**CHAPTER FOUR**

**SYSTEM DESIGN**

**4.1 SYSTEM IMPLEMENTATION**

Implementation is the stage in the project where the theoretical design is turned into a working system and is giving confidence on the new system for the users that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the change over, an evaluation of change over methods. Apart from planning major task of preparing the implementation are education and training of users.

The implementation process begins with preparing a plan for the implementation of the system. According to this plan, the activities are to be carried out, discussions made regarding the equipment and resources and the additional equipment has to be acquired to implement the new system. In network backup system no additional resources are needed. Implementation is the final and the most important phase. The most critical stage in achieving a successful new system is giving the users confidence that the new system will work and be effective. The system can be implemented only after thorough testing is done and if it is found to be working according to the specification. This method also offers the greatest security since the old system can take over if the errors are found or inability to handle certain type of transactions while using the new system.

**4.2 CHANGEOVER METHOD**

The process of putting the new information system online and retiring the old system is known as system changeover. There are four changeover methods which are:

* **Direct changeover**: The direct changeover approach causes the changeover from the old system to the new system to occur immediately when the new system becomes operational. It is the least expensive but involves more risks than other changeover methods.
* **Parallel operation**: The parallel operation changeover method requires that both the old and the new information systems operate fully for a specified period. Data is input to both systems and output generated by the new system is compared with the equivalent output from the old system. When users, management, and IT group are satisfied that the new system operates correctly then the old system is terminated. It is the most costly changeover method and involves lower risks.
* **Pilot operation**: The pilot changeover method involves implementing the complete new system at a selected location of a company. Direct changeover method and operating both systems for only the pilot site. The group that uses the new system first is called the pilot site. By restricting the implementation to a pilot site reduces the risk of system failure as compared with is less expensive than a parallel system.
* **Phased operation**: The phased operation changeover method involves implementing the new system in stages, or modules. We can implement each subsystem by using any of the other three changeover methods. In this approach risk of errors or failures is limited to the implemented module only as well as it is less expensive than the full parallel operation.

For implementing the automated car hire system the above methods can be used, but there are some advantages as well disadvantages of using these systems, which are explained below:

* **Direct changeover**:

# Advantage

As we know school accounting department does not have enough funds for implementing the new system so it would be easier to implement direct changeover method in the school accounting system.

# Disadvantage

This method of system changeover involves more risks of total system failure and it is preferred for commercial software packages. So if there is a system failure in school accounting system then it will be difficult to store information of students who paid for one fees or the other. And if there is no proper storage then there will be incorrect reports and monitoring of student transaction in the accounting department will not be properly done.

* **Parallel operation**:

# Advantage

The advantage of parallel system is lower risk of system failure so all the tasks can be done properly at school accounting system. If the new system does not work properly, the school accounting system can use the old system as a backup until appropriate changes are made.

# Disadvantage

As we know parallel system is the most costly changeover method as both old and new systems operate fully for specified period and we also know that the budget of school accounting system is also low so it will be difficult for school accounting system to follow this changeover process.

* **Pilot operation:**

# Advantages

Pilot operation is combination of both direct changeover and parallel operation, which restricts the implementation to a pilot site and reduces risk of system failure as compared with a direct changeover method.

Operating system only at pilot site is less expensive than parallel operation for entire school accounting system.

If we use parallel approach to complete the implementation then the changeover period can be much shorter if system proves successful at the pilot site so a lot of time will be consumed at school accounting system in implementing the new system.

# Disadvantage

This method is also costly as compared to the direct changeover.

* **Phased operation:**

# Advantages

As we know in this method we have to implement the new system in stages, or modules, which are less prone to risk of system failure or errors at school accounting department, as failure is limited to the implemented module only.

It is also less expensive than parallel system because we have to work only with one part of system at a time.

# Disadvantage

As the system, which we are implementing, involves various phased operation like treatment, measuring weight, registration, vaccination etc so it can cost more than the pilot approach.

In this school accounting management system, direct changeover was used.

**4.3 HARDARE SPECIFICATION**

Hardware refers to the physical component of the computer, i.e. the Mechanical and  
Electronics equipment/devices in use, e.g. Hard disk drive (HDD), Memory, Processor etc. The hard ware require for the software include the following:

|  |  |
| --- | --- |
| **Hardware** | **Minimum System requirement** |
| Processor | 2.4 GHZ processor speed  Type: Intel |
| Memory | 1GB  (256 MB Recommended) |
| Disk space | 120 GB (including 20 GB for database Management system) |
| Display | 800 x 600 colors (1024 x 768 High color- 16 bit Recommended) |
| Key board | 101-key US traditional keyboards |
| Mouse | 3D mouse |

**4.4 SOFTWARE SPECIFICATION**

Software refers to the set of instructions that control computer action. This is called computer program that accomplishes specific instruction or task. Software is developed by applications developers or programmer. The software components used for this project are listed below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | **Software** |  | |  |  | | **Minimum System requirement** |
| Operating System | Windows2000 or later |
| Database Management System | SQL 2008 |
| Utility program | Avast |
| Microsoft visual studio | Version 2010 |

**4.5 CHOICE OF PROGRAMMING LANGUAGE**

The programming language chosen for this project is VISUAL C# 2010 dynamic windows language, which supports general query package such as SQL to access the database. C#/SQL eliminates duplication, redundancy and inconsistency of data. It allows easy accessibility and allows data to be shared between different forms. It also provides efficient back-up of data and provides adequate security.

**4.6 USER’S GUIDE**

This aspect will guide users through the process of installing the school accounting system software package, with the included software CD. The package integrates driver and configuration software. Thus, when you are installing the driver, the configuration software will be installed automatically as well. the software installation steps and operating guide in this user guide are explained under Windows XP, Installation steps for other operating systems are similar.

## Software Installation

In any software installation, there are some major procedures that users must take note. Firstly one must first insert the installation CD/DVD or flash drive and from there the following step follows:

* When The “Found New Hardware Wizard” system dialogue pops up, its recommend that you select” Cancel” and use the included Setup Wizard software CD for fast installation.
* Put the included software CD into the CD drive of your computer ,and the drivershould run automatically , a Welcome screen should pop up, just click the “RUN” button.( Double click “school acconuting.exe”in the software CD and manually install when it doesn’t auto-run).
* Select “I accept the terms of the license agreement” and click “Next”.
* Click “Install” to begin the driver installation.
* Click “Finish” to complete the installation.

**USER GUIDE MANUAL**

* Read through the whole user guide before you install and use this product.
* Close or uninstall the configuration programs of other manufacturers’ before you install the configuration programs of school accounting system to avoid possible UI (user interface) conflict.
* To avoid possible conflicts between this school accounting system and those of other manufactures’, i recommend that you first disable the visual studio of other manufacturers before installaing the driver.

**4.7 SYSTEM MAINTANANCE.**

After the system is implemented successfully, training of the user is one of the most important subtasks of the developer. For this purpose user manuals are prepared and handled over to the user to operate the developed system. Thus the users are trained to operate the developed system. Both the hardware and software securities are made to run the developed systems successfully in future. In order to put new application system into use, the following activities were taken care of Preparation of user and system documentation, conducting user training with demo and hands on ,test run for some period to ensure smooth switching over the system

The users are trained to use the newly developed functions. User manuals describing the procedures for using the functions listed on menu are circulated to all the users. It is confirmed that the system is implemented up to users need and expectations.