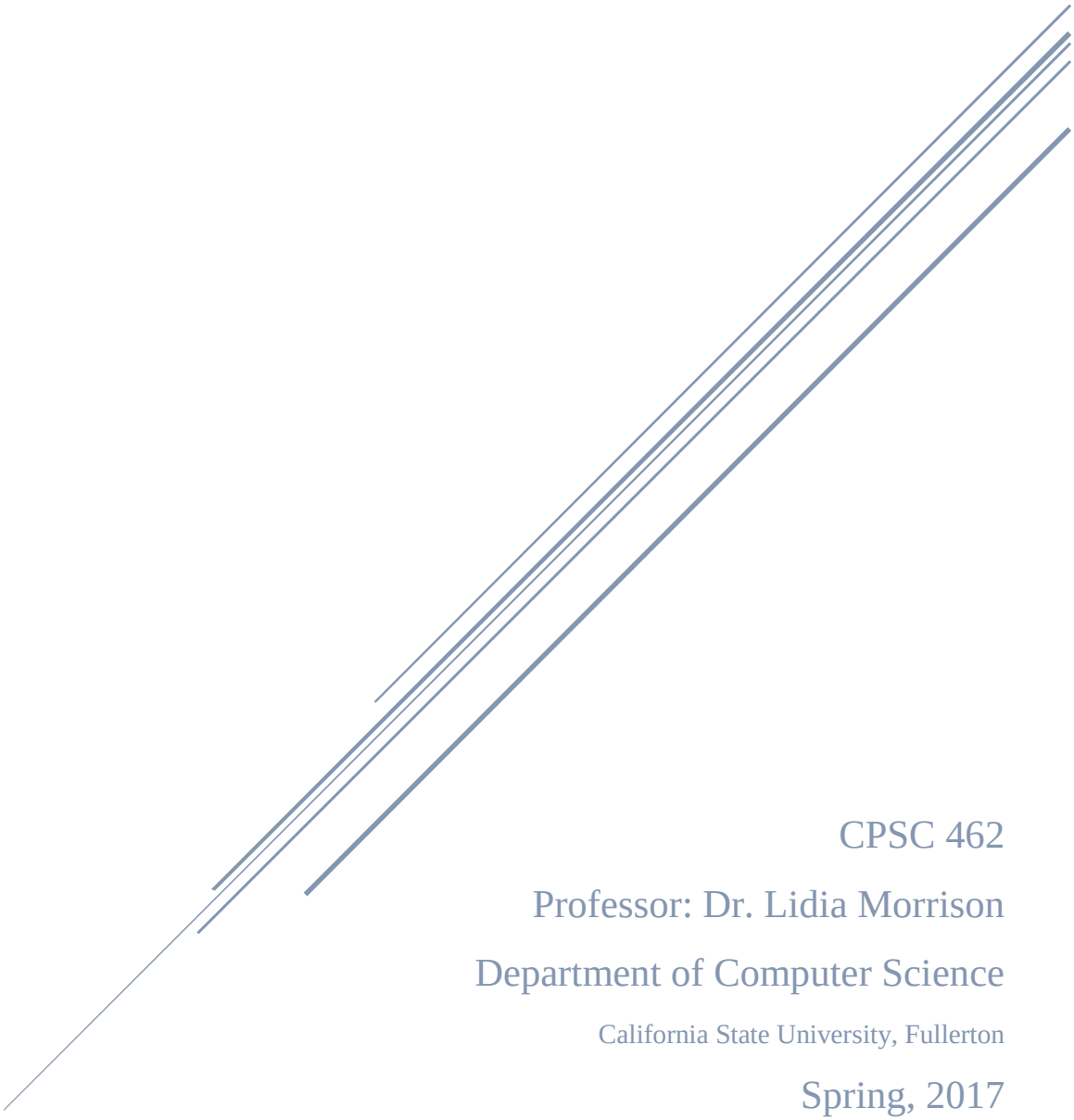
QMEIN

Software Design Description



CPSC 462

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1 INTRODUCTION

1.1 PURPOSE

The following document offers a description of the software design description for our 462-group project. This software design document describes the architecture and system design of QmeIn, a web application

1.2 SCOPE

Holding up in a line is one of the most baffling thing. There are long queues at most of the places like DMV, restaurants, book shops etc. This is the place Qmein comes in by presenting simple and easy to use application which digitizes the physical line.

QmeIn Web Application allows individuals to digitally queue themselves into a line. This gives individuals the freedom to be away from the local environment from where the physical transaction will occur. Thus, freeing the individual to complete other tasks until the time of transaction. QmeIn Web Application will send notice(s) prior to transaction time, prompting the individual to arrive at the transaction location.

1.3 OVERVIEW

In order to clearly identify the design of our software, this document will be divided into several parts:

1. Introduction - An overview an explanation of the document

2. System Overview - General description of the functionality, context and design of our project
3. System Architecture - Actual design of our software, including but not limited to modular structures data flow diagrams, and class diagrams
4. Human Interface Design - Description of the User Interface

1.4 References

1. IEEE Software Design Document (SDD) Template
http://www.atilim.edu.tr/~dmishra/se112/sdd_template.pdf
2. Class PowerPoint Professor Morrison, CPSC 462, CSUF

1.5 Definitions and Acronyms

SDD - Software Design Document

SRS - Software Requirement Specifications

IEEE - Institute of Electrical and Electronic Engineers

GUI - Graphical User Interface

2 System Overview

2.1 General Overview

QmeIn web application is designed for users to free themselves from the constraints of a physical line. QmeIn is a virtual queue that no longer requires the user to be present at a real queue at all times. With the tap of a button, a user places themselves in a virtual queue which proceeds as a

real queue. Whether the queue is at the DMV, a bank, a restaurant, a stadium ticket counter, a parking lot, our own Titan bookstore, or the countless other locations that require people to stand in line, QmeIn will seamlessly do the waiting for the user.

2.2 Application Description

When a user first launches the web application, they will be greeted with a home screen. This home page consists of three components which is the login, new user and new merchant. The new user component is used to create a new account for the user with details like name, last name, e-mail, telephone number and password for security. The new merchant component is used to create a new account for the merchant with details like name, last name, e-mail, telephone number, password, business name and business address. After the user account or merchant account is created, the login page is displayed and then they are taken to their respective screen.

If the individual has registered as a user account, then the application will direct the person to the user page. The user will be greeted with a hello message with user's name and a Queme Up button to direct the user to the merchant listing. The merchant listing consists list of available queue businesses available in the application with a Queue in and Queue status button. The queue in button will direct the user to the virtual queue and check status button to view the user's positon in the queue, the average time for one transaction, average wait time and QmeOut button to remove user form the queue. If the user reaches third position in the queue user will be notified via text message.

If the individual has registered as a merchant account, then the application will direct to the merchant page. The merchant page consists of list of users in the queue and a complete button besides each user if the task for that user is completed.

3 SYSTEM ARCHITECTURE

3.1 ARCHITECTURAL DESIGN

The architecture of a software system has a noteworthy effect on framework execution, effectiveness, security, and viability. It is the essential antique for conceptualization, building, and overseeing of the framework a work in progress.

In our case the main program consists of the homepage which is the consists of login and register components to pass onto the next subroutine. The subroutine has the task to take registration details of the user and merchant and store them in database for access in the next subroutine according to the type of registration. The subroutine 2 is for user's page and subroutine 3 is for merchant page

The Qmein web application is divided into four modules. The first module consists of login information for registered users to login into the application. The second module is for users to register in the application. The third module is related to user's view contents and the forth module consists of merchants related content.

The following diagram describes the Modular structure design:

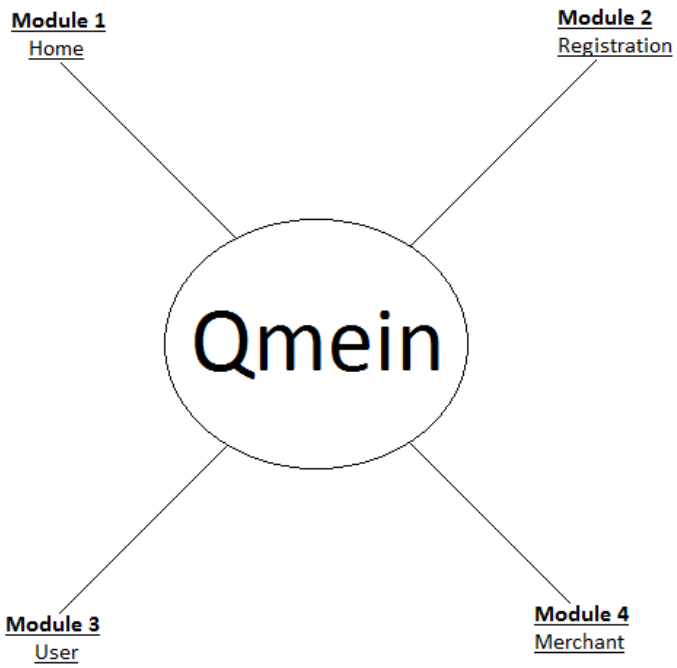

Figure 1: Modular Structure Design

3.2 DECOMPOSITION DESCRIPTION

Module 1

The login and register is the main component which is going to be implemented in module 1. The homepage (module 1) consists of all the necessary contents in login which is the username and password. It also includes path to direct to the registration page. The figure below is the view page for homepage.

- The login will direct the person to either merchant or user page.
- The register will direct the person to register as a user or a merchant.

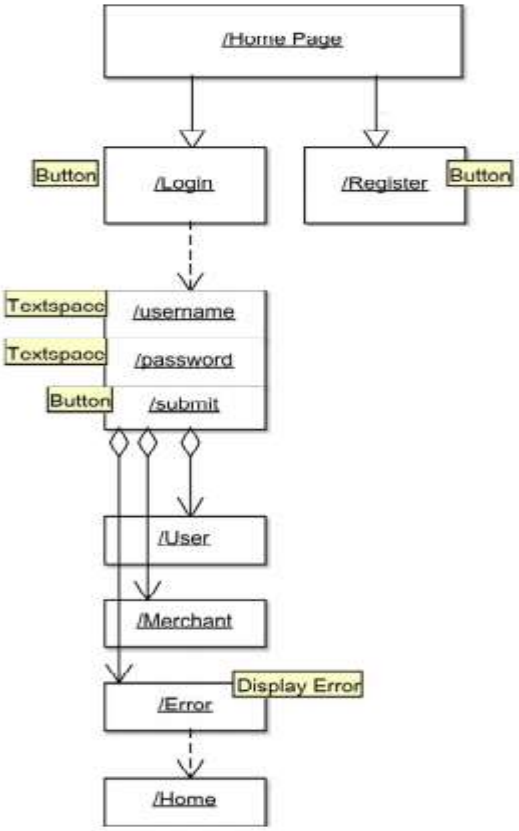

Figure 2: Model view for homepage

Module 2 – (Registration)

The module 2 is the registration page which consists the registration of the user and the merchant. The user registration consists of first name, last name, email, phone number and password. The user registration consists of first name, last name, email, phone number password, business name and business address. After the individual has filled all the detailed and clicked on submit button their respective registration page then the details are collected and stored database using Mongoose. Then the individual is directed to the login page. If the individual enters wrong details, then error message pop up.

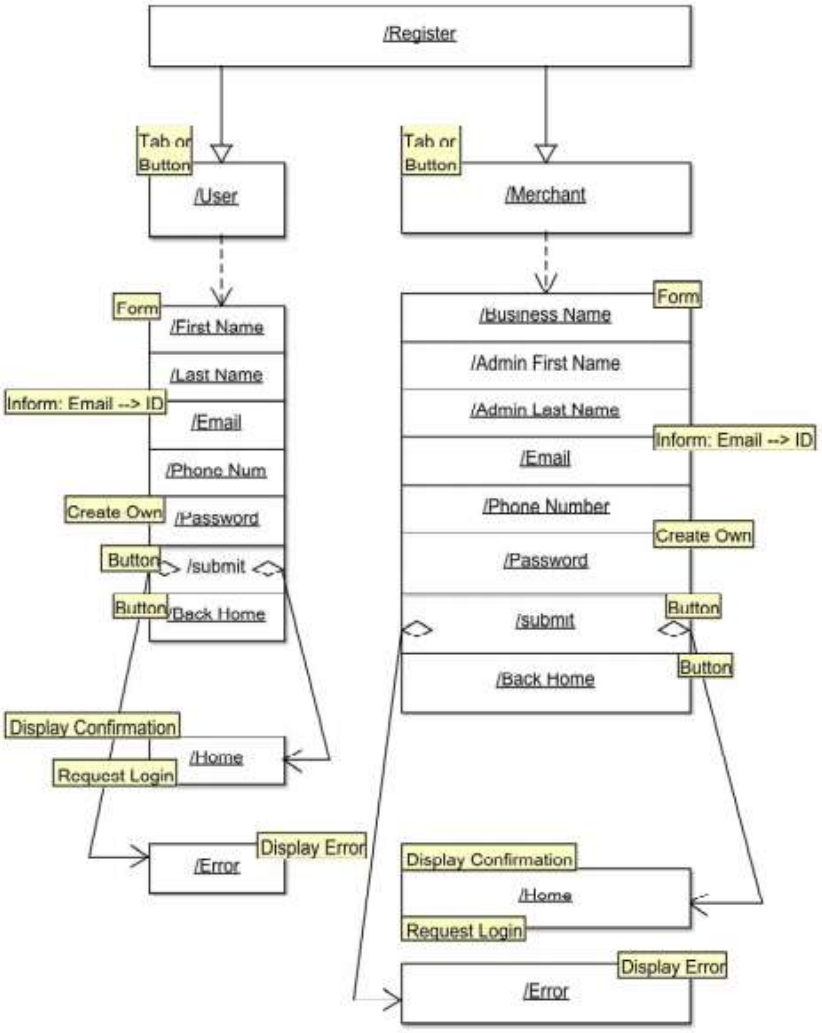

Figure 3: Model view for registration

Module 3 (User)

This module 3 consists of the user's page components. It consists of tasks like to select the business, check status, add to queue and remove from queue. The user first would be greeted with a hello message and then an option to select which queue the user wants to be in. After the user has selected the merchant he wants to be in then the user has the ability to check the status

of the queue and add to queue. The add to queue will add the user to the queue and display the position of the user, the average time for one transaction and expected time. The user has the option to remove himself from the queue.

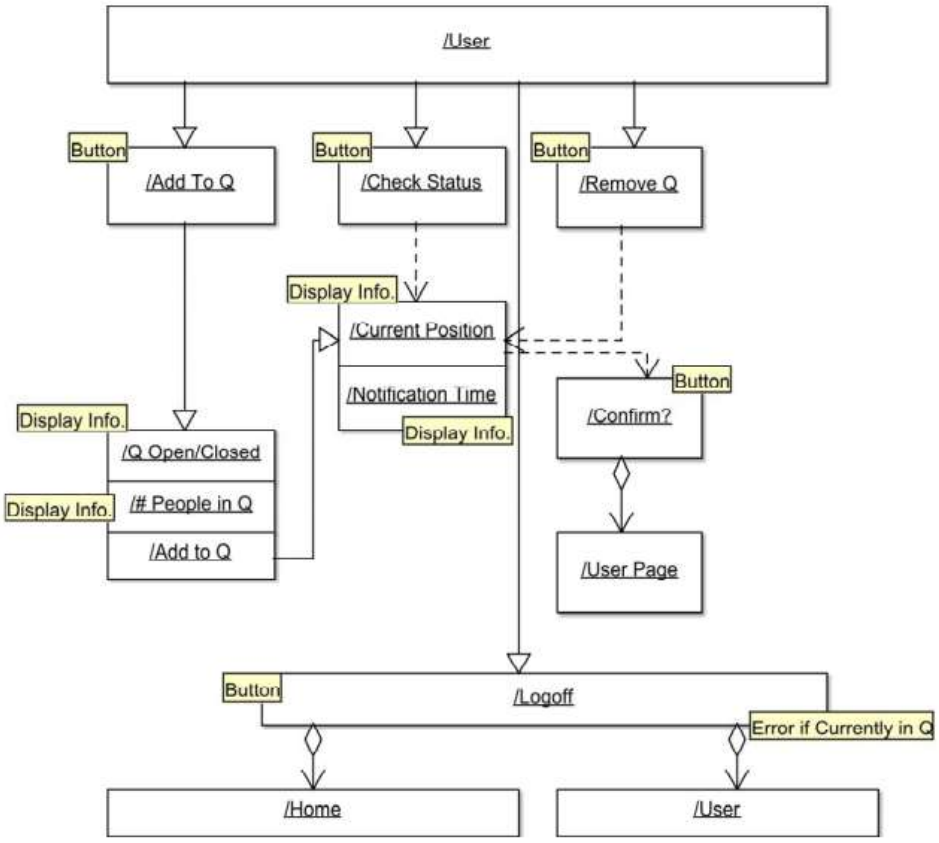

Figure 4: Model view for user

Module 4 (Merchant)

The module 4 consists of the merchant's page functions. If the individual has logged in as a merchant, then the queue list would be displayed to the individual. The queue list consists of user's position, name, email, telephone number, time, timer for transaction and a complete

button. The merchant has to start accepting users in ascending order. The timer is the time taken for each transaction which would stop when the merchant clicks on the complete button. The timer is allocated so the merchant can wait for a predefined second if the user doesn't show up. It is also used to calculate average time of each transaction.

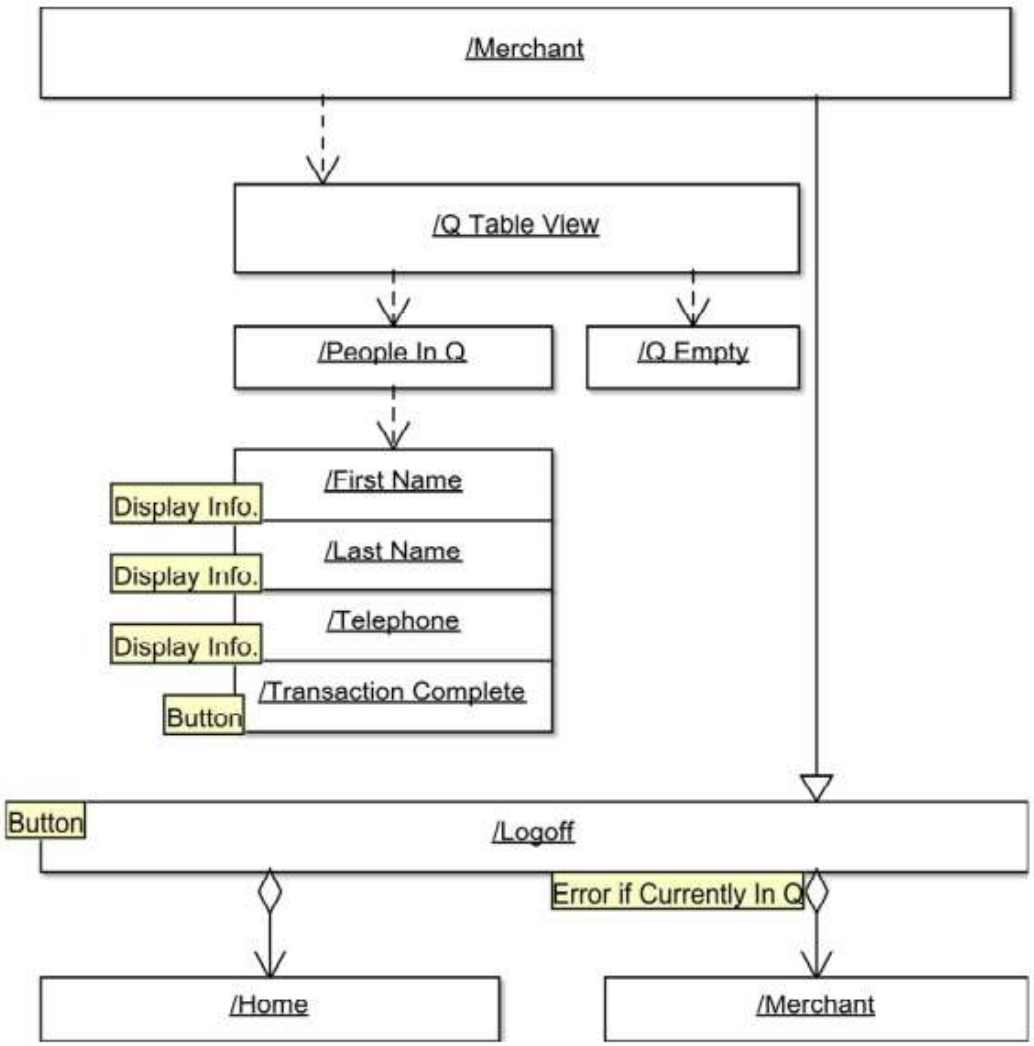

Figure 5: Model view for merchant

3.3 DATABASE DESCRIPTION.

QMEIN ENTITY RELATIONSHIP DIAGRAM

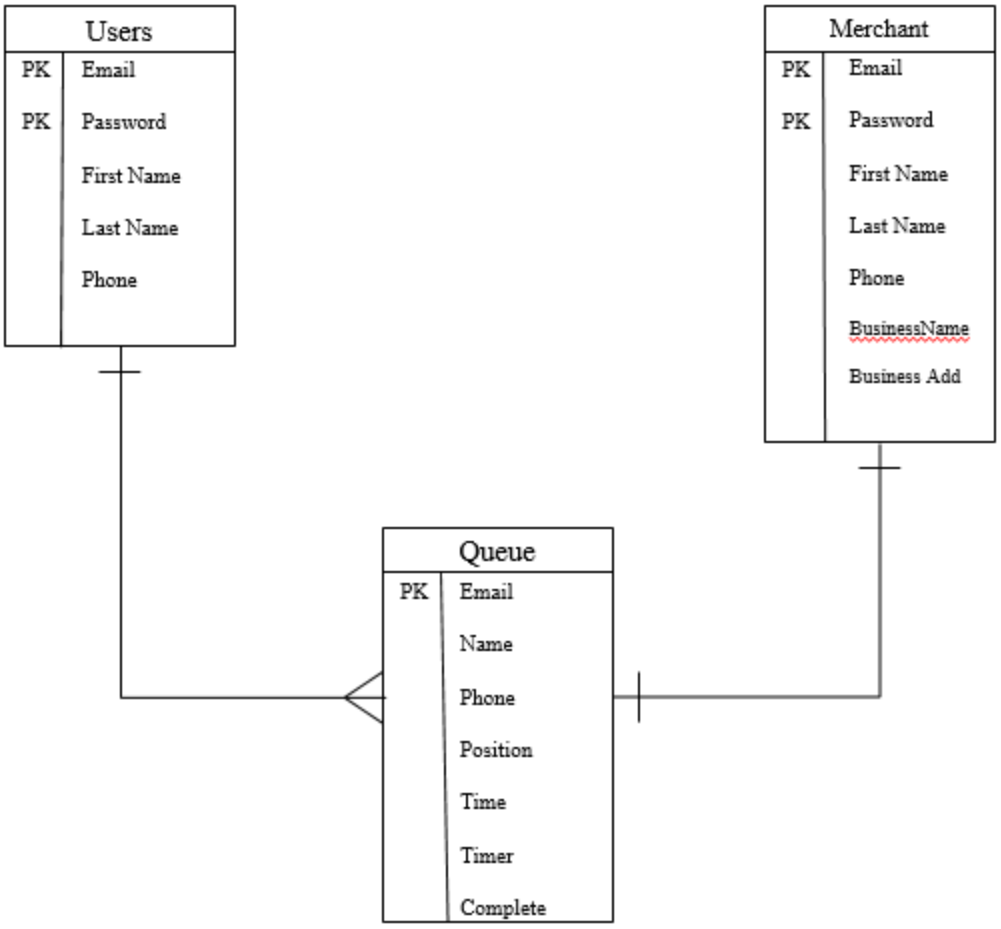

Figure 6: Database design schema

4 HUMAN INTERFACE

4.1 OVERVIEW OF USER INTERFACES

The target of the application was that it must be accessible from any platform. Thus the web browser was the most convenient platform for developing this application. The user can access web from any device. The implementation on bootstrap while development made it accessible for mobile device.

When user hits the app URL, user will be redirected to the home page. The home page will display three options – Login, User Register and Merchant Register. The register screens will display the required information fields to be filled by the user for registration. Login screen asks for username and password for login. If user is logged in then the User home screen is will be displayed where user can select the merchant to queue in, or to queue out. If user queues in the confirmation with average wait time is displayed. If merchant logs in, then the users in merchant's queue will be displayed. Merchant can remove user from queue once the purpose is served. The time will be displayed for the first user to allow merchant to estimate the wait times. When user/merchant logout the home screen with three options will be displayed.

4.2 UI SAMPLES

1. Homepage

The home page consists of the login page, user registration and merchant registration.

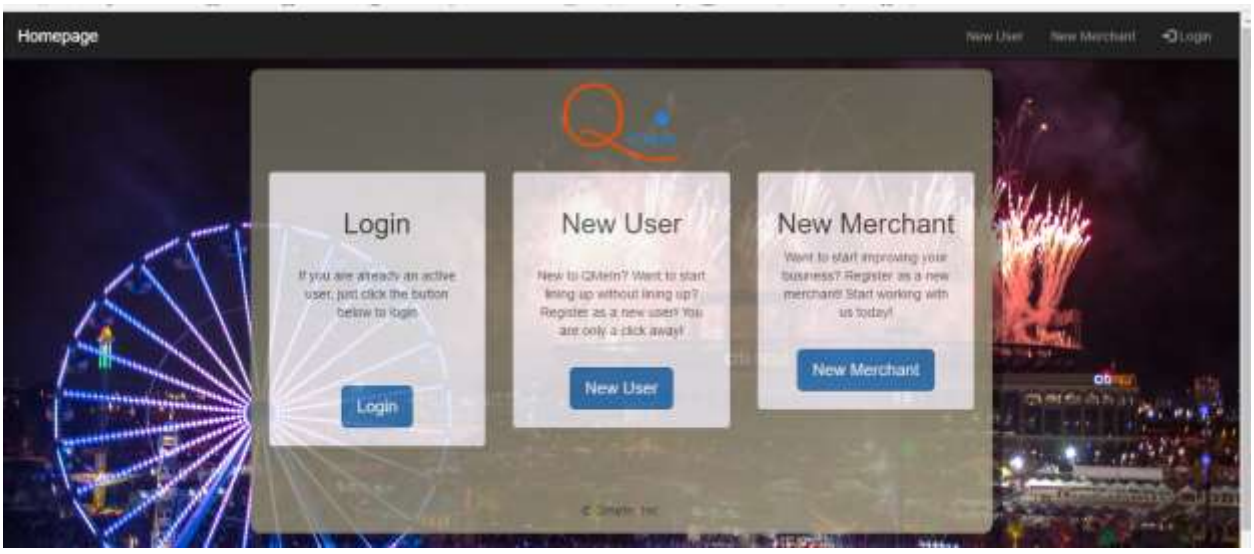

Figure 7: Qmein Home Page

2. Login

Enter email id and password to login.

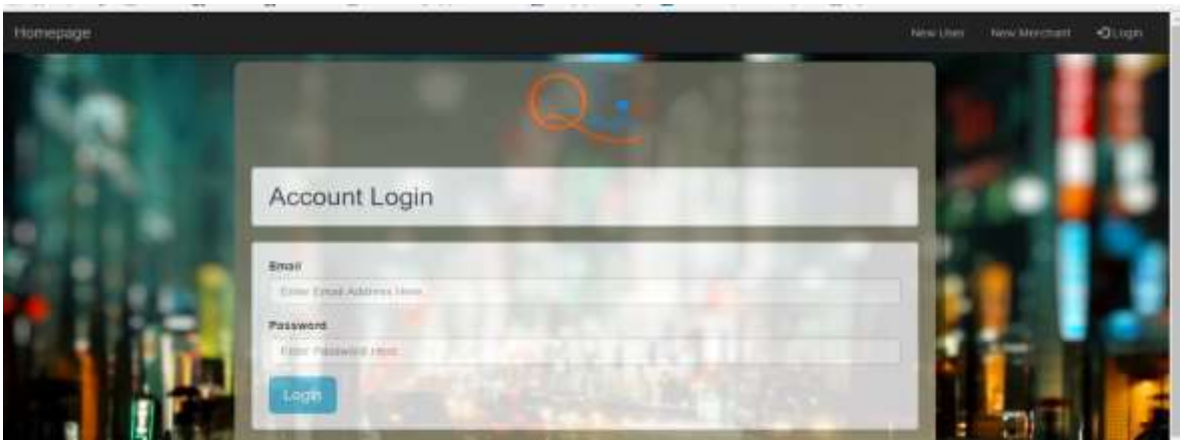

Figure 8: Qmein Login Page

3. Register

Enter registration details to register as a user or a merchant.

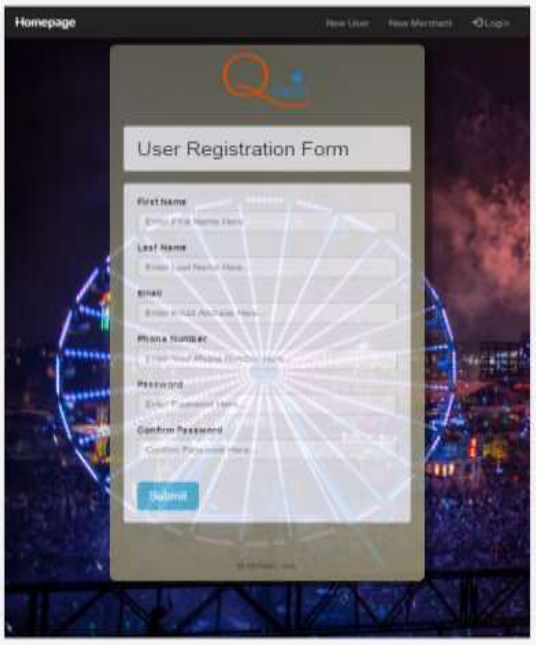

Figure 9: Qmein User Registration

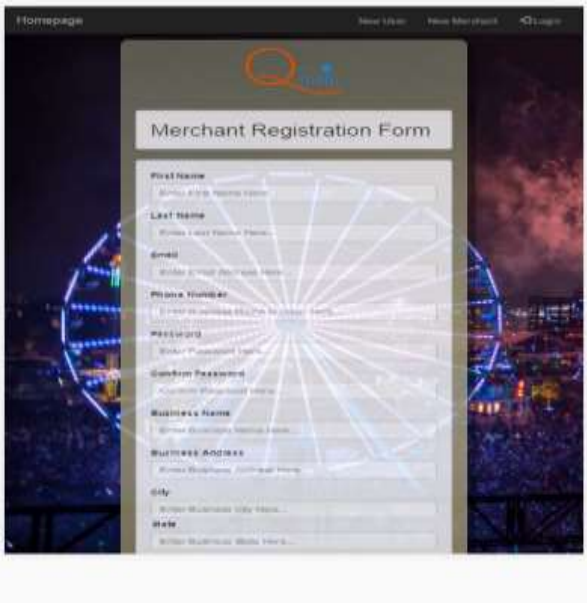

Figure 10: Qmein Merchant Registration

4. User

The user has the option to select the merchant. The user can check status of the queue using check status. The user can add to queue using addtoq button. If the user clicks on add to queue then the position, estimated time and time for each transaction is displayed.

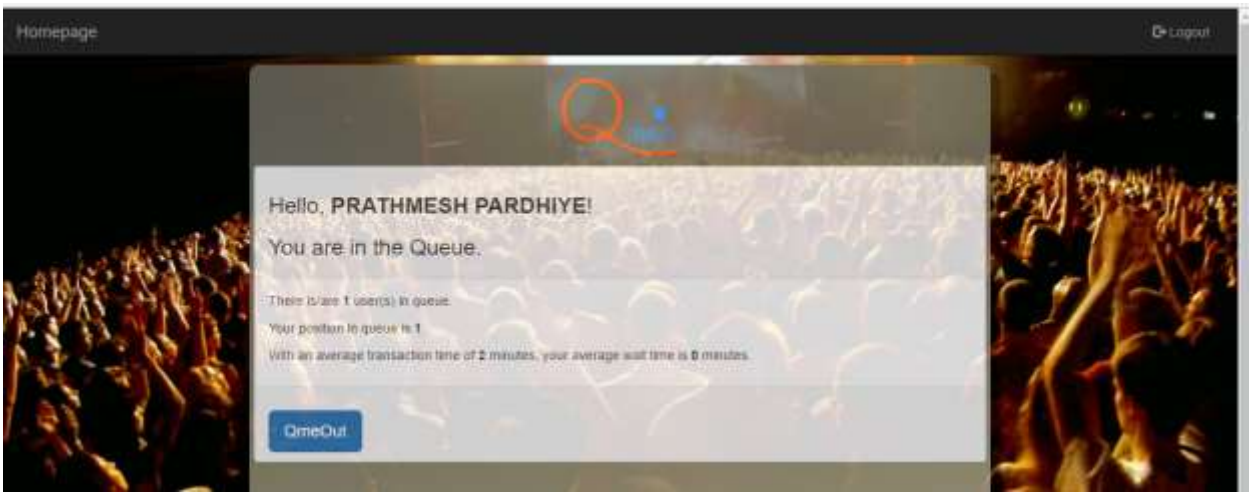

Figure 11: Qmein User Page

5. Merchant

The merchant consists of a table with the list of users in the queue.

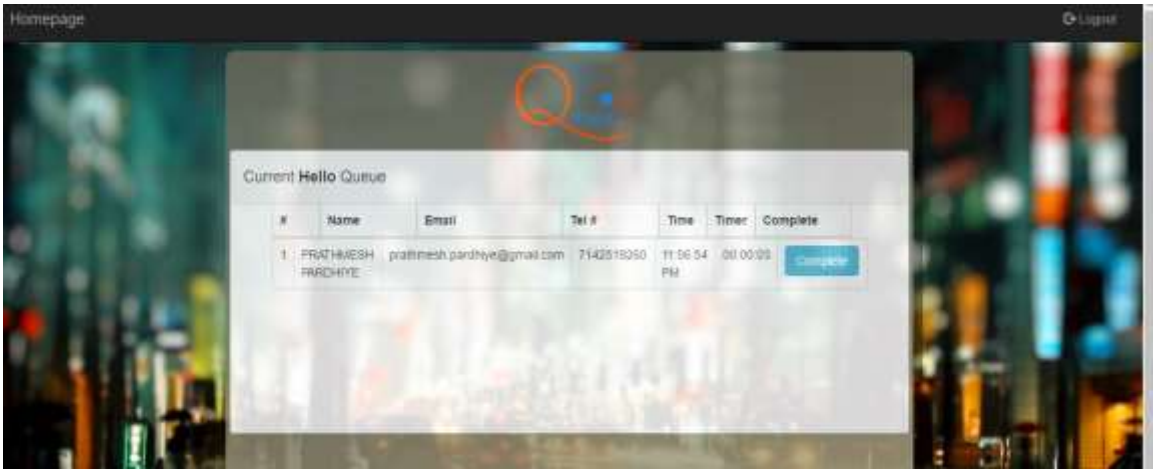

Figure 12: Qmein Merchant Page