# CHAPTER 7

## System Implementation

Systems implementation is the process of: defining how the information **system** should be built (i.e., physical system design), ensuring that the information system is operational and used, ensuring that the information system meets quality standard (i.e., quality assurance).

## 7.1 Introduction

System implementation is a stage in system life cycle whereby a new system is developed, installed and made ready for use. It is this stage that all details and key point in the requirement specification are partialized. System implementation therefore, is a very essential stage in which its success determines to a great extent the success of the new system. At this instance, after all is said and done the system is duly ready to be implemented (Clinical Laboratory Management System).

System design is concerned mainly with the coordination of activities, job procedures and equipment utilization in order to achieve organizational objectives. It addresses data input and output data, processing and interface.

## 7.2 Choice of Programming Language

Choosing a programming language depends on your language experience and the scope of the application you are building. While small applications are often created using only one language, it is not uncommon to develop large applications using multiple languages.

The choice of programming language to use for backend is C#. The structure of the C# programming language is very simple, particularly as to the executable code.

C# has many new and improved features such as inheritance, interfaces, and overloading that make it a powerful object-oriented programming language. It is particularly easy to

develop graphical user interfaces and to connect them to handler functions provided by the application.

C# fully integrates the .NET Framework and the common language runtime, which together provide language inter-operability, garbage collection, enhanced security, and improved versioning support. Visual Basic supports single inheritance and creates Microsoft intermediate language (MSIL) as input to native code compilers.

For creating structure of webpage asp.net is used. Various features of ASP.NET like state management, server-side controls, client- side controls are used to provide dynamicity to the web-application.

ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

## 7.3 System Testing & Debugging

Testing is an integral part of software development processes. This is to ensure that the quality requirement of the application is not compromised by testing and debugging program modules before they are integrated, testing the system to ensure an effective inter-operability after integration.

Debugging has to do with fixing of errors encountered during program execution. System testing deals with the real-life testing of the system, to ascertain how far it has gone in carrying out the expected task. This was carried out in two phases.

Number one is the source code testing which examine the logic of the program. Secondly, the specification testing which involves the examination of the system as regard to what it should do and how it should be done given specific conditions. This includes inputting

data, collecting its output and comparing it with the output of the old system and assessing it to see if it can replace the old system.

## 7.4 System Documentation

System documentation is a crucial aspect of implementation process. It describes the working of components and serves as a method of communication between application developers and users. It also helps future analysis of application either by the same or different system analysts and developers.

To setup the system, there must be web browser installed on the computer before it can work.

## 7.5 Database Specification

A database is a single file which consists of structured data and records which are stored in minimum or no duplication of data. It is therefore a constructed, consistent and controlled pool of data. A good database must be common to all users and independent of the programs which use it to generate output.

For Database Management MySQL server is used. For storing the data entered by the users through frontend and managing the data for future reference.

MySQL provides data security, high performance, comprehensive transactional support and many more at no cost as it is an open source relational database management system.