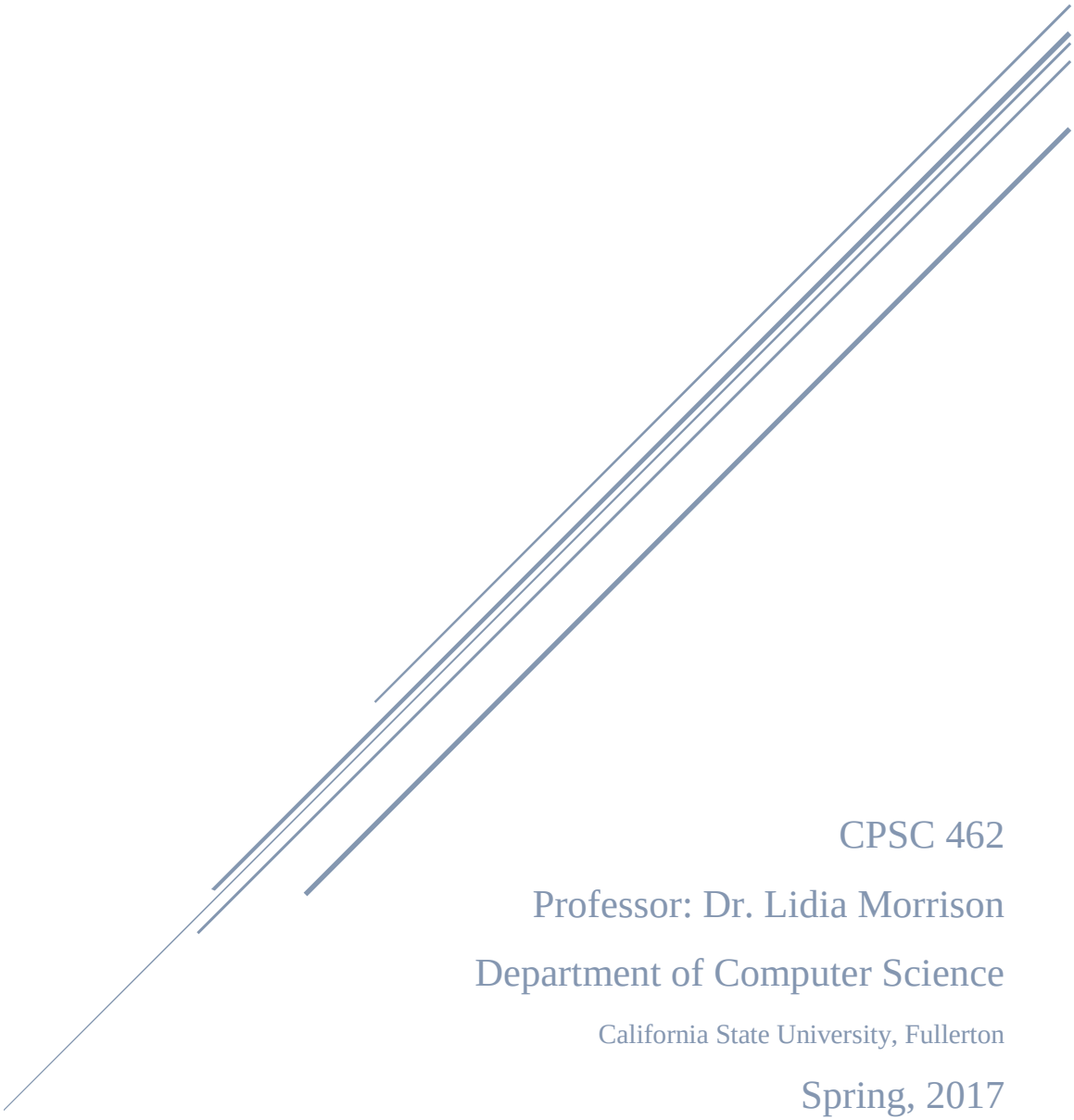
QMEIN

Software Requirements Specification



CPSC 462

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Spring, 2017

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1 INTRODUCTION

1.1 PURPOSE

The following document offers a description of the software requirements for our 462-group project. The document will explain the general purpose and reasoning behind our Web Application, Qmein, including the software requirements and overall goals to be accomplished.

1.2 SCOPE OF THE PROBLEM

Waiting in a queue is one of the frustrating thing. There are long queues at most of the places like DMV, restaurants, book shops etc. This is where Qmein comes in by introducing easy and user friendly app which digitizes the physical queue.

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 INTENDED AUDIENCE

The Intended Audience of this document includes Professor Lidia Morrison, and the members of our group to verify the functionality of the software. Other users include all students enrolled in CPSC 462 for (Fall 2014) at California State University, Fullerton. The application is intended for individuals who don’t want to wait long in queues and merchants who want better and computerized management of their queues.

2 OVERALL DESCRIPTION

2.1 USER OBJECTIVES

The Qmein web application digitizes the physical queue. Users are benefitted as the don't have to wait in the queue. It saves their time. The application offers functionality like users can queue in or queue out in the queues of desired merchant. They get estimated time and message notification as the queue in for any merchant. It is beneficial for Merchants as they can manage their queue efficiently. Merchant can view the users in the queue, get waiting time for each user and can queue out the user once the transaction for that use is complete. The allows merchant to manage their queue efficiently.

2.2 PRODUCT FUNCTIONS

Qmein is the web application which digitizes the physical queue. The user can save ample amount of time. The user is also able to view the average time taken for one customer by the merchant. The time also guides the merchant to check if the queue exceeds the closing time of the merchant business and inform the rest of the queue via text message. This application would even alert the customer if he reaches third position in the queue. The customer would get a complete update regarding position, notification and based elements.

Below are the basic functions of Qmein Web App:

- User can queue in or queue out in the queue for desired merchant.
- Marchant can manage the queue and complete the transaction, after severing the purpose, by queuing out the customer.

- The waiting time is displayed for first customer in queue, giving an idea of time required to complete the transaction.
- The text message notification is sent for the person third in queue to alert them about their turn.

2.3 OPERATING ENVIRONMENT

The Qmein is the web application will be developed in Node JS as backend, HTML, CSS, JavaScript, Handlebars for frontend and MongoDB to store data. There will be no constrains on operating system to run this web application. The application will also work seamlessly on any browser. Creating the android application – mobile app is scheduled for future release of Qmein.

2.4 USER CHARACTERISTICS

This application is basically for the merchants whose business has waiting queue for the customers. This app does not have any age restriction. It can be used by any individual or organization. There is no restriction for gender while using this application. There are no special skills required in operation this application. Supportive dialogues and interfaces will be used to enable users feel comfortable.

2.5 ASSUMPTIONS

This SRS assumes that:

- Users have a prior knowledge in operating website.
- Users haves email accounts and mobile devices with carrier, text messages enable.

- User Understands English.
- Users can read and understand information displayed.
- Users have data enabled to access the app on mobile.

3 FUNCTIONAL REQUIREMENTS

3.1 THE APP SHALL LOAD THE HOME SCREEN

Description: On hitting the URL of the app the home screen should be loaded.

Pre-condition – User have browser installed to browse the URL.

Post-condition – The home page is displayed.

3.2 THE APP SHALL DISPLAY A LOGIN PAGE

Description: A login page is displayed and the user is prompted to enter a username and pin.

Pre-condition – User has register with all correct information and have username and password, and click Login Button.

Post-condition - The home page of the app is displayed if username and password is valid, else an error message is displayed.

3.3 THE APP SHALL LET THE USER CREATE A NEW ACCOUNT

Description: The app shall let the user create a username and password if the “User Register” is selected.

Pre-condition – User selects the user registration on home page.

Post-condition – The user is required to enter the details of the new account on the register page. After clicking register button user is registered to the app and will be able to login via login page.

3.4 THE APP SHALL LET THE USER TO CREATE MERCHANT ACCOUNT

Description: The app shall allow user to create merchant account with valid username and password.

Pre-condition – Merchant selects merchant registration on home page.

Post-condition – Merchant account

3.5 THE APP LET THE MERCHANT/USER TO LOGIN

Description: The app shall allow merchant/user to login with valid user name and password.

Pre-condition – User selects login button and enters valid username and password.

Post-condition –User is redirected to the respective home page of merchant or user depending on role of the user.

3.6 THE APP SHALL ALLOW THE MERCHANT TO COMPLETE THE TRANSACTION

Description: The app shall allow merchant to complete the transaction by hitting the complete button.

Pre-condition – Merchant is logged in and have users in queue listed.

Post-condition – The merchant see the timer for first user and serve the user. Once the purpose is served merchant hits the complete button concluding the transaction.

3.7 THE APP SHALL DISPLAY A TIMER FOR MERCHANT

Description: The app shall display the timer for the first user in queue for merchant to give the transaction time.

Pre-condition – The merchant is logged in and have user list displayed.

Post-condition – The timer is displayed for the first user and is reset after merchant completes the transaction for next user.

3.8 THE APP SHALL ALLOW THE USER TO QUEUE IN TO DESIRED MERCHANT

Description: The user shall allow user to select the desired merchant from list and queue in for that merchant after hitting queue in button.

Pre-condition – User is logged in and have merchant list to select merchant. User hit queue in button.

Post-condition – The user is added to the merchant list and confirmation page displaying the queue out button and average waiting time.

3.9 THE APP SHALL ALLOW THE USER TO QUEUE OUT.

Description: The app shall allow user to queue out if already queued in for any merchant.

Pre-condition – User is queued in for the any merchant.

Post-condition – User is removed from the merchant list after queue out button is hit.

3.10 THE APP SHALL SEND THE TEXT NOTIFICATION WHEN USER IS THIRD IN QUEUE

Description: The app shall send text notification to user who are third in queue.

Pre-condition – The user should have carrier registered and messaging service enabled.

Post-condition – The message is received when user is third in the queue.

4 NON-FUNCTIONAL REQUIREMENTS

4.1 SECURITY:

- The system will require the user to enter a valid username and password before access to the app is granted.
- All data stored on the device will be encrypted and only accessible by the application.

4.2 USABILITY:

- After starting the application, the software will finish loading within 3000 milliseconds.
- When switching between screens, the system will load the next screen within 1000 milliseconds.

5 QUALITY ATTRIBUTES FOR QUMEIN

Quality Attribute	**Brief Description**
RT-1	The application shall add the user on to queue when the user clicks on add to queue button in less than 2 seconds.
RT-2	The application shall send an alert message to the customer when the user reaches third position in the queue.
SS-1	The user and merchant have to enter username and password to view their respective homepage.
SA-1	The system is available on any platform as it is a web application.
AC-1	The system is accessible by any device as it is a web application.

RE: response time

SS: system security

SA: system availability

AC: system accessibility

6 INTERFACE REQUIREMENT

6.1 GUI

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.

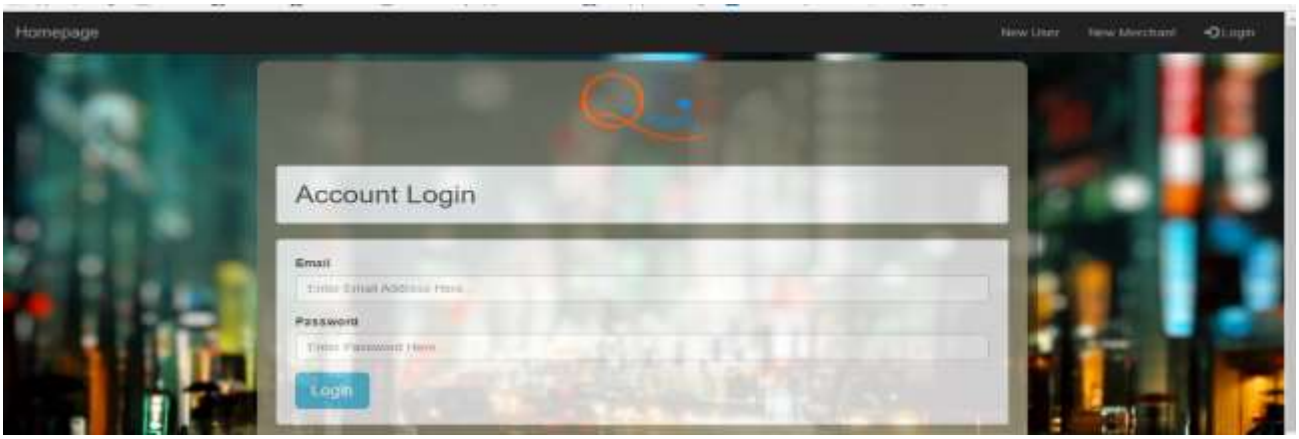

Figure 1: Screenshot of Login Page

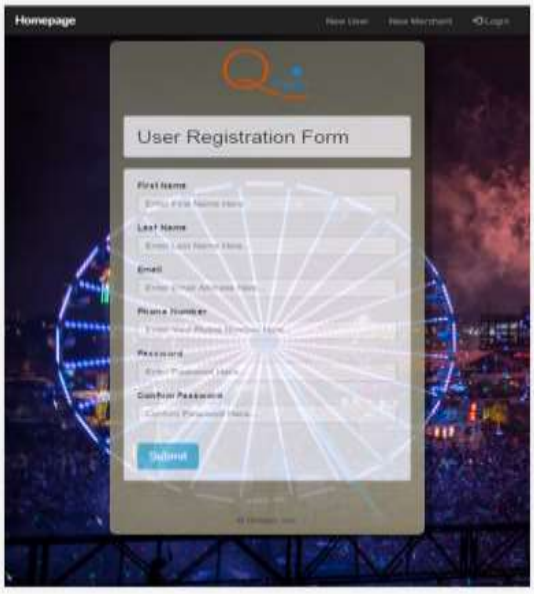

Figure 2 : Screenshot of User Registration Page

6.2 HARDWARE INTERFACE

This application is expected to function optimally any device laptop, desktop, tablets, mobile.

The app requires minimal hardware. The app is expected to work best on devices with CPU speed of 1GHz and a 512MB RAM.

6.3 SOFTWARE REQUIREMENT

The Software interface of this app is already stated in the “Operating Environment” section above.

7 SWOT ANALYSIS FOR QUMEIN

Strengths:

S1: Since the scope of this project is not so wide, the expected functionality of the app can have realized before the product's deadline. This means that all the functional requirements will be met.

S2: The software tools and techniques required for developing this mobile app is readily available and is within our reach.

S3: Since this project is a course work in the 462 class, it requires little or no form of financial support. Therefore, we can say that this project is economically feasible.

Weakness:

W1: Although this group consists of students with a good background in software design and good programming skills, this is the first time we are building a web application using nodeJS, and handlebars. This is a weakness because more time is spent learning how to use the software tools instead of producing the product. This may affect the project's schedule.

W2: Since this is the first version of the app, it lacks certain functionalities compared to other budget assistant apps in the market. But subsequent versions will have more functionalities.

Opportunities:

O1: Almost everywhere there are long queues this days. This app digitizes the physical queue thus saving the time of the user. User can do other stuff, instead of waiting in queue and can go to counter once called. This saves time of the user.

O2: This project creates an avenue for us as a group, to learn new technology as well as new software design methods. Knowledge is gained in learning how to use the software tools required for building this web application.

Threats:

T1: There are also a lot of budget assistant applications already in the market and these products have a high recommendations and user ratings. This is a threat because it will be difficult for our new app to be able to break the market's entry barrier.

8 UML DIAGRAMS

8.1 USE CASE DIAGRAM

The main actors in the use case diagram are the users and the merchants. The tasks assigned to both the individuals initially are same but later it goes different ways. The initial task includes the registration and login use case. These use case are same for both the actors. The registration splits into two use cases which are user and merchant. The new user use case 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 use case 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 use case and then they are directed to their respective screen. The user use case consists of add to queue to add the user to the queue, the option to select the queue to be in, to check the queue, status. The merchant section will display the table which contains list of users in the queue.

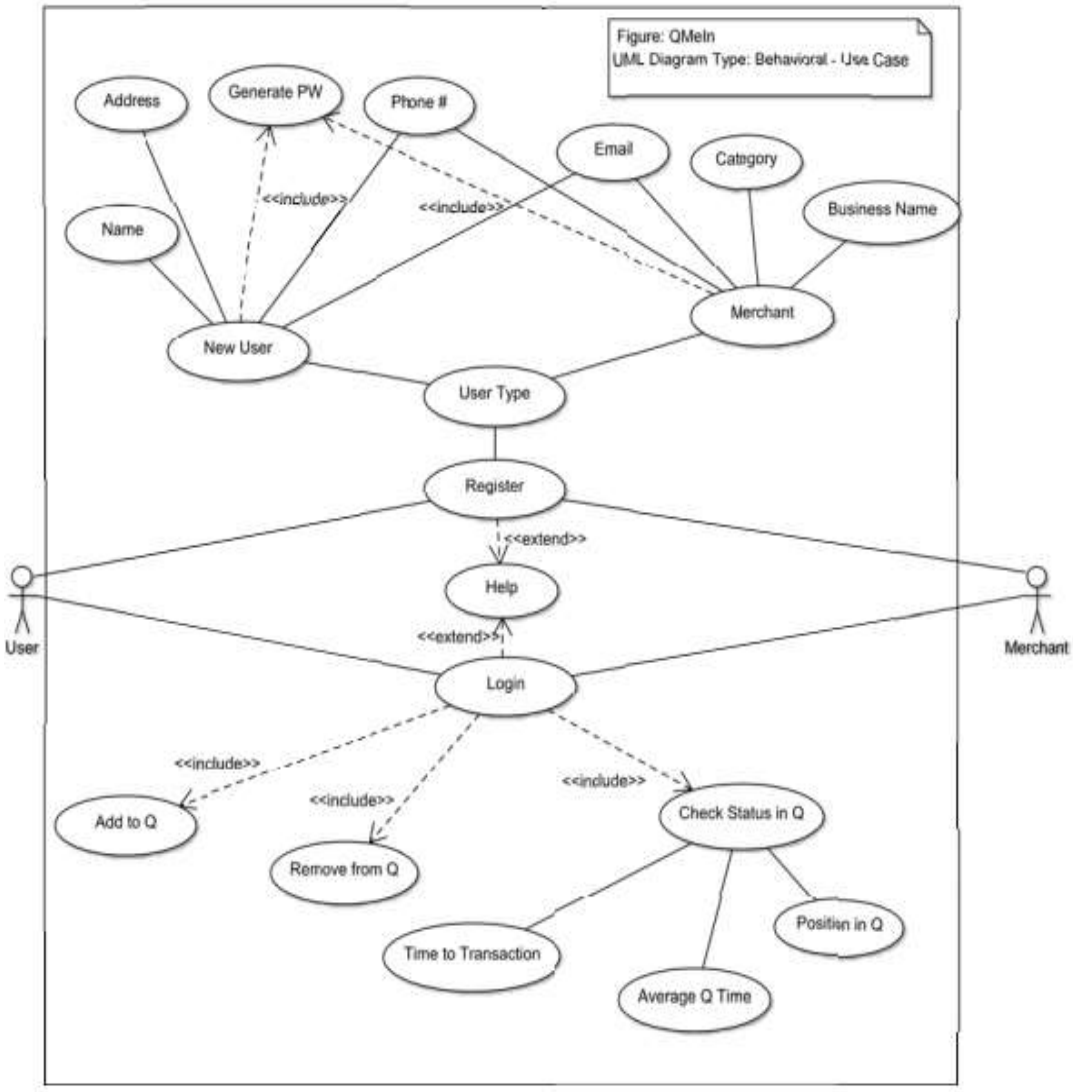

Figure 3: Use Case Diagram – Qmein

8.2 ACTIVITY DIAGRAM

The activity diagram describes the complete activities involved when users log in and queue in and merchant login and complete the transaction. Users can queue in for any merchant. Once queued in the users can queue out if desired or check the queue status. Merchant can view the users in his list and can complete the transaction which will remove the user form the queue. On logout both merchant and user are directed to web app home page.

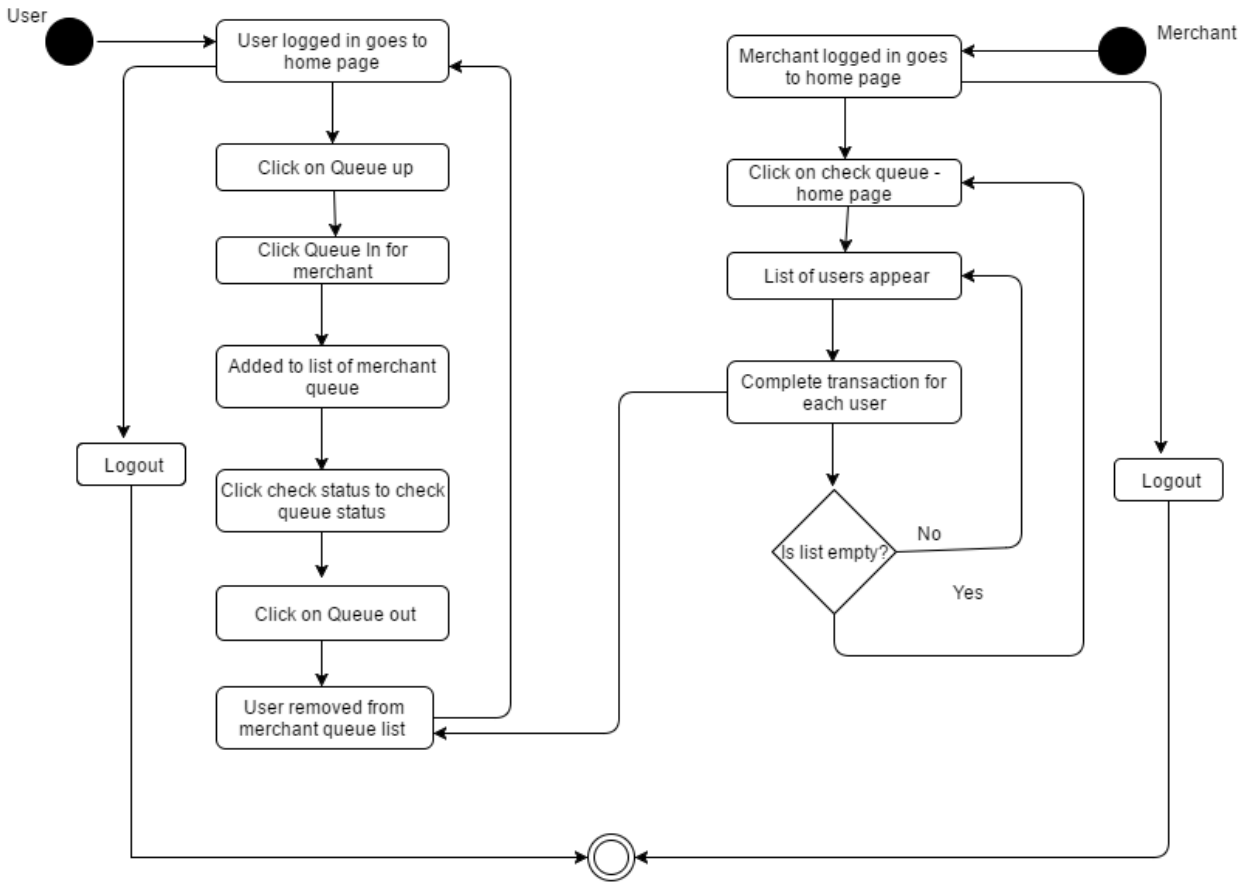

Figure 4: Activity Diagram – User and Merchant Activity

8.3 SEQUENCE DIAGRAM

The sequence diagram depicts the register and login scenarios. . The new user use case 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 use case 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. Once the details are validated user is inserted in database. For login, users login credentials, username and password, are authenticated and user is granted access if credentials are true otherwise redirected to login screen.

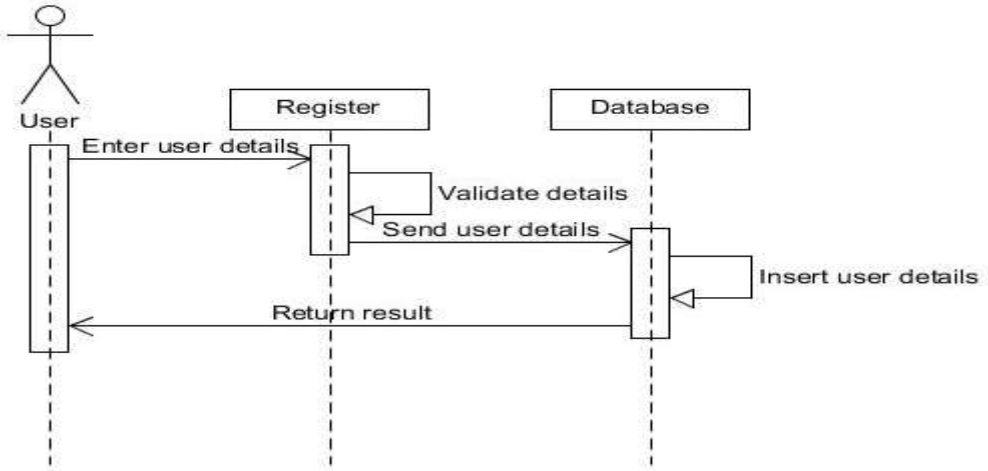

Figure 5: Sequence diagram – User Registration

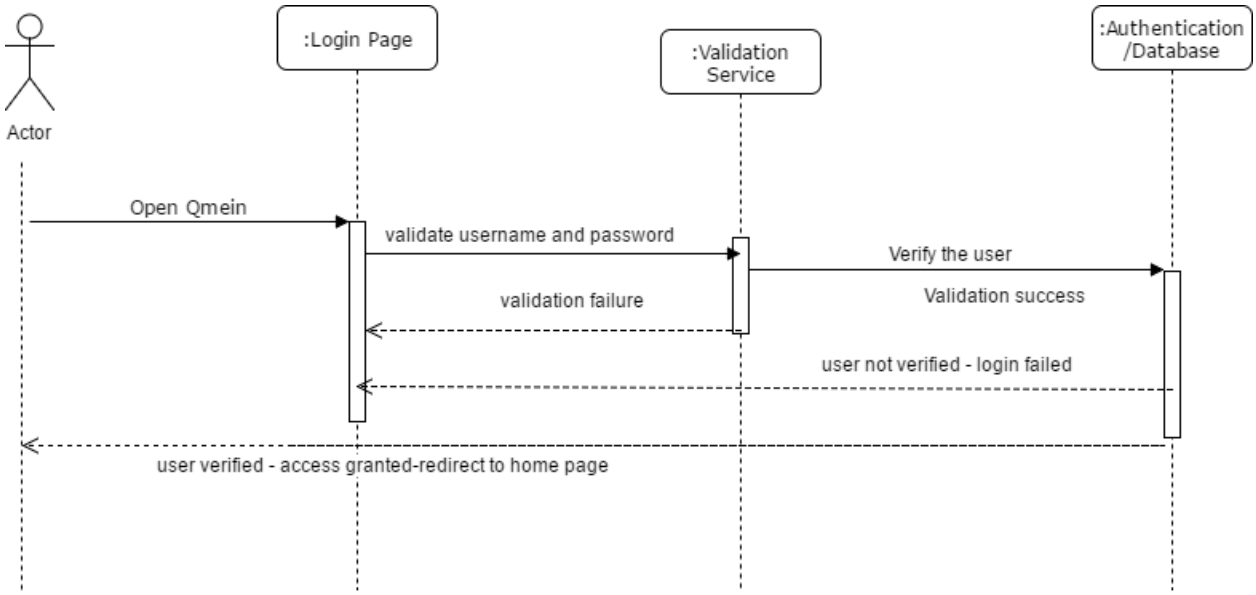

Figure 6: Sequence diagram – User Login

9 APPENDIX A: USER OPERATIONS MANUAL

This section of this document provides an understanding of how to use the Banker Buddy app.

1. Homepage

The homepage consists of login, new user and new merchant.

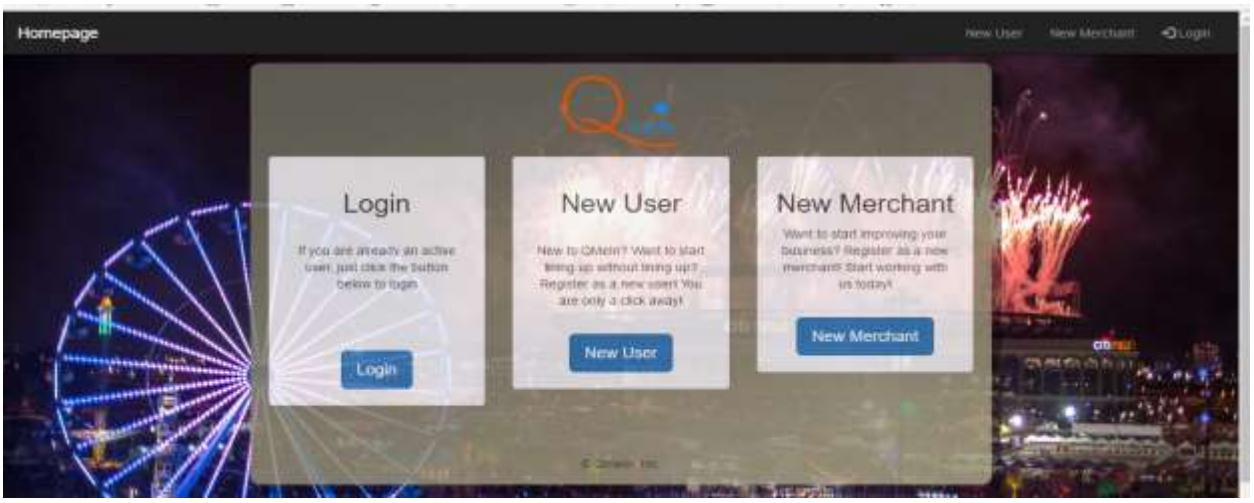

Figure 7: Qmein home page

2. Login

Enter your username and password. If not registered, then click on new user at top right corner.

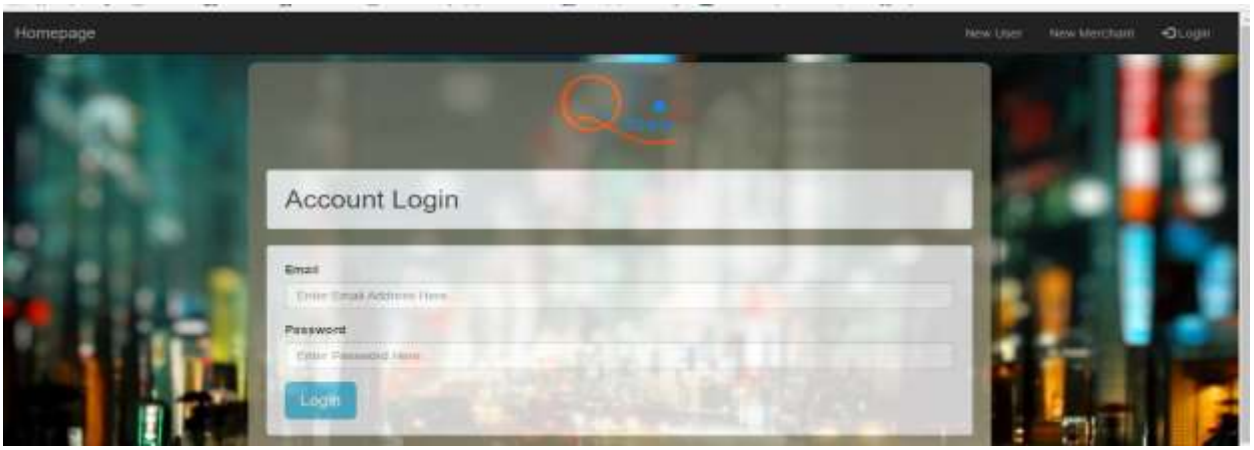

Figure 8: Qmein login page

3. User Registration

The user must enter the details for registration. The application is compatible with mobile web browsers.

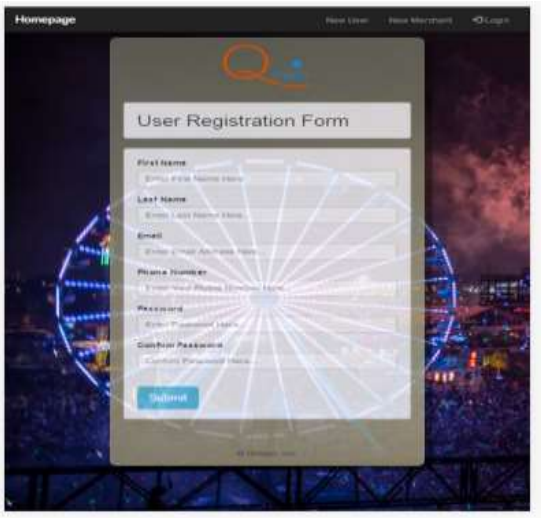

Figure 9: Qmein user registration page

4. Merchant Registration

If a particular company, organization, government offices, Restaurants or Banks wants to enroll in our application need to register on the page below.

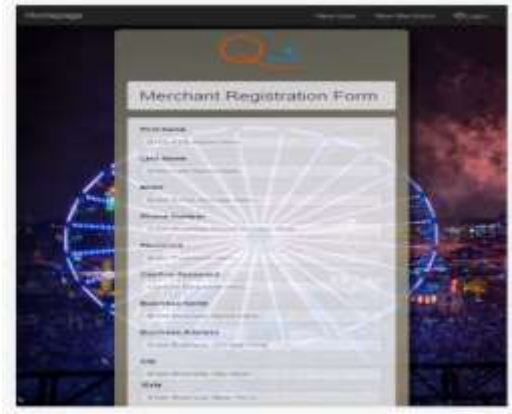

Figure 10: Qmein merchant registration page

5. User Qmein Page

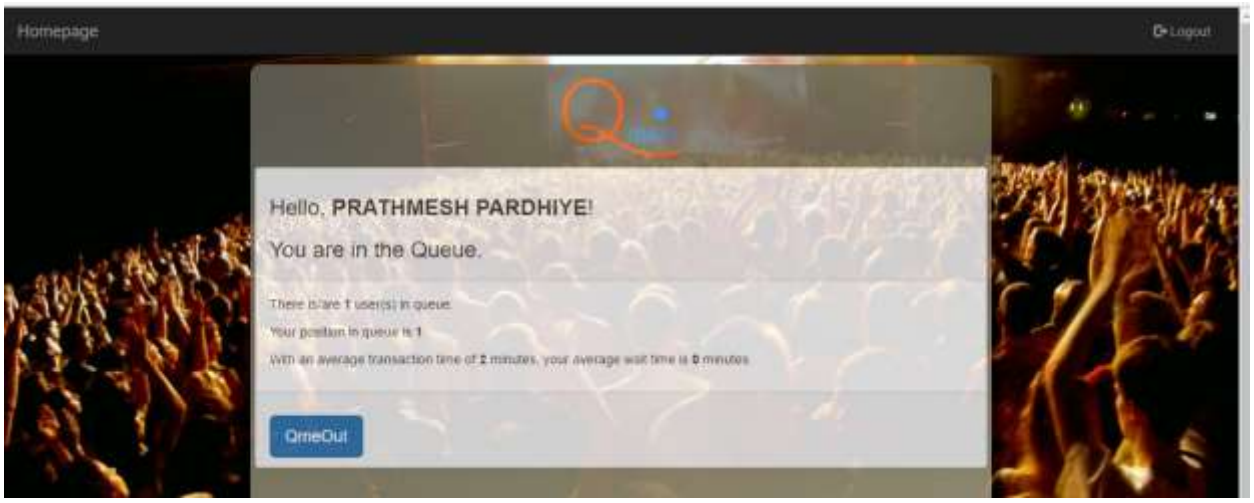

Figure 11: Qmein user home page

6. Merchant Qmein Page

This page consists list of users

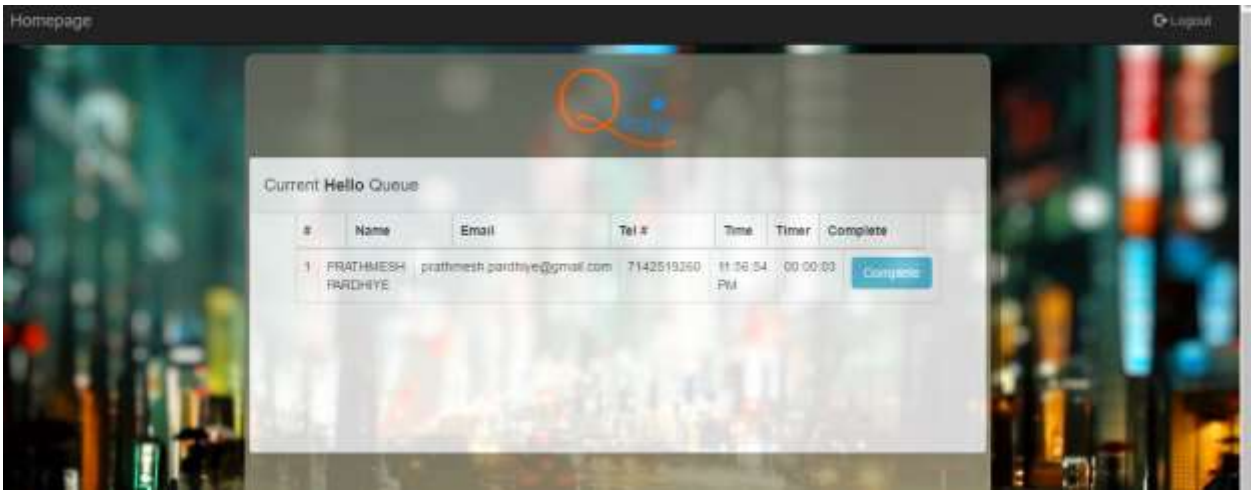

Figure 12: Qmein merchant home page

10 APPENDIX B: REFERENCES

IEEE Recommended Practice for Software Requirements Specifications (1998)

http://www.cse.msu.edu/~cse870/IEEEXplore-SRS-template.pdf

Class PowerPoint Professor Morrison, CPSC 462, CSUF