WORLD OF TANG DYNASTY POEMS
(WTDP)

A Thesis Presented To
Faculty of Computer Science And Information Technology
University of Malaya

UNDER SUPERVISION OF
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WEK 000 030
SESSION 2002/2003

Abstract

World of Tang Dynasty Poems (WTDP) is my final year thesis title. This project documentation is an exercise submitted to the Faculty Computer Science and Information Technology, University of Malaya, as a report for the Final Year Project.

WTDP is designed to introduce the Tang Poetry to public and to enhance the understanding ancient of Tang Dynasty. It divided to five modules, there are maintenance module, poems module, poets module, exercises module and games module. **WTDP** is display in three languages: English, Chinese and Malay. It consisted many functions such as poem recitation, text recitation, songs of poem and so on.

This report introduces the WTDP project. In the beginning, the overview, objective, scope, expectation and schedule of project have been defined. The following section was a description on the topic studied and researched during the literature review.

In the analysis phase, the Waterfall model with prototyping was selected for the development process. Next, the development tools such as Visual Basic, Microsoft Access, Macromedia Director and so on were chosen. Finally, the system analysis consist the result of analysis on the requirement.

Then the design phase is covered the topics of Architecture design, Process design, Database design and Interface design. These topics were shown by many table and figures to describe the design.

Acknowledgment

First and foremost, I would like to extend my heartfelt gratitude to my supervisor, Dr. Ow Siew Hock who has patiently give her guidance, invaluable advises and instruction, opinion and thoughtful contribution throughout this project. More importantly, she has given me a great opportunity to develop a system, which interested me and the full freedom towards developing this project.

Secondly, I would like to take this opportunity to express my sincere appreciation to Mr. Chiew Thiam Kian for sparing his precious time to be my moderator. His constructive comments and feedback were so useful for my project.

Utmost gratitude to Miss Yong Fong Leng, a Chinese teacher from SRJK(C) Pei Chay for sharing her knowledge throughout the duration of this proposal. Also, a highly appreciate to society Kong Meng (孔孟学会) at Petaling Jaya which is so kindly to provide and lent me the material such as the reference books of Tang Dynasty Poems for me to accomplish this project.

For special mention, I would like to express my sincere gratitude to my course mate Mr Lim Kheng Teong, Mr. Kok Chen Mun, Miss Chiam Yin Kia, Miss Lee Ean Har, Miss Koah Huey Kung and Miss Ong Yean Fong in sharing their thoughts and knowledge.

Lastly, but not least, I intend to dedicate to my family members and friends who have have given me much encouragement and emotional guidance. I am indebted and grateful to all of them.

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Chapter 1 Introduction

1.1 Project Overview

World of Tang Dynasty Poems (WTDP) is a learning package to teach learner how to read and understand the poetry of Tang Dynasty. Every poem comes with the translations of Tang Poetry into a text that easy to understand by learner, to enhance learner's ability of pronunciation and mature their enjoyment of learning poem. This learning package also available to teach the recitation of each poem, this is a best source of teaching material to upgrade learner's Chinese level.

For flexibility purpose, **WTDP** can represent in 3 languages, Chinese, Malay and English. Learner can chose the most suitable language for them to understand the poems.

Each poem is accompanied by colorful and meaningful watercolor paintings. This is used to beautifully illustrate and compliment each of the poems. It encompasses the explanation of each poem and the story behind the poem. Each poem is written in simplified Chinese character and Pinyin accompanies each word. Beside that, poem recitation also available for learner to listen the correct recitation. Some poems are allowed to access the song of poem. Learners can memories the poems easier through the song after learning the recitation of poem.

Interested games and exercise are design to enhance the learners' understanding of Dynasty Tang Poems. Crossword puzzle will be design where users may rearrange the poem in certain period. Warming will be given at the last few seconds to make the game more excited.

1.2 Project Objective

The main objective of the project is to introduce Tang's Dynasty Poetry to the public besides treat this as an approach to enhance public's understanding of ancient Chinese. It would also capable to extend the hidden moral of the poems to the learners.

To achieve this objective, the following functions are approach:

- Teaching recitation to learners.
- New approach of entertaining and fun learning environment will definitely bring a new look compare to traditional method where learners just read to them.
- Provide a multimedia interactive and useful learning tools to learners. An interactive user interface can attract learners' interest, this make learning poems easier and be eager to acquire more knowledge.
- Every poem comes with "Translations of Tang Poetry" are provides an empowering dimension of teaching and learning. This can enhance learners ' ability to read and understand the poems, and their enjoyment of learning.
- Enhance learners' ability to memory and speech pronunciation through recitation poems.

1.3 Project Scopes

The implementation of **WTDP** is enhances recitation of users. Hence, the targeted user of this system is learner from age 6 years old and above. This system also suitable for people whose never or just starting to learn Tang Poems, this is a good

opportunity to explore the poetry to them. Generally, this system will integrate five modules, which are:

i. **Maintenance**

- Administrator can add the more poems into database after the system identify the user name and password.

ii. **Poems**

- Title of poem.
- Name of poet.
- Each poem is written in simplified Chinese character and Pinyin accompanies each word.
- Translation of poem in the simple and easy to understanding sentence.
- Explanation of each poem and the story behind the poem.
- System's recitation of each poem and the explanation of poems. Learners allow pausing the recitation continuous or repeat to refresh their memory.
- Some poems are allowing learners to access the song of poem.
- Learners are allowed to record their recitation. System can play their recitation and also display system's recitation as a reference for learners.
- Simple dictionary is provided for learners to search the meaning of the words that they do not understand. Brief explanation and example regarding the words will show to user.

iii. **Poets**

- Name, place of born, year of born and title of poems are display here.

- Brief history and introduction of a poet.
- Learners can access to the poems module by click on the title poems.

iv. **Exercises**

- Exercise is provided to judge the understanding of user on the poems.
- Learners allow viewing the answer only if they try to do the exercise at least three times.
- Mark will be given.
- Top ten of the best learners' name will be listed at the end as well.

v. **Games**

- A simple and interest game to relax learner's mind and evaluate the comprehension of users.
- Top ten of best player will be listed at the performance part of games.

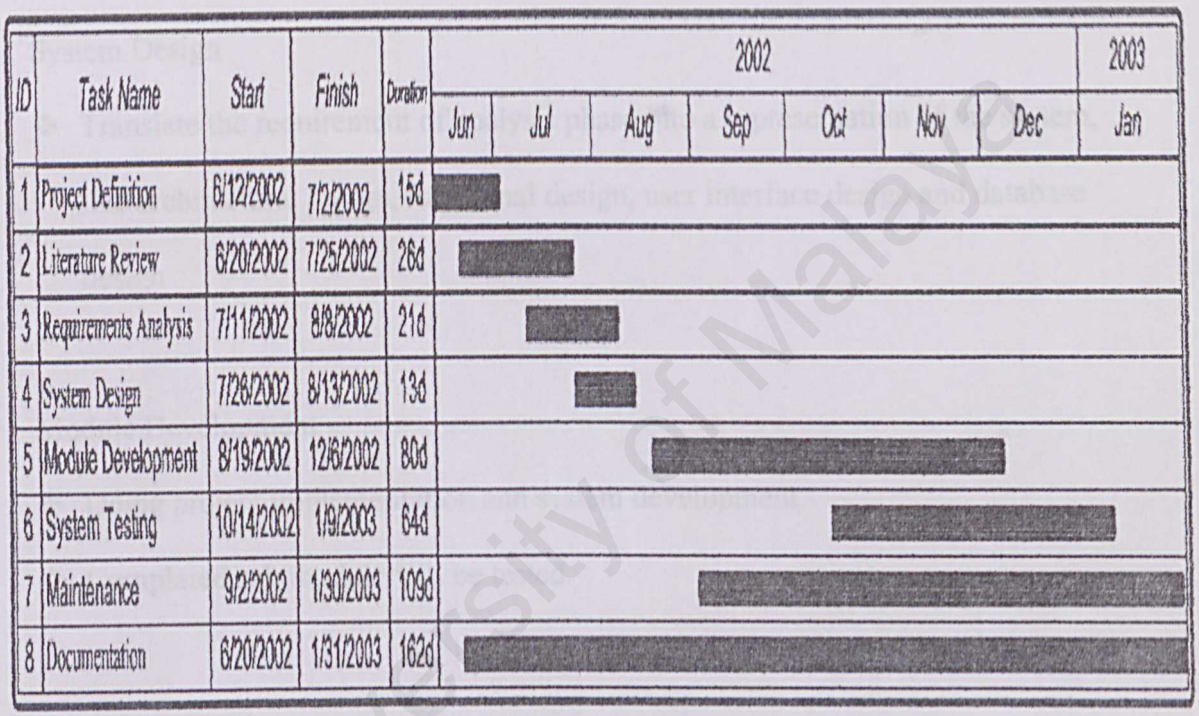
1.4 Project Expectation

This project is expected to accomplish and achieved the following results:

- Standard graphic, audio and animation for user interface across all the system. Simple and user friendly is needed.
- Simple, colorful and meaningful background image to attract learners' attention.
- Recitation of system is clear, correct and attractive.
- The database easily can be upsized to more capable systems if the need for increased capabilities and functions arises in the future.
- Result analysis for recitation and games.

1.5 Project Schedule

In order to carry out this project from June 2002 until end of Jan 2002, a project guideline was planned to manage the time and tasks that must be accomplished with the development phase. Project schedule involves separating the whole project into separate activities, and estimate the time required to complete each activity. The project schedule is shown in Figure 1.1.



ID	Task Name	Start	Finish	Duration
1	Project Definition	6/12/2002	7/2/2002	15d
2	Literature Review	6/20/2002	7/25/2002	26d
3	Requirements Analysis	7/11/2002	8/8/2002	21d
4	System Design	7/26/2002	8/13/2002	13d
5	Module Development	8/19/2002	12/6/2002	80d
6	System Testing	10/14/2002	1/9/2003	64d
7	Maintenance	9/2/2002	1/30/2003	109d
8	Documentation	6/20/2002	1/31/2003	162d

Figure 1.1 Project Schedule

Project Definition

- Understanding the concept of project.
- Reviewed the previously thesis report done by seniors for reference.

Literature Review

- Study system development tools, which is available in market.

- Compare and select the suitable authoring tool, programming language, platform and database for project.

Requirements Analysis

- Reviewed the features of project and define the suitable methodology.
- An attempt to understand how the system can helps to solve the problem

System Design

- Translate the requirement of analysis phase into a representation of the system, like architectural design, functional design, user interface design and database design

Module Development

- Doing project implementation and system development.
- Completed sub module will be tested.

System Testing

- Combine sub module into a full package, main interface will be created to integrate the entire sub module.
- Test the project and fix the bugs that occur. Corresponding changing and modification on any errors.

Maintenance

- Security features and main database also will be added to complete the project requirement.

- Post-implementation review to determine strengths and limitations/ constraints of the system.

Documentation

- Collect all the information needed for each features and process.
- Entire package will be written in a CD-ROM.

Chapter 2 Literature Review

2.1 Introduction To Literature Review

Literature and research review were the task to be completed in this chapter. Literature review is a background study for the information needed in this project. In this part, finding, summarize analysis and synthesis of existing available system and find out the weakness and strength of the system also done. This comparison is to provide better understanding in developing this project and fulfill the requirements needed. Extensive research on the available programming technologies, databases, multimedia tools and editing tools is to choose the best way to achieve the requirement of system.

2.2 Computer Aided Learning (CAL)

Computer Aided Learning (CAL) refers to using the computer as a learning resource to assists students in the totality of their tasks. The computer offers powerful features such as multimedia for facilitating learning. A good CAL learning package should involved:

- Flexibility of response.
- Use of graphics, text, animation and others.
- Good use of sound, graphics and video.
- Good constructive testing.

A good system or program of Computer Based Learning can bring the advantages as below:

- Learners can go at his or her speed, ability.
- Can vary level of practice and difficulty with little fuss

- Easy to update existing material.
- Can reduce time spent on course by up to 30%.

Beside that, Computer Based Learning also has the disadvantages as below:

- Multimedia in education is potentially the most expensive and certainly the most difficult to obtain.
- Slow learners will fall behind drastically.
- Eliminates the class 'feeling'.
- Learners may feel neglected and unattended (Daniel Carlile ,1995).

2.3 Multimedia

There are many arguments about the usefulness of multimedia in education and whether its implementation - with curriculum created around it - is actually worth the expense and extra training that would have to be undergone in introducing it into education on a large scale. Certainly multimedia could not be said to be the answer to education and learning, but if properly implemented it can certainly help.

Using multimedia like CD-ROM, as a support tool for teaching **WTDP** potentially has a lot going for it: if a CD stores 550 Mb of data, that is the equivalent of 300,000 pages of information in a book or 12 encyclopedias and presents it in a far more interesting fashion!

Learners have shown that the multimedia environment can be approached in such a way that its full potential is not realized. Even though a learner may approach a multimedia system for research, he/she may well end up using only the textual presentations for note-taking. Unless a learner is specifically directed to consider one

of the non-textual aspects of the multimedia system, he/she may well treat the 'extras' like illustrations and pay little attention (Fiona Bangert, 1995).

2.4 A Survey On Current Learning Package

Now a day, learners can learn the Tang Poems through many way such as VCD, CD, website and so on. Several learning packages had been reviewed as references, in order to learn their features and benefits, aware of their mistake and disadvantages. The results are as below:

i. 300 Tang Poems (VCD)

Figure 2.1 300 Tang Poems

300 Tang Poems for Children is a book with VCD for every child to start their cultural education with Tang Dynasty poems. This learning package was promote in the website and not available in Malaysia's market. It encompasses a collection of 300 poems from Li Bai, Du Fu, Meng Hao Ran, Wang Zhi Huan, Wang Wei, and many other famous poets from this "Golden Age" of China. Each poem is accompanied by an explanation in Chinese, written in Simplified Chinese Characters and Pinyin. Colorful watercolor paintings are used to beautifully illustrate and compliment each of the poems. It comes with a VCD of 70 minutes, which allow children to view and listen to complete the story on the computer or on the TV screen (Chinasprout, 2000).

ii. Poems For Children (VCD)

Figure 2.2 Poems For Children

Poems For Children is a VCD from china that available in the market of Malaysia. It is a movie regarding a group of students with their teacher. The children learn the poems in their class and also from their real life. Each poem is recite with the colorful watercolor painting. The poems are display in a Simplified Chinese Characters while the recitation (Spectrum Musical Productions Snd.Bhd., 2000).

iii. Sixty Poems from the Tang Dynasty (CD)

Figure 2.3 Sixty Poems from the Tang Dynasty with CD

Sixty Poems from the Tang Dynasty are books with the CD set include articles on how to read and understand the poetry of the Tang Dynasty. This learning package was promote in the website and not available in Malaysia's market. Each CD consist

20 poems and a book that only written in Chinese. The set includes 88 pages of Tang Dynasty literature and pictures in full-color, and a 24-page game booklet. All poems are recited by previous winners of the "Hong Kong School Recitation Competitions" for teaching recitation to children (*Bear Production, 2000*).

iv. Website

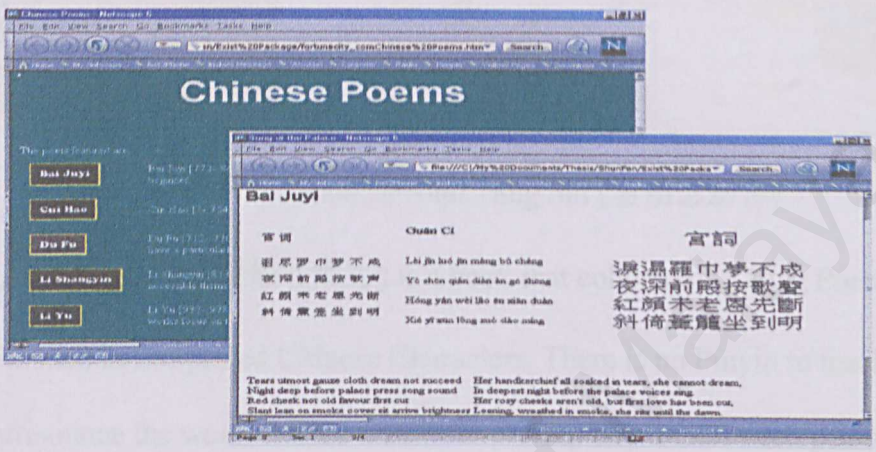


Figure 2.4 Website of Dynasty Tang Poems

http://zhongwen.com/tangshi.htm is a website that consist Tang Dynasty poems. It arranges the poems by the category of poets. Each poem is written in Simplified Chinese Characters, Traditional Chinese Characters and Pinyin. Beside that, every poem comes with translations of Tang Poetry to English version. The interface design is very simple and no further explanation in Chinese and English (zhongwen.com, 1999).

v. **Book**

Figure 2.5 Kan Tu Nian Tang Shi (*看图念唐诗*)

***Kan Tu Nian Tang Shi* (看图念唐寺)** is a book that collected 22 Tang Poems. Each poem is written in Simplified Chinese Characters. There is no Pinyin to teach user how to pronounce the word. Beside that, a simple explanation for each poem also not provided in this book. Each poem is accompanied by colorful and meaningful watercolor paintings (新雅文化事业有限公司, 1986).

2.5 Summary of Reviewed Learning Package

The most important characteristic for a learning package for learners is an attractive and user-friendly interface interacted with the multimedia techniques such as graphics, text, animation, sound, video and others. This makes the learning process easier and is eager to acquire more knowledge. In addition, the package should be as comprehensive as possible, which comprises all the resources that are needed by users in learning process.

Table 2.1 as below is the summary of the reviewed learning package.

Table 2.1 Summary Of Reviewed Learning Package

Learning Package	Advantages	Limitation
300 Tang Poems for Children	• Beautiful watercolor graphics. • Flexible to use, can use on computer and TV.	• Lack of animation • Only display in Chinese.
Poems For Children	• Represent in movie through a group of primary school children. • Ease to use, user only need to open and watch it.	• Only display in Chinese. • No exercises and quizzes • Lack of animation and attractive graphic
Sixty Poems from the Tang Dynasty with CD	• Colorful and attractive graphics in the book. • Recitation by the experienced children.	• Lack of animation • Only display in Chinese. • No exercises and quizzes
http://zhongwen.com/tangshi.htm	• Simple interface design. • Ease to understand. • Include Simplified and Traditional Chinese Characters	• Lack of animation and attractive graphic. • Only display in Chinese and English. • No exercises and quizzes • No recitation.
Recite Tang Poems By Picture (看图念唐寺)	• Colorful and attractive watercolor graphics.	• No animation and sound effect. • Boring if just read on the book.

2.6 A Survey On Seniors' Project

Besides surveying on the currently Tang Dynasty Poems learning package, the research also had been surveyed on the seniors' project. This way can give us a roughly idea how to develop a good learning package. The results are shown as table 2.2.

Table 2.2 Seniors' Project

Title	Year	Description	Comment	Developing Tools
Computer Aided Learning Package for C#	2000/2001	An E-book to introduce new programming language – C# .NET	•Interesting interface. •Nice sound effect.	Macromedia Director
M-Sign	2000/2001	Teach user to learn sign language of Malaysia.	•Attractive interface. •Ease to use.	Visual Basic 6.0, Flash, MS Access
Computer Aided Learning for Chinese Phonetics	2000/2001	Teach user to learn Chinese Phonetics.	•Simple but the interfaces not so interesting.	Visual Basic 6.0, MS Access
ALPS – SPM Physics Learning Package	1999/2000	An E-book, which consists notes, trail exam and exercise for SPM Physics.	•Attractive interface. •Consist animation to explain some topic.	Visual Basic 6.0, Flash, MS Access

2.7 Considering Of Programming Language

2.7.1 Visual Basic

Visual Basic (VB) is one of the most popular and widely used programming languages available today. It is a programming language that evolved from a long line of BASIC programming language. It provides a set of easy-to-use controls that programmer can use to develop interactive/ Window-based applications easily and quickly. Furthermore, VB is a powerful tool for creating Graphic User Interface controls such as textboxes, combobox, list box, and many others.

VB programs are free standing programming environment. Windows programs can be compiled and the programs can be exported to other Windows platform. VB programs run in their own memory space, and can be written to run on both 16-bits and 32-bit platforms. They can even run on RISC platforms running on Windows NT without changing any of the existing programs (North Coast, 2000).

VB Integrated Development Environment (IDE) is where programming work done in VB. The VB IDE has three distinct states: Design, Run, and Debug. After designing and crating the interface for the application using the VB IDE, and filling the program with forms and controls, we need to write the code that makes those controls and forms *do* something. The VB language supports a large number of programming constructs and elements.

VB also supports a new programming technique called object-oriented programming. VB has taken out most of the multi-tasking and multi-threading complications that C++ programs normally have to contend with. It also deals with the memory issue that the higher-level languages (Steven Holzner, 1998).

2.7.2 Java

Java is a distributable, object-oriented, and cross-platform programming language which developed by Sun Microsystems. Cross-platform language means its program can be designed to run the same way on Microsoft Windows, Apple Macintosh, and most version of UNIX, including Solaris. The idea is to use Java code in the form of applets, which run within the web browser environment.

Java programs consist of pieces called classes. Classes consist of pieces called method that perform tasks and return information when they complete their tasks. Java provided advantage of rich collections of existing classes in Java class libraries. The class libraries are also known as the Java APIs (Application Programming Interfaces). Primarily compiler vendors provide class libraries, but many class libraries are supplied by independent software vendors (ISVx). Also, many class libraries are available from the Internet and World Wide Web as freeware or shareware (H.M.Deiter et al, 2000).

Java offers benefits as below so that applications will run without modification on a variety of platforms:

- Applications that can take advantage of the flexibility and performance improvements of multithreading (which enables programmers to specify that several activities should occur in parallel).
- Applications with richer file processing than is provided by C or C++.
- Applications that are not limited to the desktop or even to some local computer network, but can integrate Internet components and remote databases as well.

- Applications that can be written quickly and correctly in a manner that takes advantage of prebuilt software components.
- Easy access to a growing universe of reusable software components.

2.7.3 Comparison Between Visual Basic (VB) And Java

The comparison between VB and Java Flash consists of three major parts:

- **Structure**

  Java is built on a pure object oriented (OO) foundation VB has many OO abilities buy can also be used in a non-OO way. Both VB and Java support classes, but only Java truly supports inheritance. OO programming is not only a good way to decompose a problem, buy it generally results in a more structure program.

- **Stability**

  No programming language or application program is perfect, this is true with both Java and VB. IDE for VB seems to be much more stable than many of the Java IDEs. The intrinsic and third party components seem much more stable in VB than in Java. IDE and component stability just takes time, and VB has been at it a lot longer.

- **Performance**

  VB is clearly the overall winner if compare with Java. Java program are slow compared to an equivalent VB program. By clarity this statement, Java Programs that have a user interface are very slow compared to VB program.

2.8 Consideration Of Multimedia Tools

2.8.1 Macromedia Flash

Flash technology is already built-in. Over 185 million people can view graphics and animation created with Flash. Pulsing musical tracks, sound effects, gorgeous animations, and innovative interfaces all converge in Flash. Developers can create an array of dazzling effects using the drawing tools in Flash or by importing artwork from favorite vector illustration tools, such as Macromedia FreeHand. Easy to learn for developers of any skill level (Great Deal Software, 2002).

Flash is a vector graphic based application. It is used worldwide to produce movies, animation, presentations and more. It can be use to create presentations for company, equipped with an up to date database to show the right information at the right time to creating a button for web site. An example would be a Stock Ticker. Flash is very easy to use and a very effective tool in the web development industry. One advantage to Flash is it is a cross-browser platform, which means movies can be show in any browser out there, such as Internet Explorer or Netscape Navigator. Flash is a little like the program *Paint* for Windows. Although it is used mainly for animation, but creating graphics and artwork in Flash is the same way. All the same tools that *Paint* uses, such as the square/rectangle tool, the circle tool and the line tool. The work environment in Flash consists of four major parts:

- **The Stage**

  The stage is the area in which user will be working. The stage is basically drawing board, where user can create, add and delete their work. The stage(s) are the only areas in which user can put in graphics, and while movie is in

play on a web site, and only the content in the stage will be displayed. Special features can be used and import the graphics from other programs.

- **Timeline**

  The timeline is the area that represents moving objects in the stage. The timeline is consisted of frames and layers. Each frame is a brand new image. Using simple teeming motions allow modifying objects in timeline to produce a quick movie. Layers represent each layer of transparency on the stage; user can have as many layers as their needed and can only see objects on the layers.

- **Library**

  The library is just a small database where Flash stores all graphics and symbols. From the library, user can click and drag symbols onto the stage area, which saves a lot of time, instead of re-creating new graphics.

- **Panels**

  The panels used in Flash are allow to control anything user do, such as modifying text, of setting effects for a symbol. The advantage about the panels is that they can be hidden allowing more workspace to work on.

Flash, also allowing to import MP3 sound files. This feature allows user to play music, add sound effects to the buttons, etc. This new feature is only useful using supported sound files, such as .mp3 and .wav (Siteowner, 2002).

2.8.2 Macromedia Director 8.0

Director is an authoring tools developed by Macromedia. Director can easily create visual presentations or interactive multimedia software with audio and video. It has a host of media editor to create, modify, import or edit graphics, sounds, text, video,

animation and interactivity to deliver the highest quality product. The syntax of Director is easy to understand and the command is like actual English. Director eases the system developer in adding basic interactive elements by using authoring tools of "drag and drop".

To make the system more interactive, Director offered Lingo scripts that can control and program certain movement on the actions. A script is a series of instructions written in Lingo, Director's scripting language. A script can describe a simple action, such as sounding a beep when a user clicks a button, or it can describe a complex series of actions, such as how a character in an interactive game moves around the stage. Lingo is the most powerful of all Directors' tools for creating rich, interactive experiences for users. Behaviors are prebuilt scripts that provide common Lingo functionality. The action of drag and drop the behaviors into sprite channels as a quick alternative to writing Lingo. Lingo scripts is quite easy to learn because very English-like (Phil Gross *et al*, 1999).

Among the modern-day applications of Director 8 are:

- Games (to be delivered over the Internet or otherwise) with complex character interaction
- Build multi-user games that can be played across the Internet using Director Multiuser Server
- Build a fully featured chat application with no (manual) programming
- Build web apps with sophisticated sound features (pan, mix, etc.), without too much grief/hacking

- Build multimedia applications that interact not only with people, but also with other applications (e.g. shopping cart).
- Read and parse XML data
- Import HTML, JavaScript, and images directly from Fireworks
- CD-ROM's with video, vector animation, and high-quality sound (INT Media Group, 2002).

2.8.3 Comparison Between Macromedia Flash And Macromedia Director

In the arena of development environments, Director is the clear winner. Because Director has evolved over time, it has had more room than Flash to fine-tune its interface, and it shows. While the Flash authoring environment is approaching maturity, it still has a ways to go. Specifically, the interface of this latest incarnation of Flash looks more like the Director interface than ever before, but frustratingly enough, it does not *behave* in the same way.

The real problem with the Flash environment, however, is that the components that make up the environment do not have clearly defined roles. Director uses a simple cast-score-stage metaphor. The Director cast contains all the assets, which user lay out on the Director score. The results on the Director stage are easy to keep track of the assets, and user can pretty much tell what is going on in a movie by just looking at the score.

In Director, the interface keeps things nice and simple. Flash provides an all-in-one interface, where the stage is part of the time-line window.

Flash provides a symbol library, which is similar to the Director cast; a time line, which is similar to the Director score; and a stage. There are still significant

differences between the two; differences that don't necessarily improve the way things work in Flash. The Flash symbol library also features a collection of assets. There is only one library allowed per movie, though user can organize the contents of that library by creating named folders. Unlike Director, however, user cannot share libraries or dynamically load them in Flash. Another irritating thing about symbol libraries is that they do not contain all the assets in the movie, only those users designated as symbols. The unnecessary distinction between symbols and nonsymbols can make asset management in Flash a nightmare.

The Director score has a predefined number of channels. At any point in time, a channel either can be empty or contain a single asset instance, and user can cluster instances together visually in any way they like. Flash, on the other hand, uses the concept of named layers (analogous to Photoshop layers) to organize asset instances into a time line. Each layer can contain more than one instance, but each layer can only be animated one way at a time.

While the Director score may seem bulkier (because cannot have multiple instances in a single channel), it is easier to visually organize the layout of the movie. Flash's way of grouping multiple objects into a single layer can be confusing because it can be easy to lose track of which objects belong to which layers (Krister Olsson, 1999).

2.9 Consideration Of Database

2.9.1 Microsoft Access 2000

Microsoft Access 2000 is a relational database management system (RDBMS), designed for personal or small companies use. With Access user can enter, store and manipulate the personal or company data in a variety o ways. Beside that, access also can use to query a database for information that meets specified criteria as well as summarize and produce reports (including charts) based on the data in the database.

Here is a list of some standard features with Access:

- **Database Wizard**

  It automatically builds tables, queries, forms and reports.

- **Simple Query Wizard**

  This feature sorts through database information, including data from multiple tables, and then determines how to bring it all together to answer user questions.

- **Hyperlink Data Type**

  It supports the storage of hyperlinks as a native data type.

- **Publish to the Web Wizard**

  This feature allows users to publish any object in the database either statically or dynamically. It also allows users to save settings used to output the objects.

- **HTML Importing and Linking**

  Users can point to an HTML document containing a table of data and the Import/Export Wizard reads the information and either imports it directly into a new table or appends the records to an existing table.

❖ **Image Control**

An image control provides a simple way to include graphical information on forms or reports and improves the display performance of the image (Sellappan.P, 1999).

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

The general Access 2000 characteristics are shown I table 2.3:

Table 2.3 General Access 2000 characteristics

Object	Maximum sizes/numbers
Database size	1 Gb
Number of characters in an object name	64
Number of characters in a password	14
Number of characters in a user name or group name	20
Number of concurrent users	255
Number of characters in a table name	64
Number of characters in a field name	64
Number of fields in a table	255
Number of characters in a Text field	255
Number of characters in a Memo field	65,535 / 1 Gb

Though the maximum database size is 1 Gb, but user database can include linked tables in other files, and its total size is limited only by available storage capacity. Number of characters in a Memo field can be up to 65,535 characters when entering

data through the user interface or can be up to 1 Gb when entering data programmatically (Sergey A. Vartanyan, 2000).

2.9.2 Microsoft Server 2000

For the server engine in client-server solutions Microsoft provides the Microsoft SQL Server 7.0/2000. There are no many differences in the internal architecture between SQL Server 7.0 and SQL Server 2000. SQL Server 2000 has the same features as SQL Server 7.0: auto grow features, new storage engine, complete row level locking and so on. So, the general characteristics of these versions are the same.

Table 2.4 show the general SQL Server 2000 characteristics (Sergey A. Vartanyan, 2000):

Table 2.4 General SQL Server 2000 characteristics

Object	Maximum sizes/numbers
Batch size	65,536 * Network Packet Size
Bytes per short string column	8,000
Bytes per text, ntext, or image column	2 GB-2
Bytes per index	900
Bytes per foreign key	900
Bytes per primary key	900
Bytes per row	8,060
Bytes in source text of a stored procedure	Lesser of batch size or 250 MB
Clustered indexes per table	1
Columns per index	16
Columns per foreign key	16
Columns per primary key	16
Columns per base table	1,024
Columns per SELECT statement	4,096
Columns per INSERT statement	1,024
Connections per client	Maximum value of configured

	connections
Database size	1,048,516 TB
Databases per instance of SQL Server	32,767
Filegroups per database	256
Files per database	32,767
File size (data)	32 TB
Identifier length (in characters)	128
Locks per connection	Max. locks per server
Nested stored procedure levels	32
Nested subqueries	32
Nested trigger levels	32
Nonclustered indexes per table	249
Objects in a database	2,147,483,6474
Parameters per stored procedure	1,024
REFERENCES per table	253
Rows per table	Limited by available storage
Tables per database	Limited by number of objects in a database
Tables per SELECT statement	256
Triggers per table	Limited by number of objects in a database
UNIQUE indexes or constraints per table	249 nonclustered and 1 clustered

2.9.3 Comparison Between Microsoft Server 2000 And Microsoft Access 2000

SQL Server is an enterprise relational database management and analysis system designed to deliver scalable e-commerce, line-of-business and data warehousing solutions. Access is the Microsoft Office desktop database management system. The current versions of these products are SQL Server 2000 and Access 2002, respectively.

Many organizations combine Access 2002 with SQL Server 2000. Access 2002 can easily serve as front end for data stored in SQL Server, thus presenting end users with a familiar and easy-to-use interface while ensuring that developers and database

administrators (DBAs) have access to the performance and robustness of SQL Server 2000.

When considering the differences between SQL Server 2000 and Access 2002, be sure to keep the following points in mind:

Use Access 2002 If...

- User want compatibility with Access 97 or earlier.
- User environment has a small number of simultaneous users.
- User's data will not grow past 2 gigabytes (GB).
- Users place a premium on ease of use.

Use SQL Server 2000 If...

- User want to develop from a single code base for server, desktop, embedded, and mobile database solutions.
- User 's application must support many users.
- User needs the greatest scalability.
- User needs the best security.
- User needs the greatest reliability, such as transaction logging.
- User system is online 24 hours a day, 7 days a week.
- User needs stored procedures and triggers.

Table 2.5 outlines major operational and design differences between SQL Server 2000 and Access 2002.

Table 2.5 Major Operational And Design Differences Between SQL Server 2000 And Access 2002.

Feature	Microsoft SQL Server 2000	Microsoft Access 2002 (JET)
Database size	Terabytes	2 gigabytes (GB)
Objects in database	2,147,483,647	32,768
Number of concurrent users	Unlimited	255
Failure recovery	Point in time recovery; failover cluster support	Recoverable to the last backup
Security	Integrated with Windows 2000 and Windows NT security	Based on use of workgroup information file
Analysis Services (data warehousing, data mining and OLAP)	Built-in	None
Support for SMP systems	Built-in	None

(Sergey A. Vartanyan, 2002)

Chapter 3 Methodology

3.1 Waterfall Model With Prototype Methodology

This chapter will draw out the suitable methodology for this learning package, the stages involved and appropriate software tools. A system development methodology is a precise system development process that defines a set of activities, methods, best practices, deliverables, and automated tools for systems developers to develop and maintain most or all information systems and software. Developing a learning package need a proper planning of the project and appropriate methodology must be adopted to produce a good outcome (Jeffrey L. W. *et al*, 2000).

The model chosen is the "waterfall model with prototyping" approach. As we know, system development generally passes through a series of phases or stages. Each phases in "Waterfall model" is presented discretely and never accomplished as a separate step. Several activities can occur simultaneously and activities may be repeated. It suggests to the developers the sequence of events they should expect to encounter. It can also be very useful in helping "new" developers to layout what they need to do and what are the tasks that must be focus on. Besides that, the developers could use the model, to gauge how close the project was to completion at a given point in time.

Phases or activities were planned and divided according to planning, requirement and analysis, system design, coding, implementation and testing, operation and maintenance. Prototyping is actually an external process and it has its own development cycle, which will be developed earlier in the actual development process.

Prototyping is usually an iterative process. A prototype is a small portion of the system built to examine some aspect of the proposed system. For example, the developer may build a prototype model and evaluates it from user's feedback. The process iterates in the same phase until both parties are satisfied. Then the developer will move to the following phase and repeat the prototyping process. (Pfleeger, S. L., 1998).

As shown in Figure 3.1, major kinks in requirements are addressed and fixed well before the requirements are officially validated during system testing. Validation ensures that the system has implemented all of the requirements, so that each system function can be traced back to a particular requirement in the specification. Systems testing verify the requirements, verification ensures that each function works correctly (Shari Lawrence PFLeeger. 2001).

There are several advantages in using the Waterfall model with prototyping:

- Allows all or part of the system to be constructed quickly to understand or clarify the requirement.
- Understands the feasibility of a design or approach.
- Reduces risk and uncertainty in the development process (Pfleeger, S. L., 1998).

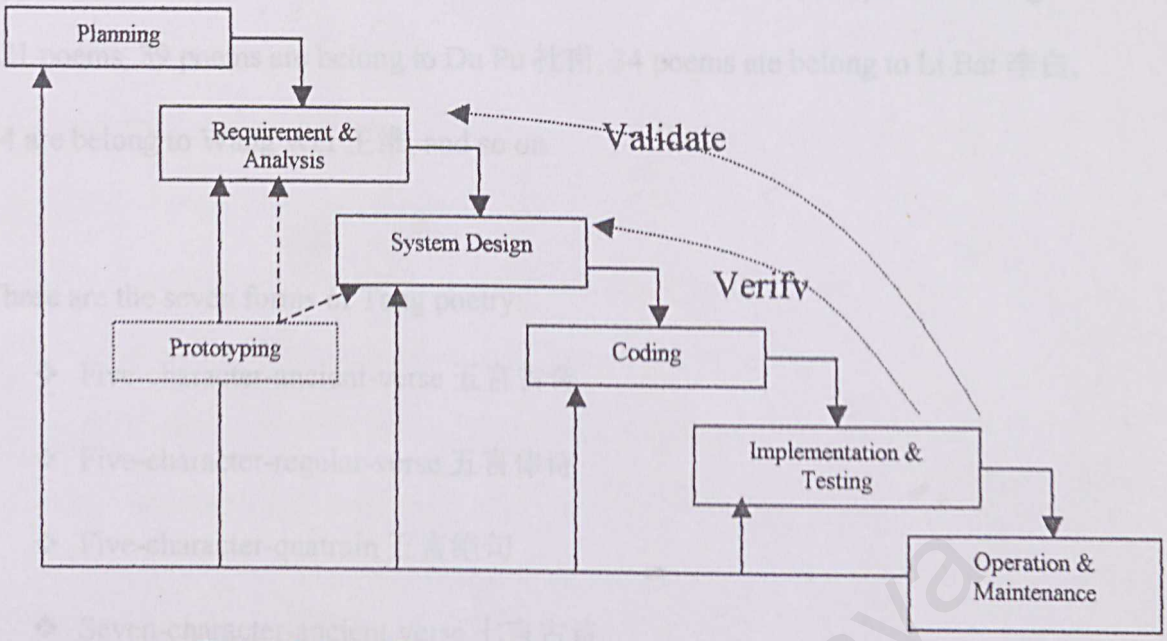


Figure 3.1 The waterfall model with prototyping

3.2 Tang Dynasty Poems

The Tang Dynasty was a period of great radiance in literary creation and was especially noted for poetry writing, for which it has been dubbed the golden age of poetry, predominant genre among all literary forms popular with both the rulers and the populace for about 300 years. The number of known Tang poets runs into thousands; their output was enormous, and almost very great poet's work was published in one way or another. Yet a selection for common use from this vast field did not appear until the 18th century that an anonymous scholar, who signed himself Hen-tang–tui-shi, the Retiring Scholar of the Fragrant Pool, compiled the third standard anthology of Chinese poetry, the Tang Shi San Bai Shou or Three Hundred Tang Poems. Readers in general accepted the book, and it has been reprinted in countless editions for two hundred years.

Three Hundred Tang Poems consist 321 poems which written by 77 poets. Among 321 poems, 39 poems are belong to Du Pu 杜甫, 34 poems ate belong to Li Bai 李白, 24 are belong to Wang Wei 王维, and so on.

These are the seven forms of Tang poetry:

- Five-character-ancient-verse 五言古诗
- Five-character-regular-verse 五言律诗
- Five-character-quatrain 五言绝句
- Seven-character-ancient-verse 七言古诗
- Seven-character-regular-verse 七言律诗
- Seven-character-quatrain 七言绝句
- Folk-song-styled-verse 乐府

3.3 Research From Interview

Data collection is an important task in system analysis. Data or information about system needs to be selected to increase the understanding of developer. Beside that, the information regarding the requirement of user also important to enhance or replace the existing system.

In order to find out the problem of the existing system and the best way to represent a good learning package of Tang Dynasty poems, an interview has been conducted. Interview is one of the techniques for data collection, where some experience teachers have been interviewed by interact face to face.

Below was the result from the survey:

1. Can you roughly tell me how is the understanding of public regarding Tang's poems?
   - ❖ Less knowledge in this topic
   - ❖ Some of them do not know what is Tang Dynasty Poems.
2. What are the advantages of learning Tang Dynasty poems?
   - ❖ Extend the hidden moral of the poems to public.
   - ❖ Improve the Chinese level of public.
   - ❖ Preserve the ancient literature t of Chinese.
3. What are the problems that learners faced in learning Tang Dynasty Poems?
   - ❖ Cannot understand the vocabularies easily.
   - ❖ Cannot pronounce the whole poems correctly.
   - ❖ Lack of interest.
   - ❖ Unwilling to learn.
4. Can you describe the best method to recite and memory Tang's poems?
   - ❖ Understand the poem and memory the poem through song.
   - ❖ Teaching through class of recitation Tang Dynasty poems for children.
5. What is the lack of the current sources of Tang Dynasty poems?
   - ❖ Most of the sources are books and very boring to read.
   - ❖ Difficult to find the related CD learning package.
6. What is the lack of the learning package you have been use?
   - ❖ Less animation and explanation.
   - ❖ The interface not attractive enough.
   - ❖ Less bilingual for people whose poor in Chinese.
   - ❖ No exercises and games.

3.4 Research From Internet

Internet is described as a network of networks. The primary purpose of the Internet is to allow intelligent devices anywhere to send digital information to each other. It also can be linked from anywhere and at anytime to gain the necessary information. Much information regarding Tang Dynasty Poems can be obtains through Internet. Beside that, most of the research in literature review also done through. The main advantages of the Internet is that nobody really own the Internet, it is cheap and the information is mostly free and can be found all over the world.

3.5 Research From Books

Many Tang Dynasty Poems sources were representing through books. Even that by keep reading the books is a bore method, but much useful information can be obtained.

3.6 Why Use Visual Basic

Visual Basic (VB) is chosen because it is great for writing prototypes and some kind of database applications. It provides a set of easy-to-use controls that can use to develop applications easily and quickly. The other reasons are it is compatible with Microsoft Windows and provides the following features:

- Full set of objects - you 'draw' the application
- Lots of icons and pictures for your use
- Response to mouse and keyboard actions
- Clipboard and printer access
- Full array of mathematical, string handling, and graphics functions
- Can handle fixed and dynamic variable and control arrays

- Sequential and random access file support
- Useful debugger and error-handling facilities
- Powerful database access tools
- ActiveX support

3.7 Why Use Macromedia Director

To make the choice between Flash and Director, we need to look at more than how they were made. We also have to understand what it is like to *work* with them. Director has evolved over time, it has had more room than Flash to fine-tune its interface, and it shows. While the Flash authoring environment is approaching maturity, it still has a ways to go. Beside that, Director uses a simple cast-score-stage metaphor. The Director cast contains all the assets, which user lay out on the Director score. The results on the Director stage are easy to keep track of the assets, and user can pretty much tell what is going on in a movie by just looking at the score. In Director, the interface keeps things nice and simple. Flash provides an all-in-one interface, where the stage is part of the time-line window.

3.8 Why Use Microsoft Access

Access is chosen because it can provide relational database power to manipulate information and is the easiest DBMS in managing database. It is easy to use, easy way to find answer and integrates data from spreadsheets and other databases. The features for building tables, queries and forms are simple and user-friendly, this can be customized to the project needs. It is used to serve as Database Management System for the system. It also supports SQL statements and can be easily integrated with programming languages used to develop the system. Since the database for the

Tang Poem Learning Package is not a complicated database, it is more suitable for regular database compare to SQL Server, which is more suitable for building a large database.

3.9 Why Use Adobe Photoshop

Adobe Photoshop is a powerful tool for digital image enhancement, photo retouching and image composing. It integrated with scan function and this helps especially on editing scanned graphics. In additional, it provides high quality images and graphics with smallest possible size.

This is true not only because Photoshop is available on a wide array of platforms ranging from Mac to Windows to UNIX, but also because after four generations of development, Adobe Photoshop has the most intuitive user interface, the most complete set of tools, and the largest number of reference books around.

Like any image-editing program, you can use Photoshop to "alter" images like photos, downloaded icons, or scanned artwork. It is worth mentioning that Photoshop is not a "classic" drawing, or image creation, program. Unlike a drawing program which stores information about images as mathematical expressions (called Vectors), when Photoshop draws a line, the line is converted into little dots, called pixels. When small enough, and with blended colors (anti-aliasing), these dots can come to look like lines. Think of pointillism. Of course, when magnified or reduced, the optical illusion is dispelled and you get ugly choppy lines (Selena Sol *et al*, 2002).

Chapter 4 System Analysis

4.1 Functional Requirement

Functional requirements are statements of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situations. In some cases, the functional requirements may also explicitly state what the system should not do.

i. Maintenance module

Developer are allow to add more poems by this module.

ii. Poems Module

Poems module provides the poems, title of poem and name of poet. Each poem is written in simplified Chinese character and each character is accompanied with Pinyin. A simple and direct translation of poem is display in this module. Explanation of each poem and the story behind the poem also display under the poems. System consist recitation and the explanation of each poem. Learners allow pausing the recitation continuous or repeat to refresh their memory. Beside, some poems are allowing learners to access the song of poem. Further more, learners is allowed to record their recitation. System can play learner recitation and also display system's recitation as a reference for learners. Simple dictionary is provided for learners to search the meaning of the words that they do not understand. Brief explanation and example regarding the words will show to learners.

iii. Poets Module

Poets module include the name, place of born, year of born and title of poet's poems. Beside that, a brief history and introduction of a poet also display in this module. learner can access to the poems by click on the poems' title

iv. Exercise Module

This module provides interesting exercise, which to enhance the understanding of learners on the poems. The using of sounds, graphics and animation will create an interactive and interesting exercise to attract learners' attention.

Learners allow viewing the answer only if they try to do the exercise at least three times. Mark will be given. Top ten best learners' name will be list out at the performance part.

v. Game Module

A good learning package should have the simple and interest games to relax learners' mind and evaluate the comprehension of learners. Game module needs a lot of graphic, animation and sound effect to attract learners effectively. The main objective of the module is to test learners' understanding with the poems. Learners must understand the poems through the other modules before they play the games.

The result of games will be store in database and can be view at the performance part of games. Top ten of best players will be list out as well.

4.2 Non-Functional Requirement

Non-Functional Requirement is those requirements, which are not directly concerned with the specific functions delivered by the system. There are constraints on the services or functions offered by the system. They include timing constrains, constrains on the development process, standards, etc.

i. User Friendly

The interface should be friendly, attractive and ease to use. It also shall be intuitive and consistent within themselves in purpose and use. Some animation and colorful graphic are needed to attract learners' attention.

ii. Ease of use

The application of Tang Poem Learning Package shall be easy to use. The training is no needed to learn this learning package or the training time should be as short as possible. The help frame should clear and easy to understand. This can enhance the enjoyment of learning.

iii. Availability

The system do not interrupt when a consequence of failures of one or more of its parts. For example, some poems' song are not available but learners still can continue learn the poems.

iv. Understandability

Letting other programmers to understanding the data flow and the coding method.

The code of the program is written by using natural language such as English.

Comments are written so that other programmers are able to understand the code.

v. Correctness

The information display in this learning package should correct and reliability. The translation of English and Malay poems have to represent the exactly same meaning of the Chinese version's poems. Part of the way to approach this requirement is the translation should be check by experience and professional people like translator.

4.3 Software Requirement

i. Developer Software Requirement

Literature and research review were completed at the planning phase. The extensive research on the available programming technologies, databases, multimedia tools and editing tools have bring the decision as shown in table 4.1.

Table 4.1 Software requirement to develop the system

Operating System	Microsoft Windows 2000
Programming Language	Visual Basic 6.0
Multimedia Tools	Macromedia Director 8.5
Editing Tools	Adobe Photoshop 7.0 Chinese Star
Database	Microsoft Access 2000

ii. User Software Requirement

These are the software required by user to use this system:

- Windows 9x/2000/NT/SE
- Microsoft Access
- Chinese Star

4.4 Hardware Requirement

i. Developer Hardware Requirement

After review on most of the hardware requirement for learning package system. these are the minima requirement to develop a learning package system:

- Intel Pentium 166 MHz or better
- 128 MB of RAM or more
- 85 MB of available disk space
- 16-bit color monitor(1024X768 resolution)
- CD-ROM drive
- 16 bit sound card
- mouse, speaker, scanner, microphone

ii. Developer Hardware Requirement

User should fulfill the hardware requirement as below to smooth the performance of the system:

- Intel Pentium 166 MHz or better
- 64 MB of RAM or more
- 85 MB of available disk space

- other standard peripheral such as monitor, CD-ROM drive, mouse, speaker, and microphone.

Chapter 5 System Design

5.1 Architectural Design

The architectural design identifies the subsystem and establishing a framework for sub system control and communication. Architecture associates the system capabilities identified in the requirements specification with the system components that will implement them. Components are usually modules, and the architecture also describes the interconnections among them

Figure 5.1 show the interconnection between the independent modules for the Tang Poems learning package. The main system divide into 5 modules and each module can be broken into detail sub-modules. user can choose the language they want to display here.

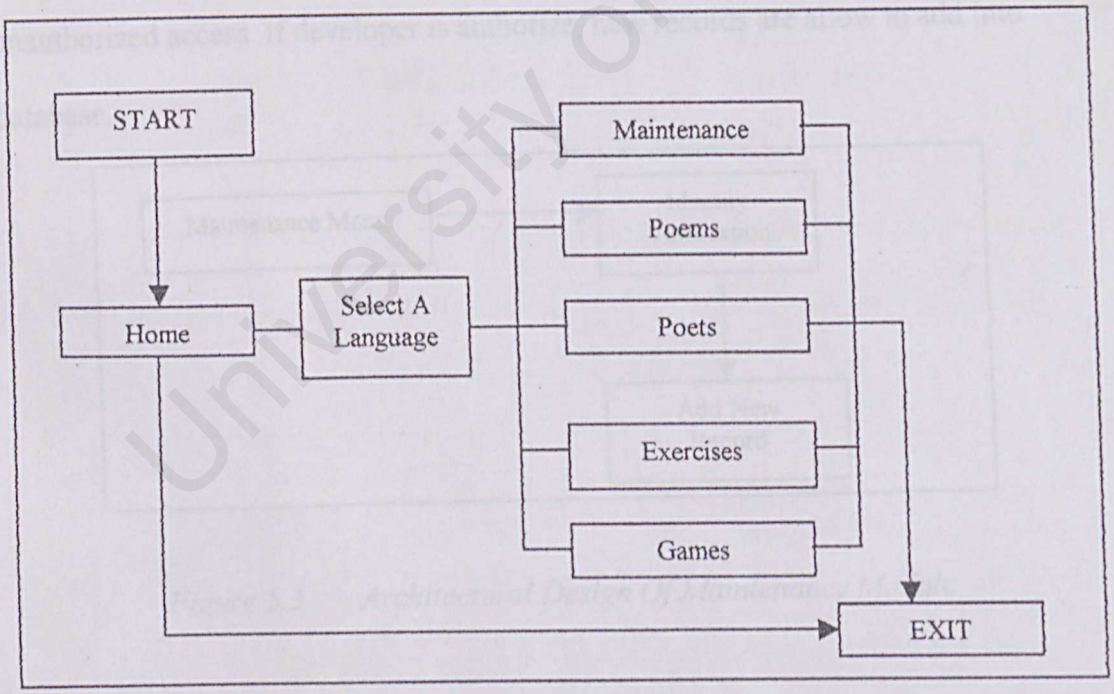


Figure 5.1 Architectural Design Of Main menu

Figure 5.2 is a part of system which allow user to choose the language from English, Chinese, or Malay. This part is available in each page in order to let user change the language flexible.

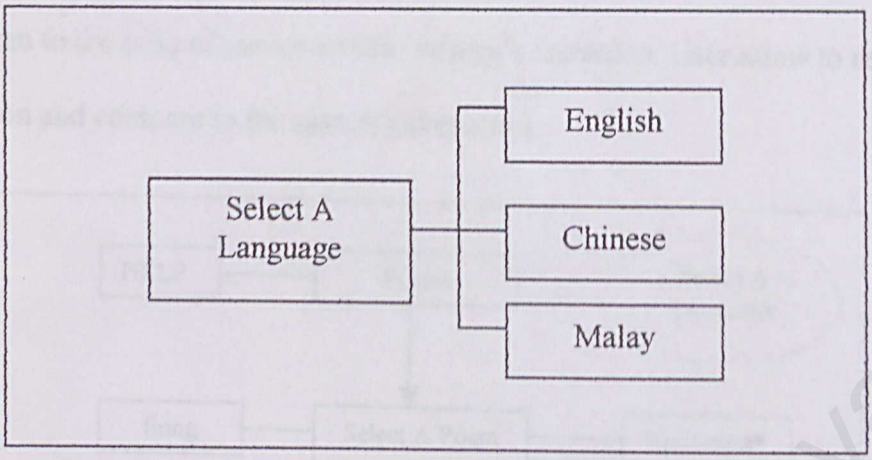


Figure 5.2 Architectural Design Of Languages

As shown in figure 5.3, system need to verify developer identity to avoid unauthorized access. If developer is authorize, new records are allow to add into database.

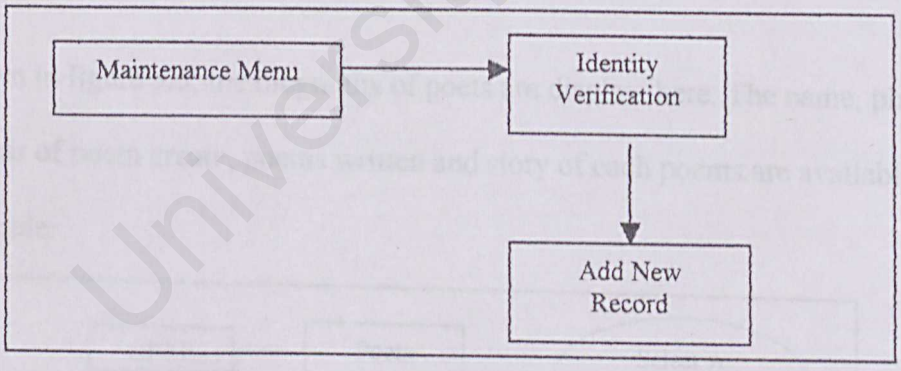


Figure 5.3 Architectural Design Of Maintenance Module

Figure 5.4 is the most important part for the learning package. Each poems is accompany with title, name of poet , PinYin, simple translation for the poems, detail explanation, story behind the poems and the message to user. Beside that, user also can listen to the song of poems and the system's recitation. User allow to record their recitation and compare to the system's recitation.

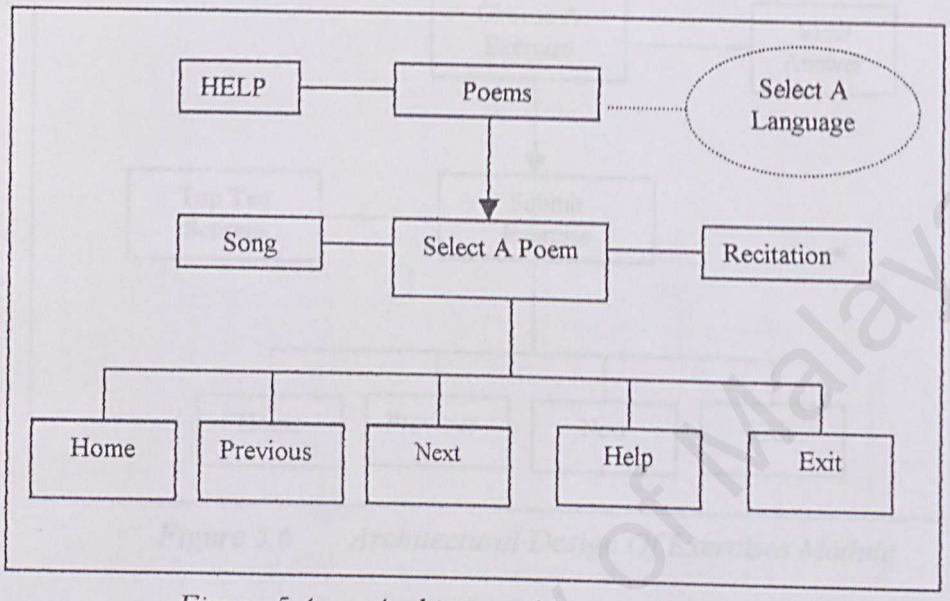


Figure 5.4 Architectural Design Of Poems Module

As shown in figure 5.5, the biography of poets are display here. The name, place of born, year of poem create, poems written and story of each poems are available in this module.

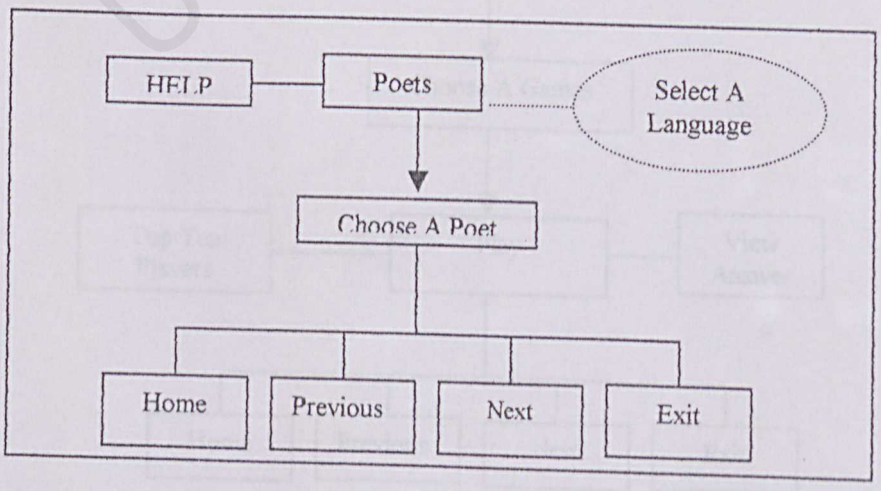


Figure 5.5 Architectural Design Of Poets Module

Figure 5.6 is the module of Exercise. User need to chose the Exercise they would like to play. User can view their performance by compare to the previous result.

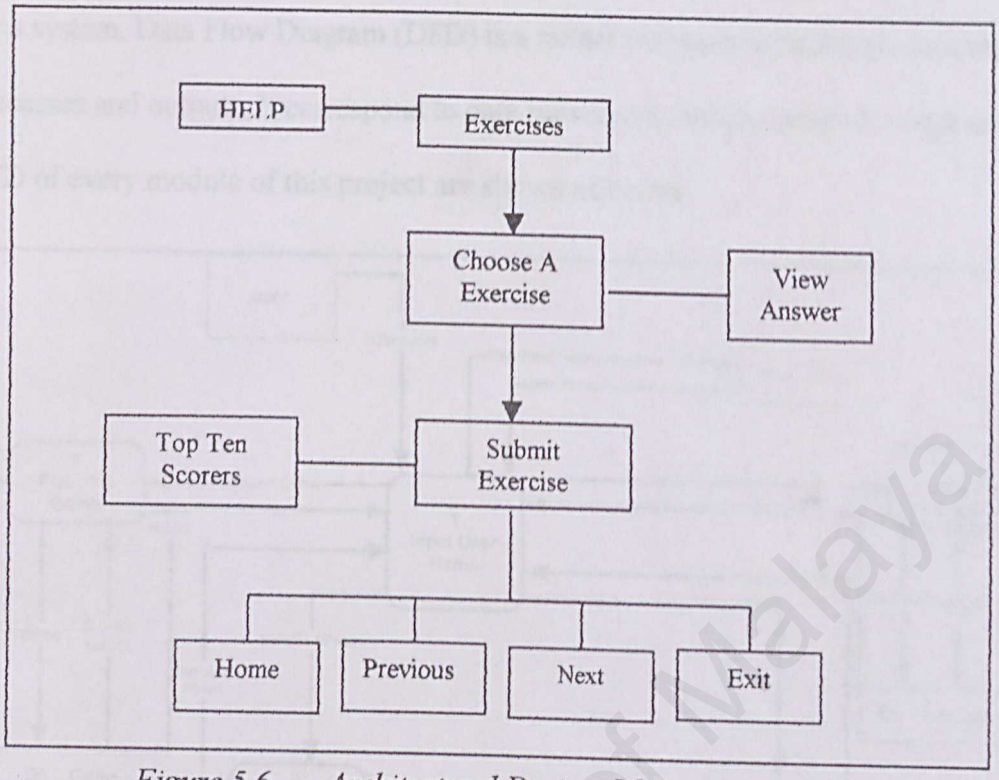


Figure 5.6 Architectural Design Of Exercises Module

The last module is the game module as shown in figure 5.7. User can choose a game they are interest . The performance can view in the performance part.

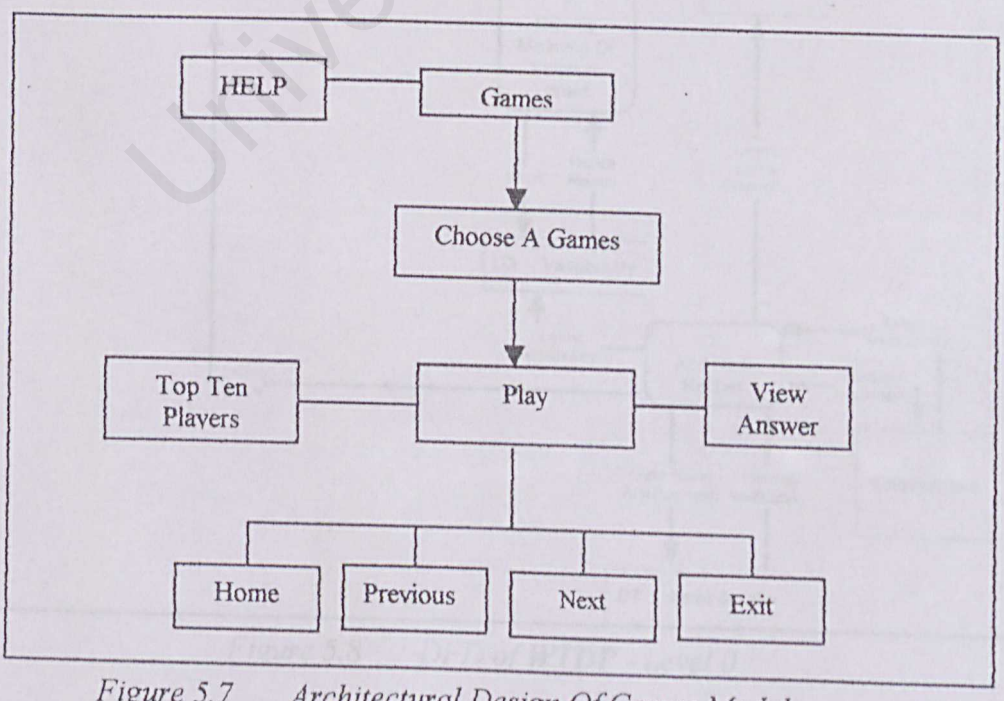


Figure 5.7 Architectural Design Of Games Module

5.2 Process Design

Process design involved graphically characterization for functions or data processes for a system. Data Flow Diagram (DFD) is a model tool to depicts the process inputs, processes and outputs. It correspond to data movement and processes for a system. DFD of every module of this project are shown as below:

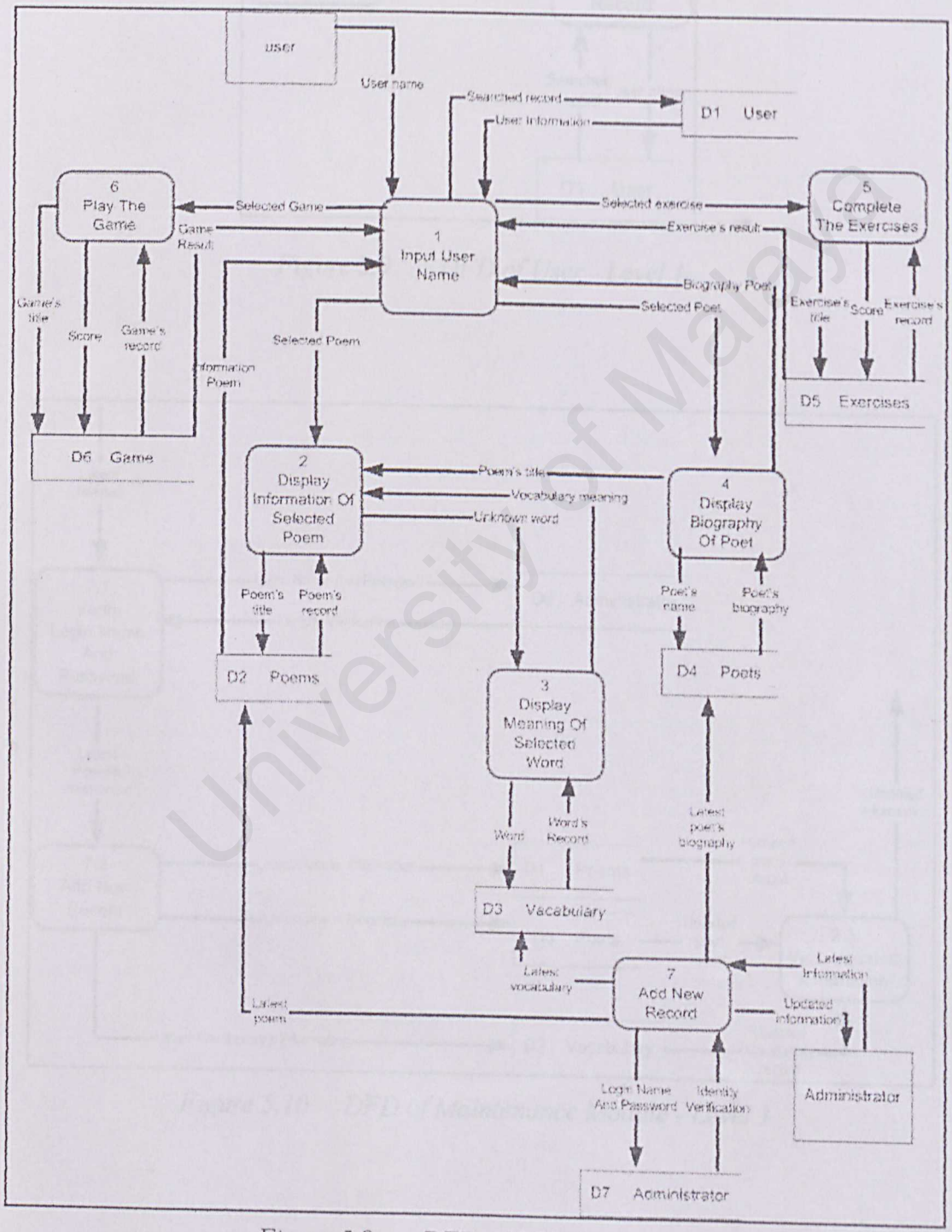


*Figure 5.8 DFD of **WTDP** - Level 0*

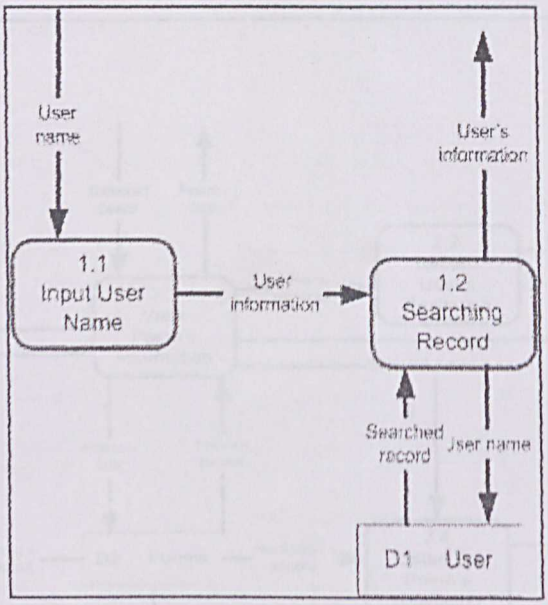


Figure 5.9 DFD of User - Level 1

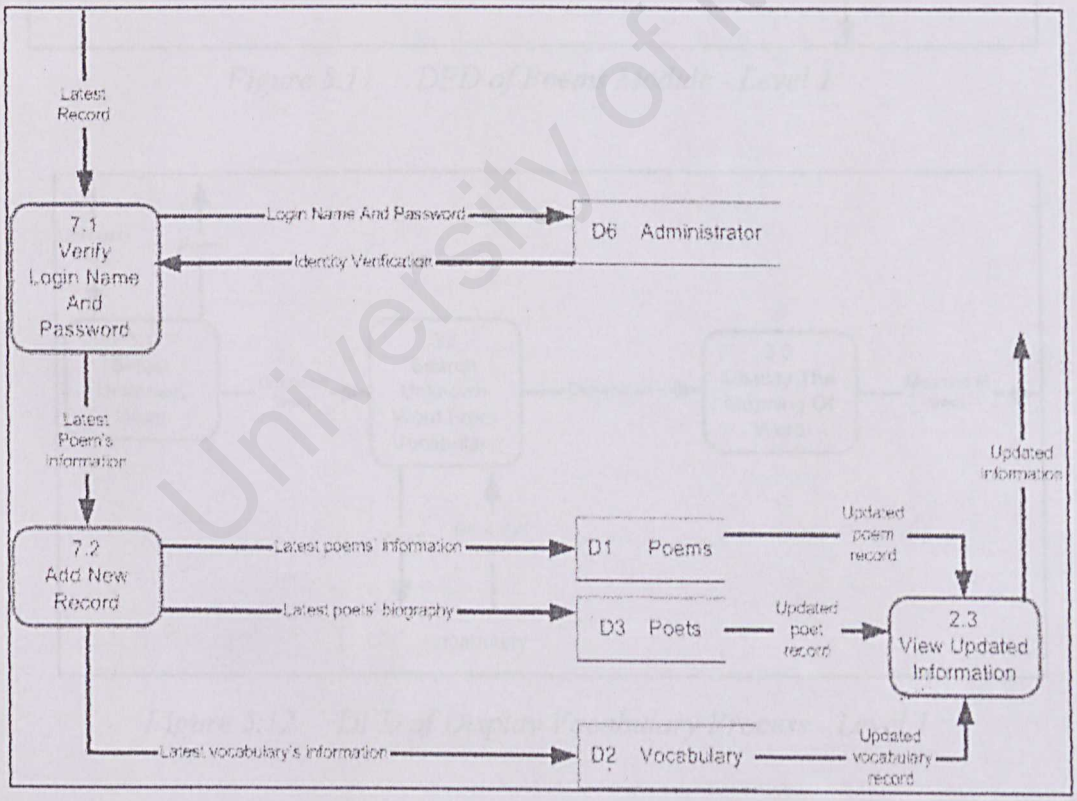


Figure 5.10 DFD of Maintenance Module - Level 1

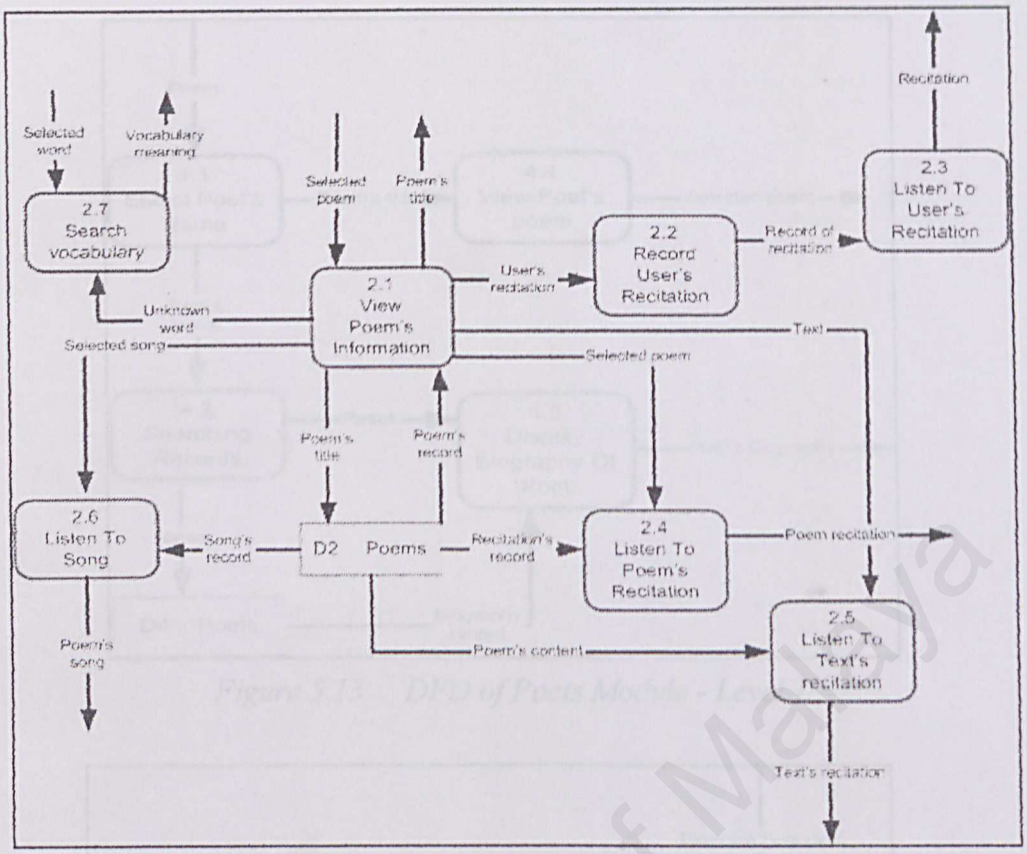


Figure 5.11 DFD of Poems Module - Level 1

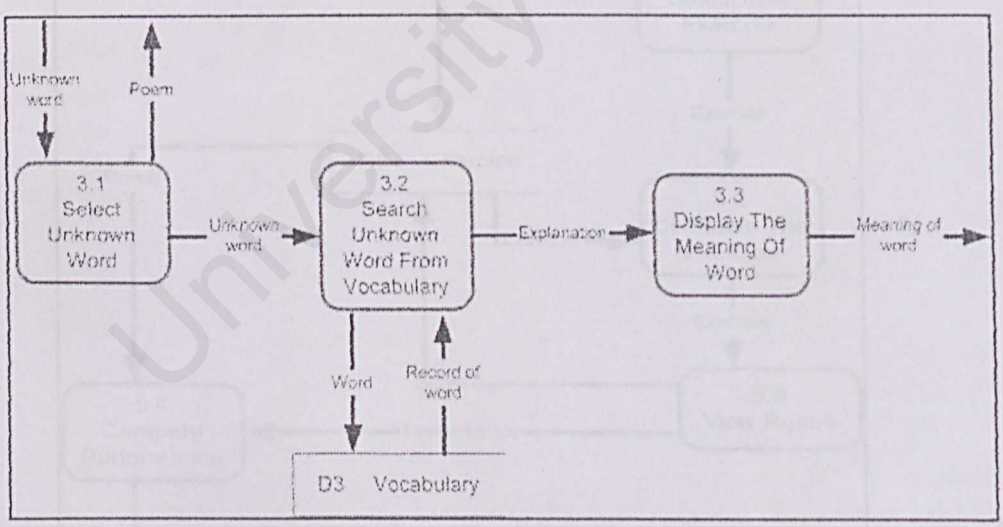


Figure 5.12 DFD of Display Vocabulary Process - Level 1

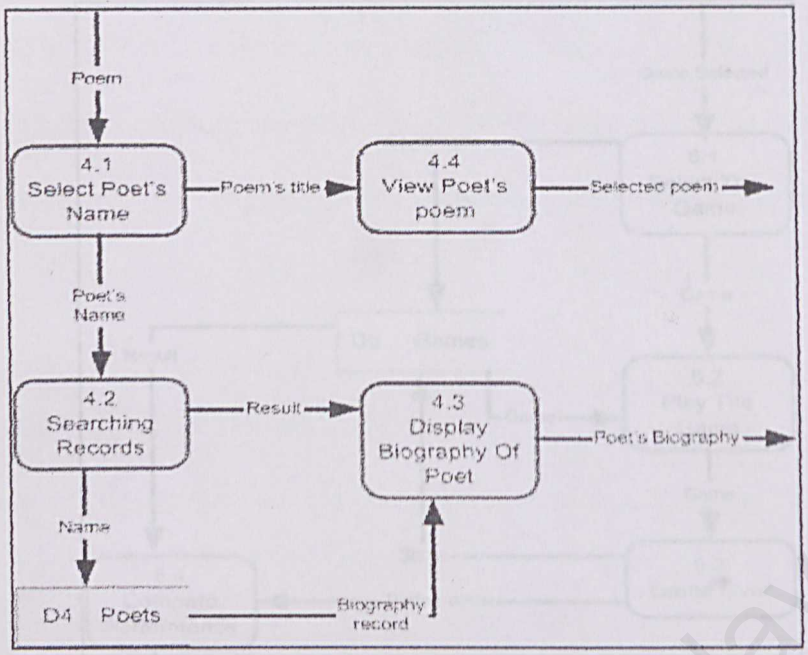


Figure 5.13 DFD of Poets Module - Level 1

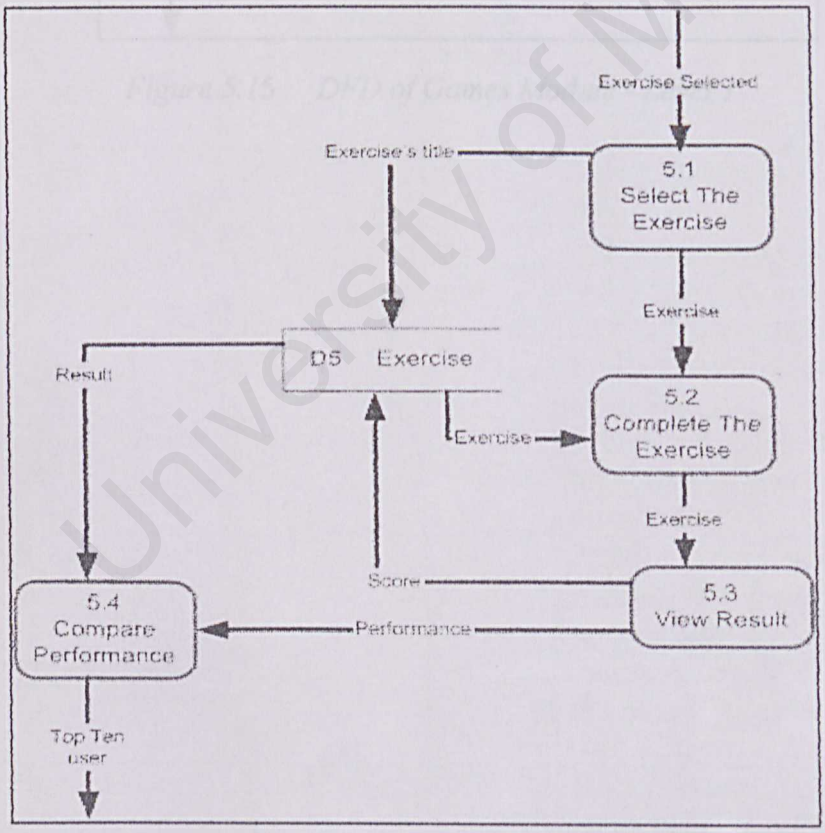


Figure 5.14 DFD of Exercises Module - Level 1

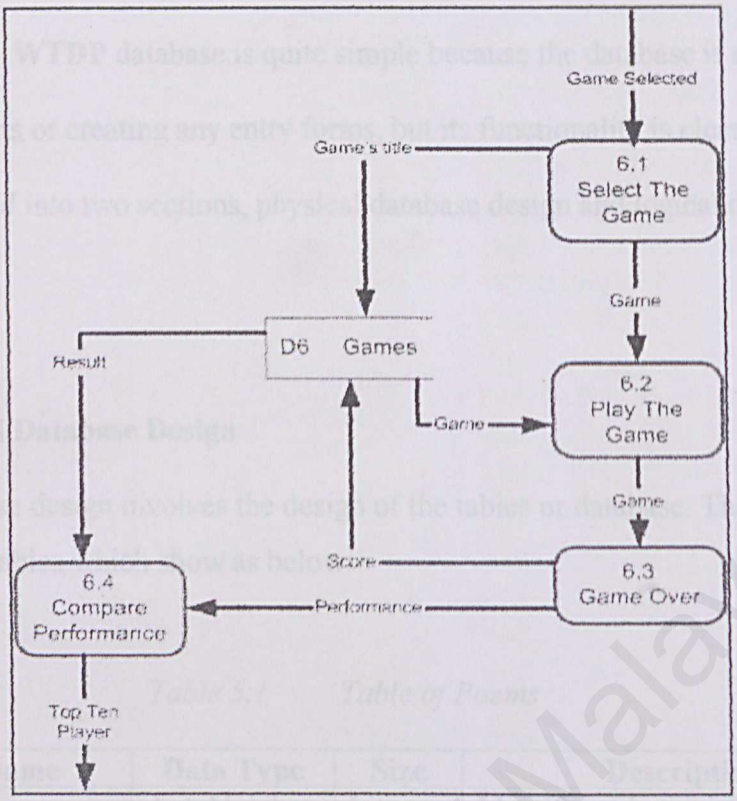


Figure 5.15 DFD of Games Module - Level 1

5.3 Database Design

The structure of **WTDP** database is quite simple because the database is not used for generating reports or creating any entry forms, but its functionality is clear. This section is divided into two sections, physical database design and logical database design.

5.3.1 Physical Database Design

Physical database design involves the design of the tables or database. The WTDP database has 6 tables which show as below:

Table 5.1 Table of Poems

Field Name	Data Type	Size	Description
Poem_id	AutoNumber	Integer	Identify each poems
Chinese title	Text	50	Title of poems in Chinese version
English title	Text	50	Title of poems in English version
Malay title	Text	50	Title of poems in Malay version
Poem	Text	100	Path to access poem in Chinese
Pinyin	Text	100	Path to access PinYin for each word of poem which store in word file
Chinese_translation	Text	100	Path to access Chinese translation of poem which store in word file
English_translation	Text	100	Path to access English translation of poem which store in word file
Malay_translation	Text	100	Path to access Malay translation of poem which store in word file
Chinese_explanation	Text	100	Path to access Chinese explanation of poem which store in word file
English_explanation	Text	100	Path to access English explanation of poem which store in word file
Malay_explanation	Text	100	Path to access Malay explanation of poem which store in word file

Recitation_poem	Text	100	Path to access recitation of poem in Chinese which store in audio file
C_read_text	Text	100	Path to access reading the translation and explanation in Chinese which store in audio file
E_read_text	Text	100	Path to access reading the translation and explanation in English which store in audio file
M_read_text	Text	100	Path to access reading the translation and explanation in Malay which store in audio file
Song	Text	100	Path to access song of poems
Movie	Text	100	Path to access movie of poem

Table 5.2 Table of Poets

Field Name	Data Type	Size	Description
Poet_id	AotoNumber	Integer	Identified each poems
Chinese _name	Text	5	Name of poet in Chinese version
Eng_Mal _name	Text	50	Name of poet in English and Malay version
PinYin_name	Text	50	PinYin for the name of poet.
C_story_poet	Text	100	Path to access Chinese story of poet regarding their place and year of born, and story of them, which store in word file.
E_story_poet	Text	100	Path to access English story of poet regarding their place and year of born, and story of them, which store in word file.
M_story_poet	Text	100	Path to access Malay story of poet regarding their place and year of born, and story of them, which store in word file.

Table 5.3 Table of Exercise

Field Name	Data Type	Size	Description
User_id	Text	10	Identify each user
Score_exer	Number	Integer	Score given
Date_exer	Date/Time	General Date	Date user do the exercise
Timer_exer	Number	Integer	Time used to complete an exercise

Table 5.4 Table of Games

Field Name	Data Type	Size	Description
User_id	Text	10	Identify each user
Score_game	Number	Integer	Score given
Date_game	Date/Time	General Date	Date and time user play the game
Timer_game	Number	Integer	Time used to complete a game

Table 5.5 Table of Administrator

Field Name	Data Type	Size	Description
Admin_id	Text	10	Unique identifier to developer modify the database
Password	Text	10	Password for developer to sign in

5.3.2 Logical Database Design

Table 5.16 is the logical database design of WTDP:

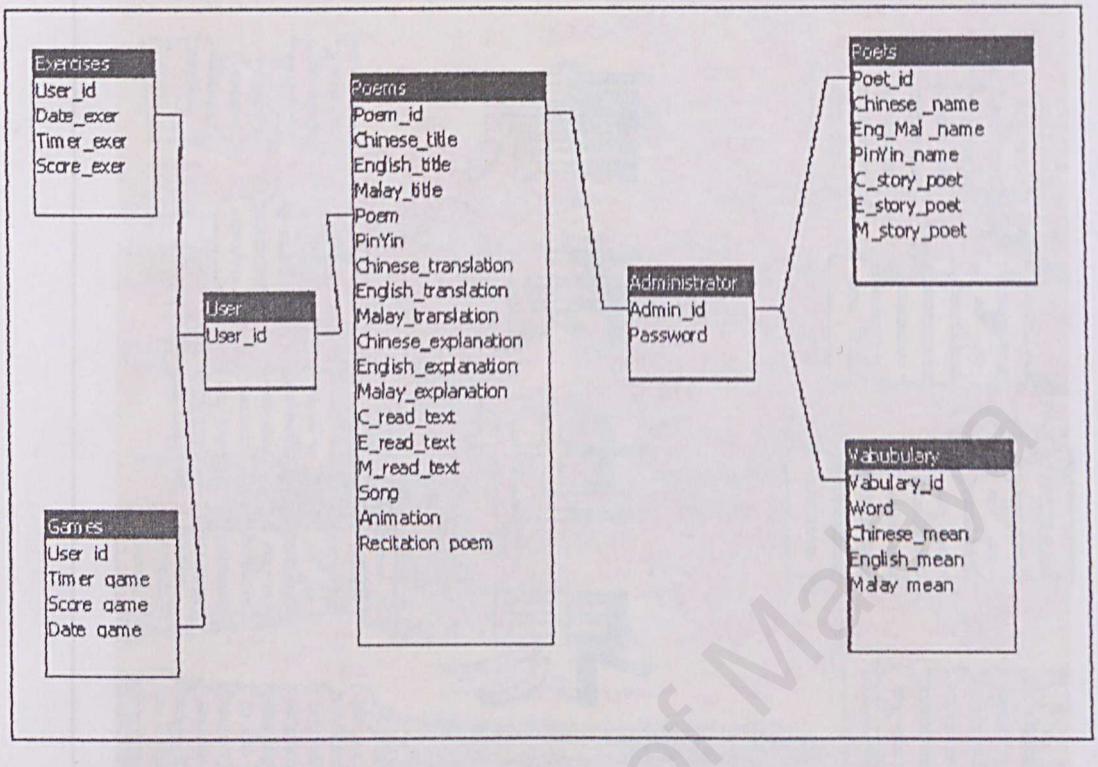


Figure 5.16 Logical Database Design of WTDP

5.4 User Interface Design

User interface design is one of the most important aspects for **WTDP** development process. A good user interface should consistence, recoverability, ease of use and creative. The following are some broadest overview of user interface for this system:

Figure 5.17 Login Menu For User

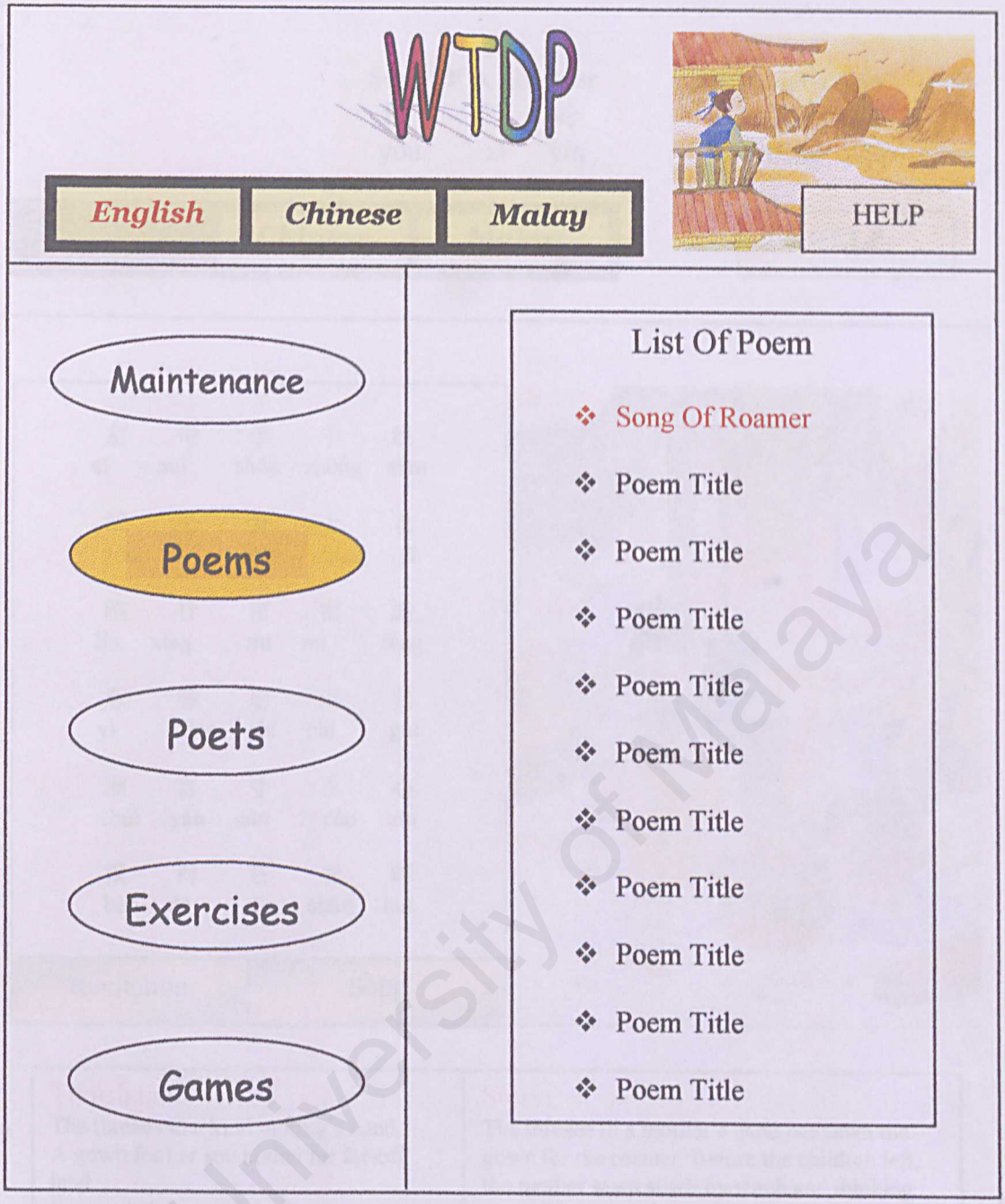


Figure 5.18 Chinese Version Poems Menu

Song Of A Roamer
游 子 吟
yóu zǐ yín

Meng Jiao
孟 郊
mèng jiāo

English | Chinese | Malay

HELP

慈 母 手 中 线
cí mǔ shǒu zhōng xiàn

游 子 身 上 衣
yóu zǐ shēn shàng yī

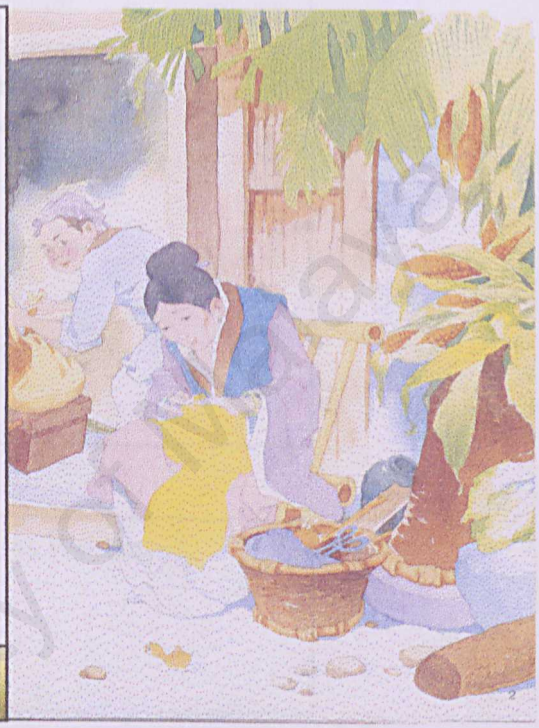
临 行 密 密 缝
lín xíng mì mì féng

意 恐 迟 迟 归
yì kǒng chí chí guī

谁 言 寸 草 心
shuí yán cùn cǎo xīn

报 得 三 春 晖
bào dé sān chūn huī

Recitation | Song



Translation:
The threads in a kind mother's hand
A gown for her son bound for far-off land
Sewn stitch by stitch before he leaves
For fear his return be delayed
Such kindness as young grass receives
From the warm sun can not repaid

Story:
The threads in a mother's hand has sewn the gown for the roamer. Before the children left, the mother sewn stitch by stitch and thinking her children may be returned lately. The kindness of the children like the young grass, how to repaid the kindness of a mother which like the warm sun of spring?

Home | Record | Read | Next | Previous | Exit

Figure 5.19 Poem Module

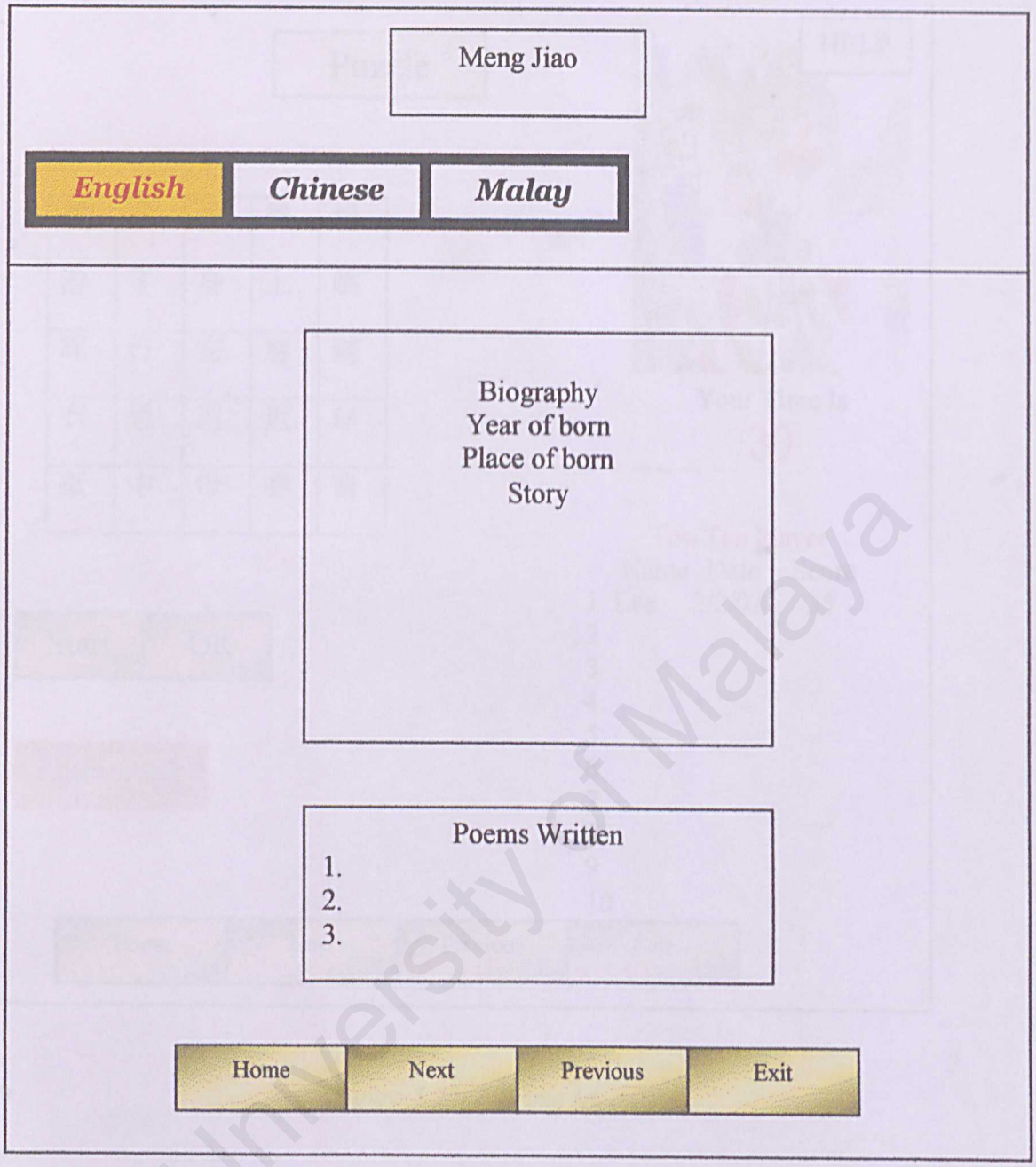
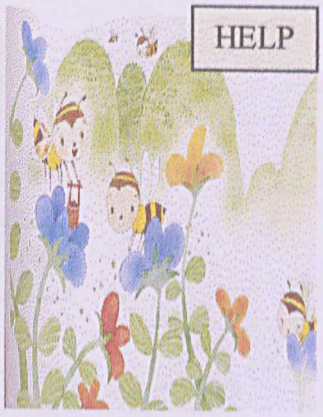


Figure 5.20 Poet Module

Puzzle

HELP



意	三	受	得	线
游	子	身	上	临
晖	行	密	慈	缝
衣	恐	迟	迟	归
报	中	母	春	密

Your Time Is

30

Top Ten Player

	Name	Date	Score
1	Lee	2/2/02	35
2			
3			
4			
5			
6			
7			
8			
9			
10			

Start OK

Timer 00:30

Home Next Previous Exit

Figure 5.21 Game Module

Listen Recitation
Choose the
Correct Answer

Poem's Title

Poem's Title

Song Of A Roamer

Poet's Name

Poet's Name

Meng Jiao

Start | Stop | Submit

Home | Next | Previous | Exit

Figure 5.22 Exercise Module

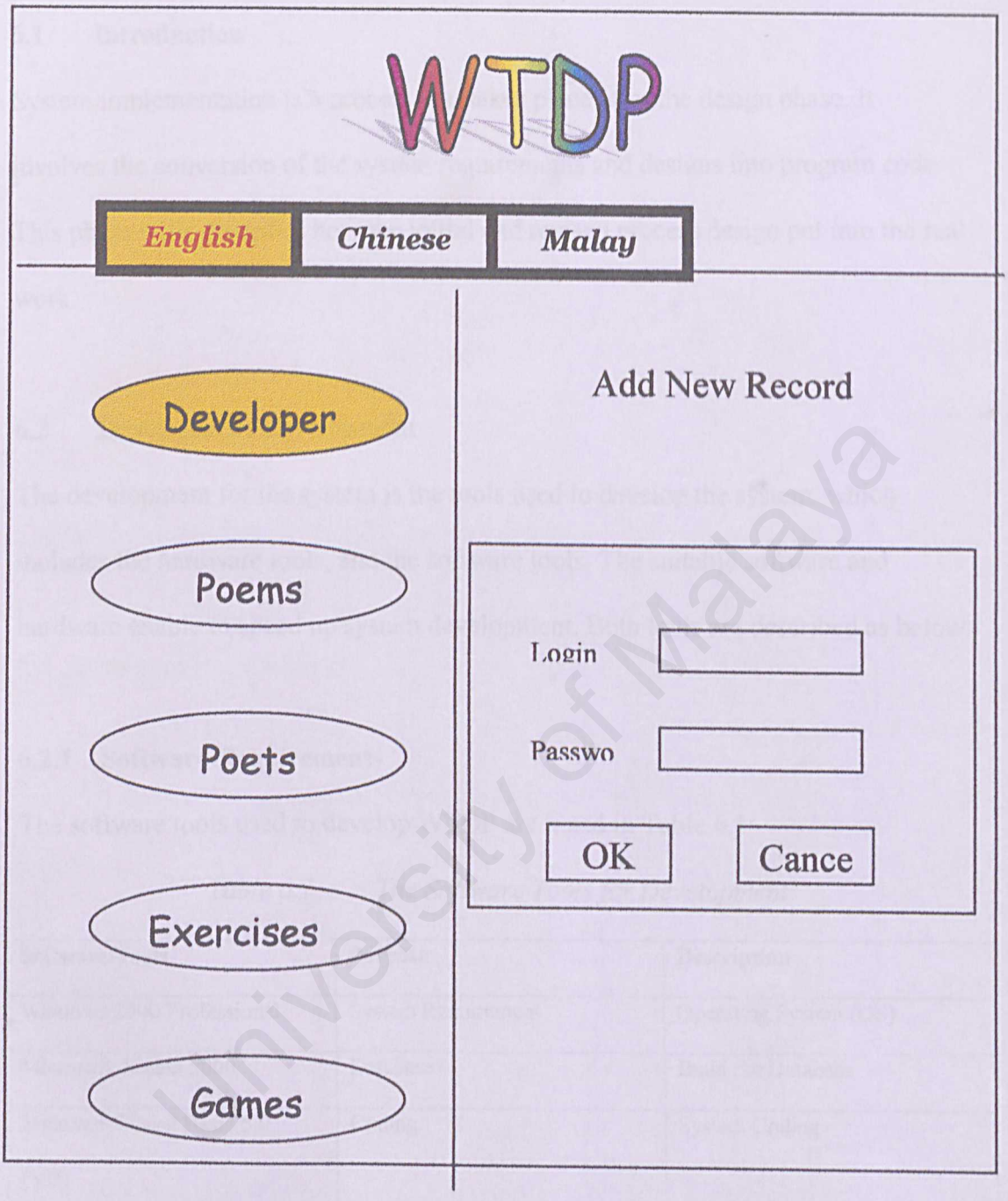


Figure 5.23 Maintenance Module

Chapter 6 System Implementation

6.1 Introduction

System implementation is a process that takes place after the design phase. It involves the conversion of the system requirements and designs into program code. This phase wills describes how the initial and revised process design put into the real work.

6.2 Development Environment

The development for the system is the tools used to develop the system, which includes the hardware tools, and the software tools. The suitable software and hardware enable to speed up system development. Both tools are described as below:

6.2.1 Software Requirements

The software tools used to develop WTDP are listed in Table 6.1:

Table 6.1 The Software Tools for Development

Software/Tools	Purpose	Description
Windows 2000 Professional	System Requirement	Operating System (OS)
Microsoft Access 2000	Database	Build the Database
Microsoft Visual Basic 6.0 (VB)	Coding	System Coding
Macromedia Director 8.0	Animation Design	Animation Design and Creation
Adobe Photoshop 6.0	Interface Design and Contents Design	Image Design and Creation
Microsoft Word 2000	Documentation	Writing Documentation

6.2.2 Hardware Requirements

The hardware tools used to develop WTDP are listed below:

- Intel Pentium 166 MHz
- 256 MB of RAM
- 20GB Hard Disk
- 52X CD-ROM Drive
- 16x10x40 CD-RW
- Speaker
- Scanner
- Other standard desktop PC components like monitor, mouse and keyboard.

6.3 System Development

This section explained the development of WTDP, which focuses on the analysis of usage of the technology and development tools that had been used.

6.3.1 Database development

The first step in the WTDP development is to develop the system database based on the logical data model for WTDP created during the system design phase. Microsoft Access 2000 is used as the Database Management System (DBMS) for this system. It provides a visual user interface for designing and working with databases.

Creating an empty database called *World of Tang Dynasty Poems* started the database development. Database is developed according to the database design in Chapter 4. The data structure of each table is declared, the primary key is set, and the

relationships among table are defined. So, the database is able maintained from time to time by add in some necessary constraints.

6.3.2 User Interface Development

The interface is developed to have Graphical User Interfaces (GUIs). GUIs support high-resolution color screens and interaction using a mouse as well as a keyboard. In this system, Macromedia Director, Adobe Photoshop 6.0 and Microsoft Visual Basic used for develop the interface of this system.

6.3.3 Application development

The WTDP application development involves code generation in the VB programming language instructions. A few programming principles have been employed in coding the program to ensure the system consistency, maintainability and readability. The programming principles being followed in the development of WTDP are as following:

a) Choose the meaningful procedure names, variable names and parameter variable names make the program to be "self-documenting" without excessive use of comments. The coding are shown as Figure 6.2:

```
Public poemID, poetID As Integer
Public song_path, recite_path, record_path As String
Public bioC_path, bioE_path, bioM_path As String
Public meanC_path, meanE_path, meanM_path As String
Public poemC_path, poemE_path, poemM_path As String
```

Figure 6.2 The Code of Variable Declaration

b) The code of connecting database.

```
With strcnn

    .ConnectionString = "Provider=Microsoft.Jet.OLEDB.4.0;Data source = " & App.path
& "\Tang Poems Database.mdb "
    .Open

End With
```

Figure 6.3 The Code Of Database Connection

c) After establishing a connection with database, SQL (Structured Query Language) statements are used to retrieve data from database. The following SQL statement is to retrieve poem's information from table "Poems" in database.

```
sql = "SELECT * FROM Poems WHERE poem_id = " & poemID & ""
```

Figure 6.4 The Code Of SQL statements

d) Error handling is needed, the coding is shown as Figure 6.5:

```
Set rs = New ADODB.Recordset
sql = "SELECT * FROM Poems WHERE poem_id = " & poemID & ""
On Error Resume Next
Set rs = strcnn.Execute(sql)
```

Figure 6.5 The Code Of Error Handling

6.4 System Documentation

System documentation is an important part in helping developer to determine the progress of the project. The process includes all of the documents describing the implementation of the system from the requirement specification to the final acceptance test plan.

Beside that, user manual also prepared for user to guide them in using this program. It includes the instruction of installation the application system, the procedure to operate the system and some explanation.

Chapter 7 System Testing

7.1 Introduction

Testing is done from time to time to the program from the ay the coding begun. System testing is a verification and validation process. The purpose of verification is to figure out whether we are building the right product. The purpose of validation is to make sure that we are building the product correctly. The process of testing and debugging are done to detect defects and bugs of a system. These processes are usually done incrementally with system development.

7.2 Unit Testing

Unit testing focuses verification effort on the smallest unit of software design, the software component or module . Testing will be concentrated on the smallest component of the system for testing. Each individual component is tested independently without other system components, to ensure that they operate correctly. Therefore, the main ideal of testing is to demonstrate correctness of the program, identify the errors in the system coding of the system design. The faults that are discovered during the testing proceures must be corrected. (Shari Lawrence PFLeeger,2001)

Software testing at the unit of module level is basically of three type:

- Ad Hoc Testing
- White box testing
- Black box testing(Alka Jarvis and Vern Crandall, 1997)

7.2.1 Ad Hoc Testing

Ad Hoc or ad lib testing means simply play with the program, trying whatever comes to their mind, in attempt to make it fail. This type of testing was a fast and efficient way of debugging code errors during the early development stage. The disadvantage of Ad Hoc testing is it usually finds many errors and never be sure what was or was not to be tested. (Alka Jarvis and Vern Crandall, 1997)

7.2.2 White Box Testing

This testing involved directly with the structure of the code within a module of code segment. It is a test case design method that uses the control structure of the procedural design to derive test cases in WTDP. The test cases were being derived are shown as below:

- Exercise all loops at their boundaries and within their operational bounds.
- Exercise internal data structures to assure their validity.
- Exercise all logical decisions on their true and false sides.
- Guarantee that all independent path within a module have been exercised at least once.

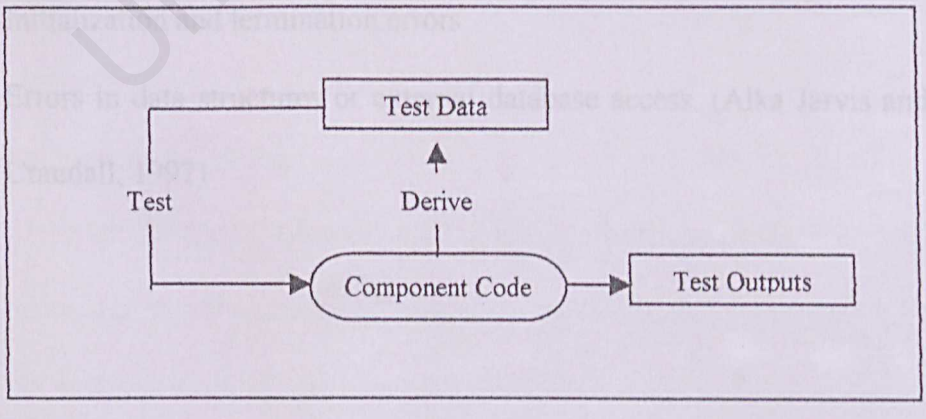


Figure 7.1 White Box Testing

7.2.3 Black Box Testing

Black Box Testing is concentrate on testing all functional requirements for the program. The main objective is to uncover those wrong functions programmed correctly by feeding the input to the black box and take notes on what output is produced. The test object's behavior can only be determined by studying its inputs and the related outputs, as shown in *Figure 6.2.*

There are several tests can make at this point:

- Error Guessing: Write the test cases which test functions or parts or functions which, experience has shown, tend to be errorprone.
- Module Interface Testing : Test whether the values along the interface are correct as they relate to modules which call them.
- Command – Lines Testing: When the interface is external to the software system(i.e., user interface),which the operation of the program is caused by a command, each of the "setups" must been tested to show that the software system operates correctly an that appropriate errors messages are given whenever the command line is set up improperly.
- Initialization and termination errors.
- Errors in data structures or external database access. (Alka Jarvis and Vern Crandall, 1997)

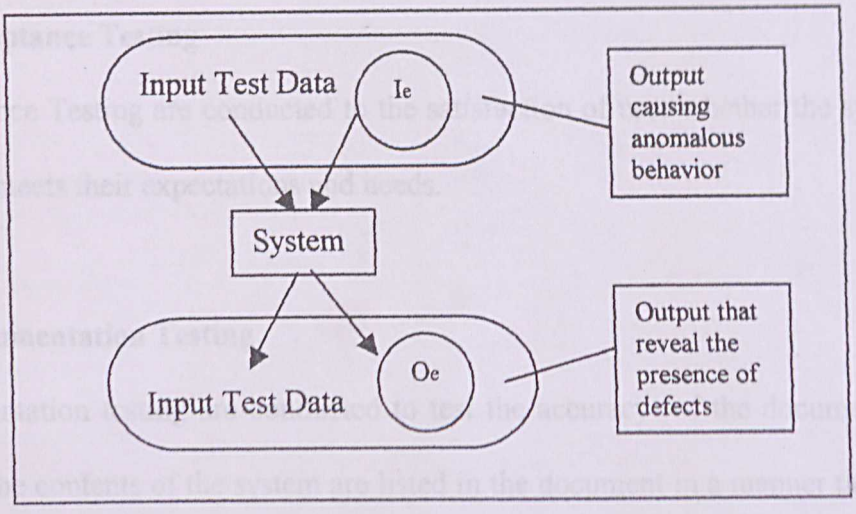


Figure 7.2 Black Box Testing

7.3 System Testing

System testing is a series of different test whose primary purpose is to fully exercise the computer-based system (Pressman, 2001). At the final stage, the software is incorporated into a larger system.

There are several types of system testing that are worthwhile for a software system.

a) **Function Testing**

Function testing are conducted to ensure that the system behaves according to the functional requirements an that the acceptance criteria of the users will be met.

b) **Performance Testing**

Performance testing are conducted to ensure that the system respond time meets user requirements. The respond time should not exceed the specified performance criteria user heavy stress o volume.

c) Acceptance Testing

Acceptance Testing are conducted to the satisfaction of user whether the system build is meets their expectations and needs.

d) Documentation Testing

Documentation testing are conducted to test the accuracy of the document, to ensure the contents of the system are listed in the document in a manner the user can understand, an no features are missing.

e) User Testing

There are 10 persons in different fields as the users were participated in this testing part. The results are shown as below:

Table 7.1 Result of Testing about the evaluation of WTDP

	Very Poor 非常不满意	Poor 不满意	Average 中等	Good 满意	Very Good 非常满意
	Person/ (%)	Person/ (%)	Person/ (%)	Person/ (%)	Person/ (%)
Navigate of user interface 用户界面的操纵方法	0/0%	0/0%	2/20%	6/60%	2/20%
Attraction of the user interface 用户界面的吸引力	0/0%	0/0%	0/0%	1/10%	9/90%
This system suitable for the company 这学习配套适合各阶层的人士(中`小学生,教师,等等)	0/0%	4/40%	2/20%	3/30%	1/10%
The pictures used in this learning package. 这学习配套的插图配搭	0/0%	0/0%	1/10%	2/20%	7/70%
The color of the interface. 界面的颜色协调	0/0%	0/0%	0/0%	2/20%	8/80%
Translation of Malay's poems 国语诗歌翻译	0/0%	2/20%	7/70%	1/10%	0/0%
Translation of English's poems 英语诗歌翻译	1/10%	3/30%	5/50%	1/10%	0/0%

Table 7.2 Result of Testing about the Efficient After Using WTDP

	Very Poor 完全无效	Poor 无效	Average 中等	Good 有效	Very Good 非常有效
	Person/ (%)	Person/ (%)	Person/ (%)	Person/ (%)	Person/ (%)
Listen poems repeatedly 可重复聆听诗歌	0/0%	0/0%	0/0%	2/20%	8/80%
Using animation 动画教学	0/0%	0/0%	3/30%	5/50%	2/20%
Learning the pronunciation 练习诗词的发音	0/0%	0/0%	0/0%	6/60%	4/40%
Games 游戏	0/0%	0/0%	0/0%	2/20%	8/80%
Quizzes 趣味问答	0/0%	1/10%	3/30%	1/10%	5/50%
Understand the Chinese ancient and poems 对中国文化及诗词了解	0/0%	2/20%	6/60%	1/1%	1/10%
Enhance the English language level 提升英语的程度	0/0%	2/20%	2/20%	5/50%	1/10%
Enhance the Malay language level 提升国语的程度	0/0%	1/10%	3/30%	4/40%	2/20%

Chapter 8 System Evaluation And Conclusion

8.1 Problem Encountered And Solutions

Problems are everywhere and so do in every system. Several problems encountered throughout the development of this system. . Nevertheless, most of these problems were solved eventually. These include:

- Determine scope of the system

  Since there are 300 of Tang Dynasty Poems, it is difficult to choice 30 poems in 300 poems. Different type of poems has been chosen to represent all kinds of poems such as Folk-song-styled-verse (乐府), Five-character-ancient-verse (五言古诗) and others.

- Choosing software development kits

  There are many software tools to develop this system and each of the tools has their own strengths and limitations. Due to lack of knowledge about those tools, more times are required to learn and to research regarding the tools. This make the selections process becomes more critical. However, by searching the information from books, Internet, advice from senior, guidance from supervisor, the problem has been solved.

- Time Constraint

  During the design phase, there was not enough time to study and produce the best solution of design in Semester 1. The main programming language I have to study is Visual Basic 6.0 and the multimedia tools that I need to learn is Macromedia Director 8.0. Mainly, this was due to inexperience and insufficient knowledge of designing a system. The best way to learn is to read as many approaches used in previous year students' report documentation

8.2 System Strength

The following are the system strengths that found in WTDP:

- Simple and user-friendly interfaces

  The system is considered as user friendly and data integrity. Its interfaces are intuitive where the users can easily get accustomed to the system's concept-based style. Normally, users will not face problems when using the system although they are computer illiterate.

- Attractive interfaces, pictures and animations

  The watercolor pictures, animation with the recitation, and the color of interfaces are able to attract the users to use it.

- Poems recitation and explore in vocabularies

  Recitation of each poem also provided. Users able to read each pinyin of the poems and each related vocabularies were shown. It can help users to learn and know particular vocabulary that they do not know.

- Interesting Games

  The games are developed as an interesting style with the timer; this will make the users more willing to try on it.

8.3 System Limitations

WTDP system is a fully electronic operation learning system. It also has its limitations like the others system. The following are the limitations of this system.

- This system cannot support multi-user environment because it is a stand-alone system. All users have to install the system into their computer if they want to use it.

- Chinese software is needed to view the Chinese words. The users have to install Chinese Star of change the default language to Chinese in order to run this system.
- This system just display the recitation of poems and do not support the functions of record and play user's recitation to compare the pronunciation.
- Some of the poems are not complete with the poem's song yet because of lack of sources.
- The maintenance module only can add the new record and not allow to edit or delete the previous records.
- Password is not encrypted and this result in high vulnerability of password.
- System's name (WTDP) is not display in every page.

8.4 Future Enhancement

Further development and many new ideas have come about while the system was being implemented. The system limitations should be improved a corrected to enhance the functionality of the system. Owing to time constraint and other factors, not all of the ideas could be incorporated into the system. It is hoped that the following aspects could be considered in future:

- WTDP can be modifying to enable network accessing. The system is required to installed in a server in order the others computers are able to access this system. This situation is useful a suitable for the school.
- A function of record and play user's recitation can be added to let the user compare and known their pronunciation.
- Developer can create his or her own song to make this system more complete.

- The maintenance module needs to add the edit and delete function. Therefore, the system will be more up to date and helpful.
- Password should be encrypted before store in database and decrypted during password retrieval process.
- System's name (WTDP) is needed to display in every pages.

8.5 Knowledge and Experience Gained

A lot of valuable knowledge and experience have been gained throughout the development of WTDP. The following are the valuable knowledge and experience gained.

- Applied theories and knowledge gained through the courses of Computer Science studies like Software Engineering, System Analysis and Design, and also other knowledge and concept of programming languages
- Understand better regarding the poetry of Dynasty Tang.
- Improvement in skills of finding information and classifying facts, as well as skills of problem solving and troubleshooting.
- Exposed more to programming and concept in Visual Basic and Macromedia Director.

8.6 Conclusions

As a conclusion, WTDP has been successfully achieved and fulfilled its objectives as a simple and user-friendly learning package that requires the minimum of time to study and administer, and be well understood by all level of public including kids. This system is an attractive learning package, which make the learning package more efficient.

However, this system is not escapable from its limitations. But these all can be overcome in time, by making the necessary future enhancement. If all the limitation as mention can be enhance, the system is more compatible a powerful in the future.

Finally, the project has been a good practical testing on undergraduates' capabilities in handling and developing a project. It provides the opportunity for them to apply all gained knowledge to a real world environment. A lot of research, time and effort need to develop this project. This is a very challenging task when developing a multimedia application system.

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Appendix A

User Manual

APPENDIX A USER MANUAL

TABLE OF CONTENT FOR USER MANUAL

List of Figures For User Manual

USER MANUAL

Installation And Uninstallation

World of Tang Dynasty Poems (WTDP) is a stand-alone program. For installation, users need to run the setup exe to install the program. Remember to copy all of folders to the same directory. The folders' names need to be copies are bio, exercise, graphic, meaning, PinYin, poem, recite, song, and translation.

For uninstallation, go to ***Control Panel > Add/Remove*** and remove the program. They need to delete the folders manually.

The presentation of Chinese words are depends of the platform is used. If the user is using:

(a) Window 2000

1. Set the default to Chinese PRC.
2. Go to ***Start > Control Panel***
3. Click on the **Regional *Options > General***
4. At the Language ***setting for the system***, click the ***Simplified Chinese*** check box.
5. Click on the ***Set Default*** button, another ***Select System Locale*** form will be prompt out.
6. Choose the ***Chinese PRC*** from the combo box and click ***OK*** button.
7. Click the ***Apply*** button and windows will ask whether want to restart. Click ***Restart*** to restart window.

8. System may ask for "Windows 2000's Installer" to copy some files, insert the Windows 2000's CD into the CD-Rom.

9. If the Chinese Words still cannot be view, check at the ***Language setting for the system (Regional Options > General)*** whether ***Simplified Chinese (Default)*** check box is selected. If not, repeat step 2 to step 8.

(b) Window 98

1. NJ Star or Chinese Star is needed to install.

The detail user manual are shown as below:

Chapter 1 Main Menu

1.1 User's Login

1. *Figure A-1.1 (a)* is the login interface of this program. Click the "English" buttons at the top to change the language display to English version.
2. Click the "Chinese" buttons at the top to change the language display to Chinese version, as shown in *Figure A-1.1 (b)*.
3. Click the "Malay" buttons at the top to change the language display to Malay version, as shown in *Figure A-1.1(c)*.
4. Users must enter their name in the text box, if not, a message box will prompt out, as shown in *Figure A-1.1 (d)*.

A-1.1 (a) English Version Login Interface

Figure A-1.1 (b) *Chinese Version Login Interface*

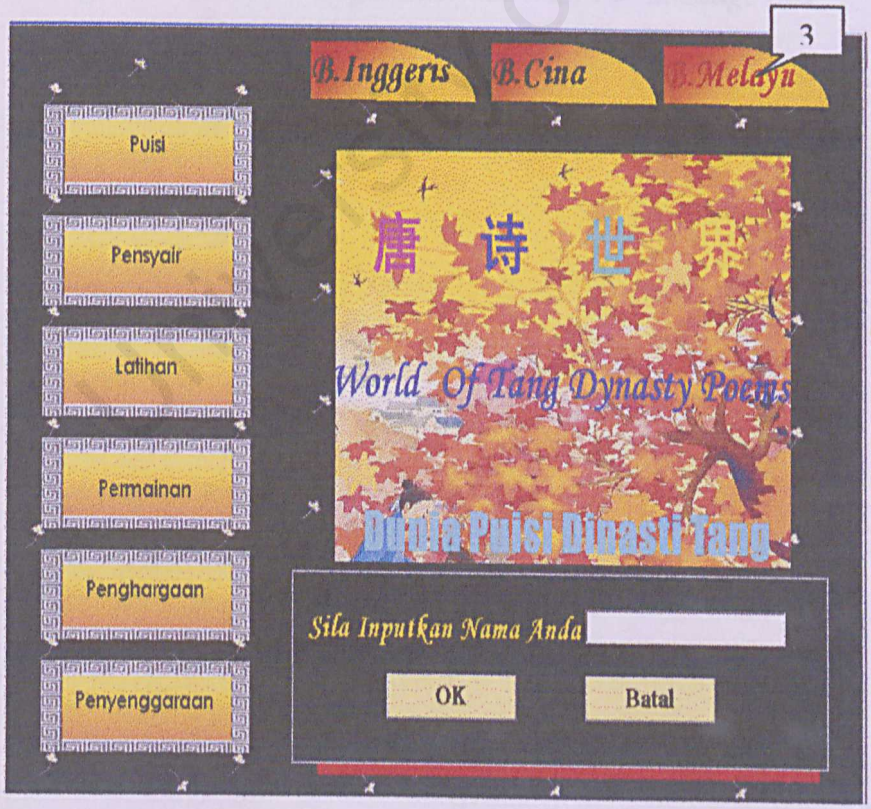

Figure A-1.1(c) *Malay Version Login Interface*

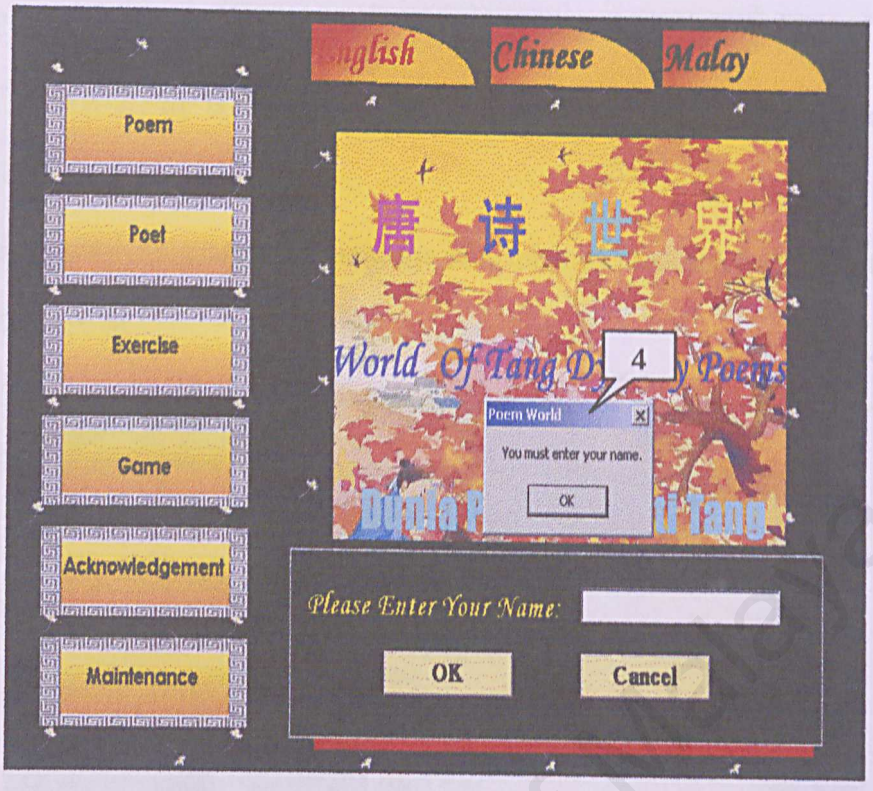

Figure A-1.1 (d) *Login Interface With The Message Box*

Chapter 2 Poems Module

2.1 Poems List

1. *Figure A-2.1 (a)* is the list of 30 poems; users can click on the poem's title to choose the poems they like.
2. Users also can change the language of display by click the buttons at the top of the page.

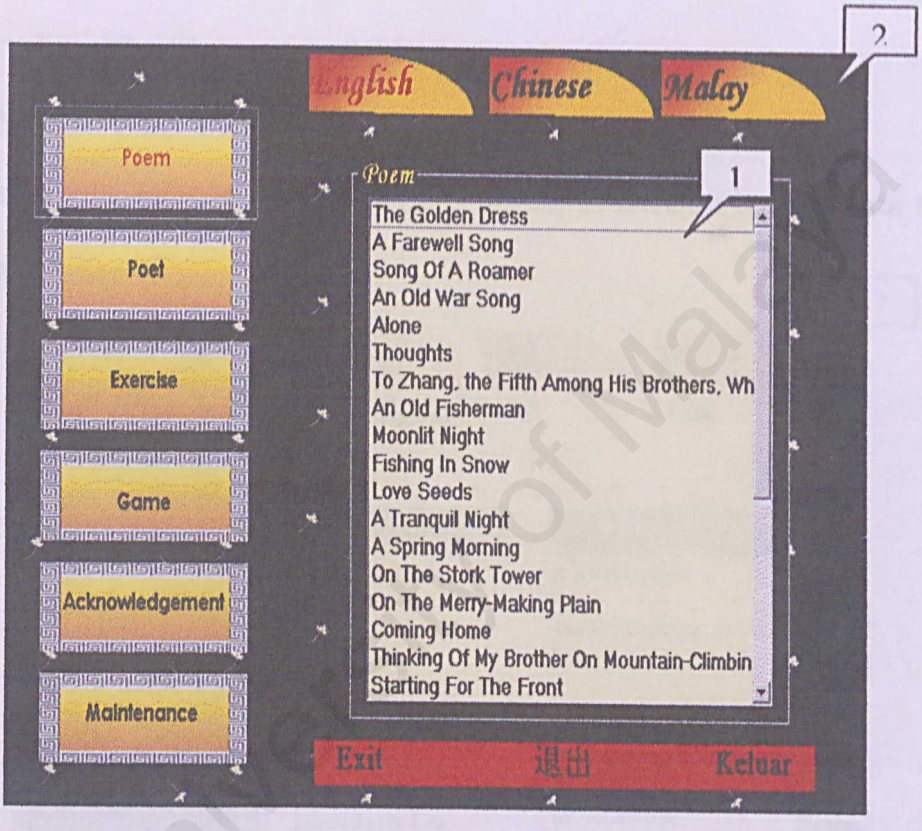

Figure A-2.1 (a) Poems List

2.2 Poem's Information

1. *Figure A-2.2 (a)* is the page, which consist the PinYin, poem, translation, and meaning of some vocabulary of the poem.
2. Click on "Home" button to the main menu.
3. Click on "Previous" button to view the previous poem.
4. Click on "Next" button to view the next poem.
5. Click on "Exit" button to end this program
6. Click on "Help" button to ask for help.
7. Users also can change the language of display by click the buttons at the top of the page.

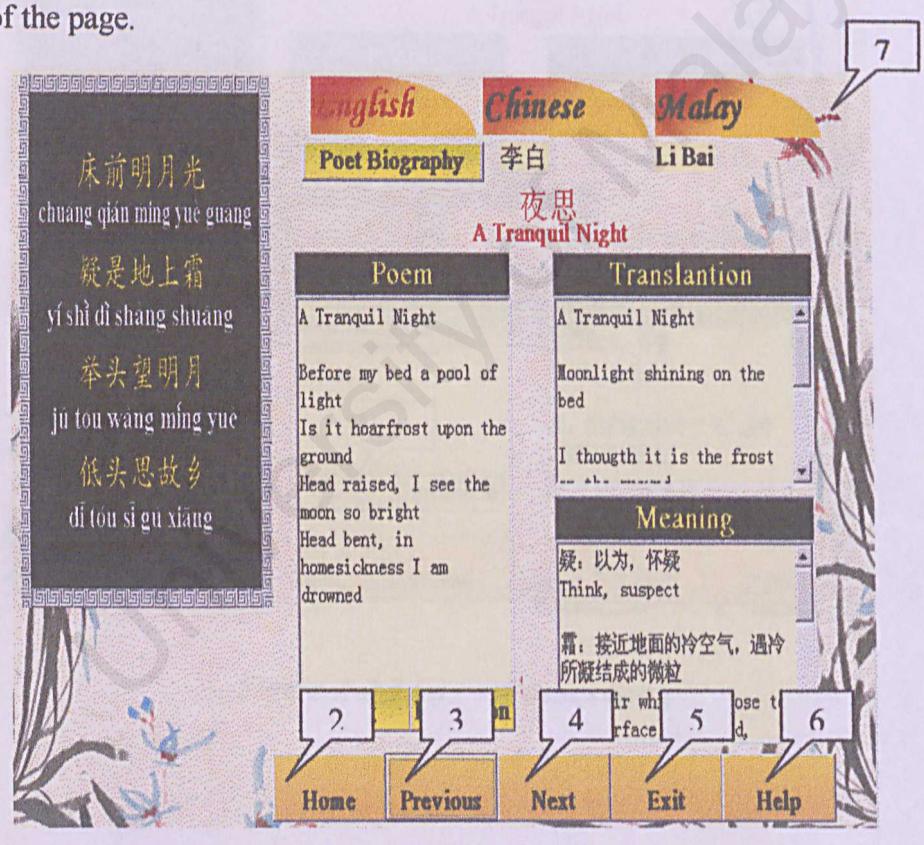

Figure A-2.2 (a) *Poem's Information*

2.3 Poem's Song

1. *Figure A-2.3 (a)* is the screen display when users click on the "Song" button to play the song of the poems.
2. By click on the "Play" button will play the song of the poem.
3. By click on the "Stop" button will stop playing the song of the poem.
4. Users also can change the language of display by click the buttons at the top of the page.

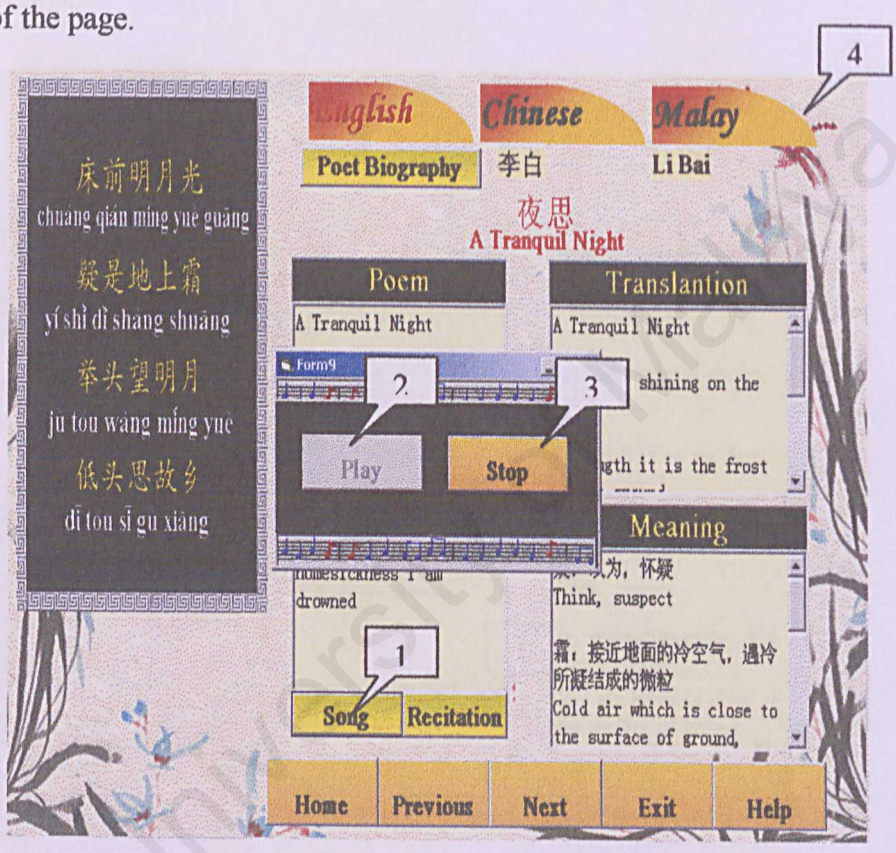

Figure A-2.3 (a) *Poem's Song*

2.4 Poem's Recitation

1. *Figure A-2.4 (a)* is the screen display when users click on the "Recitation" button to play the recitation of the poems.
2. The recitation is display with the animation to attract the users in the learning process.
3. Users also can change the language of display by click the buttons at the top of the page.

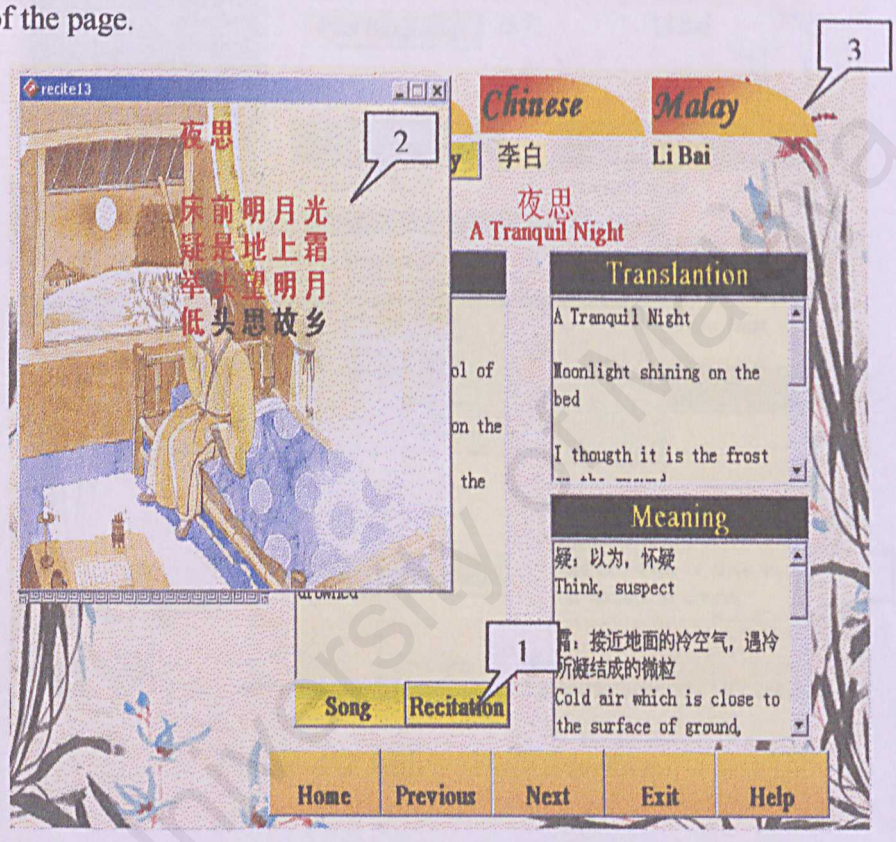

Figure A-2.4 (a) *Poem's Recitation*

2.5 Help

1. *Figure A-2.5 (a)* is the screen when users click on the "Help " button to know more information regarding how to use this page.
2. Users also can change the language of display by click the buttons at the top of the page.

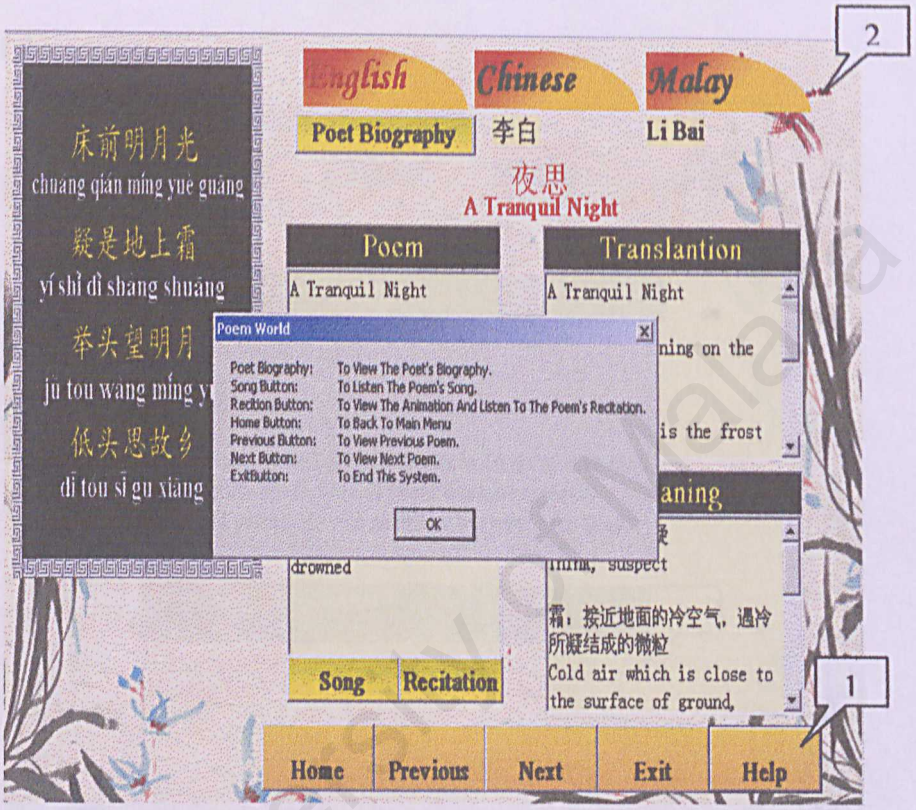

Figure A-2.5(a) Help Interface

2.6 Poet Biography

1. *Figure A-2.6 (a)* is shown when users click on the "Poet Biography" button.
2. By click on the poem written, they can view the information of the selected poem, page like *Figure A-2.3 (a)* will be display.
3. Users also can change the language of display by click the buttons at the top of the page.

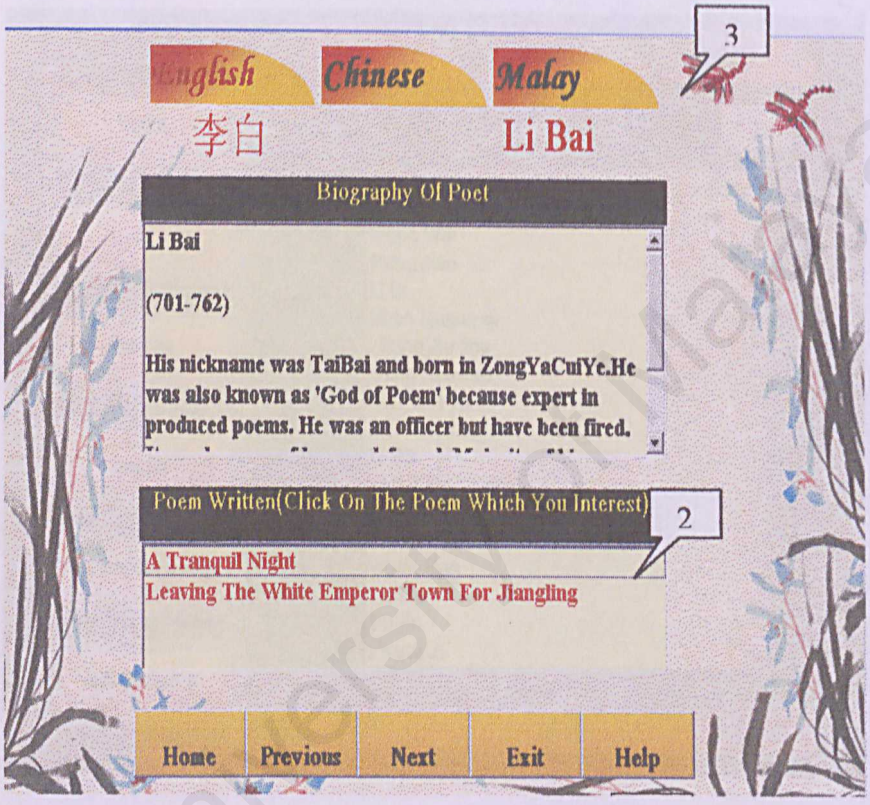

Figure A-2.6 (a) *Poet Biography*

Chapter 3 Poets Module

3.1 Poets List

1. *Figure A-3.1 (a)* is the list of 21 poets; users can click on the poet's name to choose the poet they like.
2. Users also can change the language of display by click the buttons at the top of the page.

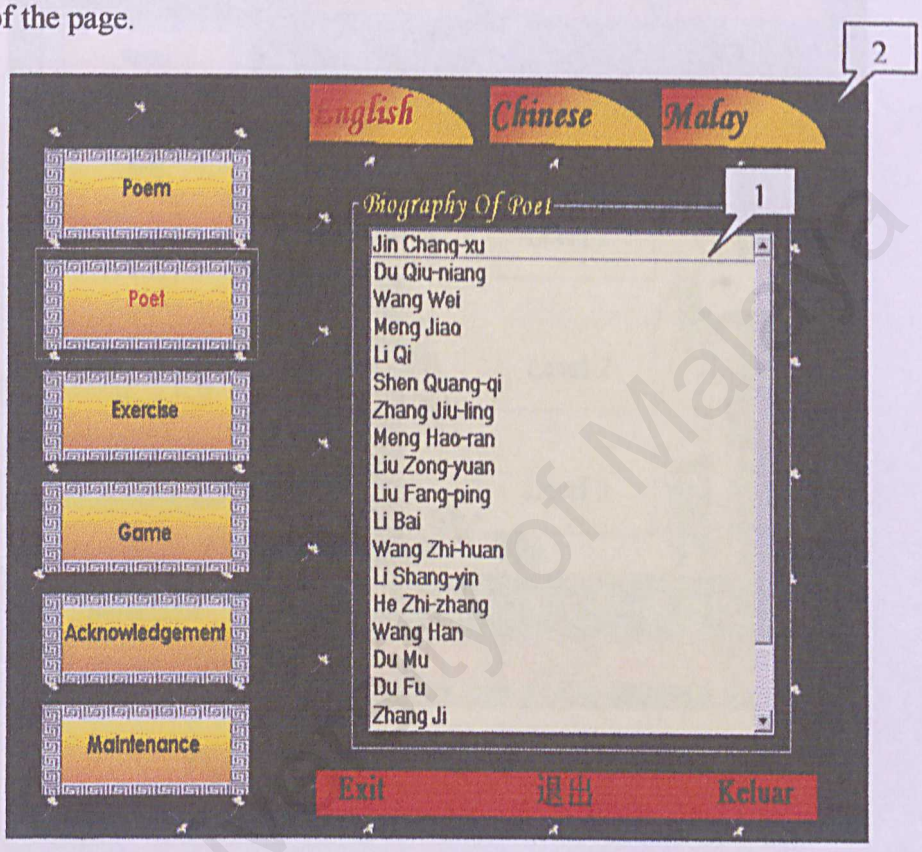

Figure A-3.1 (a) Poets List

3.2 Poet Biography

1. *Figure A-2.6 (a)* is the page that consist the biography of the poets.
2. By click on the poem written, they can view the information of the selected poem, page like *Figure A-2.3 (a)* will be display.
3. Users also can change the language of display by click the buttons at the top of the page.

Chapter 4 Exercise Module

4.1 Levels of Exercise

1. *Figure A-4.1 (a)* is the exercise interface.
2. Users have to choose the level.

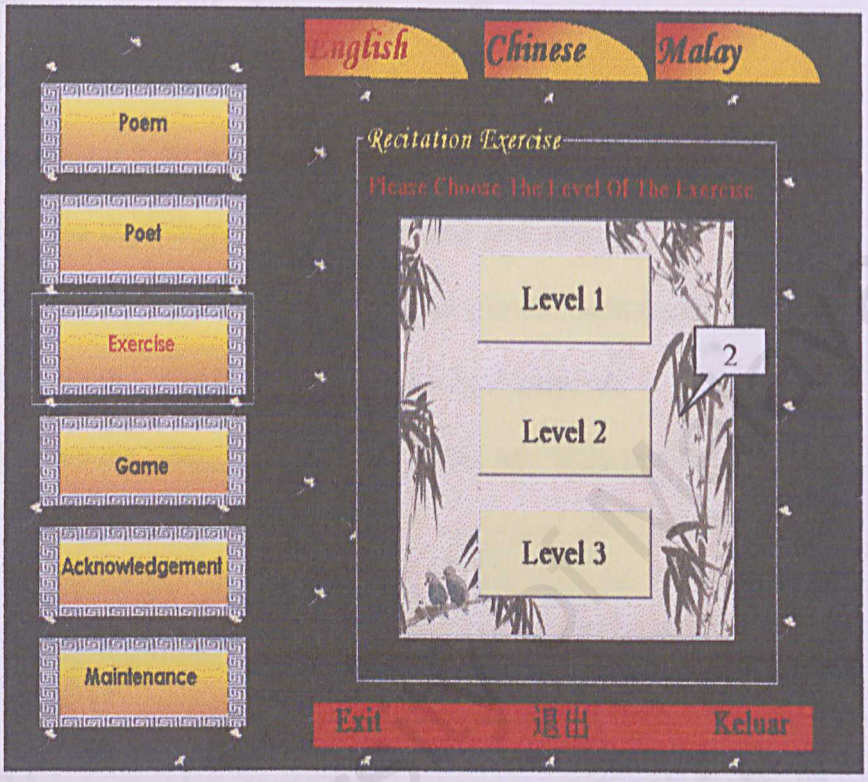

Figure A-4.1 (a) Levels of Exercise

4.2 Level 1 of Exercise

1. *Figure A- 4.2(a)* is the level 1 of the exercise.
2. Click on the "Start" button to start the exercise.
3. Poet's name is given, listen to the recitation and choose the correct poem's title from the combo box.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-4.2 (b)* is the top ten scorers and the score of user.
6. Click on the "Stop" button for the next recitation.
7. Click on the "Home" button to go back to the main menu.
8. Click on the "Next" button to do the next exercise.
9. Click on the "Help" button to know the way to do this exercise.

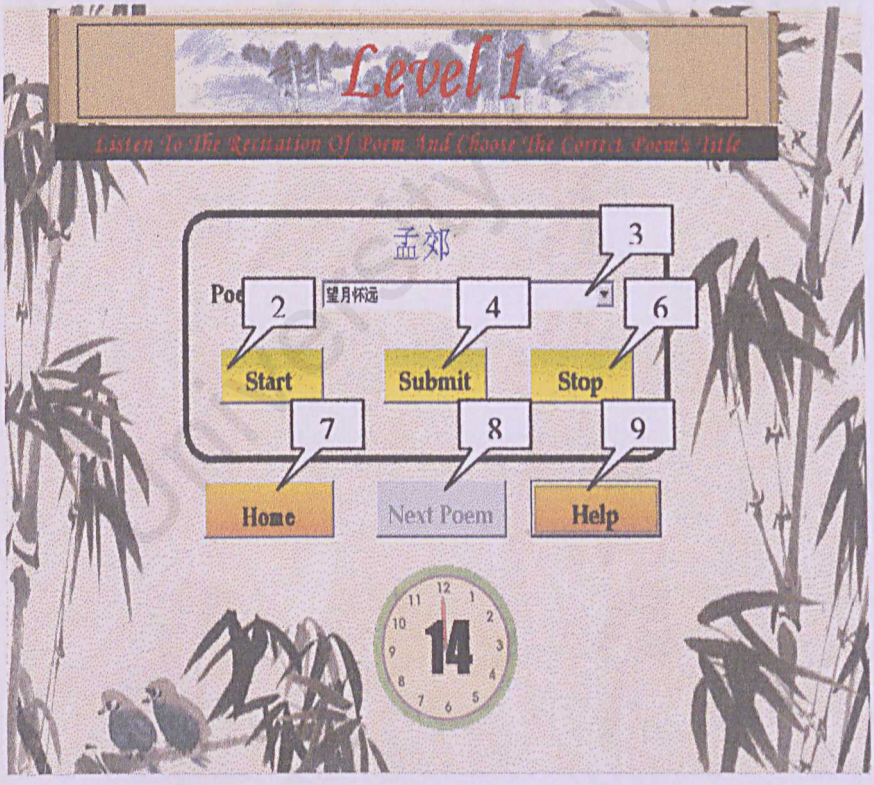

Figure A- 4.2(a) Level 1 of Exercise

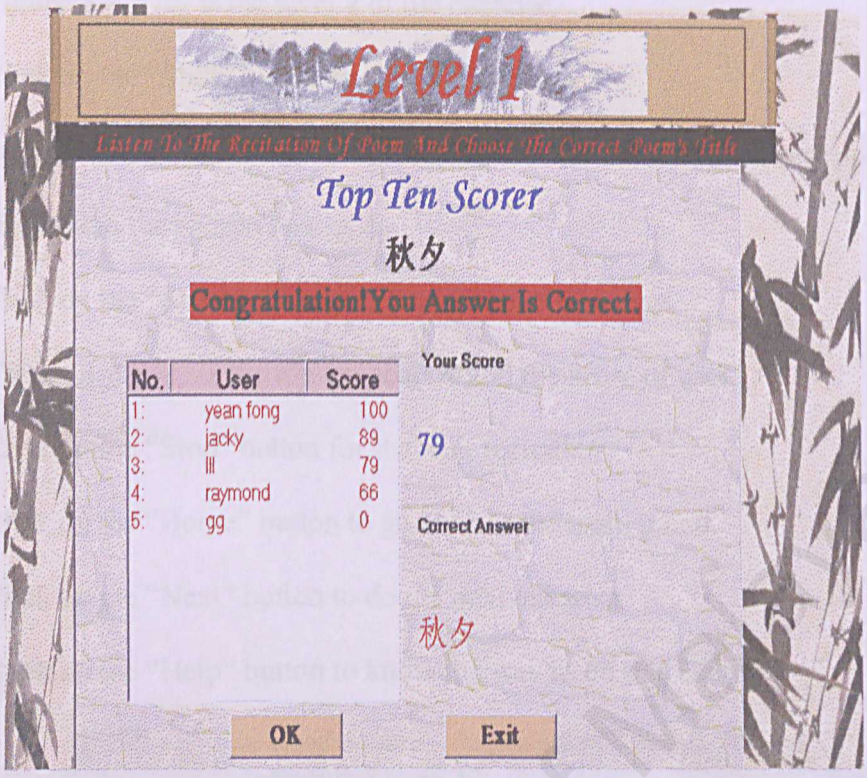

Figure A- 4.2(b) Top Ten Scorers

4.3 Level 2 of Exercise

1. *Figure A-4.3 (a)* is the level 2 of the exercise.
2. Click on the "Start" button to start the exercise.
3. Poem's title is given, listen to the recitation and choose the correct poet's name from the combo box.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-4.2 (b)* is the top ten scorers and the score of user.
6. Click on the "Stop" button for the next recitation.
7. Click on the "Home" button to go back to the main menu.
8. Click on the "Next" button to do the next exercise.
9. Click on the "Help" button to know the way to do this exercise.

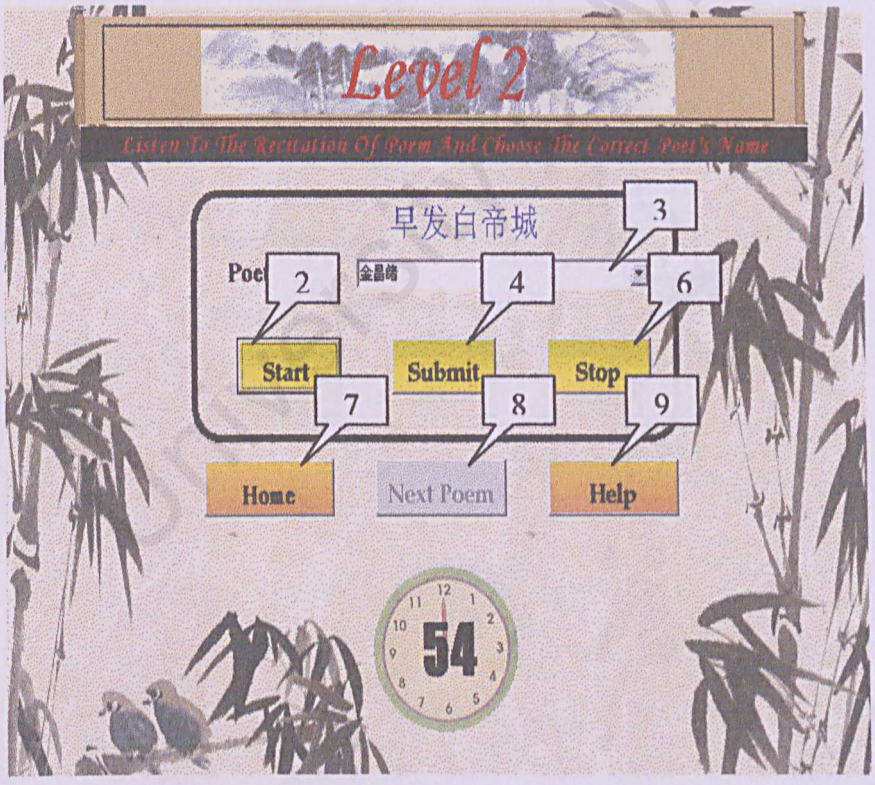

Figure A- 4.3(a) Level 2 of Exercise

4.4 Level 3 of Exercise

1. *Figure A-4.4 (a)* is the level 3 of the exercise.
2. Click on the "Start" button to start the exercise.
3. Poem's title and poet's name are not given, listen to the recitation and choose the poem's title and poet's name from the combo box.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-4.2 (b)* is the top ten scorers and the score of user.
6. Click on the "Stop" button for the next recitation.
7. Click on the "Home" button to go back to the main menu.
8. Click on the "Next" button to do the next exercise.
9. Click on the "Help" button to know the way to do this exercise.

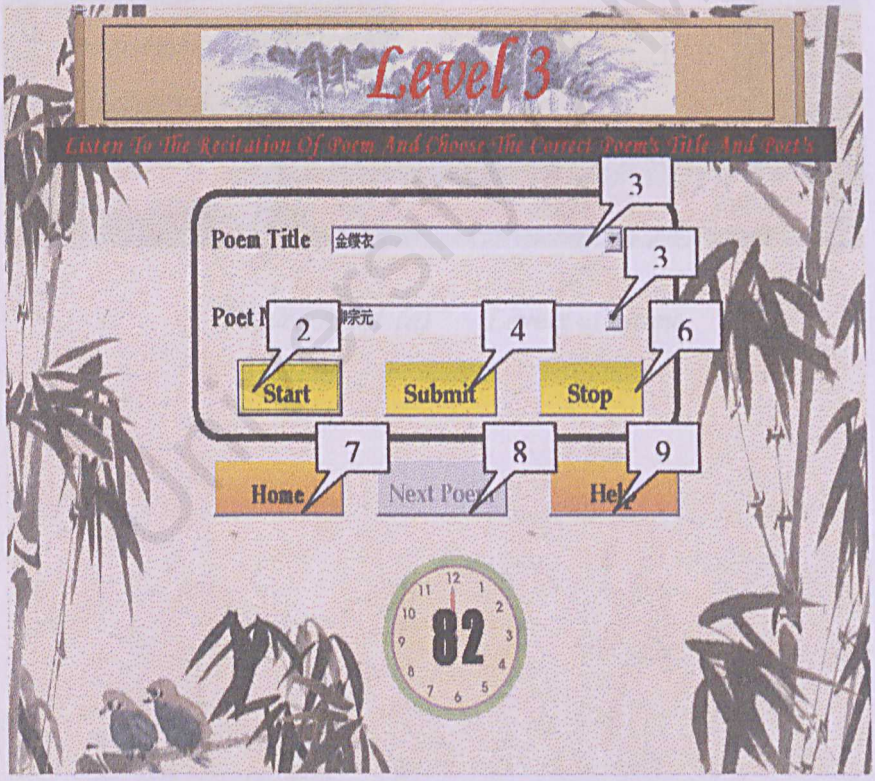

Figure A- 4.4(a) Level 3 of Exercise

Chapter 5 Game Module

5.1 Levels of Game

1. *Figure A-5.1 (a)* is the exercise interface.
2. Users have to choose the level.

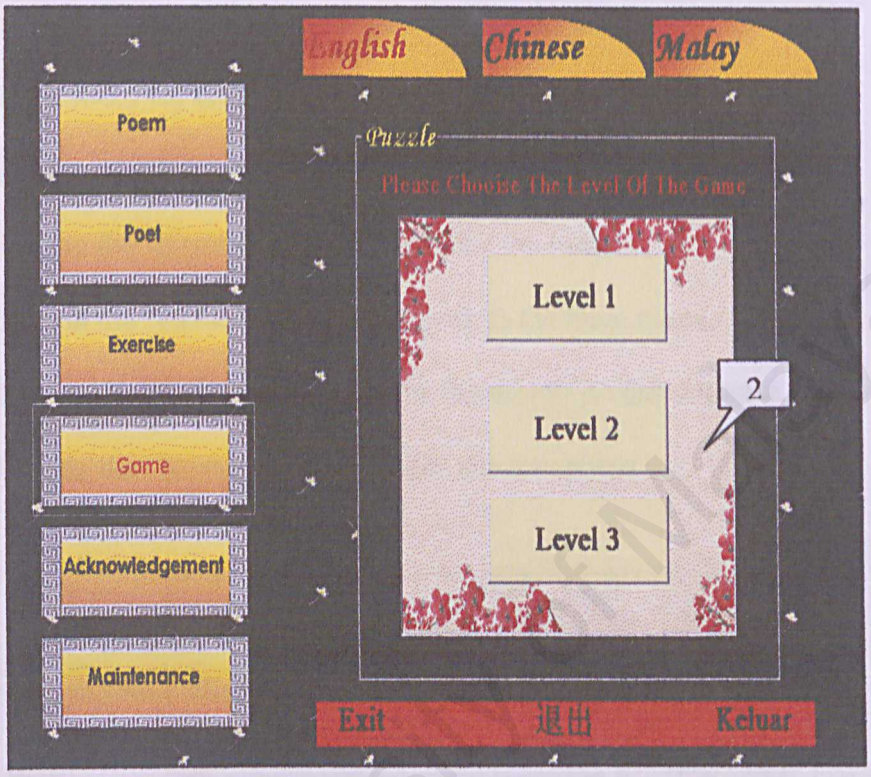

Figure A-5.1 (a) Levels of Game

5.2 Level 1 of Game

1. *Figure A-5.2 (a)* is the level 1 of the game.
2. Click on the "Begin" button to start the game.
3. Drag the sentence at the left site and drop it at the white blank.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-5.2 (b)* is the top ten players and the score of user.
6. Click on the "Pause" button to pause the timer.
7. Click on the "Resume" button to resume the timer.
8. Click on the "Home" button to go back to the main menu.
9. Click on the "Help" button to know the way to do this exercise.
10. Click on the "Next Poem" button for the next poem.

Figure A-5.2 (a) *Level 1 of The Game*

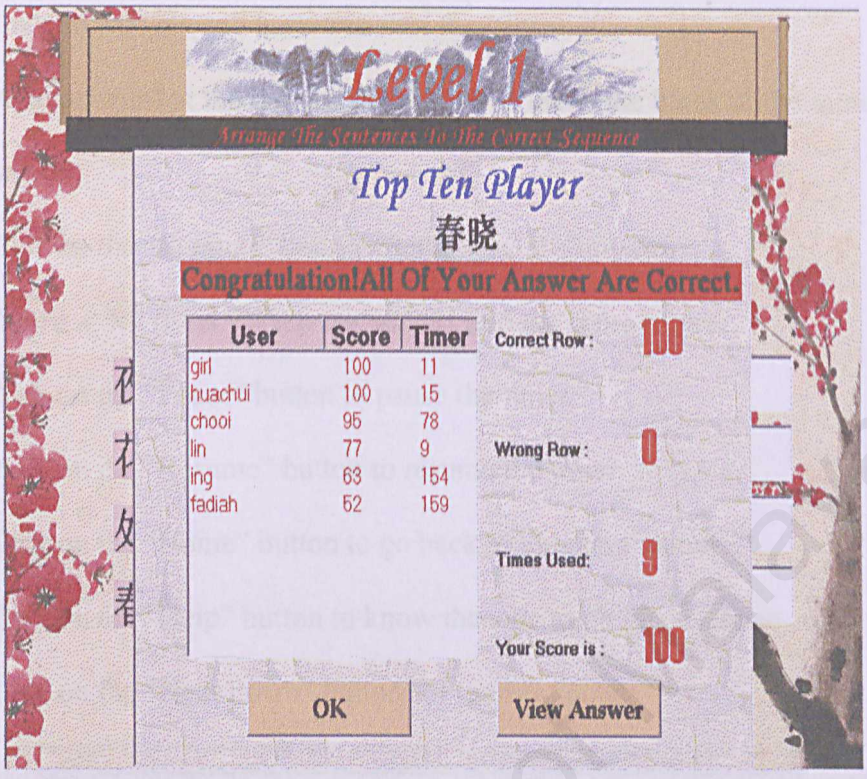

Figure A- 5.2(b) *Top Ten Players*

5.3 Level 2 of Game

1. *Figure A-5.3 (a)* is the level 2 of the game.
2. Click on the "Begin" button to start the game.
3. Drag the word at the left site and drop it at the white blank at the same row only.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-5.2 (b)* is the top ten players and the score of user.
6. Click on the "Pause" button to pause the timer.
7. Click on the "Resume" button to resume the timer.
8. Click on the "Home" button to go back to the main menu.
9. Click on the "Help" button to know the way to do this exercise.
10. Click on the "Next Poem" button for the next poem.

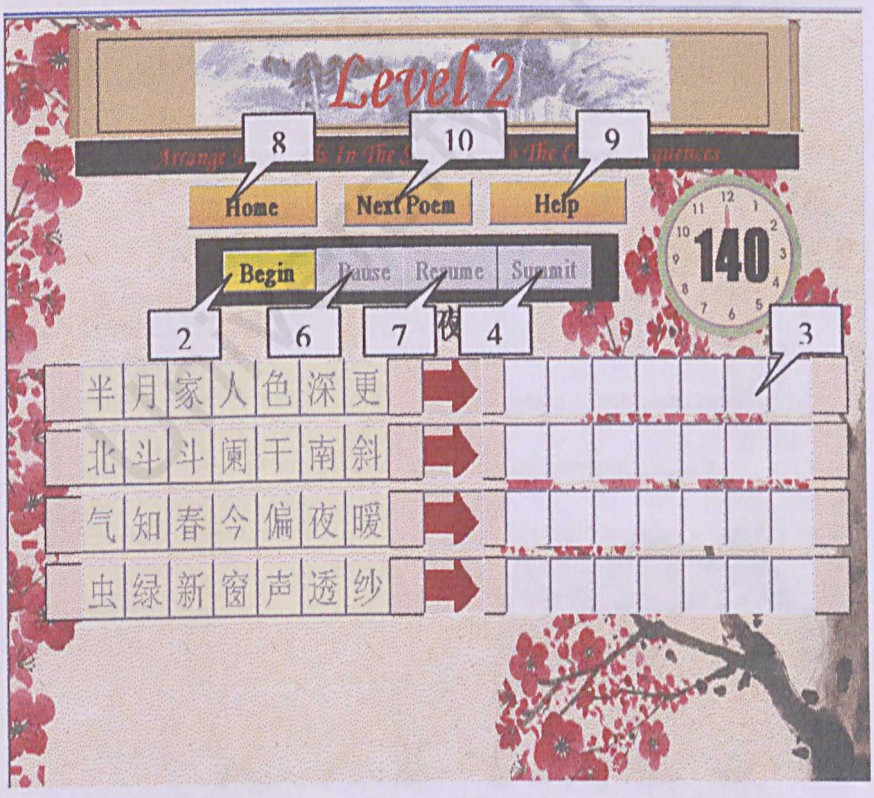

Figure A-5.3 (a) *Level 2 of The Game*

5.4 Level 3 of Game

1. *Figure A-5.4 (a)* is the level 3 of the game.
2. Click on the "Begin" button to start the game.
3. Drag the word at the left site and drop it at the white blank.
4. Click on the "Summit" button after choose the answer.
5. *Figure A-5.2 (b)* is the top ten players and the score of user.
6. Click on the "Pause" button to pause the timer.
7. Click on the "Resume" button to resume the timer.
8. Click on the "Home" button to go back to the main menu.
9. Click on the "Help" button to know the way to do this exercise.
10. Click on the "Next Poem" button for the next poem.

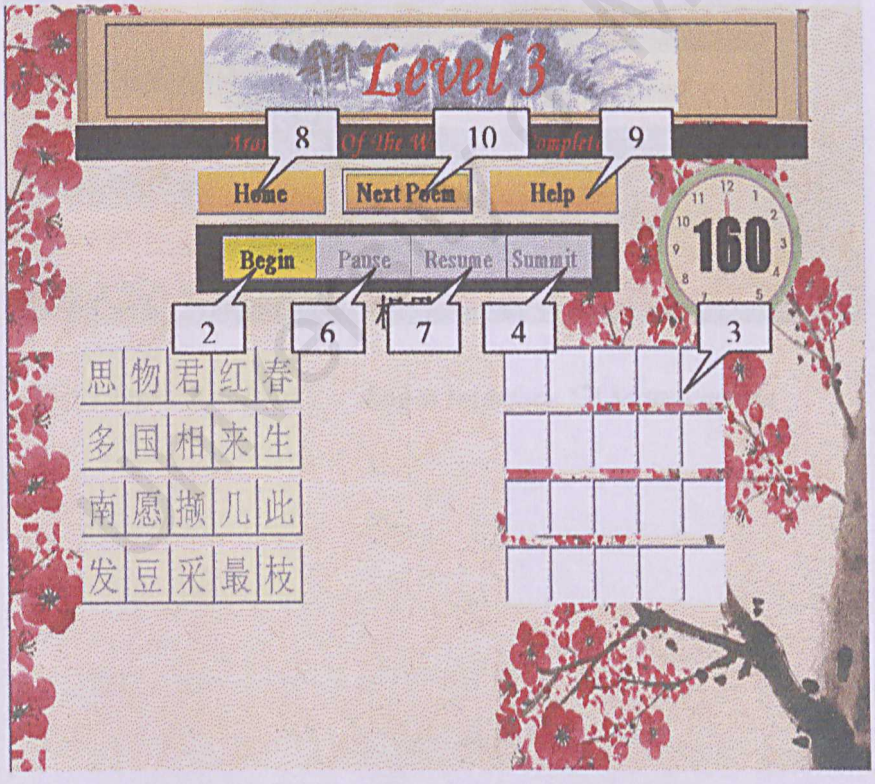

Figure A-5.4 (a) *Level 2 of The Game*

Chapter 6 Maintenance Module

6.1 Administrator's Login

1. *Figure A-6.1 (a)* is the login interface of the maintenance functions
2. Only authorize administrator can enter this part by enter the correct name and password.

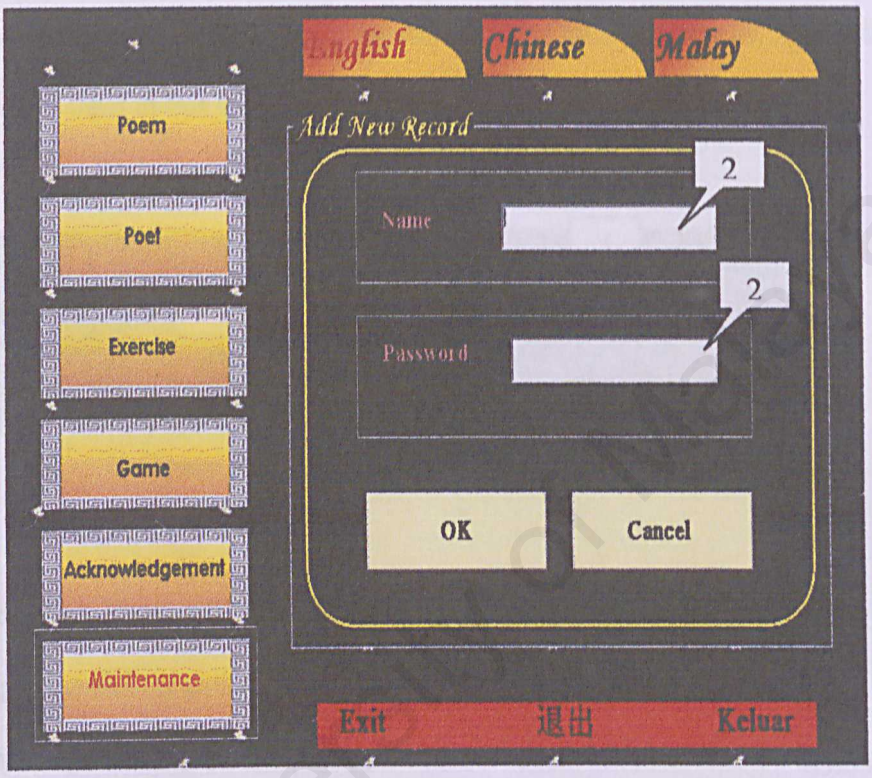

Figure A-6.1 (a) Login Interface Of Maintenance

6.2 Add New Record

1. *Figure A-6.2 (a)* is the add new record interface.
2. "Poem" button is the function that consist of add the new record for poems function and poets function.
3. "Acknowledgement" button is the function that adds the new record for the sources used in this system.
4. "Exit" button is to exit maintenance function.

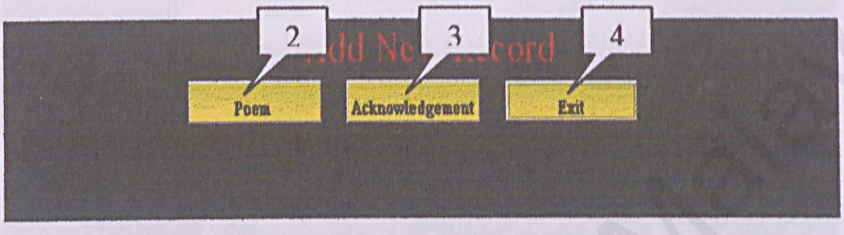

Figure A-6.2 (a) Add New Record Interface

6.3 Add New Poem's Records

1. *Figure A-6.3 (a)* is the first part for adds the new poem's record.
2. The English, Chinese and Malay version of poem's title need to insert in the text box manually.
3. The path name of song (mp3 file), animations of recitation (exe file), PinYin of poem (gif file) and exercise's recitation (mp3 file) need to insert in the text box manually. All of this file need to be save in their own folders as below:

Folder Name	File
Song	- song(mp3 file)
Recite	- animation of recitation (exe file)
PinYin	- PinYin of poem (gif file)
Exercise	- exercise's recitation (mp3 file)

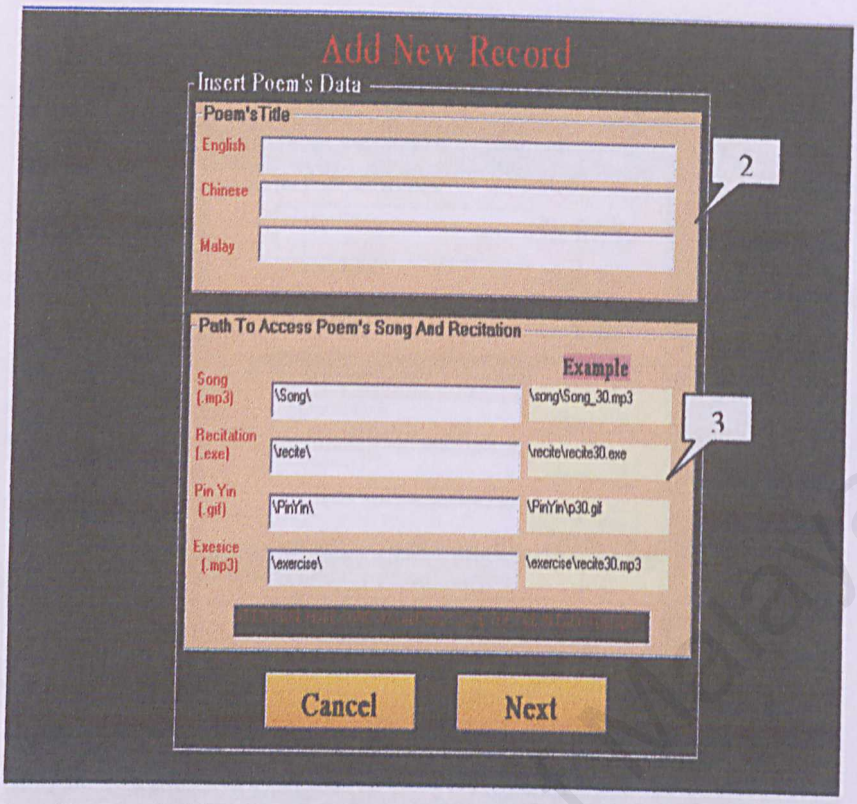

Figure A-6.3 (a) *First Part For Add New Poem's Record*

4. *Figure A-6.3 (b)* is the second part for adds the new poem's record.
5. As shown in *Figure A-6.3(c)*, when click on the "Create File" button; a rich text box will prompt out to enter the information.
6. The path's name is created automatically after click the "OK" button.
7. *Figure A-6.3 (d)* is the second part for adds the new poem's record.
8. Administrator can either choose the previous poet's name from the combo box of create a new poet's biography.
9. As shown in *Figure A-6.3 (e)*, if administrator is input the new poet's name and click on the "Create File" button, a rich text box will prompt out to enter the information.
10. Click the "OK" button as shown in *Figure A-6.3 (d)* to save data into database.

Figure A-6.3 (b) *Second Part For Add New Poem's Record*

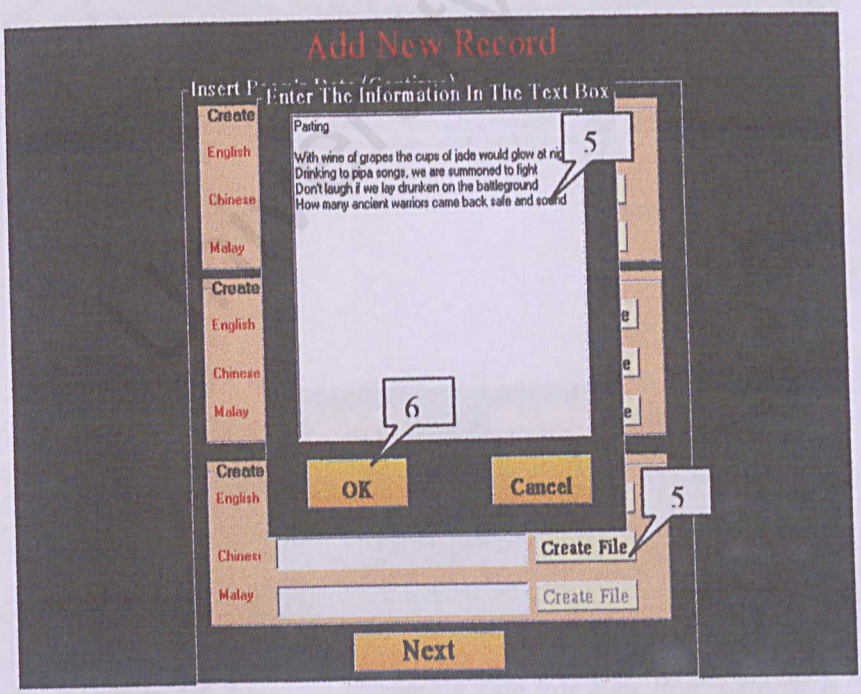

Figure A-6.3(c) *Create A File For Add New Poem's Record*

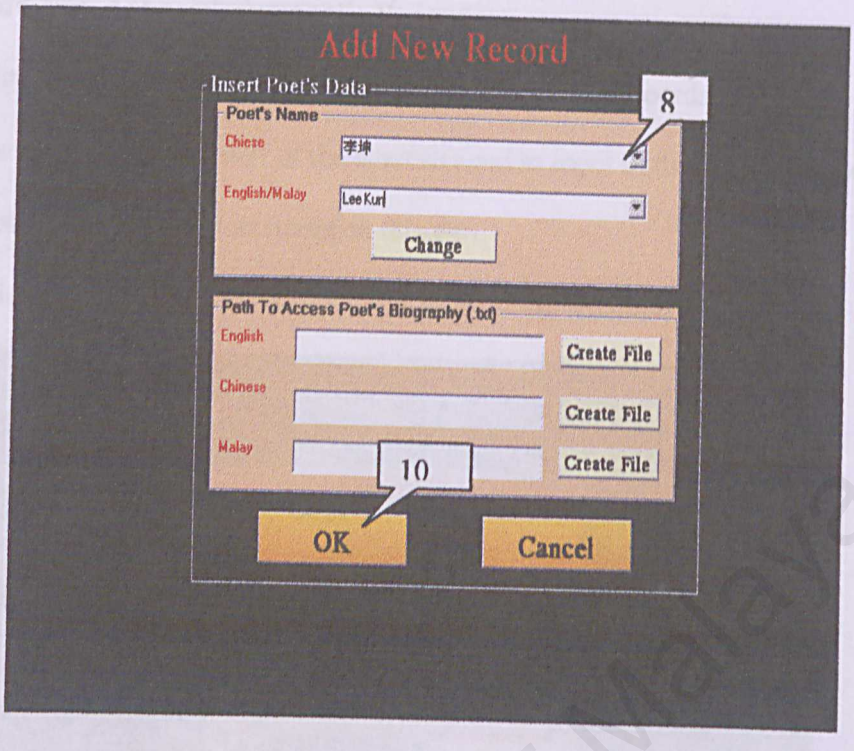

Figure A-6.3 (d) *Third Part For New Poem's Records*

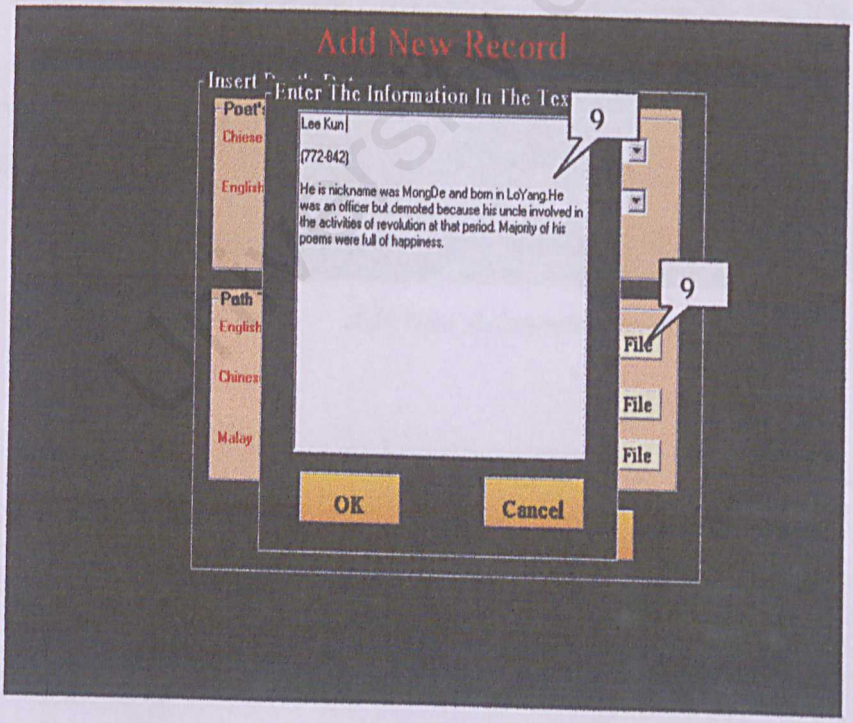

Figure A-6.3 (e) *Create A File For New Poet's Records*

6.4 Add New Acknowledgement's Records

1. *Figure A-6.4 (a)* is the add new acknowledgement's records.
2. Name, task and position of the sources need to input in the text box. The example is shown to help administrator in this part.
3. Click on the "OK" button to save the data in the database.

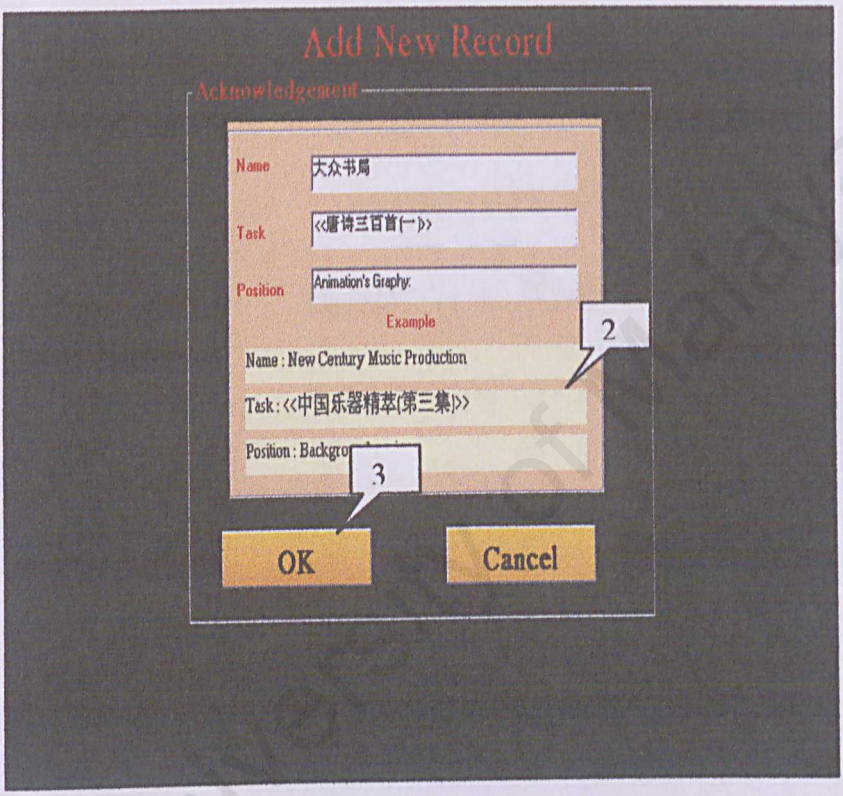

Figure A-6.4 (a) *Add New Acknowledgement's Records*

Appendix B

Interview Form

APPENDIX B INTERVIEW FORM

Questionnaire 1
问卷 1

Interview Questionnaire Form	
Subject 主题	World of Tang Dynasty Poems 唐诗世界
Date 日期	
Time 时间	
Location 地点	
Interviewer 采访者	
Respondence 作答者	

Interview's Objectives 问卷宗旨

1. To obtain the understanding of public regarding Tang's poems.
   了解公众对唐诗的认识
2. To obtain the advantages of learning Tang's poems
   了解学唐诗的好处
3. To obtain the opinion regarding the method to recite and memory Tang's poems.
   了解朗读及背唐诗地最佳方法
4. To obtain the opinion regarding the lack of current systems.
   了解目前系统的缺点

Time	Questions	Answer
	Can you roughly tell me how is the understanding of public regarding Tang's poems? 请你大概地告诉我公众对唐诗的认识程度	
	What are the advantages of learning Tang Dynasty poems? 请问学唐诗能带来什么好处?	
	What are the problems that learners faced in learning Tang Dynasty Poems? 请问目前学习者在学唐诗的过程中面对什么问题?	

	Can you describe the best method to recite and memory Tang's poems? 请你告诉我朗读及背唐诗地最佳方法.	
	What is the lack of the current sources of Tang Dynasty poems? 请问目前唐诗参考来源的缺点是什么?	
	What is the lack of the learning package you have been use? 请问你所用过的唐诗学习配套中的缺点是什么?	

Questionnaires 2

问卷 2

World of Tang Dynasty Poems

(WTDP)

唐诗世界

Name
姓名: _____

Age
年龄: _____

Occupation / position
职业: _____

Interview's Objectives
问卷宗旨:

5. To obtain the understanding of users regarding Tang's poems after using **WTDP**.
   了解使用者用了<<唐诗世界>>后对唐诗的认识

6. To obtain the opinion regarding the lack of current systems.
   了解目前系统的缺点

Questions
问题

1. Please rate your evaluation of **WTDP**.
请选择你对<<唐诗世界>>的满意程度.

	Very Poor 非常不满意	Poor 不满意	Average 中等	Good 满意	Very Good 非常满意
Navigate of user interface 用户界面的操纵方法	1	2	3	4	5
Attraction of the user interface 用户界面的吸引力	1	2	3	4	5
This system suitable for the company 这学习配套适合各阶层的人士(中`小学生,教师,等等)	1	2	3	4	5
The pictures used in this learning package. 这学习配套的插图配搭	1	2	3	4	5
The color of the interface. 界面的颜色协调	1	2	3	4	5
Translation of Malay's poems 国语诗歌翻译	1	2	3	4	5
Translation of English's poems 英语诗歌翻译	1	2	3	4	5
Others (Please suggest) 其他 (请写下)					