

**Student Companion
User Manual**

COMP-SCI 5551 Advanced Software Engineering

Group 7

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Introduction

This guide is written for students who use Student Companion application. The application enables the students to login with their details and manage their tasks.

With this application you can:

- Create a profile with your personal information and keep your account secure with a password.
- View your class schedule and be informed about the tasks associated with the courses taken.
- Access lab information and know the availability of the systems.
- Reserve/Cancel a study room for a time slot using calendar view.
- View your shift schedule and can take any available shifts.

Setting Up

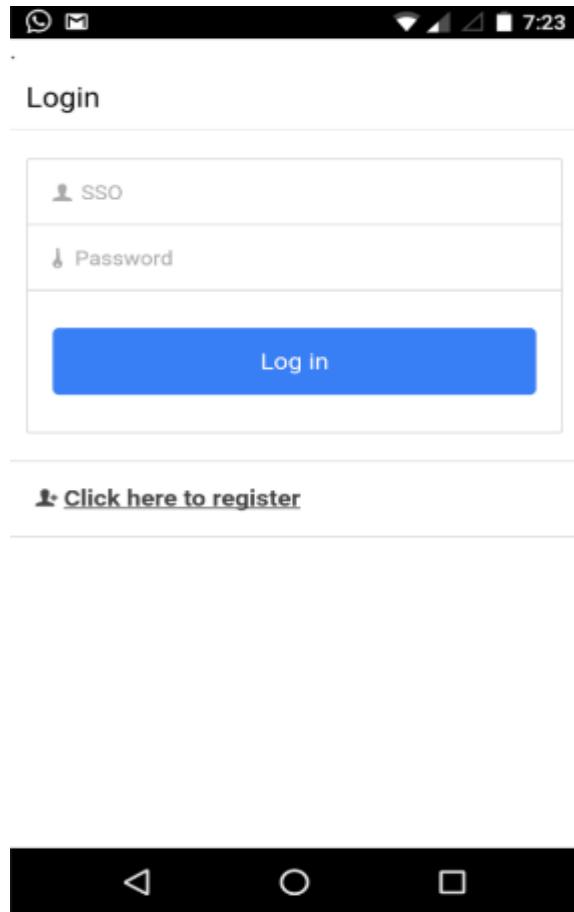
Before downloading the app you must be a current enrolled student in UMKC. This gives you the access to login with your student sso details.

Device constraints

The Student Companion Application supports devices on Apple iOS 8.0 or later and Android with connectivity from a wireless carrier or Wi-Fi provider. This can also be accessed through web browser.

Sign Up

When you open the student companion app for the first time, you need to register from login page as shown below:



Click the register link, where you can complete your profile and register yourself to login into the app. All the details must be filled with correct information and choose a secure password with minimum of 8 letters. Then proceed to click register.

A screenshot of a smartphone displaying a mobile application for student registration. The screen shows a header with icons for messaging, email, and notifications, along with signal strength and battery level indicators. The time is 7:27. Below the header, the title "Student Registration" is displayed next to a "Login" button with a circular arrow icon. The main area contains a form with the following fields:

<input type="text"/> Email Id	abcde@mail.umkc.edu
<input type="text"/> SSO	ABCDE
<input type="password"/> Password	Enter Password
<input type="text"/> Mobile No	123-456-7890
<input type="text"/> Address 1	Address 1
<input type="text"/> Address 2	Address 2
<input type="text"/> City	City
<input type="text"/> State	State
<input type="text"/> Zip Code	Zip Code

Below the form is a green button labeled "Register". At the bottom of the screen are three navigation icons: a left arrow, a circle, and a square.

After successful registration you will be redirected to the login page.

Login Page

Log-in to your account by giving your sso id and password. A home page pops up with a side menu, displaying your current class schedule and notifications.

localhost:8100/#/app/

CourseID	Task
CS5551	Assignment 11
CS5551	Project Demo

Fig: Side Menu

localhost:8100/#/app/

Subject	Details
Advanced Software Engineering CS5551	Tue.Thu 11:30-12:45 Royall Hall - Rm 00104
Formal Software Specification CS5552A	Mon.Wed 17:30-18:45 MNLC-Rm 451
Network Architecture I CSEE5110	Tue.Thu 14:30-15:45 MNLC-Rm 452

CourseID	Task	Due By
CS5551	Assignment 11	05-02-2016 23:59
CS5551	Project Demo	05-03-2016 11:30

Fig: Home page

Lets' explore the different options we have in our side menu.

Profile

The profile section has the complete information about you, which you have filled at the time of registration. It has the options to update profile information and your password.

User Profile	
First name:	Sri Harsha
Last Name:	Chennavajjala
DOB:	1990-01-09
Mobile:	816-772-3746
Email:	sc9v9@mail.umkc.edu
Address 1:	8618, Chestnut Cir
Address 2:	Apt 2
City :	Kansas City
State:	MO
Update personal info	
Change password	

When there is a change in your personal details, you can click on “update personal info” tab and update your details.

The screenshot shows a mobile application interface for editing a user profile. At the top, there is a navigation bar with icons for back, forward, refresh, and search, followed by the URL "localhost:8100/#/app/" and a star icon. To the right of the URL are icons for settings, a list, and more options. Below the navigation bar, the title "User Profile" is on the left, and "Edit Profile" is in the center. On the right is a save icon. The main content area contains several input fields with placeholder text: "816-772-3746" (phone number), "8618, Chestnut Cir" (street address), "Apt 2" (apartment number), "Kansas City" (city), "MO" (state), and "64131" (zip code). At the bottom is a blue button labeled "Update profile".

Periodic change of password is important to maintain the security of your account. You can change your password and keep it updated from the “change password” tab provided. To update the password the existing password must be entered along your new password.

The screenshot shows a mobile application interface for updating a password. At the top, there is a navigation bar with icons for back, forward, refresh, and search, followed by the URL "localhost:8100/#/app/" and a star icon. To the right of the URL are icons for settings, a list, and more options. Below the navigation bar, the title "User Profile" is on the left, and "Edit Password" is in the center. On the right is a save icon. The main content area contains two input fields with placeholder text: "Old password" and "New password". At the bottom is a blue button labeled "Update password".

Lab information

The labs information section shows you all the available labs in a list view. When you select a lab, you'll see the details like location, capacity, working hours and reservations for next week.

This screenshot shows a list of available labs. At the top, there are navigation icons and a URL bar displaying 'localhost:8100/#app/'. Below the header, the word 'Labs' is centered. The main content area is titled 'Labs Information'. It lists three categories: 'Health Sciences Building' (38/50 In Use), 'Bloch School' (31/40 In Use), and 'Miller Nichols Library' (15/40 In Use). Each category has a small expand/collapse arrow icon to its right.

Category	Status
Health Sciences Building	38/50 In Use
Bloch School	31/40 In Use
Miller Nichols Library	15/40 In Use

Fig: Lab information

This screenshot shows detailed information for the 'Miller Nichols Library'. At the top, there are navigation icons and a URL bar displaying 'localhost:8100/#app/'. Below the header, the word 'Labs' is on the left and 'LabInfo' is on the right. The main content area is titled 'Lab Details'. It includes a summary box for 'Miller Nichols Library' with icons for location, capacity (15/40), room number (303), and address (800 E 51st St). Below this, there are two sections: 'Working Hours' and 'Reservations for next week', each with 'Day' and 'Timings' columns.

Day	Timings
Monday	09:00 AM to 08:00 PM
Tuesday	09:00 AM to 08:00 PM

Day	Timings
Monday (SMT)	04:00 PM to 06:00 PM
Thursday (PBM)	02:00 PM to 04:00 PM

Fig: Lab details

Reserve study room

This section allows you to reserve a room for your group studies. You can view all your reservations from the “view my room reservations” tab.

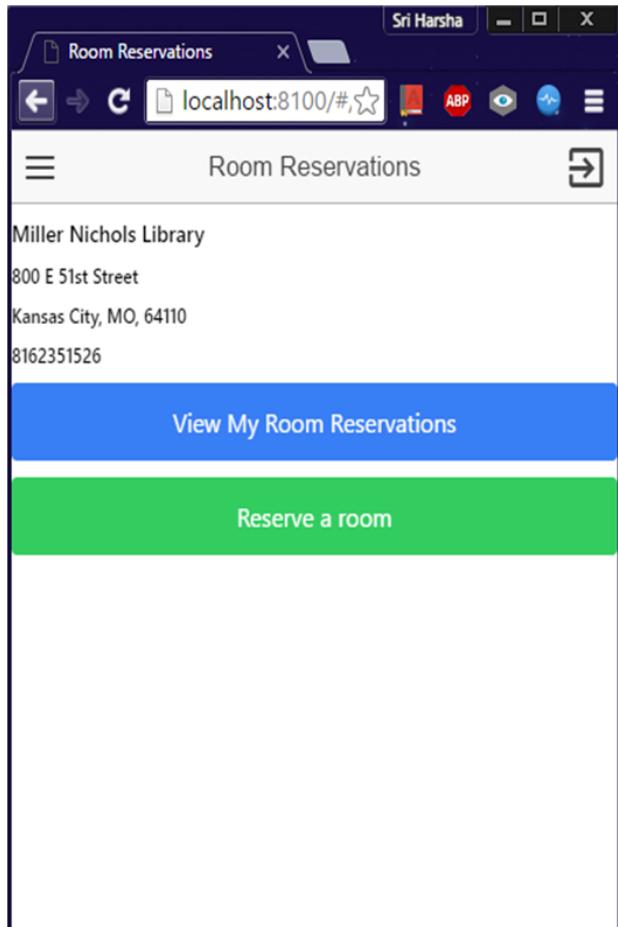


Fig: Room reservations

Room No.	Date	Start	End	Can't make it?
303	Sat 04-30-16	16:00	17:00	
402B	Thu 05-05-16	17:00	18:00	

Fig: My room reservations

To reserve a room:

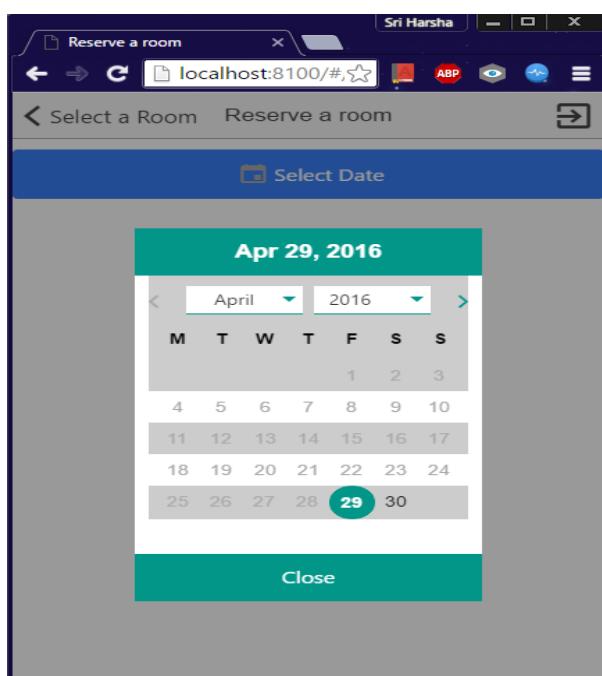
Step 1: go to reserve study room tab from the side menu

Step 2: click “reserve a room” option

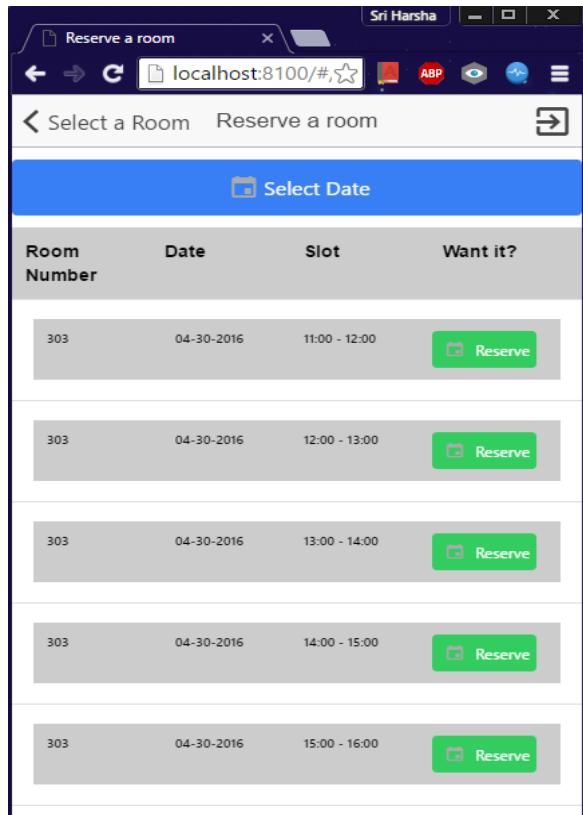
Step 3: a list view appears with the available rooms. Click the select option

Room No.	Capacity	Projector	Want to Reserve?
303	10	Not Available	<button>+ Select</button>
402B	30	Available	<button>+ Select</button>
209	15	Available	<button>+ Select</button>

Step 4: a calendar opens to select the date

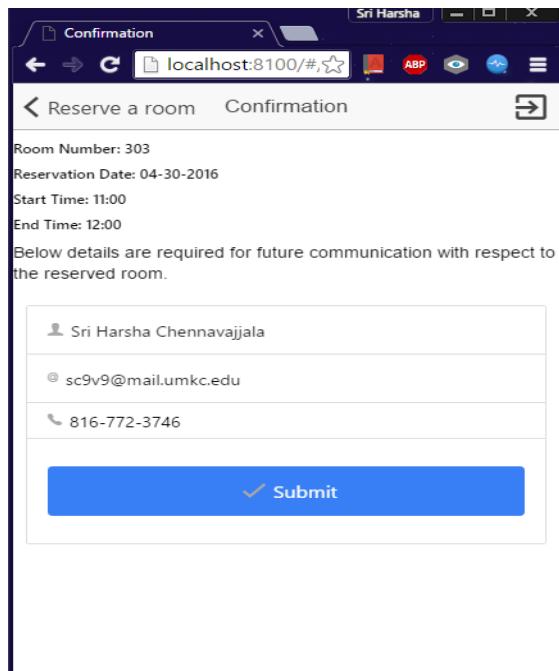


Step 5: a list of available time slots open for your selected date



Step 6: click the reserve option for your desired time slot

Step 7: a confirmation page pops. Check your details and submit



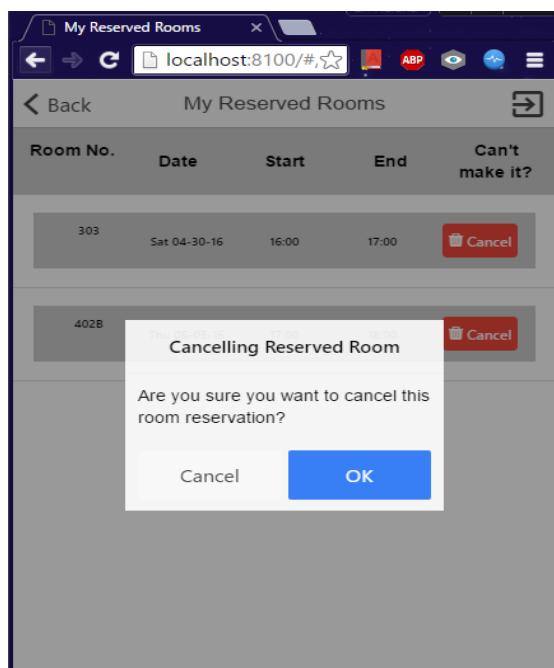
If there are any alterations in the schedule, the lab coordinator contacts you through mail.

To cancel a room reservation:

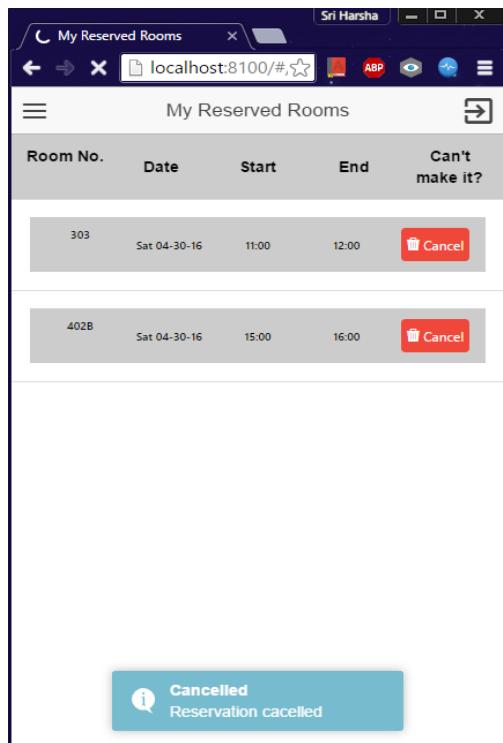
Step 1: go to “reserve study room” tab and click “view my room reservations”

Room No.	Date	Start	End	Can't make it?
303	Sat 04-30-16	16:00	17:00	 Cancel
402B	Thu 05-05-16	17:00	18:00	 Cancel

Step 2: select the cancel option for your desired time slot



Step 3: click ok to confirm



Student Assistant Menu

Students who work for IS labs can see their assigned shifts in this section. If any substitution slots are posted, you can take those shifts by selecting the particular slot from the list.

The screenshot shows a web-based application titled "Student Assistant Menu" running on a local host at port 8100. The interface is divided into two main sections: "My Shifts" and "Available Shifts".

My Shifts:

Date	Start	End	Location
05-10-2016	14:00	16:00	HSB 3304

Available Shifts:

Profile ID	Date	Start	End	Location
RMYB9	05-10-2016	08:00	13:00	HSB 3304

To post shift:

Step 1: go to “student assistant menu” tab

Step 2: select date

The screenshot shows the "Student Assistant Menu" interface. At the top, there's a blue header bar with the text "Select Date". Below it, the "My Shifts" section displays a table with columns: Date, Start, End, and Location. One shift is listed: "05-12-2016" from "13:00" to "15:00" at "ISO 3304". The "Available Shifts" section shows two shifts: one for "SC9V9" on "05-12-2016" from "11:00" to "13:00" at "ISO 3304", and another for "RMYH9" on "05-12-2016" from "15:00" to "16:00" at "HSH 3304".

Step 3: enter the time and confirm.

The screenshot shows a confirmation dialog titled "Post SA Shift". It displays the shift details: "Shift Location: BL 110", "Shift Date: 05-11-2016", "Shift Timings: 9:00 - 11:00", and "Shift Posted By: STRS7". Below these details are two dropdown menus labeled "From: 9" and "To: 10", and a large blue "Confirm" button.

To take shift:

Step 1: go to “student assistant menu” tab

Step 2: select date and check for available shifts

The screenshot shows a web-based application titled "Student Assistant Menu" running on a local host. The main title bar says "Sri Harsha". The page has a blue header bar with the text "Select Date". Below it, there are two sections: "My Shifts" and "Available Shifts".

My Shifts:

Date	Start	End	Location
05-10-2016	14:00	16:00	HSB 3304
05-10-2016	9:00	10:00	HSB 3304

Available Shifts:

Profile ID	Date	Start	End	Location
RMYB9	05-10-2016	08:00	9:00	HSB 3304
RMYB9	05-10-2016	10:00	13:00	HSB 3304

Step 3: select the time slot and click confirm

The screenshot shows a modal dialog box titled "Take SA Shift". The title bar says "Sri Harsha". The dialog contains the following information:

Shift Location: HSB 3304
Shift Date: 05-10-2016
Shift Timings: 08:00 - 13:00
Shift Posted By: RMYB9

From: To:

A large purple "Confirm" button is at the bottom.

Support

The section “contact us” has the details to contact the call center for any queries or problems.

Contact Us

localhost:8100/#,☆

ABP

Contact Us

Call center

The Call Center can be reached via email at
callcenter@umkc.edu, by phone 816.235.2000

Mon-Thur	7:00 AM - 7:00 PM
Fri	7:00 AM - 5:00 PM
Saturday and Sunday	Closed

Deficiencies

You cannot:

- delete your account
- add a profile picture
- add yourself to a waitlist for reserving a room

**Student Companion
Project Management Report
COMP-SCI 5551 Advanced Software Engineering**

Introduction

This document is intended to provide an overview for the management of project named "Student Companion". The task management is also discussed. The outcome of the project management report is how the project is divided in to tasks among group and how each task is managed.

Project Goal and Objectives

The goal of this project is to provide various functionalities that a student uses regularly such as updating the profile, checking for computer lab availability, library study room reservation etc. The student details will already present in the database. The student has to login before he uses these functionalities. Main objectives of this application are:

- To reduce the student's stress and to save the student's time by providing the latest availability of the computer labs.
- To develop an application that helps the students in taking the decision on to which laboratory the students have to go.
- To secure the information by providing a login form to the end user.
- To provide a tool with which the students will be able to reserve the library study rooms.
- To ensure that the student will never miss his schedules by setting reminders.
- To enable the Student Assistants to view their shifts, post and take substitutions.
- To provide the students with the option to update their address or mobile phone number etc.

ZenHub:

We use ZenHub a browser extension that adds robust project management features directly into GitHub's UI, making centralized collaboration on GitHub faster, more visual, and less cluttered. It provides agile project management for the project and helps to visualize the tasks performed through burndown charts and graphs.

Project Plan

The project is divided into four milestones. Each iteration has several states namely future tasks, new issues, to do, development in progress, testing in progress, done and closed.

Milestone 1

Duration:

Start: February 1, 2016

End: February 21, 2016

Days: 21

Task done:

This milestone mainly deals with the designing the system for the implementation phase. The tasks of this phase mainly focuses on the UML diagram and collecting the necessary requirements details for the realization and development of the application.

Task responsibility:

All the four members of the team collectively completed the task.

Issues:

There are no particular issues.

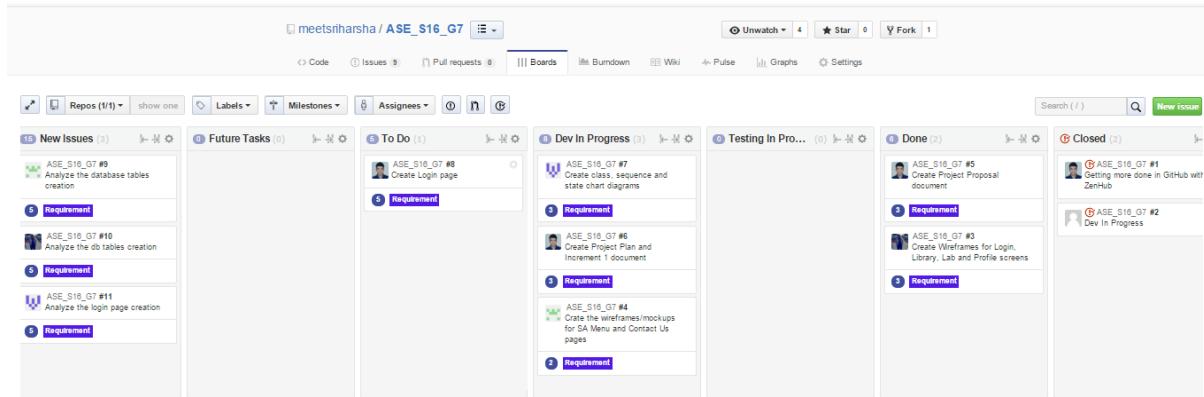


Fig: ZenHub Board showing the project plan and current tasks.

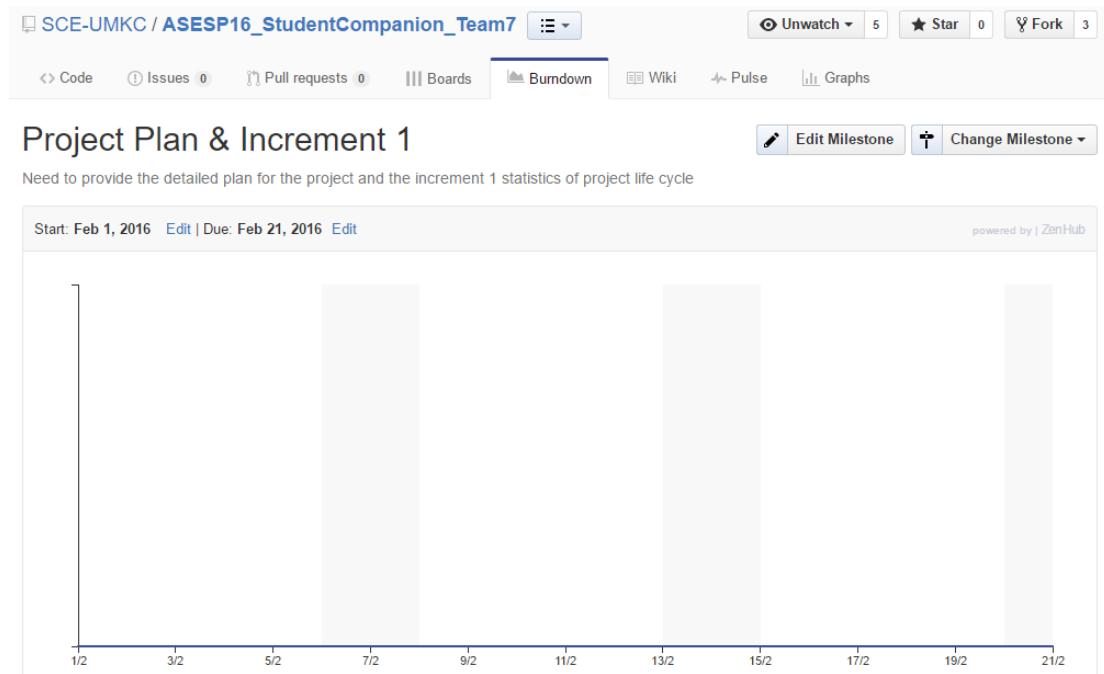


Fig: Burndown chart for Milestone 1

Milestone 2

Duration:

Start: February 22, 2016

End: March 11, 2016

Days: 19

Task done:

This milestone mainly deals with the designing the system for the implementation phase. The tasks of this phase mainly focuses three tasks.

First, the development of basic blue print of application using wireframes which gives pleasant UI to the user.

Second, development of login page and authentication of user using his/her credentials which are stored in the mongoDB.

Third, creation of database using mongoDB , populating the database and accessing the database using mongoDB API.

Task Responsibility:

Development of wireframes is done by Raj Kiran Reddy and Suhas.

Second, development of login page and authentication of user using his/her credentials is done by Teja and Sri Harsha.

Database part is done by Sri Harsha.

Issues:

Issues are regarding database access whether to use an API or to use driver to access data from the mongoLab and this issue is resolved in milestone 3.

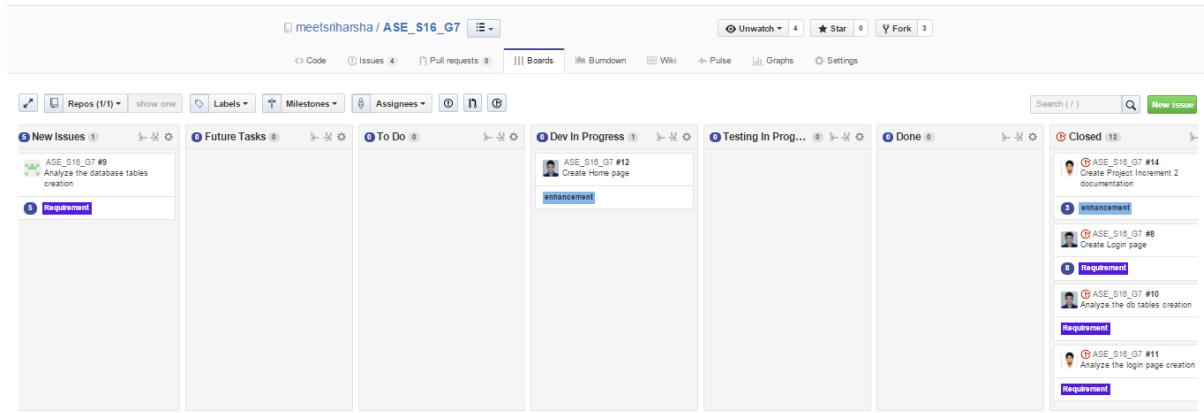


Fig. ZenHub Board showing the project plan and current tasks

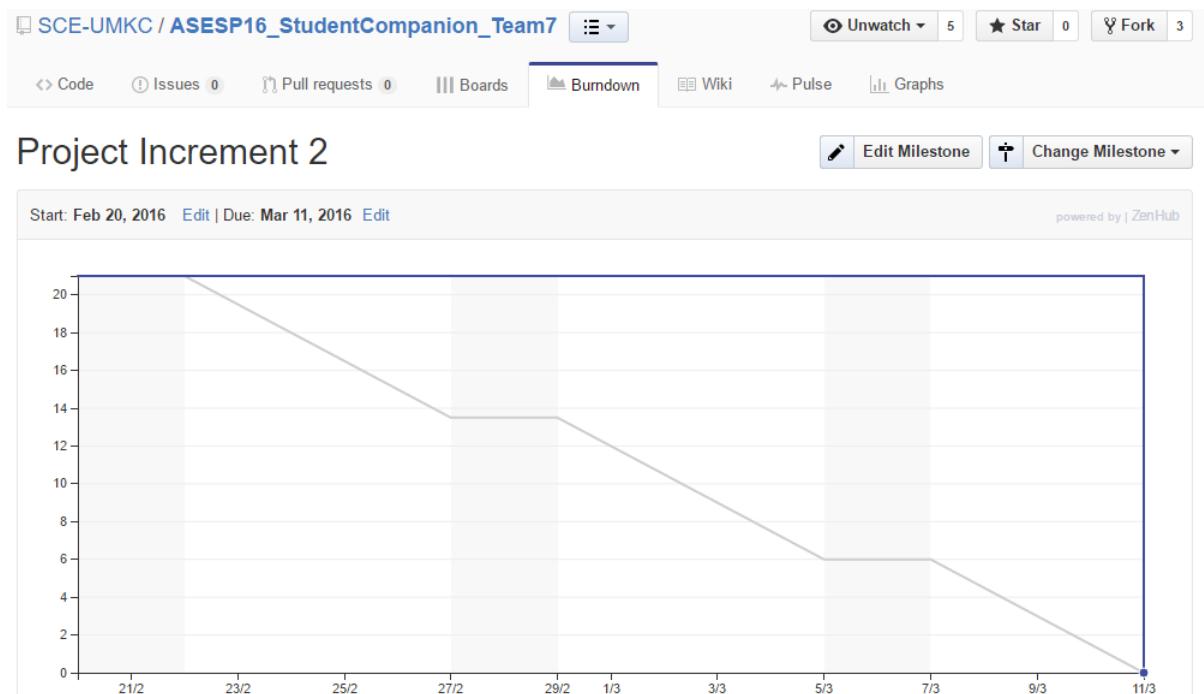


Fig: Burndown chart for Milestone 2

Milestone 3

Duration:

Start: March 12, 2016

End: April 6, 2016

Days: 26

Tasks Done:

This milestone mainly deals with the designing the end to end functionality of the system. The tasks of this phase mainly focuses six tasks.

First, the development of REST API which performs the communication between Client application and database.

Second, development of View profile page and displaying the profile of the user which is stored in the mongoDB, registration page and its functionality and contact us page with contact information related to IS call center.

Third, development of Lab Information page and display the Lab name, available work stations and systems which are in use in that lab.

Fourth, development of Reserve Study Room page and display the Library information, study rooms which are reserved by the user and available study rooms.

Fifth, development SA Menu page and display the SA Shifts of the user on or after a particular date.

Tasks Responsibility:

First and fourth tasks are done by Sri Harsha.

Second task is done by Teja.

Third task is done by Suhas.

Fourth task is postponed to the next increment as it has some complex logic to implement.

Fifth task is partially done by Raj Kiran Reddy and remaining work is continued to the next increment.

Issues:

Issues are regarding static database and it is ignored and continued forward. Implementation of REST API and deploying it in the Amazon Web Services has taken long time as each and every line of the code has to be tested in incremental state.

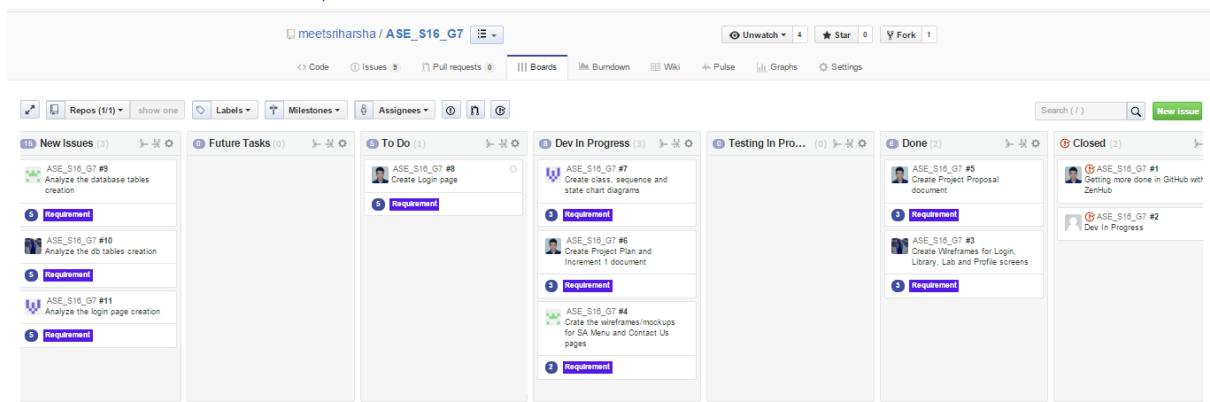


Fig: ZenHub Board showing the project plan and current tasks

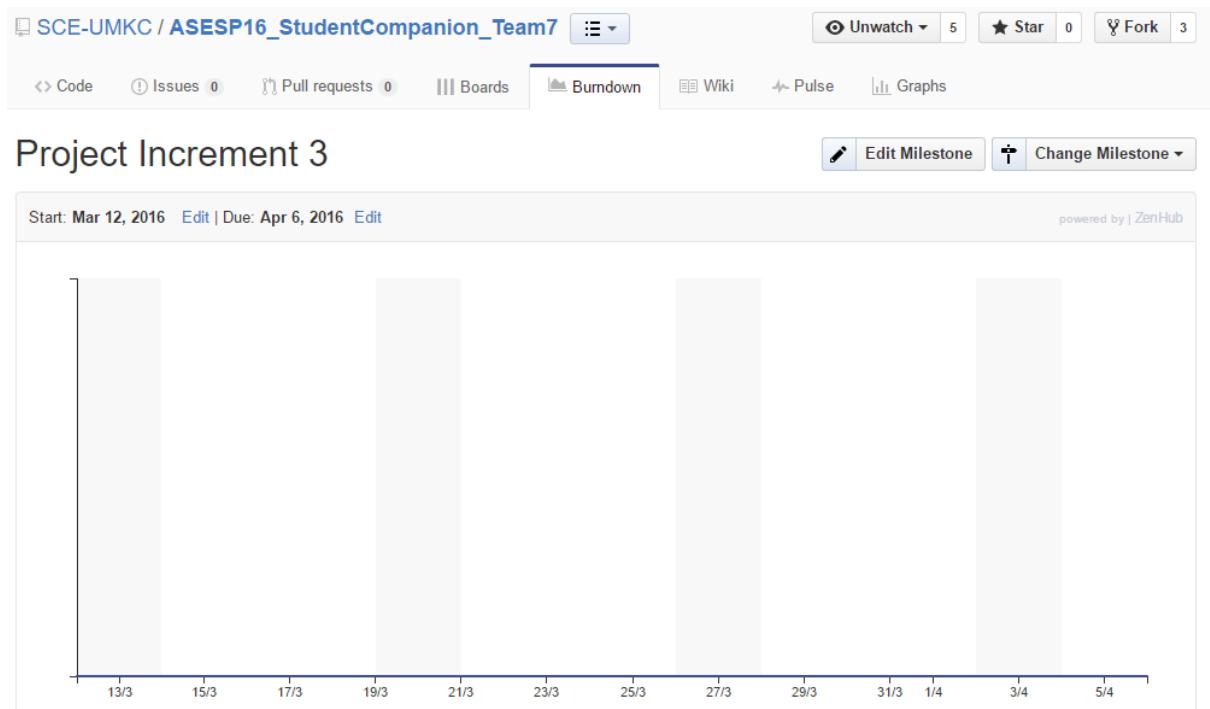


Fig: Burndown chart for Milestone 3

Milestone 4

Duration:

Start: April 7, 2016

End: April 29, 2016

Days: 23

Tasks Done:

This milestone mainly deals with the designing the end to end functionality of the system. The tasks of this phase mainly focuses six tasks.

First, the development of REST API which performs the communication between Client application and database.

Second, development of View profile page and display the profile of the user which is stored in the mongoDB. Developed the full functionality for registering user and added validations to registration page. Developed editing profile page and editing password of user with complete logic.

Third, development of Lab Information page and display the Lab name and lab details.

Fourth, development of Reserve Study Room page and display the Library information, study rooms which are reserved by the user and available study rooms and the details of resources present in it and cancellation of reserved study room.

Fifth, development SA Menu page and display the SA Shifts of the user and available shifts on a selected date. Developed the functionality for taking the available substitutions.

Sixth. Implemented the toast functionality for the final application.

Task Responsibility:

First and Fourth task is done by Sri Harsha.

Second task is done by Teja.

Third task is done by Suhas.

Fifth task is done by Raj Kiran Reddy.

Sixth task is done by Sri Harsha and Teja.

Issues:

Sometimes we are getting black background while navigating to login page from registration page due to some unknown bug in ionic framework, this is happening only in

browser whereas in mobile it's working fine. Sometimes we are getting asynchronous results from API in Home page.

The screenshot shows a ZenHub board for the repository 'meetsriharsha/ASE_S16_G7'. The board is divided into six columns: 'New Issues', 'Future Tasks', 'To Do', 'Dev In Progress', 'Testing In Prog...', and 'Done'. The 'Done' column contains a list of completed issues, each with a small icon, the issue number, and a brief description. The 'Testing In Prog...' column contains several issues labeled as 'Requirement' or 'enhancement'. The 'Dev In Progress' column is currently empty.

Fig: ZenHub Board showing the project plan and current tasks.

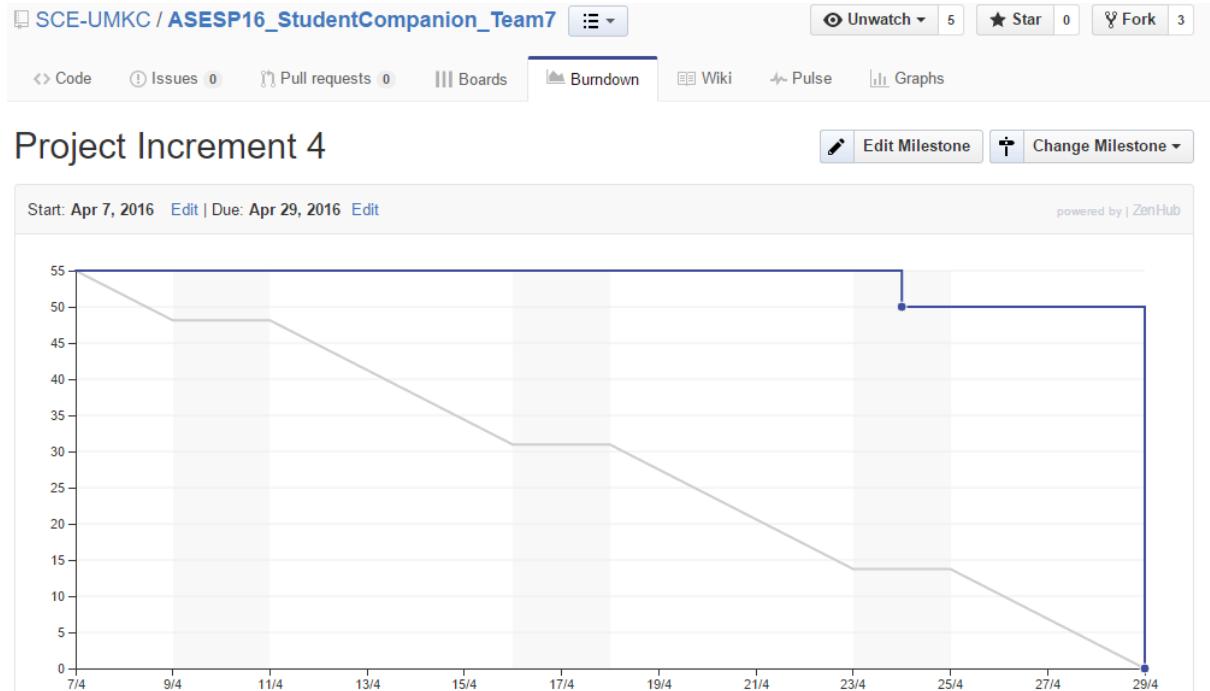


Fig : Burndown chart for Increment 4

Agile website link:

https://github.com/SCE-UMKC/ASESP16_StudentCompanion_Team7#boards?repos=51659641

Source Code GitHub URL: https://github.com/SCE-UMKC/ASESP16_StudentCompanion_Team7

Presentation URL: https://github.com/SCE-UMKC/ASESP16_StudentCompanion_Team7/blob/master/Documentation/StudentCompanionBriefPPT_Group_7.pptx

YouTube Application Demo Video URL: <https://www.youtube.com/watch?v=v6NcbSS8hcQ>

Final Project Evaluation:

We've taken all the precautions to make sure that our project satisfies every possible outcome of the original requirement specifications. We've analyzed various application user interface patterns before we commit to the current one. We considered several factors such as application run environment, end users etc., to decide the application design pattern. Agile process helped us in exchanging the information, knowledge and project status updates effectively and immediately. We inherited several aspects of agile methodology in our project management processes. One of them is weekly team meetings on project status, issues and future work. This helped us in quick decision taking for the tasks.

I've faced some difficulty in my team as some team members are not completely familiar with the Ionic framework concepts. To overcome this, we've planned our work ahead of our task deadlines and were successful in completing them. We've also faced the "Billing" problem from Amazon Web Services as the "free" tier services are not really free. There are some limitations on the free tier like "one month free" or "2 million request hits free" etc., It should have been highlighted earlier in our tutorial classes.

If this was a real world project, I would have arranged internal team meetings every week. Also, I will arrange meetings with the clients to explain the tasks done till date and to take input suggestions from them. As the semester course was started with android basics and the important technical content (ionic framework, angularJS) was started at the end of the semester, our first two increments really don't have much progress. This could be resolved by changing the course work flow. Other than that, all the remaining course and project schedules were perfect.

Student Companion
Project Plan and First Iteration Report
COMP-SCI 5551 Advanced Software Engineering

Introduction

This document is intended to provide an overall description of the project named “Student Companion” in detail. The project schedule and the plan of action is also discussed. The proposal document will give an insight on the project. The outcome of the first increment is the high and low level design of the application.

Project Goal and Objectives

The goal of this project is to provide various functionalities that a student uses regularly such as updating the profile, checking for computer lab availability, library study room reservation etc. The student details will already present in the database. The student has to login before he uses these functionalities. Main objectives of this application are:

- To reduce the student’s stress and to save the student’s time by providing the latest availability of the computer labs.
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- To ensure that the student will never miss his schedules by setting reminders.
- To enable the Student Assistants to view their shifts, post and take substitutions.
- To provide the students with the option to update their address or mobile phone number etc.

Project Background and Related Work

Some functionalities of this application are already exist. We are creating a new android application which integrates (mash up) all the available and new functionalities under one hood, thus making the application a viable one. Some functionalities will be developed by importing the existing APIs into our application like Google Calendar API, Google Maps API etc. We are inspired by the problems that the Students are currently facing in reserving the study rooms, problems related to their working shifts and we came up with a solution which can resolve the existing challenges.

Significance:

The major significance of the application lies in mashing up of all the useful services under one system. This will save the student’s time and increases the productivity. The application will prevent the fraudulent usage by restricting the resources access to only the students who successfully logged in to the system. As of now, the student assistants has to go

through a lengthy process in order to post or take shifts. The proposed application will make it easier for the student to perform such tasks by providing on-the-go support.

Project Plan

The proposed project plan is outlined by the screenshot from the ZenHub tool. The project is divided into four milestones. Each iteration has several states namely future tasks, new issues, to do, development in progress, testing in progress, done and closed.

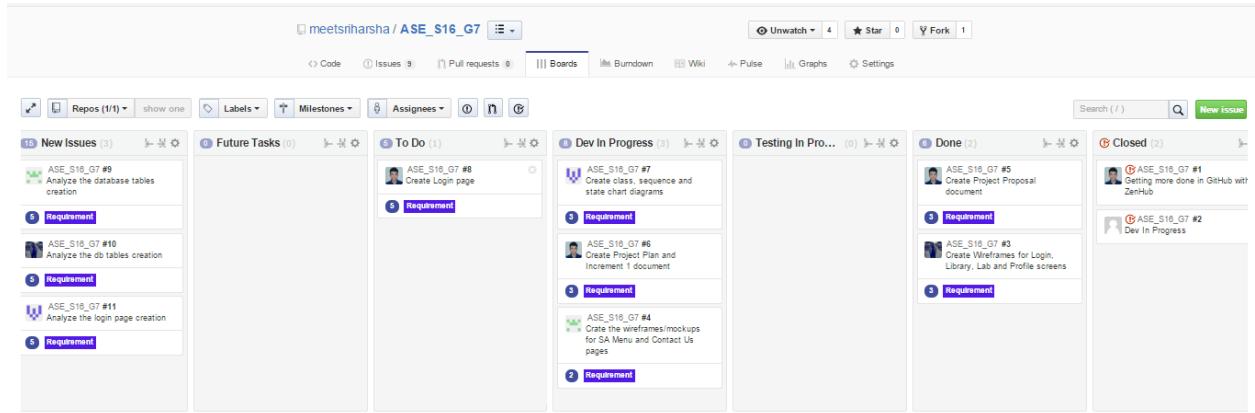


Fig. 1 ZenHub Board showing the project plan and current tasks.

Milestone 1:

This milestone mainly deals with the designing the system for the implementation phase. The tasks of this phase mainly focuses on the UML diagram and collecting the necessary requirements details for the realization and development of the application. The results of this milestone contains the mockup screens of the application and the related class, sequence and state chart diagrams.

First Increment Report

This document contains the report of first increment of work done on the Student Companion application. This document emphasizes the pictorial representation of the application using different implementations to get an insight on the internal system. We're using the HTML5, CSS and Angular JS for the front end user interface creation.

First increment mainly involves in designing the application. We've created the class diagrams and sequence diagrams which depicts the workflow and the module relationships of the application. We've generated the application blueprint using the wireframes.

Class diagram for the high level design of the application:

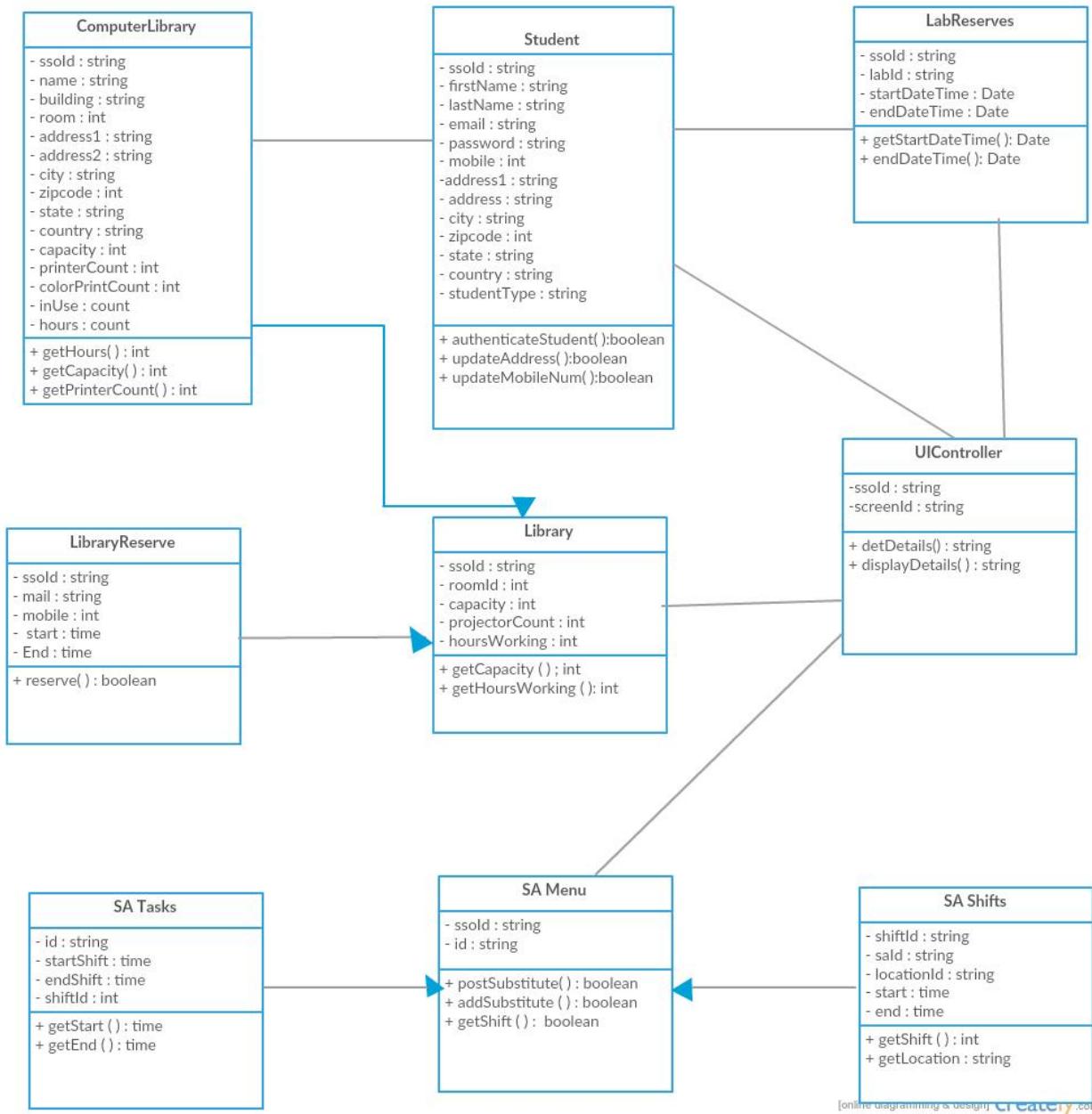


Fig. 2 demonstrates a class diagram of high level design of application

Sequence diagrams for the high level design of the application:

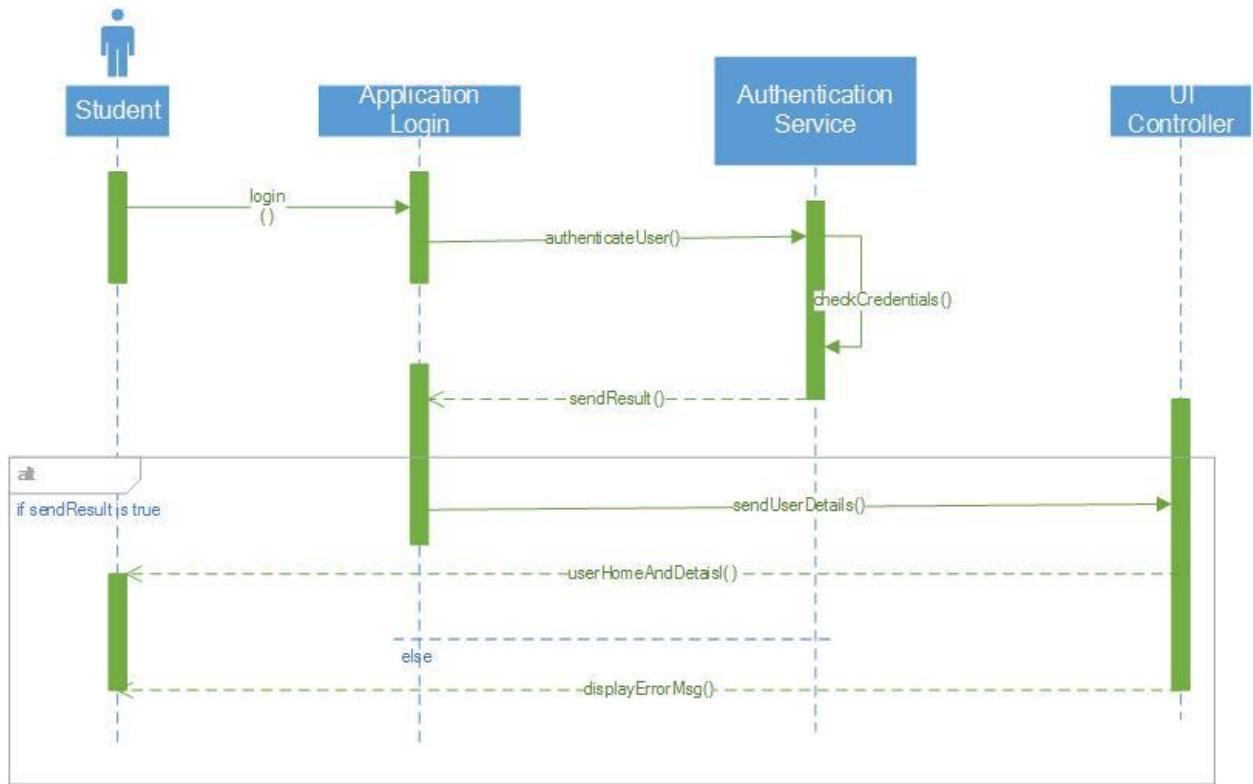


Fig. 3 Sequence diagram for student login activity

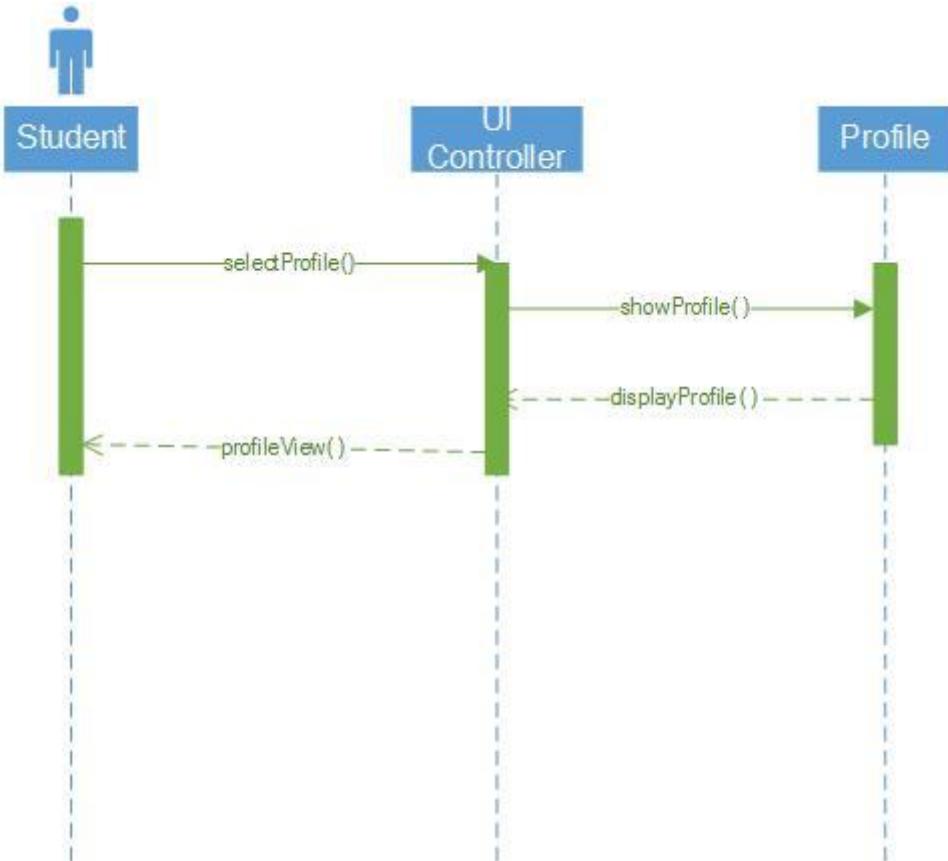


Fig. 4 Sequence diagram shows the control flow for “view user profile” task

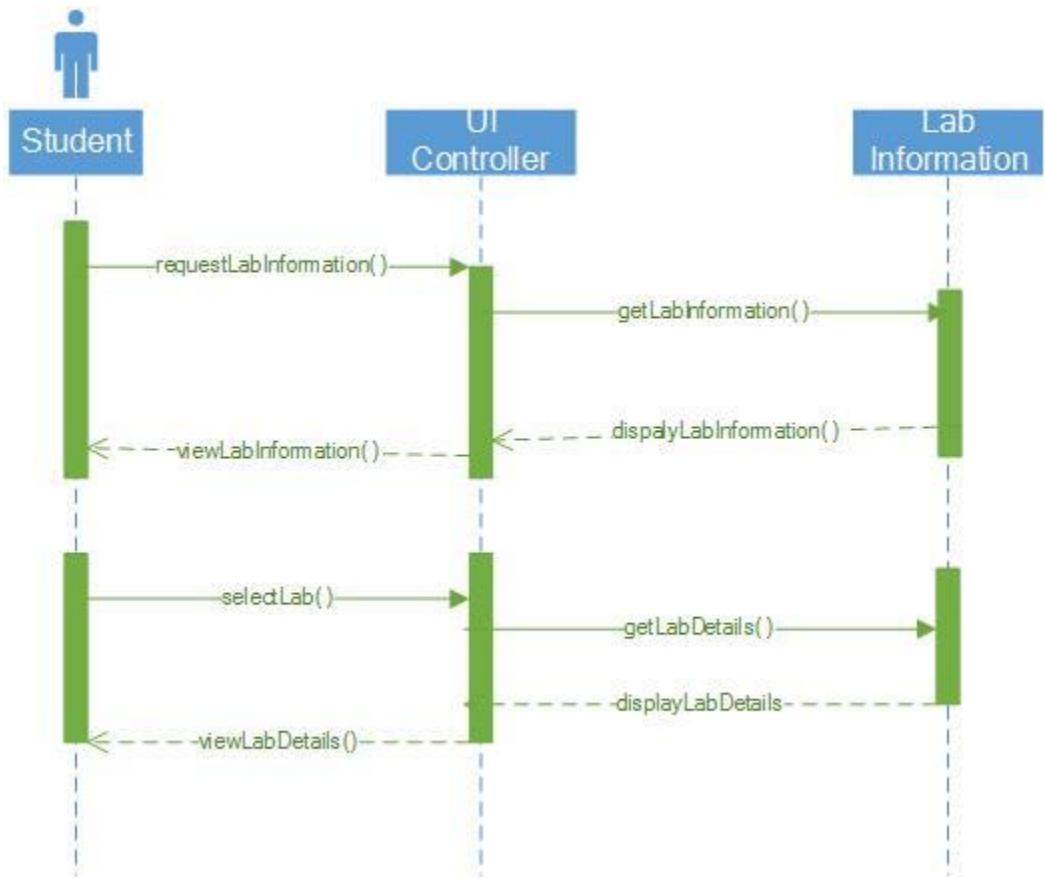


Fig. 5 Sequence diagram for “View lab information” activity

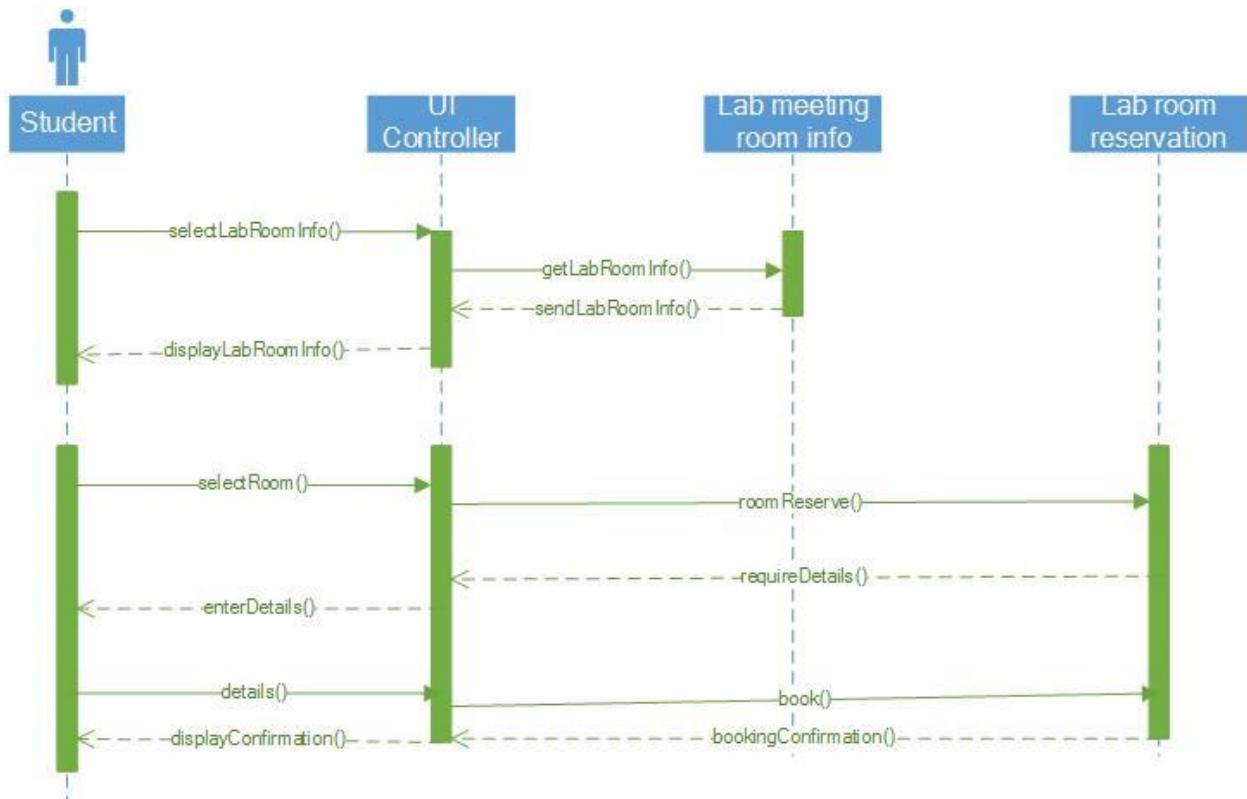


Fig. 6 Sequence diagram for reserving library study room activity

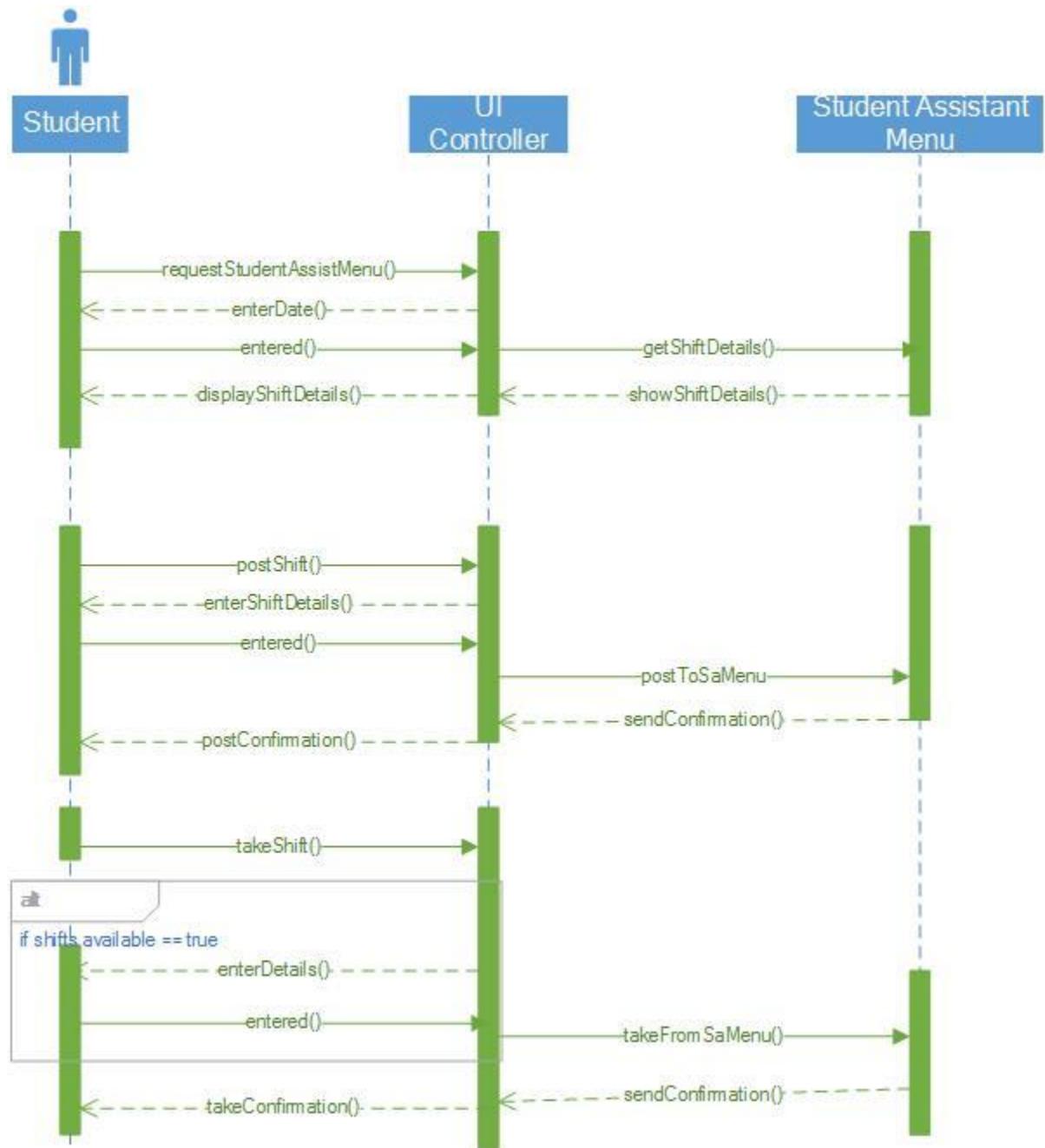


Fig. 7 Sequence diagram for student assistant activities like post or take shifts.

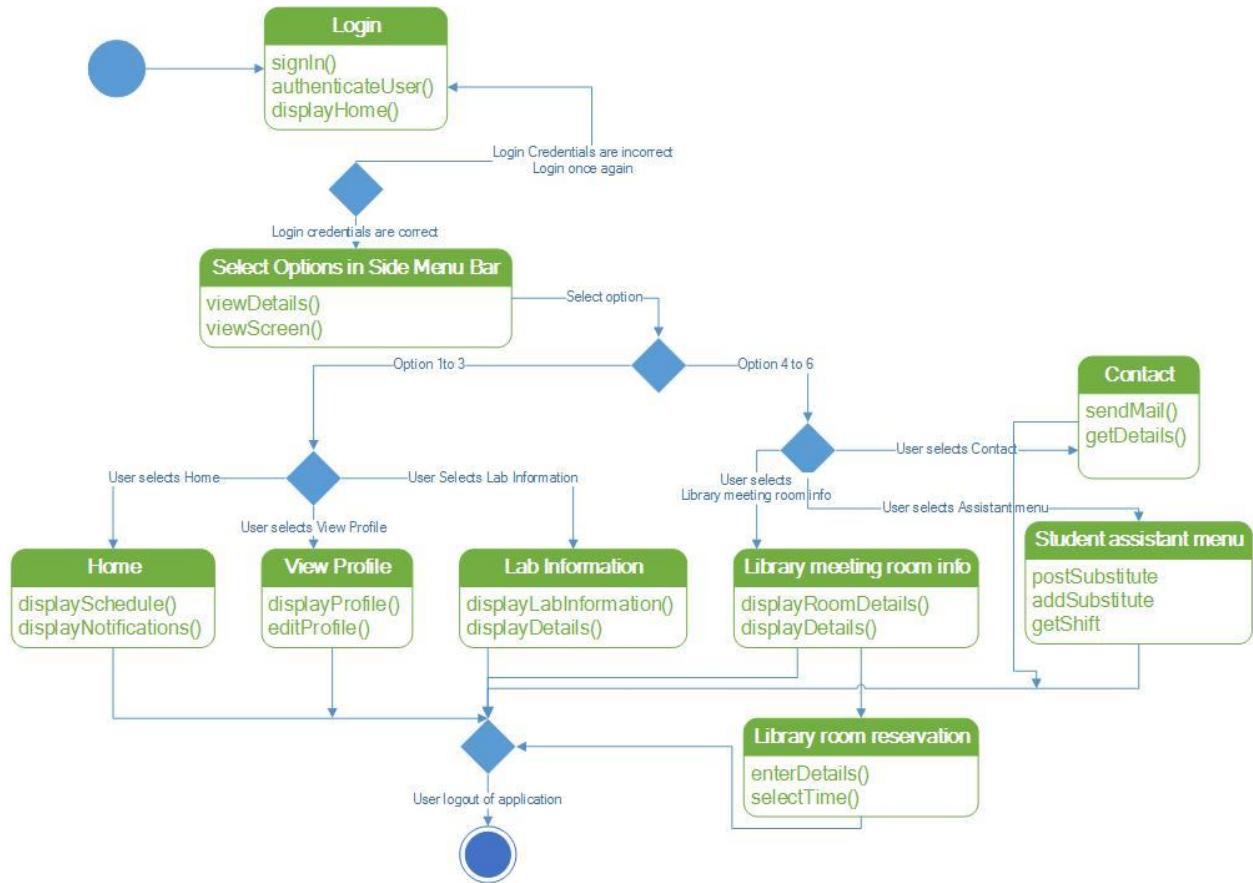


Fig. 8 State chart diagram for the application modules.

Wireframes of the application

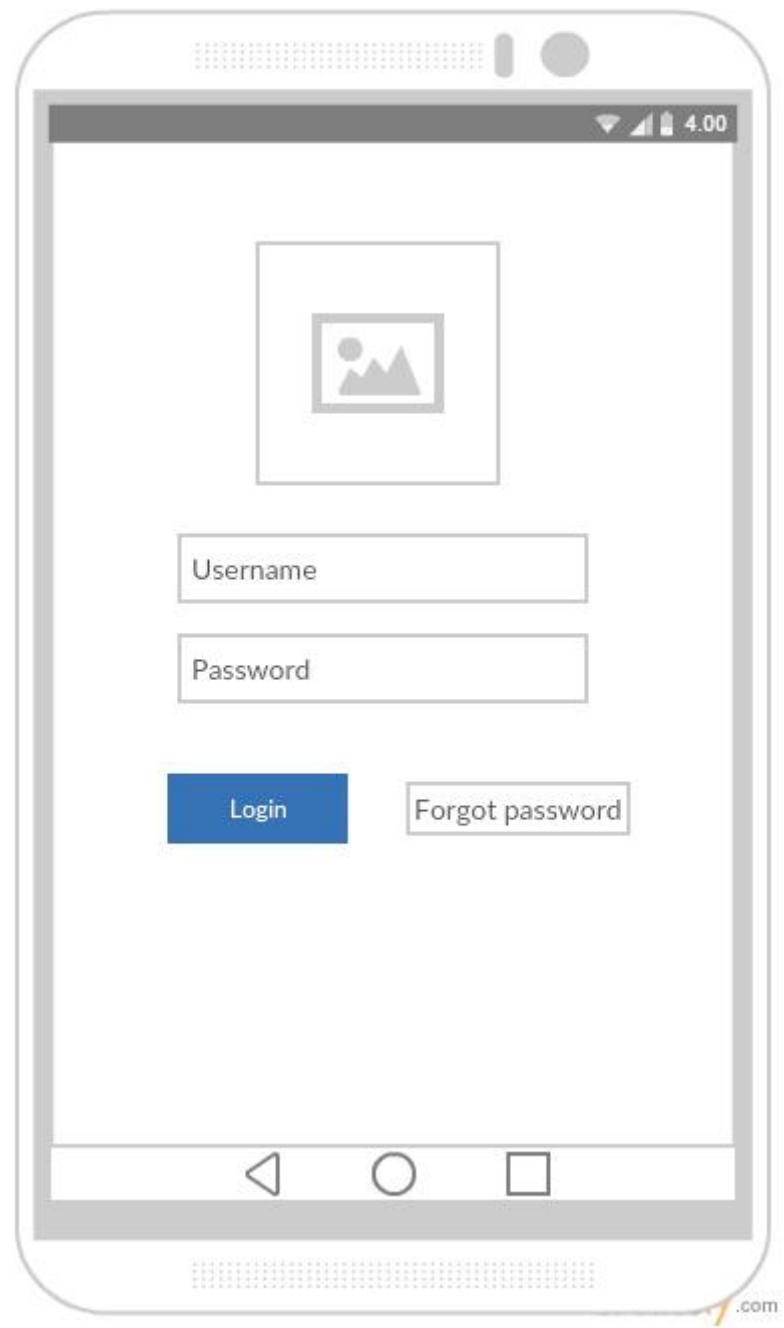


Fig. 9 Login screen

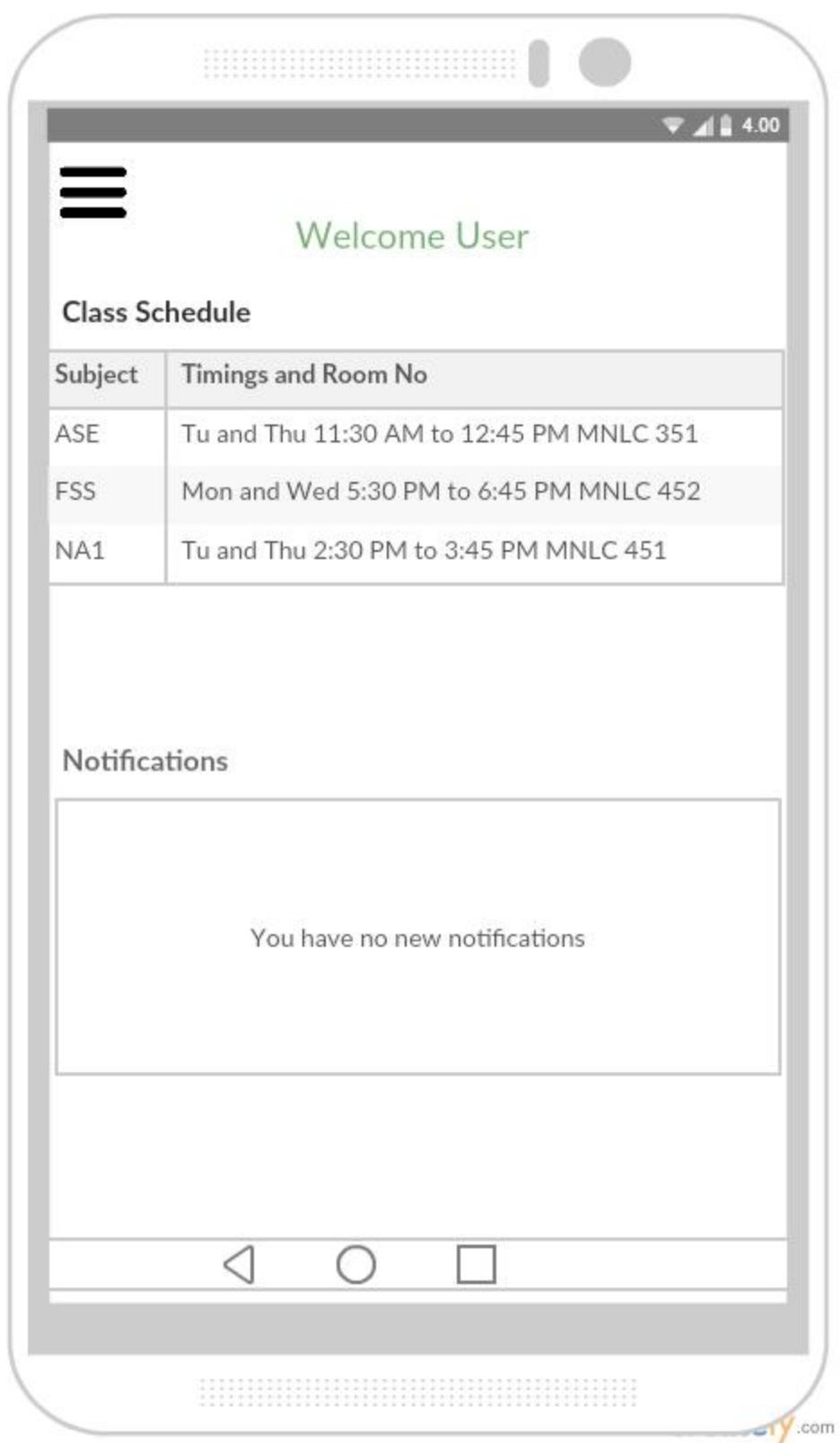


Fig. 10 Main Home page

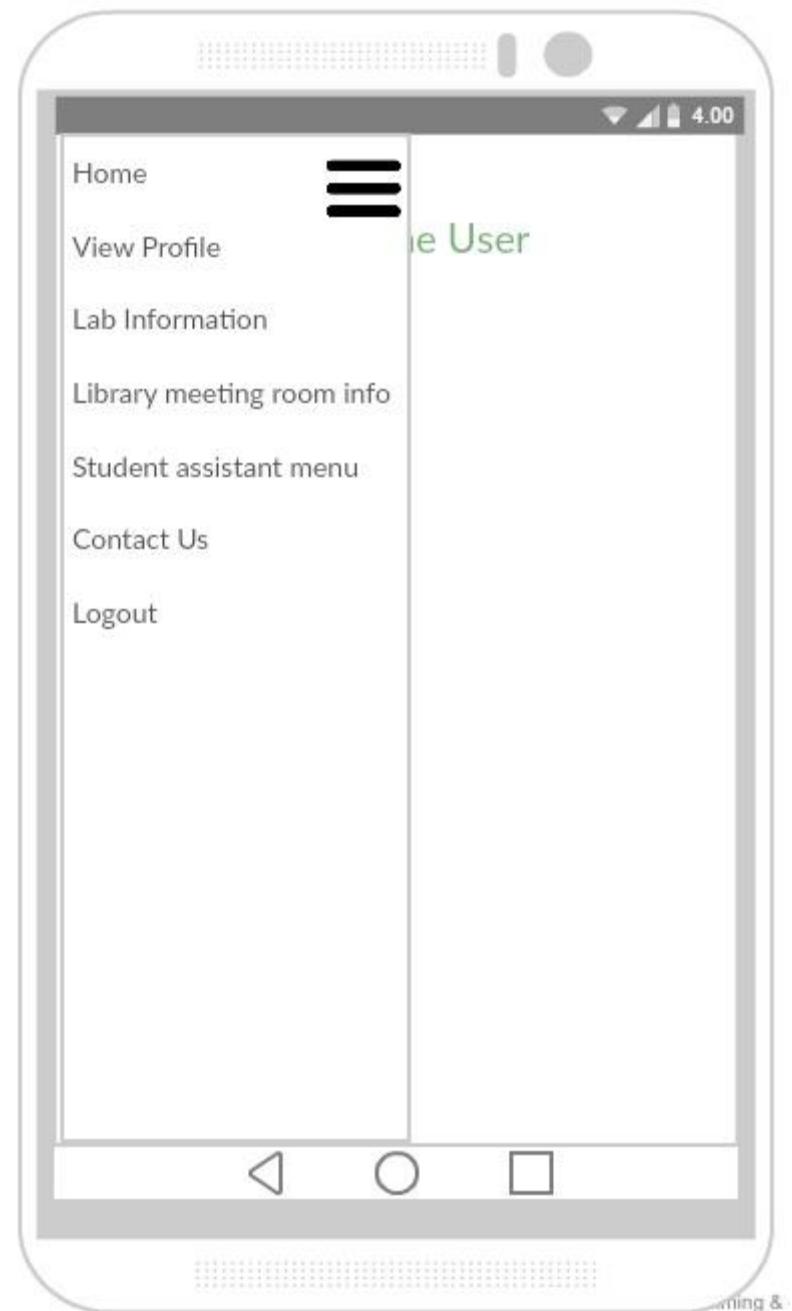


Fig. 11 Side menu bar

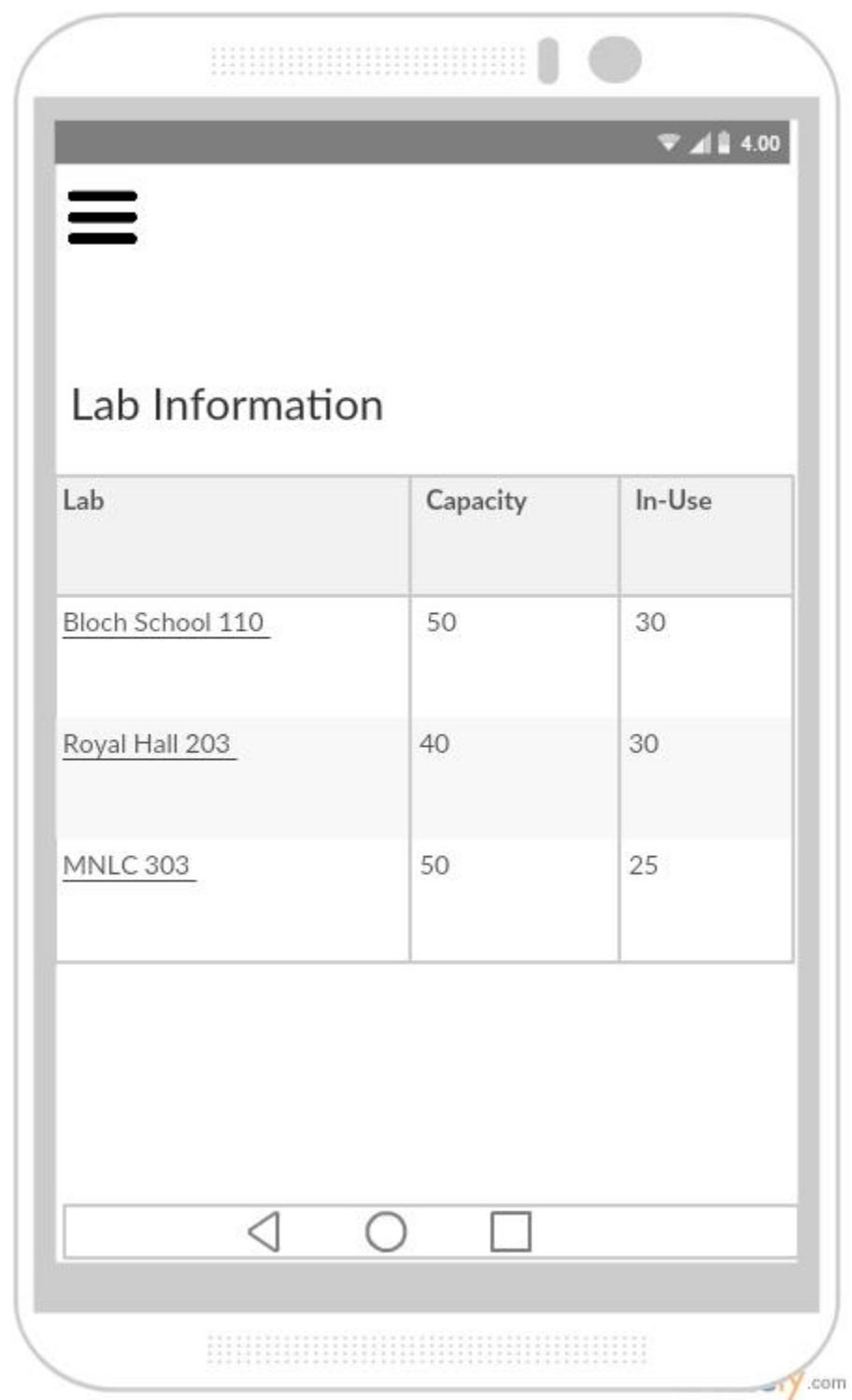


Fig. 12 Computer Labs information page

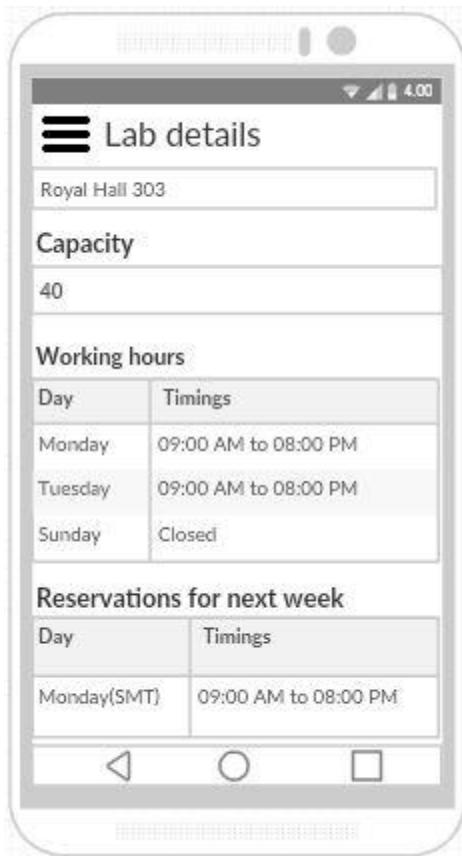


Fig. 13 Detailed information of a computer lab

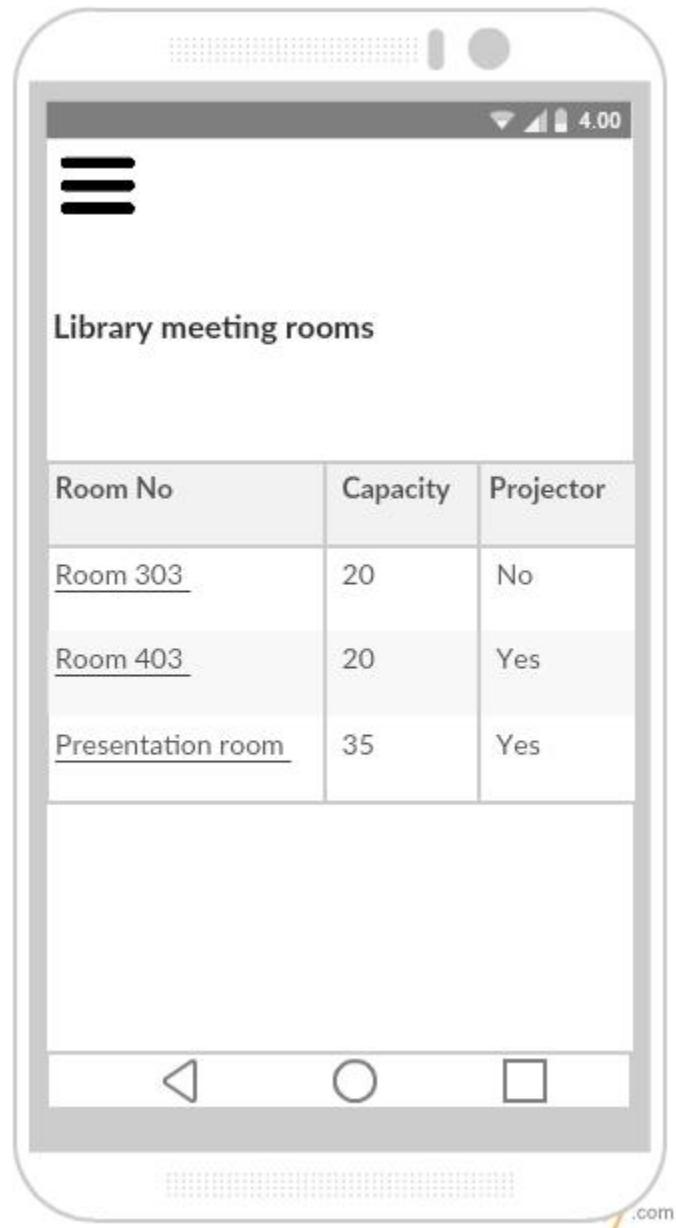


Fig. 14 Library study room information

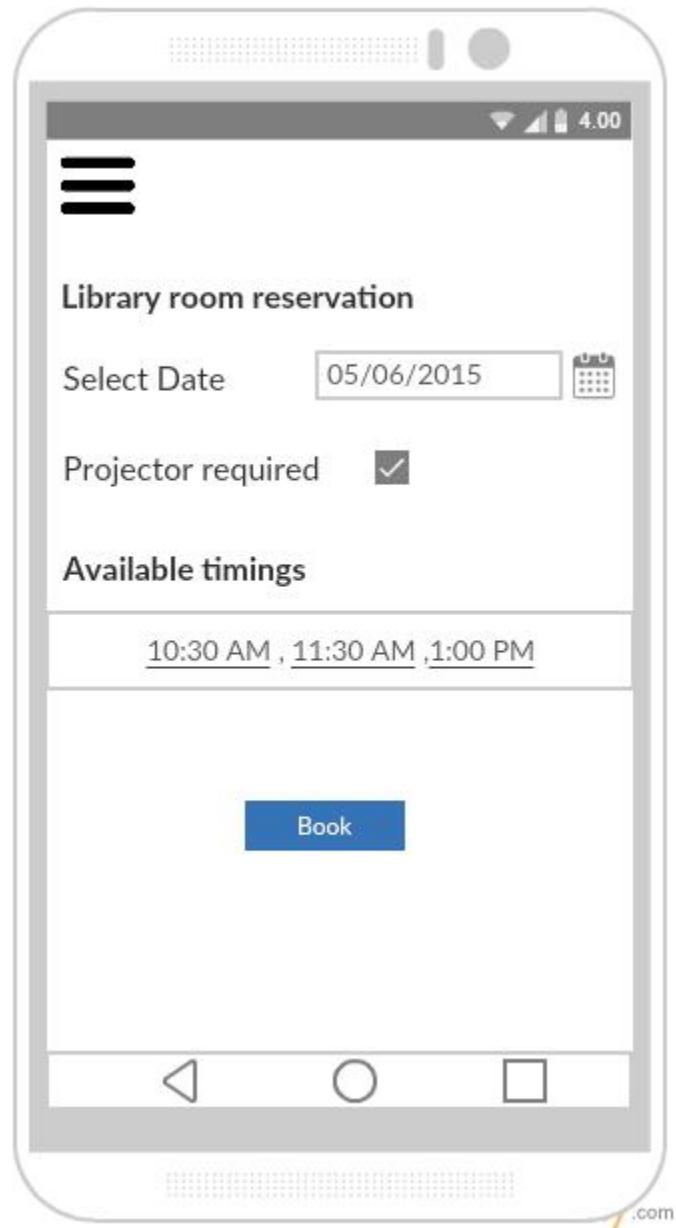


Fig. 15 Library room reservation page

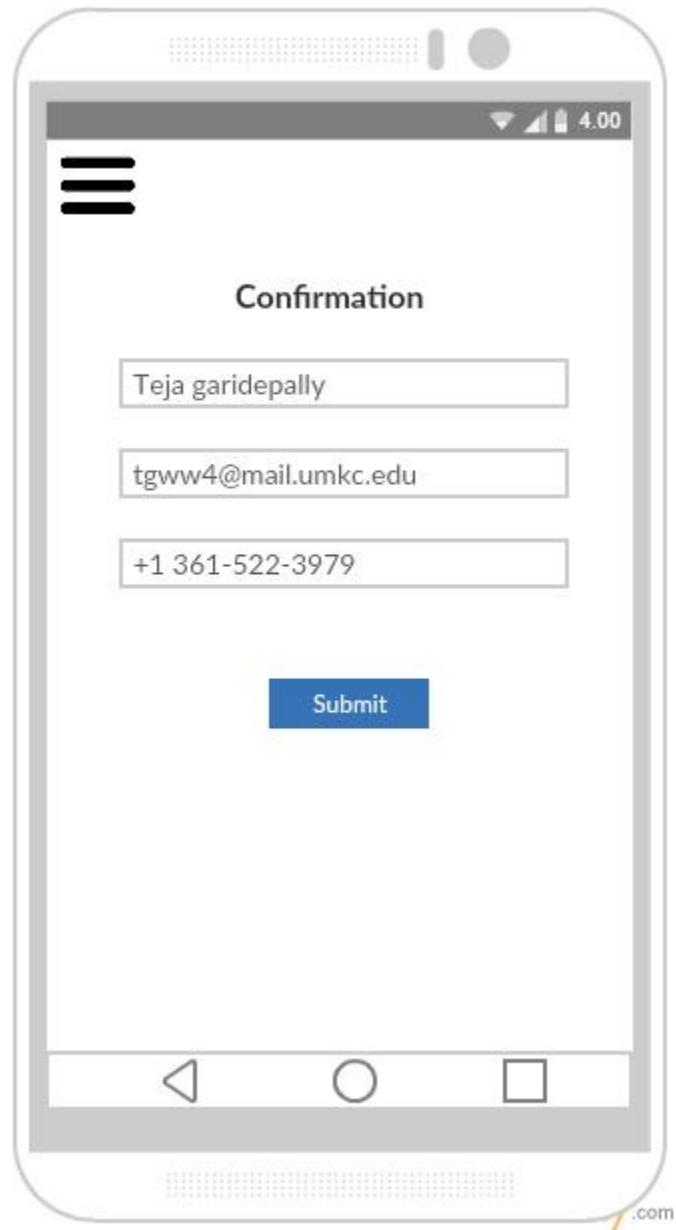


Fig. 16 Library room reservation form

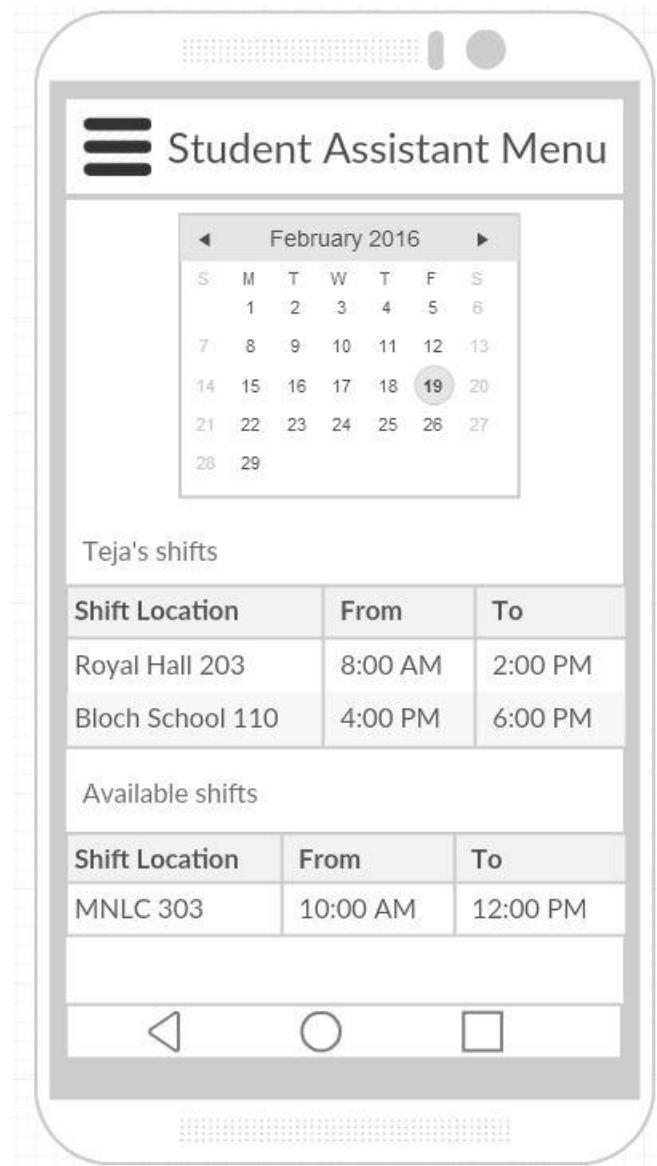


Fig. 17 Student Assistant menu page

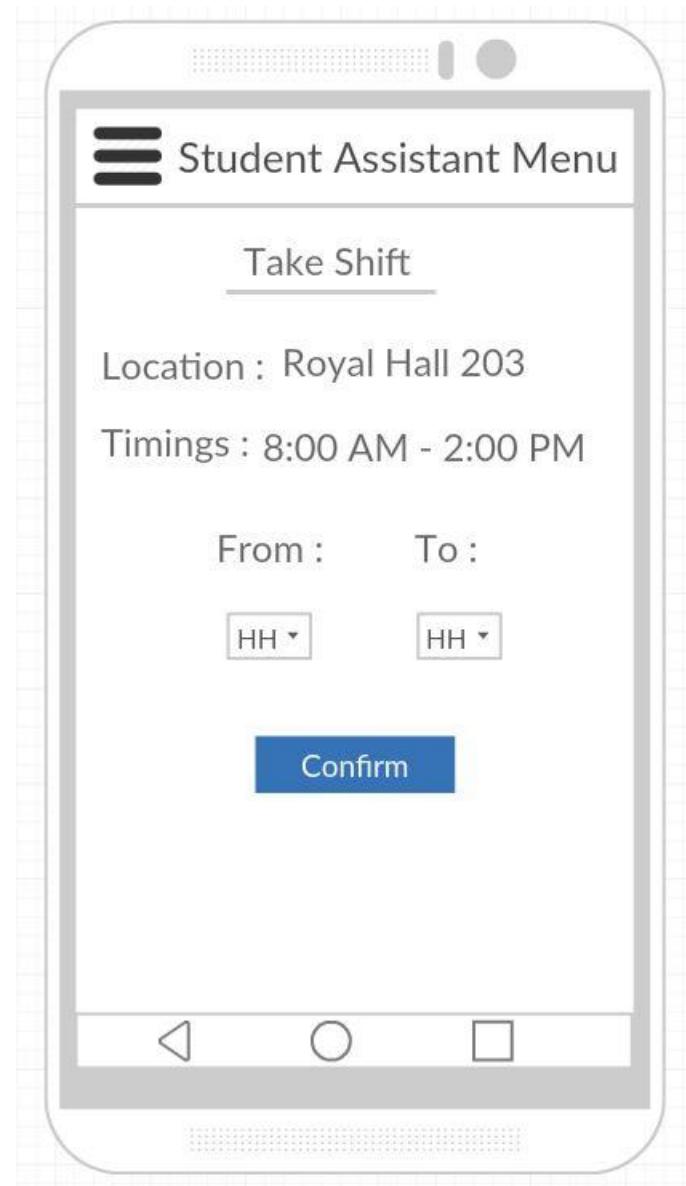


Fig. 18 Taking a Student Assistant shift

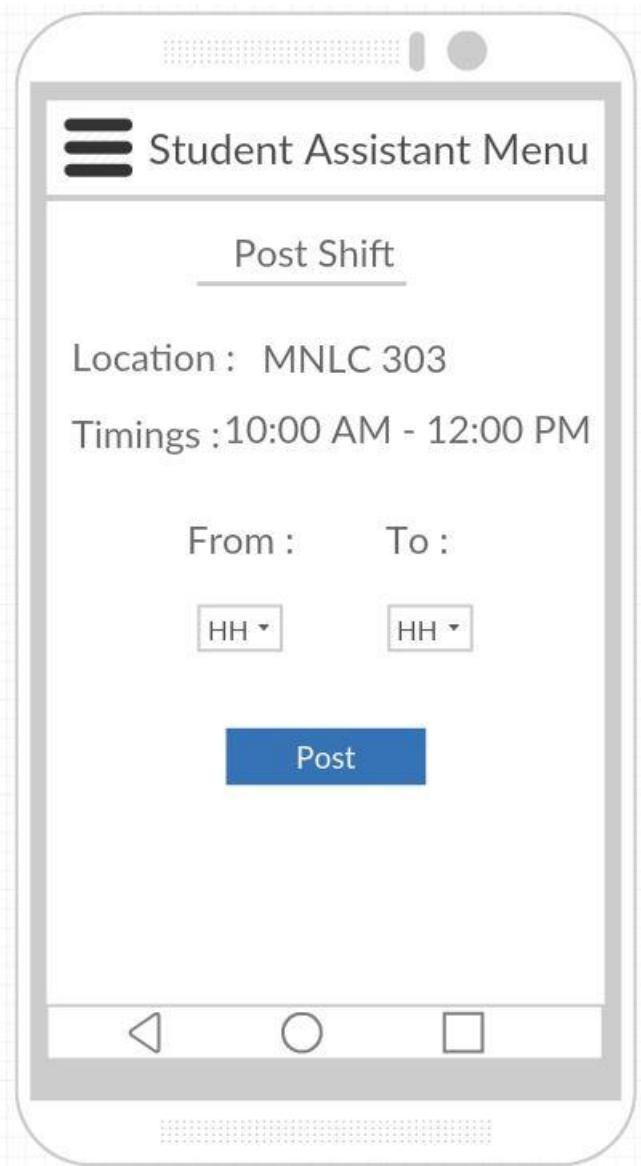


Fig. 19 Posting a Student Assistant shift



Fig. 20 Student profile page

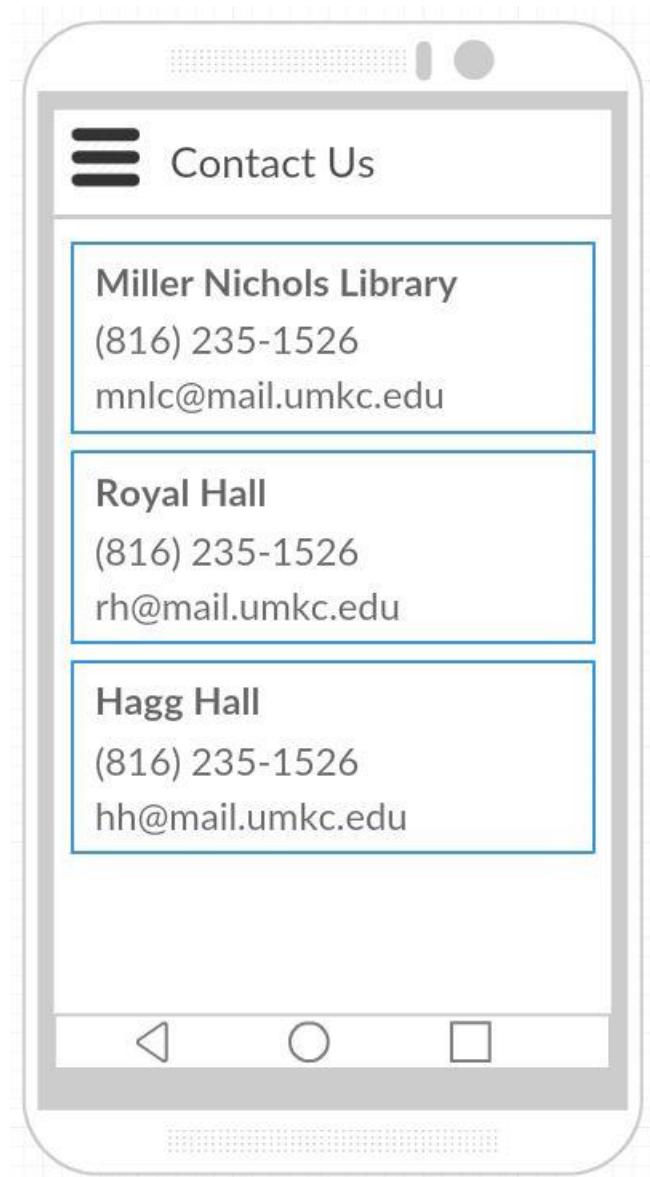


Fig. 21 Contact Us information page

Project Management

Work Completed

In detailed analysis of the system, environment and technical requirements for the application development. Project proposal documentation, Project tasks created in ZenHub and assigned the tasks to team members. Created the Project increment 1 document. All team members are involved in this task. Total time taken is 30 hours per person.
Contributions: Harsha 30%, Teja 25%, Raj 25%, Suhas 20%.

Work To Be Completed

We need to work on login page creation (both UI and logic) and the backend database tables creation. We would like to use mongo db as our database server. Raj Kiran and Harsha will work on

login page creation. Teja and Suhas will work on creation of sample database tables. Projected person participation: Harsha 25%, Teja 25%, Raj 25%, Suhas 25%.

Student Companion

Second Iteration Report

COMP-SCI 5551 Advanced Software Engineering

Introduction

This document is intended to provide an overall description of the project named “Student Companion” in detail. The project schedule and the plan of action is also discussed. The proposal document will give an insight on the project. The outcome of the second increment is the login page validation, database creation, home page creation and side menu creation.

Project Goal and Objectives

The goal of this project is to provide various functionalities that a student uses regularly such as updating the profile, checking for computer lab availability, library study room reservation etc. The student details will already present in the database. The student has to login before he uses these functionalities. Main objectives of this application are:

- To reduce the student's stress and to save the student's time by providing the latest availability of the computer labs.
- To develop an application that helps the students in taking the decision on to which laboratory the students have to go.
- To secure the information by providing a login form to the end user.
- To provide a tool with which the students will be able to reserve the library study rooms.
- To ensure that the student will never miss his schedules by setting reminders.
- To enable the Student Assistants to view their shifts, post and take substitutions.
- To provide the students with the option to update their address or mobile phone number etc.

Project Background and Related Work

Some functionalities of this application are already exist. We are creating a new android application which integrates (mash up) all the available and new functionalities under one hood, thus making the application a viable one. Some functionalities will be developed by importing the existing APIs into our application like Google Calendar API, Google Maps API etc. We are inspired by the problems that the Students are currently facing in reserving the study rooms, problems related to their working shifts and we came up with a solution which can resolve the existing challenges.

Significance:

The major significance of the application lies in mashing up of all the useful services under one system. This will save the student's time and increases the productivity. The application will prevent the fraudulent usage by restricting the resources access to only the students who successfully logged in to the system. As of now, the student assistants has to go

through a lengthy process in order to post or take shifts. The proposed application will make it easier for the student to perform such tasks by providing on-the-go support.

Work flow

The first workflow of the application is that of the designing the User Interface for the system. Our application goal is to provide instant access to the user regarding lab availability and library room availability. So, for this we are developing an mobile application. We are using ionic framework so that we can develop hybrid application.

Second, we have created the login page and database using MongoLab and we have successfully authenticated the user based on his details which are stored in database in mongodb.

The third workflow deals with the creating a mongodb database to store and retrieve the user profile and information about IS labs, library study rooms etc. The work flow of the each and every feature of the application is explained through sequence diagrams and state chart diagram presented in the first increment report.

NAME	DOCUMENTS	CAPPED?	SIZE	X
Address	4	false	8.92 KB	X
Courses	3	false	8.69 KB	X
Enrollments	12	false	9.30 KB	X
LabHours	9	false	10.09 KB	X
Labs	3	false	8.69 KB	X
Library	1	false	8.22 KB	X
LibraryHours	7	false	9.63 KB	X
Login	4	false	8.42 KB	X
Profile	4	false	8.92 KB	X
SAShifts	5	false	9.16 KB	X
Substitutions	3	false	8.69 KB	X

Technological and architecture requirements

In the application system need to interact with the database for retrieving the data to do this interaction between the system and database is done through REST technology. We use CRUD API calls of the REST for accessing the database.

Ionic framework, it is a powerful SDK used to develop hybrid applications using web technologies like HTML, CSS and JavaScript. It is also a core in providing better UI to the user.

The architectural requirement aims at the development of flexible architecture for the better interaction between the system and the database.

Existing Services/API

We have so far used the MongoDB in our application. MongoDB is a cross-platform document-oriented database and it is a NoSQL database, MongoDB avoids the traditional table-based relational database structure in favor of JSON-like documents with dynamic schemas making the integration of data in certain types of applications easier and faster.

We have used mongoDB to store the information of the users and data about the IS labs, library study rooms, student assistant information etc. Using REST API calls data is retrieved from the database and displayed to the user.

mLab is a fully managed cloud database service that hosts and provides featuring automated provisioning and scaling of MongoDB databases. Data can be accessed from mongoDB using two ways. First, by using the DATA APT URL in which it contains database name, collection name and API key.

Example URL:

https://api.mongolab.com/api/1/databases/studentcorner/collections//Ase_project/' + id + '?apiKey=Q_u73BV4oOdMGpnu3WFGmj8YH_HDHO

Second, accessing the mongoDB using a driver to connect the database. An example driver:

```
mongodb://<dbuser>:<dbpassword>@ds011399.mlab.com:11399/studentcompanionsdb
```

Architecture Diagram

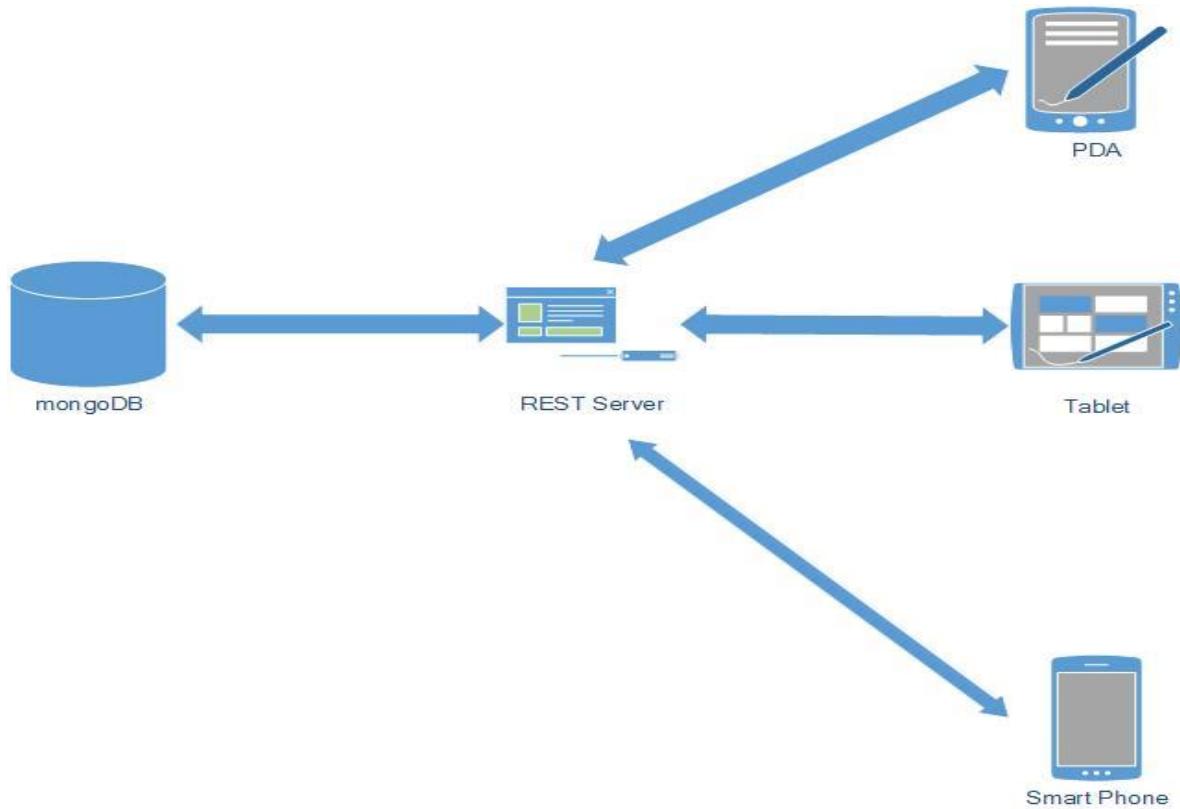


Fig 1: Architecture Diagram for StudentCompanion

The architecture diagram for our application shows that it is 3-tier architecture. Application which deployed in smart phones, PDA's and Tablet uses the REST services for interacting with the database for storing and retrieval of required information from the mongoDB.

Project plan

The proposed project plan is outlined by the screenshot from the ZenHub tool. The project is divided into four milestones. Each iteration has several states namely future tasks, new issues, to do, development in progress, testing in progress, done and closed.

The screenshot shows a ZenHub board with the following structure:

- New Issues:** Contains one item: ASE_S16_G7 #9 Analyze the database tables creation. Status: Requirement.
- Future Tasks:** Contains one item: ASE_S16_G7 #12 Create Home page. Status: enhancement.
- To Do:** Empty.
- Dev In Progress:** Contains one item: ASE_S16_G7 #12 Create Home page. Status: enhancement.
- Testing In Progress:** Empty.
- Done:** Empty.
- Closed:** Contains four items:
 - ASE_S16_G7 #14 Create Project Increment 2 documentation. Status: enhancement.
 - ASE_S16_G7 #8 Create Login page. Status: Requirement.
 - ASE_S16_G7 #10 Analyze the db tables creation. Status: Requirement.
 - ASE_S16_G7 #11 Analyze the login page creation. Status: Requirement.

Fig. 2 ZenHub Board showing the project plan and current tasks.

Milestone 2:

This milestone mainly deals with the designing the system for the implementation phase. The tasks of this phase mainly focuses three tasks.

First, the development of basic skeleton which gives pleasant UI to the user.

Second, development of login page and authentication of user using his/her credentials which are stored in the mongoDB.

Third, creation of database using mongoDB , populating the database and accessing the database using mongoDB API.

The results of this milestone contains the screenshots of the application and the related class, sequence and state chart diagrams.

Second Increment Report

This document contains the report of second increment of work done on the Student Companion application. This document emphasizes the initial implementation of the application using different web technologies such as CSS,HTML5,JavaScript and mongoDB. We're using the HTML5, CSS and Angular JS for the front end user interface creation.

We have created our database in mongoDB and the interaction between the system and database is through REST API calls. We have used mongoDB API for data accessing by using API key authentication.

We have created the login page and the user login is done by authenticating the user by checking the credentials with that are stored in database. We have also checked the work so far by deploying the application in the mobile and manual testing is done.

The detail development in second increment include the login page, database creation using mongoDB and accessing database using REST API calls. We are going to work on the other features in the side menu bar in upcoming increment.

Class diagram for the high level design of the application:

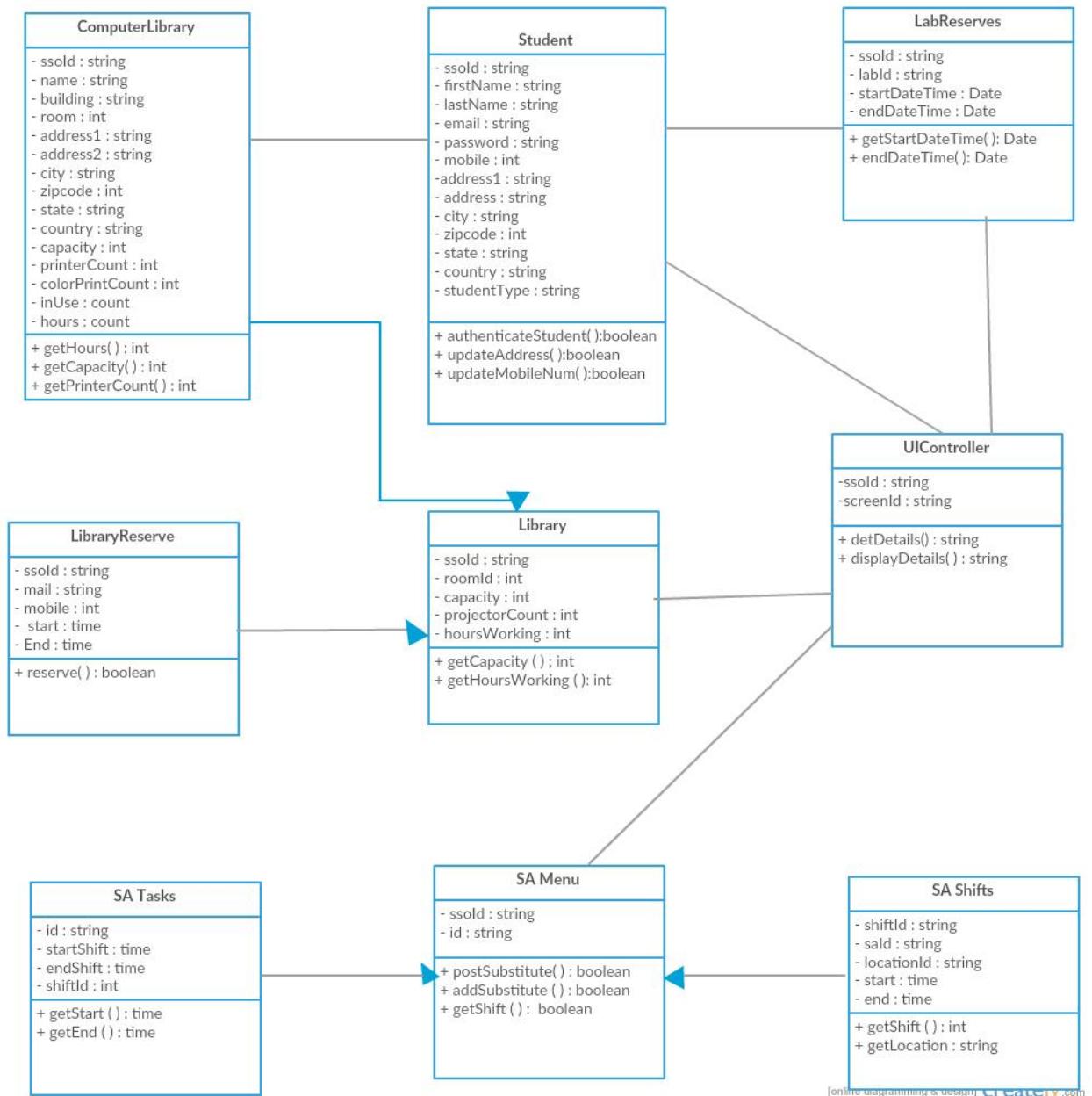


Fig. 2 demonstrates a class diagram of high level design of application

Sequence diagrams for the high level design of the application:

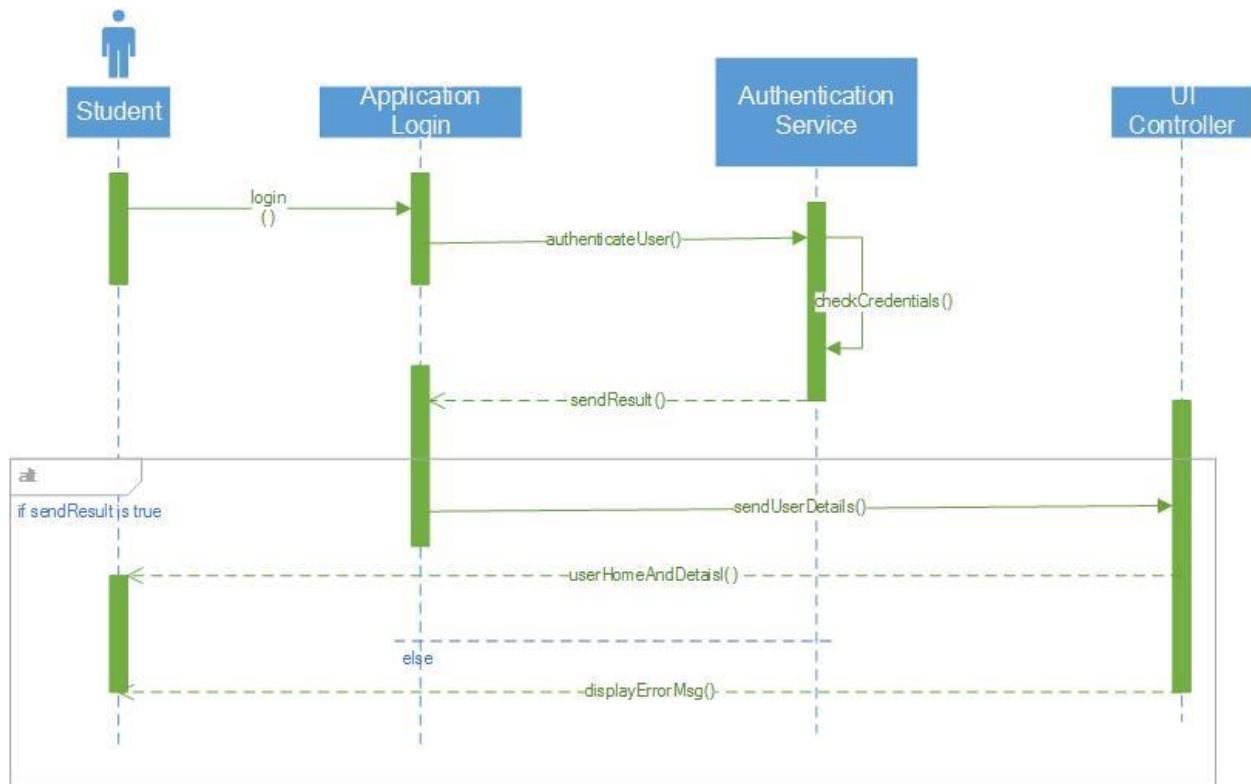


Fig. 3 Sequence diagram for student login activity

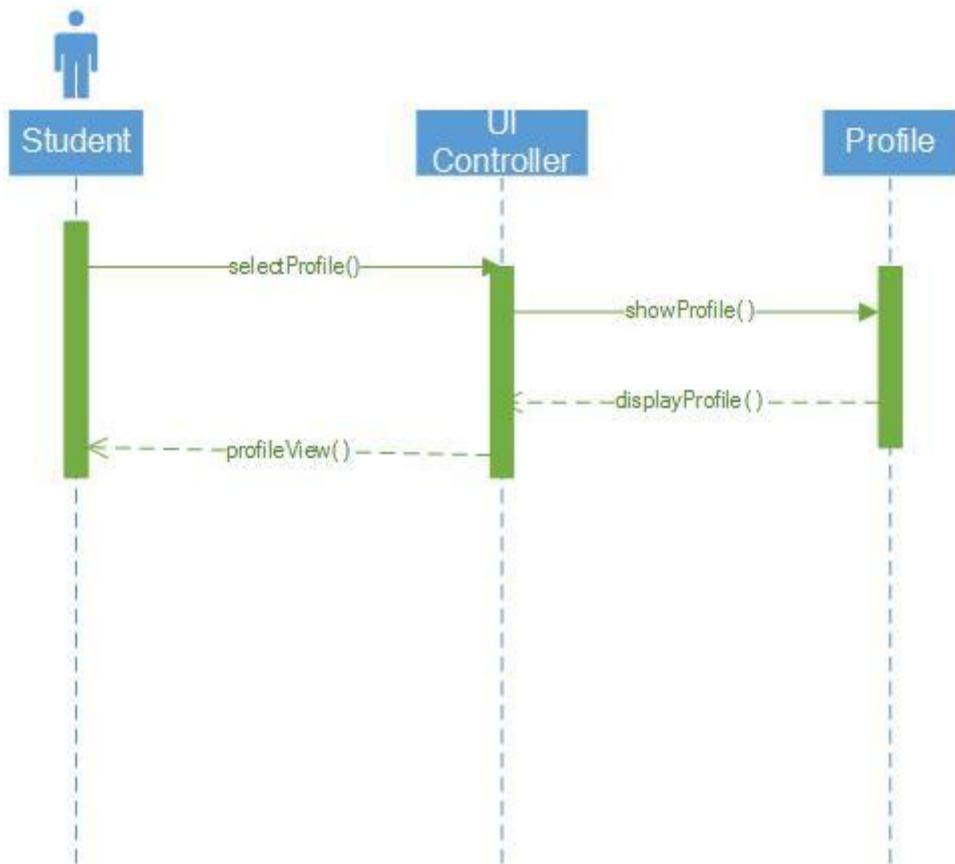


Fig. 4 Sequence diagram shows the control flow for “view user profile” task

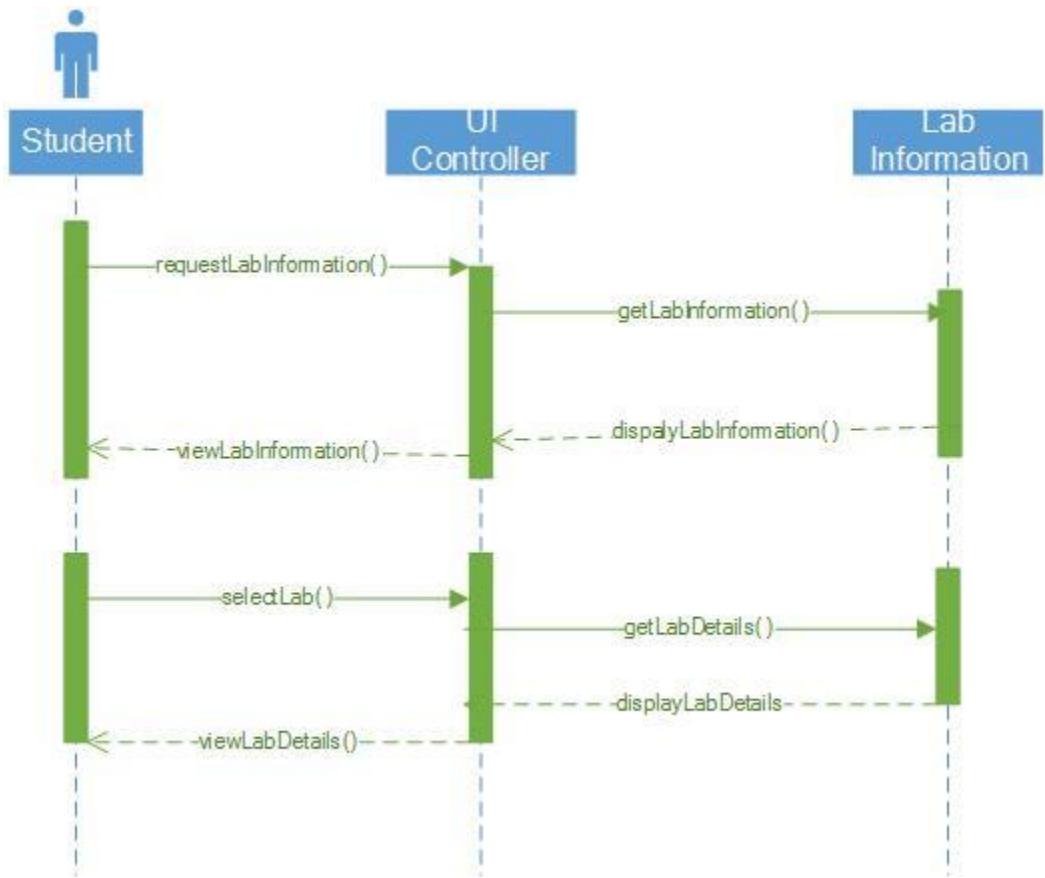


Fig. 5 Sequence diagram for “View lab information” activity

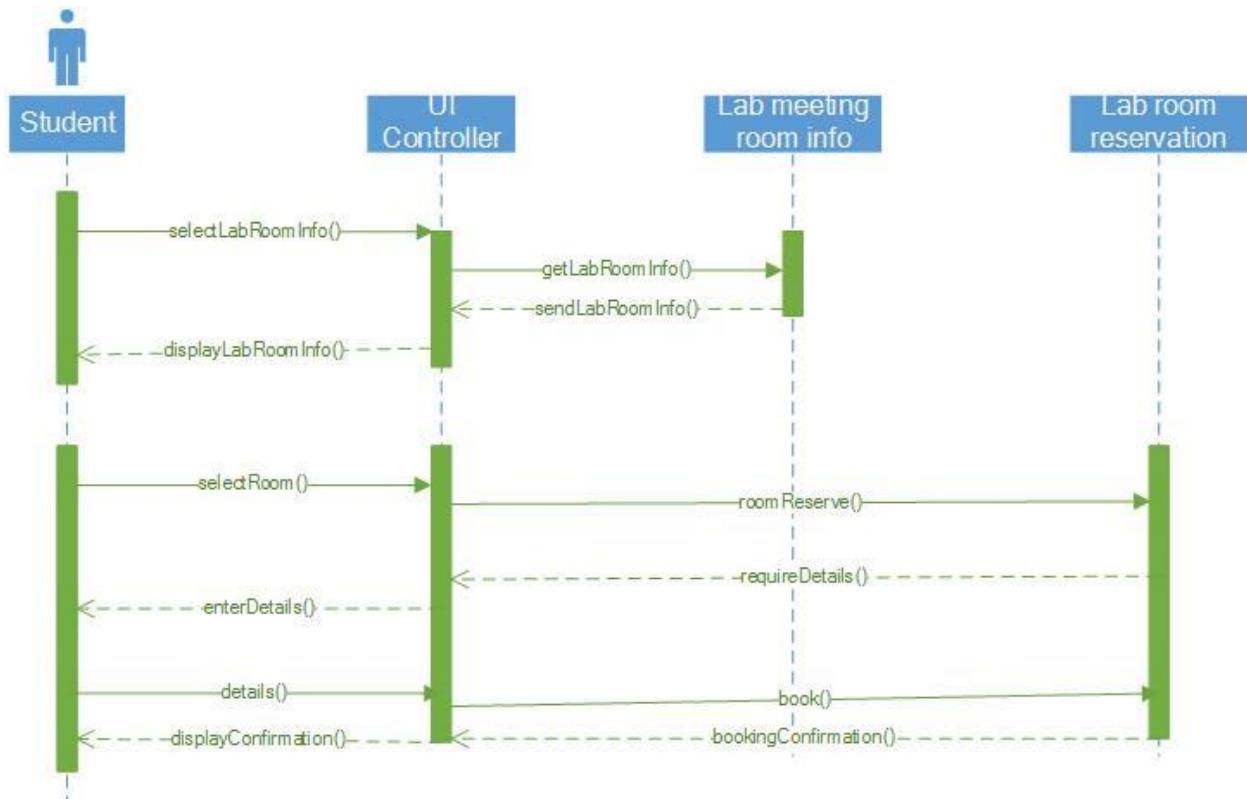


Fig. 6 Sequence diagram for reserving library study room activity

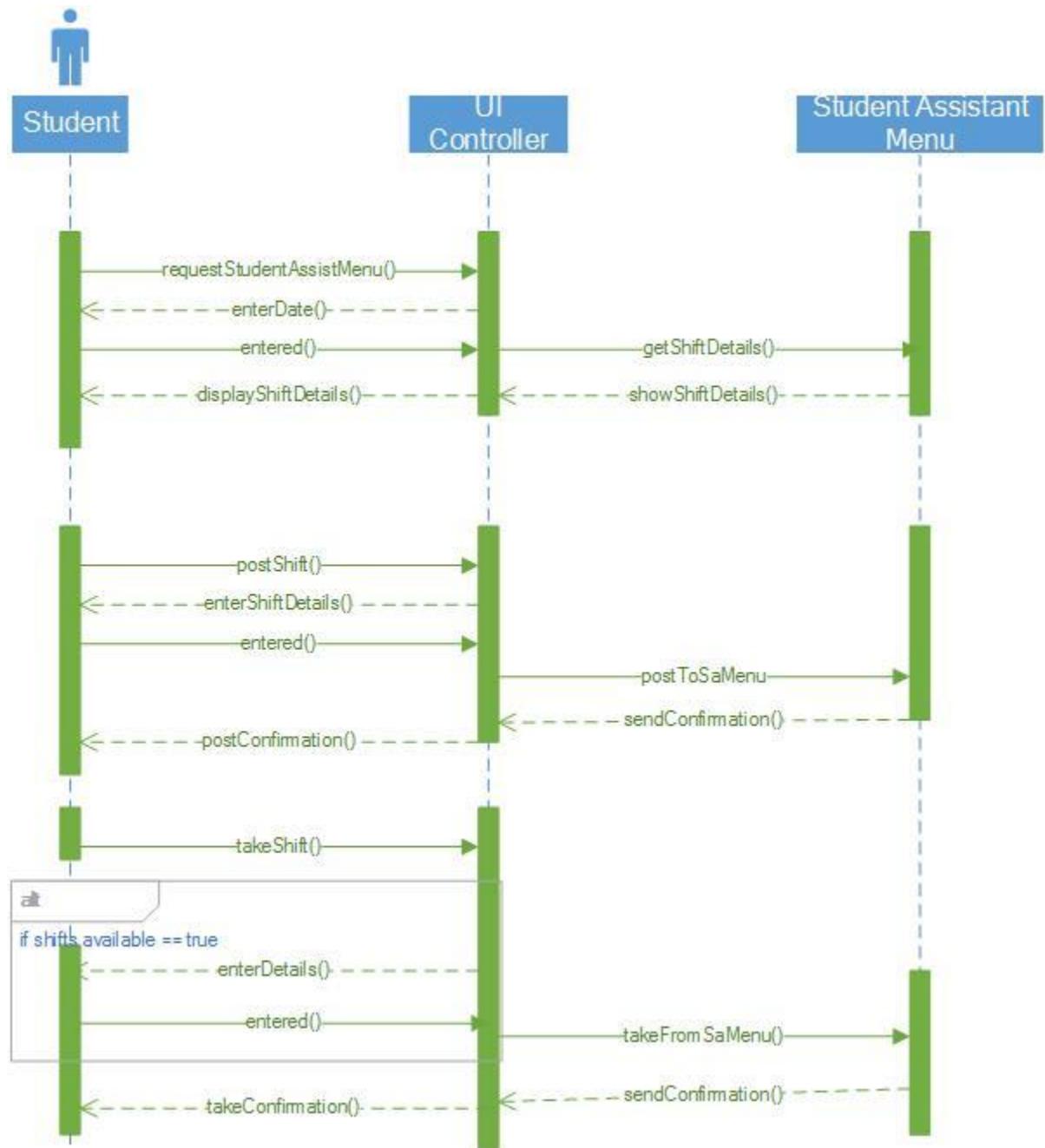


Fig. 7 Sequence diagram for student assistant activities like post or take shifts.

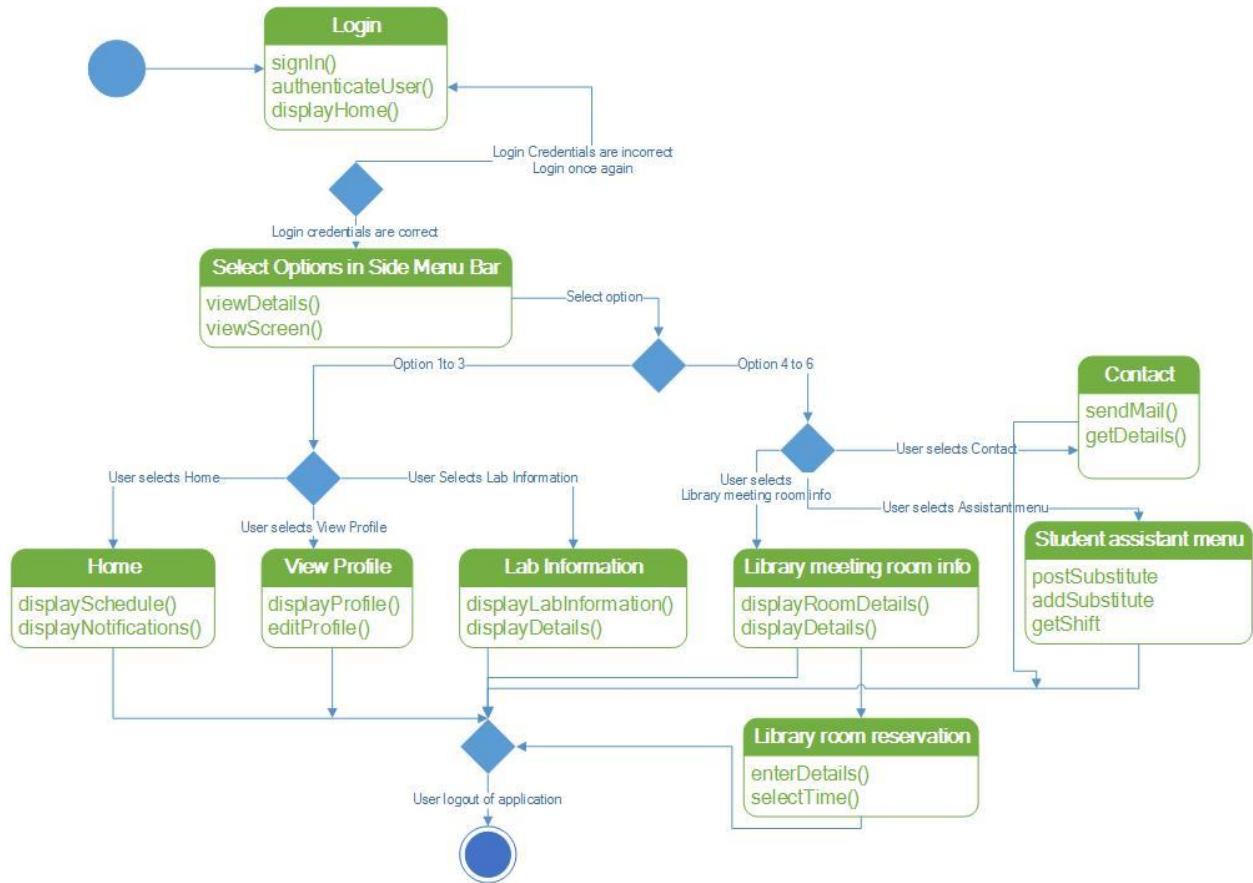


Fig. 8 State chart diagram for the application modules.

Wireframes of the application

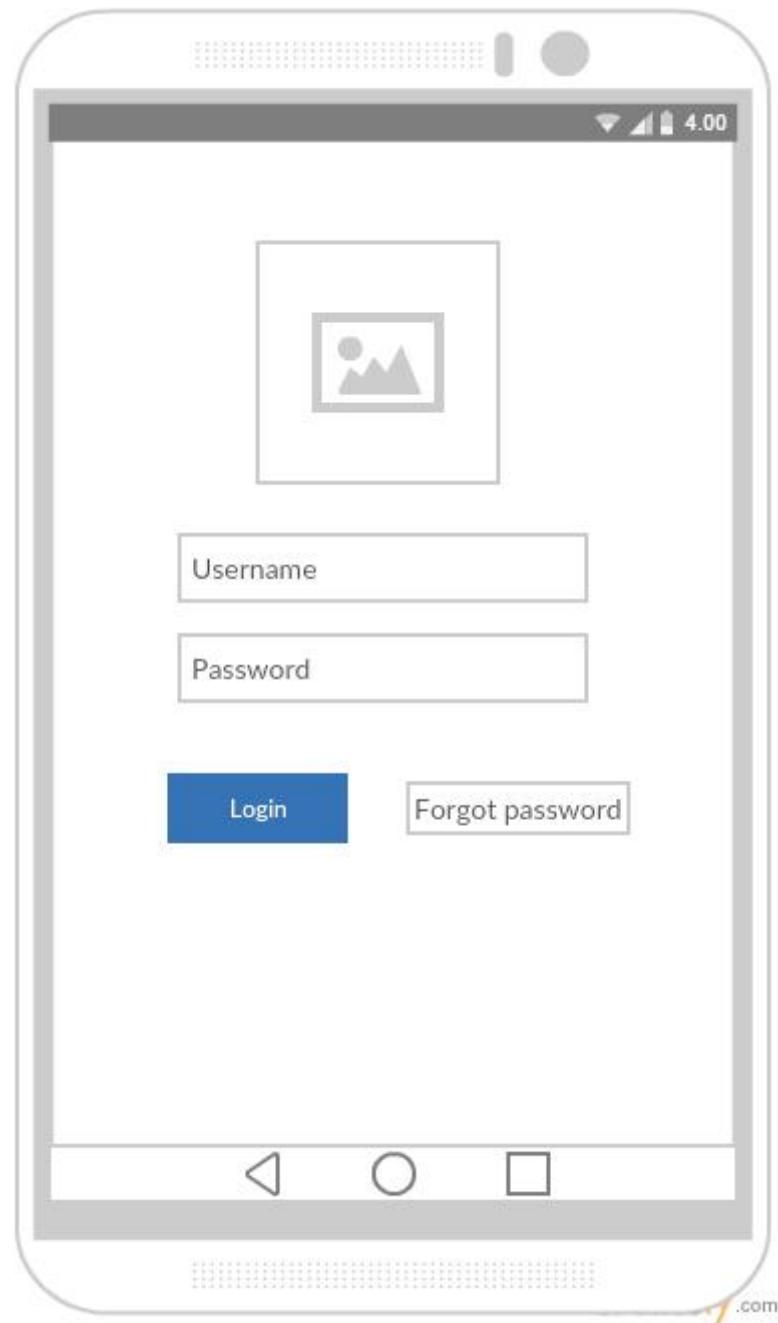


Fig. 9 Login screen

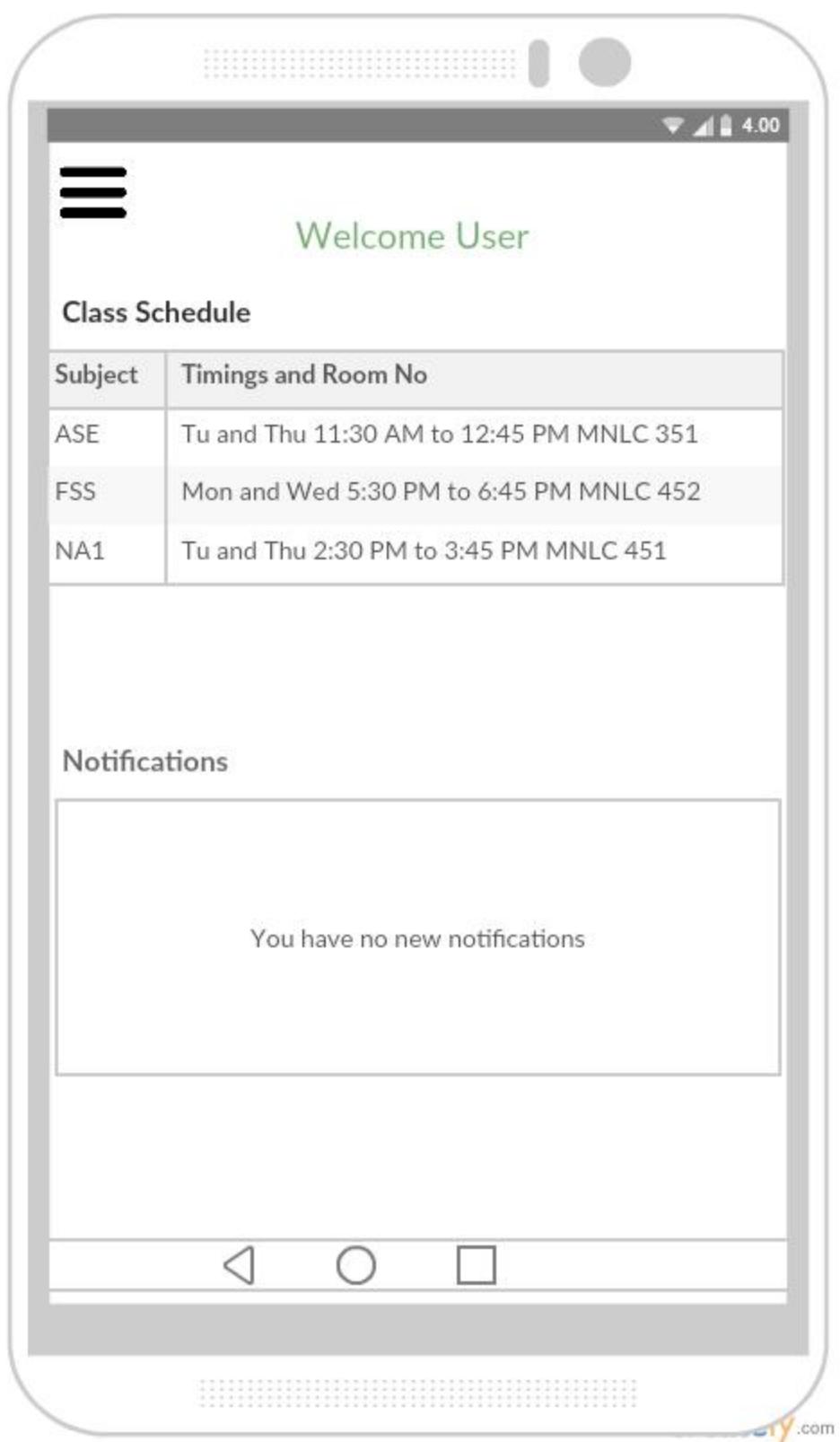


Fig. 10 Main Home page

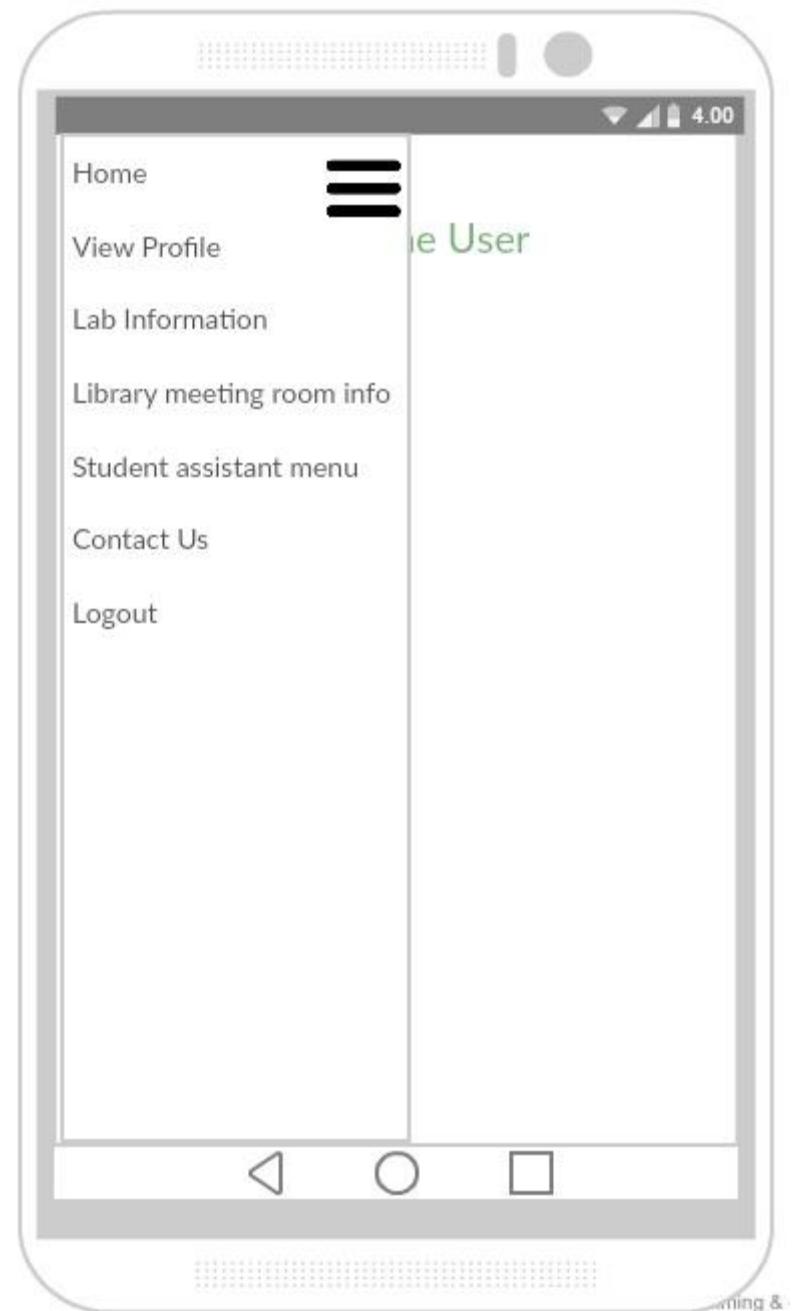


Fig. 11 Side menu bar

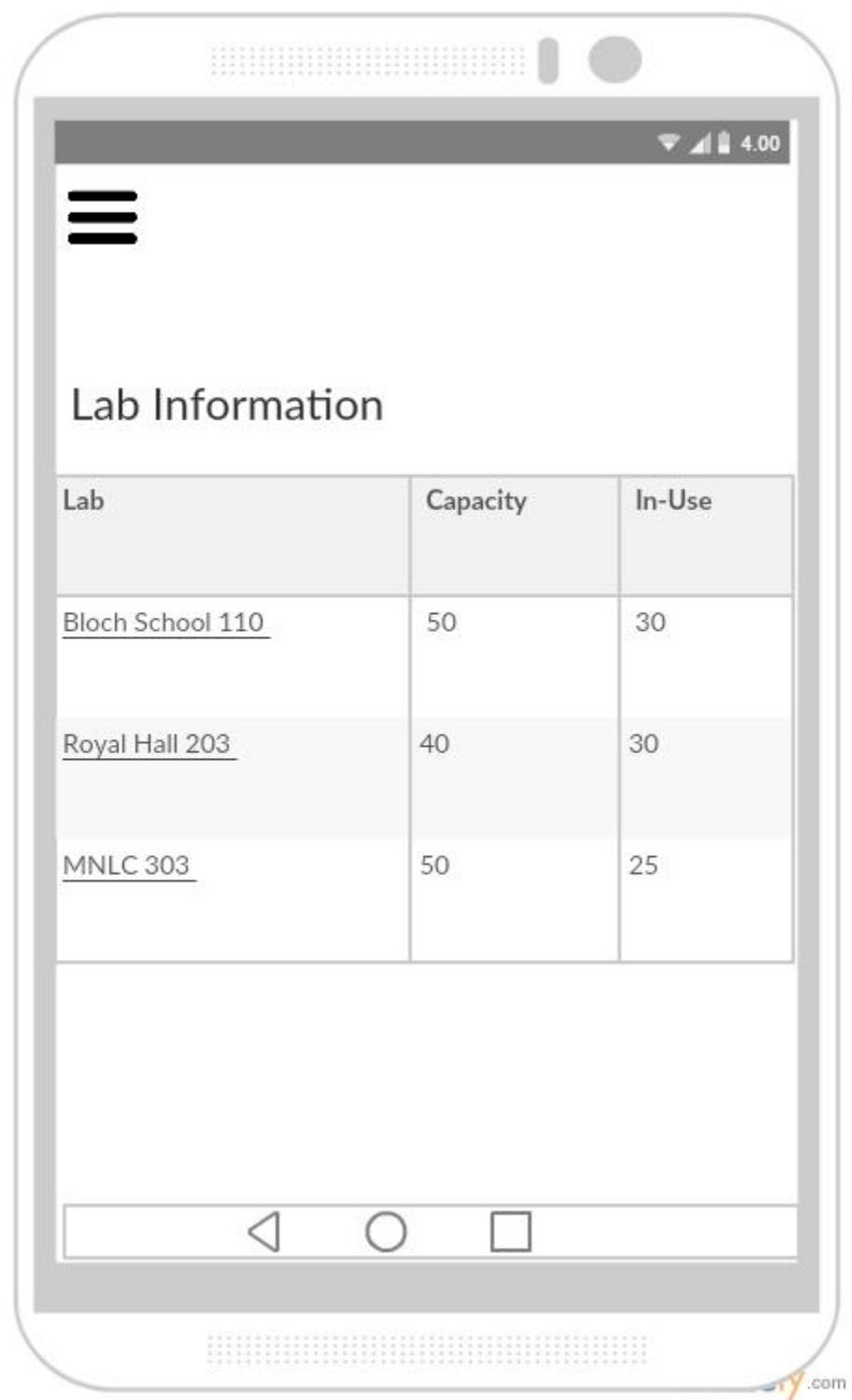


Fig. 12 Computer Labs information page

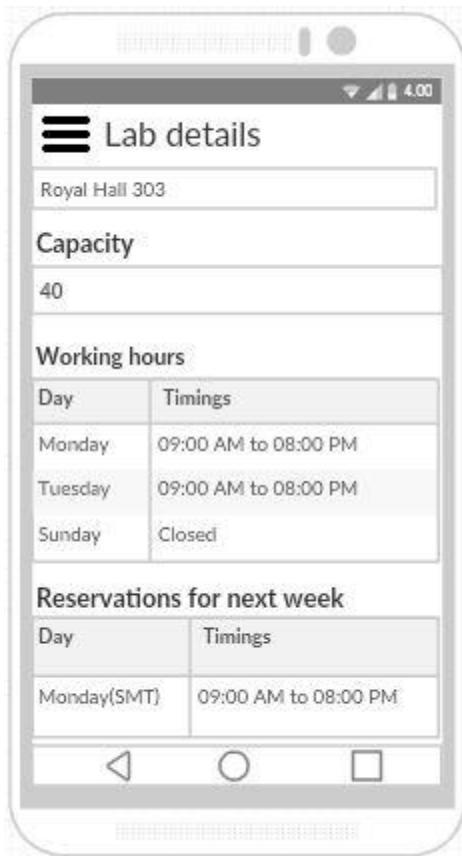


Fig. 13 Detailed information of a computer lab

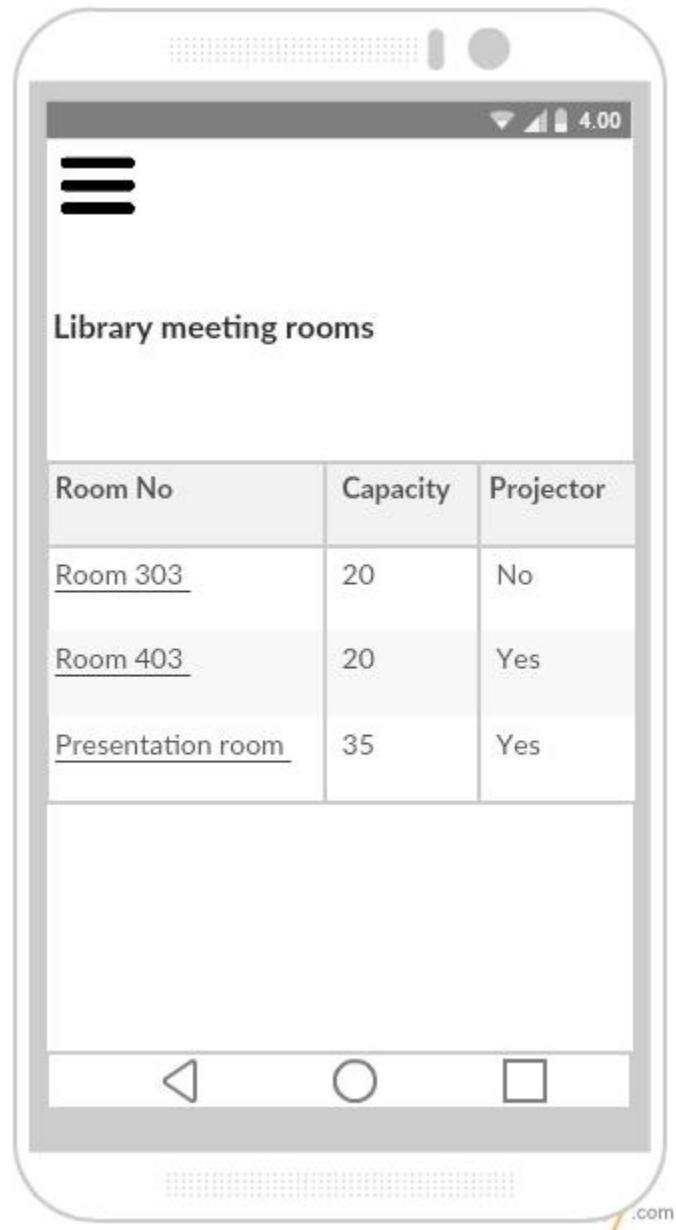


Fig. 14 Library study room information

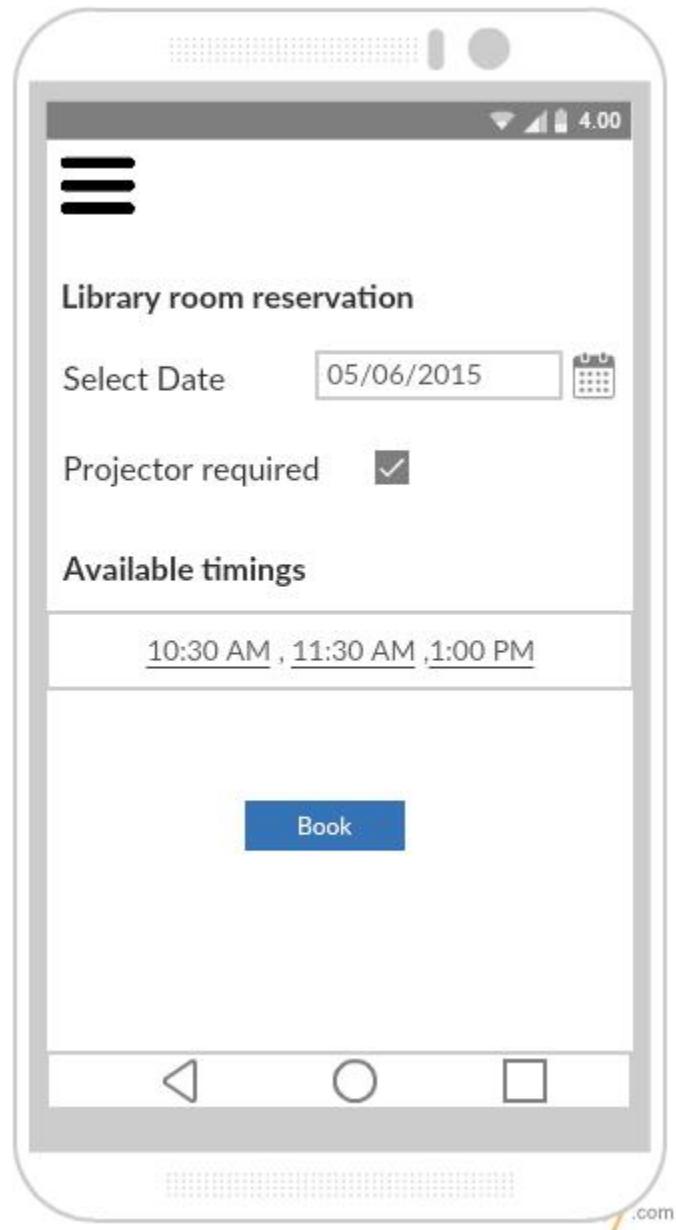


Fig. 15 Library room reservation page

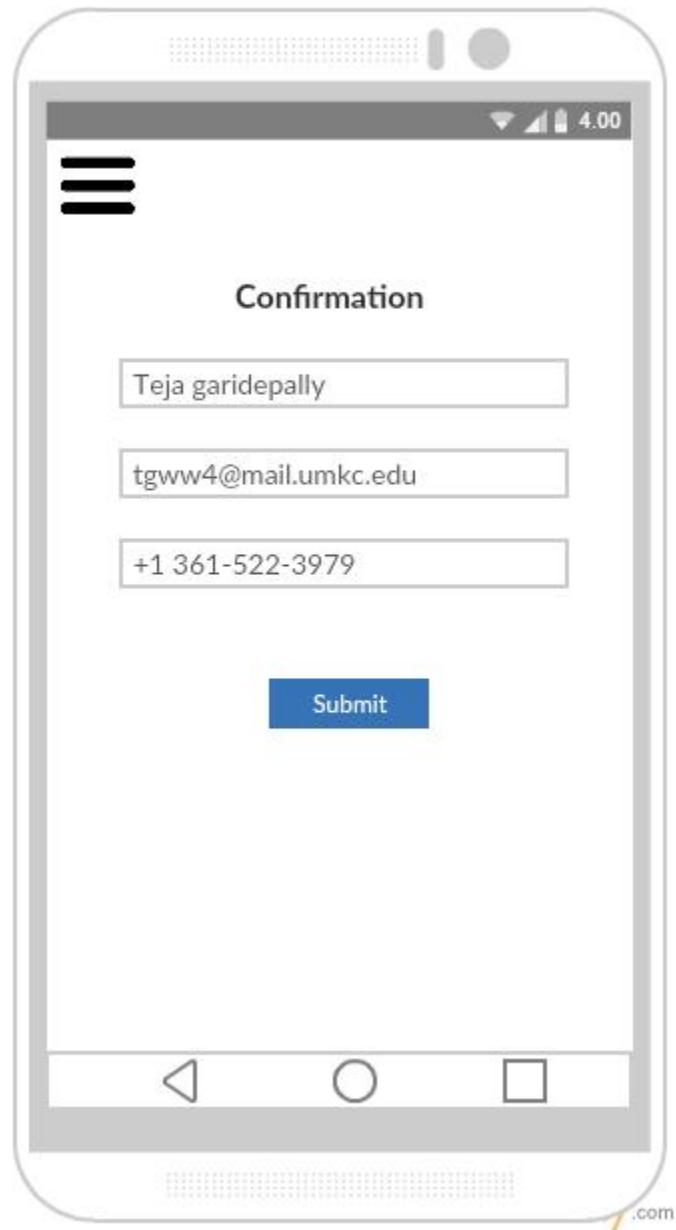


Fig. 16 Library room reservation form

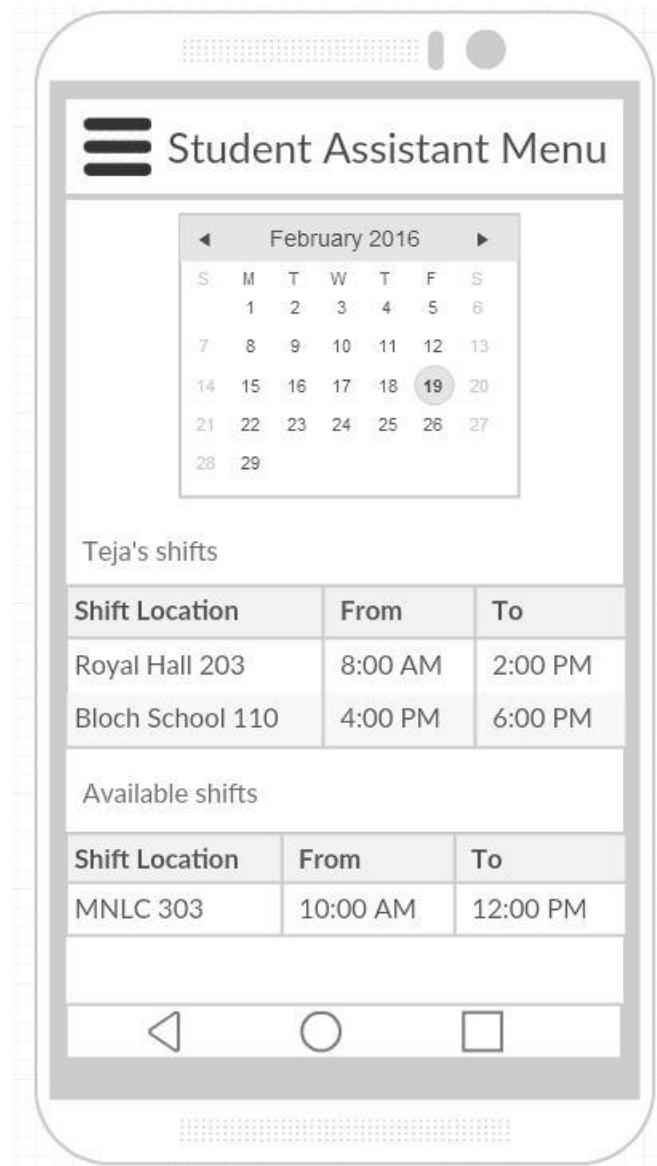


Fig. 17 Student Assistant menu page

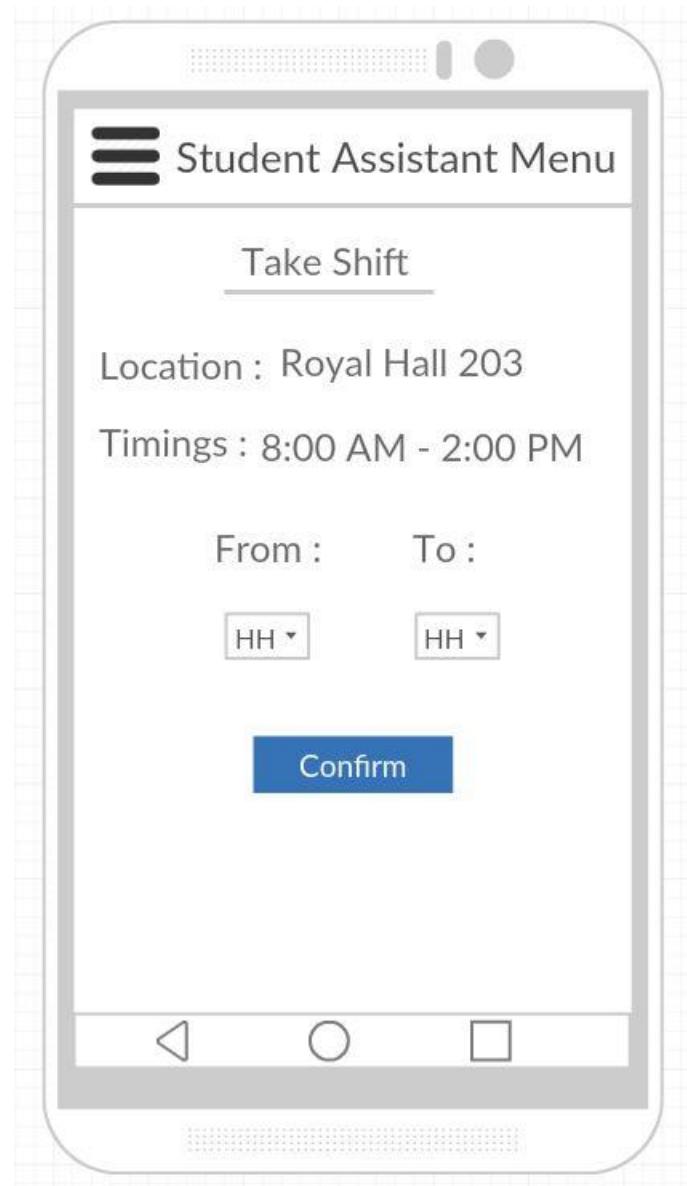


Fig. 18 Taking a Student Assistant shift

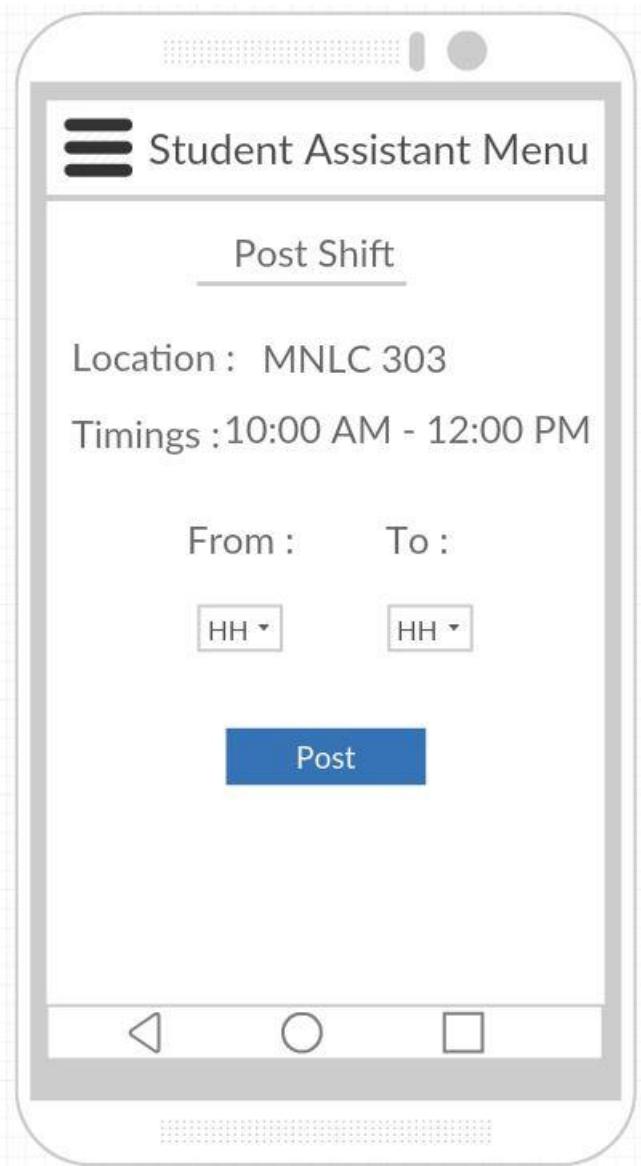


Fig. 19 Posting a Student Assistant shift



Fig. 20 Student profile page

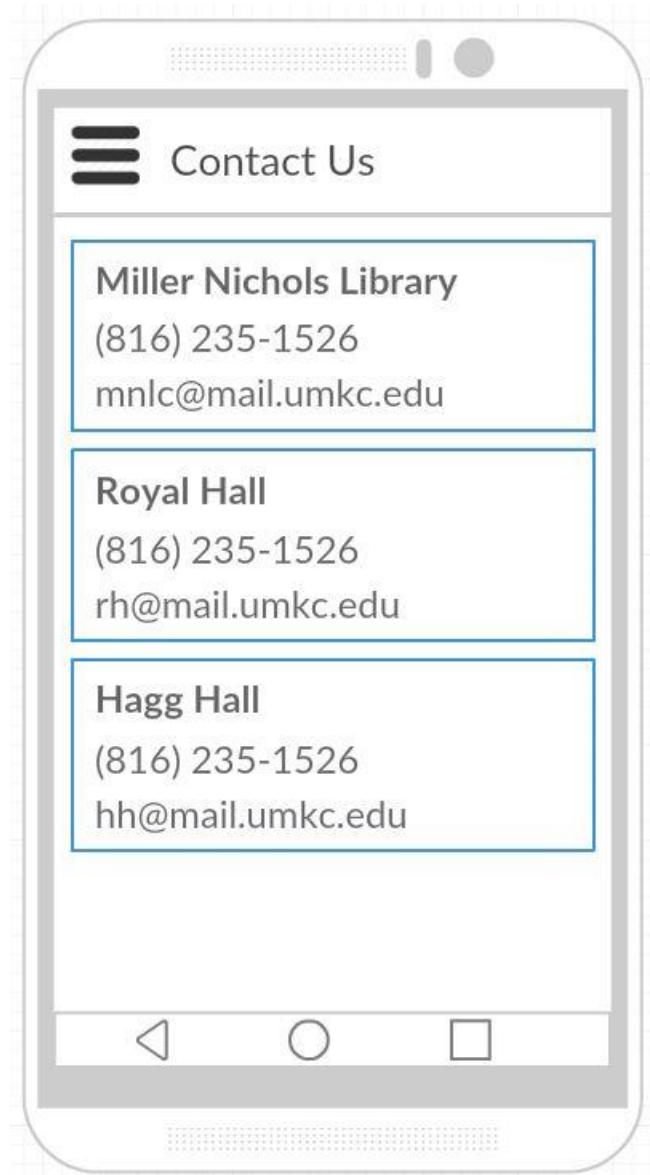


Fig. 21 Contact Us information page

User Stories:

- As a User, I can see the UI of StudentCompanion App.
- As a user, I can see the Login Screen.
- As a user, I can enter my Details and Login to the App.
- As a user, I can see the Side menu bar on Home Page with side menu options like Profile, Lab Information, Reserve Study Room, and SA Menu.
- As a User, I can see my Profile.
- As a User, I can see the Lab Information of specified lab.
- As a User, I can Reserve Study Room.
- As a User, I can choose the SA Menu option
- As a User, I can utilize the options in SA Menu.

As a user, I can Sign-out from the Application.

Deployment

Deployment of application to Mobile phone.

Screen Shots:

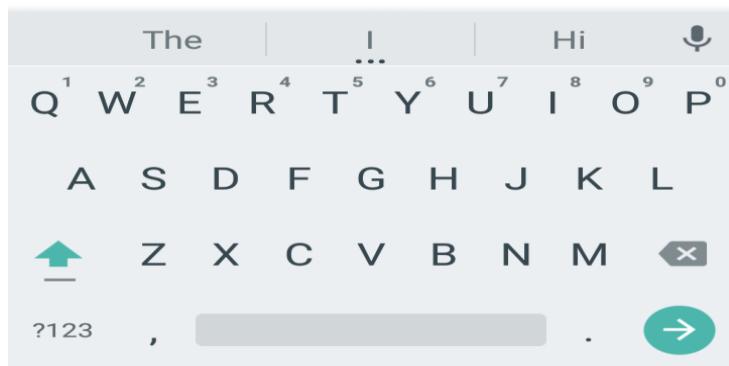
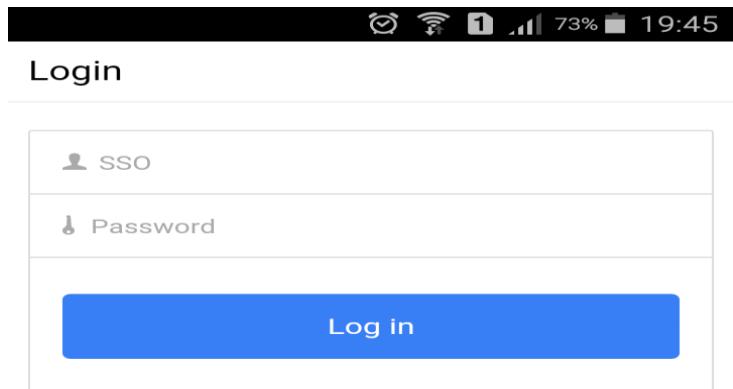


Fig: Login Screen

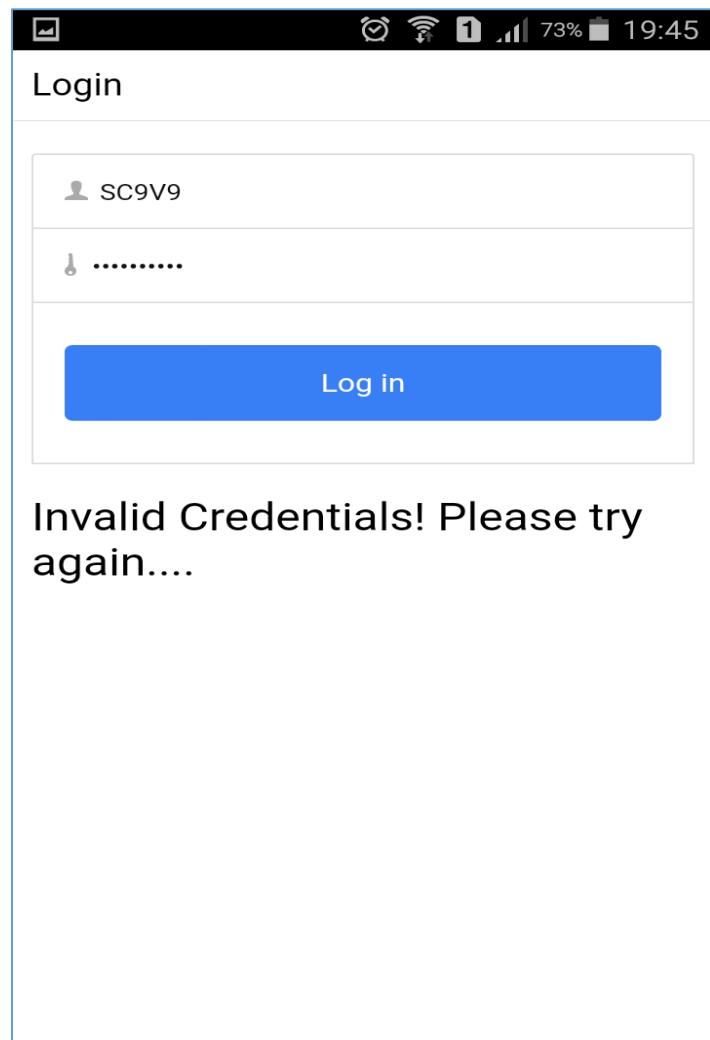


Fig : Login Fail message screen

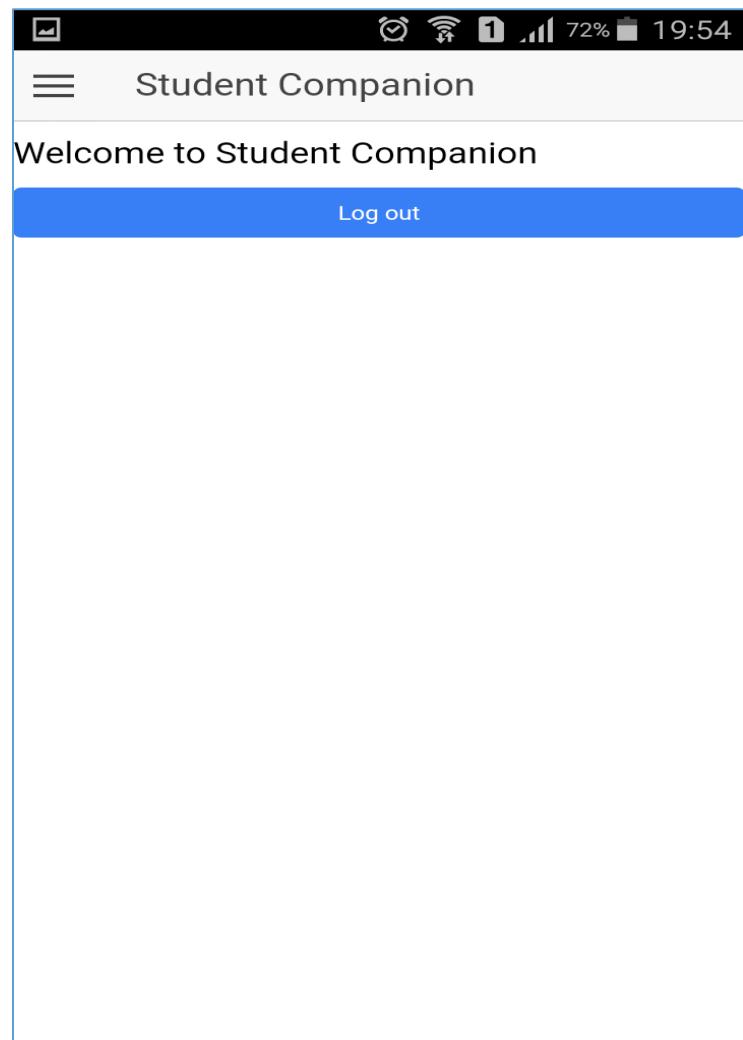


Fig: Home Screen

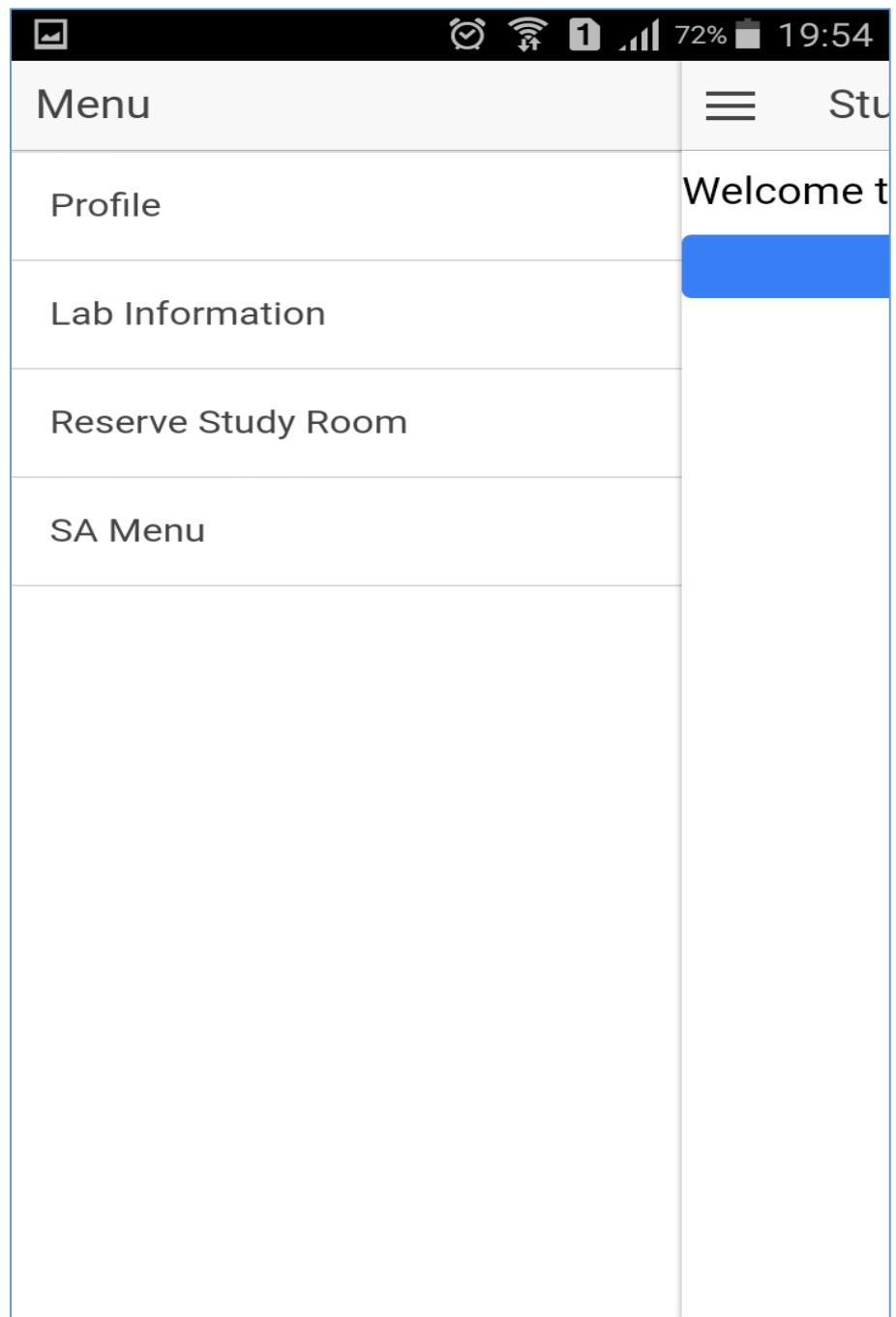


Fig: Side Menu

Web Application:

Screenshots:

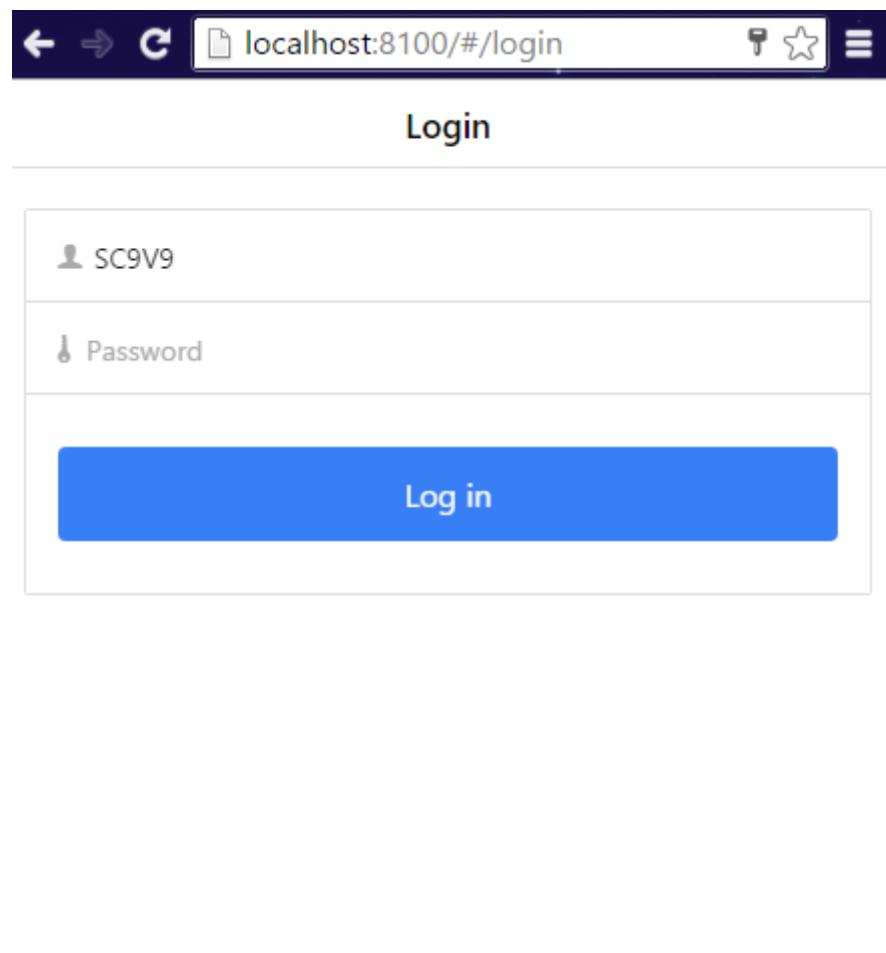
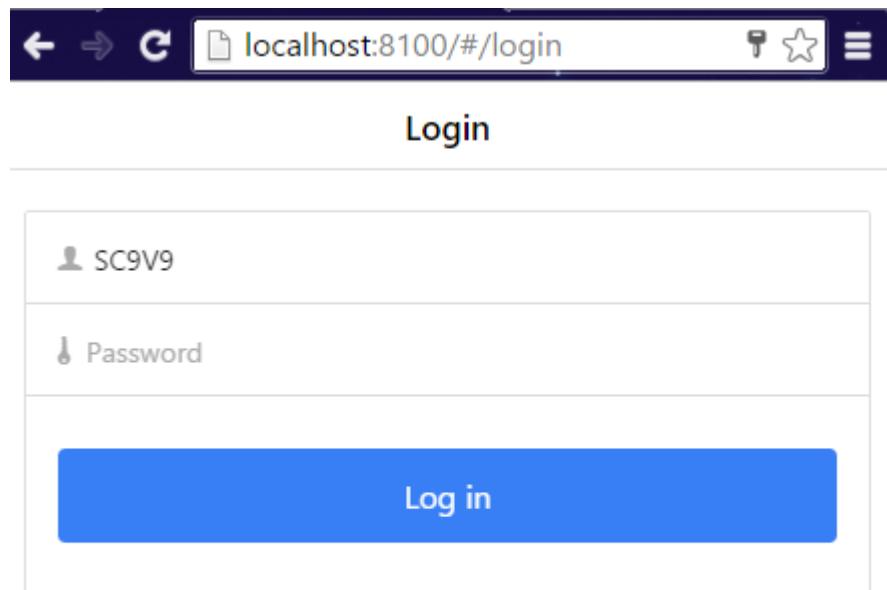


Fig: Login



Invalid Credentials! Please try again....

Fig: Login fail message screenshot

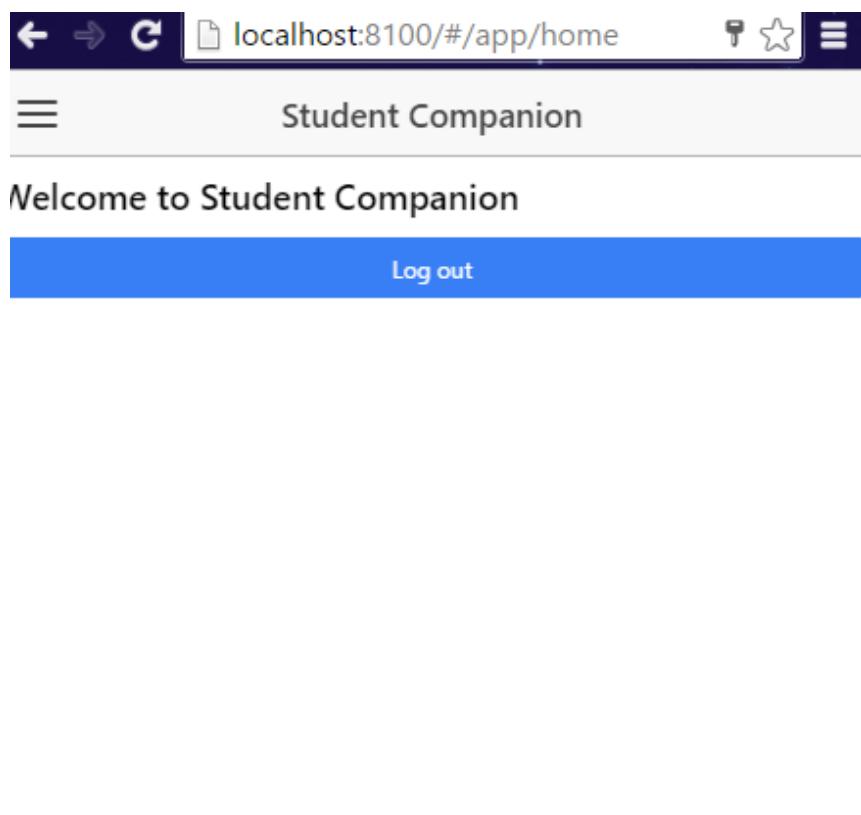


Fig: Home

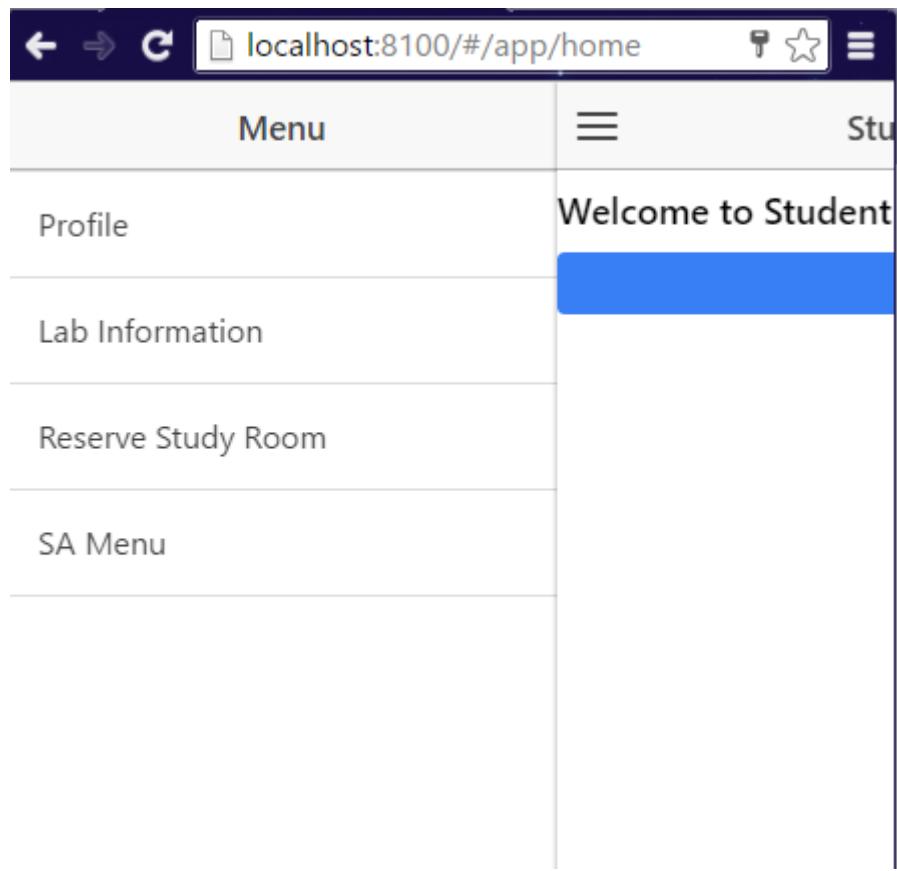


Fig: Side Menu

Project URL:

https://github.com/meetsriharsha/ASE_S16_G7/tree/master/SourceCode/Increment2/StudentCompanion

Second Increment Document URL:

https://github.com/meetsriharsha/ASE_S16_G7/tree/master/Documentation

Project Management

Work Completed

In detailed analysis of the system, environment and technical requirements for the application development. Project proposal documentation, Project tasks created in ZenHub and assigned the tasks to team members. Created the Project increment 1 document. All team members are involved in this task. Total time taken is 50 hours per person.

Contributions: Harsha 27.5%, Teja 27.5%, Raj 27.5%, Suhas 17.5%.

Work To Be Completed

We need to work on remaining side-menu pages creation (both UI and logic) and we need to work on UI tweaking. We're planning to concentrate on controller logic of the application. Raj Kiran

and Harsha will work on Profile and Home page creation. Teja and Suhas will work on computer lab information and library information pages. We will also work on calendar inclusion for library room reservation. Projected person participation: Harsha 25%, Teja 25%, Raj 25%, Suhas 25%.

Student Companion

Third Iteration Report

COMP-SCI 5551 Advanced Software Engineering

Introduction

This document is intended to provide an overall description of the project named “Student Companion” in detail. The project schedule and the plan of action is also discussed. The proposal document will give an insight on the project. The outcome of the second increment is the login page validation, database creation, home page creation and side menu creation.

Project Goal and Objectives

The goal of this project is to provide various functionalities that a student uses regularly such as updating the profile, checking for computer lab availability, library study room reservation etc. The student details will already present in the database. The student has to login before he uses these functionalities. Main objectives of this application are:

- To reduce the student's stress and to save the student's time by providing the latest availability of the computer labs.
- To develop an application that helps the students in taking the decision on to which laboratory the students have to go.
- To secure the information by providing a login form to the end user.
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- To enable the Student Assistants to view their shifts, post and take substitutions.
- To provide the students with the option to update their address or mobile phone number etc.

Project Background and Related Work

Some functionalities of this application are already exist. We are creating a new android application which integrates (mash up) all the available and new functionalities under one hood, thus making the application a viable one. Some functionalities will be developed by importing the existing APIs into our application like Google Calendar API, Google Maps API etc. We are inspired by the problems that the Students are currently facing in reserving the study rooms, problems related to their working shifts and we came up with a solution which can resolve the existing challenges.

Significance:

The major significance of the application lies in mashing up of all the useful services under one system. This will save the student's time and increases the productivity. The application will prevent the fraudulent usage by restricting the resources access to only the students who successfully logged in to the system. As of now, the student assistants has to go

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Work flow

The first workflow of the application is that of the designing the User Interface for the system. Our application goal is to provide instant access to the user regarding lab availability and library room availability. So, for this we are developing an mobile application. We are using ionic framework so that we can develop hybrid application.

Second, we have created the login page and database using MongoLab and we have successfully authenticated the user based on his details which are stored in database in mongodb.

The third workflow deals with the creating a mongodb database to store and retrieve the user profile and information about IS labs, library study rooms etc. The work flow of the each and every feature of the application is explained through sequence diagrams and state chart diagram presented in the first increment report.

To connect using the mongo shell:
% mongo ds011399.mlab.com:11399/studentcompanionsdb -u <dbuser> -p <dbpassword>

To connect using a driver via the standard MongoDB URI (what's this?):
mongodb://<dbuser>:<dbpassword>@ds011399.mlab.com:11399/studentcompanionsdb

mongod version: 3.0.9

Collections

NAME	DOCUMENTS	CAPPED?	SIZE	X
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Enrollments	12	false	9.30 KB	X
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Labs	3	false	8.69 KB	X
Library	1	false	8.22 KB	X
LibraryHours	7	false	9.63 KB	X
Login	4	false	8.42 KB	X
Profile	4	false	8.92 KB	X
SAShifts	5	false	9.16 KB	X
Substitutions	3	false	8.69 KB	X

help

Technological and architecture requirements

In the application system need to interact with the database for retrieving the data to do this interaction between the system and database is done through REST technology. We use CRUD API calls of the REST for accessing the database.

Ionic framework, it is a powerful SDK used to develop hybrid applications using web technologies like HTML, CSS and JavaScript. It is also a core in providing better UI to the user.

The architectural requirement aims at the development of flexible architecture for the better interaction between the system and the database.

Existing Services/API

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Example URL:

https://api.mongolab.com/api/1/databases/studentcorner/collections//Ase_project/' + id + '?apiKey=Q_u73BV4oOdMGpnu3WFGmJ8YH_IxHDHO

Second, accessing the mongoDB using a driver to connect the database. An example driver:

```
mongodb://<dbuser>:<dbpassword>@ds011399.mlab.com:11399/studentcompaniondb
```

REST Services:



We have developed an API through which we perform the REST services for our application. As in the second increment we have developed database in the mongoLab and the data is fetched from the mongoLab through REST services.

We have used Amazon Web Services as a server to host our REST API. Our REST API will run in background and listen to port 9000. Our application send data request to the REST API hosted on Amazon EC2 cloud server. REST API will fetch the request data from mongoDB collections and perform the filtering of data according to the criteria and sends responds to the client application.

This enables us complex queries on the server instead on the client thereby increasing the performance of client application.

Architecture Diagram

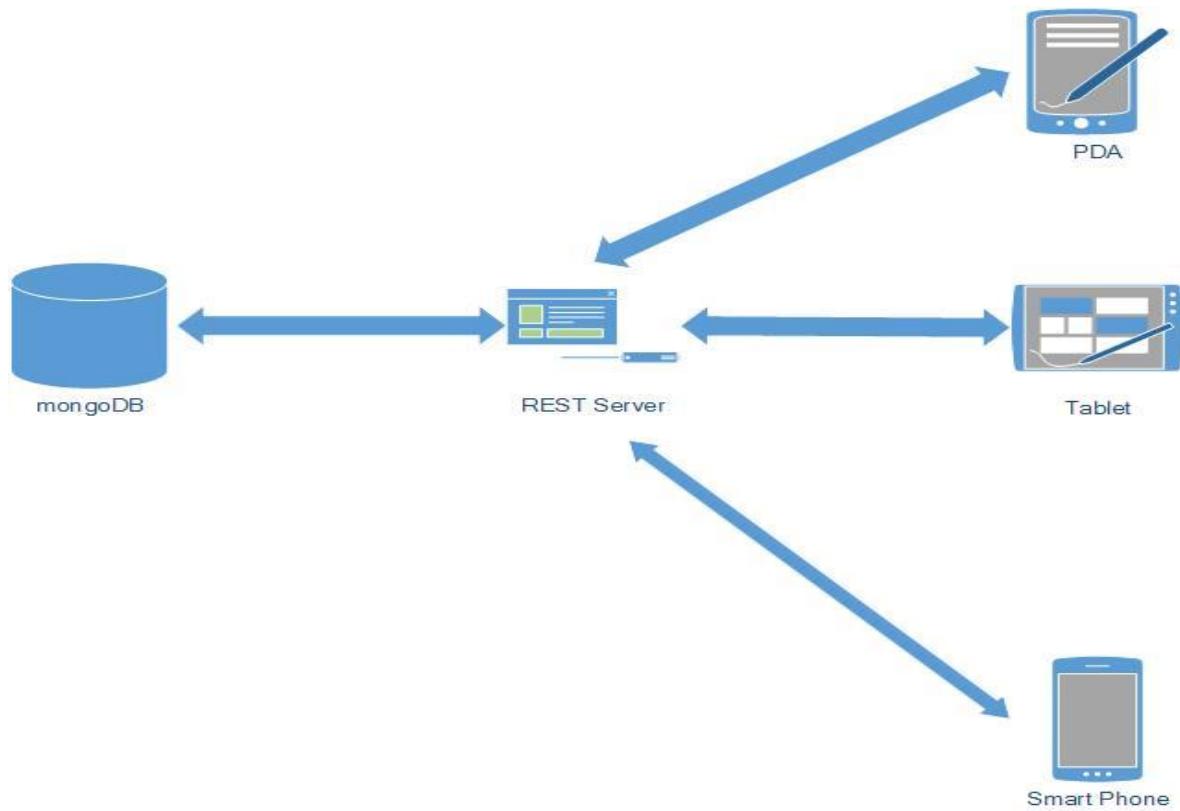


Fig 1: Architecture Diagram for StudentCompanion

The architecture diagram for our application shows that it is 3-tier architecture. Application which deployed in smart phones, PDA's and Tablet uses the REST services for interacting with the database for storing and retrieval of required information from the mongoDB.

Project plan

The proposed project plan is outlined by the screenshot from the ZenHub tool. The project is divided into four milestones. Each iteration has several states namely future tasks, new issues, to do, development in progress, testing in progress, done and closed.

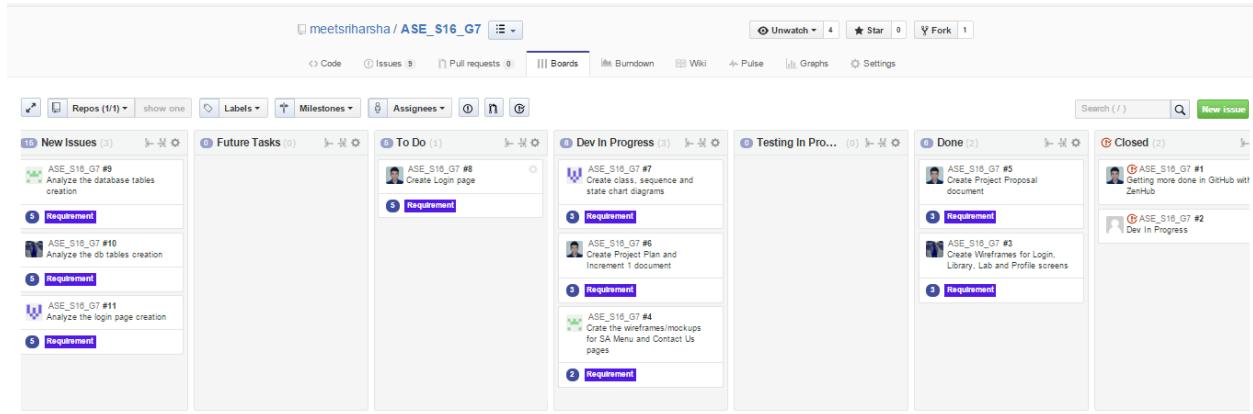


Fig. 2 ZenHub Board showing the project plan and current tasks.

Milestone 3:

This milestone mainly deals with the designing the end to end functionality of the system. The tasks of this phase mainly focuses six tasks.

First, the development of REST API which performs the communication between Client application and database.

Second, development of Profile page and display the profile of the user which is stored in the mongoDB.

Third, development of Lab Information page and display the Lab name, available work stations and systems which are in use in that lab.

Fourth, development of Reserve Study Room page and display the Library information, study rooms which are reserved by the user and available study rooms.

Fifth, development SA Menu page and display the SA Shifts of the user on a or after a particular date.

The results of this milestone contains the screenshots of the application and the related class, sequence and state chart diagrams.

Third Increment Report

This document contains the report of third increment of work done on the Student Companion application. This document emphasizes the end to end implementation of the application using different technologies such as REST API, Amazon Web Services, Ionic framework and mongoDB. We're using the HTML5, CSS ,Node.js, , ExpressJS and Angular JS for the end to end implementation.

We have created REST API which host on the Amazon Web Services through which communication between client application and database.

We have created the Profile, Lab Information, Reserve Study Room, SA Menu, Contact Us pages. We have also checked the work so far by deploying the application in the mobile and manual testing is done.

The detail development in third increment include the creation of REST API, Profile, Lab Information, Reserve Study Room, SA Menu, Contact Us pages. We are going to work enhancement of application, improving use interface, bug fixes and the remaining functionalities of the application.

Class diagram for the high level design of the application:

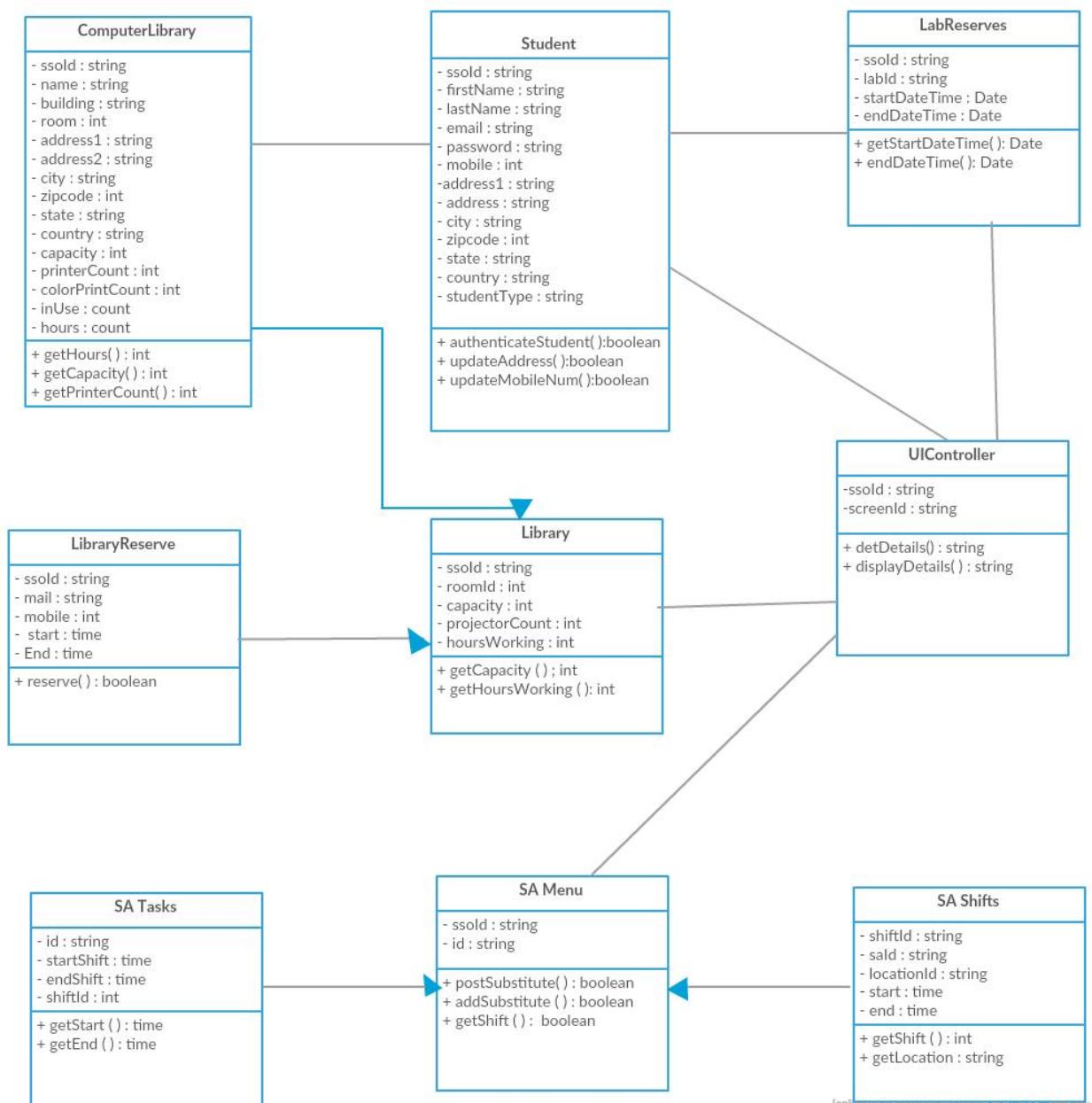


Fig. 2 demonstrates a class diagram of high level design of application

Sequence diagrams for the high level design of the application:

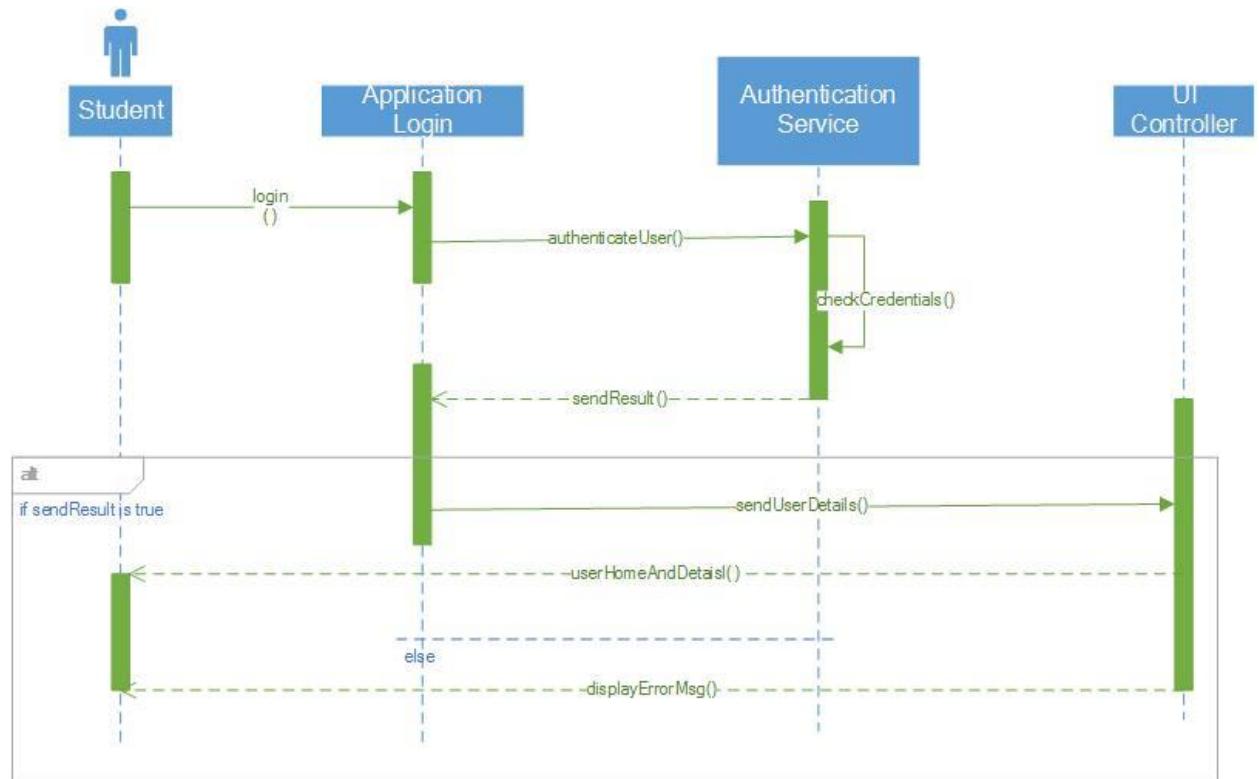


Fig. 3 Sequence diagram for student login activity

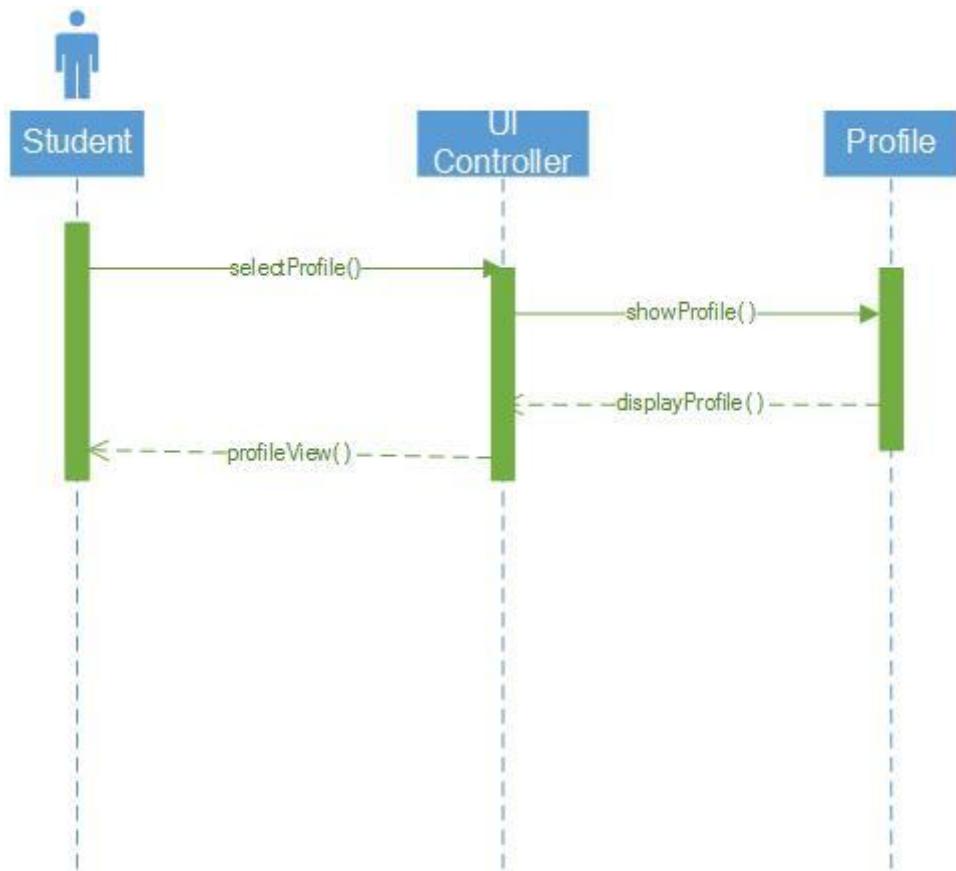


Fig. 4 Sequence diagram shows the control flow for “view user profile” task

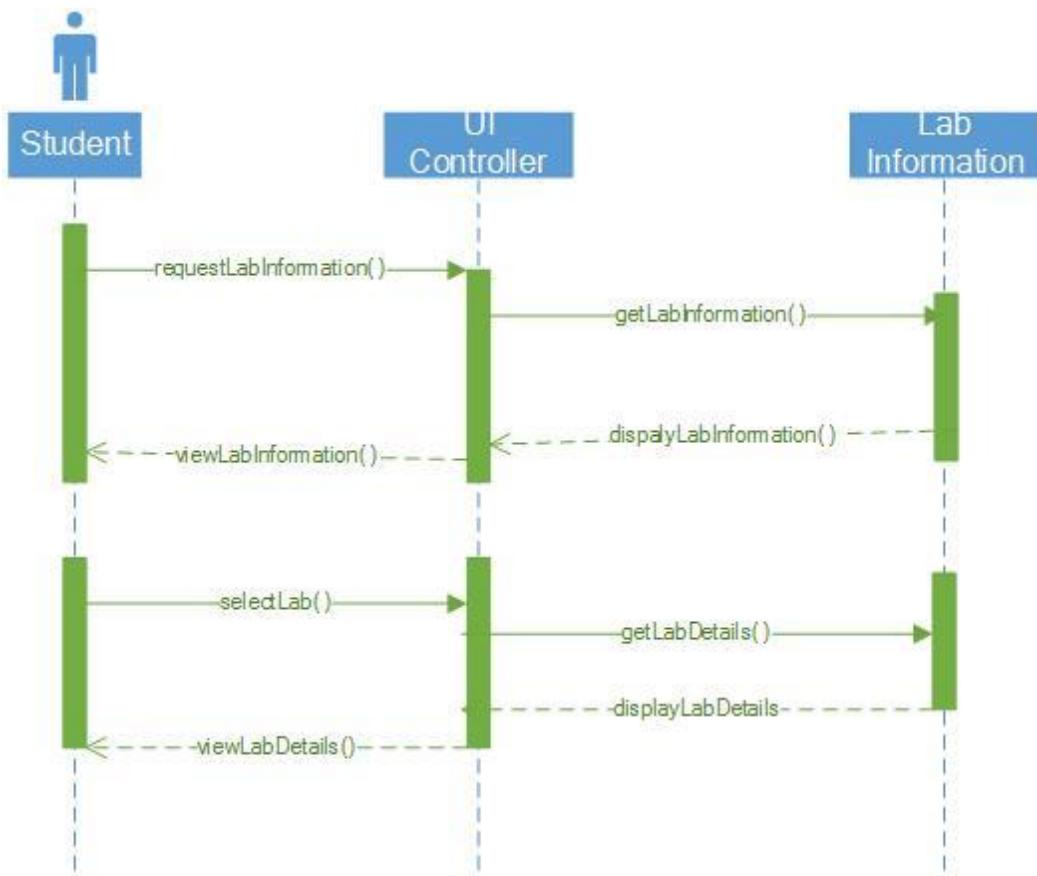


Fig. 5 Sequence diagram for “View lab information” activity

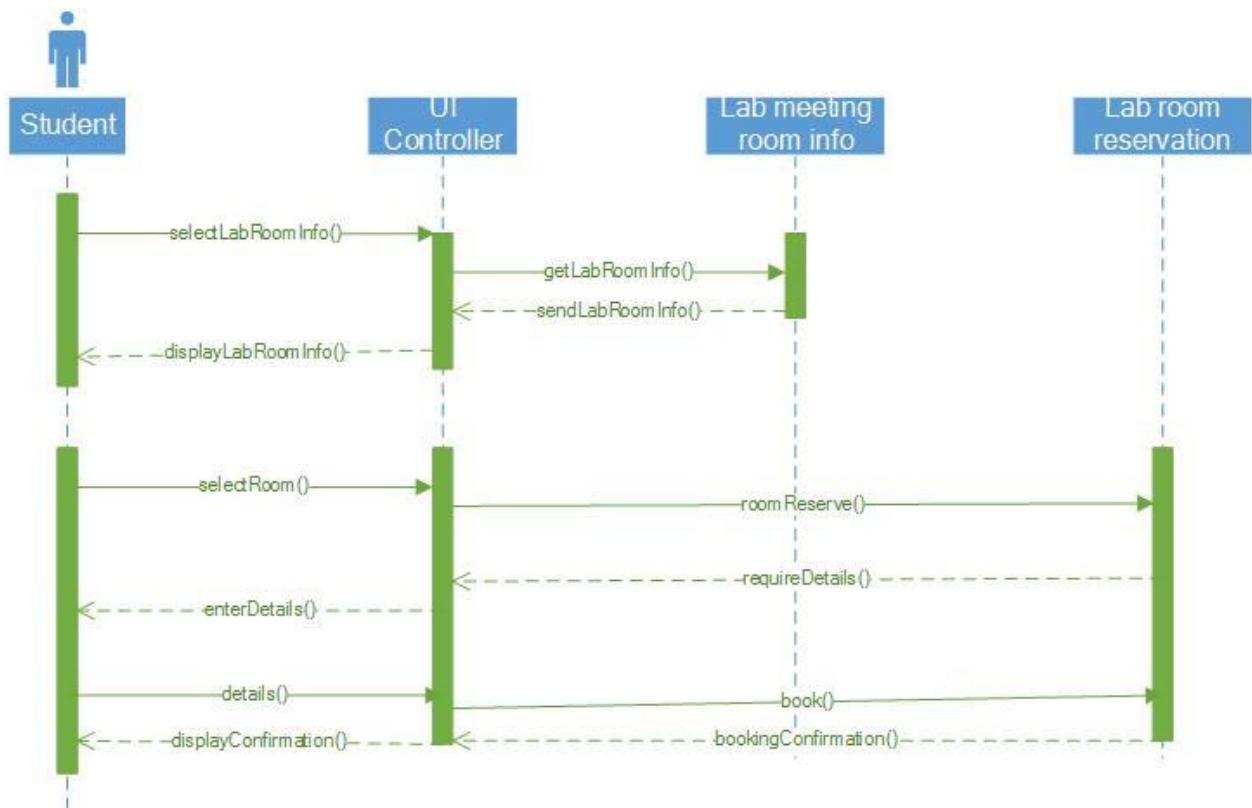


Fig. 6 Sequence diagram for reserving library study room activity

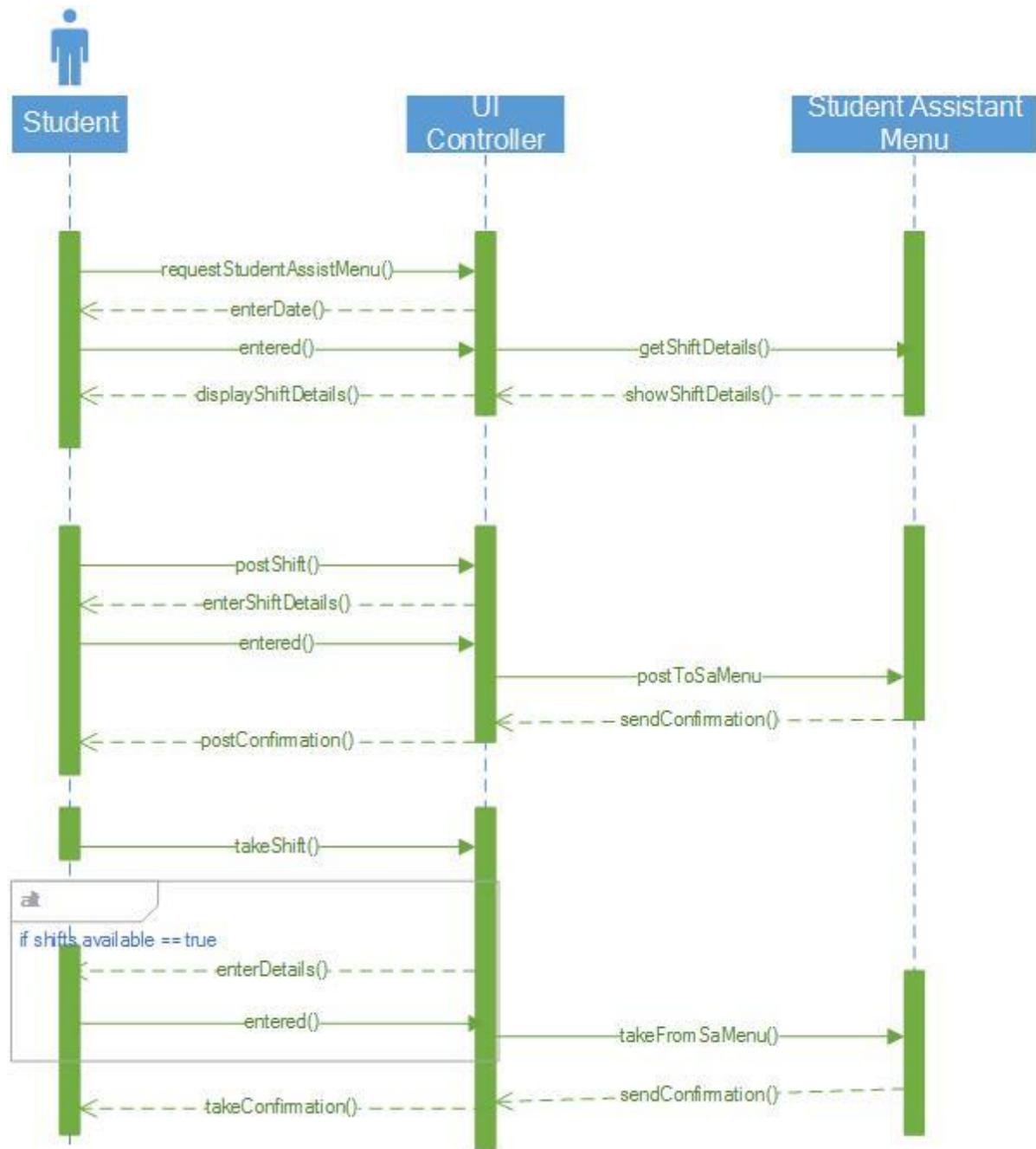


Fig. 7 Sequence diagram for student assistant activities like post or take shifts.

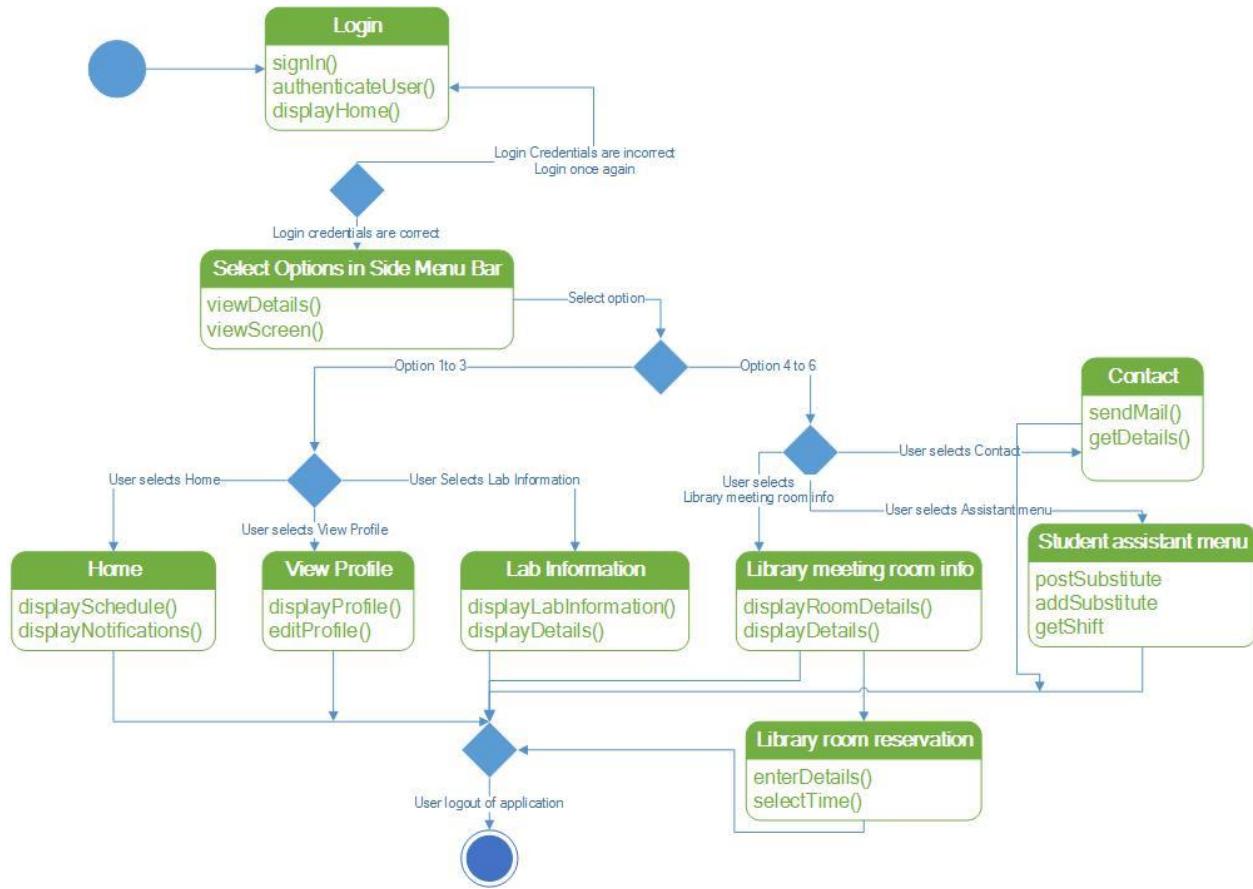


Fig. 8 State chart diagram for the application modules.

Wireframes of the application

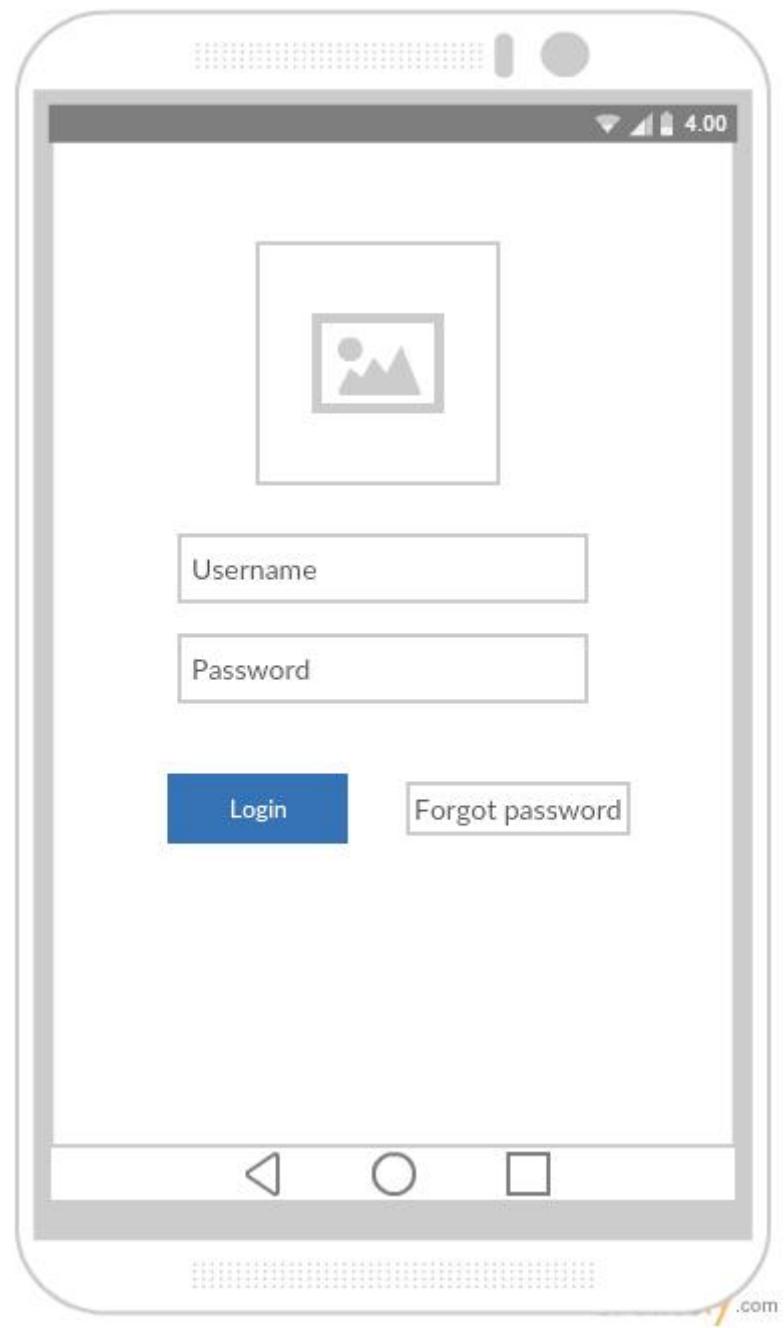


Fig. 9 Login screen

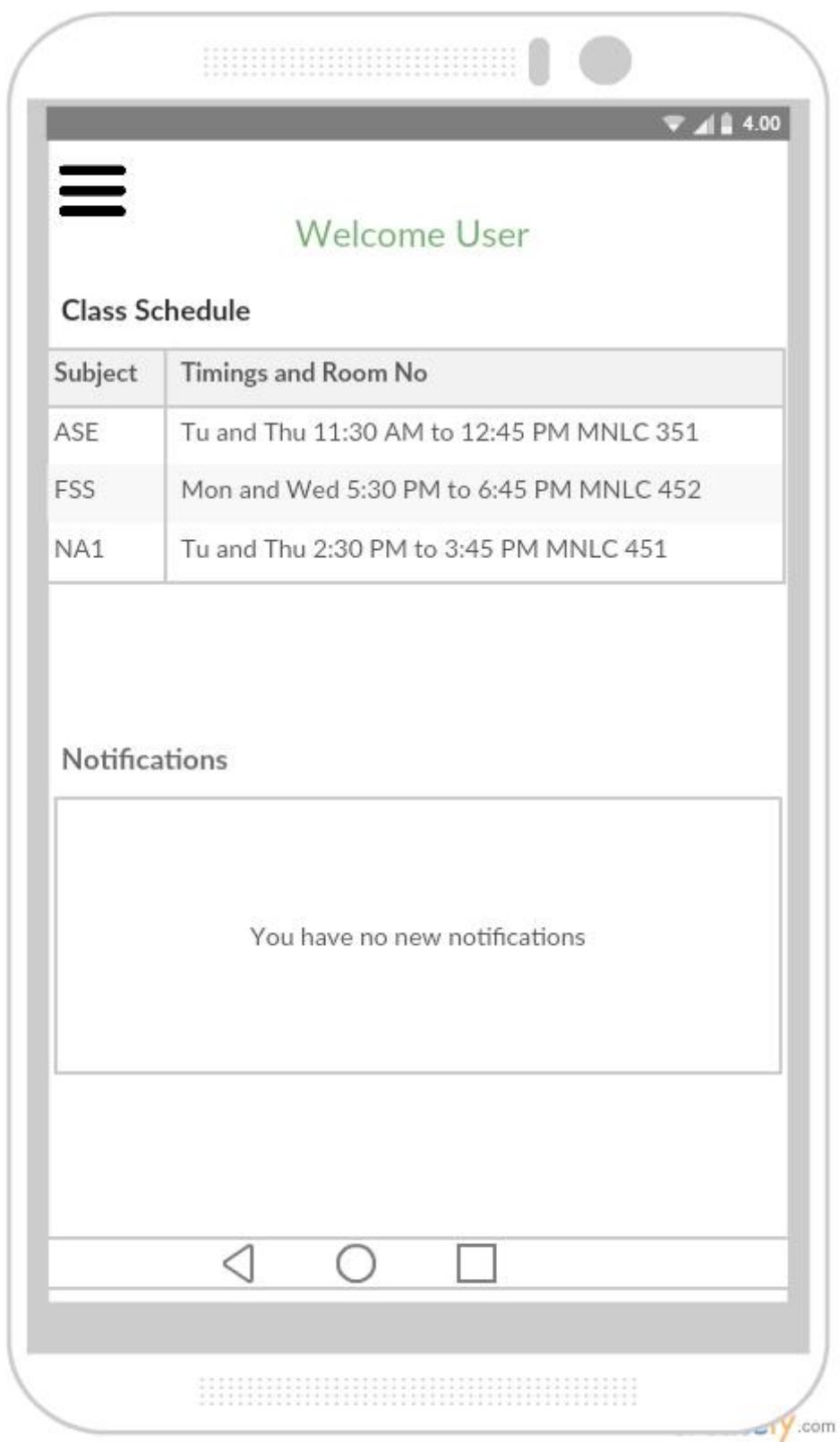


Fig. 10 Main Home page

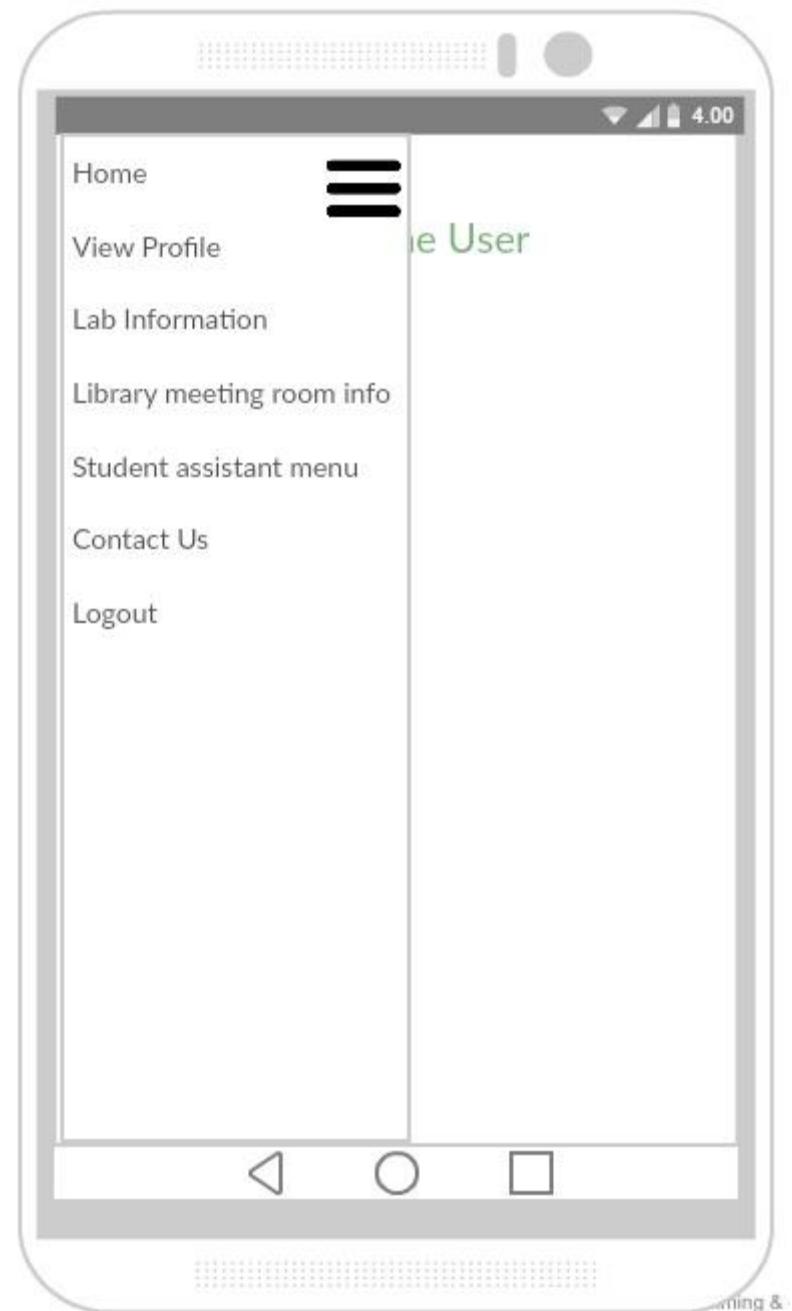


Fig. 11 Side menu bar

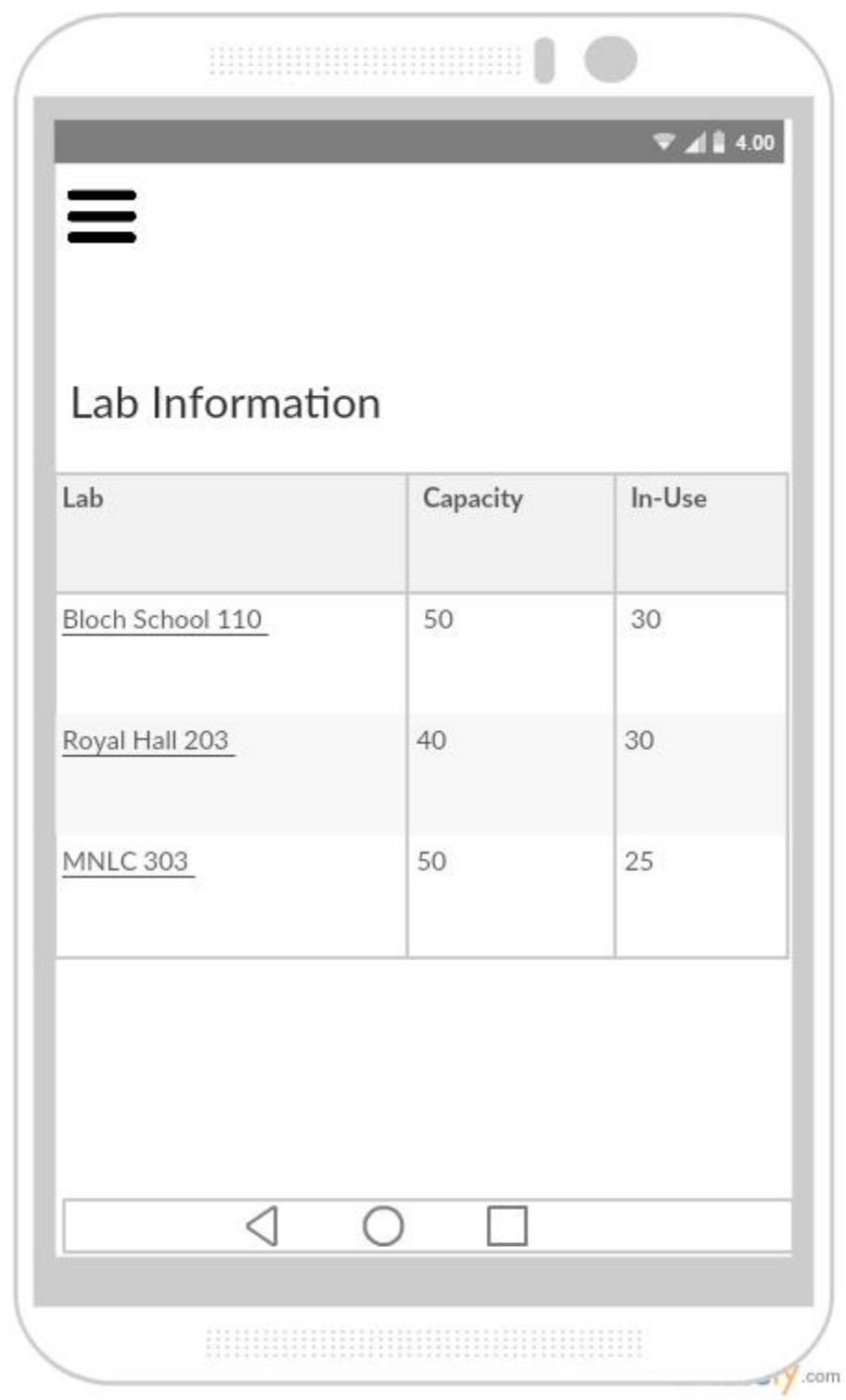


Fig. 12 Computer Labs information page

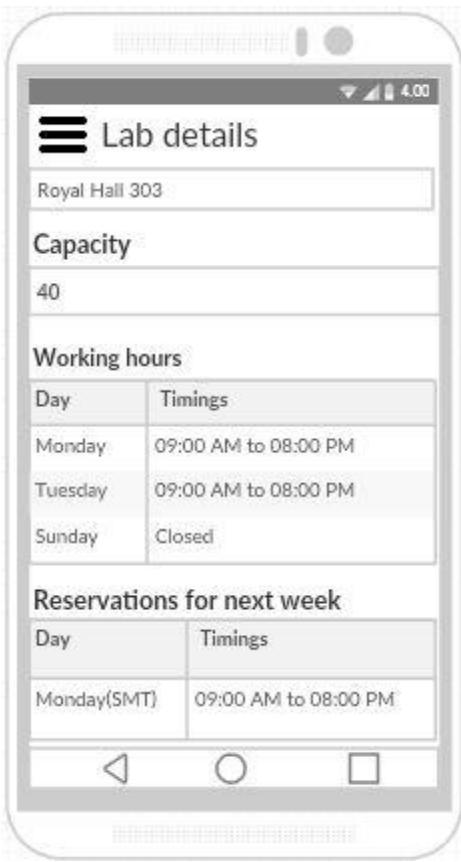


Fig. 13 Detailed information of a computer lab

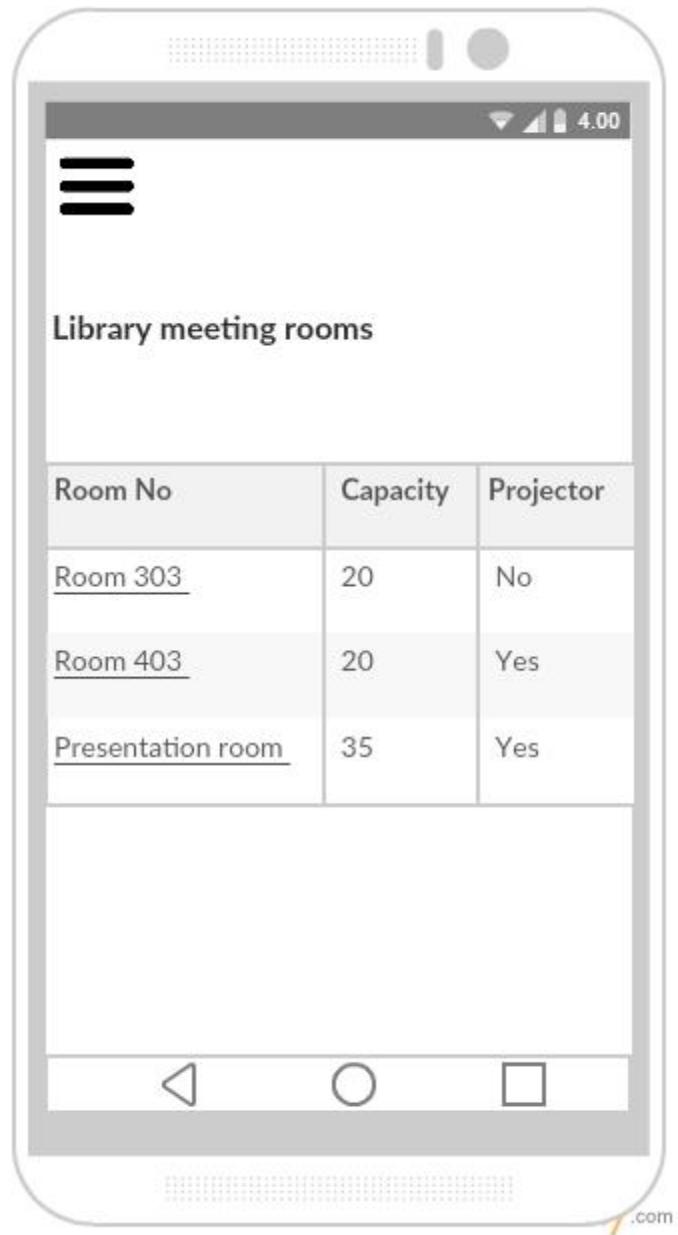


Fig. 14 Library study room information

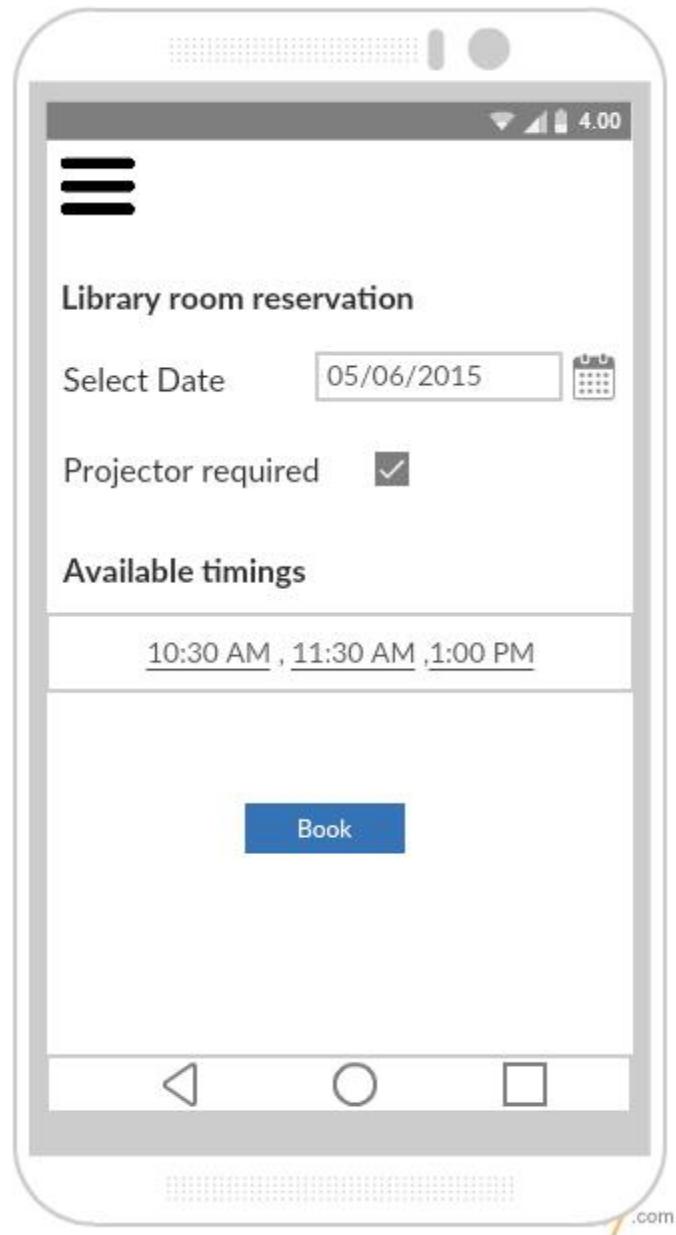


Fig. 15 Library room reservation page

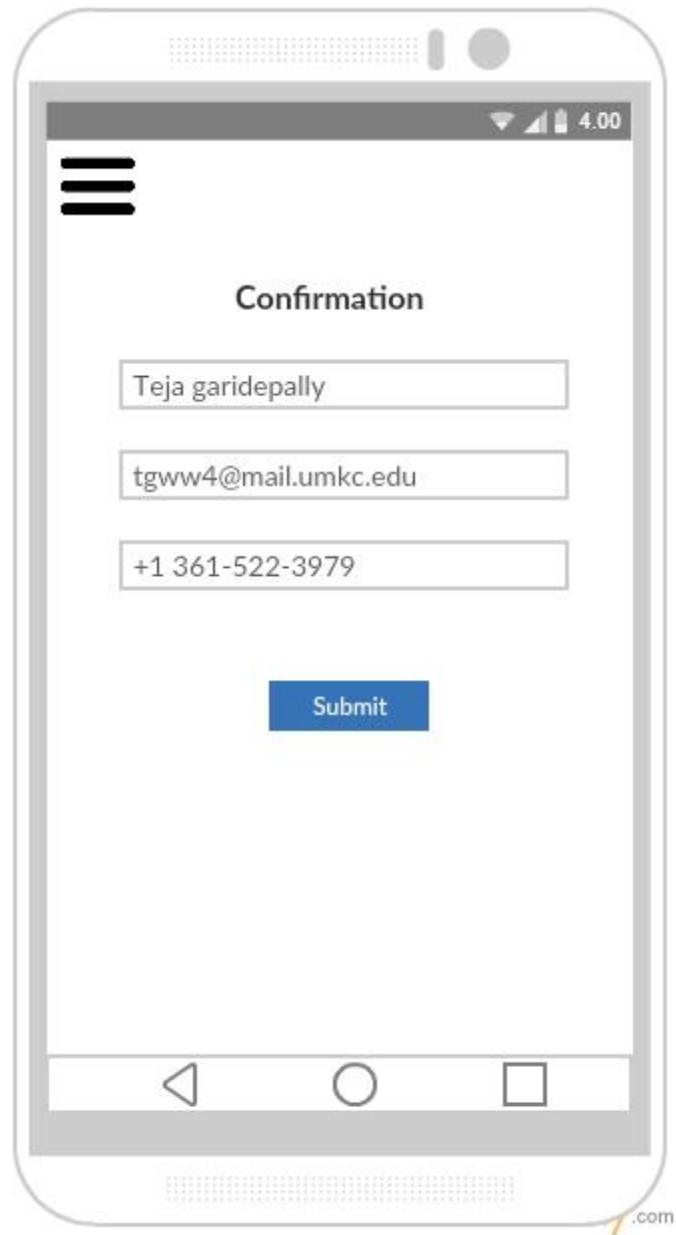


Fig. 16 Library room reservation form

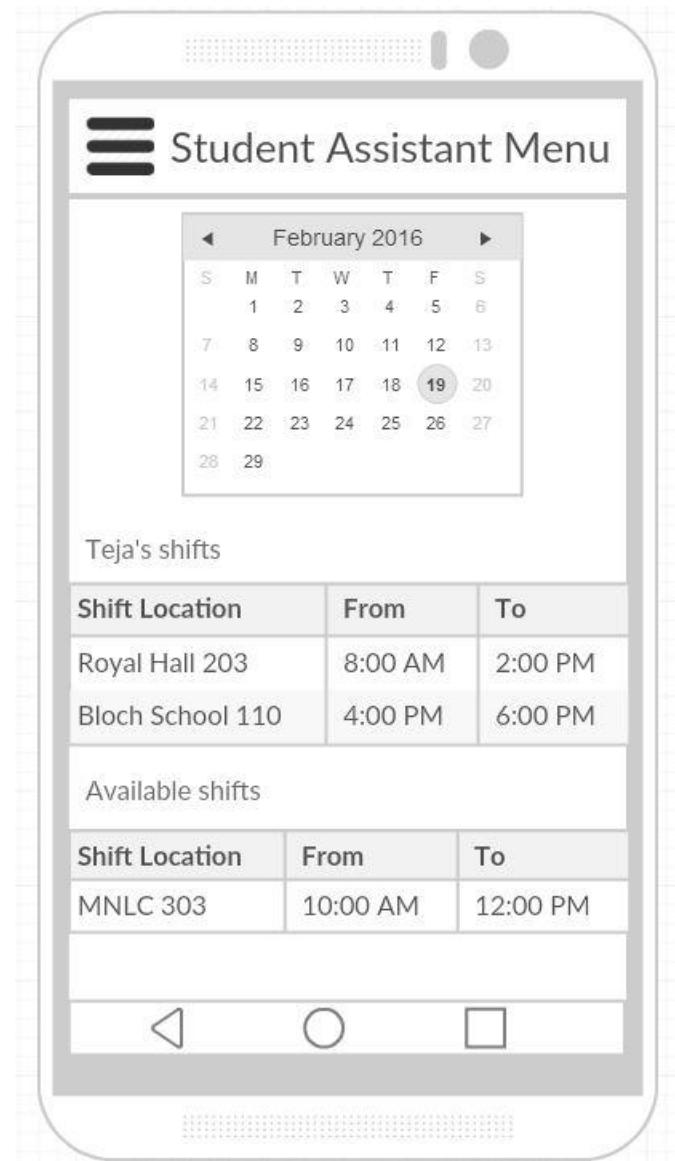


Fig. 17 Student Assistant menu page

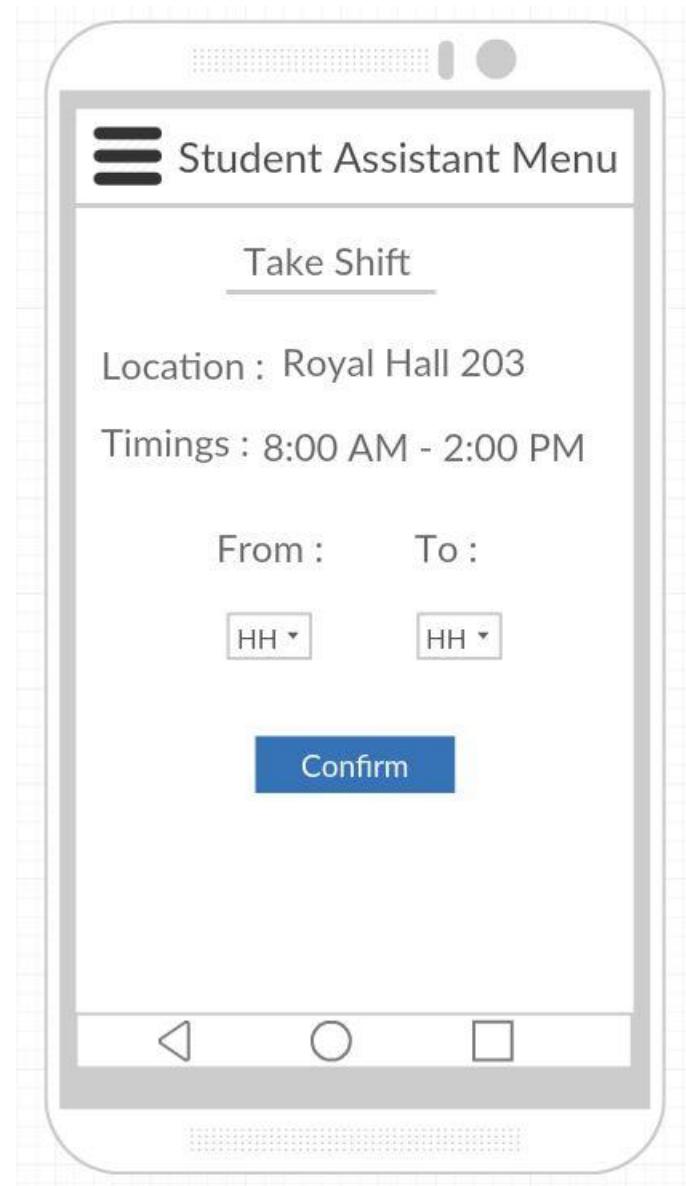


Fig. 18 Taking a Student Assistant shift

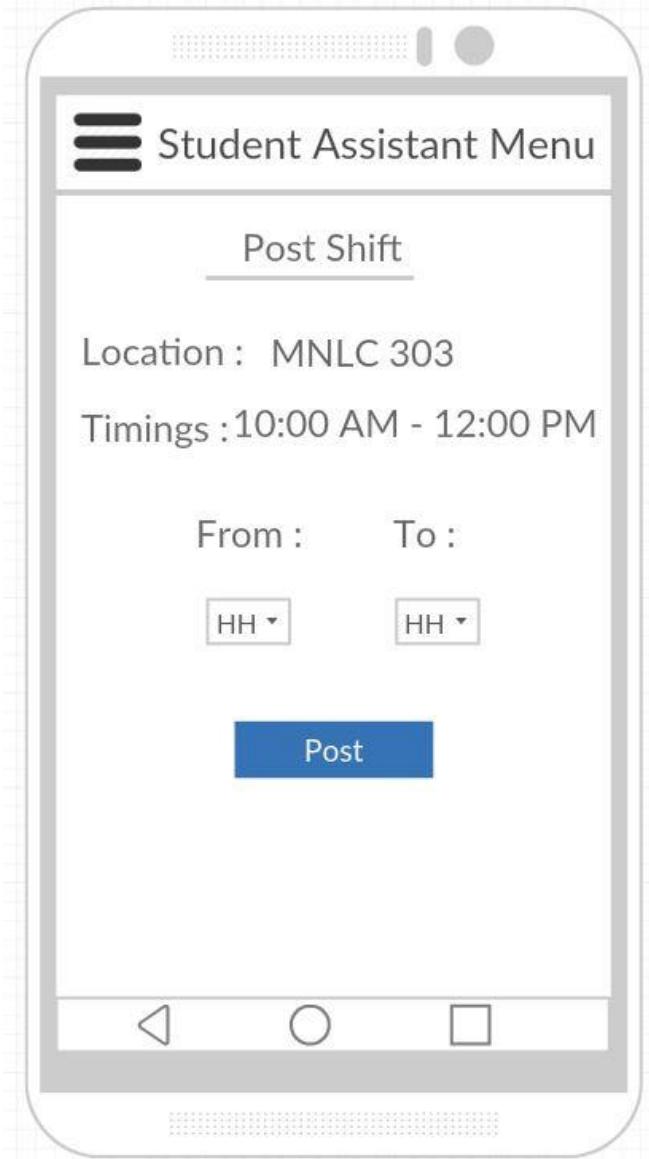


Fig. 19 Posting a Student Assistant shift



Fig. 20 Student profile page

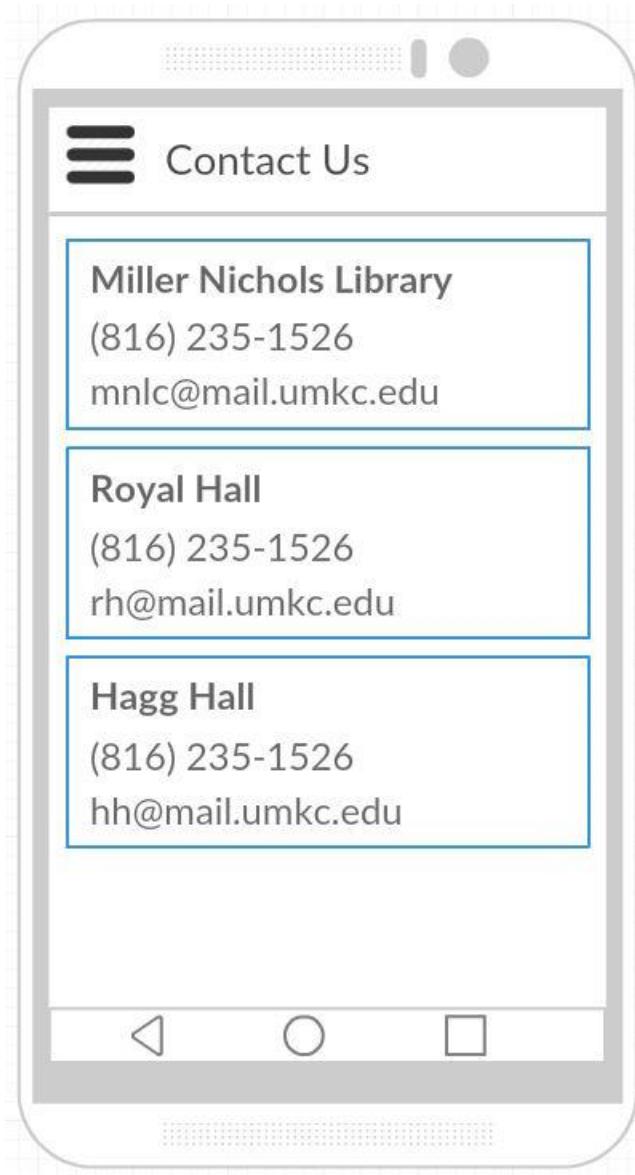


Fig. 21 Contact Us information page

User Stories:

- As a User, I can see the UI of StudentCompanion App.
- As a user, I can see the Login Screen.
- As a user, I can enter my Details and Login to the App.
- As a user, I can see the Side menu bar on Home Page with side menu options like Profile, Lab Information, Reserve Study Room, and SA Menu.
- As a User, I can see my Profile.
- As a User, I can see the Lab Information of specified lab.
- As a User, I can Reserve Study Room.
- As a User, I can choose the SA Menu option
- As a User, I can utilize the options in SA Menu.

As a user, I can Sign-out from the Application.

Deployment

Deployment of application to Mobile phone.

Screen Shots:

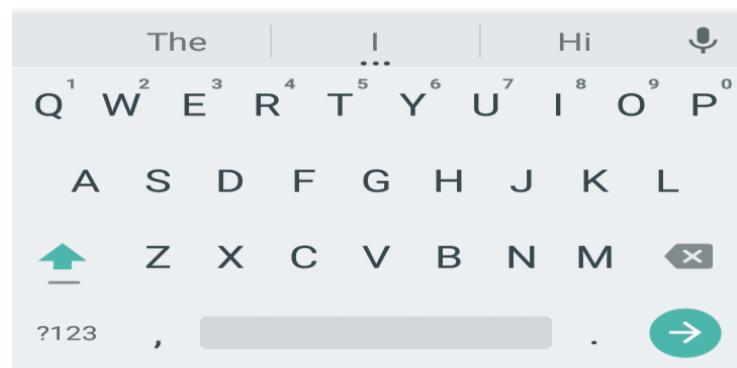
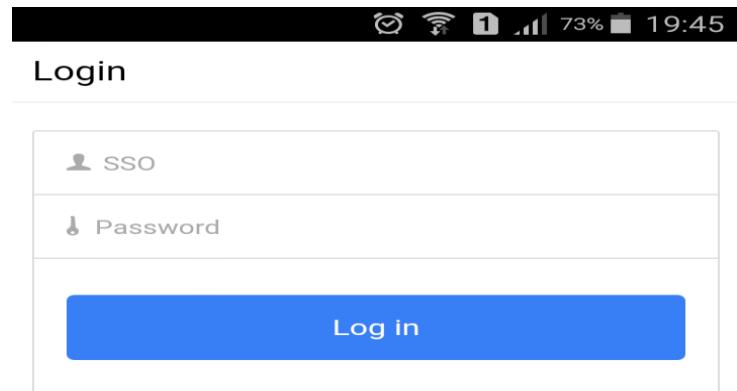


Fig: Login Screen

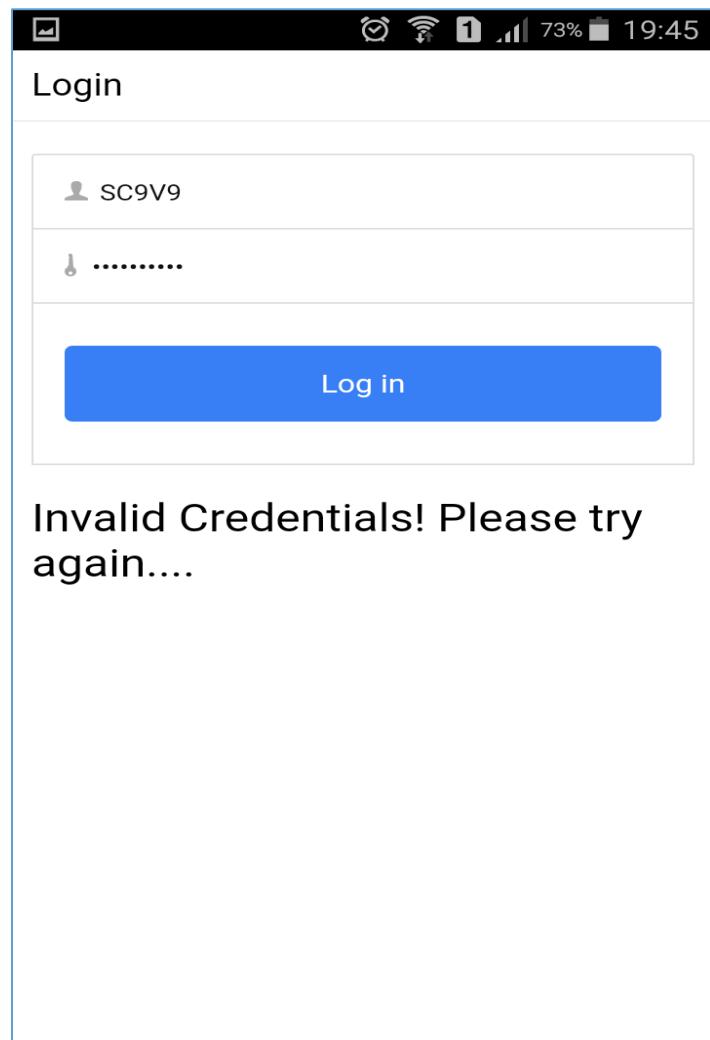


Fig: Login Failed

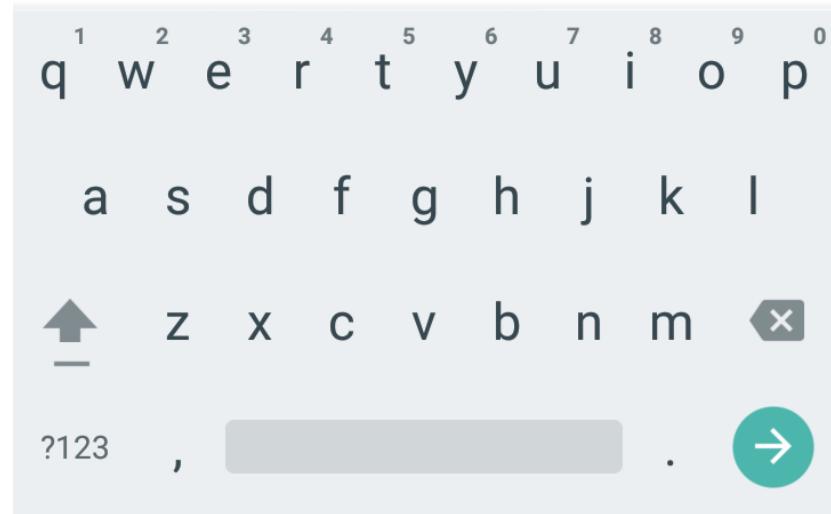
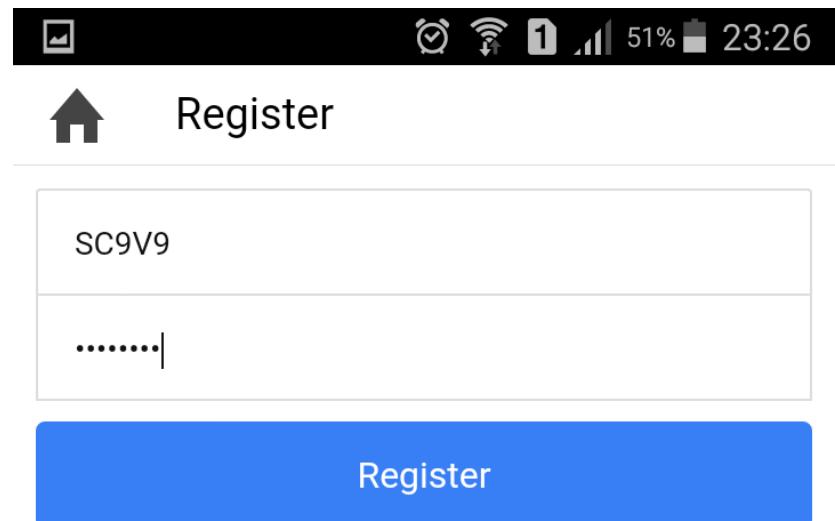


Fig: Register



Login

SC9V9

.....|

Log in

[Register Here](#)

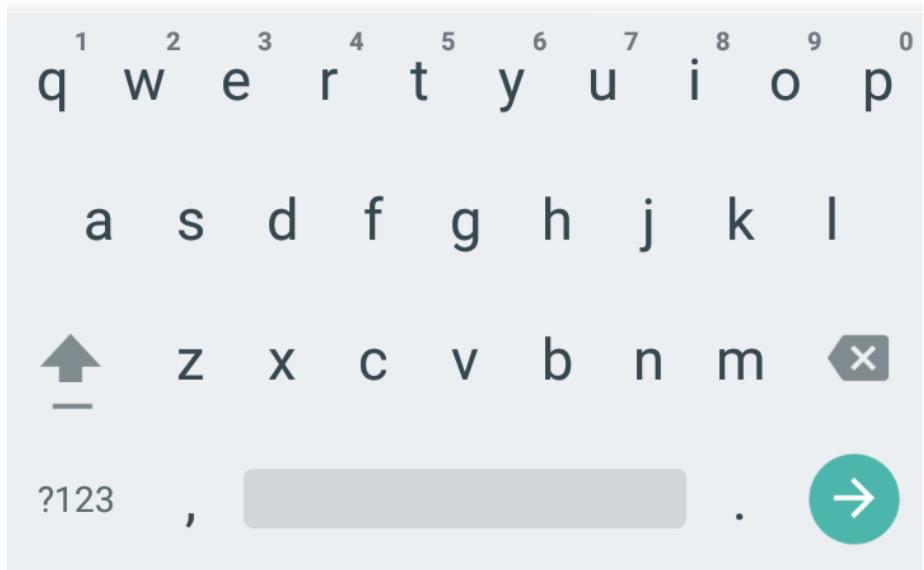


Fig: Login Success

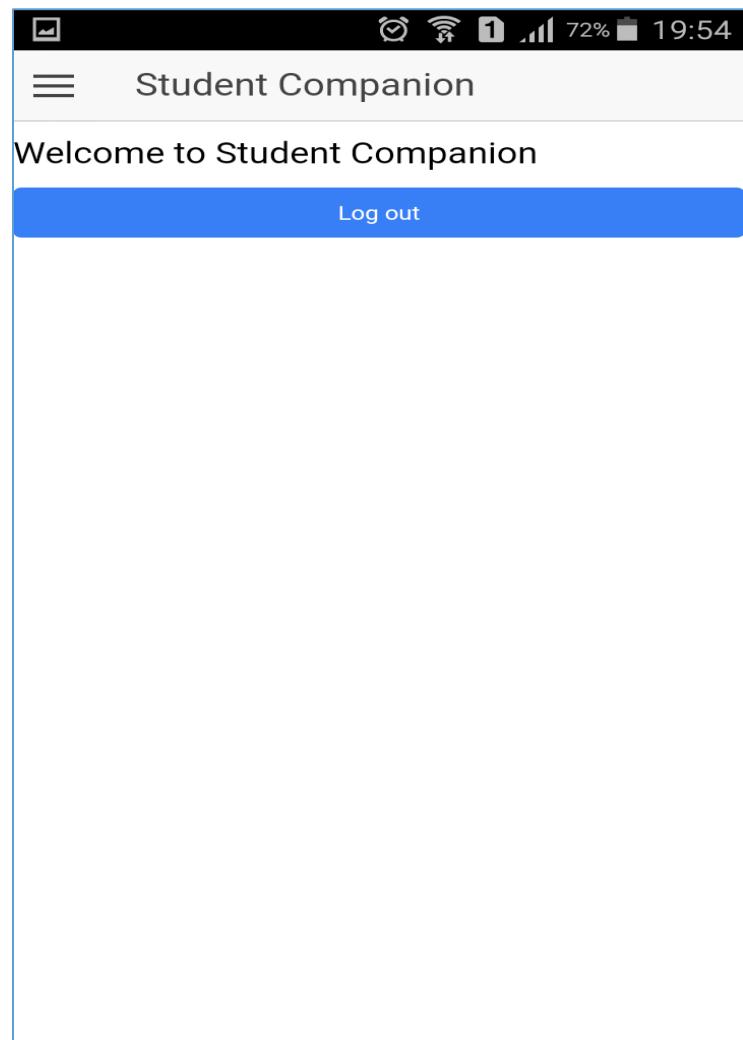


Fig: Home Screen

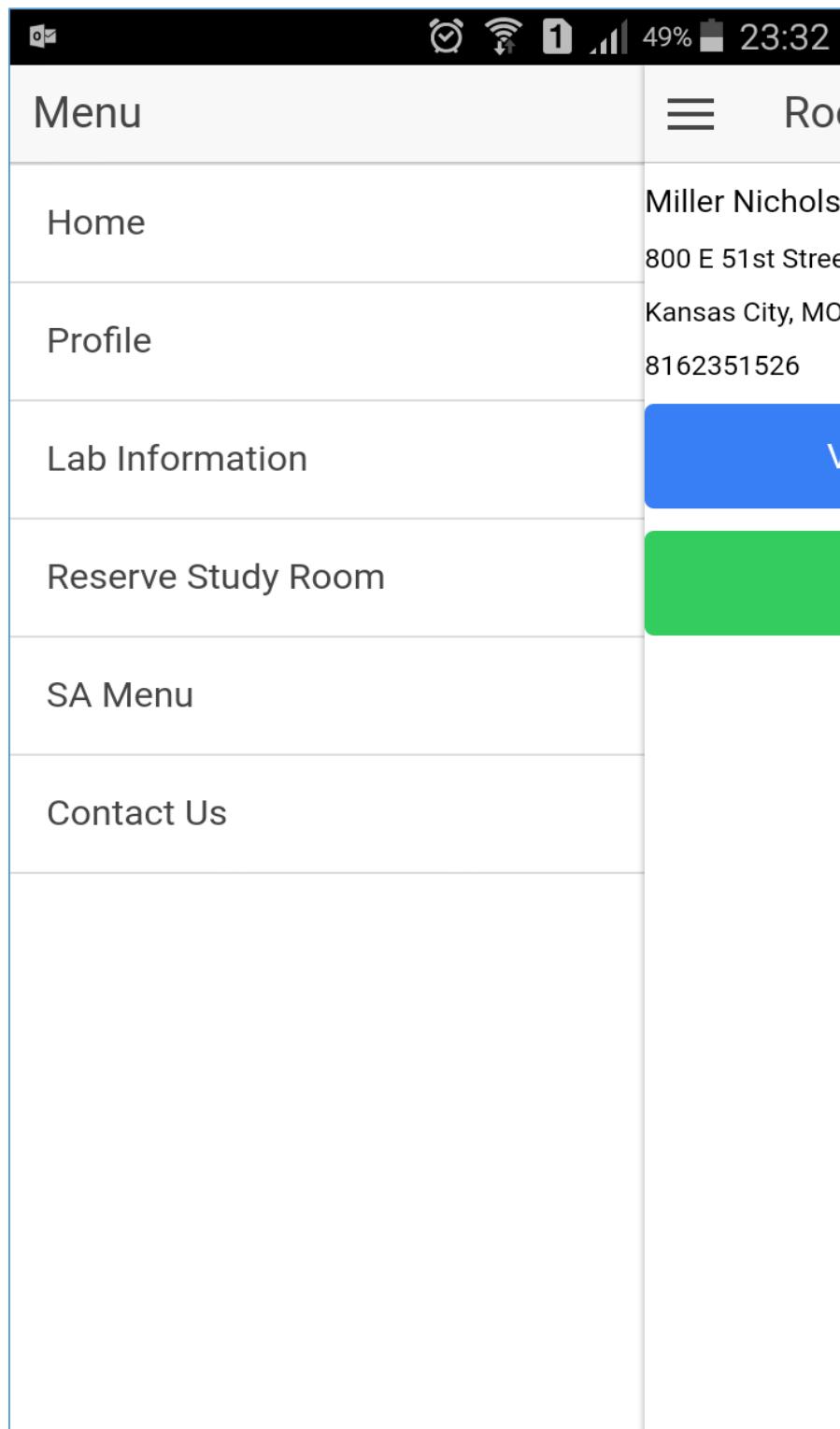


Fig: Side Menu

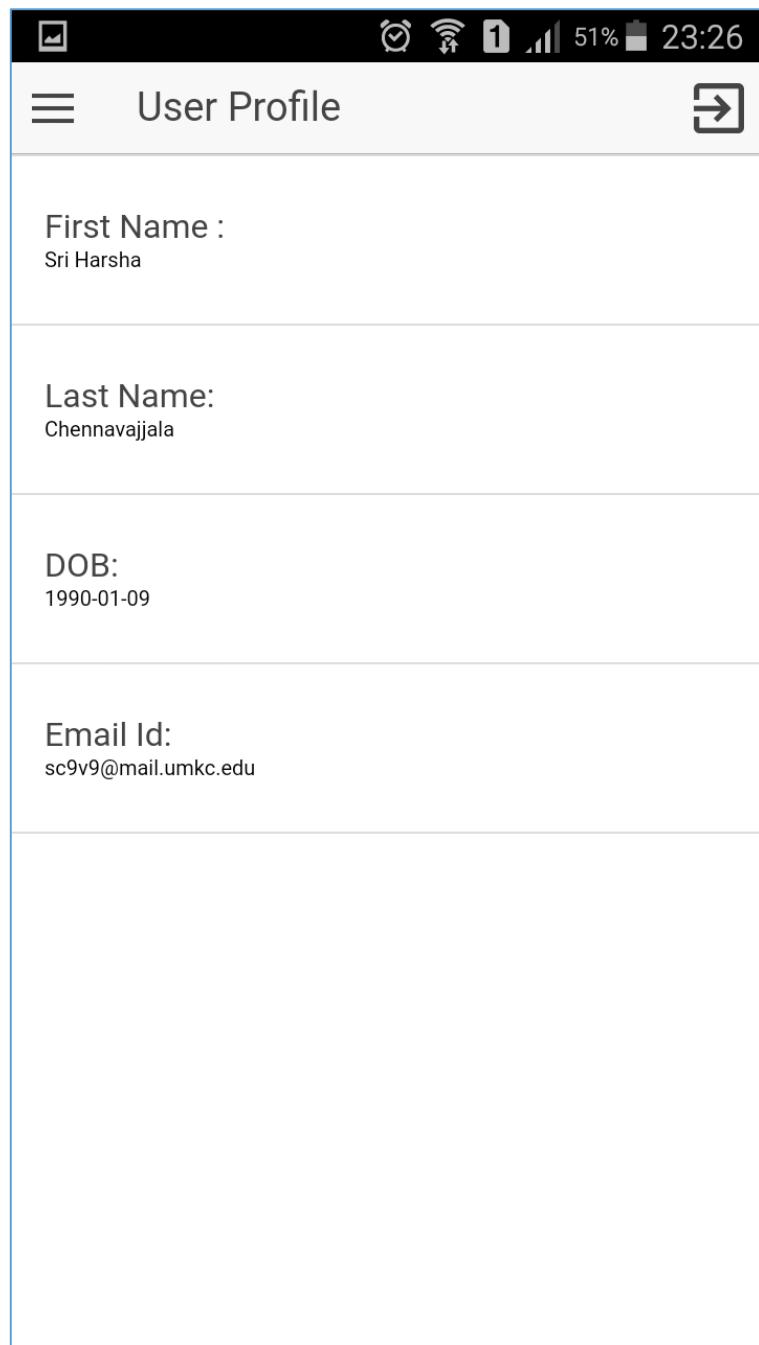


Fig Profile

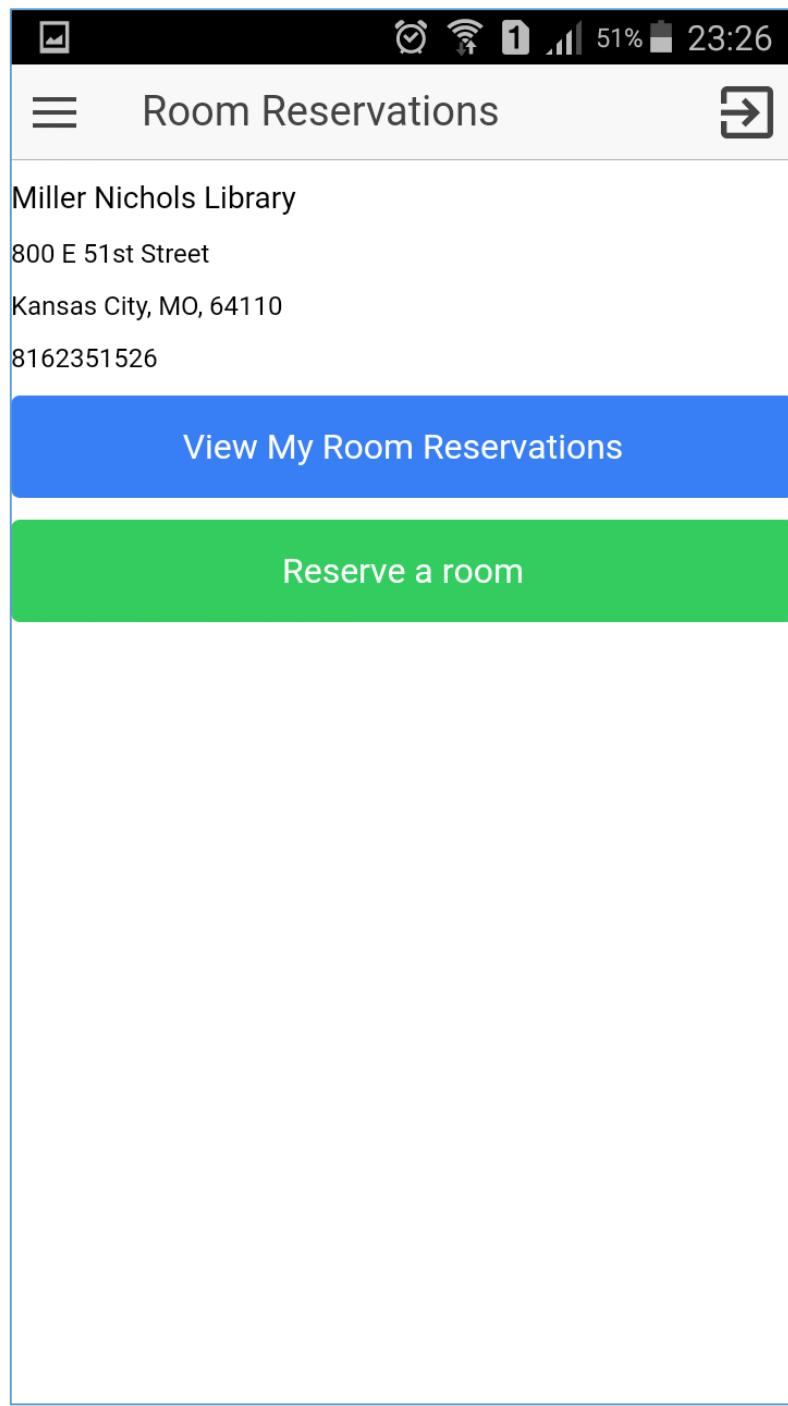
The screenshot shows a mobile application interface titled "Labs Information". At the top, there is a navigation bar with three horizontal lines on the left, the word "Labs" in the center, and a square icon with a right-pointing arrow on the right. The time "12:29" is displayed in the top right corner. Below the navigation bar, the title "Labs Information" is centered in a large, bold font.

The main content area displays three rows of data, each representing a different lab location:

Lab	Capacity	In-Use
Bloch School (Room 110)	40	31
Health Sciences Building (Room 3304)	50	38
Miller Nichols Library (Room 303)	40	15

At the bottom of the screen, there is a black navigation bar with three white icons: a left-pointing triangle, a circle, and a square.

Fig:Labs





51%

23:26



Reserve a room



Select Date

Room
Number

Start

End

User

Apr 6, 2016



April



2016



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Close



51%

51%

23:26



Reserve a room

**Room****Start****End****User****Number**

303 2016-03-12T11:00:00Z 2016-03-12T12:00:00Z

402B 2016-03-14T13:00:00Z 2016-03-12T11:00:00Z

303 2016-03-12T10:00:00Z 2016-03-12T11:00:00Z

209 2016-03-16T09:00:00Z 2016-03-12T12:00:00Z

402B 2016-03-18T11:00:00Z 2016-03-12T13:00:00Z



← Reserve a room

Room Number	Start	End	User	
303	2016-03-12T11:00:00Z	2016-03-12T12:00:00Z	SC9V9	<button>Cancel Rese</button>
402B	2016-03-14T13:00:00Z	2016-03-12T11:00:00Z	TGWW4	<button>Cancel Rese</button>
303	2016-03-12T10:00:00Z	2016-03-12T11:00:00Z	SC9V9	<button>Cancel Rese</button>



51%



23:27



Reserve a room



Select Date

Room Number**Start****End****User**

303

2016-03-12T11:00:00Z 2016-03-12T12:00:00Z SC9V9

Reserve

402B

2016-03-14T13:00:00Z 2016-03-12T11:00:00Z TGWW4

Reserve



51%



23:27



Student Assistant Menu



Date

Wednesday

ID

6

APR

2016

April 2016

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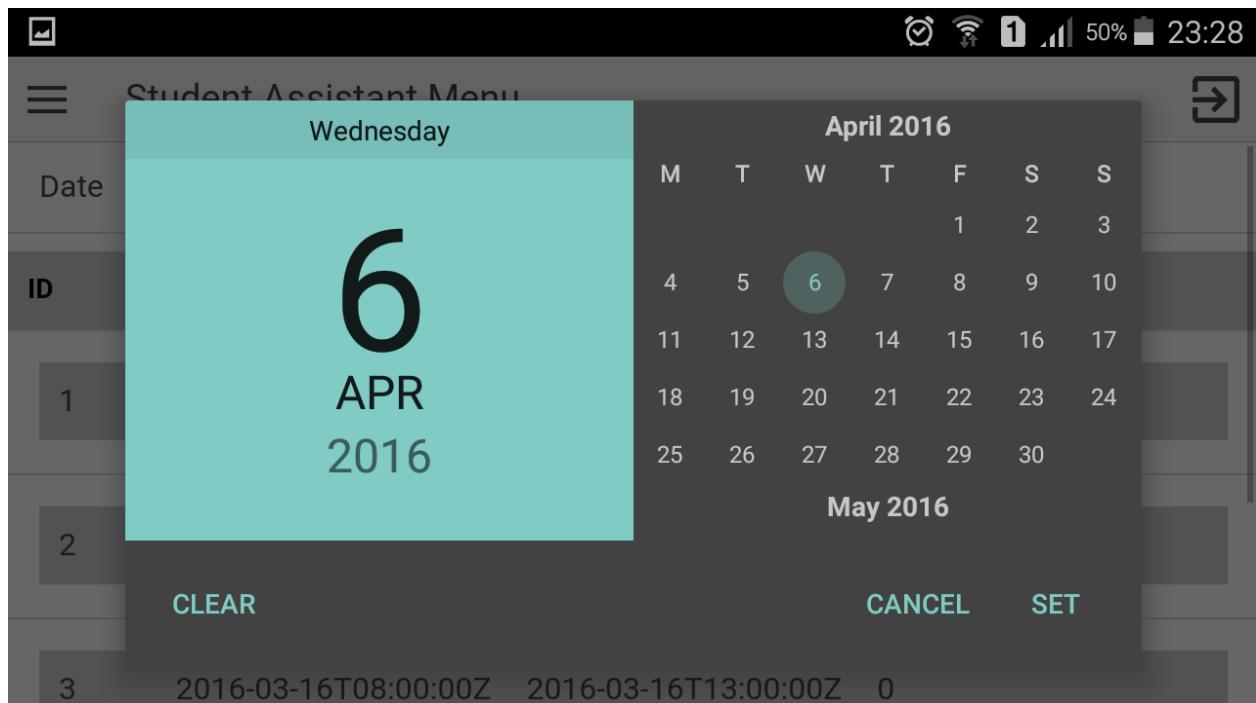
30

May 2016

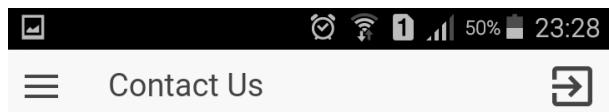
CLEAR

CANCEL

SET



A screenshot of a mobile application titled "Contact Us". The main section is titled "Call center". Below this, the text "The Call Center can be reached via email at callcenter@umkc.edu, by phone 816.235.2000" is displayed. A table below provides operating hours: "Mon-Thur" with "7:00 AM - 7:00 PM", "Fri" with "7:00 AM - 5:00 PM", and "Saturday and Sunday" with "Closed". The status bar at the top shows icons for signal strength, battery level (50%), and the time (23:28).



Call center

The Call Center can be reached via email at
callcenter@umkc.edu, by phone 816.235.2000

Mon-Thur

7:00 AM - 7:00 PM

Fri

7:00 AM - 5:00 PM

Saturday and Sunday

Closed

Web Application:

Screenshots:

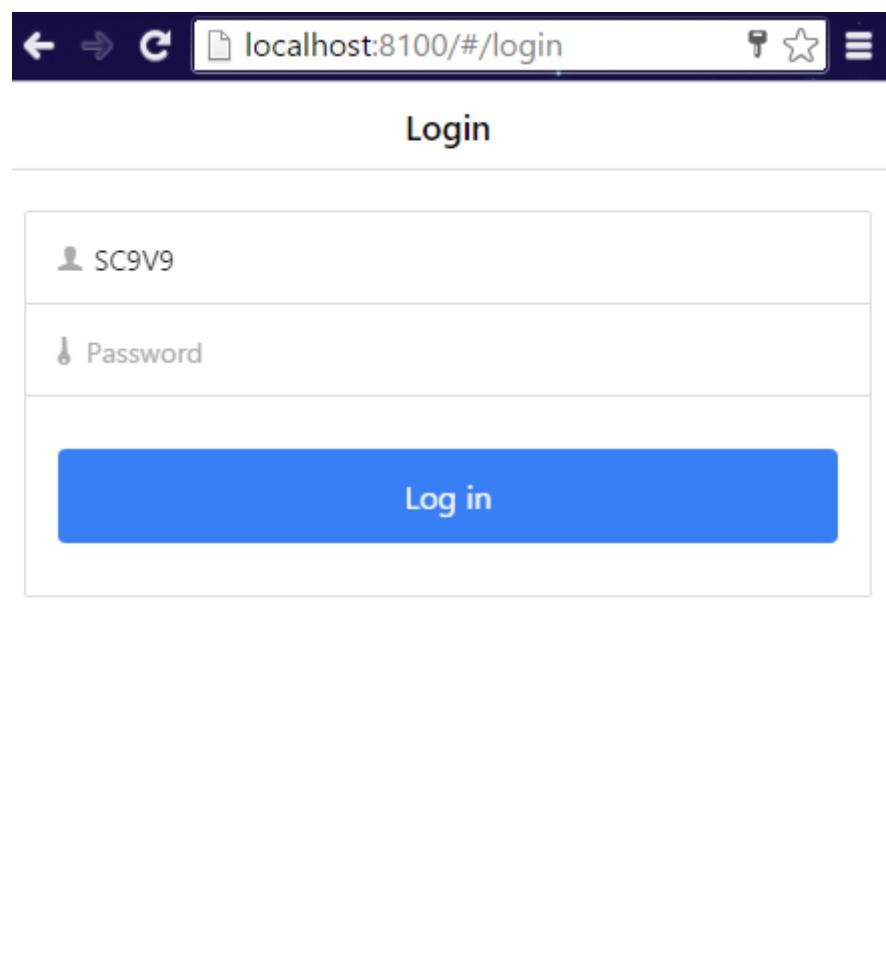
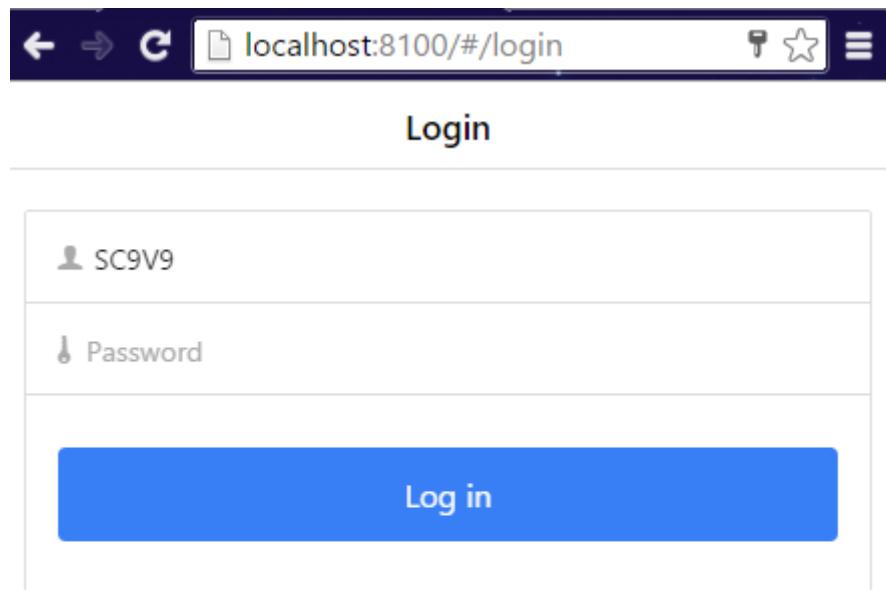


Fig: Login



Invalid Credentials! Please try again....

Fig: Login fail

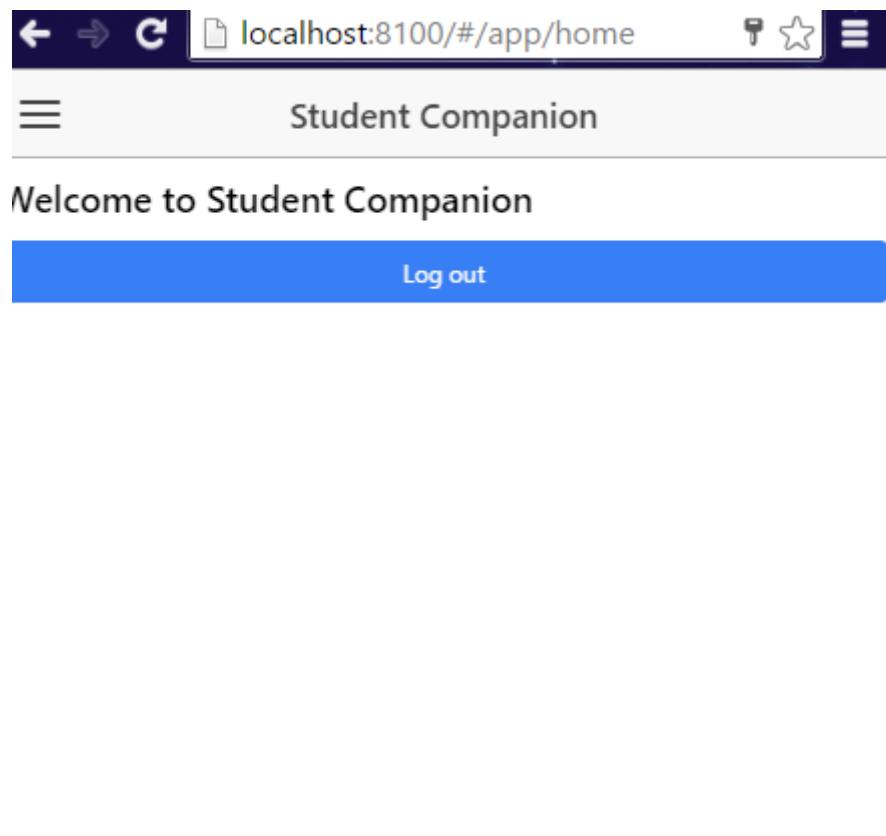


Fig : Home

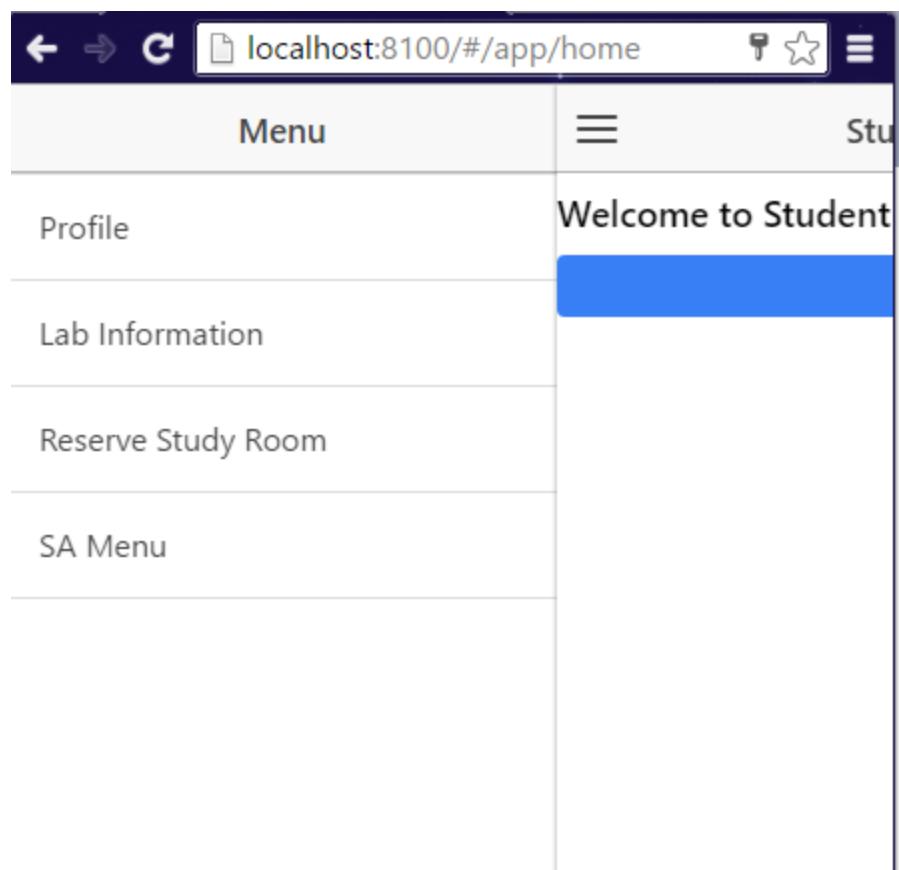
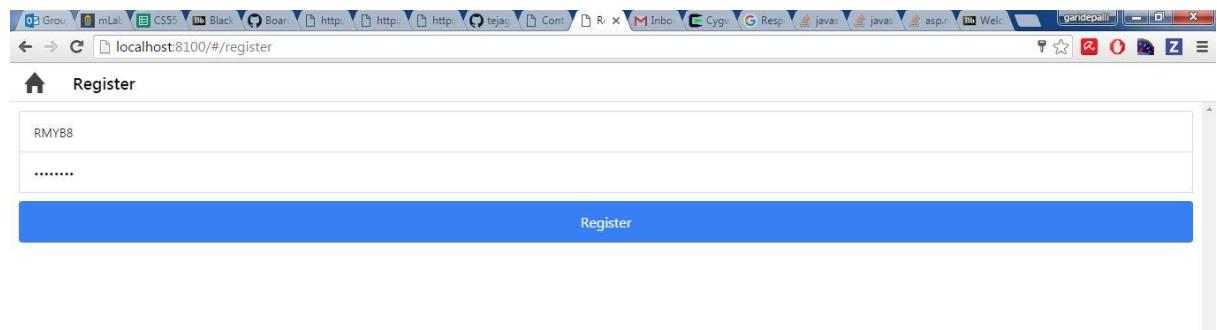
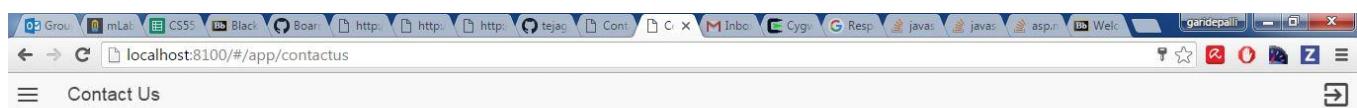
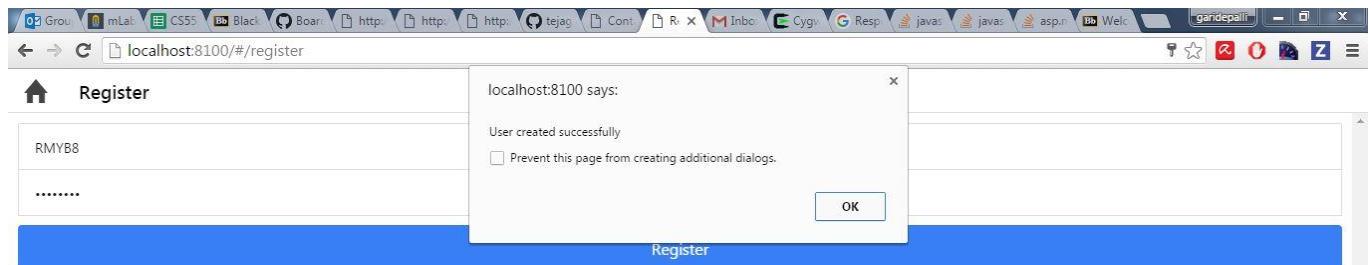
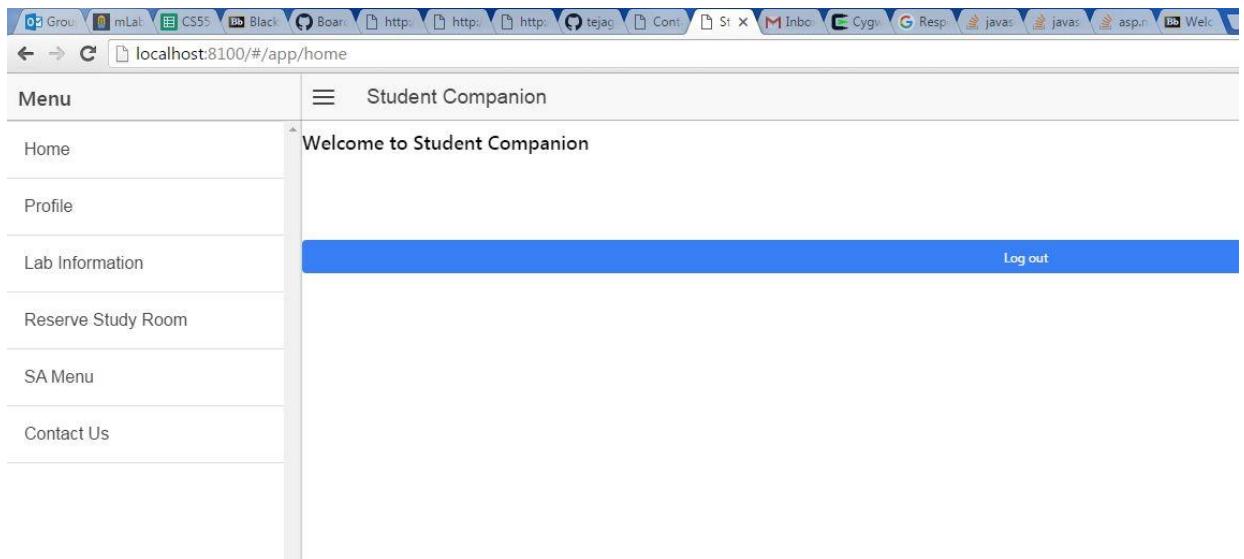


Fig: Side Menu







Project URL:

https://github.com/meetsriharsha/ASE_S16_G7/

Second Increment Document URL:

https://github.com/meetsriharsha/ASE_S16_G7/Documentation

Project Management

Work Completed

In detailed analysis of the system, environment and technical requirements for the application development. Project proposal documentation, Project tasks created in ZenHub and assigned the tasks to team members. Created the Project increment 1 document. All team members are involved in this task. Total time taken is 30 hours per person.

Contributions: Harsha 30%, Teja 25%, Raj 25%, Suhas 20%.

Work To Be Completed

We need to work on login page creation (both UI and logic) and the backend database tables creation. We would like to use mongo db as our database server. Raj Kiran and Harsha will work on login page creation. Teja and Suhas will work on creation of sample database tables. Projected person participation: Harsha 25%, Teja 25%, Raj 25%, Suhas 25%.

Student Companion

Fourth Iteration Report

COMP-SCI 5551 Advanced Software Engineering

Introduction

This document is intended to provide an overall description of the project named “Student Companion” in detail. The project schedule and the plan of action is also discussed. The proposal document will give an insight on the project. The outcome of the fourth increment is the final web and mobile application with end to end user functionality.

Project Goal and Objectives

The goal of this project is to provide various functionalities that a student uses regularly such as updating the profile, checking for computer lab availability, library study room reservation etc. The student details will already present in the database. The student has to login before he uses these functionalities. Main objectives of this application are:

- To reduce the student’s stress and to save the student’s time by providing the latest availability of the computer labs.
- To develop an application that helps the students in taking the decision on to which laboratory the students have to go.
- To secure the information by providing a login form to the end user.
- To provide a tool with which the students will be able to reserve the library study rooms.
- To ensure that the student will never miss his schedules by setting reminders.
- To enable the Student Assistants to view their shifts, post and take substitutions.
- To provide the students with the option to update their address or mobile phone number etc.

Project Background and Related Work

Some functionalities of this application are already exist. We are creating a new android application which integrates (mash up) all the available and new functionalities under one hood, thus making the application a viable one. Some functionalities will be developed by importing the existing APIs into our application like Google Calendar API, Google Maps API etc. We are inspired by the problems that the Students are currently facing in reserving the study rooms, problems related to their working shifts and we came up with a solution which can resolve the existing challenges.

Significance:

The major significance of the application lies in mashing up of all the useful services under one system. This will save the student’s time and increases the productivity. The application will prevent the fraudulent usage by restricting the resources access to only the students who successfully logged in to the system. As of now, the student assistants has to go

through a lengthy process in order to post or take shifts. The proposed application will make it easier for the student to perform such tasks by providing on-the-go support.

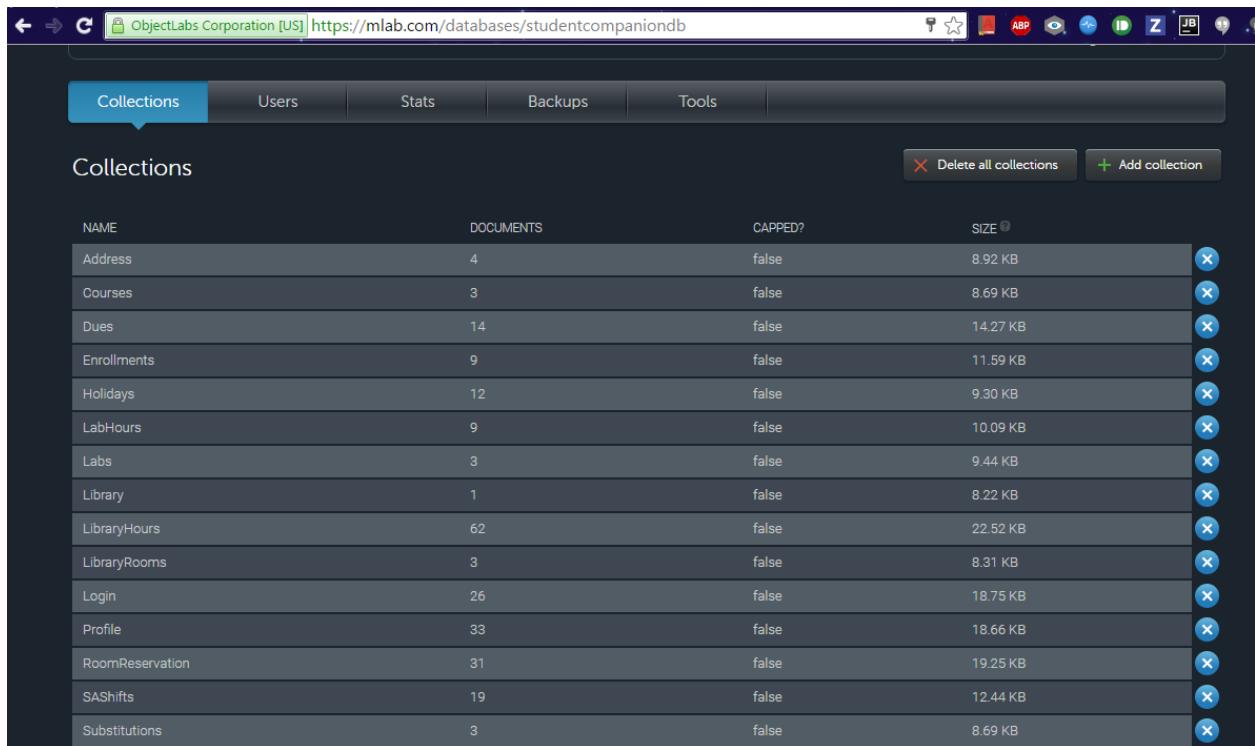
Work flow

The first workflow of the application is that of the designing the User Interface for the system. Our application goal is to provide instant access to the user regarding lab availability and library room availability. So, for this we are developing a mobile application. We are using ionic framework so that we can develop hybrid application.

Second, we have created the login page and database using MongoLab and we have successfully authenticated the user based on his details which are stored in database in mongodb.

The third workflow deals with the creating a mongodb database to store and retrieve the user profile and information about IS labs, library study rooms etc. The work flow of the each and every feature of the application is explained through sequence diagrams and state chart diagram presented in the first increment report.

Fourth workflow deals with the end to end functional development of the application. Development of each and every feature of the application. Successfully running the application on web browser and in mobile phone.



A screenshot of the MongoDB Atlas interface. The top navigation bar shows the URL 'ObjectLabs Corporation [US] | https://mlab.com/databases/studentcompaniondb'. Below the bar, there are tabs for 'Collections', 'Users', 'Stats', 'Backups', and 'Tools'. The 'Collections' tab is selected and highlighted in blue. The main area is titled 'Collections' and contains a table with the following data:

NAME	DOCUMENTS	CAPPED?	SIZE	
Address	4	false	8.92 KB	
Courses	3	false	8.69 KB	
Dues	14	false	14.27 KB	
Enrollments	9	false	11.59 KB	
Holidays	12	false	9.30 KB	
LabHours	9	false	10.09 KB	
Labs	3	false	9.44 KB	
Library	1	false	8.22 KB	
LibraryHours	62	false	22.52 KB	
LibraryRooms	3	false	8.31 KB	
Login	26	false	18.75 KB	
Profile	33	false	18.66 KB	
RoomReservation	31	false	19.25 KB	
SAShifts	19	false	12.44 KB	
Substitutions	3	false	8.69 KB	

Fig: Collections in Mongo Database

Technological and architecture requirements

In the application system need to interact with the database for retrieving the data to do this interaction between the system and database is done through REST technology. We use CRUD API calls of the REST for accessing the database.

Ionic framework, it is a powerful SDK used to develop hybrid applications using web technologies like HTML, CSS and JavaScript. It is also a core in providing better UI to the user.

The architectural requirement aims at the development of flexible architecture for the better interaction between the system and the database.

Existing Services/API

We have so far used the MongoDB in our application. MongoDB is a cross-platform document-oriented database and it is a NoSQL database, MongoDB avoids the traditional table-based relational database structure in favor of JSON-like documents with dynamic schemas making the integration of data in certain types of applications easier and faster.

We have used mongoDB to store the information of the users and data about the IS labs, library study rooms, student assistant information etc. Using REST API calls data is retrieved from the database and displayed to the user.

mLab is a fully managed cloud database service that hosts and provide featuring automated provisioning and scaling of MongoDB databases. Data can be accessed from mongoDB using two ways. First, by using the DATA APT URL in which it contains database name, collection name and API key.

Example URL:

https://api.mongolab.com/api/1/databases/studentcorner/collections//Ase_project/' + id + '?apiKey=Q_u73BV4oOdMGpnu3WFGmJ8YH_IxHDHO

Second, accessing the mongoDB using a driver to connect the database. An example driver:

```
mongodb://<dbuser>:<dbpassword>@ds011399.mlab.com:11399/studentcompanions
```

REST Services:

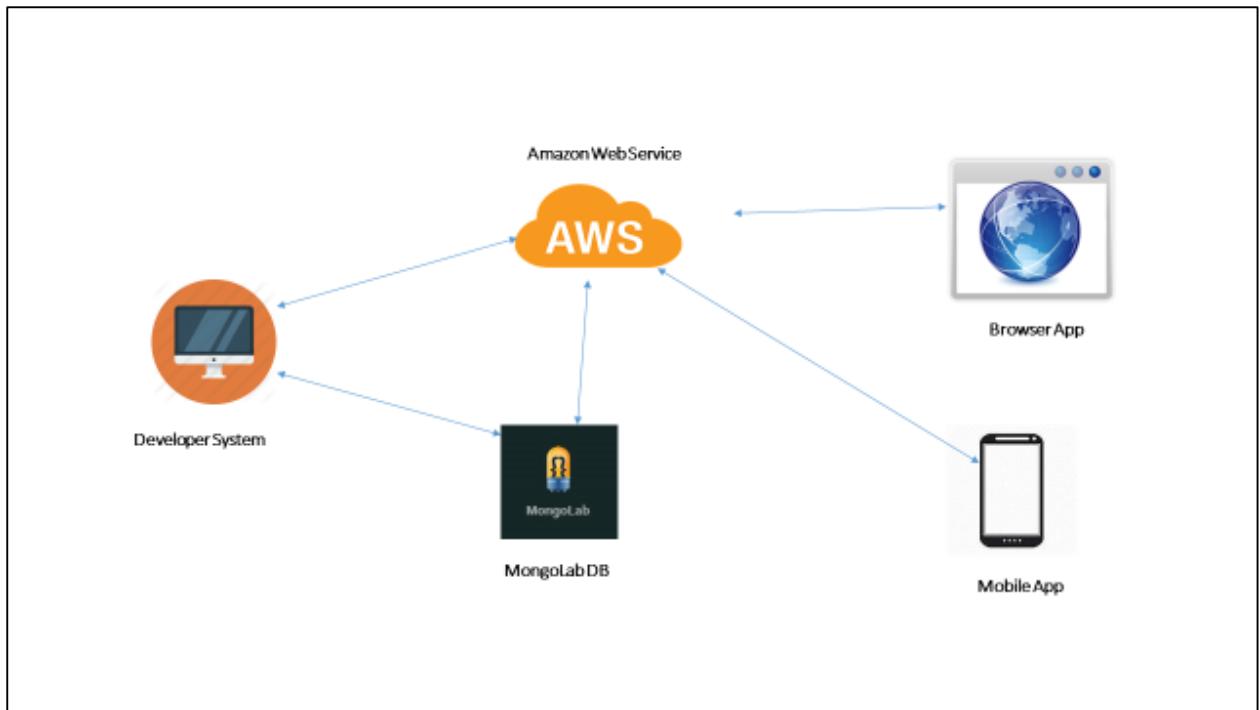


Fig: REST API Communication with mongoDB and Application

We have developed an API through which we perform the REST services for our application. As in the second increment we have developed database in the mongoLab and the data is fetched from the mongoLab through REST services.

[Amazon Web Services \(EC2\):](#)

We have used Amazon Web Services as a server to host our REST API. Our REST API will run in background and listen to port 9000. Our application send data request to the REST API hosted on Amazon EC2 cloud server. REST API will fetch the request data from mongoDB collections and perform the filtering of data according to the criteria and sends responds to the client application. This enables us complex queries on the server instead on the client thereby increasing the performance of client application.

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Images, AMIs, Elastic Block Store, Network & Security, and more. The main area displays a table for the selected instance, ASE_S16_G7. The table includes columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, and Public DNS. The instance details are as follows:

	Value
Instance ID	i-07a19fbfc636e591
Instance state	running
Instance type	t2.micro
Private DNS	ip-172-31-28-235.us-west-2.compute.internal
Private IPs	172.31.28.235
Secondary private IPs	-
VPC ID	vpc-94d515f0
Subnet ID	subnet-276ca443
Network interfaces	eth0
Source/dest. check	True
Public DNS	ec2-52-34-188-157.us-west-2.compute.amazonaws.com
Public IP	52.34.188.157
Elastic IP	-
Availability zone	us-west-2a
Security groups	launch-wizard-1, view rules
Scheduled events	No scheduled events
AMI ID	ubuntu-trusty-14.04-amd64-server-20160114.5 (ami-9abea4fb)
Platform	-
IAM role	-
Key pair name	node
Owner	194215400141

Fig: Amazon Web Services (EC2) Dashboard - Hosting our REST API

Architecture Diagram

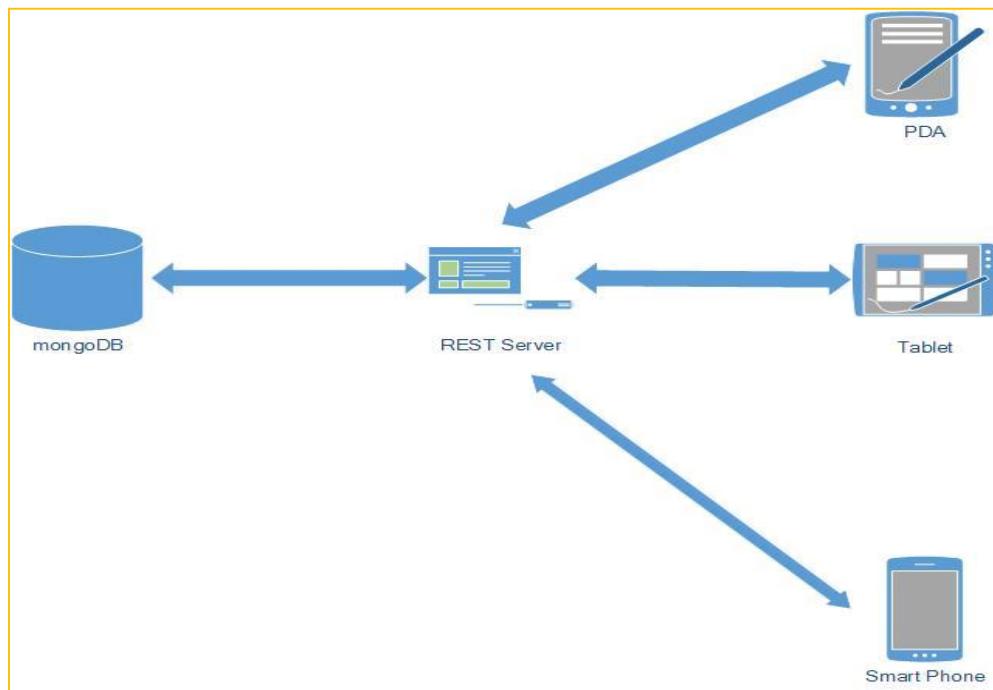


Fig: Architecture Diagram for StudentCompanion application

The architecture diagram for our application shows that it is 3-tier architecture. Application which deployed in smart phones, PDA's and Tablet uses the REST services for interacting with the database for storing and retrieval of required information from the mongoDB.

Project plan

The proposed project plan is outlined by the screenshot from the ZenHub tool. The project is divided into four milestones. Each iteration has several states namely future tasks, new issues, to do, development in progress, testing in progress, done and closed.

The screenshot shows a ZenHub board for the repository 'meetsriharsha / ASE_S16_G7'. The board is organized into six columns corresponding to different states: New Issues, Future Tasks, To Do, Dev In Progress, Testing In Progress, Done, and Closed. Each column contains a list of GitHub issues with their titles, assignees, and labels. The 'Done' and 'Closed' columns show completed tasks, while the other columns show tasks currently in progress or pending.

New Issues	Future Tasks	To Do	Dev In Progress	Testing In Progress	Done	Closed
					<ul style="list-style-type: none">ASE_S16_G7 #18 Create Lab info page with logicRequirementASE_S16_G7 #19 Create Library page with logicRequirementASE_S16_G7 #21 Create a REST API for DB accessRequirementASE_S16_G7 #20 Create SA Menu page with Post Shift logicRequirementASE_S16_G7 #28 Work on incremental update to API logicRequirementASE_S16_G7 #12 Create Home pageenhancement	<ul style="list-style-type: none">ASE_S16_G7 #35ASE_S16_G7 #31ASE_S16_G7 #32ASE_S16_G7 #30 Create mobile application iconRequirementASE_S16_G7 #25ASE_S16_G7 #22ASE_S16_G7 #15Merging sc9v9_1 into masterASE_S16_G7 #9 Analyze the database tables creationRequirementASE_S16_G7 #16 Create Home option to side

Fig: ZenHub Board showing the project plan and current tasks.

Milestone 4:

This milestone mainly deals with the designing the end to end functionality of the system. The tasks of this phase mainly focuses six tasks.

First, the development of REST API which performs the communication between Client application and database.

Second, development of Profile page and display the profile of the user which is stored in the mongoDB. Developed the functionalities for register user, edit profile and edit password.

Third, development of Lab Information page and display the Lab name and lab details.

Fourth, development of Reserve Study Room page and display the Library information, study rooms which are reserved by the user and available study rooms and the details of resources present in it and cancellation of reserved study room.

Fifth, development SA Menu page and display the SA Shifts of the user and available shifts on a selected date. Developed the functionality for taking the available substitutions.

Sixth. Implemented the toast functionality for the final application.

The results of this milestone contains the screenshots of the application and the related class, sequence and state chart diagrams.

Fourth Increment Report

This document contains the report of fourth increment work done on the Student Companion application. This document emphasizes the final end to end implementation of the application using different technologies such as REST API, Amazon Web Services, Ionic framework and mongoDB. We're using the HTML5, CSS ,Node.js, , ExpressJS and Angular JS for the end to end implementation.

We have created REST API which host on the Amazon Web Services through which communication between client application and database.

We have created the Profile, Register, Edit Profile, Lab Information, Reserve Study Room, SA Menu, Contact Us pages. We have also checked the work so far by deploying the application in the mobile and manual testing is done.

The detail development in fourth increment include the enhancement of Profile, Lab Information, Reserve Study Room, SA Menu, Contact Us pages and development of Register and Edit Profile pages. Developed an icon for the application.

Class diagram for the high level design of the application:

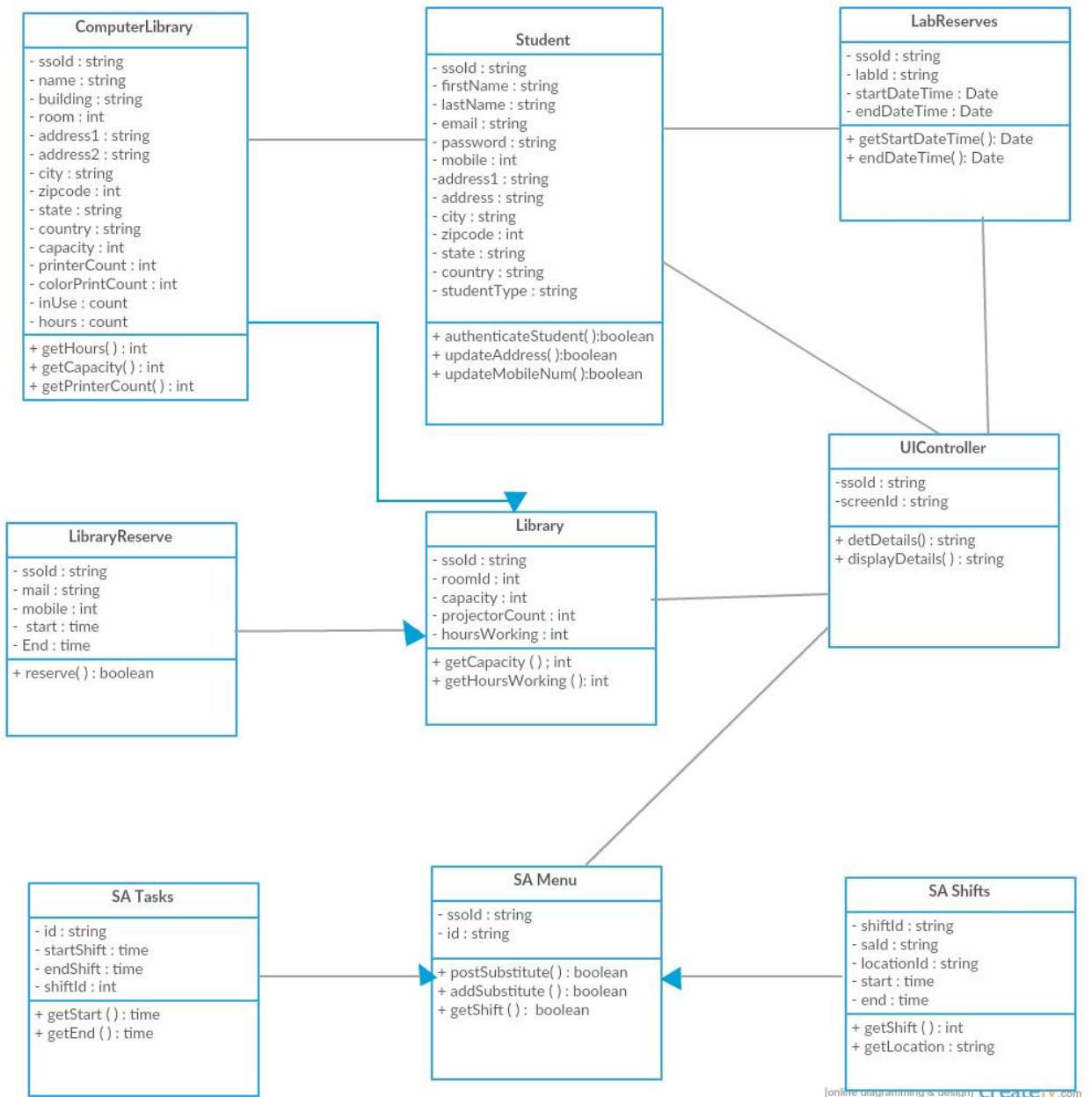


Fig: Demonstrates a class diagram of high level design of application

Sequence diagrams for the high level design of the application:

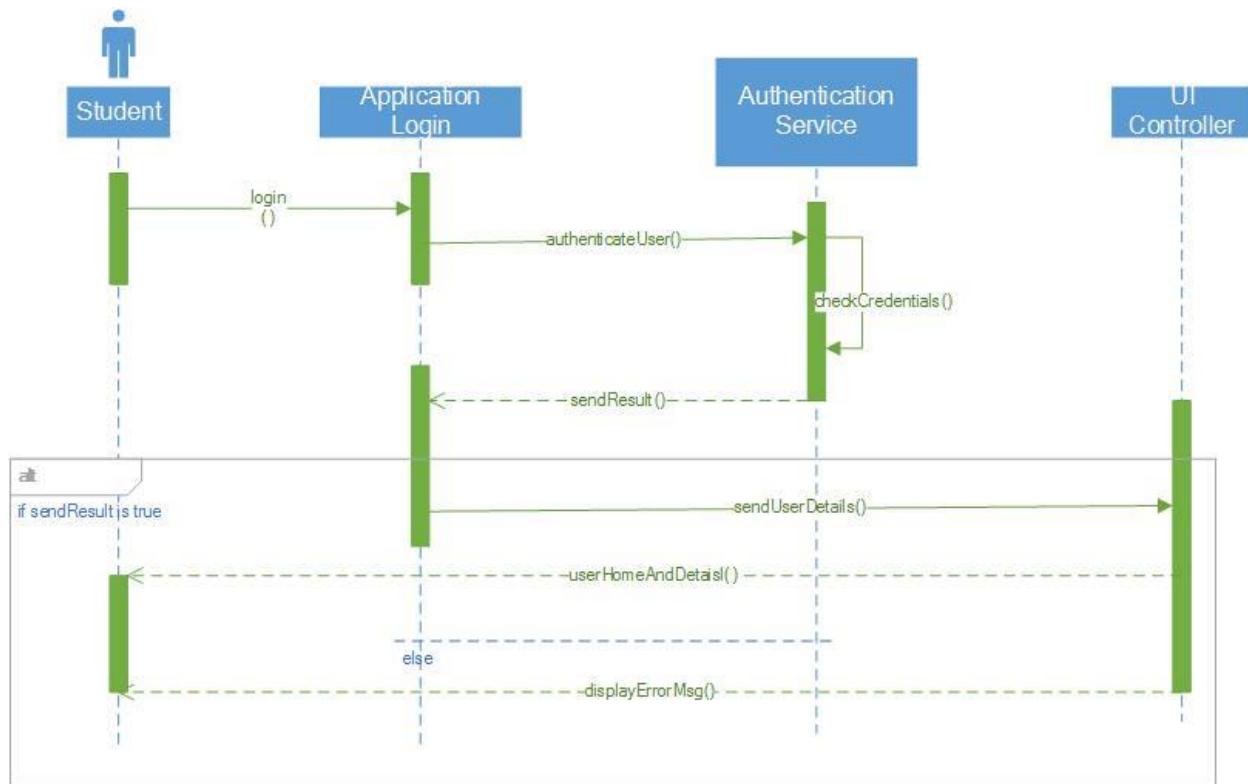


Fig: Sequence diagram for student login activity

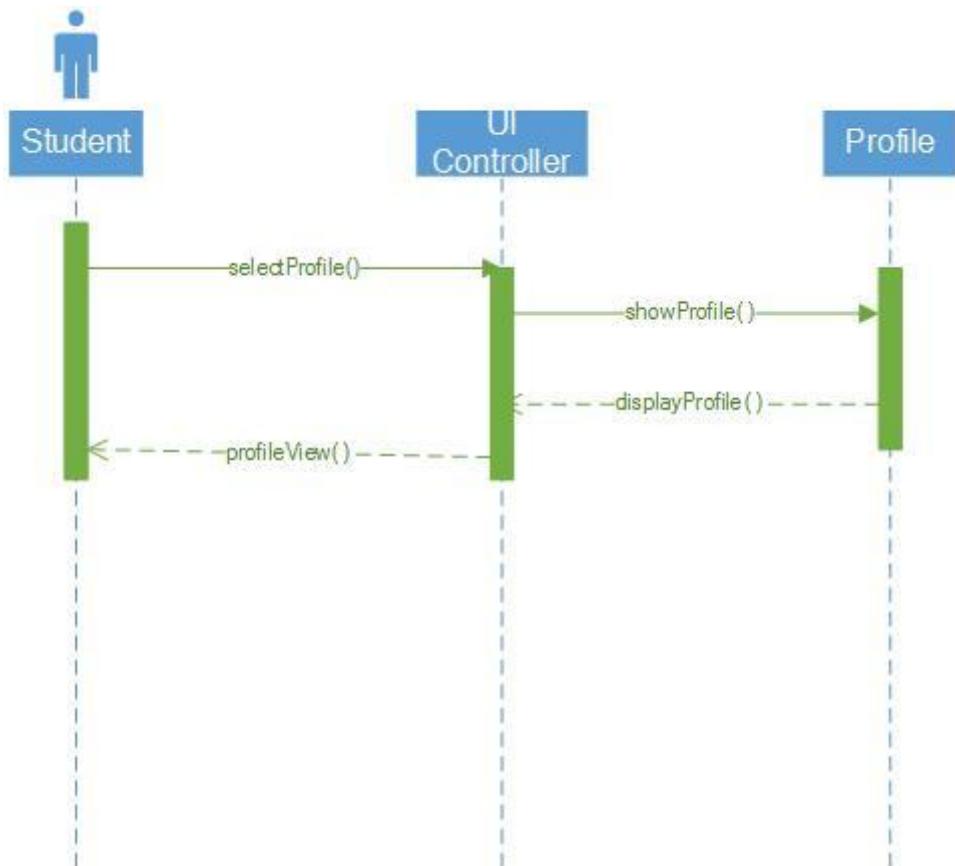


Fig: Sequence diagram shows the control flow for “view user profile” task

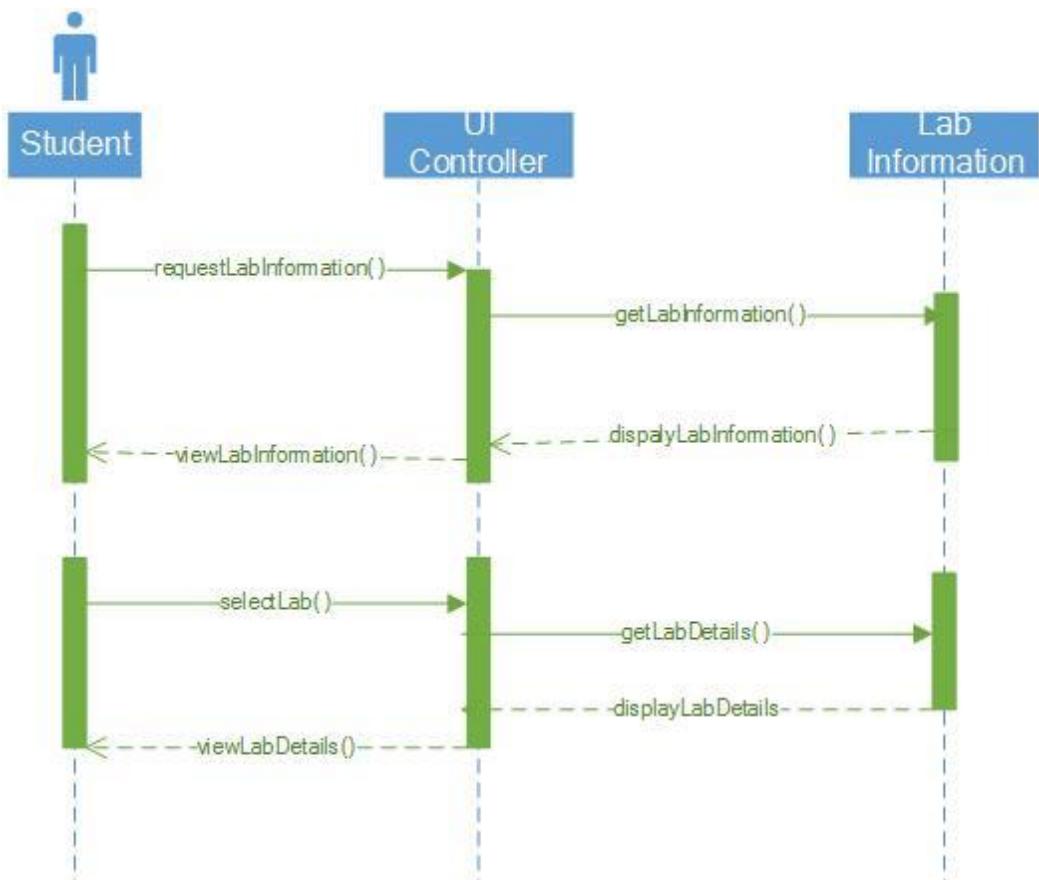


Fig: Sequence diagram for “View lab information” activity

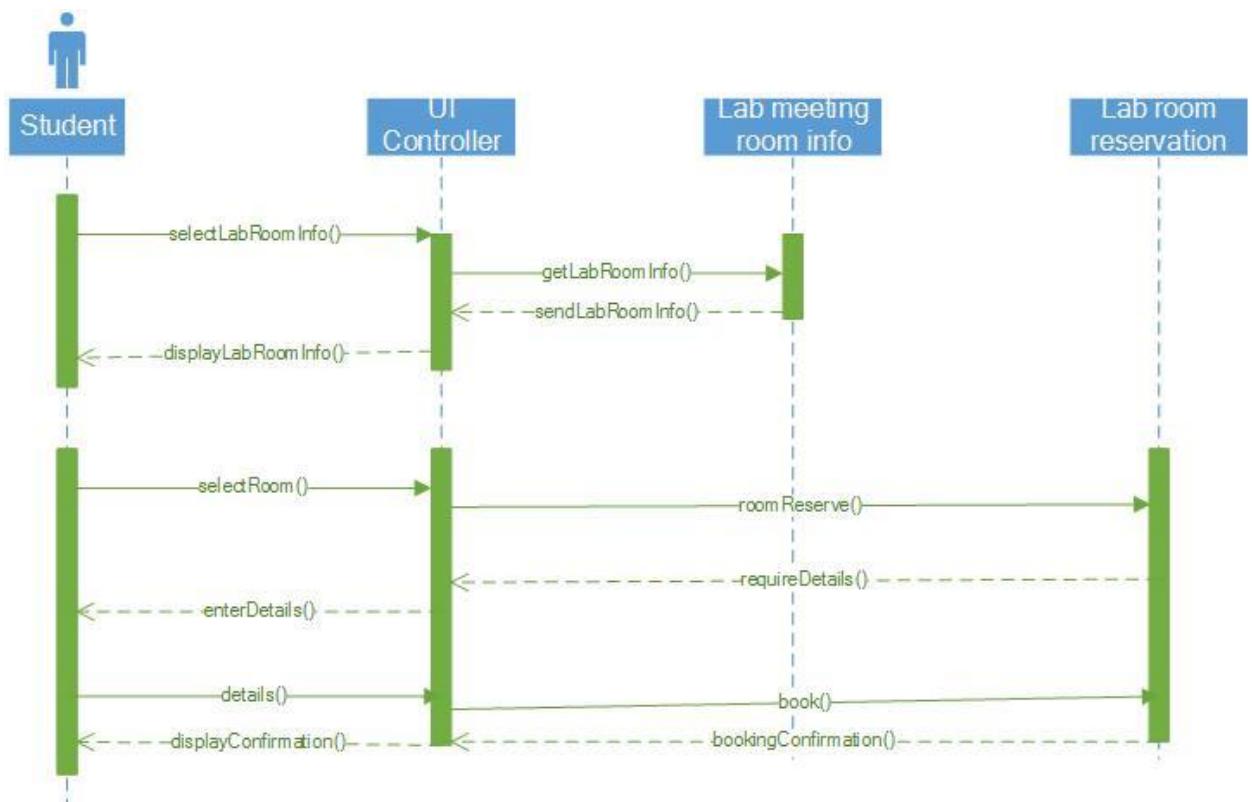


Fig: Sequence diagram for reserving library study room activity

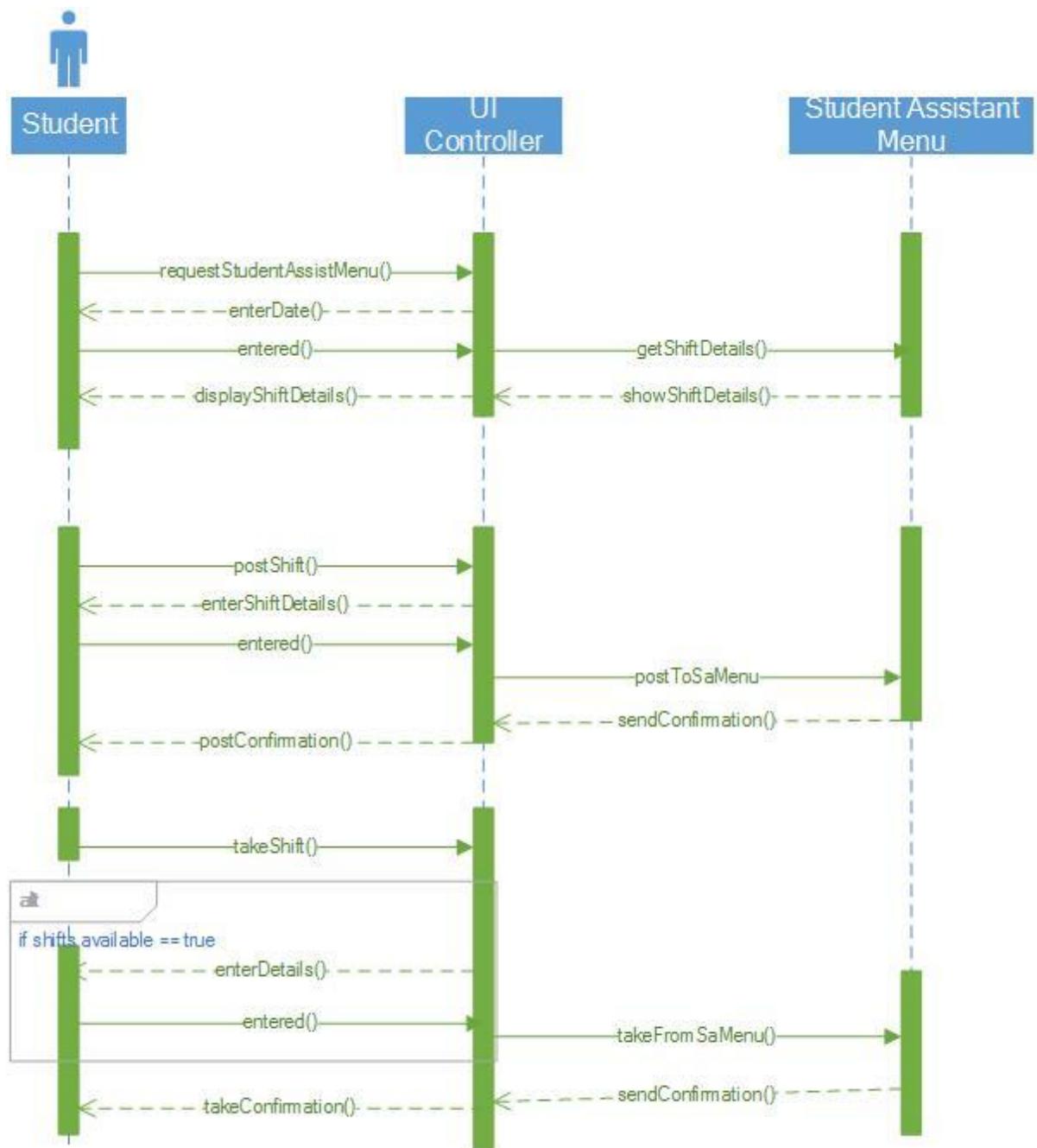


Fig: Sequence diagram for student assistant activities like post or take shifts.

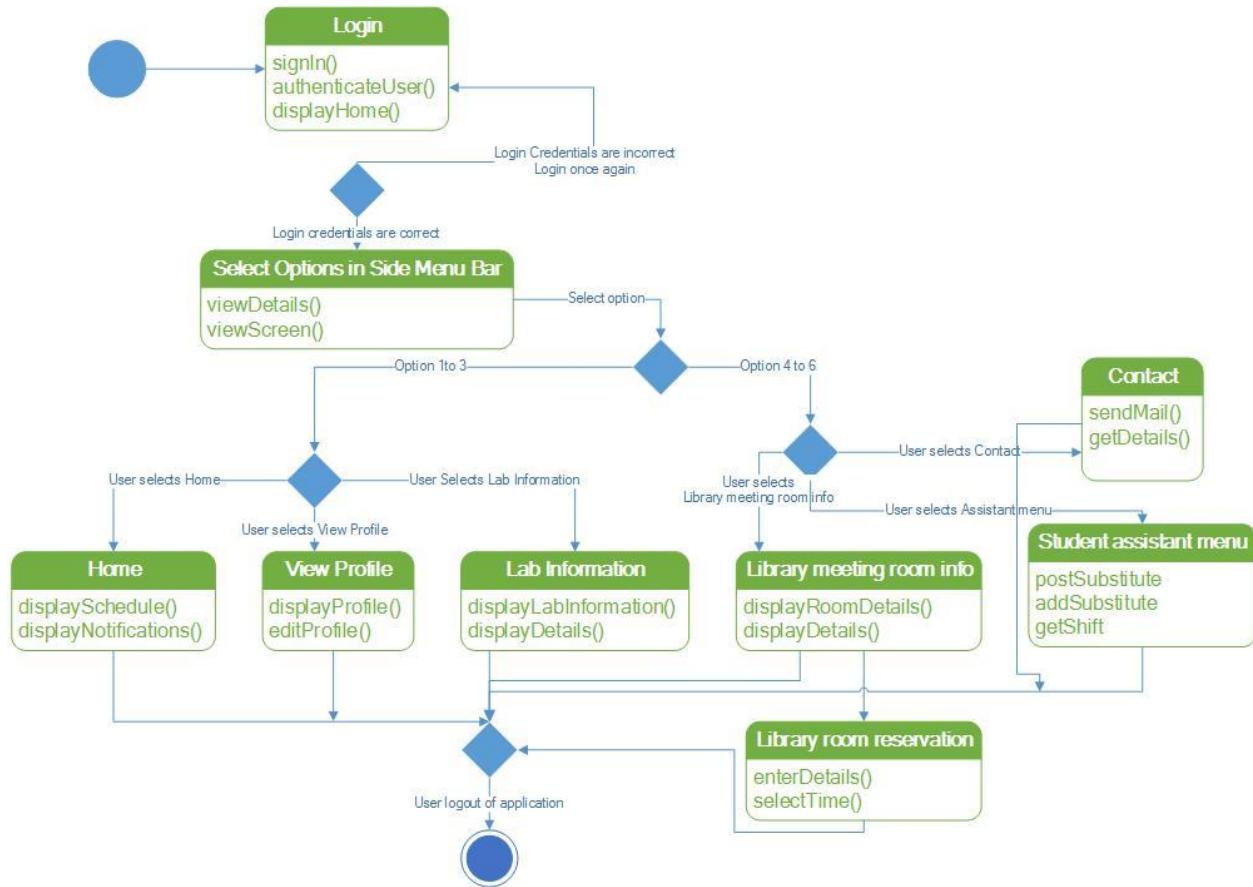


Fig: State chart diagram for the application modules.

Wireframes of the application:

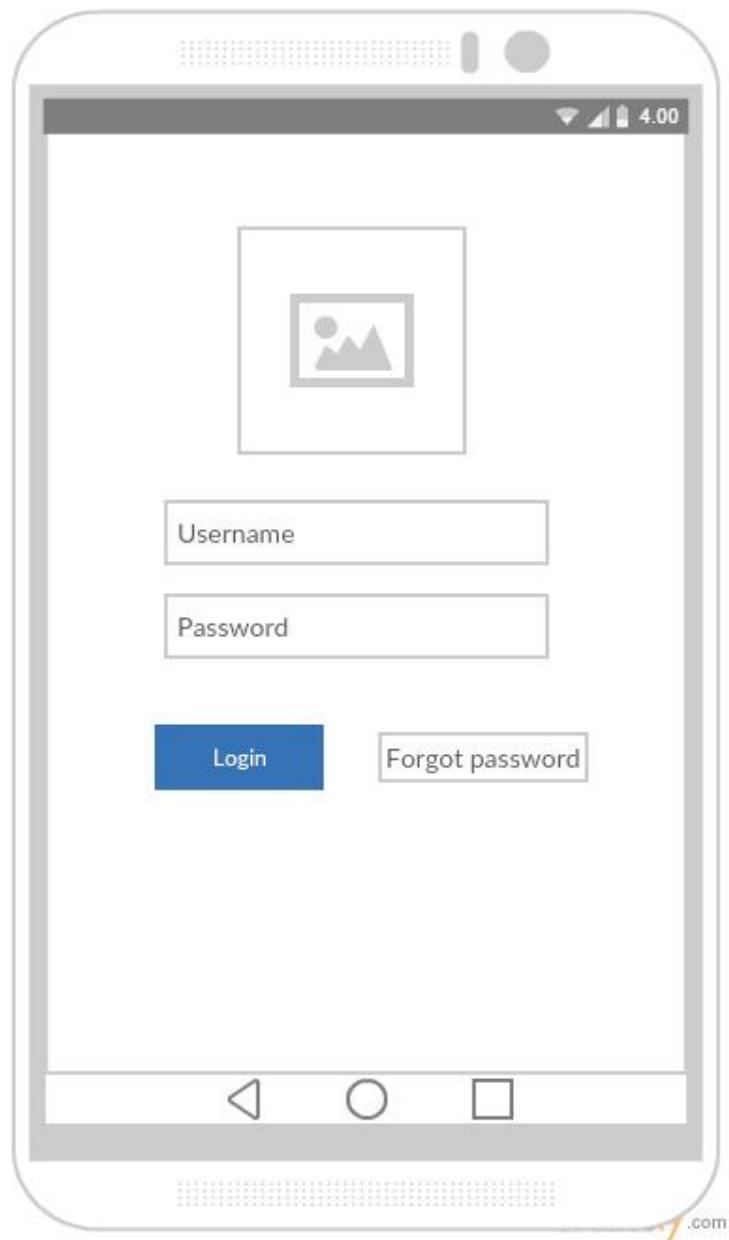


Fig: Login screen

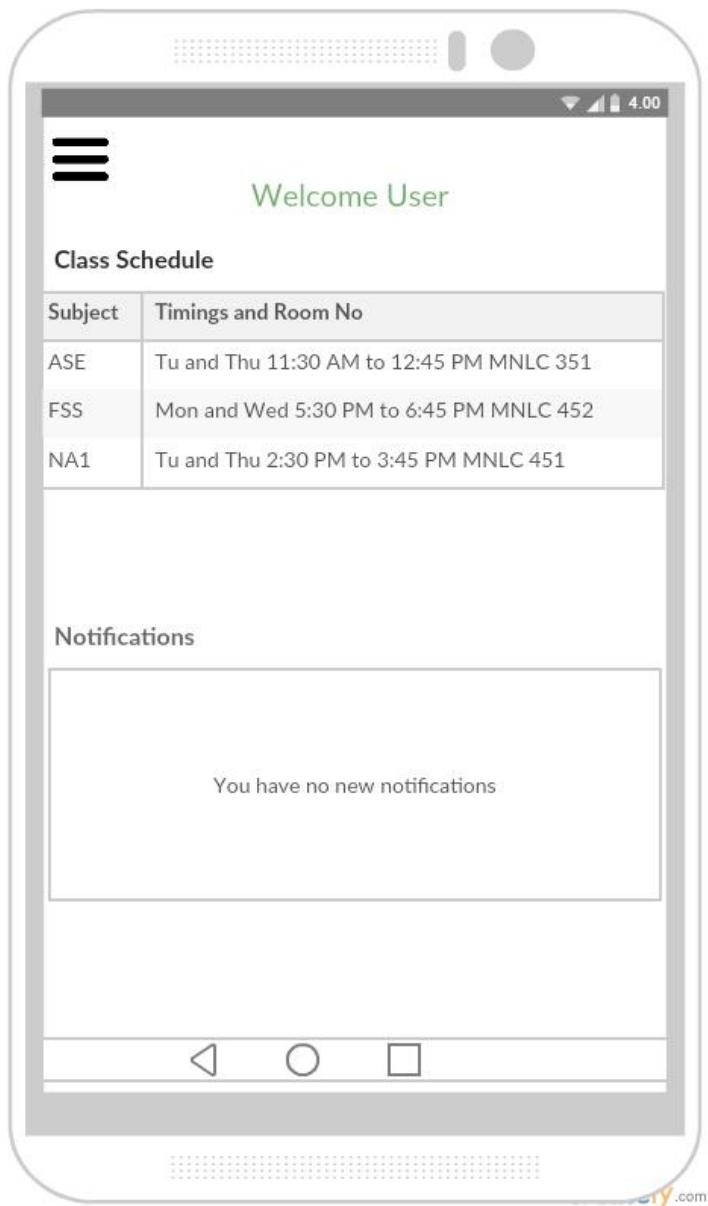


Fig: Main Home page

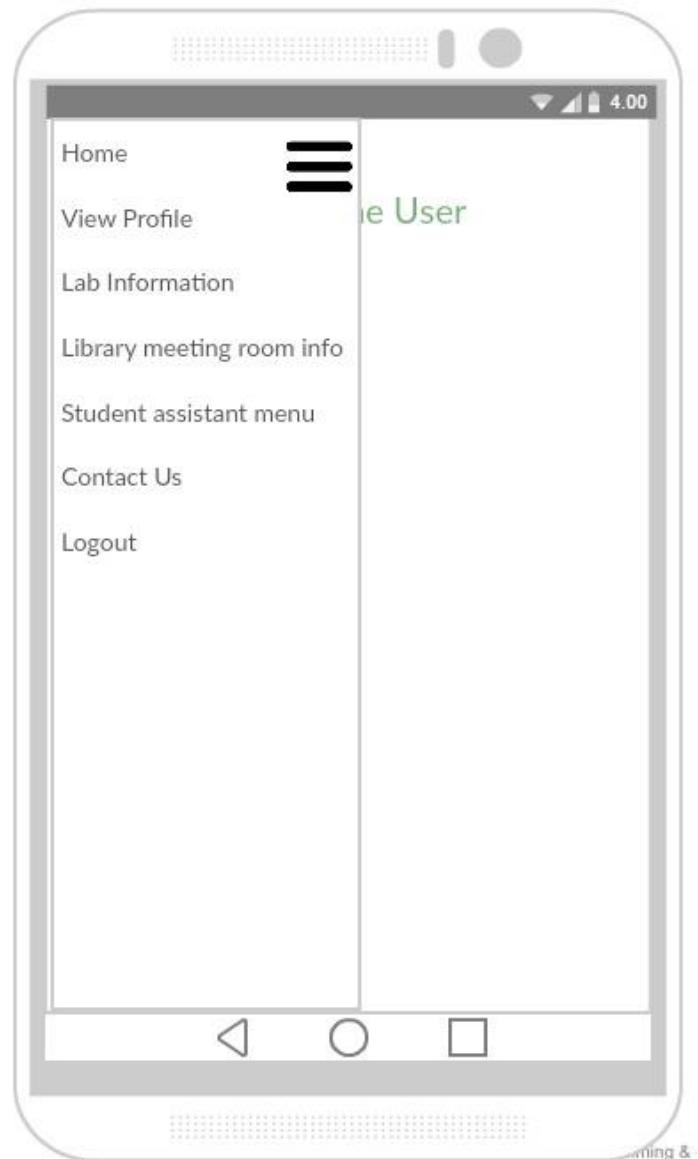


Fig: Side menu bar

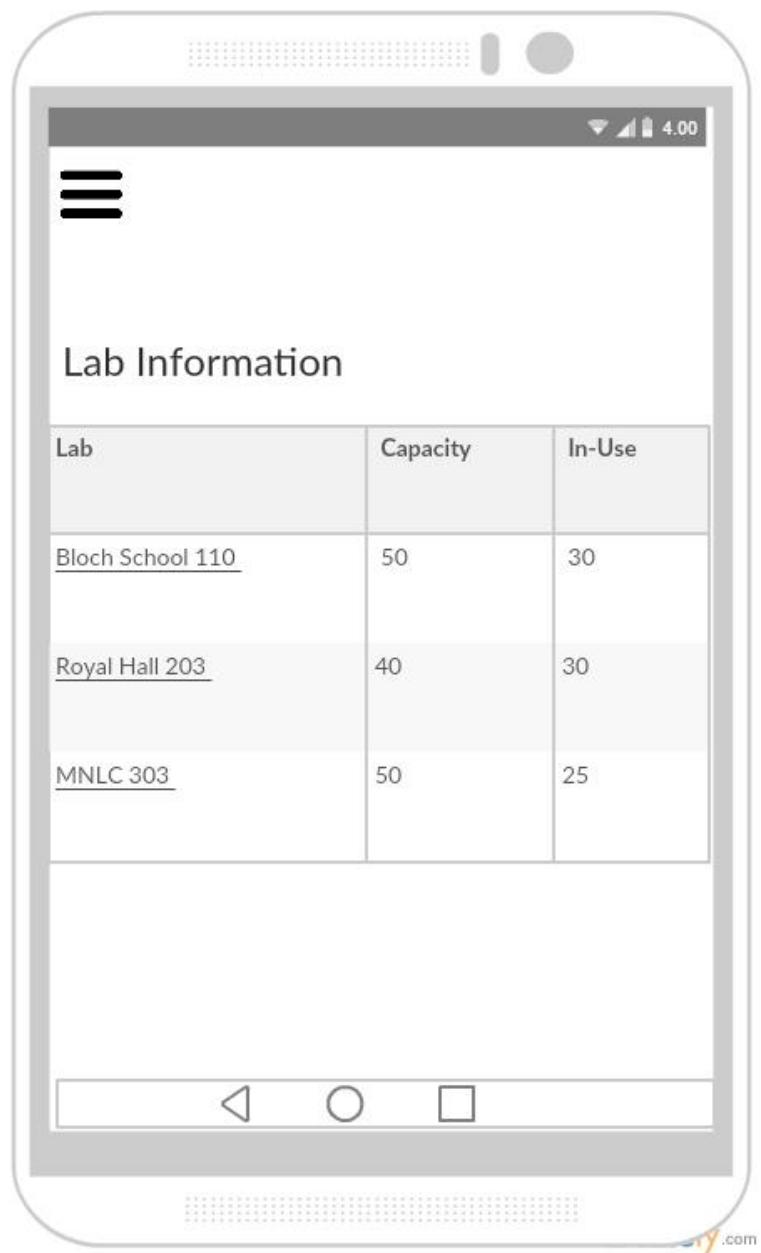


Fig: Computer Labs information page

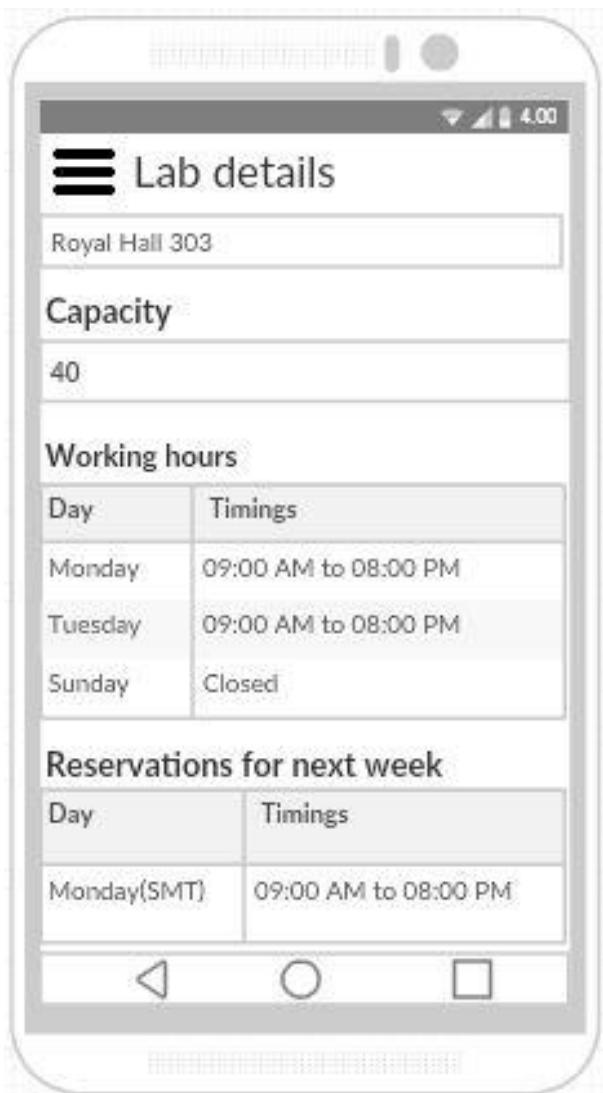


Fig: Detailed information of a computer lab

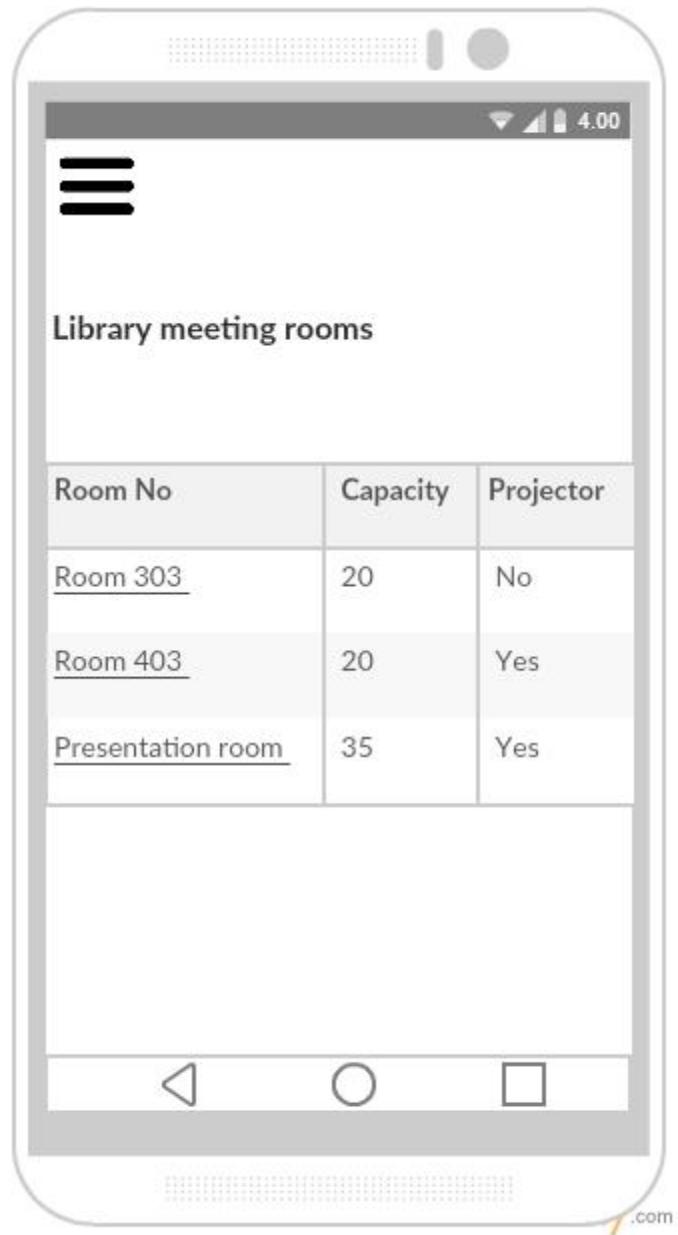


Fig: Library study room information

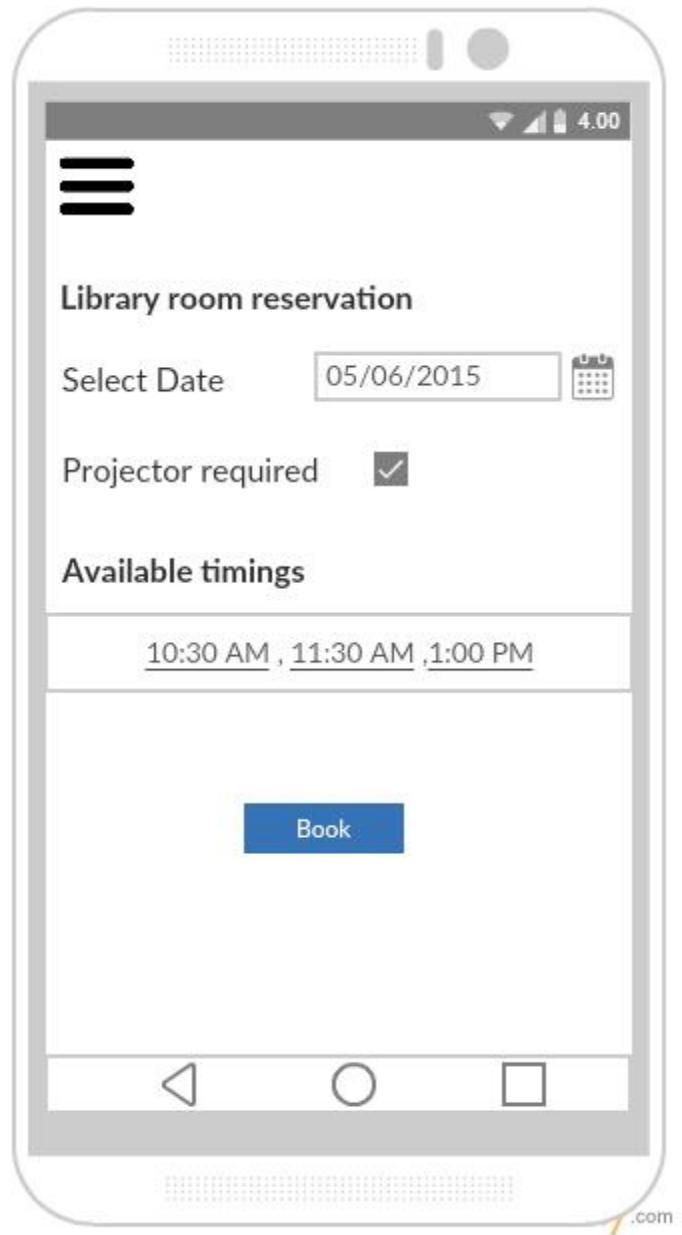


Fig: Library room reservation page

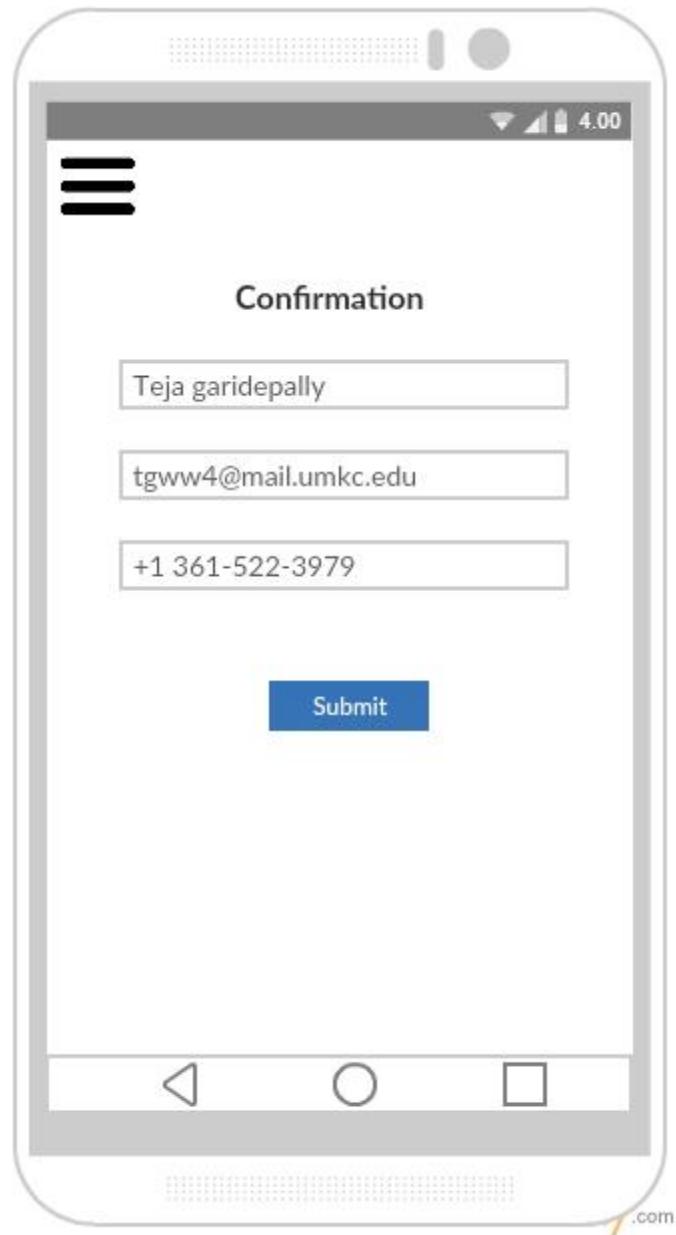


Fig: Library room reservation form

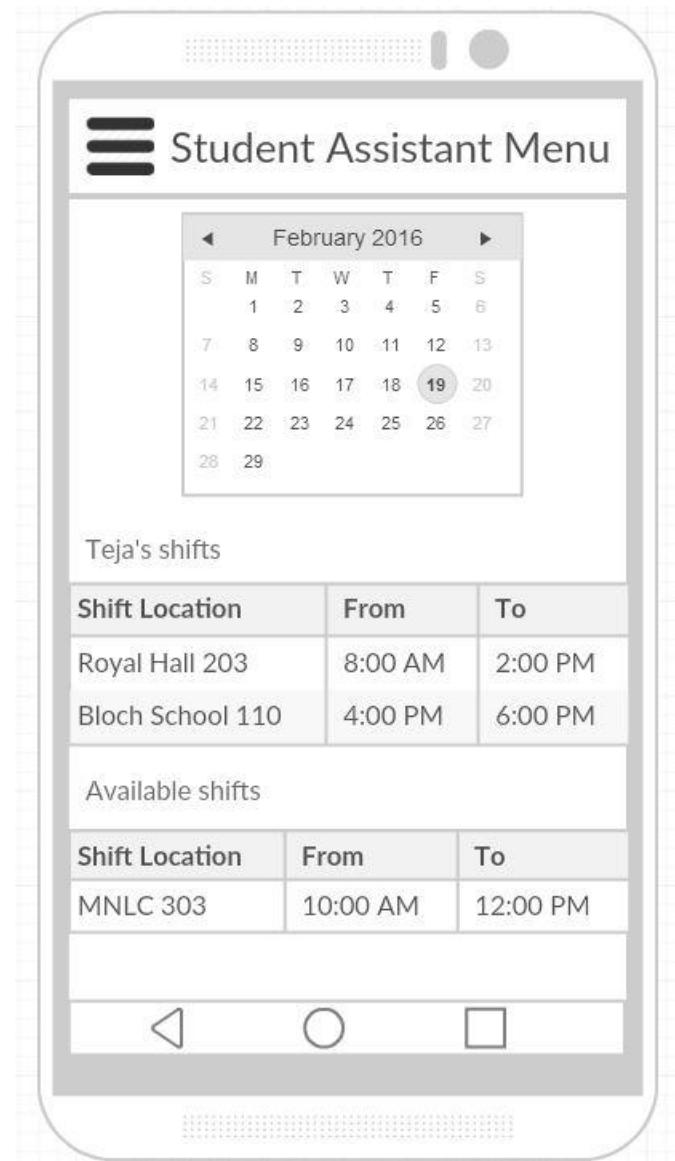


Fig: Student Assistant menu page

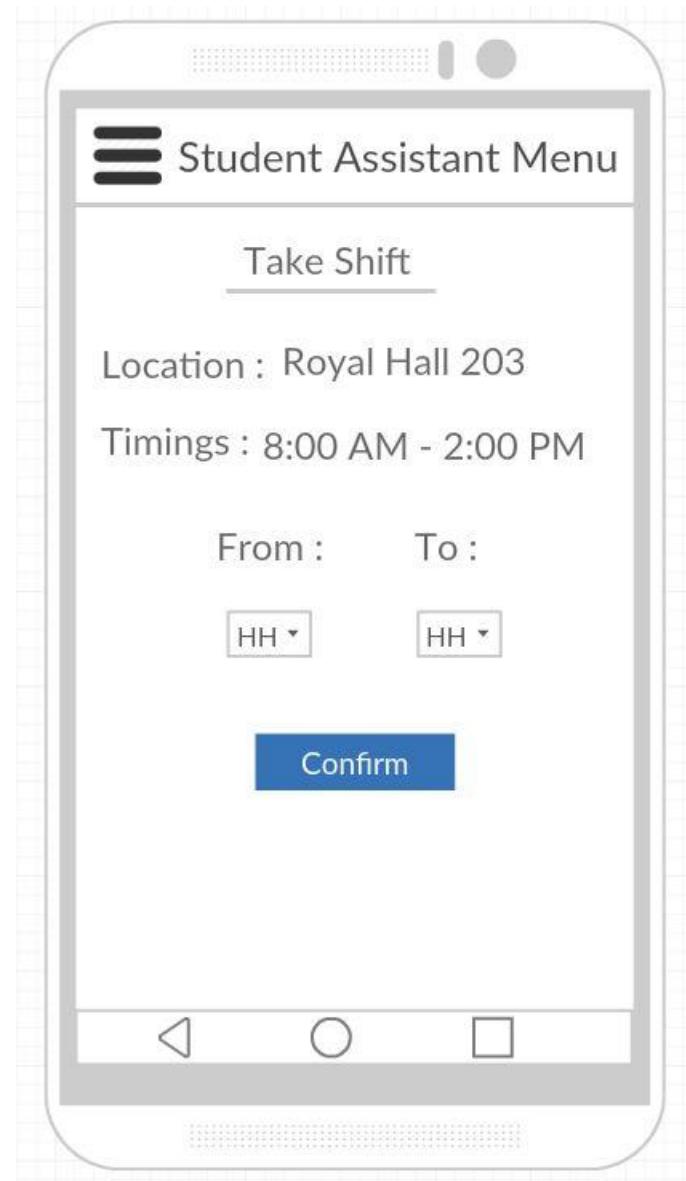


Fig: Taking a Student Assistant shift

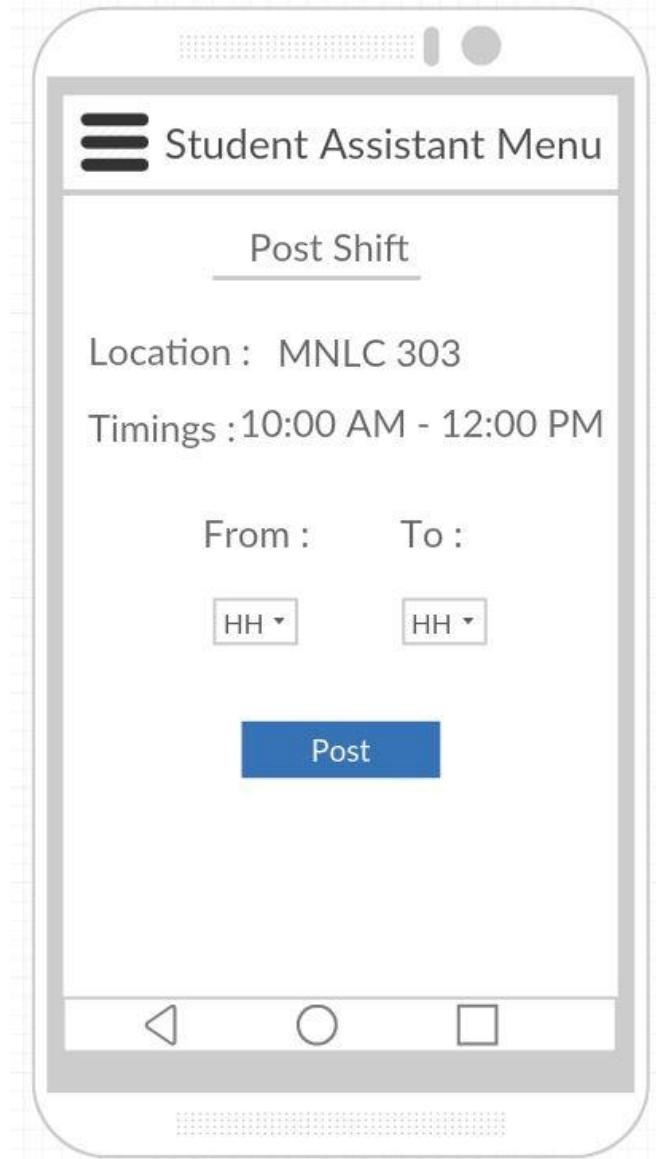


Fig: Posting a Student Assistant shift



Fig: Student profile page

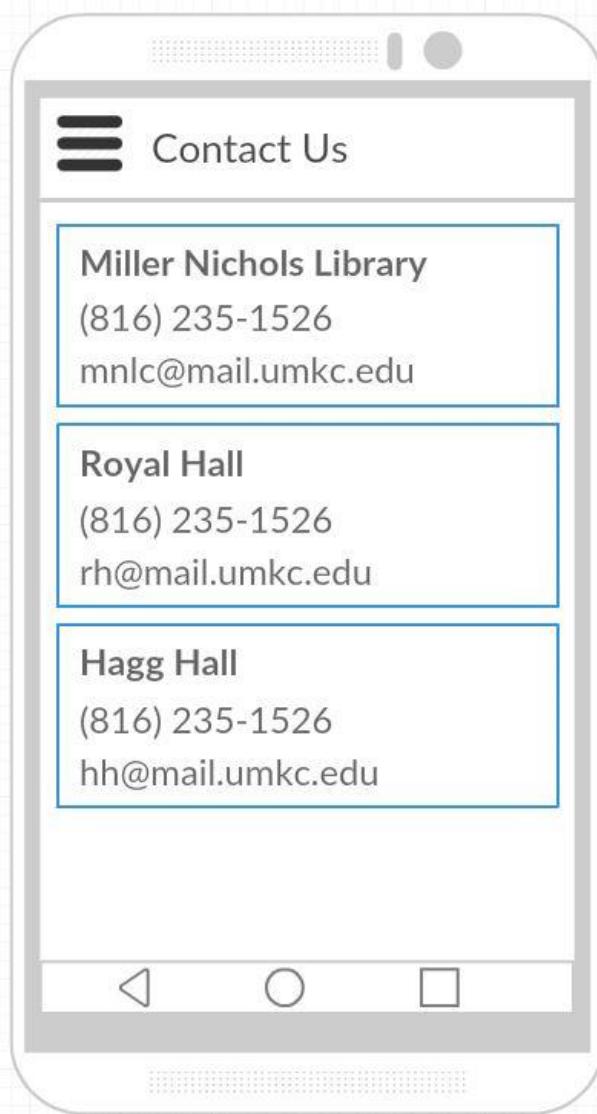


Fig: Contact Us information page

User Stories:

- As a User, I can see the UI of StudentCompanion App.
- As a user, I can see the Login Screen.
- As a user, I can enter my Details and Login to the App.
- As a user, I can see the Side menu bar on Home Page with side menu options like Profile, Lab Information, Reserve Study Room, and SA Menu.
- As a User, I can see my Profile.
- As a User, I can see the Lab Information of specified lab.
- As a User, I can Reserve Study Room.
- As a User, I can choose the SA Menu option
- As a User, I can utilize the options in SA Menu.
- As a user, I can Sign-out from the Application.

Testing

We've used *YSlow* - a Google Chrome extension to test the performance of our application. It shows the requests and their weights in a graphical manner. This helped us to tweak our code to improve the application overall performance.

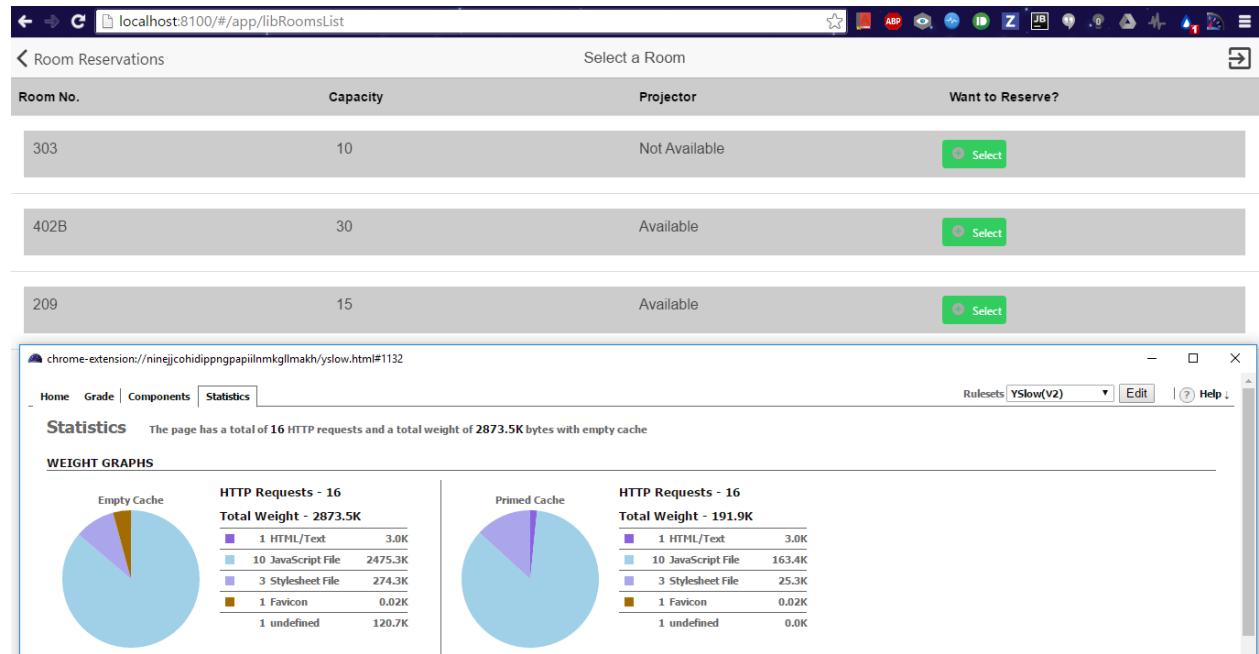


Fig: YSlow statistic of “Room Reservation” page

Deployment

Deployment of application to Mobile phone.

Screen Shots:

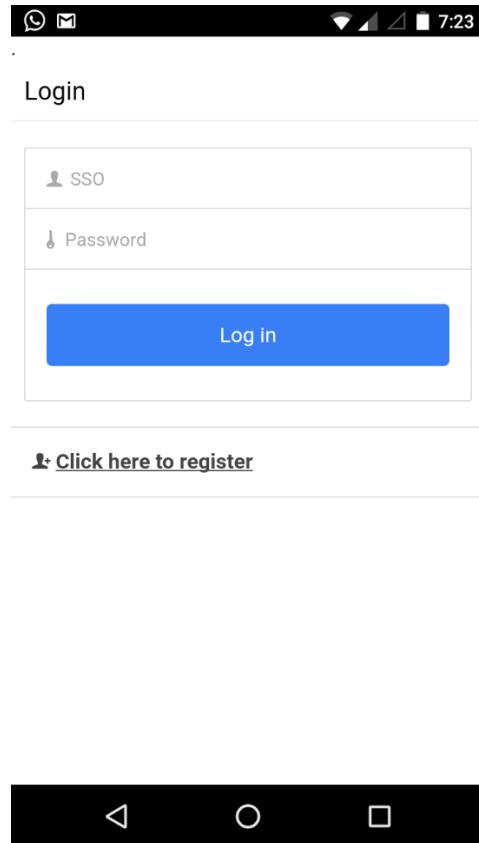


Fig: Login

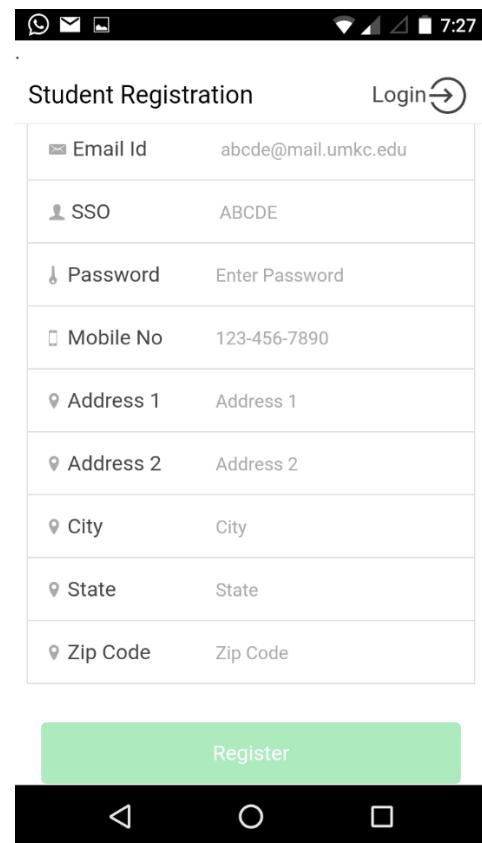
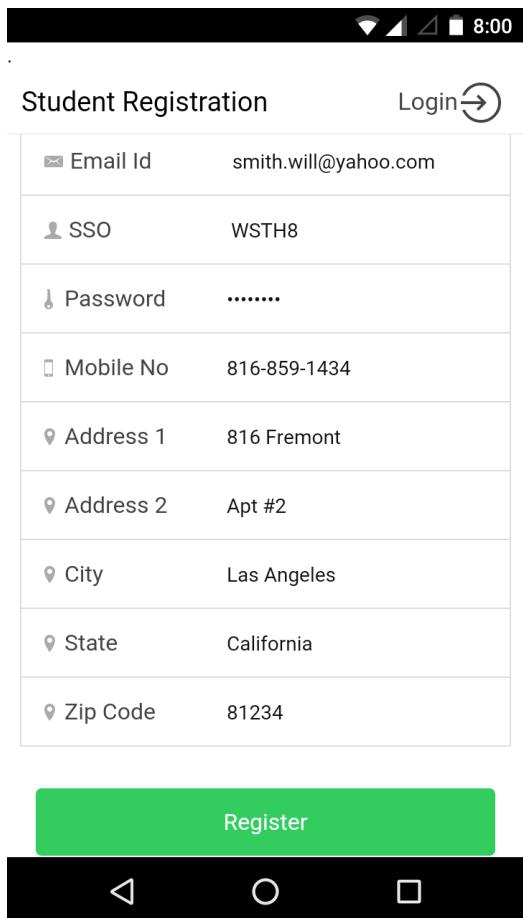


Fig: Register User



A screenshot of a mobile application showing a "Student Registration" form. The form consists of several input fields:

Email Id	smith.will@yahoo.com
SSO	WSTH8
Password
Mobile No	816-859-1434
Address 1	816 Fremont
Address 2	Apt #2
City	Las Angeles
State	California
Zip Code	81234

Below the form is a green button labeled "Register". At the bottom of the screen are standard Android navigation icons: back, home, and recent apps.

Fig: User Details

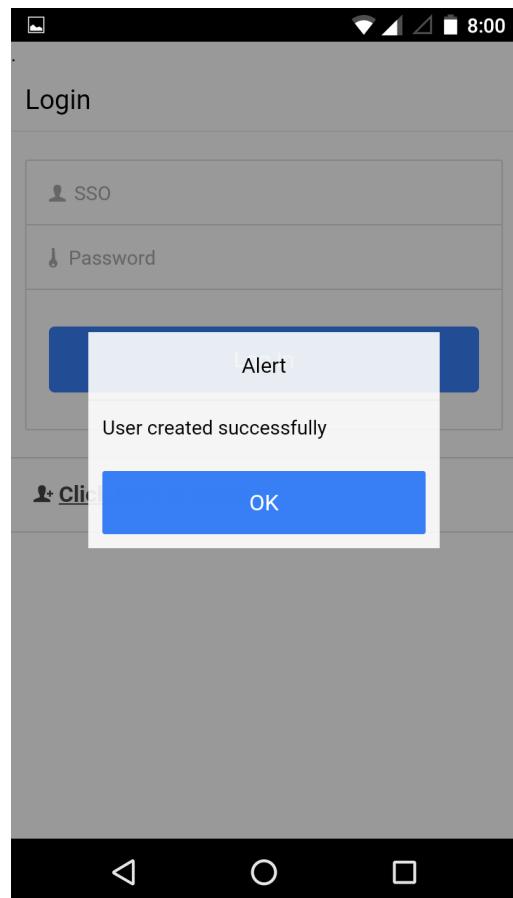


Fig: User Registered

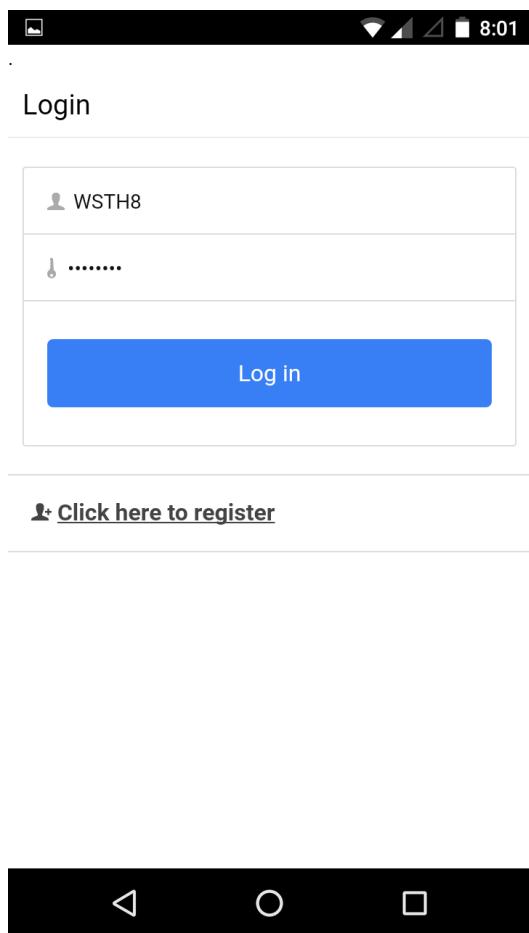


Fig: Login Success

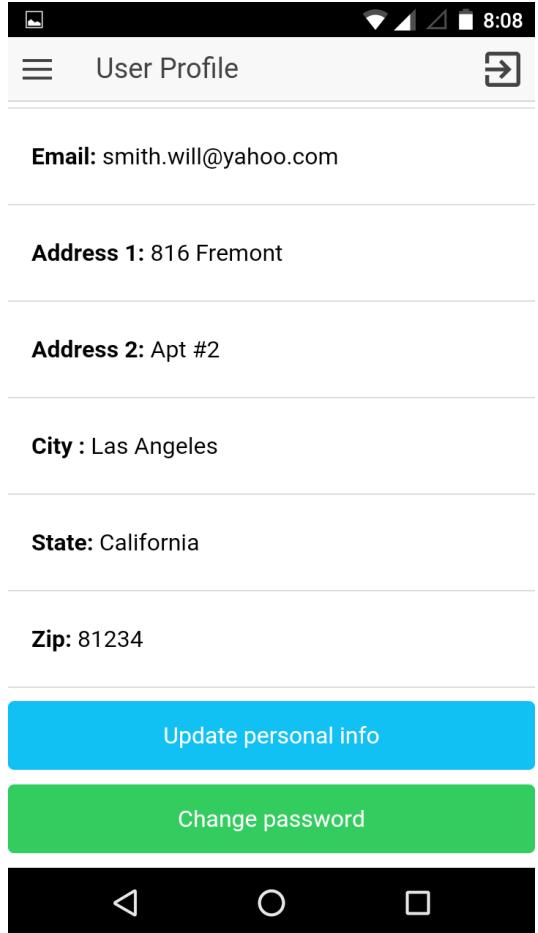


Fig: User Profile

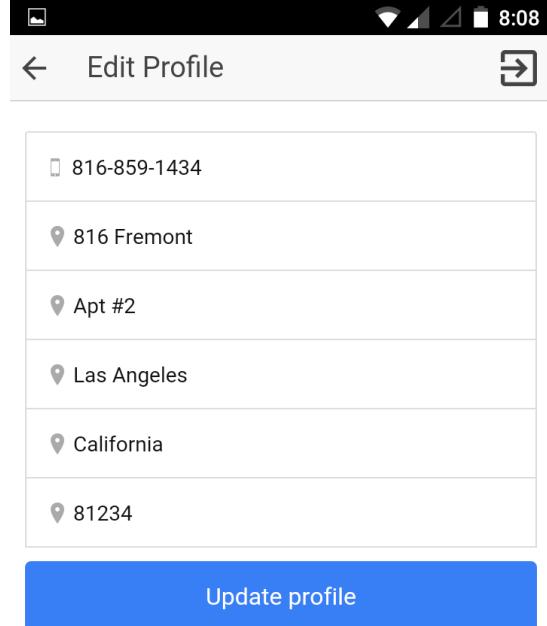
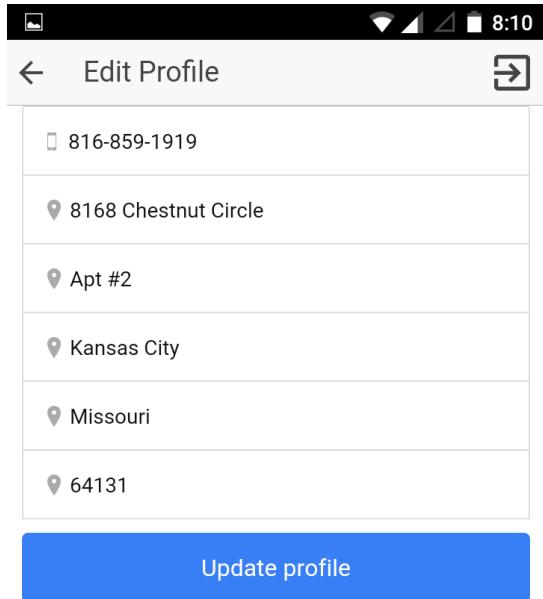


Fig: Initial Details



Fig: Updated Fields

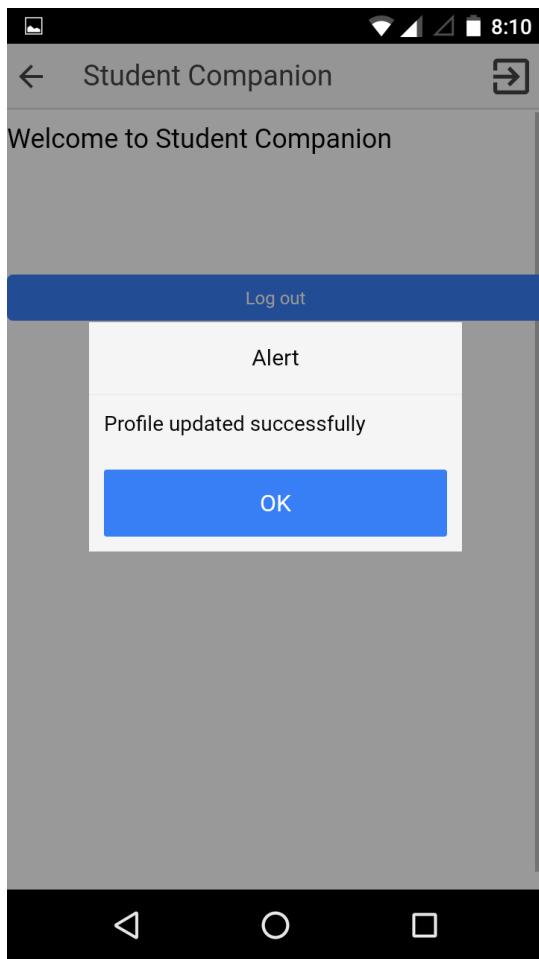


Fig: Profile Updated

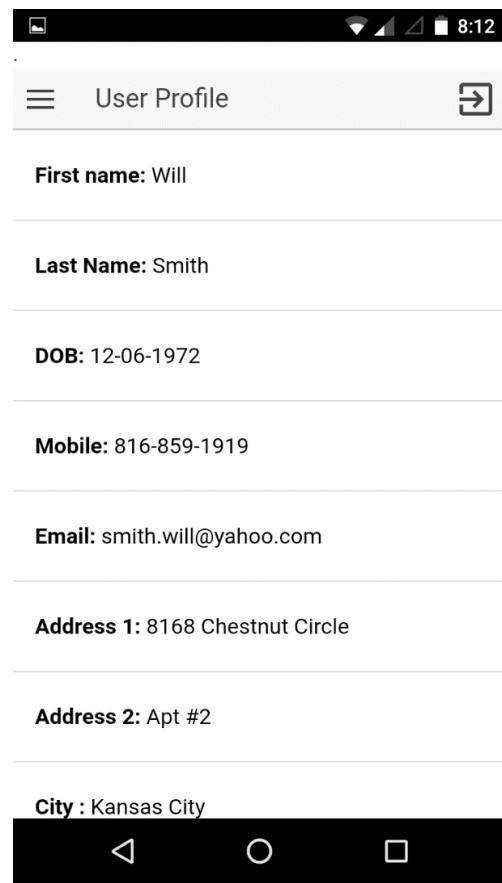


Fig: Updated Profile

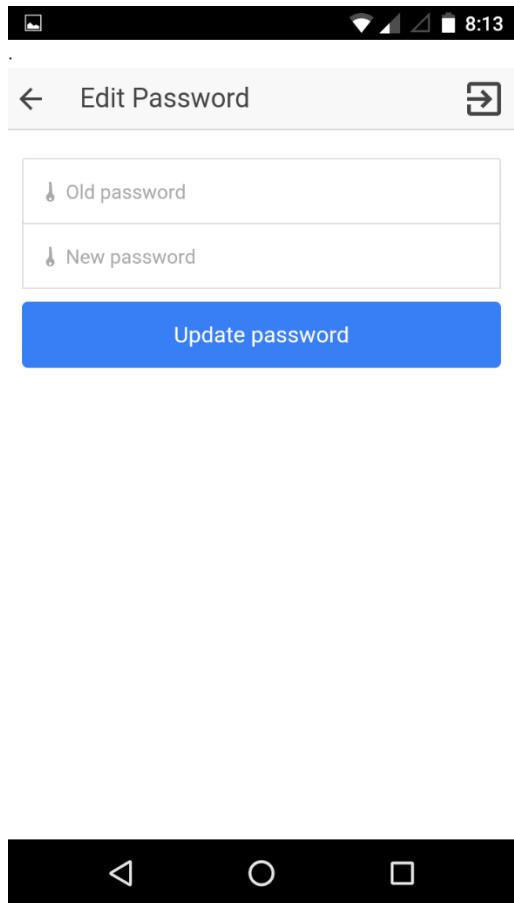


Fig Edit Password

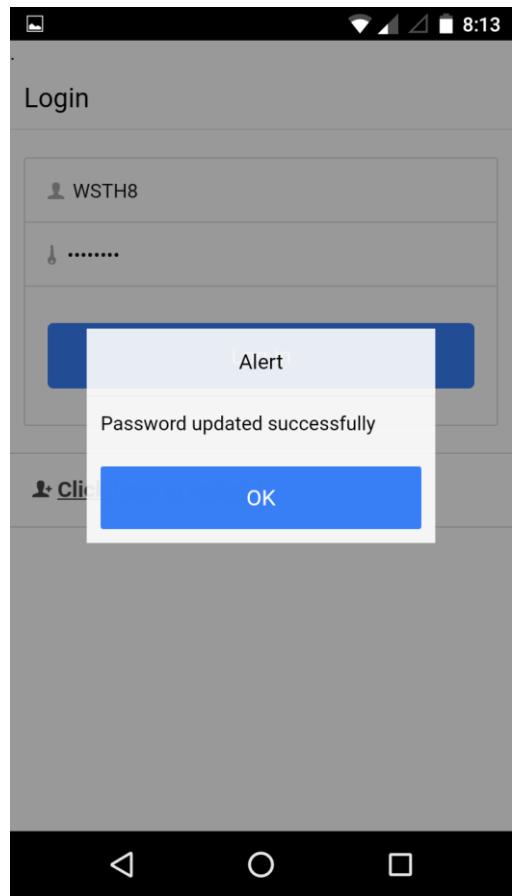


Fig: Password Updated

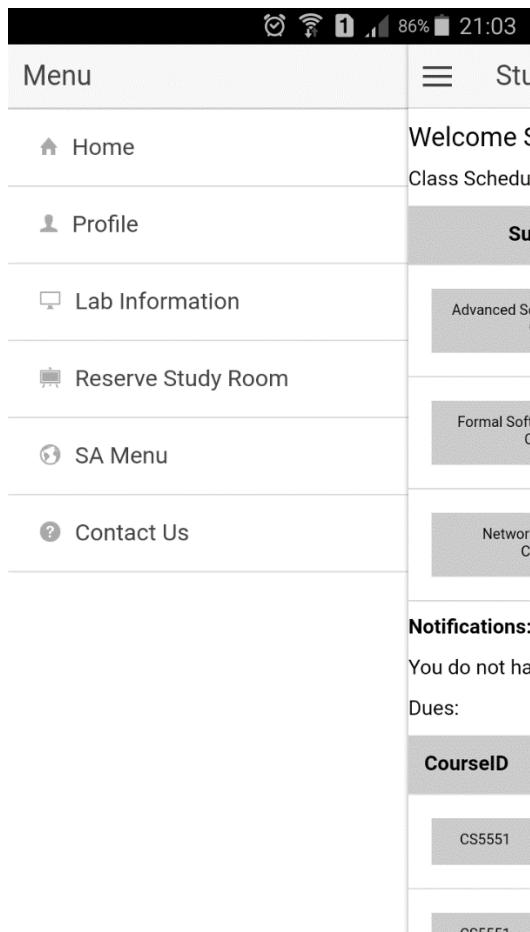


Fig: Side Menu

The screenshot shows the right side of the mobile application interface. At the top, there is a header section with the word "Student Companion" on the left and a three-line menu icon on the right, accompanied by a share icon. Below this is a section titled "Welcome Sri Harsha" followed by "Class Schedule (Spring 2016)".

Under "Class Schedule (Spring 2016)", there is a table with three rows:

Subject	Details
Advanced Software Engineering CS5551	Tue,Thu 11:30-12:45 Royall Hall - Rm 00104
Formal Software Specification CS5552A	Mon,Wed 17:30-18:45 MNLC-Rm 451
Network Architecture I CSEE5110	Tue,Thu 14:30-15:45 MNLC-Rm 452

Below the class schedule, there is a section titled "Notifications:" which displays the message "You do not have any upcoming classes today!!!". Under "Notifications:", there is a table with two rows:

CourseID	Task	Due By
CS5551	Assignment 11	05-02-2016 23:59
CS5551	Project Demo	05-03-2016 11:30

Fig: Home Page

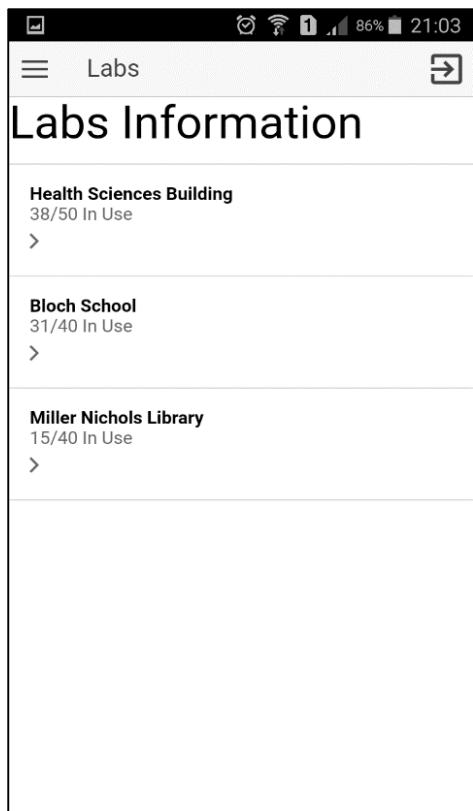


Fig: Lab Information

This screenshot shows a detailed view of a specific lab's information. At the top, there is a header bar with icons for battery, signal, and time (21:04). Below the header, the title 'LabInfo' is displayed next to a back arrow icon and a right-pointing arrow icon. The main content area is titled 'Lab Details'.

The details for the 'Health Sciences Building' are shown:

- Location:** Health Sciences Building
- Capacity:** 38/50
- Room:** 3304
- Address:** 2464 Charlotte St

A section titled 'Working Hours' displays the following schedule:

Day	Timings
Tuesday	09:00 AM to 08:00 PM
Wednesday	08:00 AM to 09:00 PM

A section titled 'Reservations for next week' displays the following schedule:

Day	Timings
Tuesday (SMT)	10:00 AM to 12:00 PM
Wednesday (ASE)	10:00 AM to 12:00 PM

Fig: Lab Details

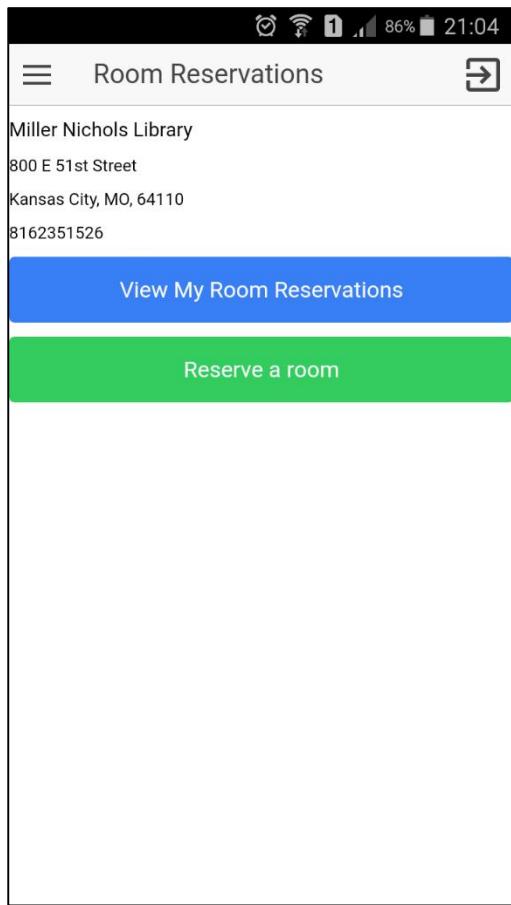


Fig: Room Reservation

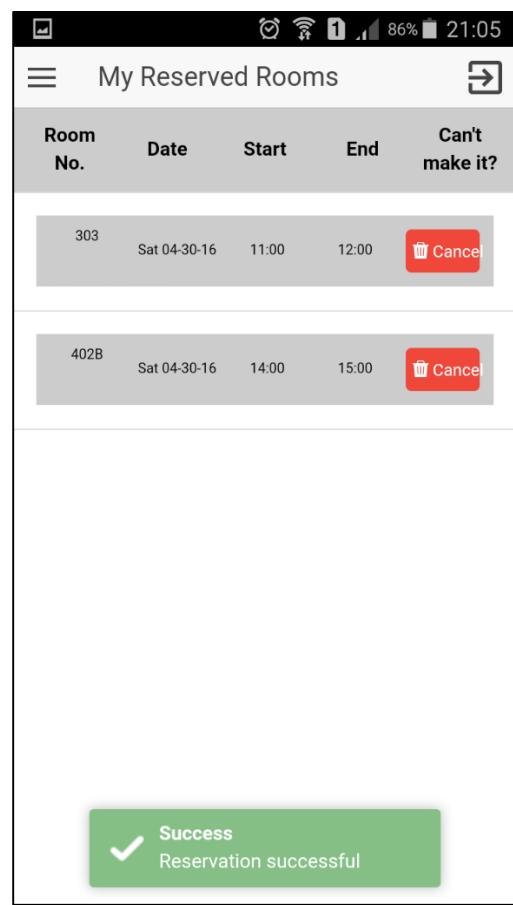


Fig: View My Reservations

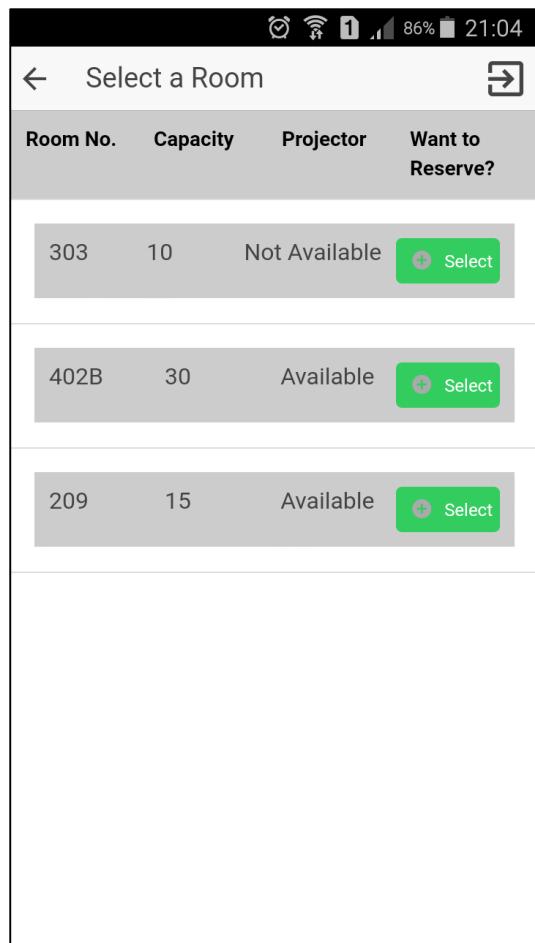


Fig: Select a Room

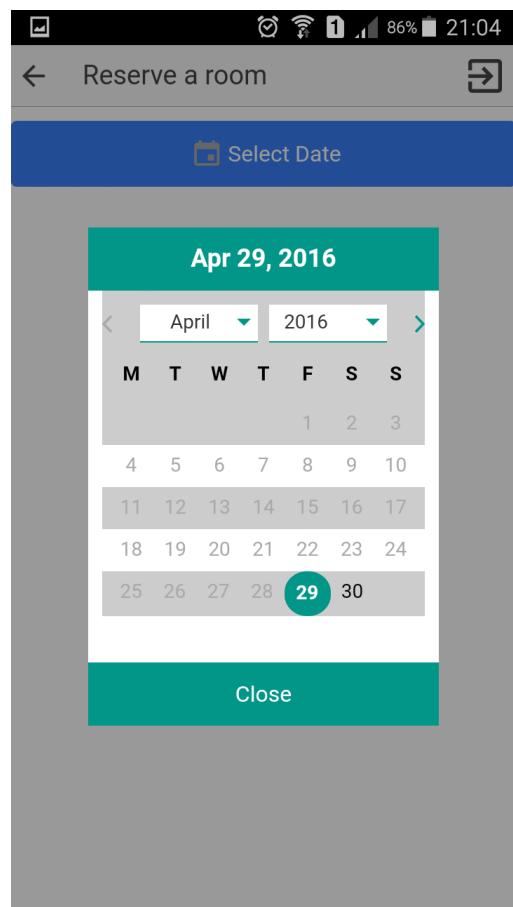


Fig: Select Date

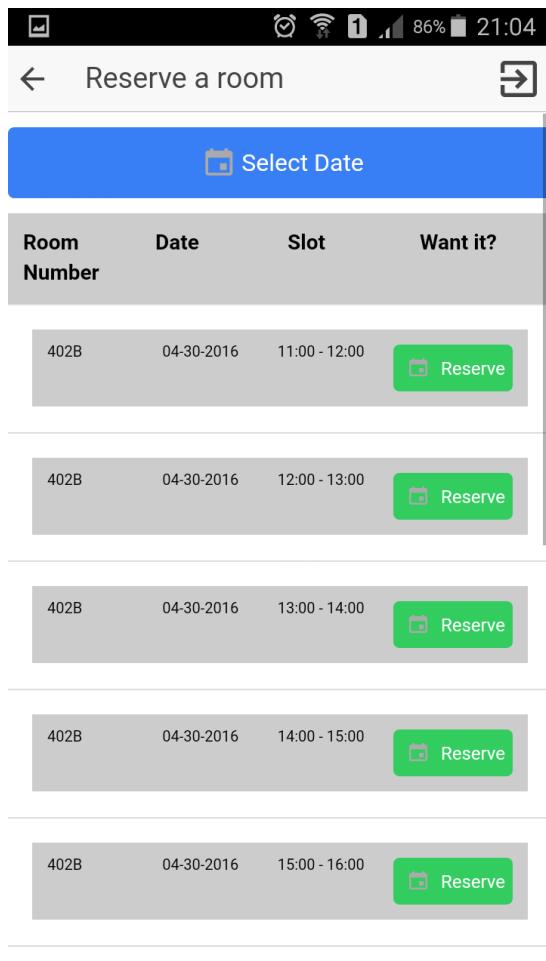


Fig: Select a Reservation Slot

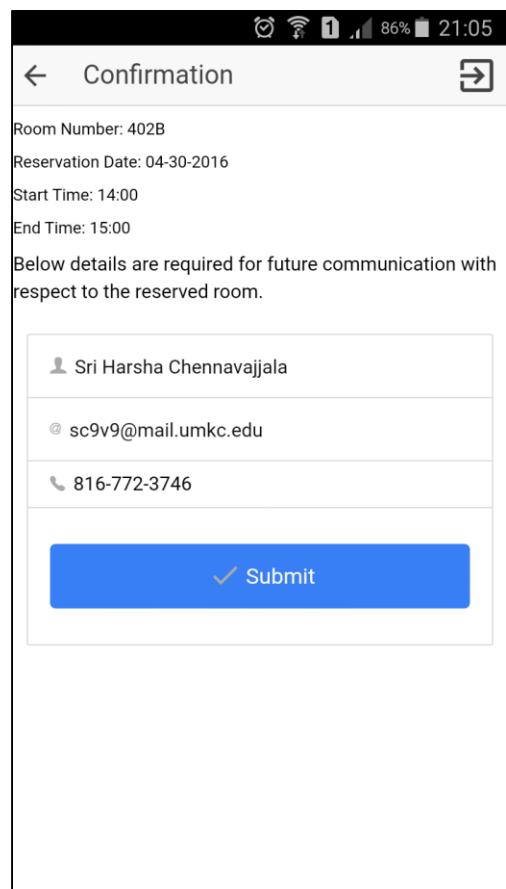


Fig: Room Reserve Confirmation

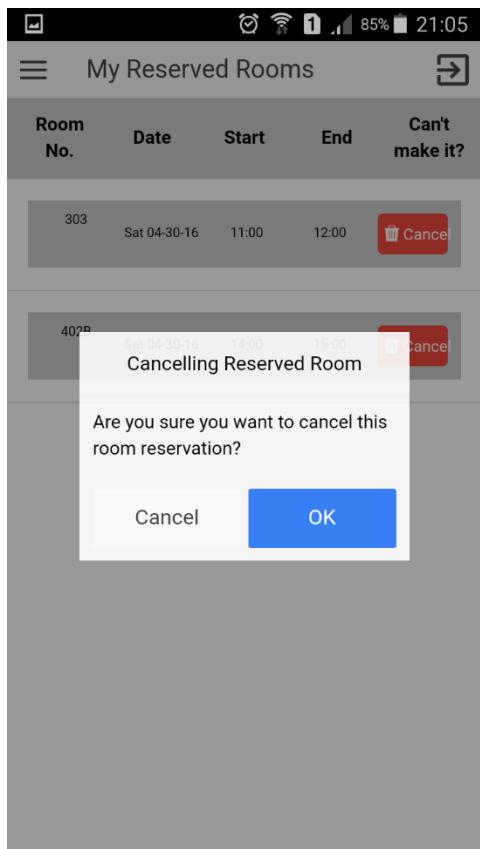


Fig: Room Cancellation

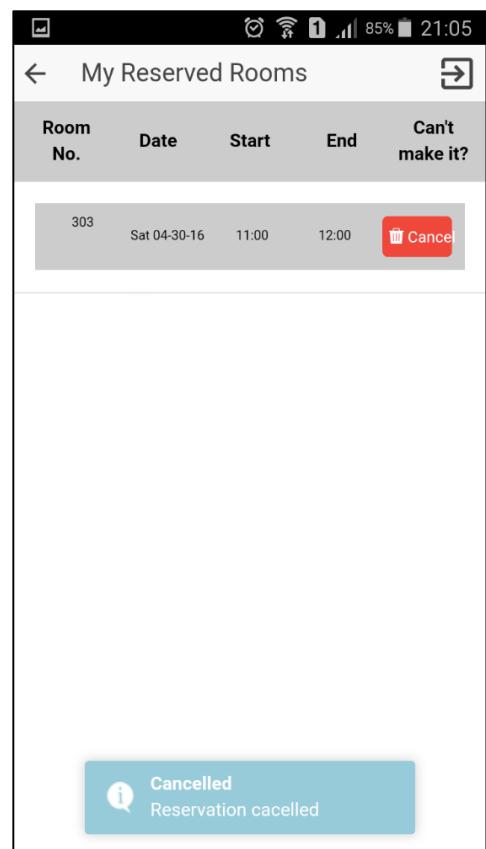


Fig: Room Cancellation

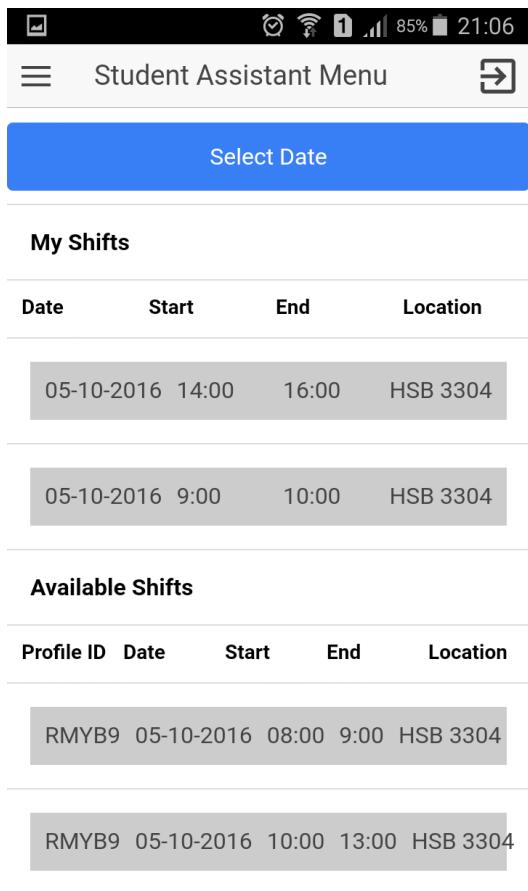


Fig: View Shifts



Fig: Take Shift

The screenshot shows the "Student Assistant Menu" interface. At the top, there is a header bar with icons for battery level (85%), signal strength, and time (21:07). Below the header is a navigation bar with three horizontal lines and the text "Student Assistant Menu". A blue button labeled "Select Date" is prominently displayed. The main content area is divided into two sections: "My Shifts" and "Available Shifts".

My Shifts

Date	Start	End	Location
05-10-2016	14:00	16:00	HSB 3304
05-10-2016	9:00	10:00	HSB 3304
05-10-2016	10:00	11:00	HSB 3304

Available Shifts

Profile ID	Date	Start	End	Location
RMYB9	05-10-2016	08:00	9:00	HSB 3304

Fig: After Take Shift

The screenshot shows the "Contact Us" page. At the top, there is a header bar with icons for battery level (85%), signal strength, and time (21:07). Below the header is a navigation bar with three horizontal lines and the text "Contact Us". The main content area is titled "Call center". It includes a message: "The Call Center can be reached via email at callcenter@umkc.edu, by phone 816.235.2000". Below this message are three boxes listing operating hours:

- Mon-Thur**: 7:00 AM - 7:00 PM
- Fri**: 7:00 AM - 5:00 PM
- Saturday and Sunday**: Closed

Fig: Contact Us

Web Application Views:

A screenshot of a web browser window titled "gardepalli". The address bar shows "localhost:8100/#/login". The page content is a "Login" form. It contains two input fields: "SSO" with a user icon and "Password" with a lock icon. Below the fields is a large blue "Log in" button. At the bottom left of the form area, there is a link "Click here to register".

Fig: Login

A screenshot of a web browser window titled "localhost:8100/#/register". The page content is a "Student Registration" form. It includes fields for Date of Birth (MM-DD-YYYY), Email Id (abcde@mail.umkc.edu), SSO (ABCDE), Password (Enter Password), Mobile No (123-456-7890), Address 1 (Address 1), Address 2 (Address 2), City (City), State (State), and Zip Code (Zip Code). There is also a "Login" link with a circular arrow icon. At the bottom is a green "Register" button.

Fig: Registration

A screenshot of a web browser window showing a 'Student Registration' form. The URL in the address bar is `localhost:8100/#/register`. The form contains the following fields:

Email Id	balak@mail.umkc.edu
SSO	BALAK
Password
Mobile No	816-123-6789
Address 1	5311 Apt#2
Address 2	Rockhill Road
City	Kansas City
State	MO
Zip Code	64131

Below the form is a green 'Register' button.

Fig: Student Registration

A screenshot of a web browser window showing a 'Login' form. The URL in the address bar is `localhost:8100/#/login`. The form contains two fields:

SSO	BALAK
Password

Below the form is a blue 'Log in' button. At the bottom of the page, there is a link: [Click here to register](#).

Fig: Registered User Login

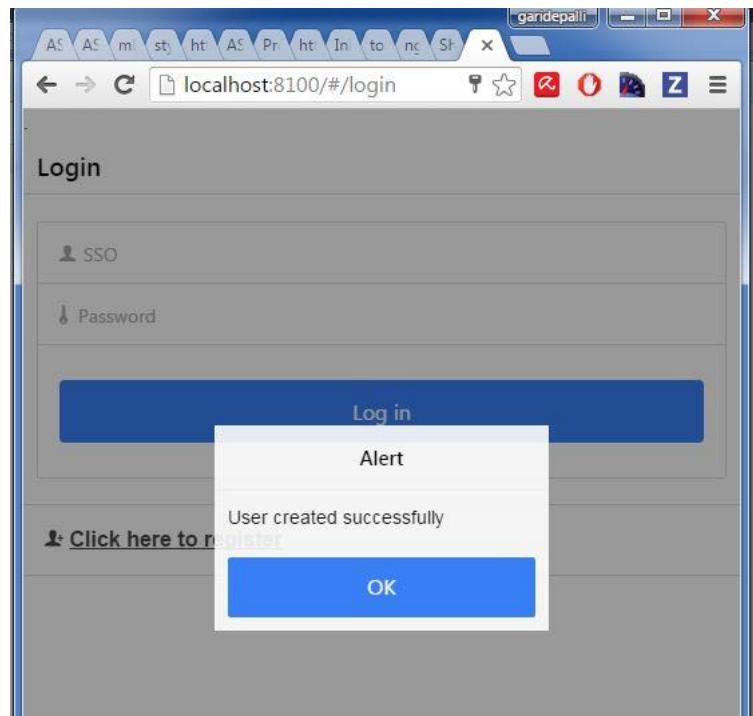


Fig: Login Success

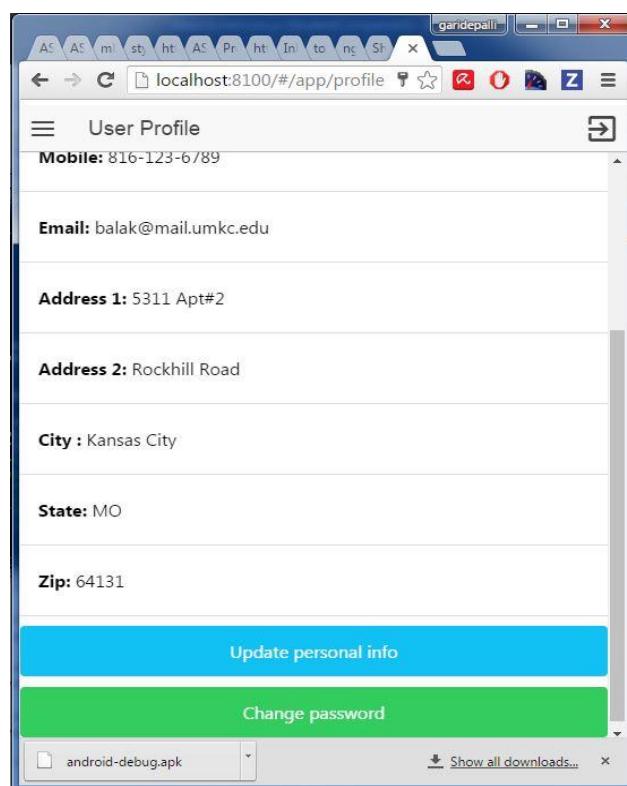


Fig: View Profile

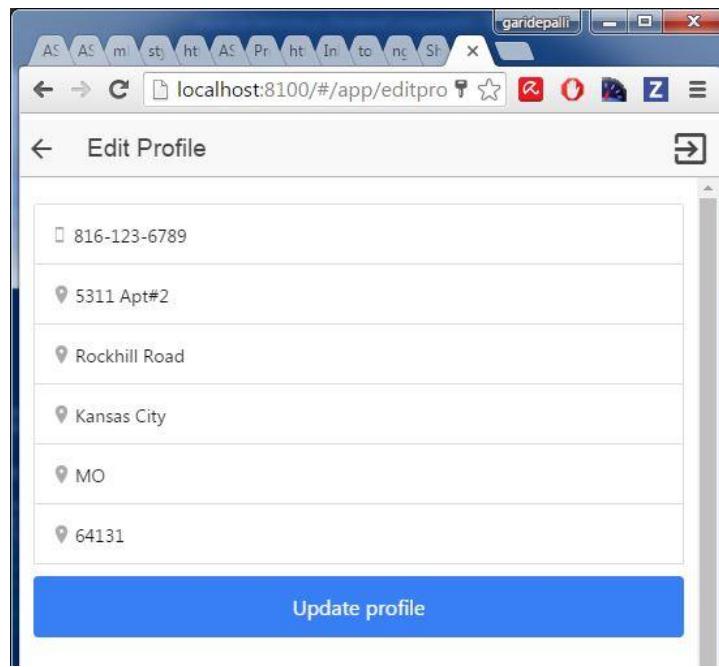


Fig: Edit Profile

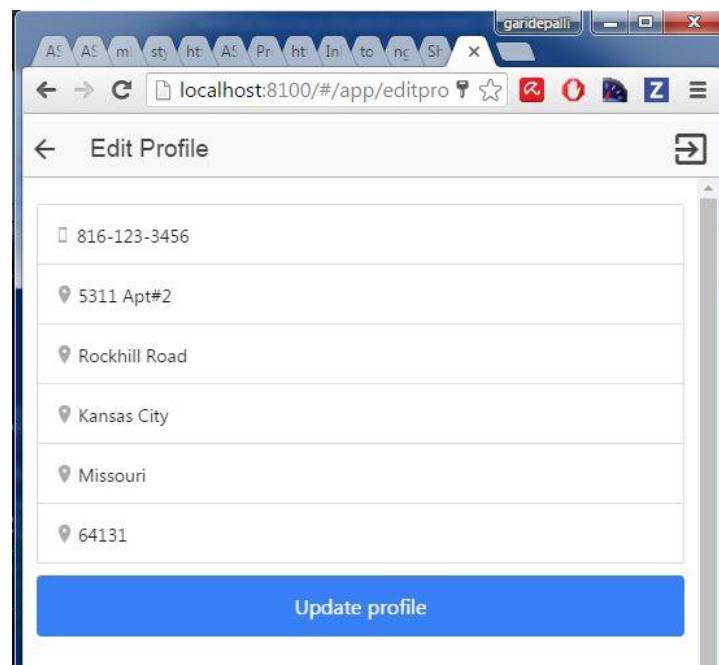


Fig: Profile Updated

A screenshot of a web browser window titled "User Profile". The URL bar shows "localhost:8100/#/app/profile". The page content is a form with the following fields:

- Last Name:** Krishna
- DOB:** 12-03-1993
- Mobile:** 816-123-**3456**
- Email:** balak@mail.umkc.edu
- Address 1:** 5311 Apt#2
- Address 2:** Rockhill Road
- City :** Kansas City
- State:** Missouri

Fig: Updated View

A screenshot of a web browser window titled "Edit Password". The URL bar shows "localhost:8100/#/app/editpassword". The page content is a form with the following fields:

- Old password**
- New password**

A large blue button at the bottom is labeled "Update password".

Fig: Edit Password

User Profile Edit Password

.....

.....

Update password

Fig: Updated Password

CourseID	Task
CS5551	Assignment 11
CS5551	Project Demo

Fig: Side Menu

The screenshot shows the 'Student Companion' application interface. At the top, there are navigation icons for back, forward, refresh, and search, followed by the URL 'localhost:8100/#/app/'. Below the header, the title 'Student Companion' is displayed next to a user icon. The main content area starts with a welcome message 'Welcome Sri Harsha' and a section titled 'Class Schedule (Spring 2016)'. A table lists three classes:

Subject	Details
Advanced Software Engineering CS5551	Tue.Thu 11:30-12:45 Royall Hall - Rm 00104
Formal Software Specification CS55524	Mon.Wed 17:30-18:45 MNLC-Rm 451
Network Architecture I CSEE5110	Tue.Thu 14:30-15:45 MNLC-Rm 452

Below the class schedule, there is a 'Notifications:' section stating 'You do not have any upcoming classes today!!!' and a 'Dues:' section. A table lists two tasks:

CourseID	Task	Due By
CS5551	Assignment 11	05-02-2016 23:59
CS5551	Project Demo	05-03-2016 11:30

Fig: Home Page

The screenshot shows the 'User Profile' page. The title 'User Profile' is at the top. The profile information is listed in sections:

- First name:** Sri Harsha
- Last Name:** Chennavajjala
- DOB:** 1990-01-09
- Mobile:** [816-772-3746](tel:816-772-3746)
- Email:** sc9v9@mail.umkc.edu
- Address 1:** 8618, Chestnut Cir
- Address 2:** Apt 2
- City :** Kansas City
- State:** MO

Fig: Profile

The screenshot shows a mobile application interface with a header bar at the top containing navigation icons and the URL "localhost:8100/#/app/". Below the header is a title "Labs" with a back arrow icon. The main content area is titled "Labs Information". It lists three locations with their current usage status:

- Health Sciences Building**
38/50 In Use
»
- Bloch School**
31/40 In Use
»
- Miller Nichols Library**
15/40 In Use
»

Fig: Lab Information

The screenshot shows a mobile application interface with a header bar at the top containing navigation icons and the URL "localhost:8100/#/app/". Below the header is a title "Lab Details" with a back arrow icon. The main content area is titled "Miller Nichols Library". It displays the following information:

- Capacity :** 15/40
- Room :** 303
- Address :** 800 E 51st St

Below this, there are two sections for "Working Hours" and "Reservations for next week", each with "Day" and "Timings" columns.

Day	Timings
Monday	09:00 AM to 08:00 PM
Tuesday	09:00 AM to 08:00 PM

Day	Timings
Monday (SMT)	04:00 PM to 06:00 PM
Thursday (PBM)	02:00 PM to 04:00 PM

Fig: Lab Details

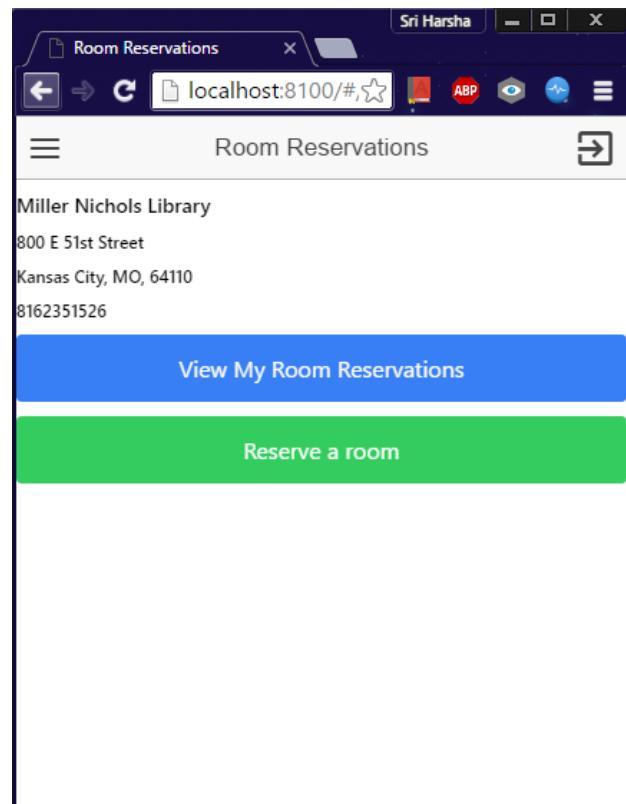


Fig: Room Reservation

Room No.	Date	Start	End	Can't make it?
303	Sat 04-30-16	16:00	17:00	Cancel
402B	Thu 05-05-16	17:00	18:00	Cancel

Fig: View Reserved Rooms

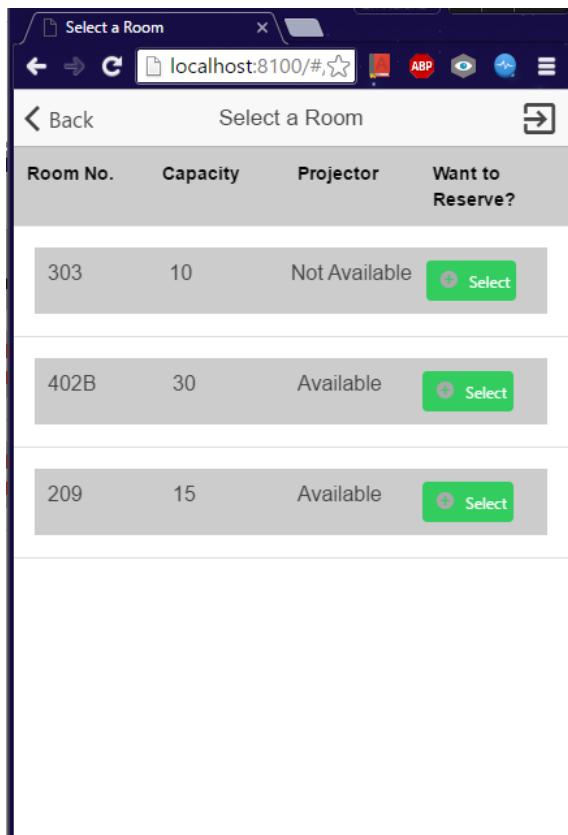


Fig: Available Rooms

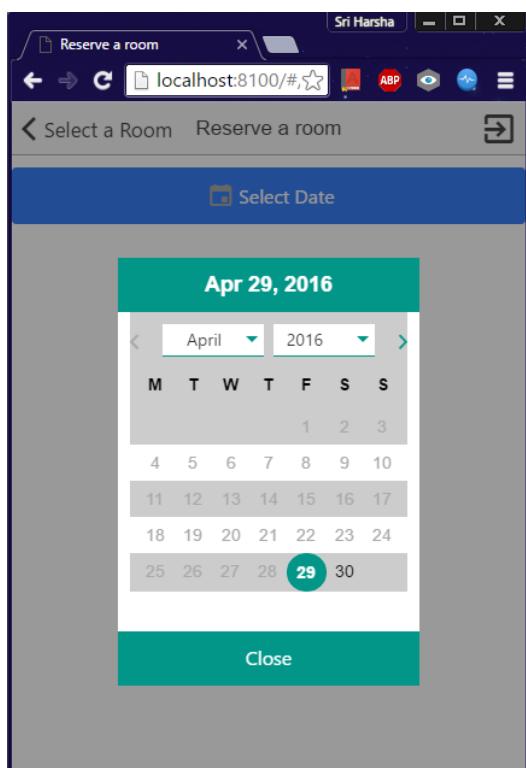


Fig: Select Date

Room No.	Capacity	Projector	Want to Reserve?
303	10	Not Available	<button>Select</button>
402B	30	Available	<button>Select</button>
209	15	Available	<button>Select</button>

Fig: Available Rooms

Select Date			
Room Number	Date	Slot	Want it?
303	04-30-2016	11:00 - 12:00	<button>Reserve</button>
303	04-30-2016	12:00 - 13:00	<button>Reserve</button>
303	04-30-2016	13:00 - 14:00	<button>Reserve</button>
303	04-30-2016	14:00 - 15:00	<button>Reserve</button>
303	04-30-2016	15:00 - 16:00	<button>Reserve</button>

Fig: Available Slots

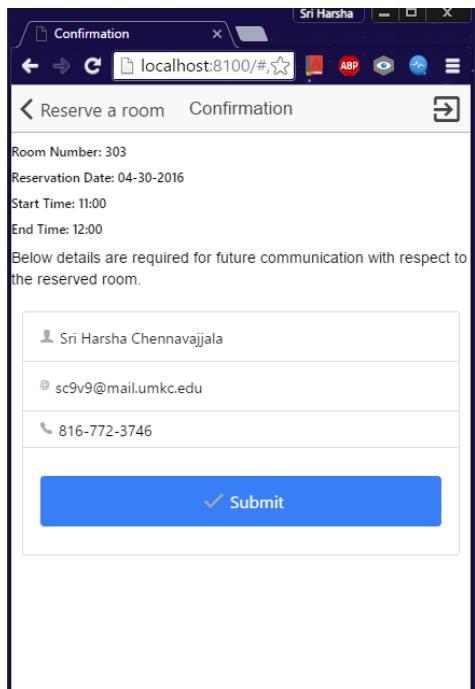


Fig: Confirm Reservation

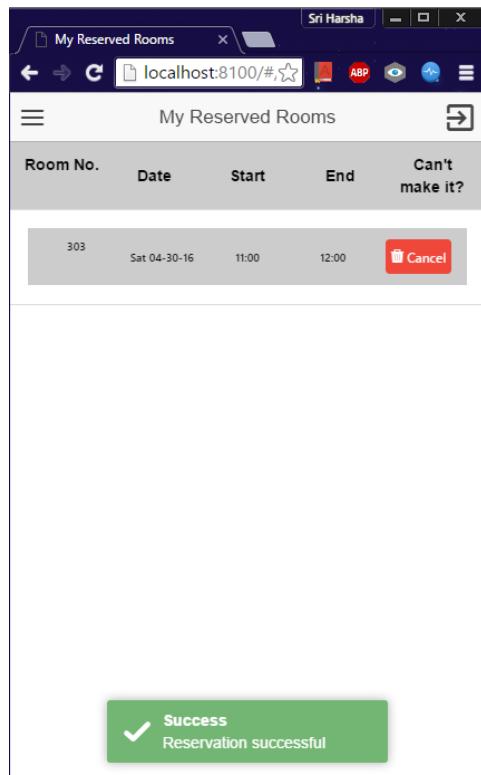


Fig: Room Confirmation Toast

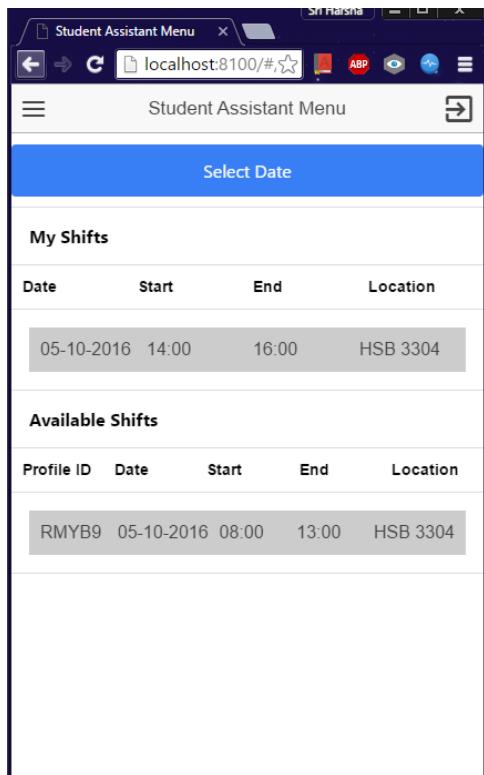


Fig: SA Menu

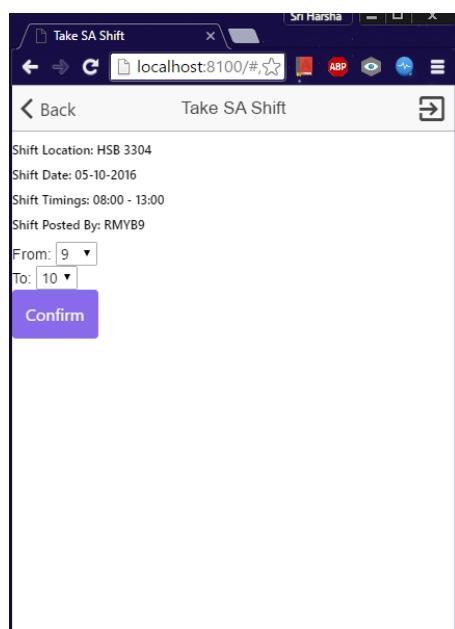


Fig: Take Shift

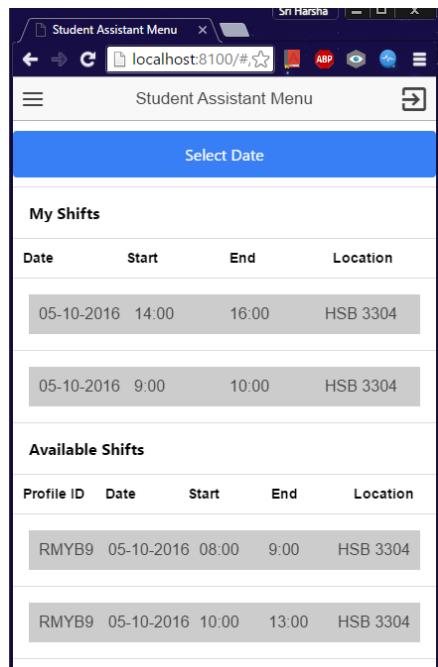


Fig: After Take Shift

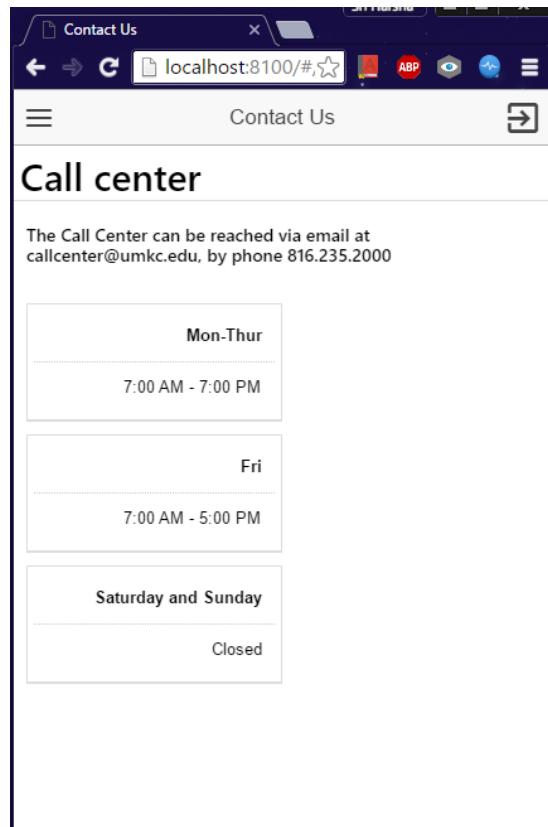


Fig: Contact Us

Project URL:

https://github.com/meetsriharsha/ASE_S16_G7/

Document URL:

https://github.com/meetsriharsha/ASE_S16_G7/Documentation

Project Management

Work Completed

In detailed analysis of the system, environment and technical requirements for the application development. Project proposal documentation, Project tasks created in ZenHub and assigned the tasks to team members. Created the Project increment 4 document. All team members are involved in this task. Total time taken is 30 hours per person.
Contributions: Harsha 30%, Teja 25%, Raj 25%, Suhas 20%.

Limitations:

The data which we worked on is a static database so the test cases that we performed on the application may not be accurate or sufficient. As we used ionic frame work for the development of application we have some limitations on the core functionalities of the mobile phones.

Issues/Concerns:

Sometimes we are getting black background for the login page due to some unknown bug in ionic framework. Sometimes we are getting asynchronous results from API in Home page.

Burndown Chart for Increment 4:

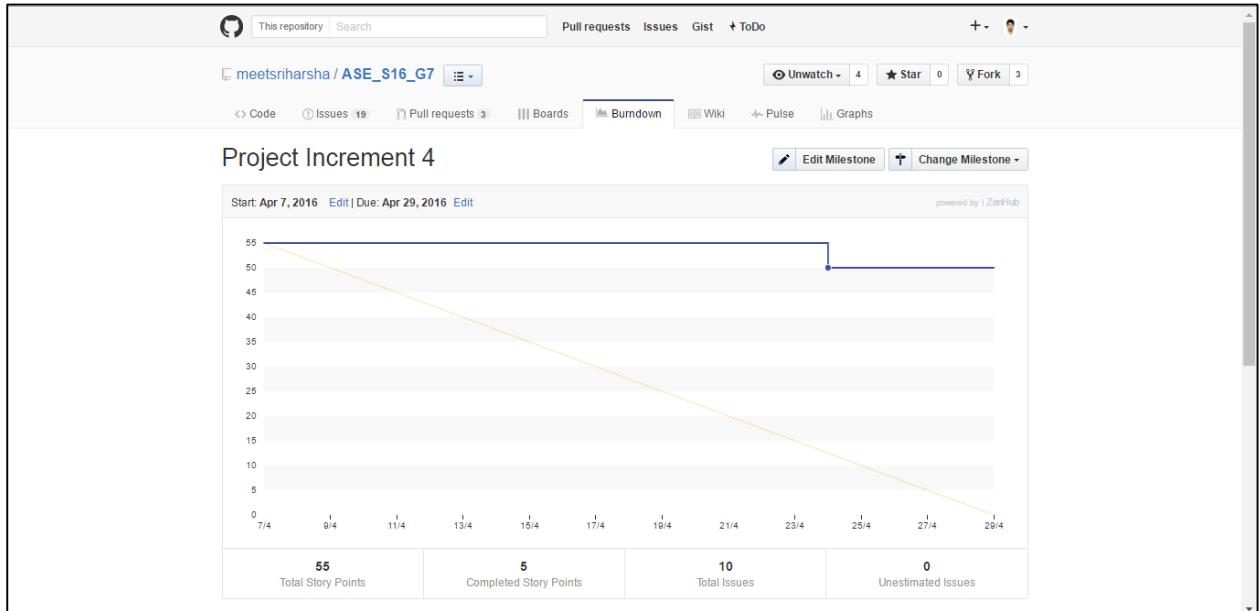


Fig: Burndown Chart

Student Companion

Presentation Slides

COMP-SCI 5551 Advanced Software Engineering



Student Companion

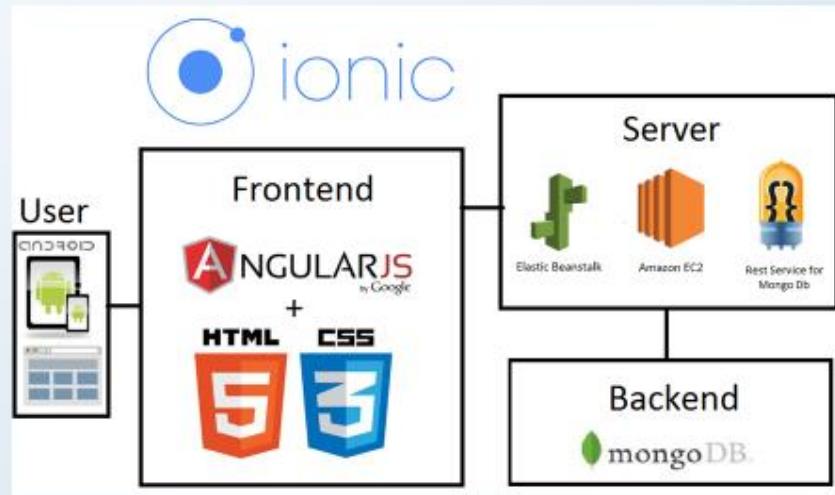
Team 7

Sri Harsha Chennavajjala (7)
Teja Garidepally (12)
Raj Kiran Reddy Munnangi (32)
Suhas Sai Raparthi (51)

Features

- Allows the students to login and view their profile details and can update the password/personal information.
- Students can view their class schedule and be informed about the tasks associated with their courses.
- Application allows the users to view lab information with the details regarding the availability of the systems.
- Students can also reserve a study room for a time slot using calendar view. The reservations can also be cancelled.
- Student Assistants can view their shift schedule and also can take any available shifts.

Application Building Blocks



Future Work

- Dynamic integration of the application with the University's Student Database.
- Adding wait list feature for the already reserved/collided time-slots.

Git Hub URL: https://github.com/SCE-UMKC/ASESP16_StudentCompanion_Team7

YouTube Video URL: <https://www.youtube.com/watch?v=v6NcbSS8hcQ>