# Chapter 3

## Introduction to Design

It is an activity specification or construction or the result of plan in the form of finished product, prototype or process. After requirement gathering and analysis it is done. Design helps in specifying hardware and system requirements and also helps defining it all. It is created to outline technical requirement such as architecture data sources hardware and service. We have many tool and techniques for design. It describes the overall mechanism of the system. The main aim of design is for usability, customer experiences, customer need, performance, accessibility and all the requirements of customer.

It helps in further performance of the project, for this project I have use different structural, behavioral and Database modeling. It also includes class diagram, activity diagram and prototype etc.

In this project, I have use visual paradigm for sequence diagram and used web application for activity diagram.

## 3.1) Structural Modeling

Structural modeling is defined as process which describe the structure of object and which helps to support the business. The object in structural modeling is stored in data and files. It is used to assess unobservable 'latent' constructs.

### 3.1.1) Class Diagram

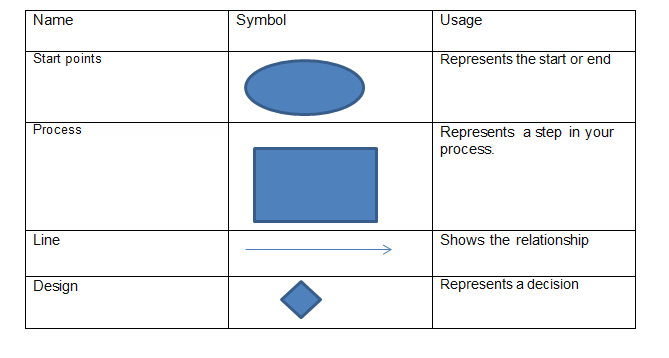
It is known as the static diagram. It also represents the static view of an application. It helps to describe the attributes and operation of class. It is collection of classes, interfaces, constraints etc. it is also known as structural diagram. It uses the access modifier like public (+), private (-), protected (#). Below is the class diagram of my project.

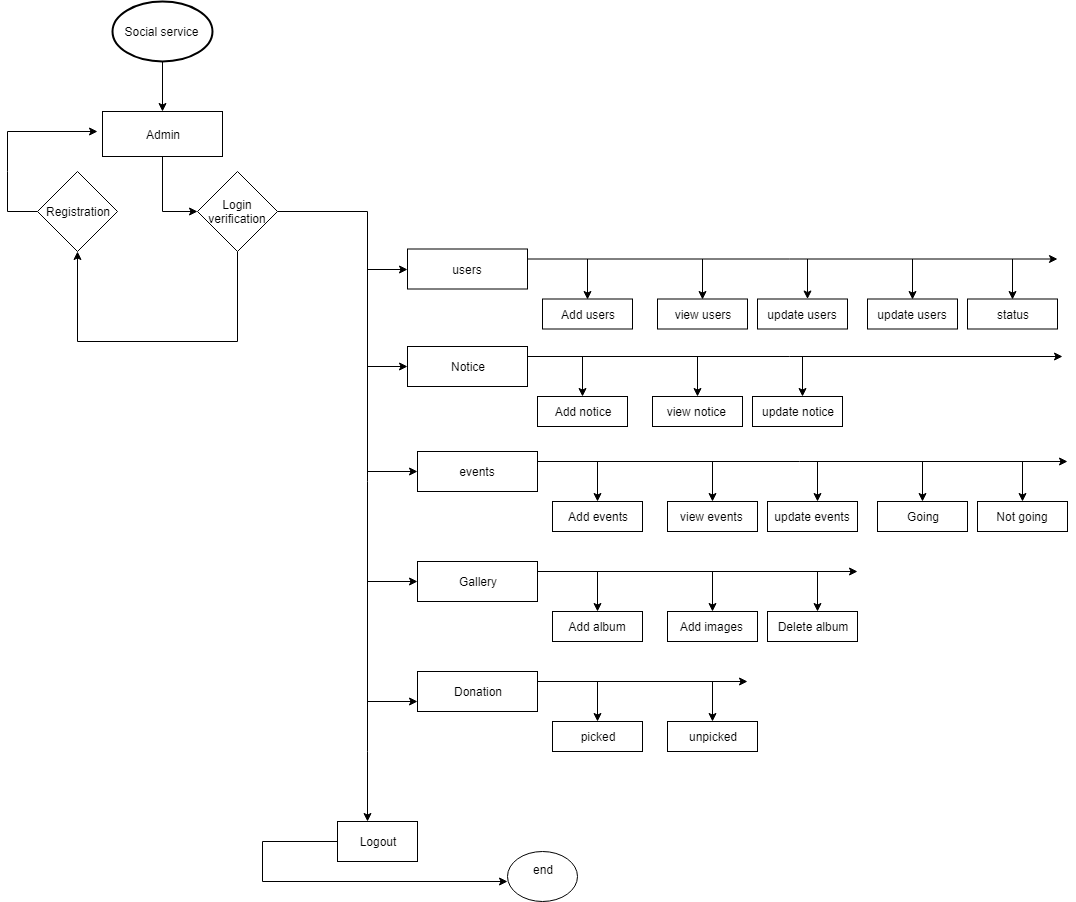
### 3.1.2) Flowchart

It is a diagram that represents a workflow or process. It can also define as a diagrammatic representation of an algorithm or a step-by-step approach to solve task. It uses different types of shapes to define the step with flow sequences. The reason behind using the flowchart is:

1. It helps in decision making.
2. It tracks the process flow.
3. It is easy to understand.
4. Understanding of relationship among different process steps.
5. It helps to collect data about a particular process.

**Notations Used**





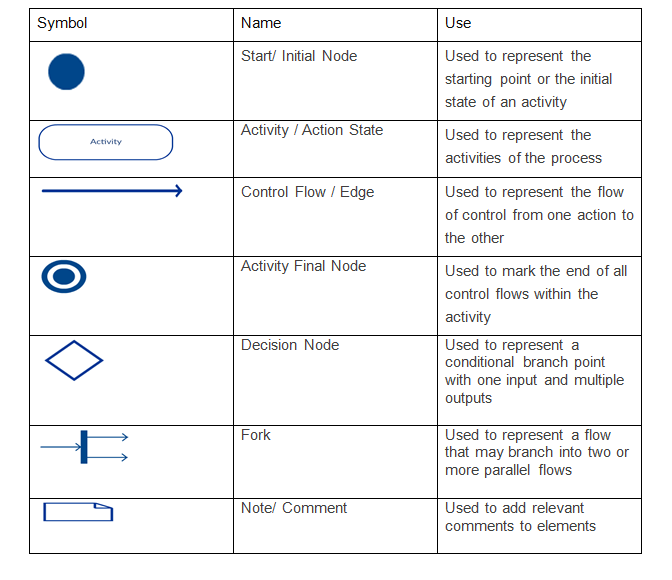
## 3.2) Behavior Modeling

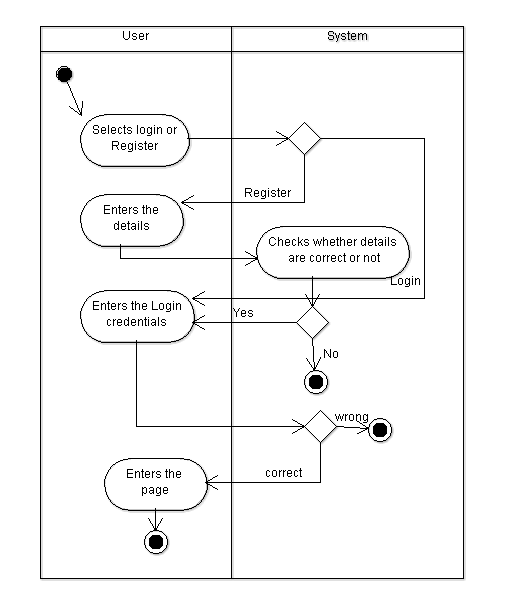
### 3.2.1) Activity Diagram

Activity diagram is defined as the graphical representation of an executed set of procedural system activities. It describes parallel and conditional activities, use cases. The state of activity relates to the performance of each workflow step. The reasons behind using Activity diagram are as follows:

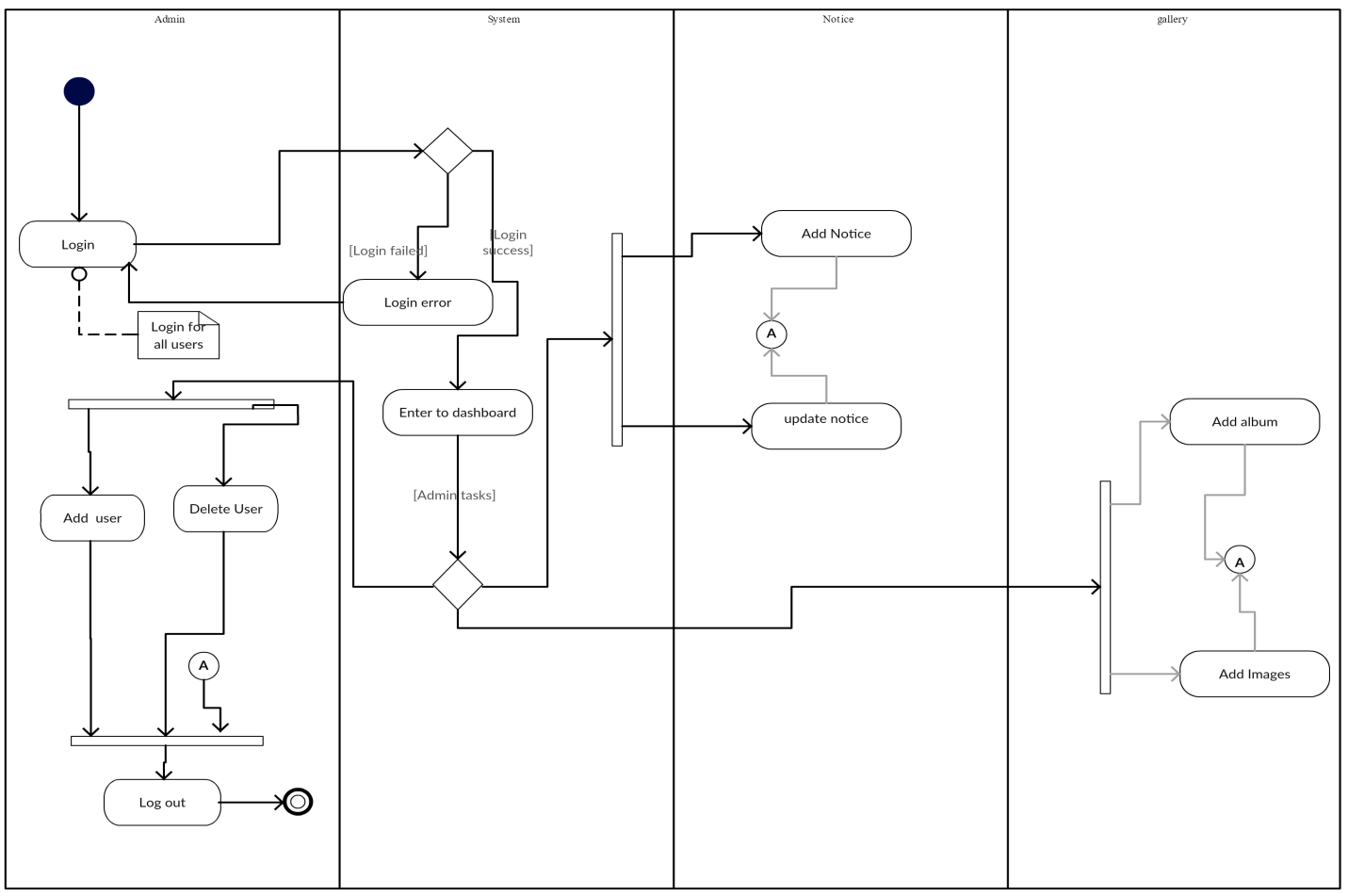
1. It draws the activity flow of a system.
2. It helps to describe the sequence from one activity to another.
3. It describes the parallel, branched and current flow of the system.
4. It helps to understand software flows and logic control configurations.

**Notations Used**





The following activity diagram is user login or registration. First of all the user insert username and password if it is valid then system is login otherwise user have to register first. System checks the username or password if it is correct user have access to enter page. If username or password is incorrect it ends.

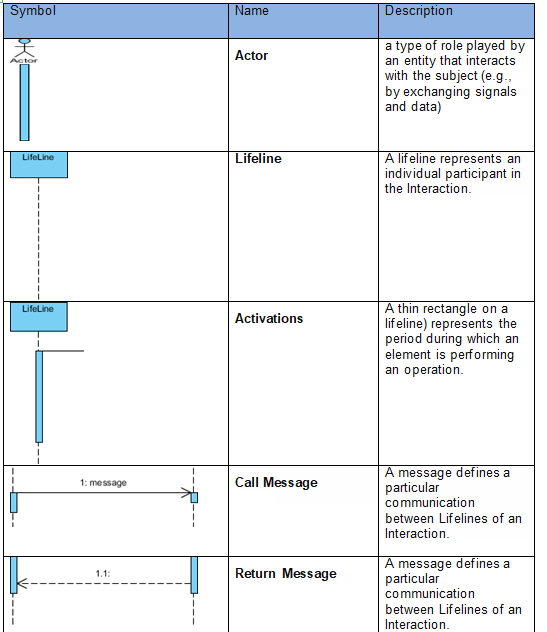


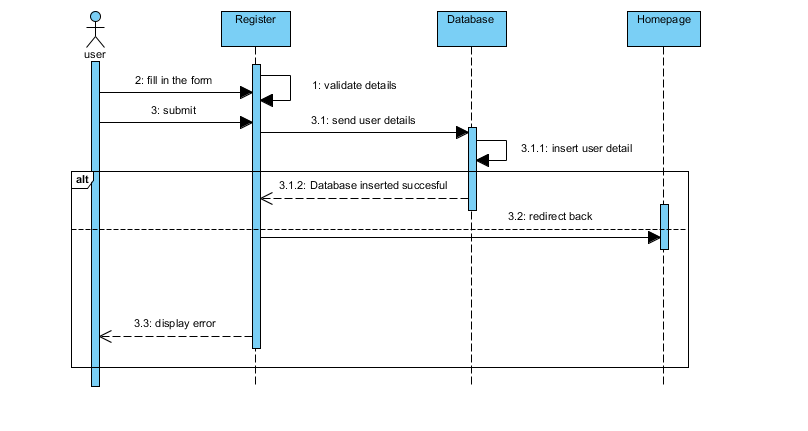
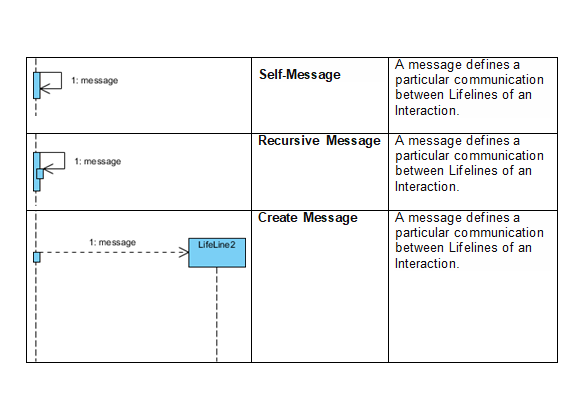
Admin can login inserting username or password if it is correct login success message display and have access to dashboard. If the username or password is invalid error message will display and go back to login page. From dashboard user can add user, delete user otherwise have multiple choice otherwise notice/gallery. Use can add/update notice where in gallery add album/add images. If user want to get back to admin page user have alternative to logout.

### 3.2.2) Sequence Diagram

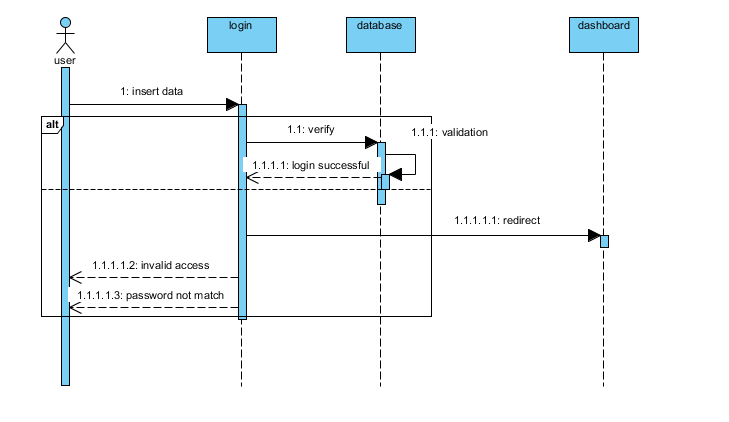
It shows the object interactions and relationship arranged in time sequence. It is an essential component used in processes related to analysis, document and design. It is also known as timing diagram, event diagram and event scenario. The reason behind using sequence diagram is as follows:

* It is easier to read and understand.
* It helps you to discover architectural, interface and logic problems early.
* It helps to document the dynamic view of the systemdesign

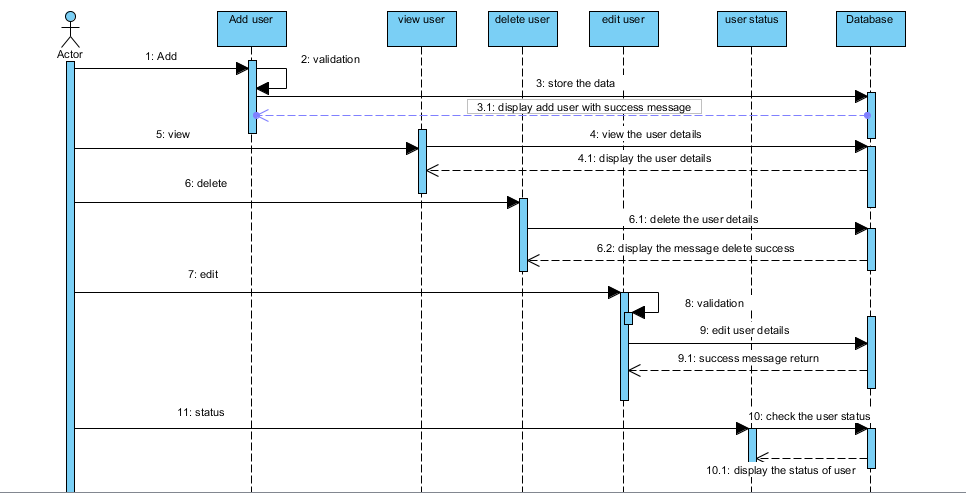




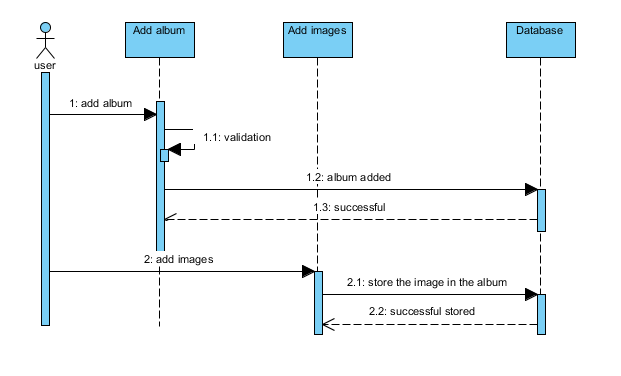
Above is the squence diagram of Registration, first user fill the form and submit then cheack the details of the user and send to databse. if the the user detail is correct then data inserted successful message will display and go to homepage otherwise display the error.



This is the sequence diagram of login, first user insert data then verify in the database and validate if it is correct login is success and enter to dashboard otherwise invalid access or password not match will display.



This is the sequence diagram of user where admin and add, view, edit, delete and check the status of the user. Admin can add the user is the user detail is correct then it will store in the database. As on other if the info/details of correct data will be stored.

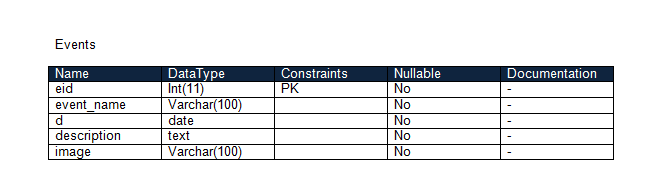
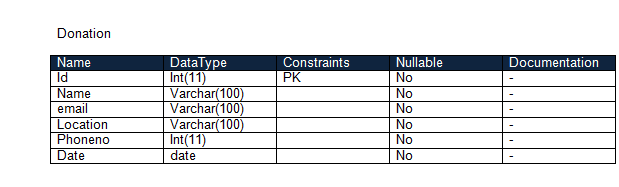
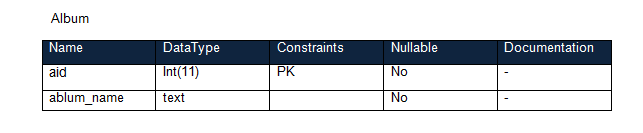


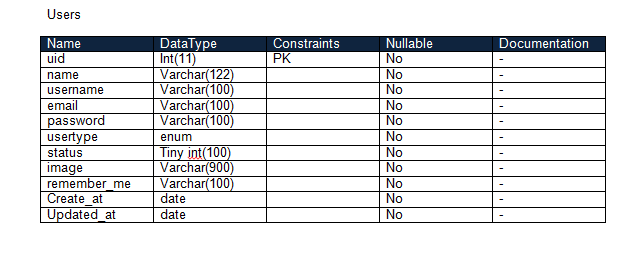
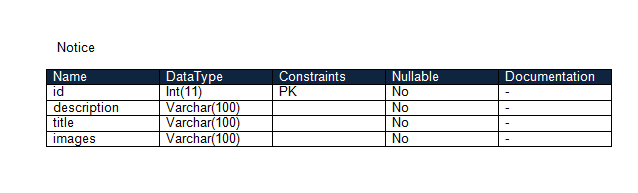
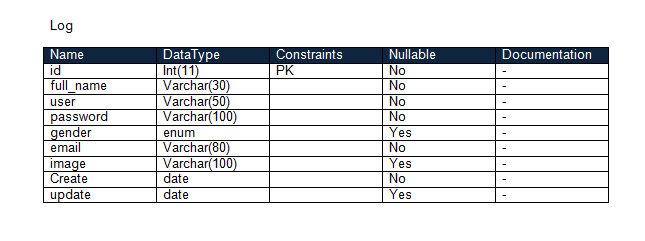
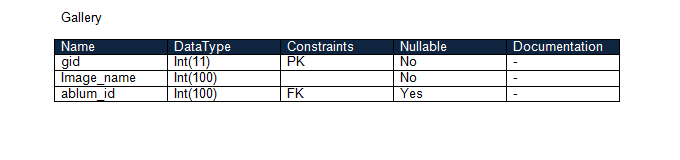
This is the sequence diagram of gallery where user adds the album and validates then if it is correct album added message will display. User can also add image under ablum if it is stores success message will display.

## 3.3) Database Modeling

### 3.3.1) Data Dictionary

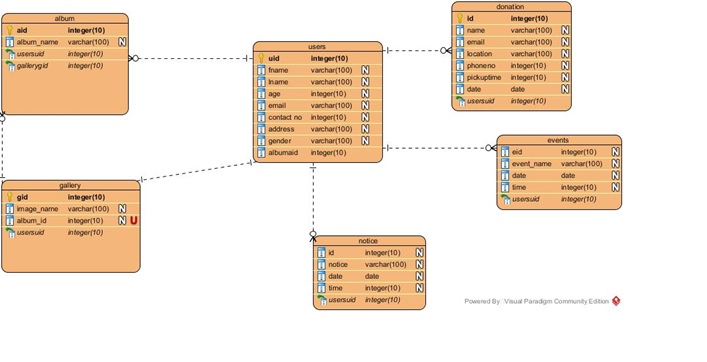
Data dictionary is called collection of names, attributes definitions and about **data** elements that are being used or captured in a database and part of a research project. It contains records about other objects in the database for example ownership, data relationship or other objects. Below is some of my data dictionary.





### 3.3.2) ER Diagram

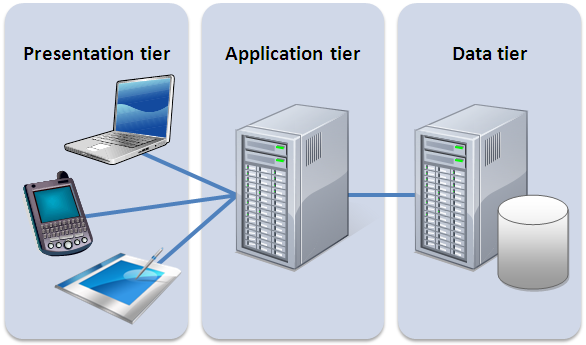
Entity relationship Diagram (ERD) shows the relationship of entity sets which is stored in a database. It shows the relationship by its entities, attributes. It illustrates the logical structural of database. Below is ER diagram of my project.



## 3.4) Architectural Model

3-tier architecture is known as client-server architecture in which the functional process logic and user interface are developed and maintained as independent modules. The 3-tier is as follows.

1. Presentation layer
2. Application layer
3. Data layer



Presentation layer- It occupies the top level and display information related to server which is available in the website. It communicates with other layer by sending to browser. Its main work is to send context to the browser into different languages.

Application layer- It is the middle layer of the model. Its task is calculation and operation performance between input/output requirement and the data. It is also known as the application server.

Data layer- It is the lower layer of the model. Its task is ensuring all operations with data for example data management system for integrity, processing, selection, aggregation and data audit.

The reason behind using 3-tier is:

1. It improves the performance and availability.

2. It gives the availability to updating technology without impacting other.

3. It is easy for maintenance of code and management.

## 3.5) Prototype Design

It is an original model, form that servers as a base for other processes. Prototype is also working example through which a new model or new version of an existing product can be derived. The reason behind using prototype in my project is to improve the quality of requirements and specifications. These are some prototype of my project.

