**Chapter 3**

**Theoretical Background**

We have done a project on Fitness Management and database management. This system is proposed to automate database management & transactions, This stores employee, member, payroll, receipts, and products information. It also provides the facility of search & advanced search for searching the records efficiently & immediately. This system provides data storing & report generation with graphical user interface (GUI).

**3.1 System Study**

It is always necessary to study and recognize the problems of existing system, which will help in finding out the requirements for the new system. System study helps in finding different alternatives for better solution.

The project study basically deals with different operations:

1: Data Gathering

2: Study of Existing System

3: Analyzing Problems

4: Studying various documents

5: Feasibility study for further improvements

Following are the steps taken during the initial study:

Initially, we collected all the information, which they wanted to store. Then we studied the working of the current system which is done manually. We noted the limitation of that system which motivated them to have new system. With the help of these documents we got basic ideas about the system as well as input output of the developed system. The most important thing is to study system thoroughly. Here we are studying both existing system and proposed system so that advantages & disadvantages of both the systems can be understood. The first task was identifying how system can be computerized. Some analysis and projections was done regarding changes to be made to the existing system. The new developed system for Fitness Management is simple without complexities.

**3.2 Existing System**

An Existing system refers to the system that is being followed till now. The fitness center is working manually. The current system is time consuming and also it is very costly, because it involves a lot of paperwork. To manually handle the system was very difficult task. But now-a-days computerization made easy to work. The following are the reasons why the current system should be computerized:

 To increase efficiency with reduced cost.

 To reduce the burden of paper work.

 To save time management for recording details of each and every member and employee.

 To generate required reports easily.

**3.3 Proposed System**

The online fitness management system is user-friendly application. This automated system makes all functionality easier for both owners and customers. It is very simple in design and to implement. The system requirements are very low. System resources and the system will work in almost all configurations.

It has the following objectives:

**Enhancement**: The main objective of Smart Fitness Management System is to enhance and upgrade the existing system by increasing its efficiency and effectiveness. The software improves the working methods by replacing the existing manual system with the computer based system.

**Automation**: The Smart Fitness Management System automates each and every activity of the manual system and increases its throughput. Thus the response time of the system is very less and it works very fast.

**Accuracy**: The Smart Fitness Management System provides the uses a quick response with very accurate information regarding the users etc. Any details or system in an accurate manner, as and when required.

**User-Friendly**: The software Smart Fitness Management System has a very user-friendly interface. Thus the users will feel very easy to work on it. The software provides accuracy along with a pleasant interface. Make the present manual system more interactive, speedy and user friendly.

**Availability**: The transaction reports of the system can be retried as and when required. Thus, there is no delay in the availability of any information, whatever needed, can be captured very quickly and easily.

**Maintenance cost:** Reduce the cost of maintenance

**3.4 Relational Schema**

A relation schema is a named relation defined by a set of attributes. The term relation schema refers to a heading paired with a set of constraints defined in terms of that heading. A relation can thus be seen as an instantiation of a relation schema if it has the heading of that schema and it satisfies the applicable constraints.

**Entity**

Basic object that the ER model represent in a entity which is a thing in the real world with an independent existence. An entity–relationship model is the result of using a systematic process to describe and define a subject area of business data. The data is represented as components (entities) that are linked with each other by relationships that express the dependencies and requirements between them, such as: one building may be divided into zero or more apartments, but one apartment can only be located in one building. Entities may have various properties (attributes) that characterize them.

**Attribute**

Each entity has attributes. It is a particular property that describes entity. For example, an employee entity may be described by the employee’s name, age, address, salary and job. A particular entity will have a value for each of its attributes. The attribute values that describe each entity become a major part of the data stored in the database.