# Chapter Three

# System Design

## **3.1 Introduction**

The purpose of designing is to show the direction how the system is built and to obtain clear and enough information needed to drive the actual implementation of the system. It is based on understanding of the model the software built on. The objectives of design is to model the system with high quality. Implementing of high quality system depend on the nature of design created by the designer. If one want changes to the system after it has been put in to operation depends on the quality of the system design. So if the system is design effectively, it will be easy to make changes to it.

## **3.2 Purpose and Goals of design**

The design goals represent the desired qualities the system should have and provide a consistent set of criteria that would be taken into consideration when making design decisions. The following are mentioned as the design goals of “android based Taxi Booking system “.

**Security**: The system should authenticate it’s users by prompting them to enter user name and password in order to get access to the system.

**Extensibility**: the system should allow any additional services easily if needed, in other words it should not be difficult to extend the system if additions are necessary.

**Availability**: the system should be available every time the user needs to access it.

**Usability**: the system should have user friendly user interface to allow the user to interact with the system easily.

**Portability:** the system should be able to run on any mobile that supports mobile applications.

**Performance**: the main performance measure for a project is time, so the system should give fast responses for user requests.

## **3.3 Proposed software architecture**

The architecture which will be used for the proposed system is a two tier architecture where the client or the user side is a mobile phone containing user interfaces like data entry interfaces, it is used to display information to the user. User directly interacts with the system through the interfaces on this layer.

The data layer or the database is responsible for storing all information needed for the system to function correctly.



Figure 3. 1 proposed software architecture

## **3.4 Component modelling**

Systems may be built from components in component based architecture. Component diagram shows how objects (classes) in our system are grouped together and form components. The components interact with each other either in giving service to other components or requesting service from other component.

### **3.4.1 Component Diagram for Admin Functionality**

 Figure 3. 2 Component diagram for admin functionality

### **3.4.2 Component diagram for Customers (passenger and driver)**

 Figure 3.3 component diagram for passenger and driver

### **3.4.3 Deployment Diagram**

Deployment diagram is a static view of the run-time configuration of hardware nodes and the software components that run on those nodes. It shows the hardware of system, the software that is installed on that hardware.

**Figure 3. 4 deployment diagram.**

## **3.5 Detail Design**

### **3.5.1 System Class Diagram**

The class diagram is a static diagram that represents the static view of an application. It describes the attributes and operations of a class and also the constraints imposed on the system**.** So class diagram is the diagram that used to express the class in our system. This class diagram contains conceptual class or main class. It contains one class has relation to another class, attribute and operation of the class.

Figure 3. 5 Class modelling diagram

### **3.5.2 Persistent model**

**Mapping**

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## **3.6 User Interface Design**

## **3.7 Access control and security**

In the system, different actors have access to different functionality and data. The system has different users such as passengers, administrator and driver.

**The passengers**: Represents unauthenticated user. It is used by without Login subsystems to book taxi. And also they responsible to fill booking form, select, search booking.

**Driver:** Is an authenticated user who is responsible to accept and reject booking, change taxi current status and cancel booking.

**Administrator:** Is an authenticated user. It is used by login subsystem. He or she is responsible for managing drivers, taxi and control booking.