows all of the diary entries. Unlike other systems, users can pick selected entries to be shown to public.

A **search engine** is prepared to ease users in finding particular diary by entering keyword. The only searching scope is by language. Users can choose to display 10, 20, 30, 40, 50 or 100 of their search results in a page.

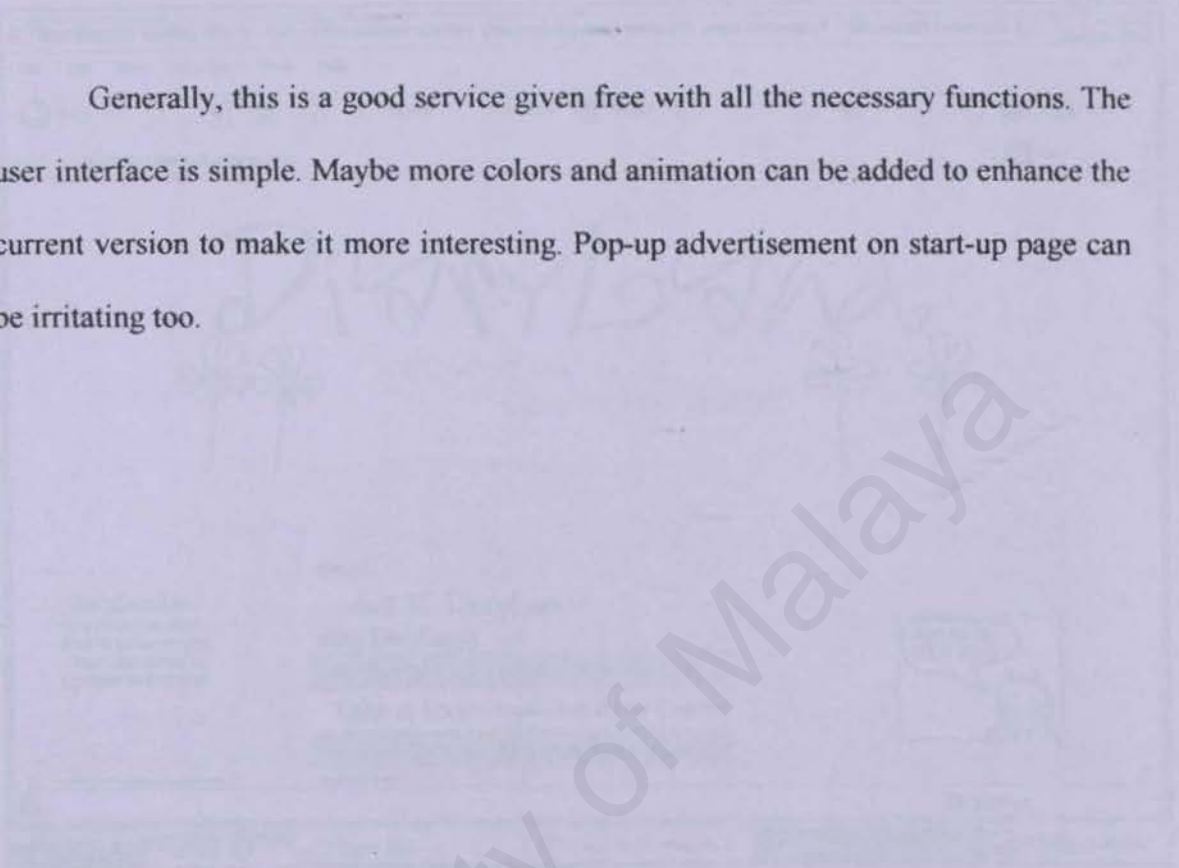
When viewing other diarists' entries, reader can leave a **feedback** to the diarist to commend on it. Besides, reader can choose to be **notified** when diarist update their diary. Both reader and diarist can view **printer friendly version** of the diary before printing it out and keep it as a hard copy with the same diary format for tidiness uniformity.

Navigation is easy too. All the buttons are clearly stated. When viewing other diarist's entries, the entries are sorted according to month in a list format in left frame. Viewer can click on the date, and then the right frame will display the entry on that day.

Specially for new users, there is **FAQ** prepared in guiding them. Users can send feedback to administrator through **Contact Us**. **Newsletter** can be subscribed to obtain the latest news and updates. Another service that diarist can use is "**Tip A Friend**". E-

mail will be sent out to inform them about this online diary service and provides them the URL to view the sender's entries.

Generally, this is a good service given free with all the necessary functions. The user interface is simple. Maybe more colors and animation can be added to enhance the current version to make it more interesting. Pop-up advertisement on start-up page can be irritating too.



2.2.2 DiaryLand

URL: <http://www.diaryland.com>

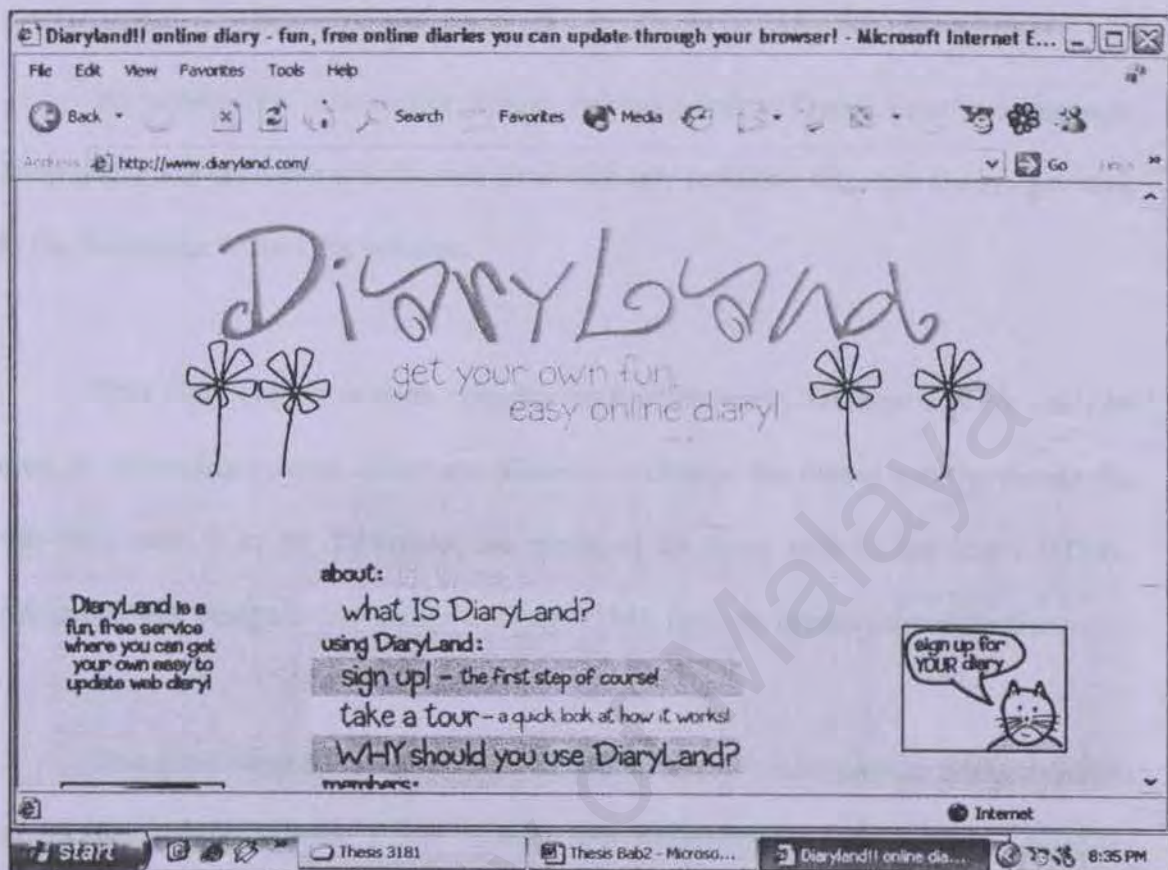


Figure 2.2: Print Screen from DiaryLand

DiaryLand is another discovered online diary. At first glance, the impression that this online diary gives is, "Target at children". The design and the layout at homepage are quite simple and cartoonish. After signing up as a member, you will find that this diary is actually complex and not aiming at children as their users. They even offer **Gold Membership** and **SuperGold Membership** with payments for subscription. As a Gold or SuperGold member, user is entitled to upload their images, viewing

invisible statistic tracker and webmail service. These are the services that cannot be enjoyed by other users.

As to help first time visitor, DiaryLand has a link to **Quick Tour** in homepage. **Help** and **FAQ** are there too. If users face with any problem, they can always get back to the homepage to look for solution.

This diary system is quite complex as it offers many features that are can't be seen in other online diary. Users are allowed to change the layout and the design the way they want it to be. Templates are prepared for those who do not know HTML. Advanced web designer can change it using HTML for own **layout customization**.

One great thing that can be found here is that, there is **no pop-up advertisement or banner advertisement**. Users always find advertisements distracting, especially pop-up advertisements.

Search engine is prepared to ease users in finding something that they are looking for. This system provides as many as eight (8) ways of searching. Users can search by username, city, state or province, country, musical taste, taste in authors, taste in movies and linkers. Search result will be displayed with the most recently updated profiles at the top of list. This is a bit troublesome as the list is very long and users need to scroll to view it.

When coming to diary entries, users can write, edit or delete their entries easily as links are provided at the top left of the page. But it's not so suitable when deleting entry, there is no confirmation message. Users may delete the entry by mistake. Change of date and time is allowed. Users can also alter the format of date and time displayed in entries.

Users can grant other friends or relatives **authorization** to view their diary. This is an extra feature with extra security. There will be a list for user to fill in, including username, password and e-mail of the person viewing.

When there is anyone who wishes to send e-mail to diarist, **redirect e-mail** service is provided. Then all e-mails sent to username@diarylanf.com will be redirected to the actual e-mail account of the diarist, without disclosing it to other users.

DiaryLand Chat is another special feature in DiaryLand. Users can chat with other people in real time. For security reason, users need to login again to access DiaryLand Chat. Besides, they can join **DiaryRing**, post **comments** to particular diarist, set **favourite entries** and fill in **surveys**. But seems like those features are not a necessities for most of the users.

As a conclusion, this online diary is a little complex for a diarist to jot down their emotions. There are too many features that are not needed. Apart from this, the design does not match the target users at all. Credit is given for the navigation part as links on the left are properly categorized so that user can identify them fast.

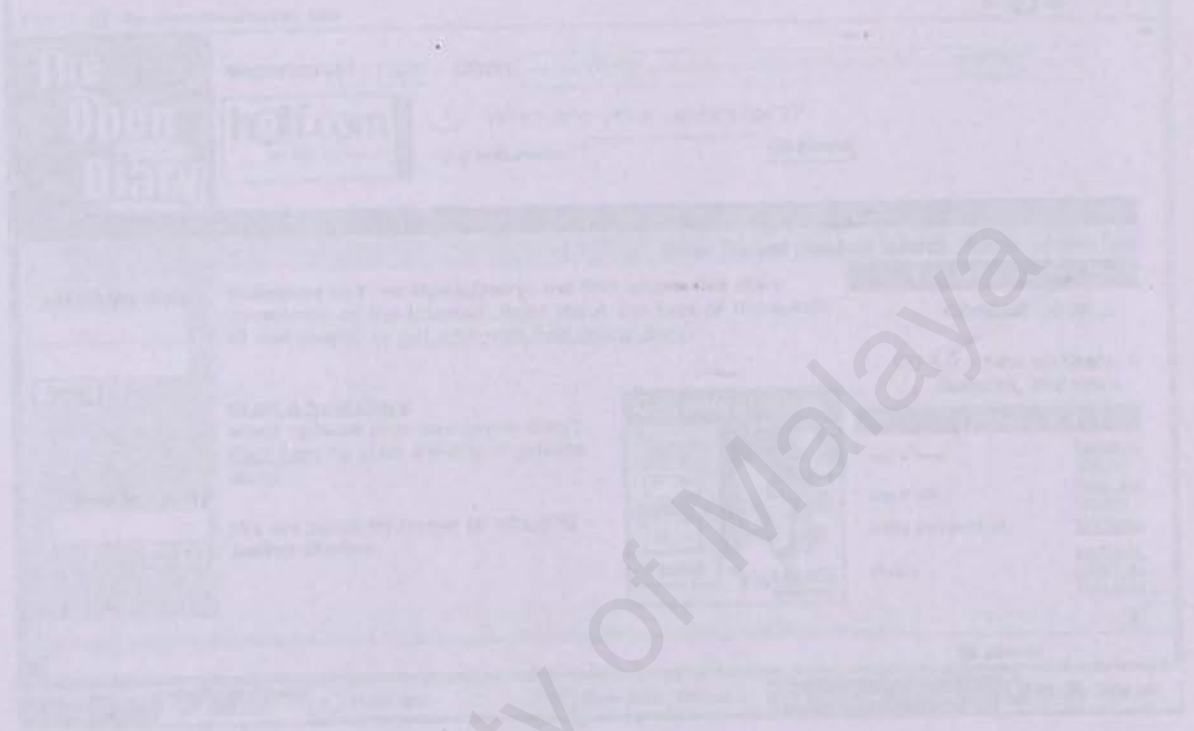


Figure 3.1: Screenshot from The Open Diary

The Open Diary is an online diary that provides a free service to users. The website is designed with a focus on simplicity and ease of use. The interface is clean and modern, with a clear navigation structure. The main content area is organized into a grid, making it easy for users to find and read diary entries. The sidebar on the left provides quick access to various features, such as creating a new diary, searching for entries, and managing user profiles. The overall design is functional and user-friendly, catering to a wide range of users who want to express their thoughts and emotions online.

2.2.3 The Open Diary

URL: <http://www.freeopendiary.com>

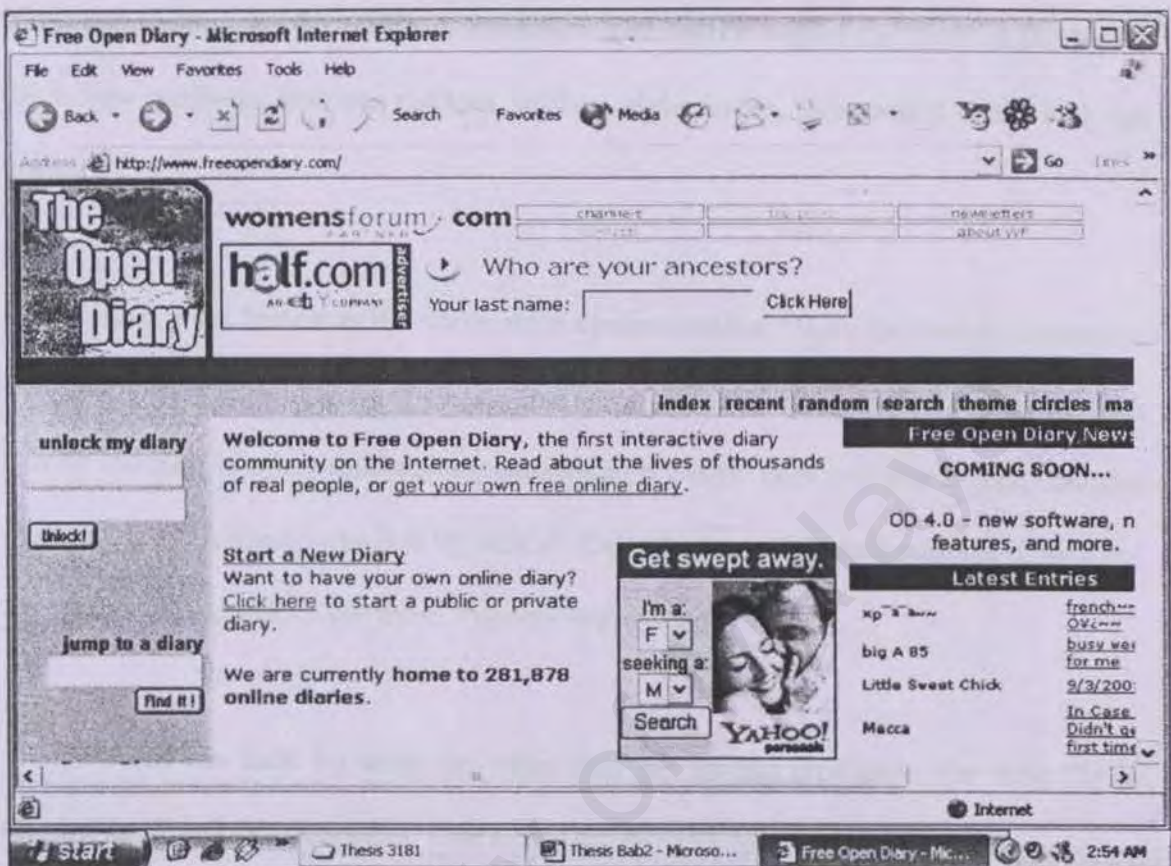


Figure 2.3: Print Screen from The Open Diary

The Open Diary is an online diary that provides free service to users. The homepage looks nice with light blue and white but the contents are too crowded because a wide range of information is squeezed into one page. Users may find it tedious and bored of using it. Besides, the **pop-up advertisements** that appear every time we load the homepage are irritating. Many banner advertisements can be found in the homepage too. It makes the page too wide and long. Users need to scroll horizontally and vertically to view the whole page.

After signing in, we can see a lot of links on the left and on top of the entries. Links on the left are basically used for maintaining the account and diary while the top links are mostly used for searching purposes. The **search engine** can look up for diaries by a few methods, that are random, author, alpha index, geographic index and age index.

One great feature is the **diary style customization**. Users feel free to customize their own diary accounts by changing the menu area and body area. The background can be changed to other solid colors, patterns or pictures. Font and title can be changed to colors besides black, which is by default. Color look up table and samples of pictures are readied at the side of the form. Preview is provided.

Users can look for **help** file when they are having problems. The help file is divided into eight (8) categories. Users can find the solutions much more easier.

After writing diary, user can use one of the function prepared, that is the **Spell Check** before saving it. Users can decide whether making it **private or public**. **Note type** is used to determine whether other users can leave notes after reading the entry. Change of date is allowed when doing editing or writing. A link called **Diary Calendar** is there but it is not working due to some problem. "**Download my diary**" is used to save diary entries in a tidy and neat format.

2.2.4 DearDiary.Net

URL: <http://www.deardiary.net>

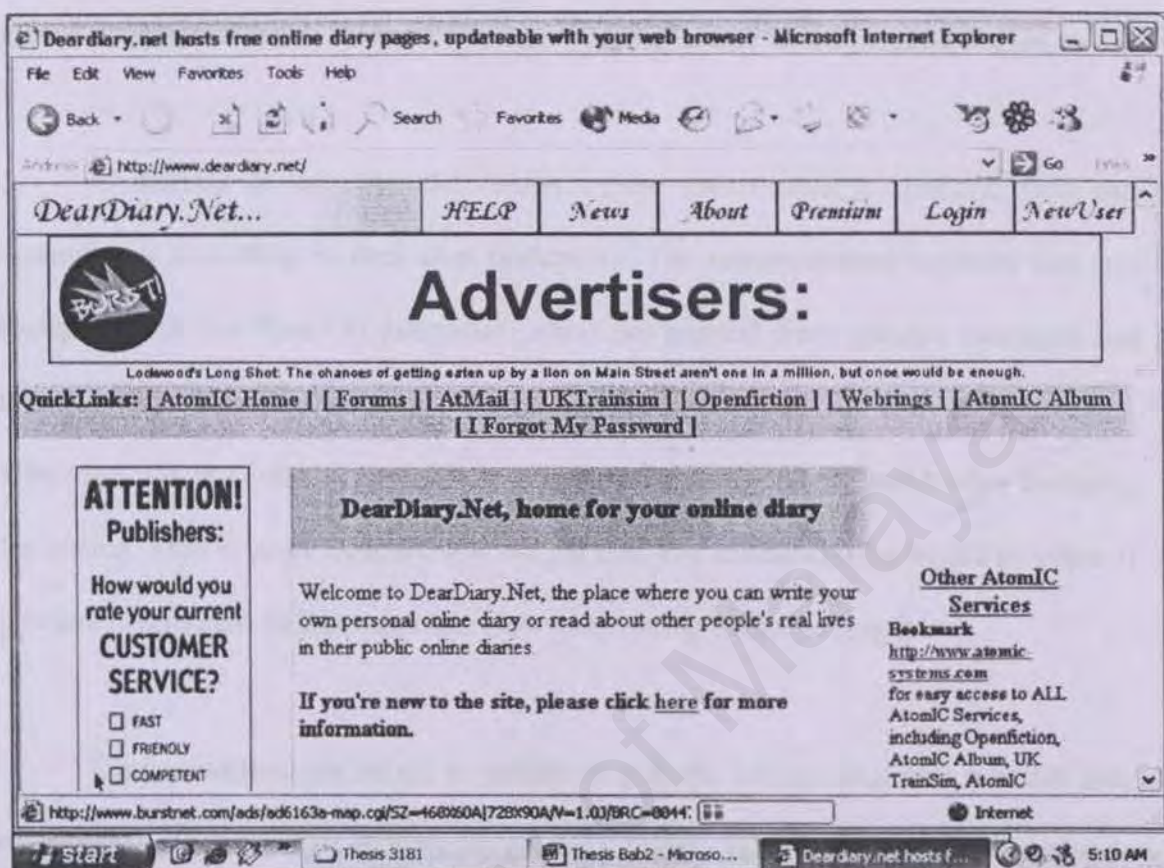


Figure 2.4: Print Screen from DearDiary.Net

DearDiary.Net is an online diary which has a simple design using two colors, apple green and white. The homepage is quite crowded by all kind of information, making it a long scrolling page. **Search engine** can be found at the homepage. This search engine provides a thorough search by genre and updated time. The genre search consists of 32 different categories such as art, computer games, geography, health and fitness, music, politics, religion and sports. Users can also search by keywords, random search, quick search or latest entry.

The diary entries are shown in a **calendar**. Users can click on the date, then the entries will be displayed. This makes the diarist feel easier to find their entries at a glance. Change of date is allowed when performing update to the existing entries.

If diarists do not like the design or the colors used by default, they can customize it according to their own preference. The **customization** includes text and background. It has three (3) categories, which are general diary options, messages and screen setting. It facilitates users when finding the right links to do their customization. When the link is clicked, there will be a pop-up window. Users close it after changing the setting. This is good, as users will not get lost. But customization would be better if preview is provided so that users can view their setting before saving it.

Diaries written can be set to **public or private**. Users can define whether they allow other users to leave **comments** on their entries. Besides, other features include **Help** file, **News**, **About** and **Premium**. Unfortunately the Premium link is not working.

One thing that makes it different from other systems is, there is no need to logout. Diarists just need to close the browser and it will logout automatically. First timer may find it weird as they cannot find the logout link. It is mentioned only in the help file.

To put it in a nutshell, this system is not so user friendly especially when it comes to user navigation. Navigation links are provided but they are separated by other information, reminders and tips from the diary. Another insufficiency is the link to Homepage and My Diary. The links are provided only in a few pages but not all. Users maybe confused when they wish to go back to Homepage or their diary. More colors can be added in to make it more interesting. Links should be changed to other color as blue does not match well with apple green.

2.2.5 travellerspoint

URL: <http://www.travellerspoint.com/online diary.cfm>



Figure 2.5: Print Screen from travellerspoint

Travellerspoint, a good choice for travelers to jot down their feelings while they are exploring other countries. This website is designed using three (3) colors, blue, gray and white. This perfect color matching makes it comfortable when viewing. It is even better with the photo posted by other traveler. It makes the page brilliant and enhances the beauty of the photo with a plain and simple background.

Five (5) **templates** are prepared for travelers to choose from. They are General, Diary Keeper, Forum User, Travel Friends Reunion and Travel Photographer. Each of the templates is designed specially for users with different requirements from the system.

Since this online diary aims at travelers, so they have spared some memory storage for diarists to upload their photo taken during the journey. Diarists may **upload photos** to share them with other members. Readers also can send **feedback/comment** to diarists to voice their opinion. All of the comments will be sent to diarist's **inbox** and diarist is notified via e-mail.

A special feature of this diary is that, diarist can insert **emoticon** (such smiley face) when writing diary. This is to express feelings that cannot be said out by words. Besides this, there are **gif files** to represent the weather, which is chosen by diarist.

Diary entries can be **password protected**. Authorization can be granted to friends or relatives to view them. Only those given password are allowed to view the diarist's diary if it is password protected. **FAQ, Terms, Contact Us** and **Site Map** are also prepared to facilitate users.

Travellerspoint has done a good job in this online diary. Design, navigation, colors and layout are suitable and easy to use. It is so user friendly, clean and nice. Definitely a good choice to mark down every moment of joy and happiness.

2.2.6 HotDiary

URL: <http://www.hotdiary.com>

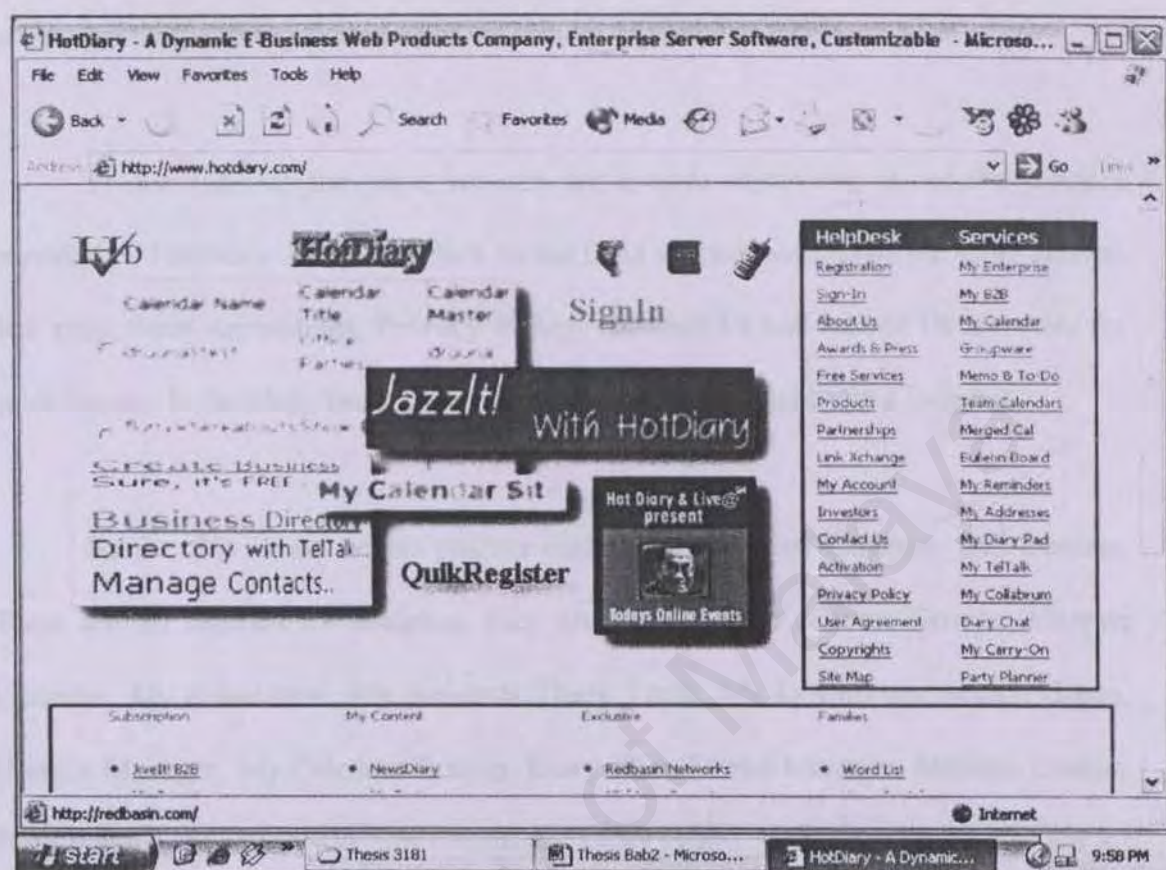


Figure 2.6: Print Screen from HotDiary

HotDiary is an online diary with business people as their target users. Most of the functions are there to serve businessmen and businesswomen. As the target group is working people, so the design is more to matured style and the colors used also suits the theme well. Mostly white and dark blue, good combination to view.

The homepage maybe not so well designed, as the links to Sign in and Sign up are not clear. Users need to spend some time looking for them. This website is different as they put all the **advertisements** at the bottom of the page.

To the right of the page, we can see a table containing all of the services provided by HotDiary. Users can click on the links to read material on the topic chosen. **Site map, User Agreement, Privacy Policy, Contact Us** and **About Us** are there for quick access. In the **Help Desk**, topics are arranged alphabetically in a long list.

So far, this is the online planner that offers the most functions and features. There are all together **18 features**, they are My Calendar, Create Groups, Manage Calendar, My E-Business, My Rewards, Diary Tools, My Downtown, Search Group, Contact Manager, My Calendar Setting. Diary Chat, Memo Manager, Manage Groups, Party Planner, My Carry-On, My Profile and Diary Board. Most of the functions are for business purpose. Users can browse the calendar by day, week, month and year.

One great feature is users can share their favorite music, photos and other files online in My Carry-On. Other users will have chance to view and download them too. In address book, there is a function called **Print Report** where users can print out the contacts. But the report can only print out the whole address book. Users cannot select contact and print. It is easy to find a particular person, as there is a quick access bar prepared at the top of the list.

As a summary, this online diary provides all functions that are needed by businesspeople. So it maybe excessive to most of the users if they are not in this kind of business surrounding. A good recommendation to businesspeople.

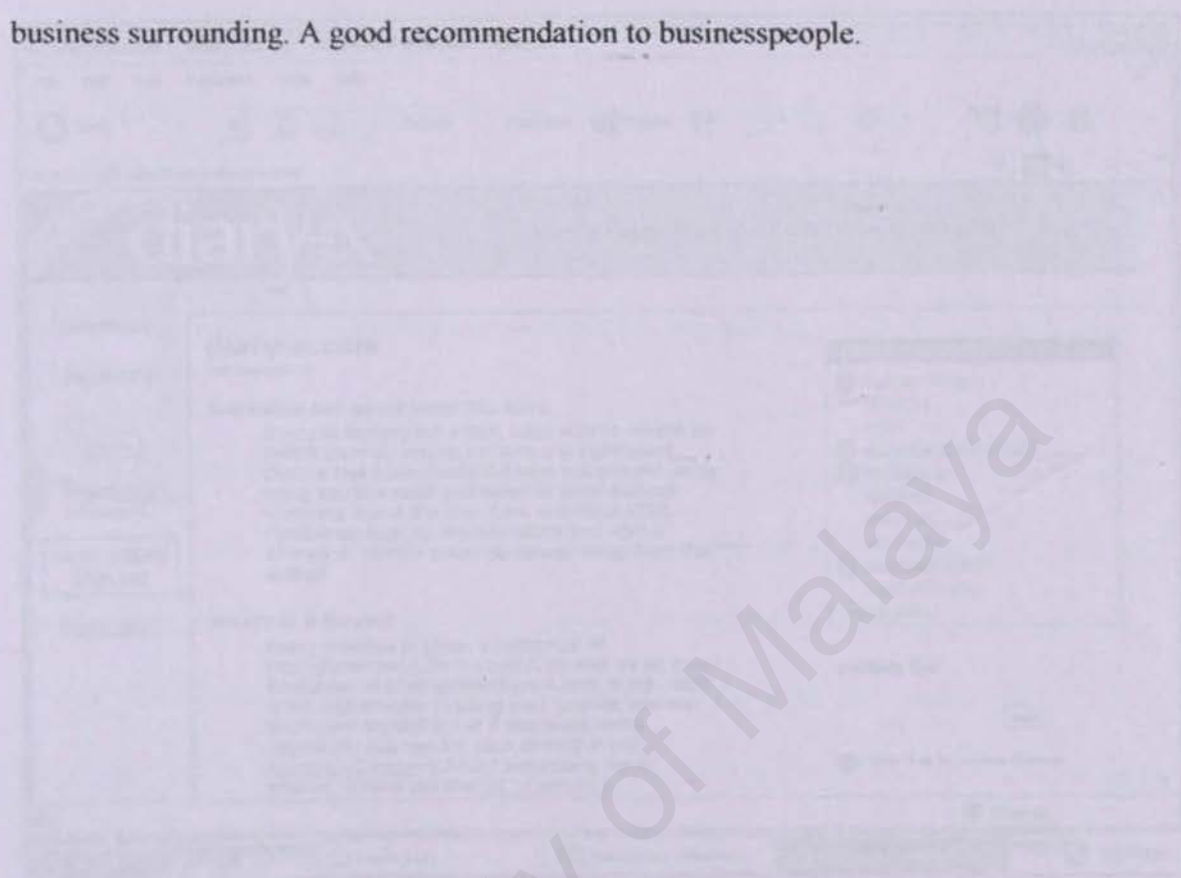


Figure 2.10: Screenshot of Diary-X

Diary-X is a web application for online diary. This is a well designed website with a clean and simple layout. The logo is impressive. The Homepage is very attractive and easy to use. The application is very easy to use.

The user and admin are prepared to make their own and existing users. Users can get through a few screens to get the full picture of the application.

2.2.7 Diary-X

URL: <http://www.diary-x.com>

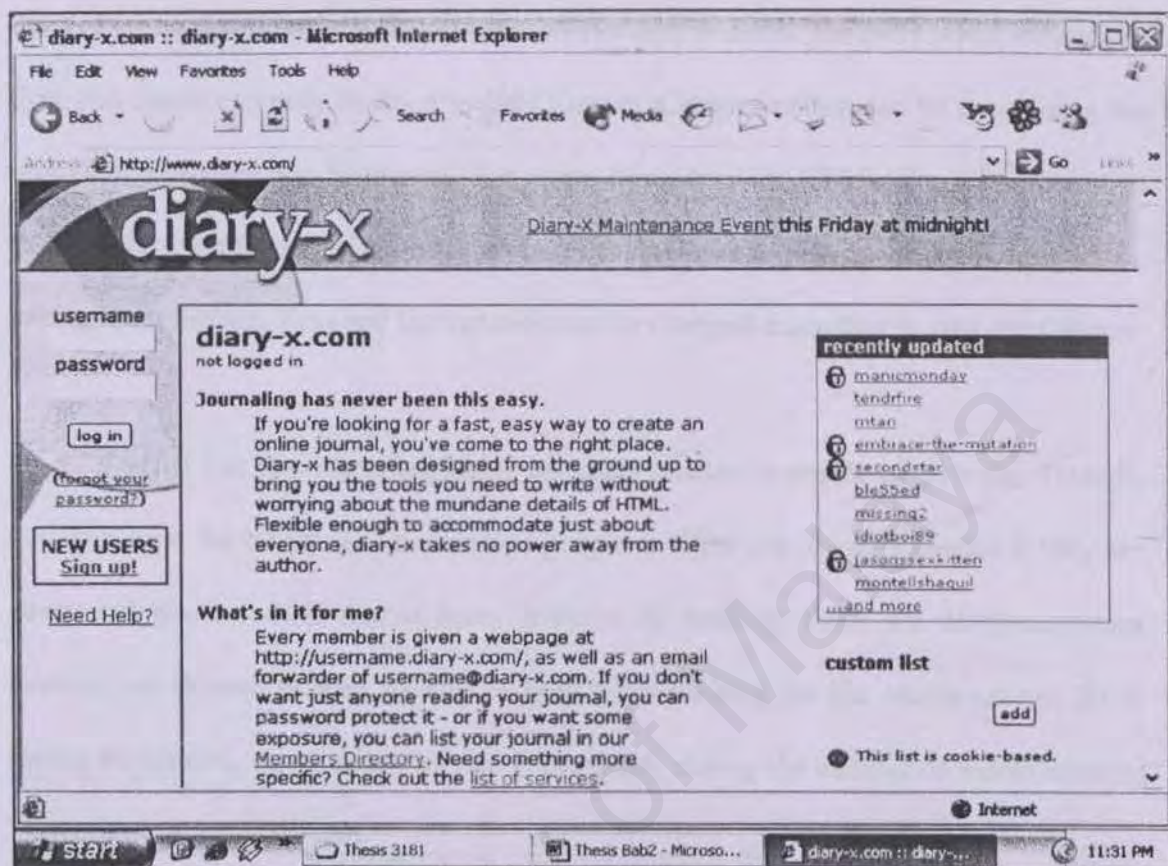


Figure 2.7: Print Screen from Diary-X

Diary-X is found when searching for online diary. This is a well designed website with light navy blue and white. The logo is impressive. The Homepage is neat and simple. No advertisement appears at all.

Tour and Help are prepared to guide both new and existing users. Users can go through a few screens to get the real pictures of the member area.

As in other systems, users can perform the basic functions in a diary system. Diary-X allows users to do more here. Diarists can change the **date and time** of written diary. One inconvenience is that diarists cannot edit or delete the entry when viewing it. Edit and delete can only be done in Edit Entries. **Customization** can be done using the templates prepared for beginners. For users familiar with HTML, they can use it to design their own layouts. The best part is users can have a preview of the design before saving the template. Text and background can be changed according to own preference.

Diarist has options to set his or her diary entries to **public or private**. Though, authorization can be granted to selected people to view the diarist's entries if they are **password protected**. If diarist faces problem in spelling, there are **dictionary.com lookup** and **thesaurus.com lookup** to help them looking for the words online. After saving the entries, **word count** service is provided, stating the number of words written. This is a plus in this system.

If users are satisfied with Diary-X, they can always feel free to upgrade their account to **Diary-X Plus**, with subscription fees of course. Diary-X Plus members are entitled to store images up to 2MB and update their diary book via e-mail. Which is a new service cannot be seen in other systems.

Redirected e-mail will be sent to diarist's actual e-mail account if other readers post a comment on it. Comments are redirected from `username@diary-x.com` to the real e-mail account.

Basically, this online diary is considered as a good diary with simple-to-use user interface. Navigation bar helps users a lot in going from page to page. Colors used are suitable with nice combination.

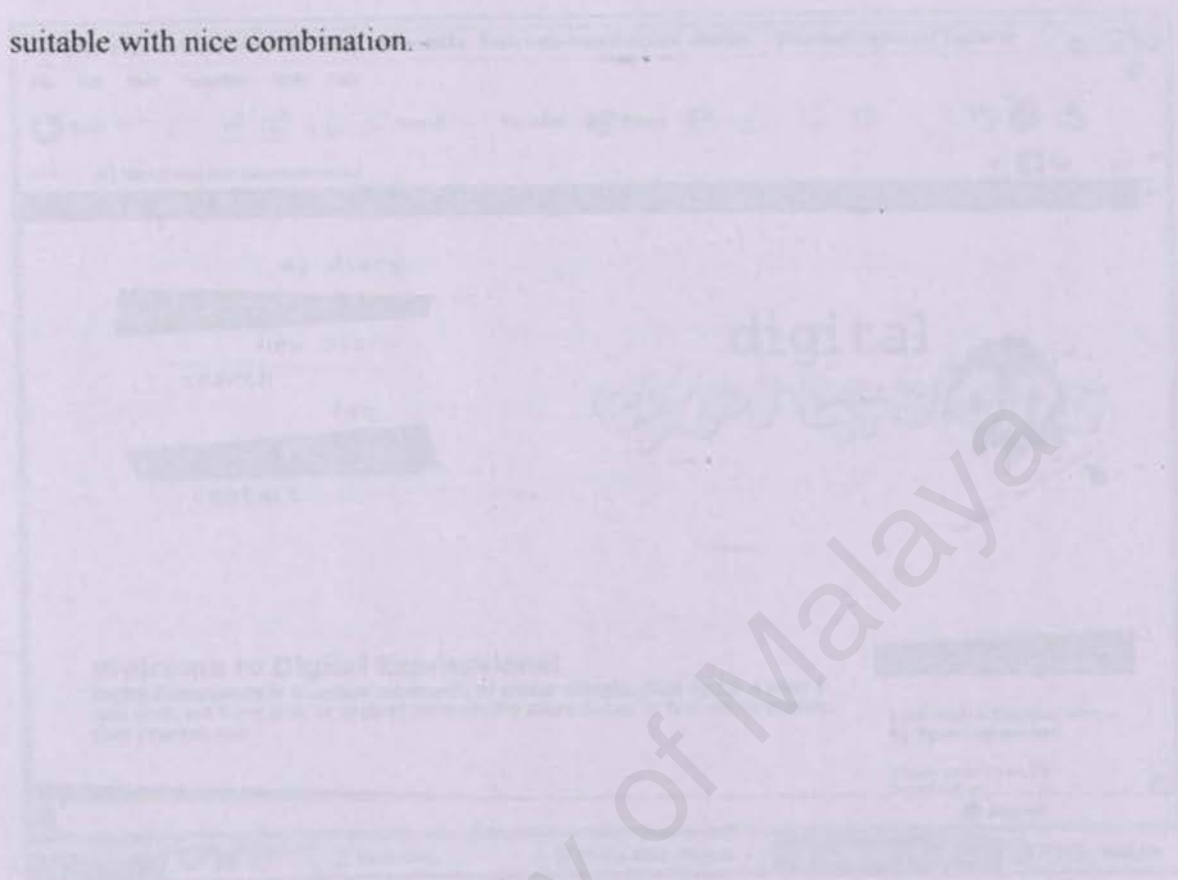


Figure 2.1: Home Page of Digital Diary

At first glance, the Digital Diary application seems to be a simple web application. However, it is a web application that is designed to help users manage their digital diary. The application is designed to be user-friendly and easy to use. It provides a simple interface for users to create and manage their digital diary. The application is designed to be secure and reliable. It provides a secure environment for users to store their digital diary. The application is designed to be scalable and flexible. It can handle a large number of users and can be easily modified to meet the needs of different users. The application is designed to be accessible and usable. It can be used by people with different abilities and can be used on different devices. The application is designed to be reliable and secure. It provides a secure environment for users to store their digital diary. The application is designed to be scalable and flexible. It can handle a large number of users and can be easily modified to meet the needs of different users. The application is designed to be accessible and usable. It can be used by people with different abilities and can be used on different devices.

2.2.8 Digital Expressions

URL: <http://www.digitalexpressions.nu/>

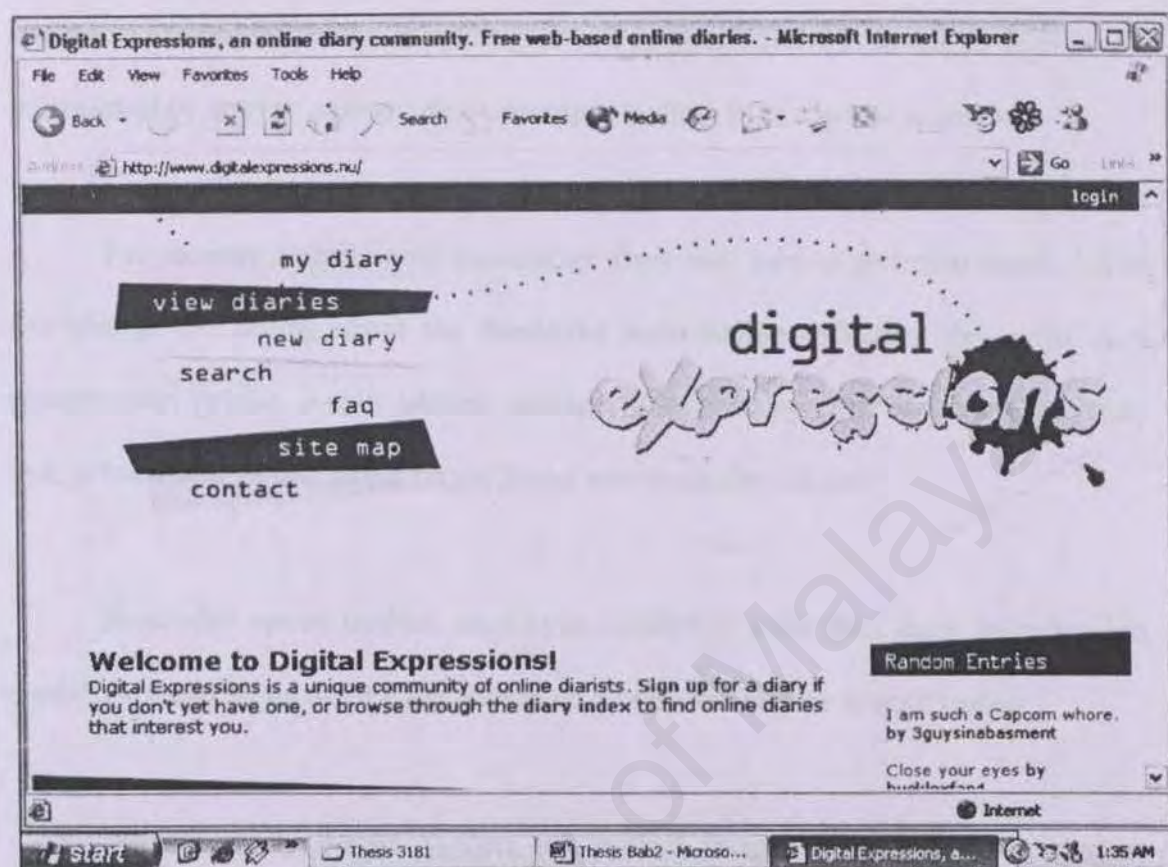


Figure 2.8: Print Screen from Digital Expressions

At first glance, Digital Expressions gives users a warm feeling with its homepage design, simply using purple and light yellow as the main theme. It is interesting and pretty too as this page is quite dynamic, built using Macromedia Flash. A good starting point to attract more users. Besides, no **advertisement** can be found too. The only aspect that deducts its credit is the long scrolling page.

From homepage, we can find a few functions that aim to facilitate users. They are **FAQ, Help, Site Map, Contact Us, Rules, About Us, Copyright Info** and **search engine**. Users can utilize the search engine by keying in keywords to search. Entries can be searched by entries, authors, diary description, diary title, random or index.

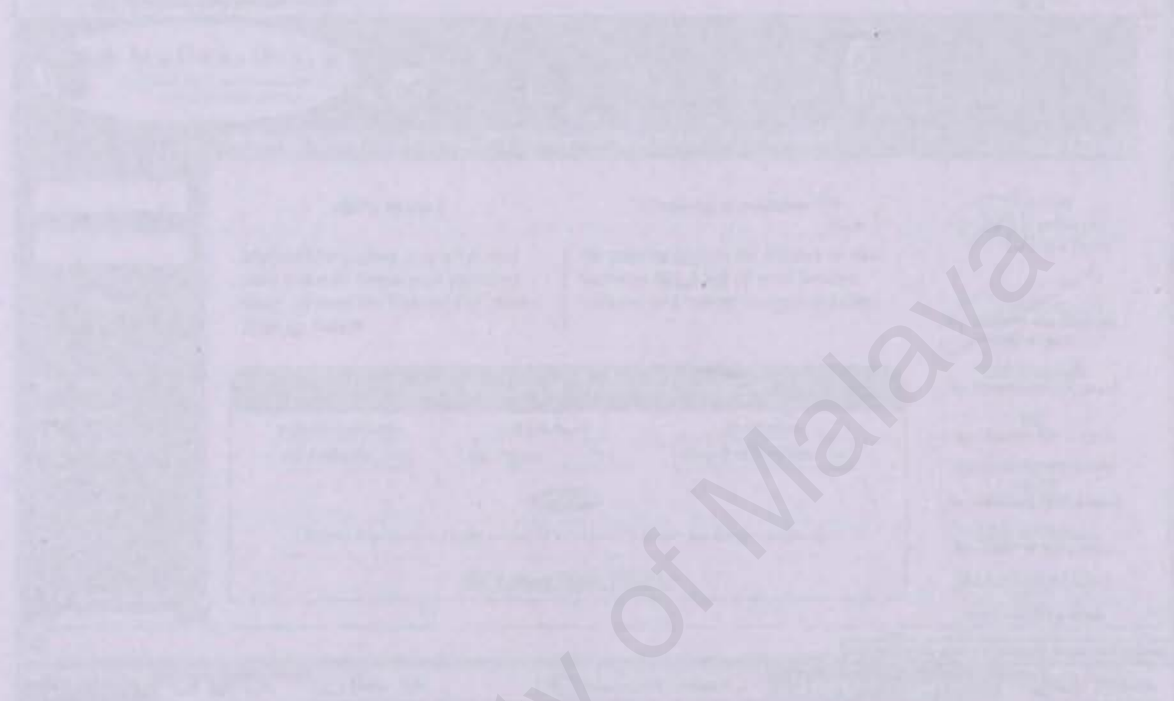
For security reason, users can change their user info to suit their needs. Users can change the setting about the **displayed information**. Whether they wish their country/state, gender, e-mail address and age to be seen by other readers. Other than that, **private and public** status for particular entries can be set too.

Reminder option enables users to be notified to write their diary daily through e-mail. Or it can be set to OFF too, means no e-mail will be sent to notify users.

Without extra charges, diarists can **upload images** attached to their entries. **Download** function is prepared for users to save entries in hard disk or printing hard copies.

Digital Expressions is the only system that offers a Microsoft Word-like toolbar for writing entries. The **toolbar** contains bold, italic, underline, align (left, center, right and justify), bulleted list, numbered list, indent, outdent, create/edit hyperlink, font family, font size, font color and font background color. Apart from these, diarists can insert **emoticon** to their entries too.

In short, Digital Expressions is performing well and giving good services. It is very user friendly that users will never get stuck anywhere. Navigation bar is always there for quick access. Design and layout are constant, making users feel comfortable with the familiar interface.



2.2.9 MyDearDiary

URL: <http://www.mydeardiary.com>

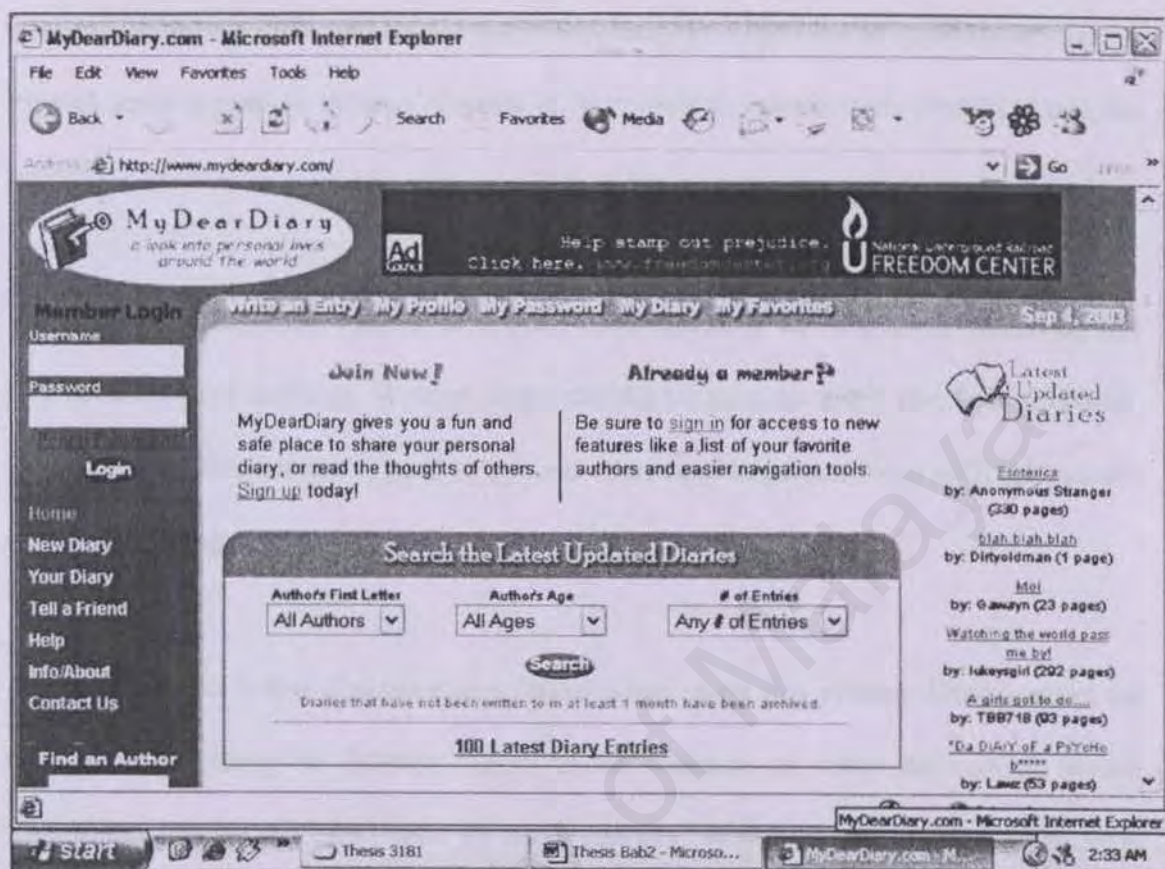


Figure 2.9: Print Screen from MyDearDiary

MyDearDiary is another online diary found. Homepage seems attractive. All links are clear and placed at the right position. **Search engine** is there to help looking for diary entries. There are a few options in searching. Users can search by author's first letter and author's age. User can choose the number of result displayed too. **Advertisement** is at the top of the page. But it is acceptable as it is static and no pop-up window.

Help, Info/About, Newsletter, Privacy Policy, Contact Us and **Terms** can be found, providing useful information to users. Help file uses bookmark to link the question to the specific part of the page with answer. Good try to save space. **Tell A Friend** sends e-mail to diarists' friends if they wish to inform their friends about this service.

Diarists have the chance to choose information to be displayed, including age and actual e-mail address. Writing diary should be easy as **spell check** is prepared. Unfortunately, this service is hard to use and users tend to get confused with the process of spell checking.

There are a few disadvantages found when using this system. Users cannot set their privacy setting to Private. There is no function to keep the entries secret. Everything can be read and seen by other readers. Which means everyone can send comments whether the diarists like it or not. Another serious problem is diarists cannot edit or delete entries, even the entries belong to them. Once the entries are saved, diarists can only view them. No modification can be made. Besides, when diarists choose to view the entries, latest entry is displayed. If diarists want to view other entries, they can either find by "Go to page" or "Previous". There is no list of diary which shows the content.

As a conclusion, this diary service is not satisfactory. The color is not right as writing diary should be a relaxing activity. The color should be looks warm and comfortable. Basic functions like edit and delete are not provided. Diary viewing or reading is difficult too as there is no content table. Privacy is not assured as everyone can read the entries. But it is stated in Help file that the webmaster will try to add in these functions. At this moment, this is not a good recommendation for other people to use this service although it is free.

2.2.10 My-Life.CC

URL: <http://www.my-life.cc>

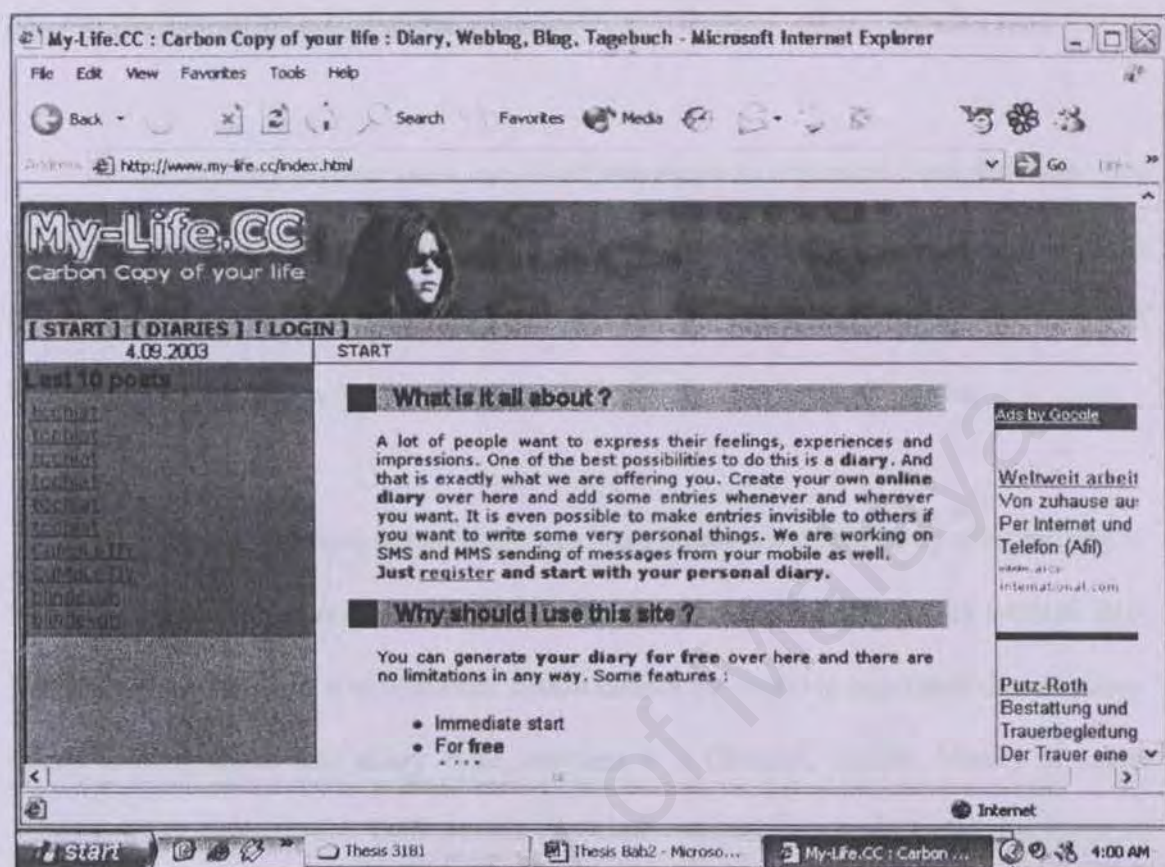


Figure 2.10: Print Screen from My-Life.CC

My-Life.CC, an online diary system with purple and gray colors as the main theme. A long page with white space at the bottom for no purpose. All advertisements are placed at the right of the page. On the other hand, top 10 posts are placed on the left of the page.

After signing up as a member, diarists can modify their personal setting. Diarists can check the **E-Mail Notification** box so that they are notified through e-mail when there is any comment posted on their entries.

When writing diaries, users can insert **emoticon** to represent their emotions. But there are only seven choices of smiley faces. To make it better for memorial, **image can be uploaded** and displayed at the left of the diary. But users need to specify the format of the image. Then users need to set whether the entry is **private or public**.

A great feature here is that users can have a preview of the entry after writing it. The **preview** is shown at the bottom of the page. Users can modify if they wish to. My-Life.CC also introduces a new feature which cannot be found in any other diary system. Diary is categorized into **diary type**, whether it is General, Health, Money or Love. Further more, gray color background represents General, purple color background represents Health, green color background represents Money and pink color background represents Love. So users can identify the type of diary fast when they look at the color of the background.

My-Life.CC is considered as average system. The interface can be made better by altering the colors. Advertisement can be placed at other part of the page so that user doesn't have to scroll vertically and horizontally. Navigation has to be concerned to ease users in browsing. Layout can be improved too.

2.3 Comparison on Reviewed Existing Systems

1. My Diary
2. DiaryLand
3. The Open Diary
4. DearDiary.Net
5. Travellerspoint
6. HotDiary
7. Diary-x.com
8. Digital Expressions
9. MyDearDiary
10. My-Life.CC

Table 2.1: Comparison of Existing Online Diary

Features	Online Diary Systems									
	1	2	3	4	5	6	7	8	9	10
User Friendly Interface	√		√		√	√	√	√	√	
Appropriate Navigation Buttons	√	√	√		√		√	√	√	
Advertisement			√	√		√			√	√
Tell A friend	√	√							√	
Spell Check			√						√	

Private Mode	√	√	√	√	√	√	√	√		√
Authorization to selected people		√			√		√			
Site Map					√	√		√		
Image Uploading					√			√		√
Diary Downloading	√		√					√		
Reminder	√					√		√		√
Emoticon					√			√		√
Customization using Templates		√	√	√	√		√			
Preview of Customization			√				√			
Quick Tour		√					√			
Redirected E-mail		√			√	√	√			√
Update diary via E-mail							√			
Change of Time		√			√		√			
Change of Date		√	√	√	√		√			
Word Count							√			
Diary Content	√	√	√	√	√	√	√	√		√
Upgrade to Premium		√		√			√			

2.4 Short Message Service (SMS)

2.4.1 What is SMS?

Short Messaging Service, otherwise known as text messaging, mobile messaging, or alphanumeric paging is a digital cellular network feature. It lets you send short text and numeric messages to and from digital cell phones, cell phones and e-mail addresses, as well as cell phones and public SMS messaging gateways on the Internet. The text can comprise of words or numbers or an alphanumeric combination. Each short message is up to 160 characters in length when Latin alphabets are used, and 70 characters in length when non-Latin alphabets such as Arabic and Chinese are used.

SMS was created when it was incorporated into the Global System for Mobiles (GSM) digital mobile phone standard. The first SMS is believed to have been sent in December 1992 from a Personal Computer (PC) to a mobile phone on the Vodafone GSM network in the UK. With the emergence of SMS, it makes a new way to send short notes, memos and even greetings to colleagues, friends and family, providing an alternative to keep in touch with the loved ones.

The Short Message Service is a store and forward service, in other words, short messages are not sent directly from sender to recipient, but always via an SMS Center instead. Each mobile telephone network that supports SMS has one or more messaging centers to handle and manage the short messages.

According to the statistic by EMC (as in Figure 2.11), the best independent single source for operational data and analysis on the wireless industry, the monthly SMS traffic has been very heavy and number of SMS sent has been increasing drastically since year 1999 to year 2002.

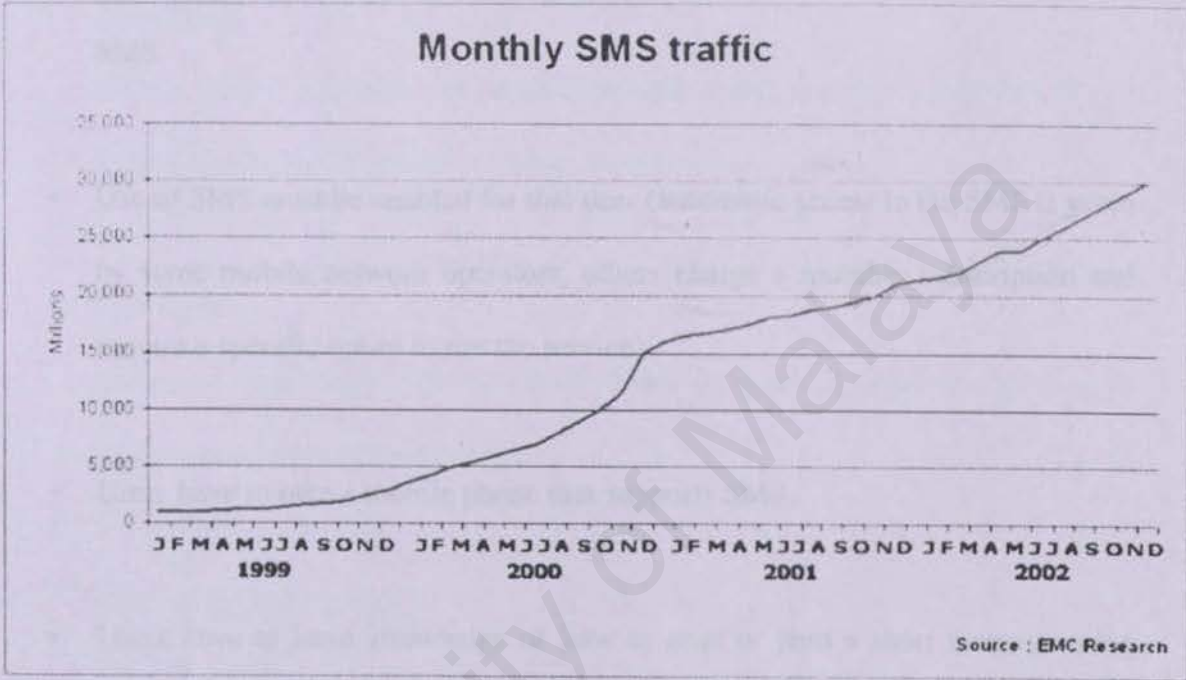


Figure 2.11: Monthly SMS Traffic by EMC Research

2.4.2 Requirements for Using SMS

To enjoy using the SMS, users need to prepare themselves with the relevant subscriptions and hardware, specifically:

- Users must have a subscription to a mobile telephone network that supports SMS.
- Use of SMS must be enabled for that user (automatic access to the SMS is given by some mobile network operators, others charge a monthly subscription and require a specific opt-in to use the service).
- Users have to own a mobile phone that supports SMS.
- Users have to have knowledge of how to send or read a short message using their specific model of mobile phone.
- A destination to send a short message to, or receive a message from. This is usually another mobile phone but may be a fax machine, PC or an Internet address.

2.4.3 Why SMS?

SMS is becoming one of the hottest ways of communication due to some of the unique properties where they are particularly useful. This include the following:

- Always ON

SMS is always available, 24 hours a day and 7 days a week. It can be sent and received as long as the mobile phone is switched on.

- Low Cost

The cost of sending a SMS is relatively lower compared to making a phone call. Making the phone bill far cheaper.

- Messages Are Recorded

All of the messages are stored automatically when it is received. They can be re-read or deleted later. Useful information is kept for future reference.

- SMS is Spam-Free

At present, SMS is definitely Spam-Free, unlike E-mail where we will always get junk mails in our E-mail accounts.

- **SMS is Discreet**

Unlike a phone call, we do not have to run out of the meeting room or restaurant to answer the call. Yet we still aware of the arrival of the SMS and stay in touch with the minimal disturbance.

- **Availability**

SMS is already an integrated part of the mobile phone designed. All of the mobile phones support SMS.

- **Fast and Easy**

As a communication technology, SMS is fast to adapt, learn and deploy.

- **Notification Services**

As in Online Diary System, SMS can be used to make mobile phones into a reminder tool for special events.

2.4.4 SMS by PC-Mobile to Recipient

In Online Diary System, users are allowed to set reminders to remind themselves on specific trigger events according to the preset time and date. The alert will be sent by SMS. The SMS will be passed to mobile phones via SMSCs (Short Message Service Center) of the GSM (Global System for Mobiles) carriers.

To make it possible for data transmission between PC and mobile, there are some equipments that are necessary at the server side. Developers have to prepare a mobile phone and PC-mobile data cable. The PC-mobile data cable will allow for easy synchronization between the phone and a PC with USB connectivity so that the phone can be used as a wireless modem for the PC. Besides, they have to subscribe for a SMS gateway from Telecommunication Service Provider so that the web site SMS can be sent. Usually it is charged on a monthly fee.

When an event is triggered, the diary system will send an alert to users through the phone which is linked to the PC by data cable. Data cable acts as the bridge for data transmission. After that, the SMS will be passed to SMSC of the Telecommunication Service Provider. The SMSC stores the message and then delivers it to the destination recipient if they are available. If they are not available at that moment, SMS will be re-sent again and again until it is delivered. But the SMSC usually has a configurable time limit for how long it will store the message, and the diary system developers can usually specify a shorter time limit if they want. All messages are instantly forwarded to mobile

phone of the recipient. When recipient gets the SMS, then he or she will know that it is the time when he/she needs to attend for the event specified at that time.

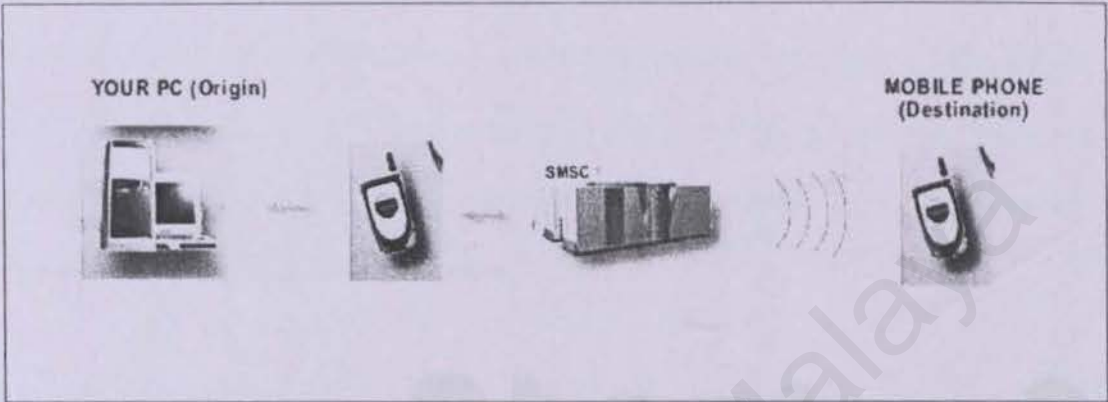


Figure 2.12: The Way SMS is Sent

3.1 Introduction

In this chapter, focus is placed on the project development, which is software process model. A software process provides the framework from which a comprehensive plan for software development can be established. A small number of framework activities are applicable to all software projects, regardless of their size or complexity. Building a process model and discussing its sub process gives the outline of the project. Besides, it also helps the development team to find out the inconsistencies, redundancies and omissions in the process.

3.2 Waterfall Model

The waterfall methodology is also referred to as the "traditional" software development method. It is a top-down philosophy that consists of a set of ordered phases, with the output from each one of these phases, being the input to the next. The waterfall methodology simply states that, first one should think about what is being built, then establish the plan for how it should be built, and then build it. It allows for a software engineering methodology which is more in alignment with hardware engineering methods and practices. It forces a disciplined process to avoid the pressures of writing code long before it is known what is to be built. Many times an implementation team has built some code to find out that it was not needed or will be of little use to the end product. This early code becomes a legacy and too costly to abandon. The waterfall methodology forces analysis and planning before actions are

taken. The process forces the analysis team to precisely define their requirements. It is much easier to build something if it is known what that something is.

The phases that the waterfall model (as in Figure 3.1) must pass through from start to finish are:

- Requirements Definition

The existing system is examined. User and software requirements must be obtained. In-depth specification of the needs of the system is carried out, as well as the description of what the software is to do.

- Analysis

Developer will define the structure of the software, allocates functions to software components and the data flow between them. It provides the software designer with the representation of information and functions that can be translated to data, architectural and procedural design.

- Design

All the requirements of software will be translated into representation of software that can be assessed for quality before coding phase is started. The output of this phase includes data structures, architectures, procedural details and interface characteristics.

- Coding

Design specification is transformed into software programs. Codes are written based on the detailed software design.

- Testing

Software is tested against the original user requirement document so that all requirements have been fulfilled and the system is bug free. It is divided into Unit Testing, Integration Testing and System Testing.

- Maintenance

Software is monitored against the user requirements over time, and maintained if necessary. Focus will be placed on error detection and correction too.

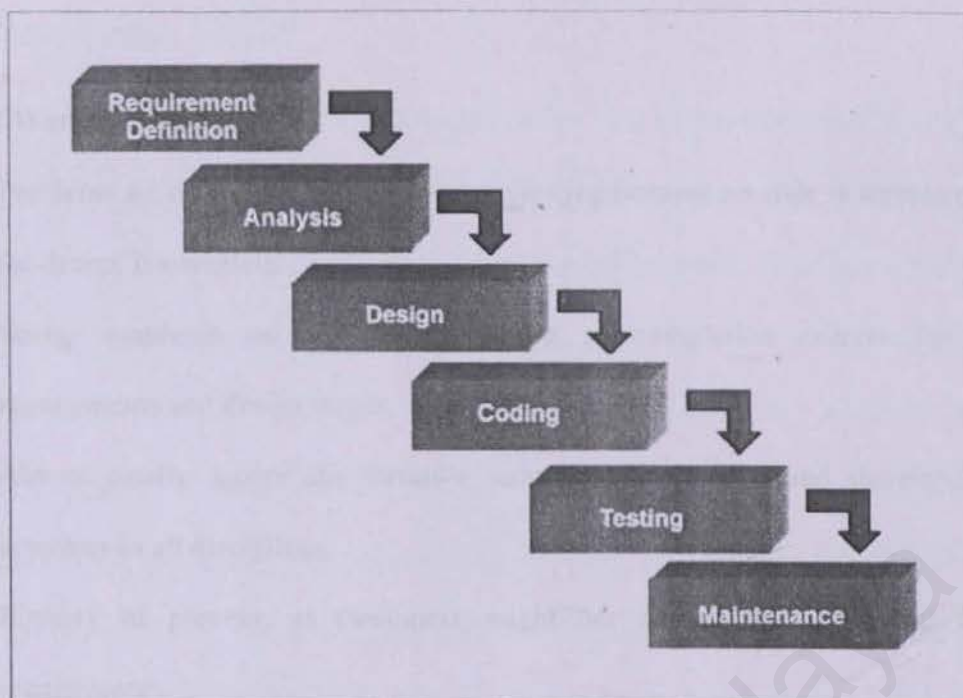


Figure 3.1: Waterfall Model

Pros of Waterfall Model

- Document-driven, where developers have to produce the necessary documentation before proceeding. This helps them to lay out what they have to do.
- Easy to explain
- Explicit, which intermediate products are necessary in order to begin the next stage of development.
- Performance can be measured at every stage.

3.3 Prototyping Model

Cons of Waterfall Model

- Problems are not discovered until system testing because no code is written until the design is complete.
- Strong emphasis on full documentation as completion criteria for the requirements and design stages.
- Almost totally ignore the iterative nature of all design and development activities in all disciplines.
- Rigidity of process, as customers might not completely understand their requirements.
- There is no insight how each activity transform one artifact to another.

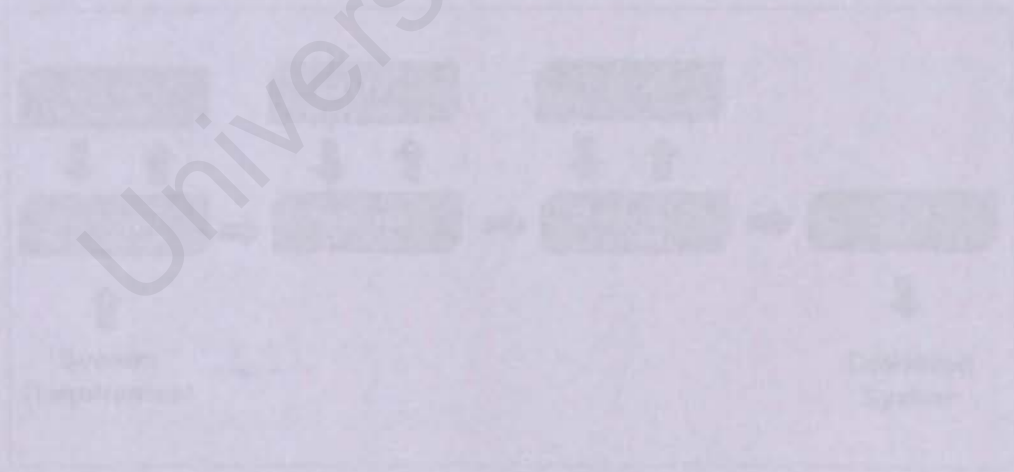


Figure 3.2 Prototyping Model

3.3 Prototyping Model

A software prototype is an executable model that allows users and developers to gain early experience with a software system in the interest of avoiding errors with the final software product. Prototyping aims at transferring the costs from the operation and maintenance phase to earlier phases and to reduce the total software costs over the entire software life cycle. Valuable information and feedback are obtained in early phases of software development, where most of the user interface prototypes have been developed to specify and validate system requirements. To ease the prototyping process, a set of useful activities that should be carried out throughout the analysis phase have to be defined. These activities must provide concrete answers in the domain of distributed process control software. In addition, a highly interactive prototyping tool must be provided that supports the set of defined activities. The key point is to build code rapidly that will show the client the input and the output in order for the client to understand and either accept or reject. Figure 3.1 below shows the Prototyping Model.

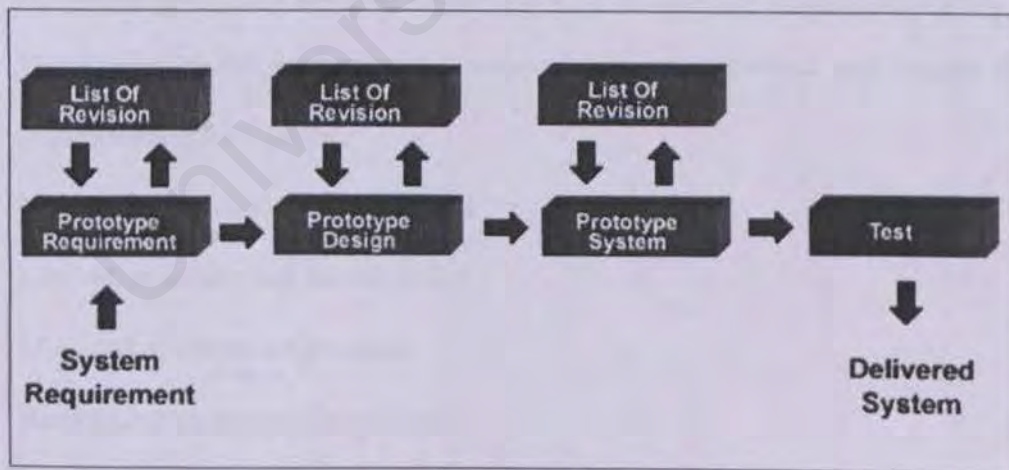


Figure 3.2: Prototyping Model

Pros of Prototyping Model

- Understanding the requirements for the user interface.
- Examining feasibility of a proposed design approach.
- Exploring system performance issues.
- Prototype can be produced in less time and less cost.
- Prototype is readily evaluated and easy to be changed rapidly.
- Enables to detect faults and weakness with existing specification before design and programming phase.
- Involve users in development

Cons of Prototyping Model

- System is built with time constraint because developers do not consider the quality of the system and the long-term maintenance.
- Operating system and program maybe used for the rapid development outputs.
- Prototyping model encourage the requirements to reconsider and change the requirement specification.
- Lack of error checking on data input.
- Limited or incomplete functionality.
- May lead to unlimited iteration.
- Resulting system harder to maintain.

3.4 Waterfall Model with Prototyping

After analysis has been made on Waterfall Model and Prototyping Model, integration of these two models, that is Waterfall with Prototyping is found more suitable for Online Diary System.

This model basically embeds prototyping process in requirements phase of waterfall. User interface is built and tested as prototype, so the users understand what the system will be look like. Thus, prototyping is involved in the first three stages, Requirement Analysis, System Design and Program Design. This is different from using waterfall without prototyping, which problems are not discovered until system testing.

In the system testing, validation ensures that the system has implemented all of the requirements. Thus, each system function can be traced back to a particular requirement in the specification. For example, while testing the function of writing diary entry, it is validated that it fulfills the requirements specification. Besides, system testing also verifies the system to ensure that each function works correctly.

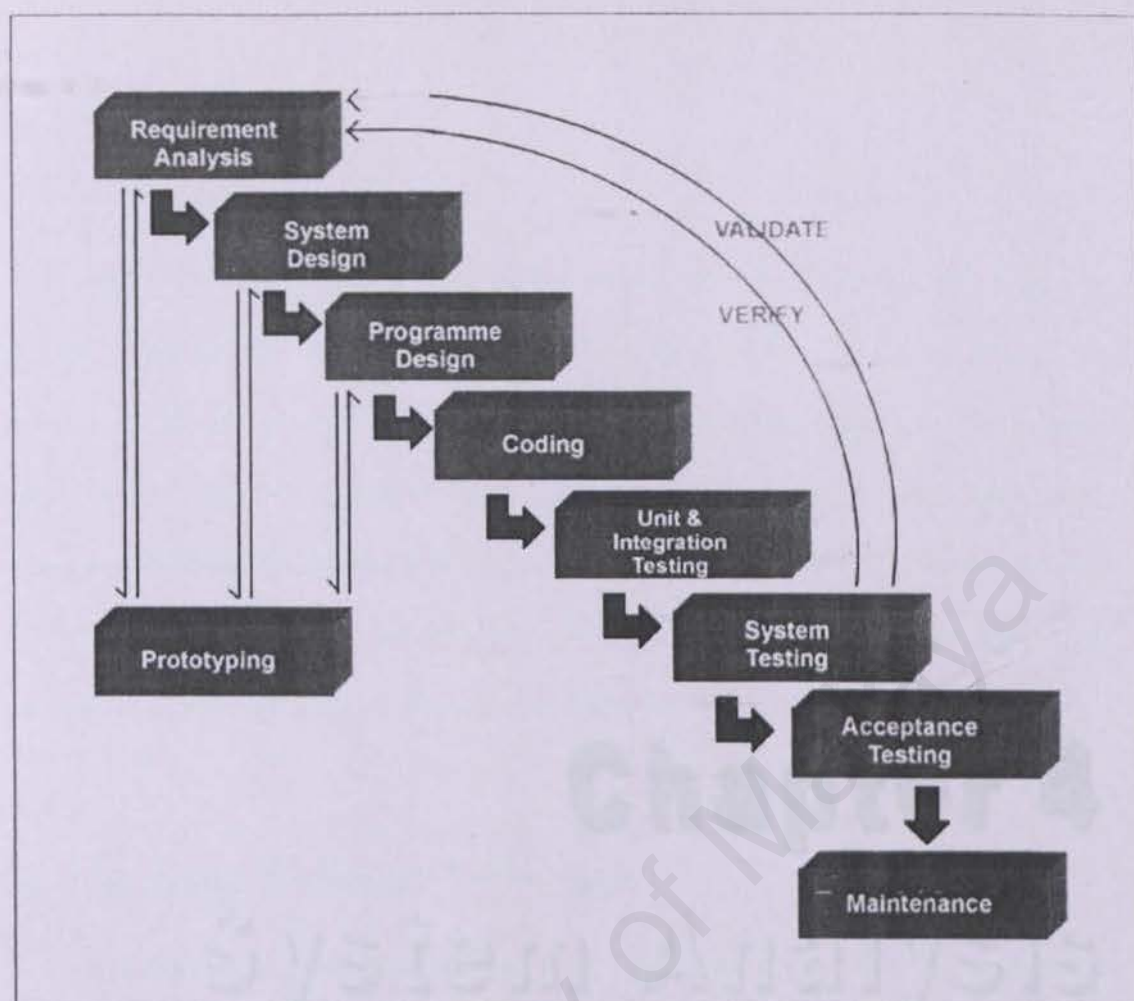


Figure 3.3: Waterfall with Prototyping

Chapter 4

System Analysis

4.1 Introduction

Analysis of the system aims to gather and interpret data, identify and diagnose constraints and use the relevant information for designing this online diary system. It provides the details of what the diary system should do, rather than how the system should be done. Therefore, information gathering is necessary. A few techniques were carried out to obtain the information required. Besides, requirements are needed too, as to design a system that suits the user well. No matter it is functional requirements or non-functional requirements. Justifications on software will be discussed too.

4.2 Information Gathering Techniques

Information gathering is necessary in collecting information on problems, requirements and preferences. In this process, a few techniques were used. This is important to employ the techniques to establish understanding of the state and future requirements. Techniques used are as following:

- **Research/Review**

This technique is used to get the full understanding of the current situation on how the system actually works. Existing systems were found and tested to get a better understanding.

4.1 Introduction

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This technique is used to get the full understanding of the current situation on how the system actually works. Existing systems were found and tested to get a better understanding.

- **Internet Surfing**

Internet surfing is a widely used method to obtain information as Internet covers a wide range of information needed. Besides, it is easy to access, fast and cheap. So this is the main source of gathered information.

- **Interview**

This is carried out using directed conversation with specific purposes in a Q&A format. Interviewer will direct questions to interviewees (especially experienced users) to get the opinion on how they feel about the current systems, what they hope to see in future as an enhancement and the insufficiencies of the systems available.

- **Discussion**

Discussions were done in an informal way to get opinions from supervisor and friends. Topics discussed including the features, problems, processes and interface design.

4.3 Software Justifications

Table 4.1: Software Justification

Tools	Software	Reasons
Operating System	Windows XP	<ul style="list-style-type: none">▪ Widely used and installed▪ User friendly▪ Faster applications loading▪ Stable and scalable
Web Server	Apache 2.0	<ul style="list-style-type: none">▪ Cross platform▪ Open source▪ Free▪ Ease of use
Web Browser	Microsoft Internet Explorer	<ul style="list-style-type: none">▪ Free with Windows▪ Ease of browsing and surfing
Database	MySQL	<ul style="list-style-type: none">▪ Free▪ Open source▪ Fast and easy to customize▪ Cross platform support
Scripting Language Server Side	PHP	<ul style="list-style-type: none">▪ Open Source▪ Free▪ Cross platform support

Client Side	JavaScript	<ul style="list-style-type: none"> ▪ Support a number of databases ▪ Create dynamic web content ▪ Easy and fast to code ▪ Free ▪ Flexible
-------------	------------	--

4.4 Hardware Requirements

Developer

- Intel Pentium III or higher
- 128 MB Ram
- 64 GB Harddisk Space
- 8 MB Graphic Card
- 56K External Modem

Run Time

- Intel Pentium III or higher
- 128 MB Ram
- 64 GB Harddisk Space
- 8 MB Graphic Card
- 56K External Modem

4.5 Software Requirements

Developer

- Microsoft Windows XP
- Microsoft Office 2000
- Microsoft FrontPage 2000
- Apache Server 1.3
- PHP 4.3.3
- MySQL 4.0.15
- Adobe Photoshop 6.0

Run Time

- Any Operating System
- Internet Explorer 6.0

4.6 Functional Requirements

Functional requirement is a description of the activities and services that diary system is expected to provide. It states not only how the system should behave and react to user's input, but also the constraints on the system. Requirements will be divided into two modules, namely administrative module and user module. The following are detail about each functional requirement.

4.6.1 Administrative Module

- **Authentication and Authorization Function**

This function provides access to administrator with correct username and password. The main purpose is to protect the security of the system.

- **Data Modification Function**

For authorized administrator, they are able to update their data and change of password.

- **Feedback Managing Function**

This function will enable administrators to read, reply and delete the feedback posted by users.

- **Housekeeping Function**

As there maybe users that remain inactive for a long period, so housekeeping is necessary for administrators to clean the database by deleting those inactive users.

- **Administrator Managing Function**

This function allows administrator to add new administrators to help in managing the system.

4.5.2 User Module

- **Authentication and Authorization Function**

Username and password are required when logging in to the system. Users can only carry out all the activities when logged in.

- **Data Modification Function**

This function allows users to update their personal details or preferred setting.

- **New User Registration Function**

For those not yet a member, this function will guide them through signing up processes.

- **Addressbook Managing Function**

Address will be a place where users can keep all of their contacts. Users may view, add, edit and delete contacts from their lists.

- **Diary Managing Function**

This diary managing function allows users to write their daily entries. Besides, they can edit or delete entries that they are not satisfied with.

- **Reminder Managing Function**

For important occasion or events, users can set a reminder to alert them through SMS.

- **Feedback Sending Function**

Users may post their comments to administrator, whether they are suggestions, problems or complaints.

- **Help Function**

Help function will provide users with the FAQs and guidelines on how to use the system. It can be viewed by authorized users and public users.

4.7 Non-Functional Requirements

Non-functional requirements refer to requirements that are not directly delivered by the system but are nevertheless important, relating to emergent system properties. Failure to meet non-functional requirements may make the whole system unusable. The non-functional requirements are as listed below:

- **User Friendliness**

Interface design is important in helping users, both computer literate and non-literate. Buttons should be placed appropriately. An easy to use system will shorten the learning curve for users.

- **Reliability**

System should not produce any dangerous or costly failure although it is not used in ways preserved, which the designer expected. It also means the expectation of a system to perform its intended functions accurately.

- **Reusability, Expandability and Maintainability**

The coding of the system should be flexible so that the system can be reused for the purpose of version upgrade.

- **Accuracy**

Accuracy refers to the precision of control. System should be able to maintain the integrity of data, data consistency and accurate database.

- **Security**

System is required to have a moderate level of security protection and access control so that it is secure from intrusion to prevent crisis of being corrupted.

5.1 Introduction

System design, which is also known as software design, is a process in which you can do the development of a software computer-based system for your system plan. You can take the process defined in System Analysis phase. This is where you define the system structure, database and user interface that meet the user and requirements.

5.2 Data Flow Diagram of Modules

The Data Flow Diagram (DFD) is a diagram that shows the flow of data between the modules and the data stores.

The Data Flow Diagram (DFD) is a diagram that shows the flow of data between the modules and the data stores.

Chapter 5

System Design



Figure 5.1 Data Flow Diagram of Modules

5.1 Introduction

System design, which is also known as physical design, is defined as tasks that focus on the specification of a detailed computer-based solution. In this design phase, we aim to solve the problems specified in System Analysis phase. This is where we design our system structure, database and user interface that meet the needs and requirements.

5.2 Data Flow Diagram of Modules

For Diary System, the system architecture is divided into 2 main modules called Administrative Module and User Module. Please refer to Figure 5.1.

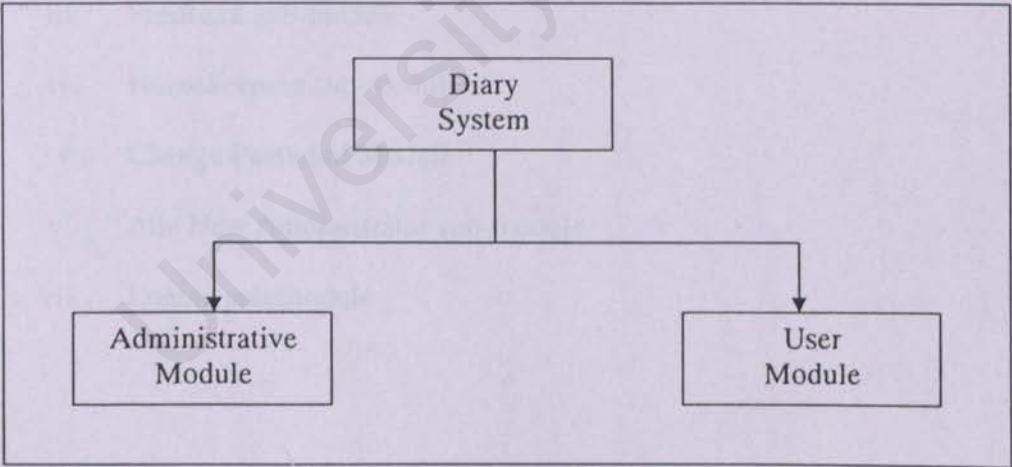


Figure 5.1: Diary System and its main Modules

5.2.1 Administrative Module

This module is prepared specially for administrators. Its aim is to enable the administrators to perform housekeeping and website maintenance. Besides, administrators need to reply feedbacks received from users. Administrators can modify their data or personal details if they wish to do so. Figure 5.2 shows the Level Zero Data Flow Diagram (DFD) of Administrative Module.

There are all together seven (7) sub-modules in this Administrative Module. Each of the sub-modules will perform specific tasks that are required by an administrator. The modules are as listed below:

- i. Login sub-module
- ii. Update Administrator Data sub-module
- iii. Feedback sub-module
- iv. Housekeeping sub-module
- v. Change Password Module
- vi. Add New Administrator sub-module
- vii. Logout sub-module

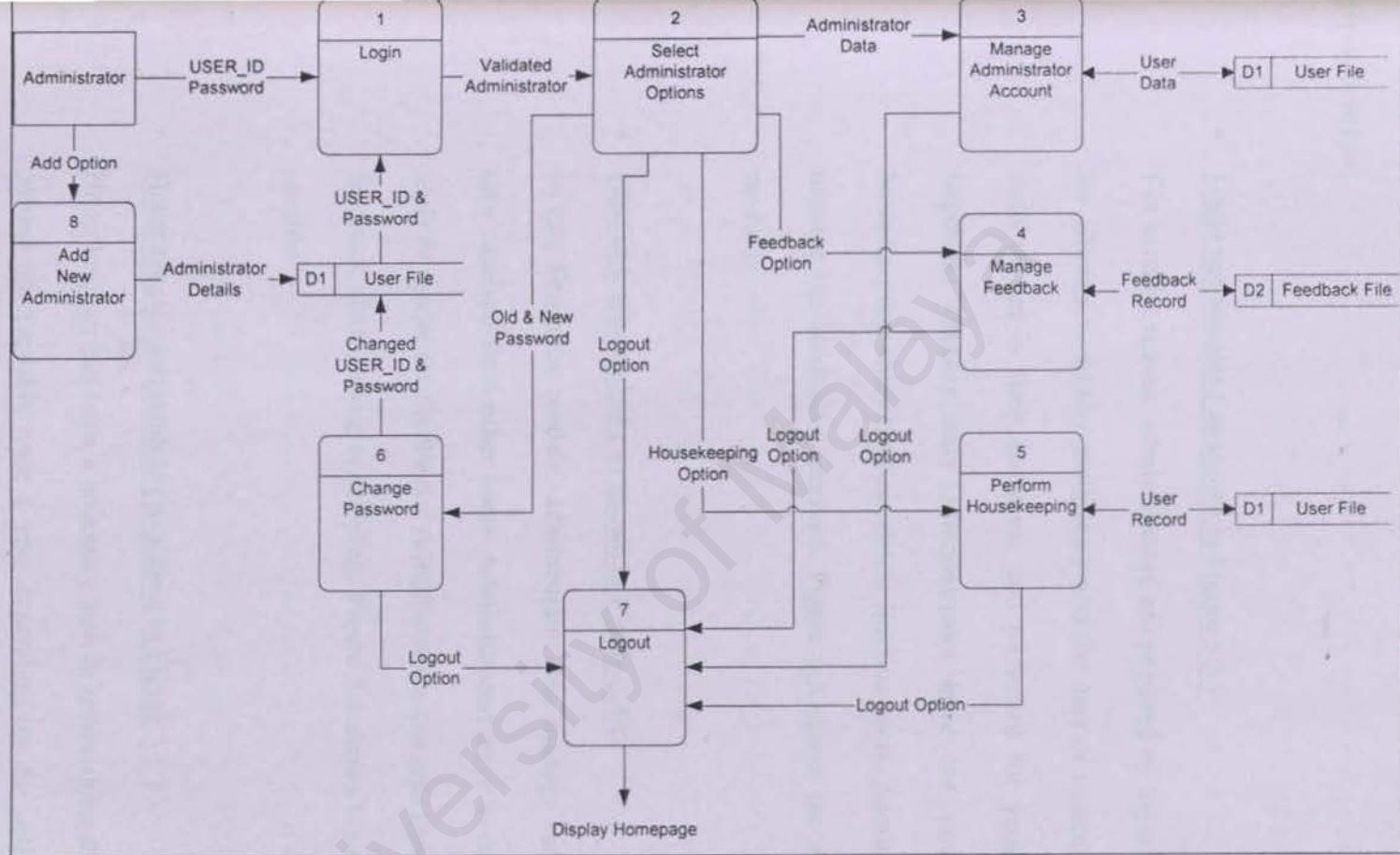


Figure 5.2: Level 0 DFD of Administrative Module

Brief description of each sub-module from the Administrative Module will be given as below:

- Login sub-module (as shown in Figure 5.3)

For security reason, administrators are required to login first before they are allowed to do any modification to the data or system. Administrators need to key-in their username and password for verification. This is important because only administrators have the power to perform housekeeping where they can delete inactive users. Administrators need to manage the feedbacks received. Figure 5.3 shows the data flow of this module.

- Feedback sub-module (as shown in Figure 5.4)

In this Feedback module, administrator can manage the feedbacks that they received from other users. Administrators have to decide whether to reply or ignore the feedbacks. Administrators can also choose to delete the feedback after reading or replying. Figure 5.4 shows the data flow of this module.

- Housekeeping sub-module (as shown in Figure 5.5)

Housekeeping has been a necessary task in maintaining the database. It is carried out probably once a year depending on the policy of company. This is the time when administrators have to decide which of the records

need to be deleted. If there is no housekeeping, the database will have many inactive users, whom have not sign in for quite a long time. Administrators can set duration such as six (6) months. If the user has not sign in during this period, the user will be deleted from database. Cleaning outdated information will ensure the performance of the system. Figure 5.5 shows the data flow of this module.

- Change Password sub-module (as shown in Figure 5.6)

Change Password sub-module allows the administrators to change their password. It is advised to change the password every three (3) months for safety reason. There are a few criteria when setting a password. It has to be at least six (6) characters. Besides, there should be no any special character. Only a-z, 0-9 and underscore () are allowed. Figure 5.6 shows the data flow of this module.

- Add New Administrator sub-module (as shown in Figure 5.7)

In this module, only the power administrator has the rights to add new administrators. This enables other chosen people to help in maintaining the system. This will lighten the burden of the power administrator. Figure 5.7 shows the data flow of this module.

- Logout sub-module

To exit the system, administrators have to logout. Logging out will end the login session.

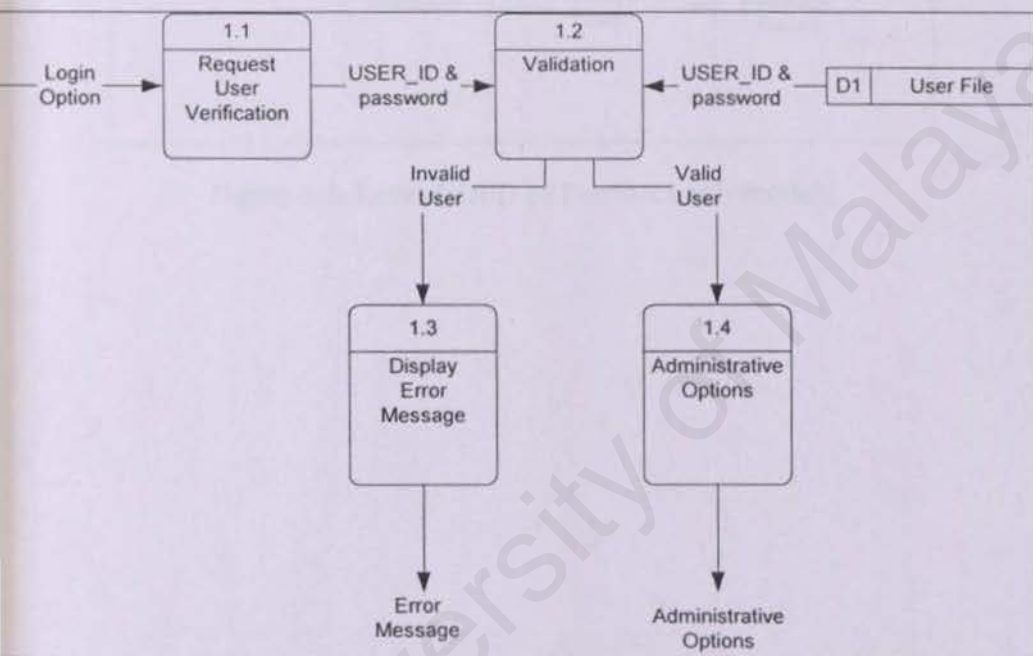


Figure 5.3: Level 1 DFD of Login sub-module

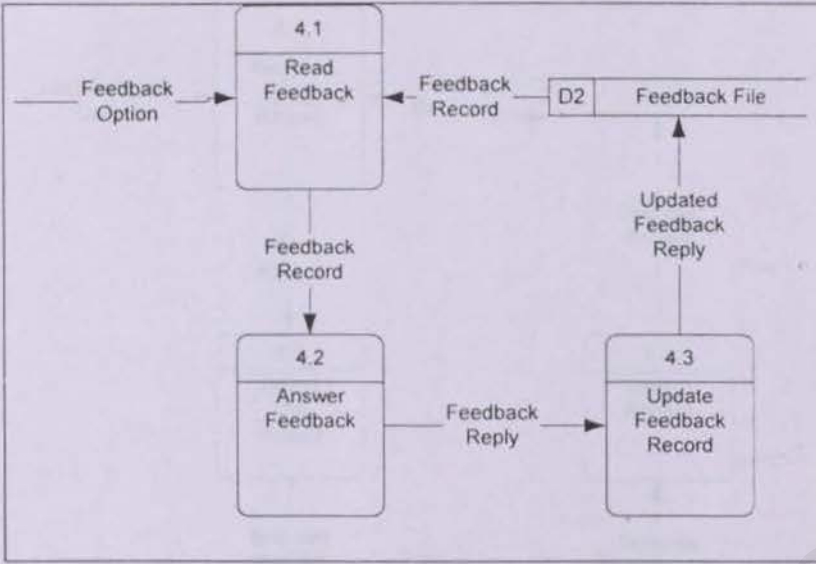


Figure 5.4: Level 1 DFD of Feedback sub-module

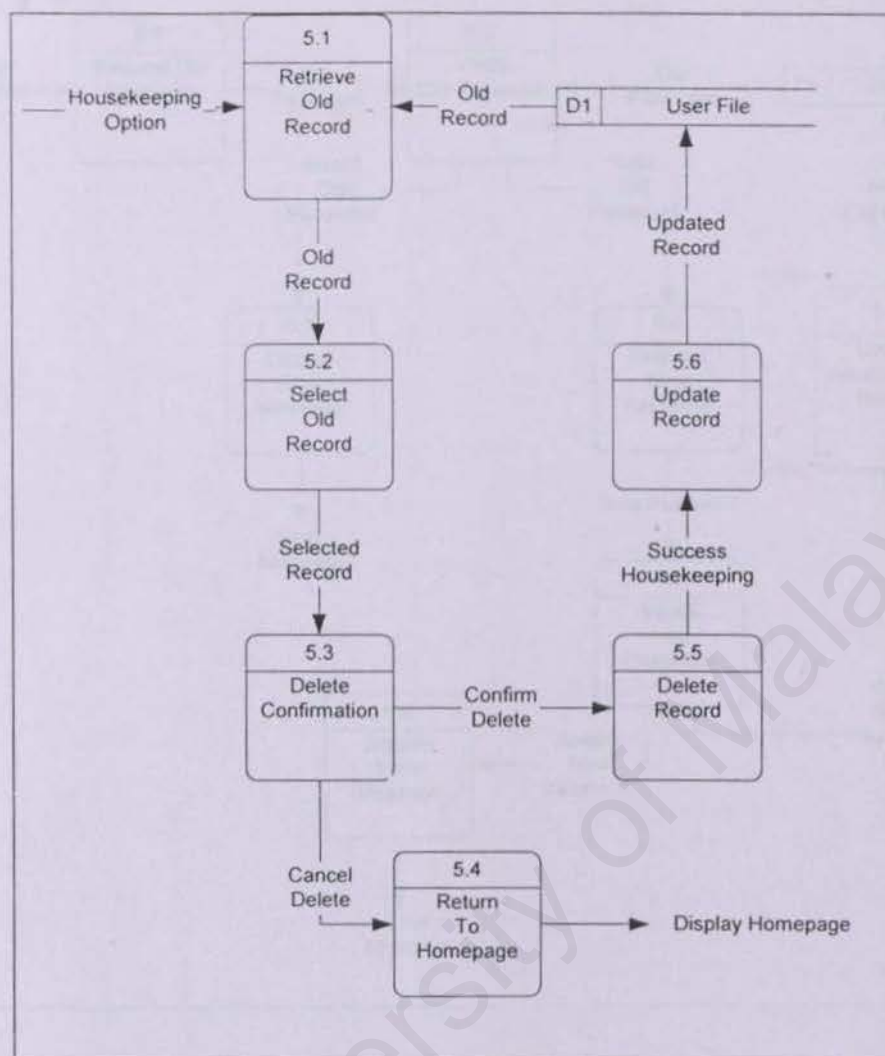


Figure 5.5: Level 1 DFD of Housekeeping sub-module

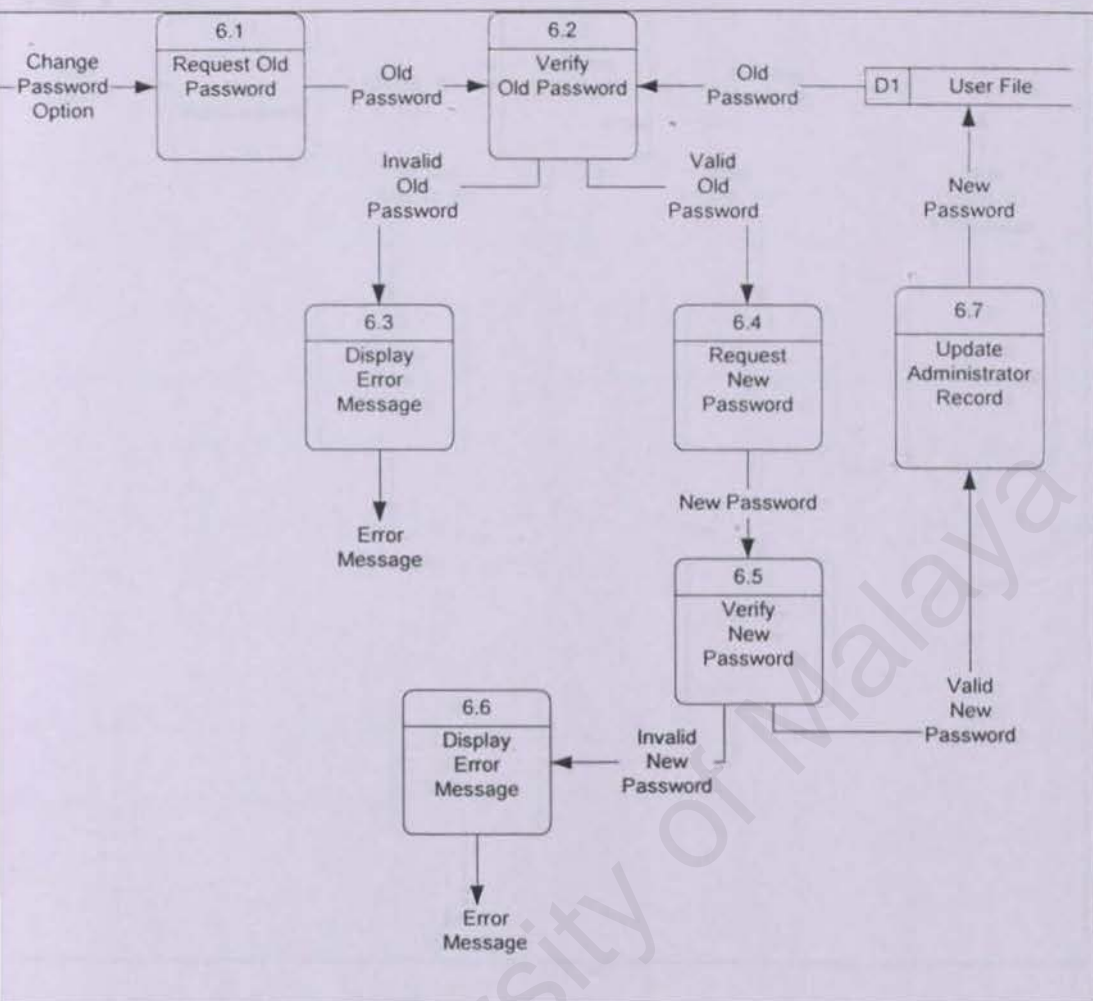


Figure 5.6: Level 1 DFD of Change Password sub-module

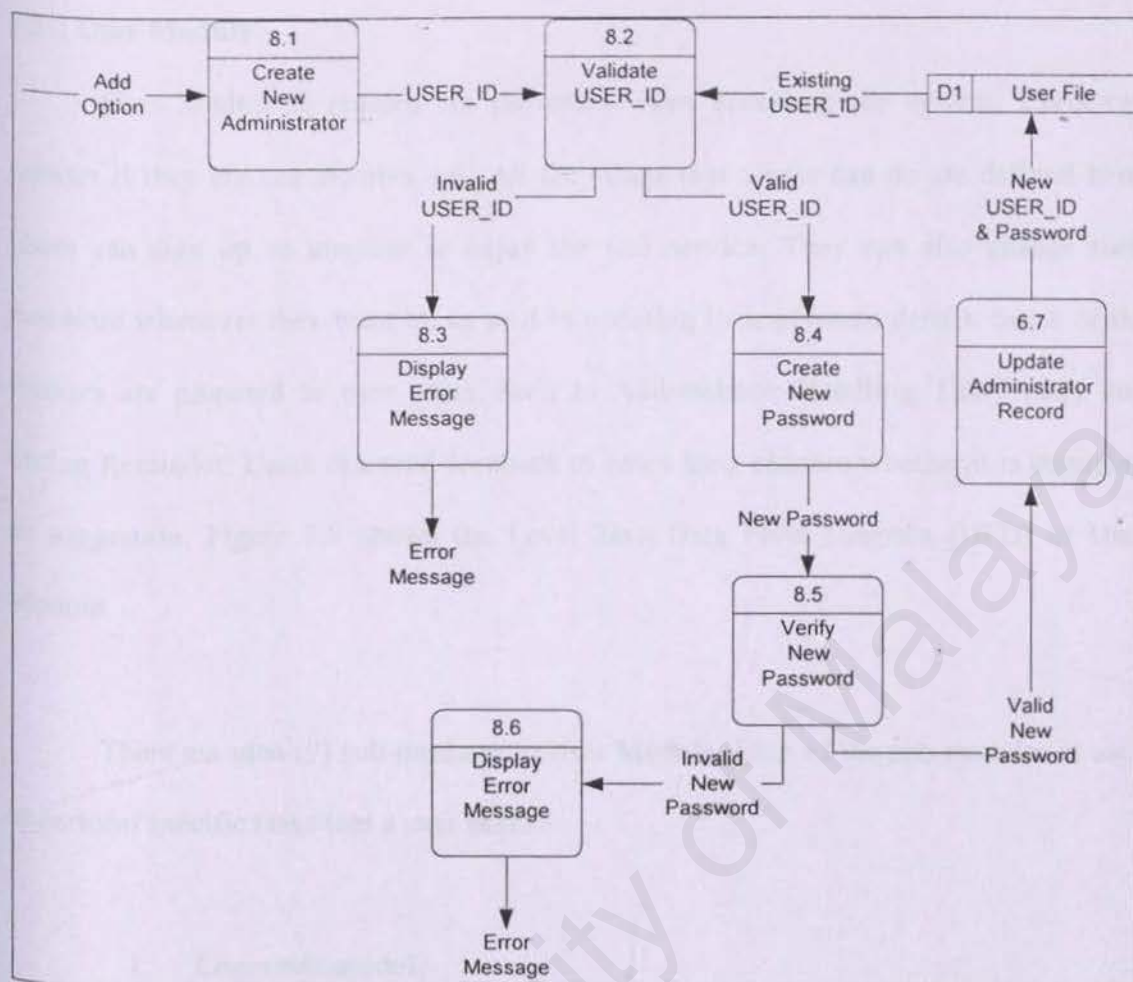


Figure 5.7: Level 1 DFD of Add New Administrator sub-module

5.2.2 User Module

User Module is readied for the users when accessing the system. Users can register if they are not member yet. All the things that a user can do are defined here. Users can sign up as member to enjoy the free service. They can also change their password whenever they want to, as well as updating their personal details. Some of the features are prepared to ease users, such as Addressbook Handling, Diary entry and setting Reminder. Users can send feedback to voice their concern whether it is comment or suggestion. Figure 5.8 shows the Level Zero Data Flow Diagram (DFD) of User Module.

There are nine (9) sub-modules in User Module. Each of the sub-modules is used to perform specific tasks that a user needs.

- i. Login sub-module
- ii. Register New User sub-module
- iii. Change Password sub-module
- iv. Update User Data sub-module
- v. Addressbook sub-module
- vi. Diary sub-module
- vii. Reminder sub-module
- viii. Feedback sub-module
- ix. Logout sub-module

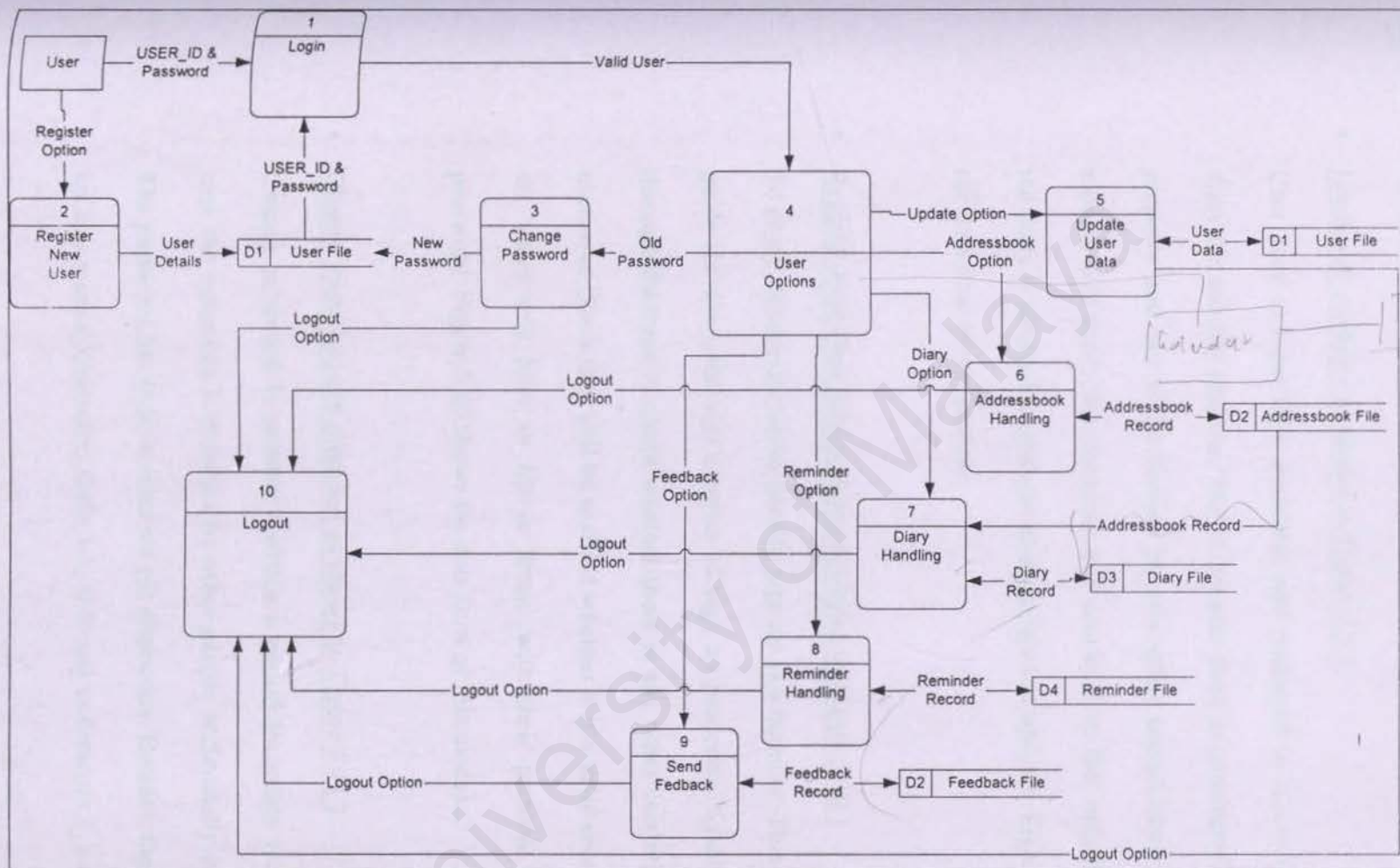


Figure 5.8: Level 0 DFD of User Module

Brief description of each sub-module from the User Module will be given as below:

- Login sub-module (as shown in Figure 5.9)

User have to input their username and password to access to their own diary for security purpose. This is because diary is considered as a private property and not to be viewed by any other unauthorized users. This module will verify the username and password so that only the owner of the diary is allowed to perform modifications or updates. Figure 5.9 shows the data flow of this module.

- Register New User sub-module (as shown in Figure 5.10)

To enjoy this service, users need to sign up as a member. This module will guide the users through a series of sign up processes. System will look through database to check whether there is any other user with the same username. Then they will be notified whether it is a valid username. Later on, users will have to fill in forms with their personal details and password. Figure 5.10 shows the data flow of this module.

- Change Password sub-module (as shown in Figure 5.11)

Change password is necessary within a period for safety reason, just in case the password is obtained by other people accidentally or purposely. The password has to be at least six (6) characters. Besides, there should be no any special character. Only a-z, 0-9 and underscore (_) are allowed.

User will need to provide their old password, then followed by new password entry and retype new password for confirmation. Figure 5.11 shows the data flow of this module.

- Update User Data sub-module (as shown in Figure 5.12)

Users are permitted to change their personal details if they wish to do so. This is common, as users may have to update their information from time to time, as to keep them up-to date all the while. Figure 5.12 shows the data flow of this module.

- Addressbook sub-module (as shown in Figure 5.13)

This is where users keep all of their contact information about their friends or relatives. The information includes e-mail address, first name, last name, birth date and phone numbers. Users can view, add, update or delete the information at any time. Figure 5.13 shows the data flow of this module.

- Diary sub-module (as shown in Figure 5.14)

Users can view, add, update or delete their diary entries using this module. This is where the users write down all their feelings that come from the innermost of their heart. Users also can send the diary to other people if they feel like sharing the precious moments or the hard times. Users can only send it after adding and saving the new diary. Which means they

have to send it through the “View” option. Figure 5.14 shows the data flow of this module.

- Reminder sub-module (as shown in Figure 5.15)

Reminder can be set to alert users about their meeting, appointments or special events like dates and birthdays. They can choose whether the alarm is ON or OFF. If the alarm is set to ON, users need to specify the date and the time so that SMS will be sent prior to the events. Apart from this, system can also send the alert through e-mail or pop-up when the users login. Users themselves will choose the method of alert. Figure 5.15 shows the data flow of this module.

- Feedback sub-module

Feedback can be sent to administrator for any comment, no matter it is suggestions or complaints. User will type the message in a text area, then the message will be sent once users click the “Send” button. The feedback will reach to administrator. If there is any reply from administrator, the reply will be sent to user’s e-mail account, which he or she provided in personal details while registration as a member.

- Logout sub-module

Users ought to logout after doing what they want. This is important for privacy reason, as nobody can view his or her diaries or reminders.

Logging out will end the session.

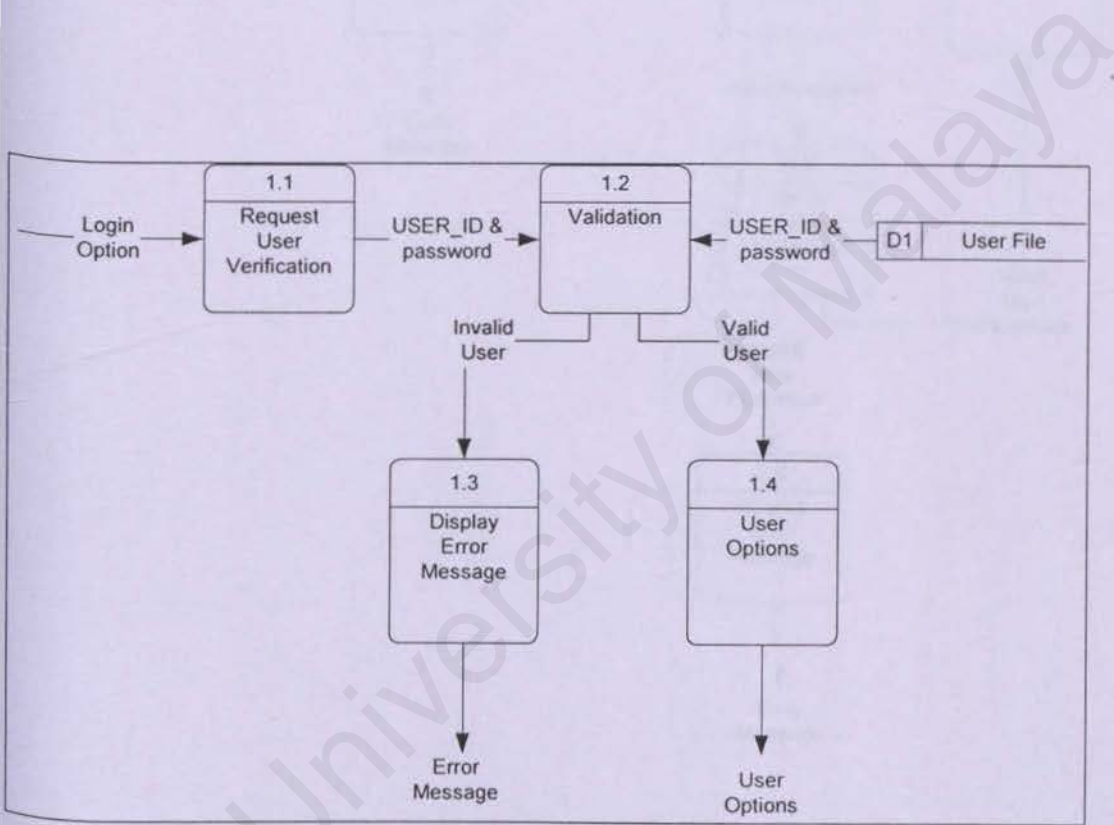


Figure 5.9: Level 1 DFD of Login sub-module

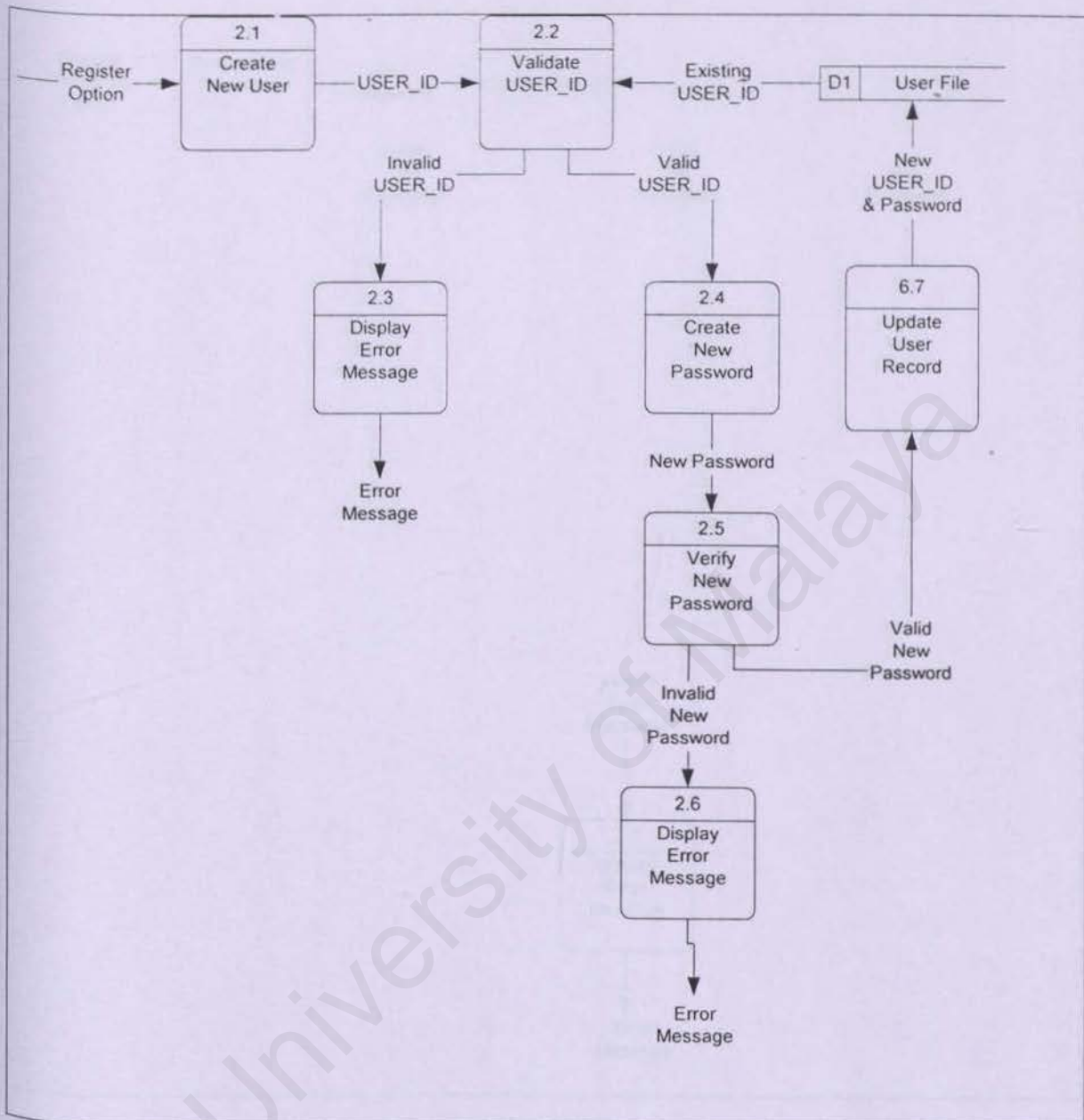


Figure 5.10: Level 1 DFD of Register New User sub-module

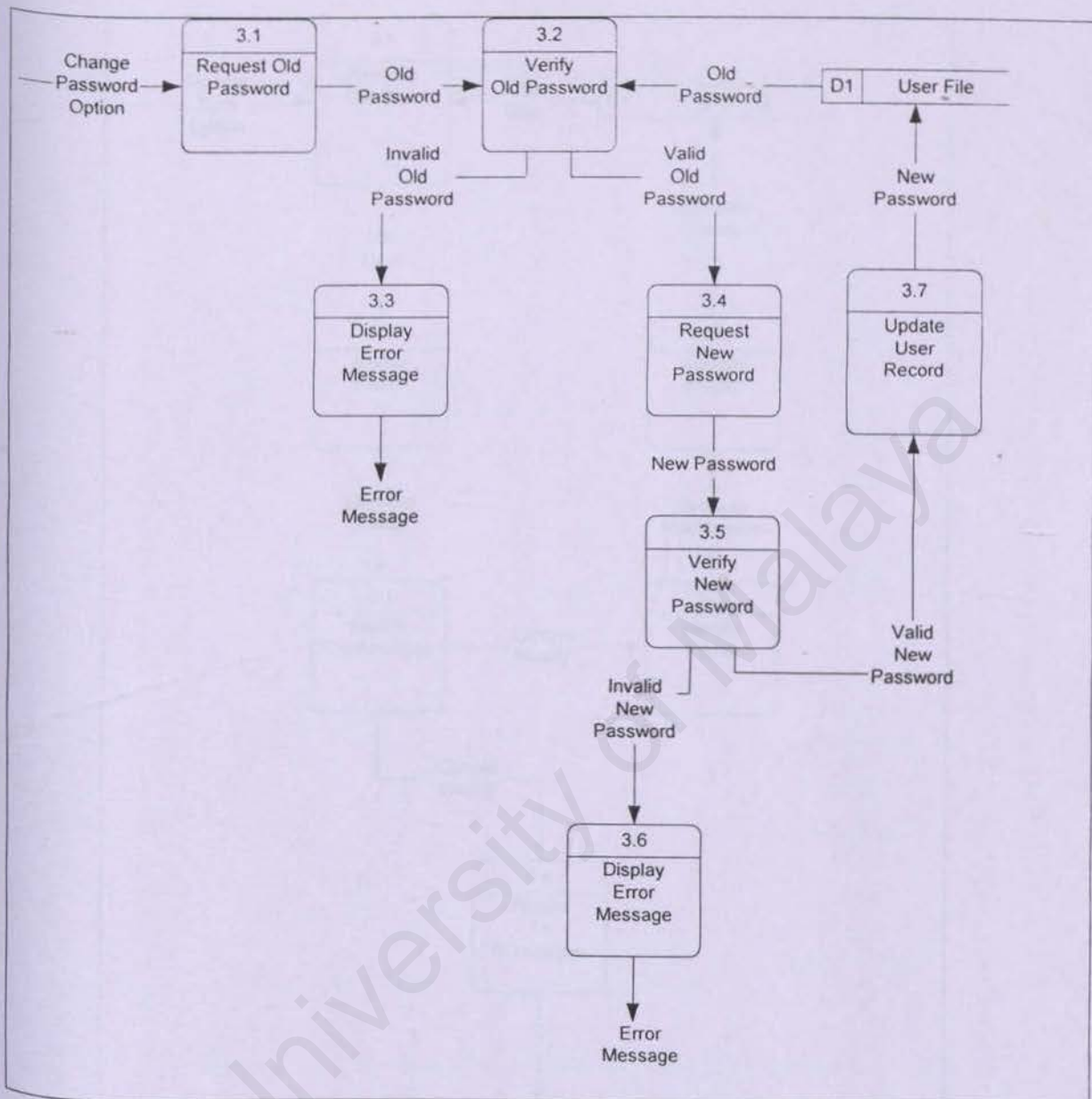


Figure 5.11: Level 1 DFD of Change Password sub-module

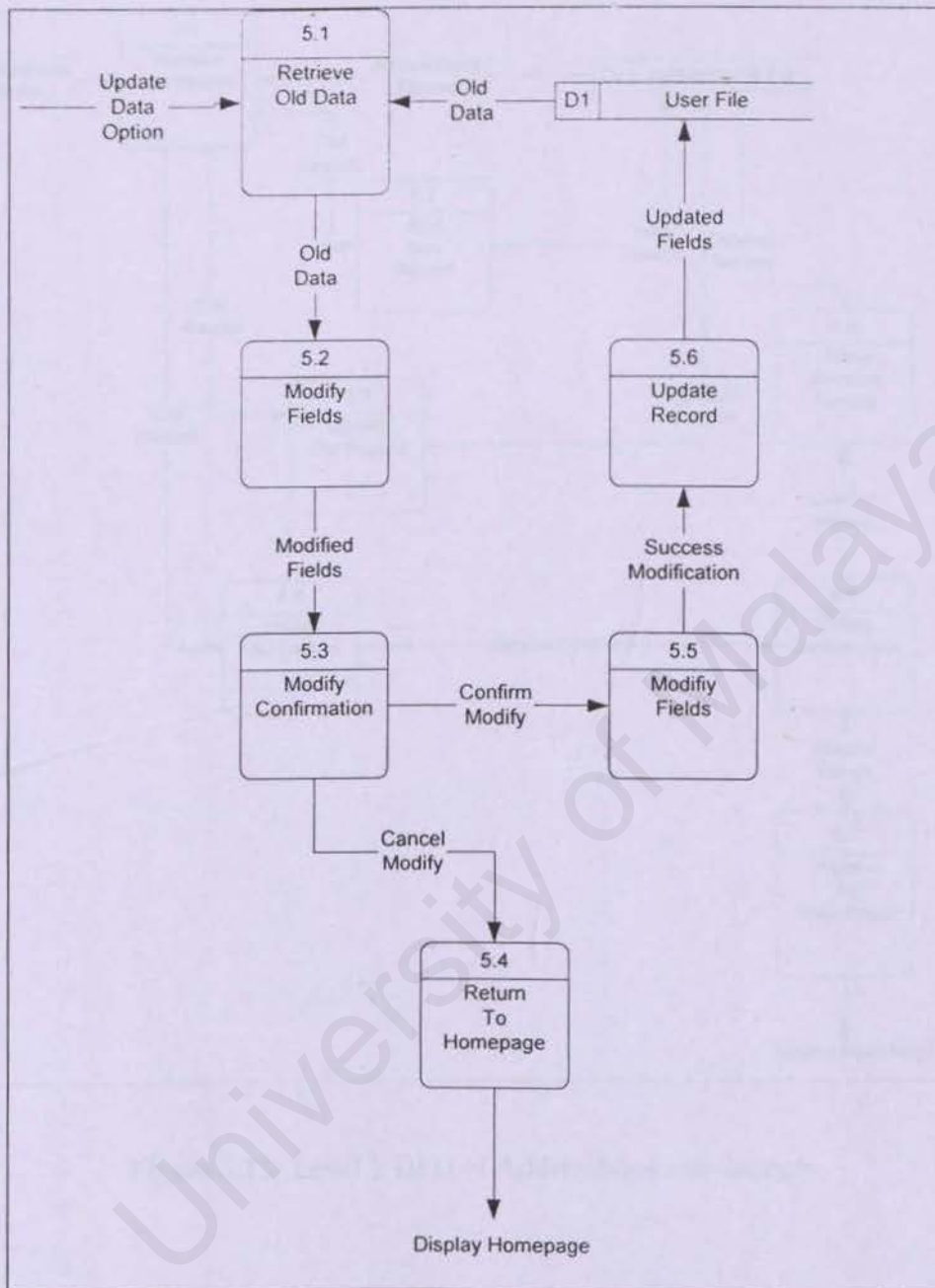


Figure 5.12: Level 1 DFD of Update User Data sub-module

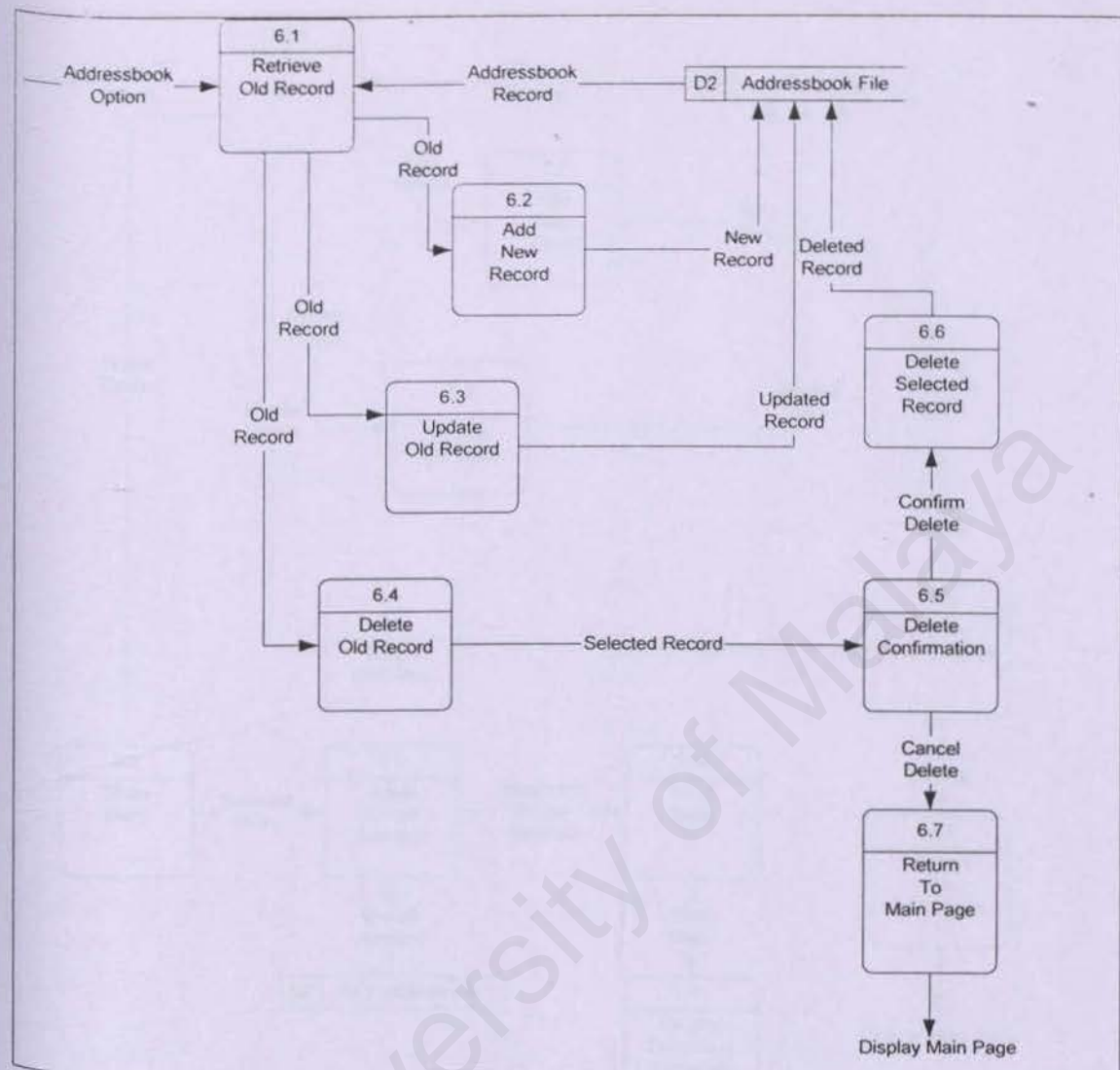


Figure 5.13: Level 1 DFD of Addressbook sub-module

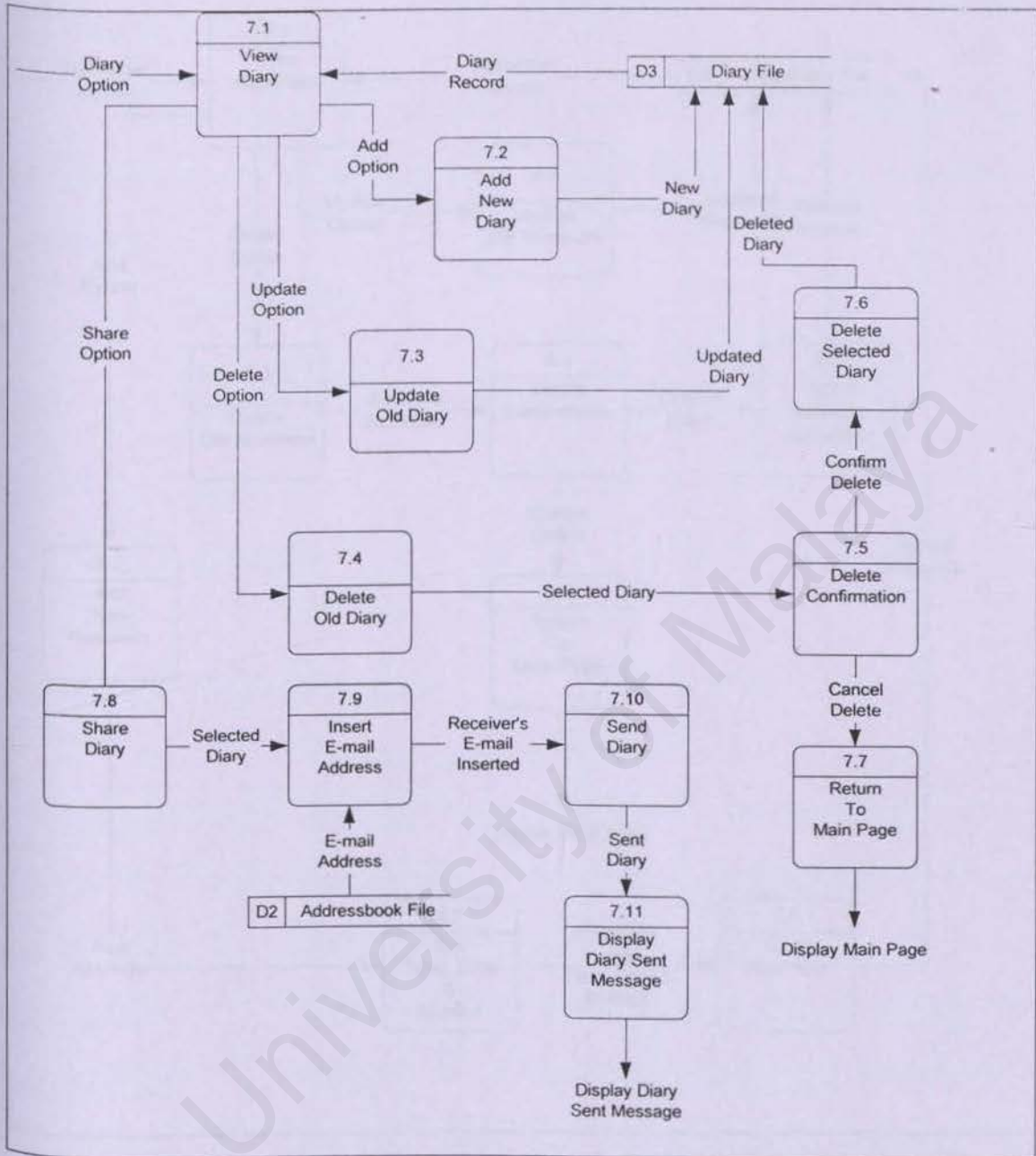


Figure 5.14: Level 1 DFD of Diary sub-module

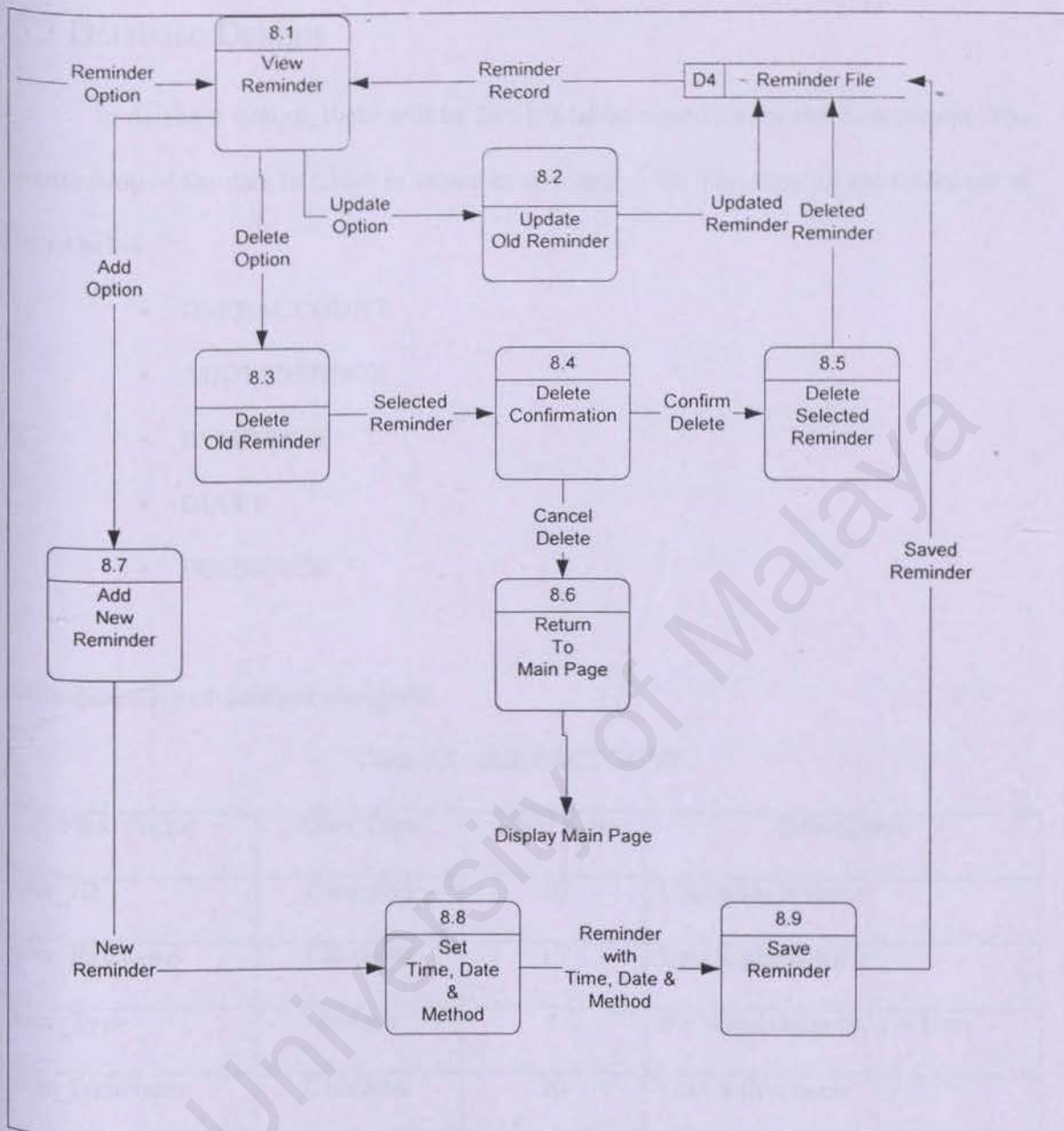


Figure 5.15: Level 1 DFD of Reminder sub-module

5.3 Database Design

In database design, there will be five (5) tables used to keep the information. The relationship of the data in tables is shown as in Figure 5.16. The name of the tables are as listed below:

- USERACCOUNT
- ADDRESSBOOK
- REMINDER
- DIARY
- FEEDBACK

Data dictionary of database designed:

Table 5.1: USERACCOUNT

Field Name	Data Type	Field Size	Description
user_ID	Character	30	User's login name
user_Password	Character	15	User's password
user_Type	Integer	1	0 = Administrator, 1 = User
user_FirstName	Character	20	User's first name
user_LastName	Character	20	User's last name
user_CellCountry	Integer	2	User's cell phone country code
user_CellArea	Integer	2	User's cell phone area code
user_CellNumber	Integer	7	User's cell phone number
user_Email	Character	40	User's e-mail address

Table 5.2: ADDRESSBOOK

Field Name	Data Type	Field Size	Description
add_ID	Character	30	Contact's ID
add_FirstName	Character	20	Contact's first name
add_LastName	Character	20	Contact's last name
add_Gender	Integer	1	0 = Female, 1 = Male
add_Email	Character	40	Contact's e-mail address
add_BirthDate	Integer	2	Contact's birth date
add_BirthMonth	Integer	2	Contact's birth month
add_BirthYear	Integer	4	Contact's birth year
add_OffCountry	Integer	2	Contact's office phone country code
add_OffArea	Integer	1	Contact's office phone area code
add_OffNumber	Integer	8	Contact's office phone number
add_CellCountry	Integer	2	Contact's cell phone country code
add_CellArea	Integer	2	Contact's cell phone area code
add_CellNumber	Integer	7	Contact's cell phone number
add_HouseCountry	Integer	2	Contact's house phone country code
add_HouseArea	Integer	1	Contact's house phone area code
add_HouseNumber	Integer	8	Contact's house phone number

Table 5.3: REMINDER

Field Name	Data Type	Field Size	Description
event_ID	Character	10	Event's ID
event_Type	Integer	1	0 = Birthday, 1 = Graduation, 2 = Meeting, 3 = Wedding, 4 = Others
event_Title	Character	50	Event title
event_Date	Integer	2	Event date
event_Month	Integer	2	Event month
event_Year	Integer	4	Event year
event_Hour	Integer	2	Event hour
event_Min	Integer	2	Event minute
event_Desc	Character	500	Brief description about the event
event_AlarmMethod	Integer	1	0 = E-mail, 1 = SMS
event_Notify	Integer	1	When the user wish to be notified. 1 = 1 day, 3 = 3 days, 7 = 7 days

Table 5.4: DIARY

Field Name	Data Type	Field Size	Description
diary_ID	Character	10	Diary ID
diary_Title	Character	50	Diary title
diary_Date	Integer	2	Diary date

diary_Month	Integer	2	Diary month
diary_Year	Integer	4	Diary year
diary_Hour	Integer	2	Diary hour
diary_Min	Integer	2	Diary minute
diary_Entry	Character	2000	Diary entry to remember

Table 5.5: FEEDBACK

Field Name	Data Type	Field Size	Description
fb_ID	Character	10	Feedback ID
fb_Type	Integer	1	Feedback type 0 = Complaint, 1 = Suggestion 2 = Problem 3 = Others
fb_Sender	Character	40	Feedback sender's e-mail address
fb_ReceivedDate	Integer	2	Feedback received date
fb_ReceivedMonth	Integer	2	Feedback received month
fb_ReceivedYear	Integer	4	Feedback received year
fb_RepliedDate	Integer	2	Feedback replied date
fb_RepliedMonth	Integer	2	Feedback replied month
fb_RepliedYear	Integer	4	Feedback replied year

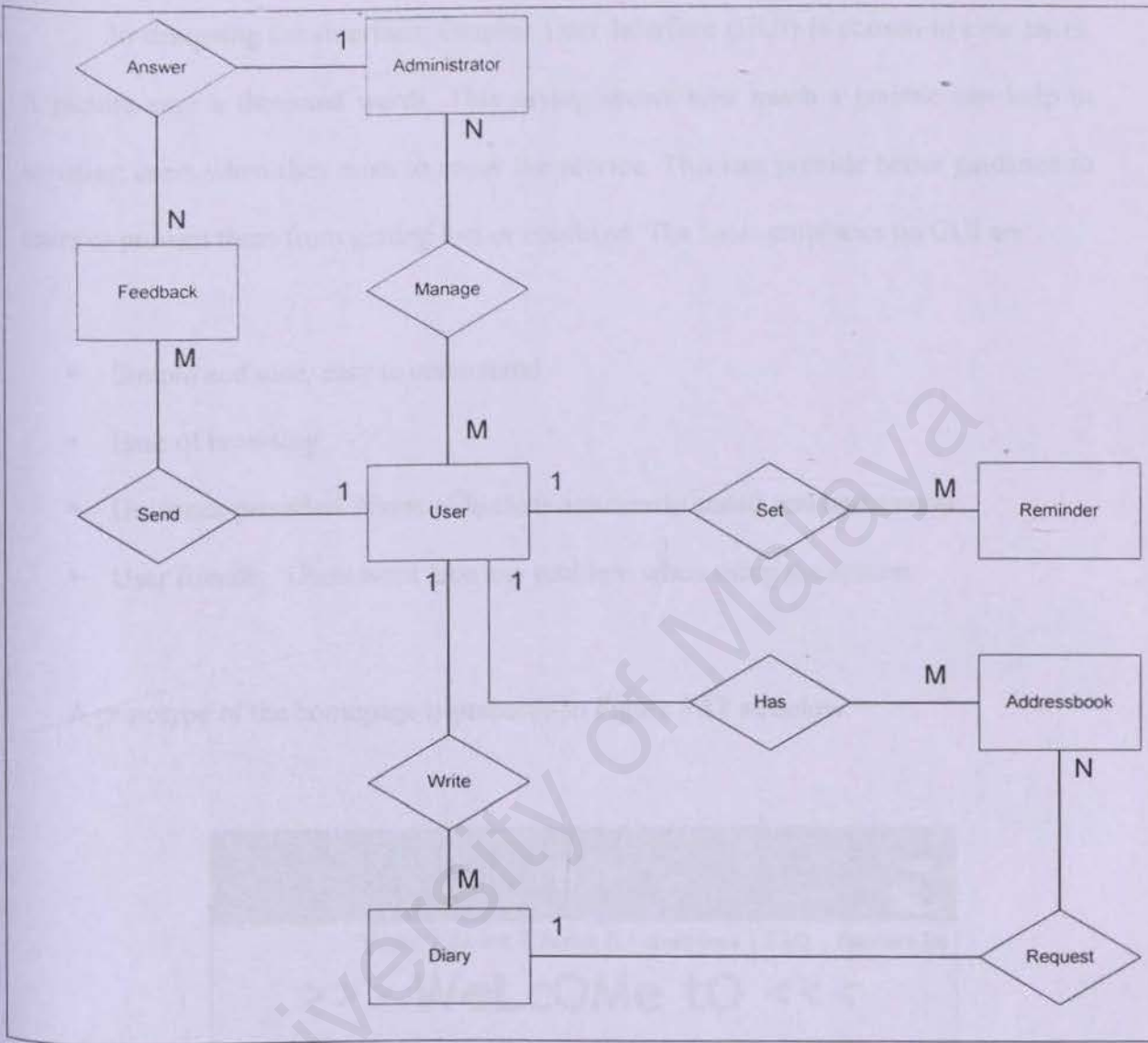


Figure 5.16: Entity Relationship Diagram (ERD) of database

5.4 Interface Design

In designing the interface, Graphic User Interface (GUI) is chosen to ease users. A picture says a thousand words. This saying shows how much a graphic can help in assisting users when they wish to enjoy the service. This can provide better guidance to users to prevent them from getting lost or confused. The basic emphases on GUI are:

- Simple and nice, easy to understand
- Ease of browsing
- Guidance provided. Name of buttons are clearly stated and understood
- User friendly. Users wont face any problem when using the system.

A prototype of the homepage is prepared in Figure 5.17 as below:

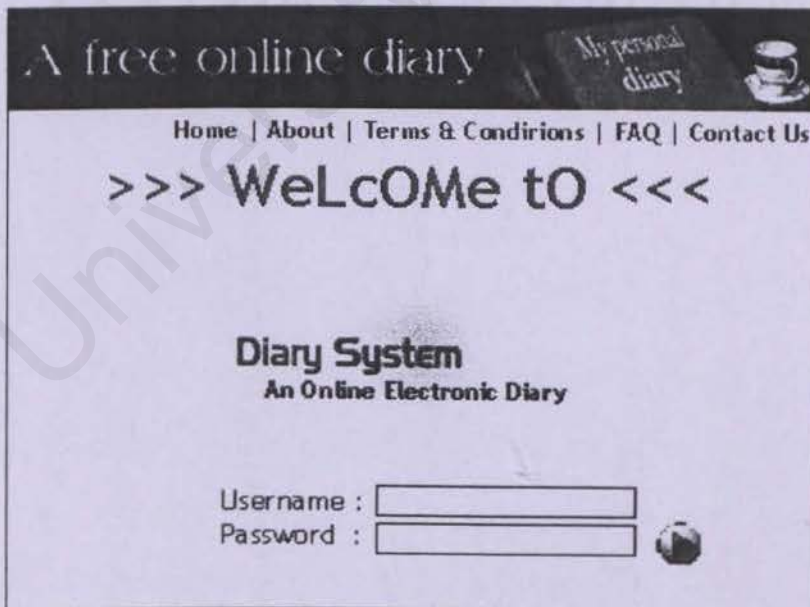


Figure 5.17: Homepage

Chapter 6

System Implementation

6.1 Introduction

System implementation comes after all the analysis, requirements capturing and design. This is when all the conceptual designs are brought into real life by using programming languages and softwares. Implementation is carried out by writing the codes for the system module by module. The implementation phase consists of developing and testing. Changes are made if there are any bugs or inconsistencies to ensure that the system built is free from errors.

6.2 Program Installation

To start the implementation, we should install the program and software that are needed to build the Online Diary System. Programs used are as following:

- **EasyPHP v1.7**

EasyPHP is a combination of Apache v1.3.27, MySQL v4.0.15, PHP v4.4.4 and PHP MyAdmin v2.5.3 that are integrated into an easy-to-install package. Moreover, this is meant for Windows computers and supports Windows 9x/ME/2000/XP. After installing, there are instructions that should be followed to configure each of the components separately.

- **Adobe Photoshop 6.0**

Adobe Photoshop is needed to edit, draw graphics for beautifying the WebPages. All of the buttons were created using this software. Besides, it is a good tool to create the graphic for banner too.

- **EditPlus**

EditPlus is a useful text editor, HTML editor and programmers' editor for Windows. While it can serve as a good replacement for Notepad, it also offers many powerful features for Webpage authors and programmers. It supports customizable syntax highlighting for HTML, CSS, PHP, ASP, Perl, C/C++, Java, JavaScript and VBScript by default.

6.3 Programming and Coding

6.3.1 EditPlus

EditPlus is used to write the codes for PHP. Although the GUI is simple, yet it is easy to use and it provides syntax highlights. Below is the workspace for EditPlus.

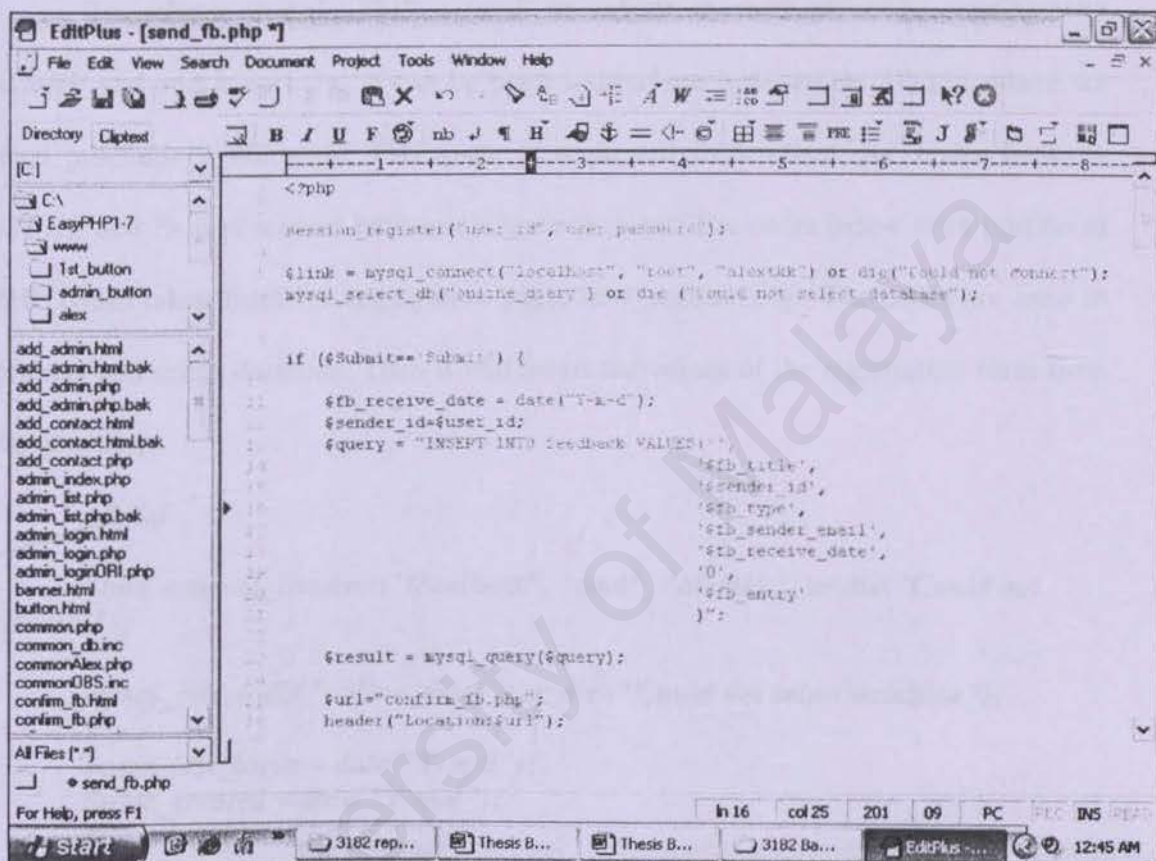


Figure 6.1: Workspace for EditPlus

6.3.2 PHP

In PHP, it is a scripting environment that is made up by two parts, namely programmatic codes and embedded HTML.

To indicate that the PHP is used, we inform the web server by starting with `<?PHP` and end it with `?>`. It can be placed anywhere between the HTML where we need processing. When the PHP page is requested from client, the codes between `<?PHP` and `?>` is processed before sent back to client. The codes below are a portion of PHP codes taken from the registration page, `new_account.php`. The codes are used to connect and select database. Then it will insert the values of the registration form from the new user.

```
<?php
```

```
$link = mysql_connect("localhost", "root", "alexkk") or die("Could not connect");
```

```
mysql_select_db("online_diary") or die("Could not select database");
```

```
$user_last_login = date("Y-m-d");
```

```
$user_created = date("Y-m-d");
```

```
$time = date("H:i:s");
```

```
$query = "INSERT INTO user_account  
VALUES('$user_id',  
      '$user_password',  
      '$user_name',  
      '$user_gender',  
      '$user_mobile',  
      '$user_email',  
      '1',  
      '$user_last_login',  
      '$user_created')";
```

```
$result = mysql_query($query);
```

```
?>
```


6.3.3 JavaScript

Another scripting that is used is JavaScript. In Online Diary System, JavaScript is mainly used for validation. All of the JavaScript are surrounded by `<script language = "JavaScript">` and `</script>` and written in the header of the HTML. Below is a sample of JavaScript taken from registration page, `new_account.html`. The function checks whether the compulsory fields in the registration form are filled. If not there will be a pop-up window to alert users that they left out the important part of the form. Besides, it also checks if the password and password_confirm match or not.

```
<script language = "JavaScript">
```

```
function CheckEmpty(getForm) {
```

```
    var USER_ID = getForm.user_id.value;  
    var USER_PASSWORD = getForm.user_password.value;  
    var PASSWORD_CONFIRM = getForm.password_confirm.value;  
    var USER_NAME = getForm.user_name.value;  
    var USER_MOBILE = getForm.user_mobile.value;  
    var USER_EMAIL = getForm.user_email.value;
```

```
    if (USER_ID == "") {  
        alert ("Please input your Username.");  
        return false;  
    }
```

```
    if (USER_PASSWORD == "") {  
        alert ("Please input your Password.");  
        return false;  
    }
```

```
    if (PASSWORD_CONFIRM == "") {  
        alert ("Please retype your Password.");  
        return false;  
    }
```

```
    if (USER_PASSWORD != PASSWORD_CONFIRM) {  
        alert ("Your Password and Password Confirm mismatch. ");
```



```
        return false;
    }
    if (USER_NAME == "") {
        alert ("Please input your Full Name.");
        return false;
    }

    if (USER_MOBILE == "") {
        alert ("Please input your Mobile Number.");
        return false;
    }

    if (USER_EMAIL == "") {
        alert ("Please input your Email Address.");
        return false;
    }

    return true;
}
//-->
</script>
```

6.3.4 Cascading Style Sheet (CSS)

Cascading Style Sheet (CSS) is an external file that defines how HTML elements are displayed, just like the font tag and the color attribute. It uses a simple mechanism for adding style (e.g. fonts, colors, spacing) to WebPages. After the styles are defined, the document is saved with the extension .css.

To include a CSS into the HTML document, we just simple add in the line in the header part, usually after `<Title>`.

```
<link rel="stylesheet" type="text/css" href="styles.css">
```

Below is a sample of CSS used for Online Diary.

```
a      {      text-decoration : none;
           color      : #3366cc;
           font-size   : 10pt;      }

.line  {      font-size   : 10pt;
           color      : hotpink;
           font-weight : bold;
           font-family : arial;      }

a:hover      {      text-decoration : underline;
           color      : #3366cc;
           font-size   : 10pt;      }

.comment    {      font-size   : 8pt;
           font-family : arial;
           color      : dimgray;      }
```

6.3.5 Sample Codes

Below is a complete sample codes from add_contact.php. Which is called when a user wishes to add contact information of a friend or relative into his/her Address Book. The codes will save all the information he/she input into the database.

```
<?php
```

```
session_register("user_id","user_password");
```

```
$link = mysql_connect("localhost", "root", "alextkk") or die("Could not connect");  
mysql_select_db("online_diary") or die ("Could not select database");
```

```
function error_message($msg) {  
    echo "<SCRIPT>alert('$msg');history.go(-1)</SCRIPT>";  
    exit;  
}
```

```
function emailcheck($intext) {  
    $theresults = ereg("^[^@ ]+@[^@ ]+\.|^@ \.]+$", $intext, $trashed);  
  
    if ($theresults)  
        return 0;  
    else  
        return 1;  
} //return 0 if not match
```

```
if (empty($add_name)) error_message("Please enter your contact's Name.");  
if (empty($add_email)) error_message("Please enter your contact's Email Address.");  
if (empty($add_birthday)) error_message("Please enter your Birthday.");  
if (empty($add_mobile) && empty($add_house) && empty($add_office))  
    error_message("Please enter either Mobile Number. House Number or Office Number.");
```

```
if (emailcheck($add_email))  
    error_message ("Invalid Email Address.");
```



```

/* Performing SQL query */
$query = "INSERT INTO addressbook
VALUES('
    '$user_id',
    '$add_name',
    '$add_gender',
    '$add_email',
    '$add_birthday',
    '$add_office',
    '$add_mobile',
    '$add_house',
    '$address')";

```

```

$result = mysql_query($query);

```

```

?>

```

```

<HTML>
<Title>Online Diary</Title>
<Head>
<link rel="stylesheet" type="text/css" href="styles.css">
</Head>

```

```

<body>
<table border=2 bordercolor=7B849C cellpadding=1 cellspacing=0 width="70%"
align=center>

```

```

<tr>
<td>
<Table border=0 cellpadding=0 cellspacing=0 width="70%" align=center>
<form action=<?php echo $PHP_SELF; ?> method="post" name="form1">

<tr width=100%>
<td colspan=3><img src=image/dot525.gif alt=Dots></td></tr>

<tr>
<td colspan=3 align="center">
</td></tr>

<tr>
<td colspan=3>
<hr width=80% color=hotpink size=1 align=right></td></tr>

```

[illegible]


```

<td align=center><b>&nbsp;   : &nbsp;  </b></td>
<td align=left><?php echo $add_house?></td></tr>

```

```

<tr bgcolor=#b9d1f6>
<td align=right>Office Number</td>
<td align=center><b>&nbsp;   : &nbsp;  </b></td>
<td align=left><?php echo $add_office?></td></tr>

```

```

<tr bgcolor=#e5efff>
<td align=right>Address</td>
<td align=center><b>&nbsp;   : &nbsp;  </b></td>
<td align=left><?php echo $address?></td></tr>

```

```

<tr>
<td colspan=3 align=center>
<hr width=70% color=#7B849C size=2></td></tr>

```

```

<tr>
<td colspan=3 align=center>
<a href="view_addbook.php">View Address Book
</a></td></tr>
</form>
</table></td></tr>

```

```

</table></td></tr>

```

```

</table>

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<font class=comment><center>~ Copyright © 2003-2004 Online Diary Limited. All
Rights Reserved ~</center></font>

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</body>
</html>

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7.1 Introduction

System testing is a term taken to mean testing done at system level. It is done to determine whether the system is performing all the functions as per the requirements. It is for the purpose of verifying that the system is working as intended. The main purpose of system testing is to ensure that the system is working as intended. The main purpose of system testing is to ensure that the system is working as intended. The main purpose of system testing is to ensure that the system is working as intended.

Chapter 7

System Testing

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7.1 Introduction

System testing is a step taken to track faults, bugs or errors. It is done to determine whether the system is performing all the functions well. The main purpose is to fix the errors at early stage, before integrated with other functions or modules. Besides, testing is necessary to ensure that the system built will reach the quality expected. There are three kind of system testing strategy. They are unit testing, module testing and integration testing.

7.2 Testing Strategy

7.2.1 Unit Testing

For unit testing, first thing we can do is by checking the codes line by line to track the syntax error, algorithm error or data error. Then we ensure that the codes written meet the specification of the requirements. When all are done, we view the page in browser to see the result. If there is still any inconsistency or fault, back to the codes to correct it.

For example the address book, first of all we check whether the page can display the contacts of the logged-in user. When the user views the contacts from his/her address book, he/she can choose either to view or delete that particular contact. The figure in next page shows the Address Book. Table 7.1 shows the unit testing on Address Book.

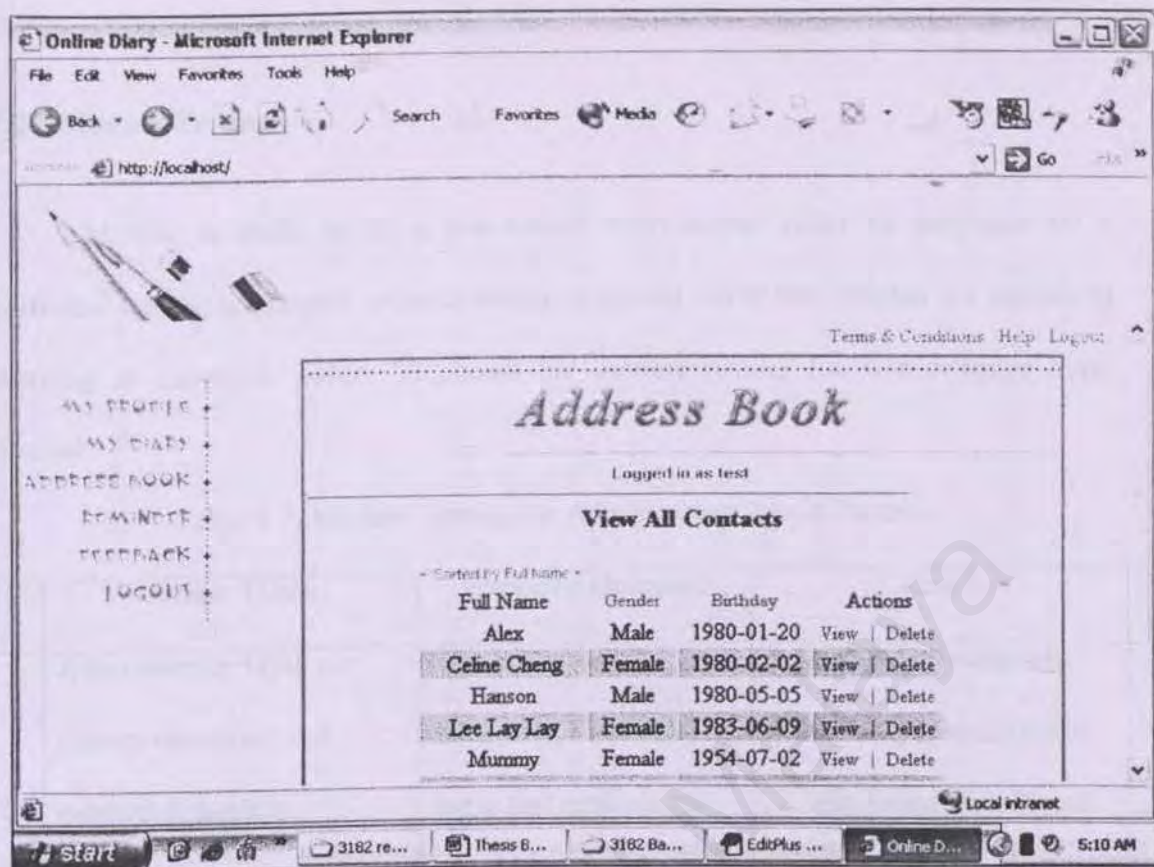


Figure 7.1: Address Book

Table 7.1: Unit Testing for Address Book

No	Action Taken	Expected Outcome	Result
1.	Click the "View" hyperlink at the end of the contact called "Alex".	Link to the page where all detail information of "Alex" is displayed.	Detail information about "Alex" is displayed.
2.	Click the "Delete" hyperlink at the end of the contact called "Alex".	A message box appears and asks for confirmation. If the "OK" button is clicked, the contact "Alex" will be deleted.	All fields about "Alex" are deleted from database.

7.2.2 Module Testing

Module is made up by a few linked components. After all programs for a particular table is developed, module testing is carried out to test whether the module is working as expected. Table 7.2 shows the module testing for administrator login process.

Table 7.2: Module Testing for Administrator Login Process

No	Action Taken	Expected Outcome	Result
1.	Administrator input the correct username and password. Such as: Username: admin Password: admin	A message box indicating successful login and reminds the administrator to logout.	A message box appears and displays the message "Login successful. Please remember to log out!!!"
2.	Administrator input the wrong username or password. Such as: Username: admin Password: halo	An error message is displayed.	A message box appears and displays the message "Invalid login!"
3	User input the correct username and password. Such as: Username: test Password: test	An error message is displayed.	A message box appears and displays the message "Invalid login!"

7.2.3 Integration Testing

After the unit testing and module testing, each of the components is expected to be functioning well. Then they are combined and linked to become the complete system. Based on the written system specifications, integration testing is needed to identify the problems arise from the components interaction. So we have to verify the system components to ensure that all of them are working together to achieve the specifications. In integration testing, the bottom-up approach is used. That is all the lower-level components are integrated and tested before the higher-level components.

7.3 Summary

During the development of Online Diary, testing phase is unavoidable. It is a phase that is crucial to ensure that all of the works done are bug-free and error-free. There for, unit testing, module testing and integration testing are important as the main objective is to look for the errors that are possible to appear and try to fix them. By this time, the system development is supposing implemented all that is specified in the design phase. All the requirements are met and ready to serve the users.

During the evaluation process, a few problems and items were found. Any

8.1 Introduction

After testing, the complete system will go through an evaluation stage before it is sent to the client. This is considered as the final phase of development for Online Diary. Problems pertaining to software and hardware are observed to determine the quality of the system built. Suggestions, problems encountered, comments and ideas for improvement are jotted down and reviewed.

8.2 Problems Encountered and Solutions

During the evaluation process, a few problems and faults were found. After reviewing them, solutions are suggested to fix the problems.

8.2.1 Hyperlink

- **Problem:**

There are 2 hyperlinks that link to an empty page. These broken link problems occur at the view reminder page, `view_reminder.php`.

- **Solution:**

Testing was not done careful enough. All of the hyperlinks will be tested again to ensure that none of them will point to empty page.

8.2.2 Date Input Fields

- **Problem:**

All of the date input fields have no validation to ensure that users are not allowed to type in any invalid input.

- **Solution:**

Validation will be added in so that all of the date input fields are validated and only the date is saved into database.

Another alternative is by using a pop-up calendar. Users do not have to type in anything but just selecting the date from the pop-up calendar.

8.2.3 Message Box

- **Problem:**

After signing in, there will be a message box indicate that the user has made a successful login. It also reminds the user so that he/she remembers to logout after writing his/her diary.

After logging out, there is a message box saying that logout is successful before redirecting the user to the homepage.

- **Solution:**

The will be omitted as there is no need to inform the users that they have logged-in or logged-out successfully. Excessive message box seems to be bothering, especially every time when the user tries to login or logout.

8.2.4 Sorting Function

- **Problem:**

For a few pages that provide sorting service, the sorting is done by using some different WebPages.

- **Solution:**

Sorting is done in the same page using *if* statement in PHP. Besides that, there will be also sort by ascending and descending orders.

8.3 System Strengths

8.3.1 Interface and Design

With the new interface, there are no heavy graphics. It serves the main purpose of writing an online diary. The graphics are only used for banner and titles of every module. Besides, the color combinations are quite comfortable to look at. The main colors used throughout the pages are blue, grey and pink.

8.3.2 Multiple Diaries

In this Online Diary, users are allowed to write multiple entries for the same day. In the calendar view, when the mouse move over the date, it will show that in that particular day, there are multiple entries on the day. If clicked, the diary will be shown in a pop-up window and users can read from there.

8.3.3 Database Maintenance

To maintain the database, Housekeeping module is prepared so that the database will not keep piles of useless information. Administrators can delete those users who remain inactive for more than half a year.

8.3.4 Ease of Browsing

To help users in browsing the pages easily, I've used the same layout for every page. Buttons are always there at the left hand side of the page. Users can see the

buttons all the time, which link them to the main modules, such as My Diary, Feedback and Address Book.

8.3.5 Security and Privacy

For security and privacy reason, password is required to login to the diary. Users can only login to write diary or modify data after supplying the right username and password. This is to prevent their diaries from viewing by unauthorized users.

8.4 System Constraints

8.4.1 Image Uploading

A picture tells a thousand words. Sometimes it is good to have pictures as it reminds us and refresh our mind about the time shared together. Online Diary only supports text entries but not images.

8.4.2 Spell Check

Spell check function is not provided. It is an extra credit and will ease users if they can rely on the system to check the spelling.

8.4.3 Search Function

A search function will help users finding what they want easier. Sometimes users need to look for something using keyword from their diaries because they have forgotten when they wrote the diary.

8.5 Future Enhancements

8.5.1 Pop-up Calendar

For entering date, it is wise to have a pop-up calendar so that users will not have to type in the date. Instead, it is easier to choose the date from the pop-up calendar. Besides, this can prevent them from entering invalid data too.

8.5.2 User Group

For those who like to share their diaries with beloved ones, they are able to create a list of friends and family, where they can be granted permission to view the diary.

8.5.3 Customization using Templates

Some online diaries do provide the users with templates, where users can choose their favorite template to apply to their diaries whenever they sign in. All the templates have different color schemes. For sure there is one that will suit their taste.

8.6 Knowledge and Experience Gained

8.6.1 Phases in SDLC

After doing this report and building the system, I personally feel that I've learnt a lot about the Software Development Life Cycle. It is important to follow the sequence as failure to do so will result in endless iterations and rework.

8.6.2 Development Tools

From the experience, I've found that the more errors I meet, the more I learn from the mistakes. It gives me a better understanding of the tools or languages that I'm using. For example PHP and JavaScript.

8.6.3 Self Expression

From the process of doing this report and developing system, I'm exposed to the real system development environment. It is a prominent advantage that I've learnt to manage and handle a project. In real life, this is a very important thing, as we need to deliver the system to client according to the date and need to finish building the system on time.

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