Chapter 4

SYSTEM DESIGN

4.1 Introduction

This section provides a high-level overview of the system. System design, decisions are made about how the problem will be solved. In design, the software requirements are analyzed and planned the subsequent development activities. The design of input screens and the result screens, the data storage and the process are mainly concern in this section. Selection of the software to develop the proposed system will also decide the design phase.

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4.2 Input Design

The design of the input mechanism is important and must be simple and easy steps to the subscriber. Carefully designed user interface will avoid the mess-ups by the subscriber and errors in processing leading to useless outputs. The objectives of input design focused are,

- Efficiency & Effectiveness of Input
- Reducing Input Volume
- Reducing Input Errors
- User-friendly Human Computer Interfaces

4.3 Output Design – Visual Design

The design of the outputs is important because this is what interests the user most. They are unlikely to remember how elegant the input interfaces was or how quickly the system responded. What they will perceive is whether the outputs produced by the

system met their requirements or not. If a system is incapable of meeting user output expectations the system is deemed be failed to meet one of its basic requirement.

4.4 Data Storage Design

The use case diagrams and the entity relationship diagram developed in the analysis stage identified the data elements of the system would have to deal with. In dealing with this, the efficiency of database storage design has become a key factor. The primary purpose of hardware design is to gain maximum speed to queries and take the advantage of backing up the data. Select data storage software is a vital to success of this proposed project while there are many products in the software arena such as MS(c) SQL 2000, Oracle ect.

Advantages of using a DBMS

- Many infrastructure features, such as crash recovery, sharing between multiple users sharing between multiple applications, data distribution, integrity, extendibility and transaction support have already been programmed by the DBMS vendor.
- A standard access language. The Structured Query Language (SQL) is supported by most commercial RDBMS.

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4.5 Process Design

The processing design should be done carefully with processing productivity (efficiency and effectiveness) as a primary objective. The efficiency with which system resources are used and effectiveness with which the software is written to achieve this efficiency one important consideration. The methodology of the design is “Evolutionary software engineering” as indicated in chapter 1, and the process depicted in figure 4.1. These are the guiding principles followed in the design of the internal data processing of the captured data and are discussed in greater detail in Chapter 5 dealing with implementation.

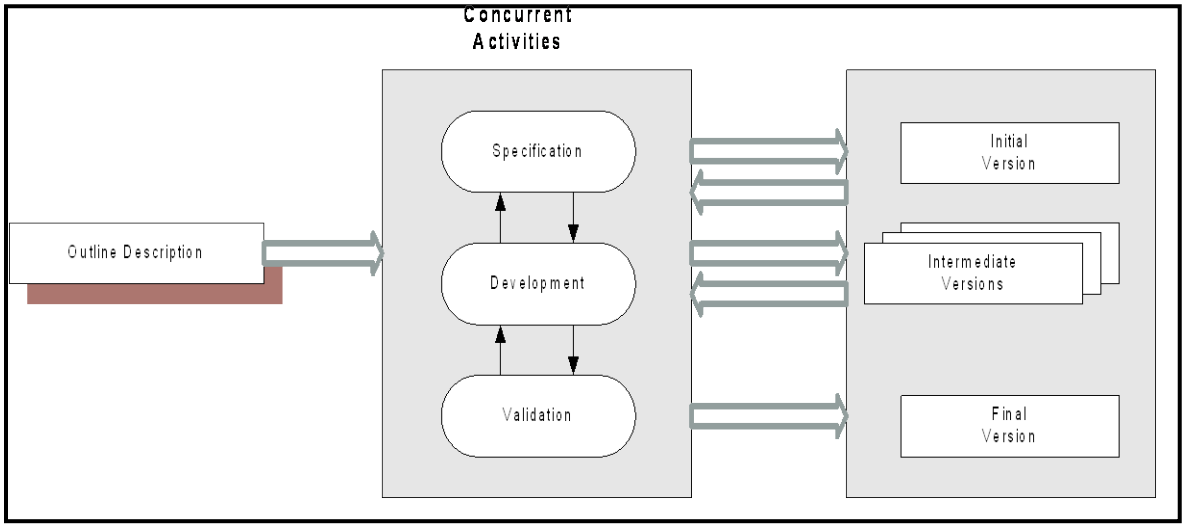

Figure 4.1– Evolutionary Software Process

[Ref: Software Engineering - Sommerville]

4.6 Architecture

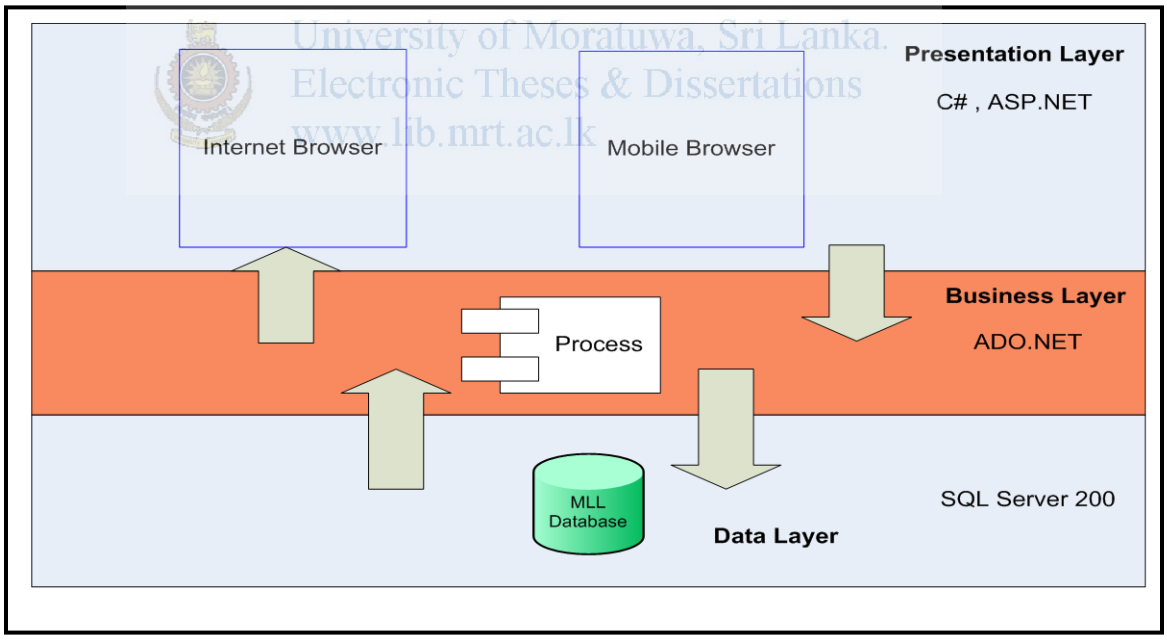

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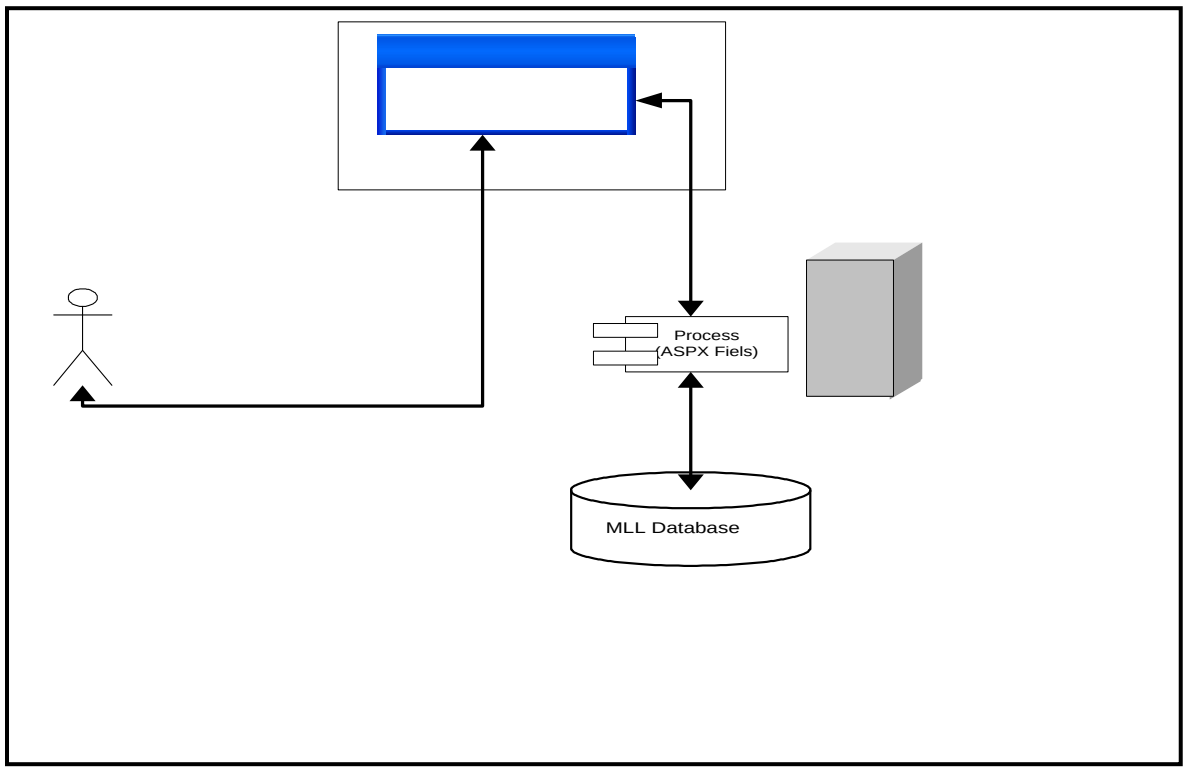
Figure 4.2– System Architecture

MLL will be built based on a three-tire software architecture wherein interface/presentation layer is consisting of three components as indicated above.



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- MLL Admin Module

  MLL admin module is a standard web based application. Admin module developed in such a way that he / she can add subscribers to MLL (even though MLL has a registration where users can register themselves), edit subscriber profiles and delete subscriber. Admin can view reports such as subscriber logs and lesson data. Admin has the facility to enter text data and relevant sound data to the MLL system. Lesson sound files should convert in to MP3, MIDI or MMF files and upload to the database.

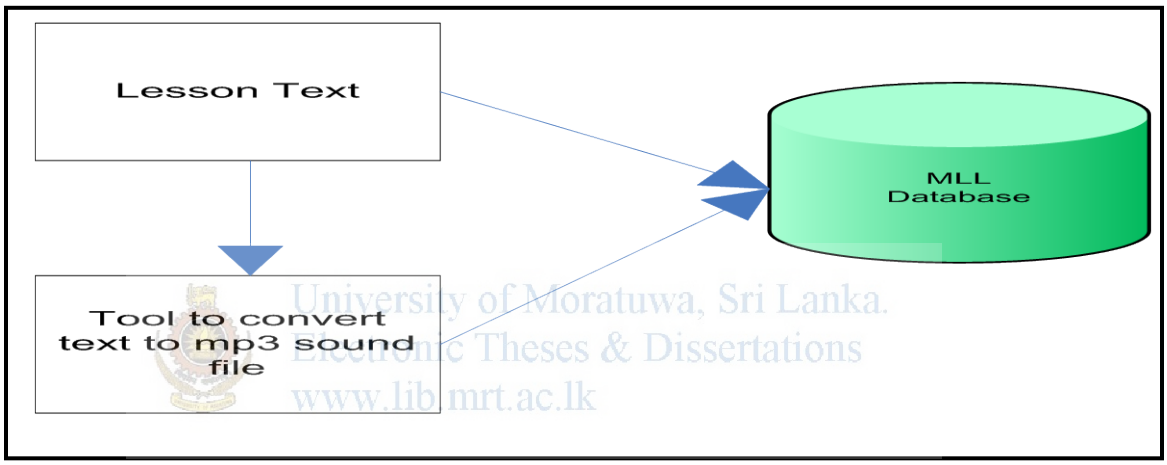

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Figure 4.4–MLL Admin

The admin module includes the input of lesson data and sound files to the system. Sound files uploaded as mp3 files and the text should be converted to mp3 using 3rd party tool.

Chapter Summary

Chapter – Four discussed system design of the MLL and the inner architecture of it. Actual design of user interfaces and the neatness of it are the most significant functions in design of interfaces. Design of database and process is discussed more detail in chapter – 5 under implementation.