

A project report submitted in partial fulfillment of the requirements for the award
of degree of

Master of Sciences

For

Advanced Software Engineering (CS 5551 – FALL 2K17)

Majoring in

Data Sciences, COMPUTER SCIENCE

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Chamala, Lakshmi Mrudula – 9

Tirumandyam, Dinesh– 39

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Professor

CS Department



ACKNOWLEDGEMENT

We express my sincere gratitude to **Dr. Yugyung Lee** for her excellent supervision and guidance throughout the semester and making us learn and work on all the modern technologies which are mandatory in the future for a good placement in the top MNC's.

We also thank our Teaching Assistants **Rohith Kumar Nagulapati, Megha Nagabhushan** and **Sidrah Junaid** for their continuous support, encouragement and timely suggestions for the project.

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I. Project Proposal:

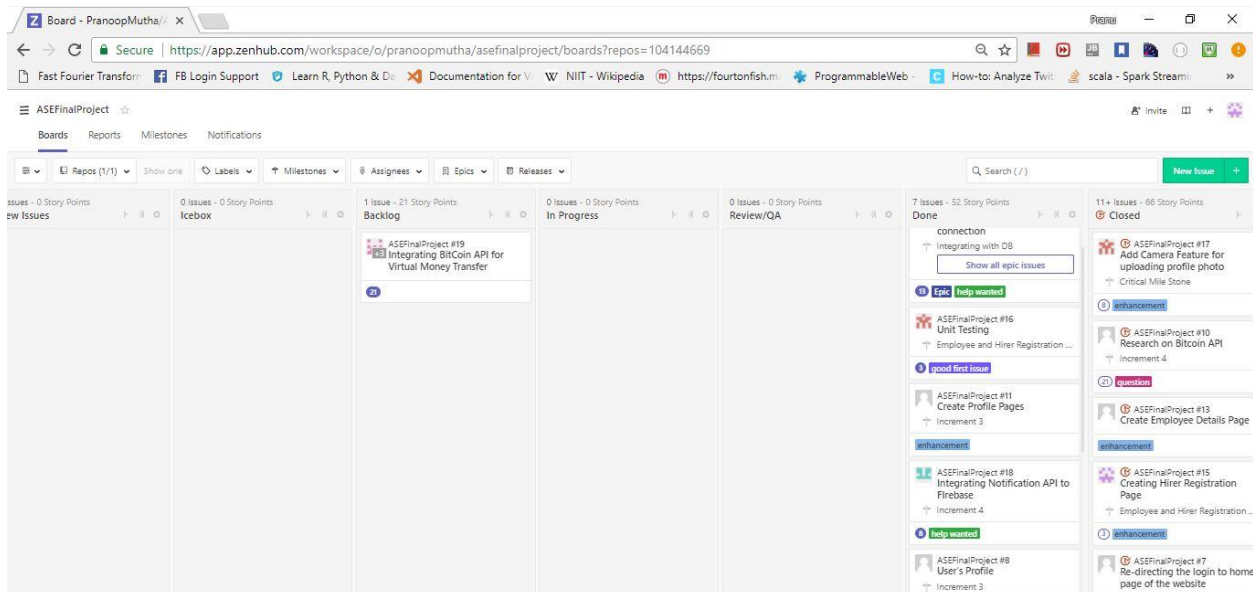
Many people with valuable experience and multiple talents are either not working, or doing something that is not related to their knowledge and talent; so, it is necessary to have a system that utilizes every talent and/or knowledge that a person might have. Mainly, it is a system for knowledge and expertise exchange between people. No money is involved, one person provides a service to another person to get some points in the app, and those points can only be used to get services from other people. The system will have its own algorithm to calculate the points' rate, by taking many factors into consideration, to reduce negotiations. As an example, Uber charge is neither determined by the driver nor by the passenger.

Points can be earned in two ways, by working for others, or watching some in-app commercials. The points earned through work are not limited, but the ones earned through watching commercials are limited per day, to encourage work. After each service, a rating is available to measure the performance and attitude of the service provider, which is one of the factors used in calculating points' rate. Better ratings mean more points.

II. Project Plan (using Zen Hub Tool)

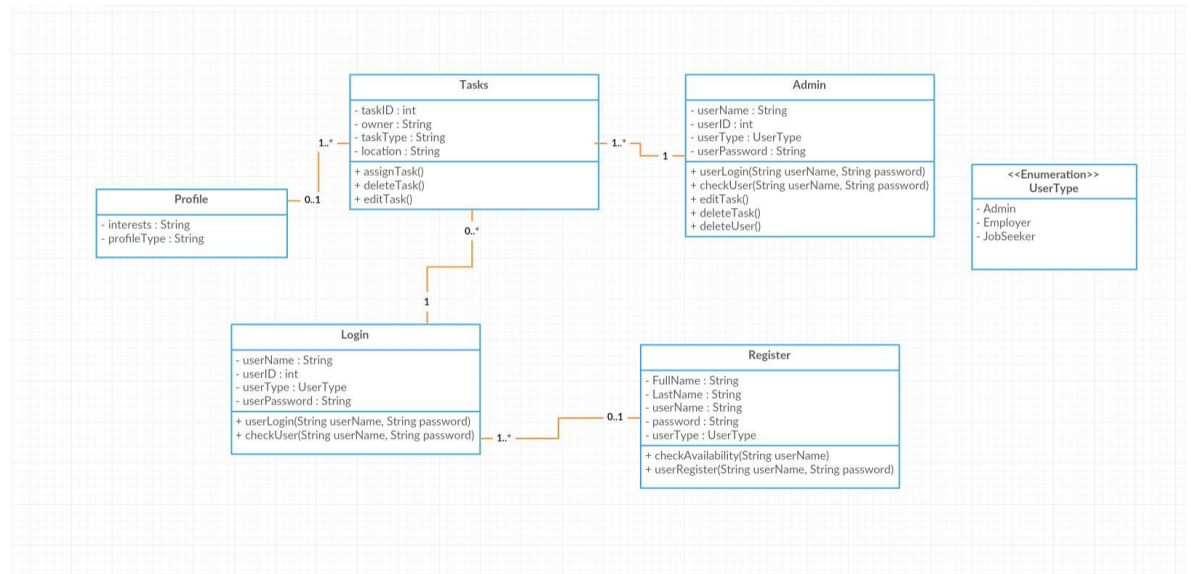
1) Schedule for four different increments

- **Stories (Issues): Scenario and Use case specification**



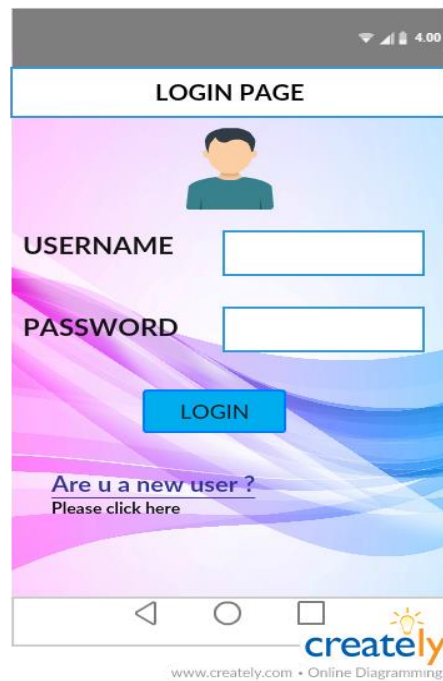
- **Service Design (detailed service design, unit test design)**

Below attached is the class diagram

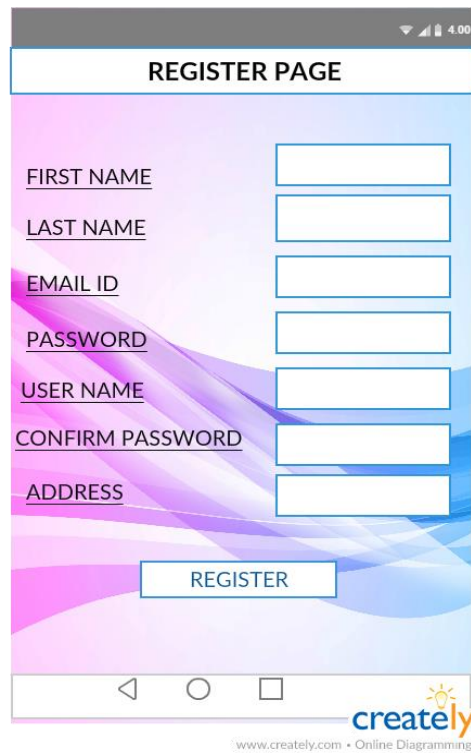


Wire Frames:

Login Page:



Hirer Registration Page:



A mobile app UI mockup for a 'REGISTER PAGE'. The page has a purple and blue wavy background. At the top, a white header bar contains the text 'REGISTER PAGE'. Below the header, there are seven input fields stacked vertically, each with a label to its left: 'FIRST NAME', 'LAST NAME', 'EMAIL ID', 'PASSWORD', 'USER NAME', 'CONFIRM PASSWORD', and 'ADDRESS'. At the bottom of the form area is a white button with the text 'REGISTER'. The bottom of the screen shows a standard Android navigation bar with back, home, and recent apps icons. In the bottom right corner, there is a 'creately' logo and the text 'www.creately.com • Online Diagramming'.

REGISTER PAGE

FIRST NAME

LAST NAME

EMAIL ID

PASSWORD

USER NAME

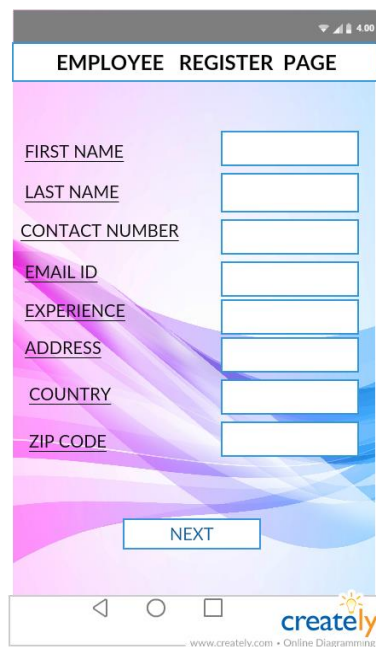
CONFIRM PASSWORD

ADDRESS

REGISTER

creately
www.creately.com • Online Diagramming

3. Employee Registration Page:



A mobile app UI mockup for an 'EMPLOYEE REGISTER PAGE'. The page has a purple and blue wavy background. At the top, a white header bar contains the text 'EMPLOYEE REGISTER PAGE'. Below the header, there are eight input fields stacked vertically, each with a label to its left: 'FIRST NAME', 'LAST NAME', 'CONTACT NUMBER', 'EMAIL ID', 'EXPERIENCE', 'ADDRESS', 'COUNTRY', and 'ZIP CODE'. At the bottom of the form area is a white button with the text 'NEXT'. The bottom of the screen shows a standard Android navigation bar with back, home, and recent apps icons. In the bottom right corner, there is a 'creately' logo and the text 'www.creately.com • Online Diagramming'.

EMPLOYEE REGISTER PAGE

FIRST NAME

LAST NAME

CONTACT NUMBER

EMAIL ID

EXPERIENCE

ADDRESS

COUNTRY

ZIP CODE

NEXT

creately
www.creately.com • Online Diagramming

4. Employee Registration (Experience):



A screenshot of a mobile application interface for employee registration. The title bar at the top reads "REGISTRATION PAGE - EXPERIENCE". Below the title bar, there are three input fields with labels "EXPERIENCE", "EXPERTISE", and "MINIMUM CHARGES" to their left. At the bottom of the form area, there are two buttons: "BACK" and "SUBMIT". The background features a purple and blue wavy pattern. At the very bottom, there is a "creately" logo and the text "www.creately.com • Online Diagramming".

5. Main Page:

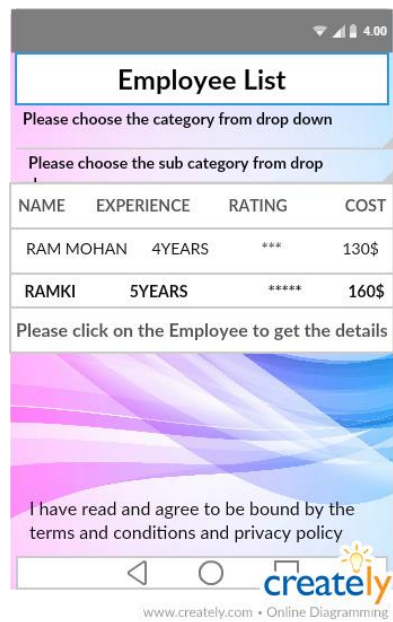


A screenshot of a mobile application interface for the main page. At the top, there is a search bar with a back arrow, the text "Find your Employee", and a search icon. Below the search bar, there is a text input field labeled "Enter search Location". In the center, there are five buttons stacked vertically: "DEVELOPER", "MANUAL TESTER", "AUTOMATION MASTER", "TEAM LEAD", and "SUPPORT PERSON". At the bottom, there is a blue button labeled "LOGIN". The background features a purple and blue wavy pattern. At the very bottom, there is a "creately" logo and the text "www.creately.com • Online Diagramming".

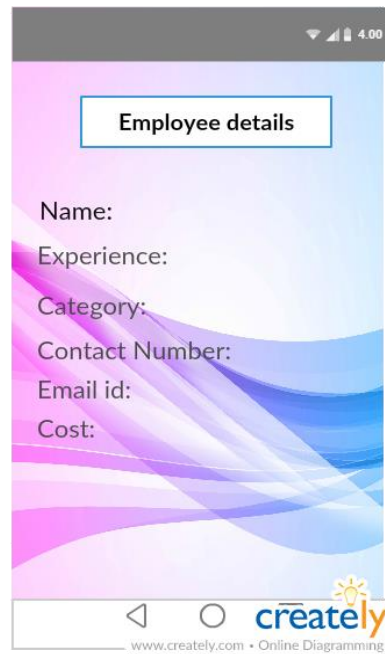
6. Sub Category Page:



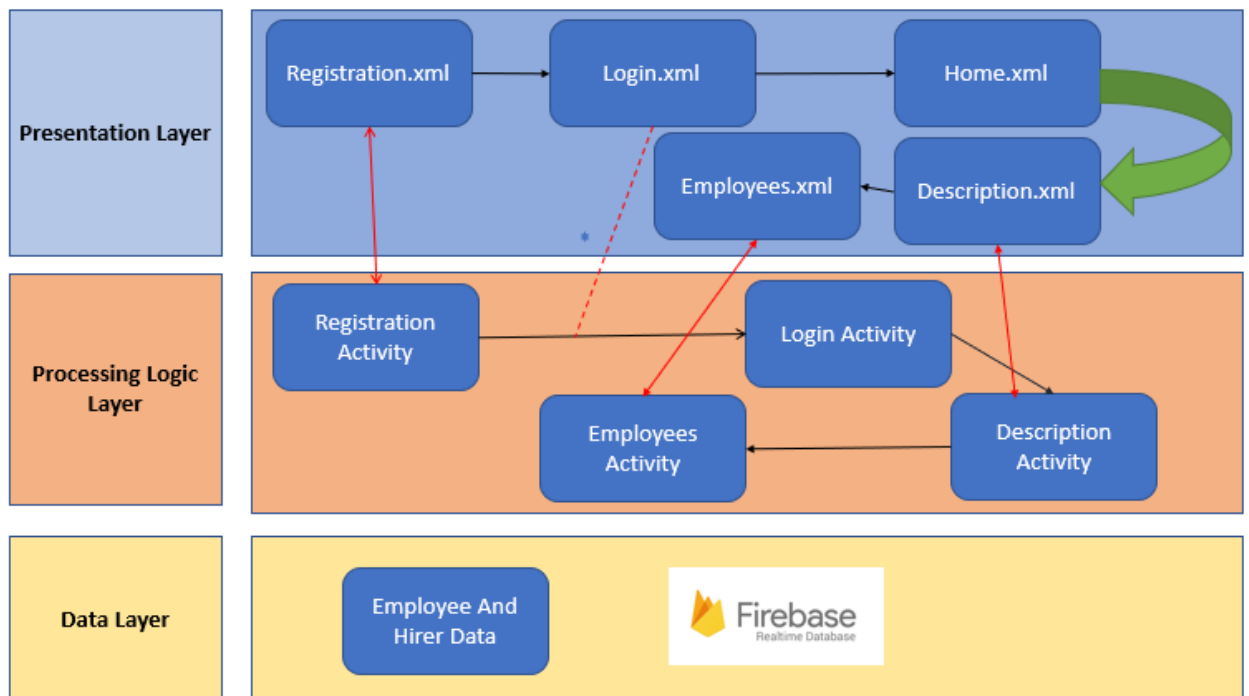
7. Employee Results List Page:



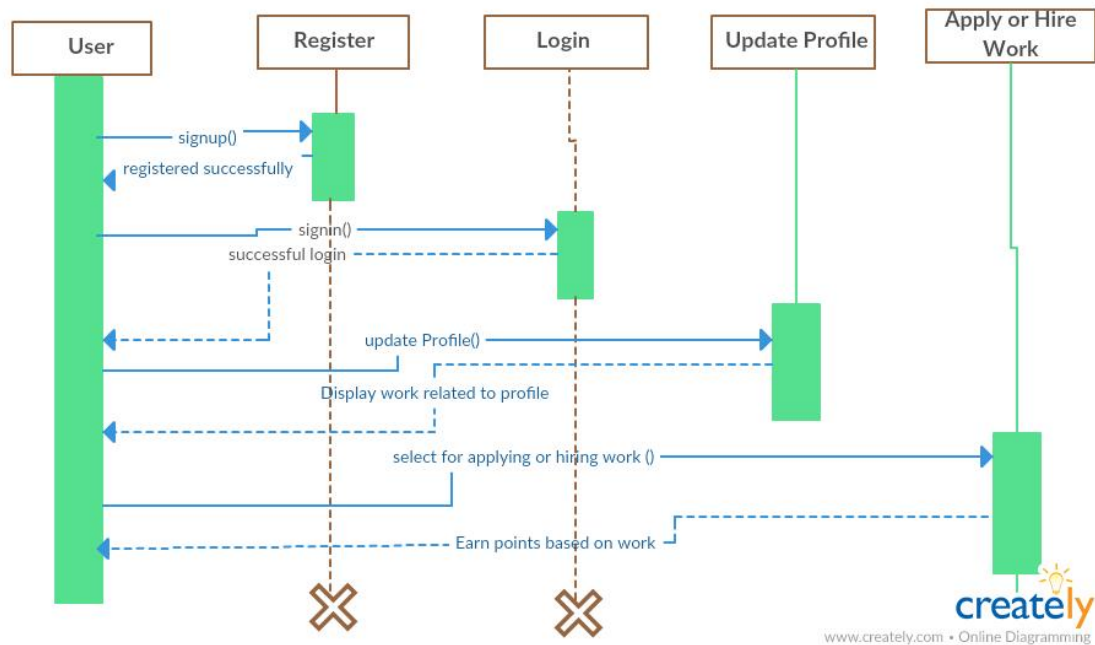
8. Employee Details Page:



- **Architecture Diagram**



- **Sequence Diagram**



This application delivers knowledge and expertise exchange between people where no real currency is involved, every member can provide service to other member to gain points in the app, and those points in turn can be used to get services from other members. Once the service is rendered, the hirer has the option of rating the employee depending upon the performance of the employee, which is one of the factors used in calculating points rate. As future developers, we wanted to develop this application which will be useful to many of the developers like us, who wanted to showcase their skills to promote themselves and be successful in their future endeavors. So, we are restricting the field of work to IT Industry.

III. First Increment:

Task1: Design of Engineer Registration Pages - **Lakshmi**

Task2: Design of Engineer login page with OAuth Login – **Pranoop**

Task3: Design of User Login page with OAuth Login – **Vinay Jaibheem**

Task 4: Design of User Registration Page – **Dinesh Tirumandiyam**

Task4 (Common Task): Research on Push Notification and setting up the environment for the application, Background for the application, Images for beautifying the designed pages

IV. Second Increment

Task1: Create Engineer Home Page - **Lakshmi**

Task2: Create User home page (Main Page) of the application - **Pranoop**

Task3: Create Edit Profile Page - **Lakshmi**

Task4: Create Change Password Page – **Dinesh Tirumandyam**

Task5 (Common Task): Research on integrating Firebase with Android Studio to retrieve and save the employee and hirer records and BITCOIN API.

V. Third Increment:

Task1: Creating Sub Technology Page - **Lakshmi**

Task2: Creating list of Engineers Page from FireBase - **Pranoop**

Task3: Creating list of Engineers Page from FireBase - **Vinay Jaibheem**

Task4: Design of the Engineer Detail Page – **Dinesh Tirumandyam**

Task5 (Common Task): Research on Notification with Firebase and Bitcoin API, Beautification of

VI. Fourth Increment:

Task1: Selecting and Updating Profile Pic - **Lakshmi**

Task2: Design of Feedback Page and giving rating in stars – **Vinay Jaibheem**

Task3: Design of Hiring Confirmation Logic through SMS – **Dinesh Tirumandyam**

Task4: Design of Forgot Password Logic through SMS – **Pranoop**

VII. Project Deployment

- **Overall Goal:** To create a global crowd sourcing marketplace website which allows the potential employers to post jobs that someone can

bid to compete for it and complete it more effectively and economically.

- **Specific Objectives:** Many people with valuable experience and multiple talents are either not working, or doing something that is not related to their knowledge and talent; so, it is necessary to have a system that utilizes every talent and/or knowledge that a person might have.
- **Specific Features:**
 1. User (Hirer) Registration
 2. User (Hirer) Login
 3. Engineer Registration
 4. Engineer Login
 5. Home Page (Launches after User Login)
 6. Filter Engineers based on Zip Code
 7. **Engineer Category**
 - Front End Developer
 - Back End Developer
 - Full Stack Developer
 - Test Engineer
 - System Engineer
 8. Cost Estimation – Engineer provides the cost estimate for each of the task he/she do, and the user can see the cost estimate when selected the category and subcategory.
 9. Provide Feedback in Rating and Comments
 10. Updating Profile
 - a. Change Password
 - b. Update Profile Pic
 - c. Update Profile Details
 11. Hiring Confirmation
 12. Forgot Password
 13. User Logout
 14. **Bitcoin Developer API:** This API uses the block chain wallet method which is an easy method for websites to receive the bitcoin payments.

- **Significance:**

- Helps to develop individual profiles as they complete more work.
- Get to know more people working in different areas of interest.
- The employers and employees can find each other.
- Post work for site members bidding on in a competitive tender process.
- Awarding points for the work done and in turn the points can be encashed.
- We can also receive reviews and suggestions from the other peers and vice-versa.
- Initial registration fee and some free points awarded as a joining bonus.
-

- **User Manual:**

Working:

Our application has 2 types of users.

1. Hirer or User – who hires the engineers for work
2. Engineer – who does the work

Each of them have their login pages and register pages. The added advantage is a user can register either as a hirer or engineer or both. This functionality is added in such a way that, once the engineer does the work, he gets some money (virtual, say points). He can use the same money for doing some other work of his own with some Engineer.

Coming to the registration page of the Engineer, the Engineer gives his previous project experience, the estimated cost for each of the task he does, work experience information, contact information etc. so that the hirer can see the engineer details before hiring him.

Coming to the main functionality, once the user logs in successfully, we can find the main page. It contains a field for

entering the zip code and selecting the type of engineer they want. In our case we are going with five types of users (Front End, Back End, Full Stack Developer, Test Engineer and System Engineer). Once the hirer selects the type of user and the zip code, he is navigated to the sub technology page, where he has a drop down to select the sub technology (i.e. programming language, if it's the front-end, technology or type of data base, if it's the back end, type of testing, if test engineer etc.) Once the user selects the sub technology, he gives a description for the work he is hiring the engineer. Then on clicking the Search Engineer Details button, it shows up all the Engineers who are registered with that zip code, technology and sub technology. It also shows some basic info (experience, rating and basic fare estimate to do work). User can select any of the user based on his requirements. Once the user selects the engineer, a more detailed information of the engineer is displayed. If the user is satisfied with the engineer, he has a hire button at the bottom right corner. Once he clicks that button, an automated SMS is being sent to the engineer saying user is interested in you. For more details, contact the user. Once the work is done, the user can log back and give a feedback to the engineer and mention some comments too. The rating helps the engineer to be recruited by other hirers also.

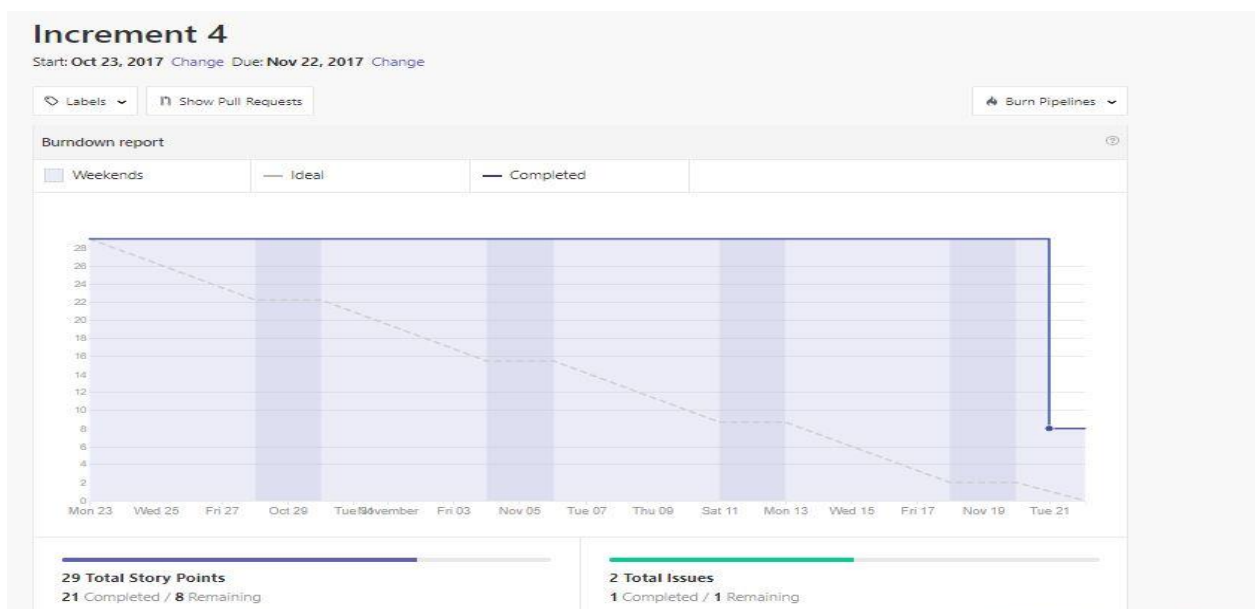
We also have the Edit Profile feature, where the user or engineer can update profile pic, update their profile details or change password. Finally, we also have the Forgot Password Feature, where the user or engineer gets an automated SMS to their registered mobile number with the password.

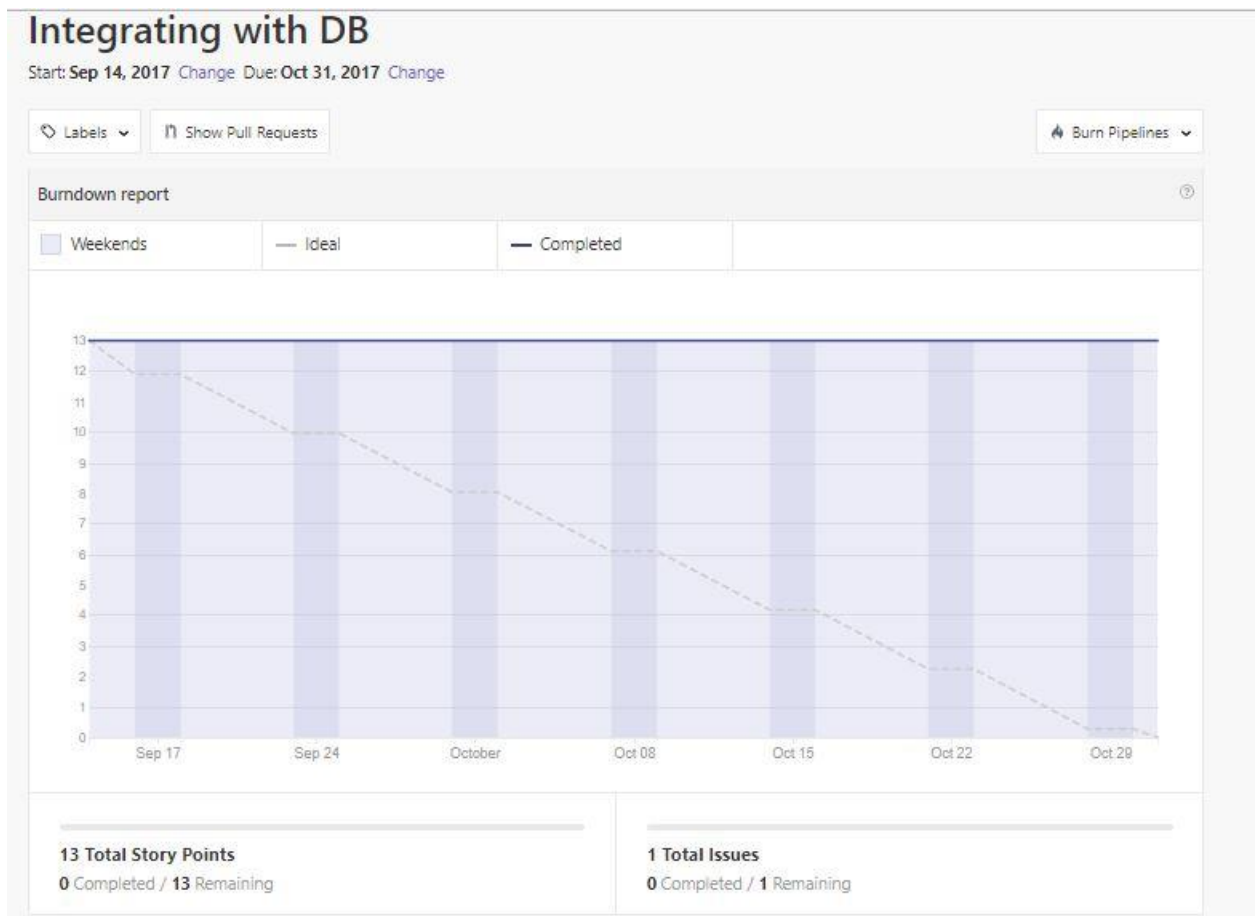
- **Service Implementation (Implementation and Testing)**

Test Case Name	Test Case Description (After FireBase Integration)	Expected	Pass/Fail	Pass/Fail
Login	Enter both Invalid User ID and Password	Invalid Login Error message should be dispalyed	Pass	Pass
	Enter Valid UserID and Invalid Password	Invalid Login Error message should be dispalyed	Pass	Pass
	Enter Invalid User ID and Password	Invalid Login Error message should be dispalyed	Pass	Pass
	Enter both userID and password valid	Redirect to Home Page	Fail	Pass
Register	Give all the details blank	Error appears	Pass	Pass
	Enter Email ID without @	Invalid Email Id error should be displayed	Pass	Pass
	Enter different characters for password and confirm password	Error message prompting both to be same	Pass	Pass

Test Case Name	Test Case Description	Expected	Pass/Fail	Pass/Fail
Camera Feature	Ask to select image from phone when clicked on Change Profile Picture	Ask for options like Gallery, File Manager etc	Fail	Pass
	Select Image	Image Selected	Pass	Pass
	Display selected image after selecting image	Displaying selected image on update profile page	Pass	Pass
Update Profile	Click on Edit Profile	Direct to Edit Profile Page	Pass	Pass
	Click on Change Password	Direct to Change Password Page	Fail	Fail
	Ckick on Update Profile Button	Profile Updated	Pass	Pass
	Try Login with new Password	Logged In	Pass	Pass
Notification for Mail	When click on Forgot Password, user gets a notification to email	Receives Notification to registered mail id		
	When try to message or contact the employee, the employee gets a notification			

2) Burndown Charts





Project Management:

Starting with the **first couple of increments**, we will be working on Login, Register and User Profile Pages and redirecting the login page to the home page using login. The User profile pages will be including all the background information of the user such as the educational background, personal details, work experience etc. In the above tasks, the login page was taken care by Vinay Jaibheem, the login with Facebook will be taken care of Lakshmi, Registration Page will be taken care of Dinesh and the profile pages will be taken care of Pranoop. The profile page also includes the integration of DB with it. In addition, the whole team will be researching on both how to integrate with DB and on the PUSH Notification and setting up the environment for application.

Moving to the **third increment**, retrieving jobs related to the user profile will be done by Pranoop. Once the user updates his skills in the profile, the jobs matching to it will be displayed. In detail, the skills will be taken as a filter for retrieving jobs that are best suited for the user. Next, Integrating Google Maps API will be taken care of Vinay Jaibheem, which helps the employer to meet the employee sometimes if in case there is a need to meet in person or he wants someone to work within their office premises. Developing users profile will be taken care of Lakshmi, which will be including features like notifications or projects list done by the user etc. and finally, connecting with external DB will be taken care of Dinesh. The whole team will be working on the research of the Bitcoin API. This is the API which is used for payment transfer in our application, which is a type of crypto currency.

Finally moving to the **fourth increment**, Pranoop and Vinay will be working on the Bitcoin API for payments mainly and the whole team will be working on the integrating and documentation, and the presentation part of the application.

- **Testing**

At each phase of the application, the testing goes on and the whole team will be part of this throughout the process of the application.

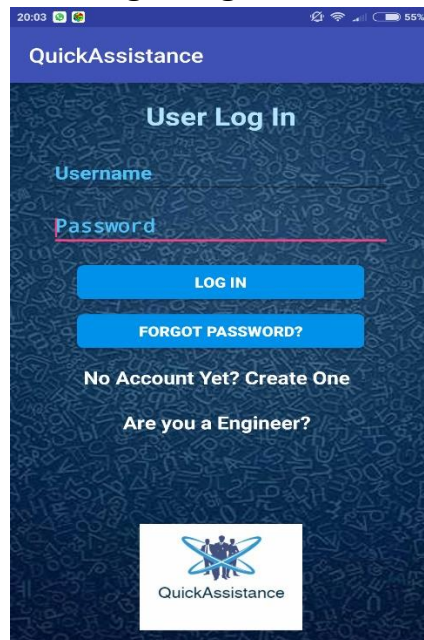
- **Implementation**

As of now, we are trying to implement the project in both web as well as mobile app, but according to the time and constraints of the team members, we may limit to web application only. We will be using HTML5, CSS3, Angular JS, JSON, SQL DB as the primary technologies and other couple of technologies or tools, if needed.

- **Deployment**

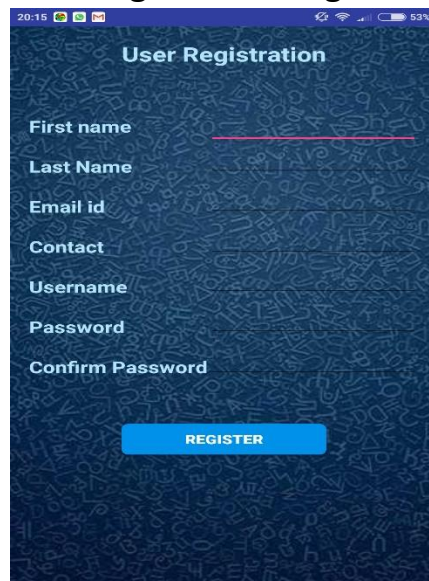
The whole project will be deployed to the GitHub for each increment for sure and whenever we are completed with the tasks within the increment. PFB the screen shots

1. User Login Page:



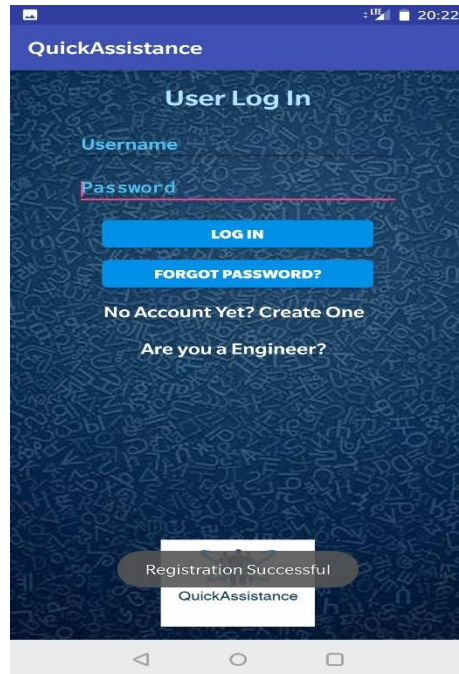
A screenshot of the 'QuickAssistance' User Login page. The page has a dark blue background with a pattern of white letters and numbers. At the top, there's a purple header with the text 'QuickAssistance'. Below the header, the title 'User Log In' is centered. There are two input fields: 'Username' and 'Password'. The 'Password' field has a red underline. Below the input fields are two blue buttons: 'LOG IN' and 'FORGOT PASSWORD?'. Underneath these buttons, the text 'No Account Yet? Create One' is displayed. Below that, the text 'Are you a Engineer?' is shown. At the bottom, there is a white box containing a logo of three stylized figures and the text 'QuickAssistance'.

2. User Registration Page:

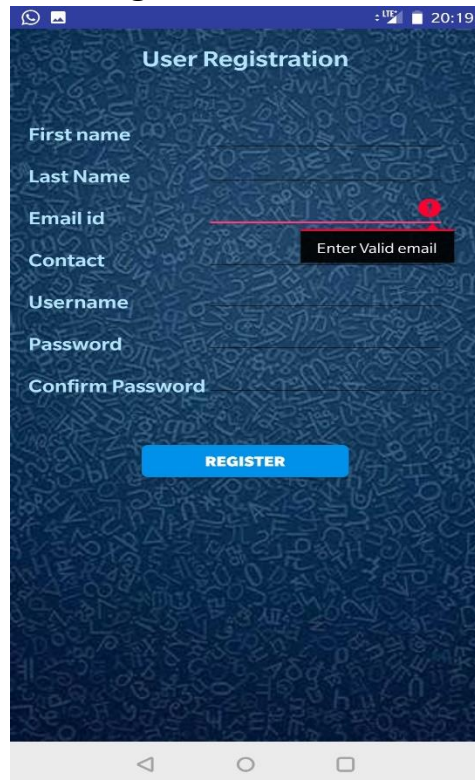


A screenshot of the 'QuickAssistance' User Registration page. The page has a dark blue background with a pattern of white letters and numbers. At the top, there's a purple header with the text 'QuickAssistance'. Below the header, the title 'User Registration' is centered. There are seven input fields: 'First name', 'Last Name', 'Email id', 'Contact', 'Username', 'Password', and 'Confirm Password'. Below the input fields is a blue button labeled 'REGISTER'.

3. User Registration Success:



4. User Registration Validations:



20:20

User Registration

First name Sumith

Last Name Kumar

Email id smkumar@gmail.com

Contact 7418529630

Username sunny16 3

Password User name is already in use

Confirm Password

REGISTER

5. Engineer Login Page:

20:08 54%

QuickAssistance

Engineer Log In


Username

Password

LOG IN

CREATE ACCOUNT

Forgot Password?



QuickAssistance

6. Engineer Registration Page 1:



A screenshot of a mobile application interface for "QuickAssistance". The page is titled "Engineer Registration" and features a dark blue background with a pattern of white mathematical symbols. The form includes input fields for "First name", "Last Name", "Email id", "Contact", "Address", "City", "State", and "Zipcode". A blue "COMPLETE" button is at the bottom.

QuickAssistance

 **Engineer Registration**

First name

Last Name

Email id

Contact

Address

City

State

Zipcode

COMPLETE

7. Engineer Registration Page 2:



A screenshot of the second page of the "Engineer Registration" form. It shows the "Address", "City", "State", "Zipcode", "Experience", "Expertise", "Country", and "Username" fields. The "Experience" field is filled with "5". The "Expertise" field has a dropdown menu open, showing options: "Front End Developer", "Back End Developer", "Full Stack Developer", "Test Engineer", and "System Engineer". A blue "COMPLETE" button is at the bottom.

QuickAssistance

 **Engineer Registration**

Address

City

State

Zipcode

Experience

Expertise

Country

Username

COMPLETE

- Front End Developer
- Back End Developer
- Full Stack Developer
- Test Engineer
- System Engineer

20:15 54%

QuickAssistance

Enter Expected Salary for the below Technologies

SQL DB	\$ 2500
Mongo DB	\$ 3500
Python Django	\$ 4000
FireBase DB	\$ 5000

Minimum Expected Salary
Enter Your previous Project Description

pythoon db in Umke

REGISTER

8. Engineer Registration Success:

20:15 54%

QuickAssistance

Congratulations!!!


You have been
successfully registered
as ENGINEER

CLICK TO LOGIN
Registered Successfully

9. Engineer Registration Validations:

20:09 54%

QuickAssistance

 **Engineer Registration**

First name

Last Name

Email id

Contact

Address

City

State

Zipcode

COMPLETE

Enter Valid email

20:10 54%

QuickAssistance

 **Engineer Registration**

Contact

Address

City

State

Zipcode

Experience

Expertise


Country

COMPLETE

Pincode cannot be empty

20:11 54%

QuickAssistance

 **Engineer Registration**

City

State

Zipcode

Experience

Expertise

Country

Username

Password

Confirm Password


! Password should be between 8 and 15 characters in length


COMPLETE


10. User Home Page:


20:22


QuickAssistance

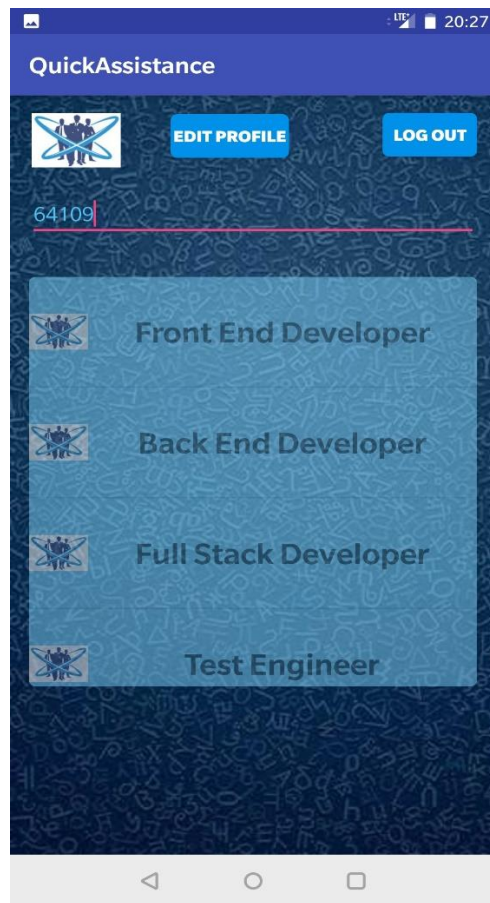
 **EDIT PROFILE** **LOG OUT**

 **Front End Developer**

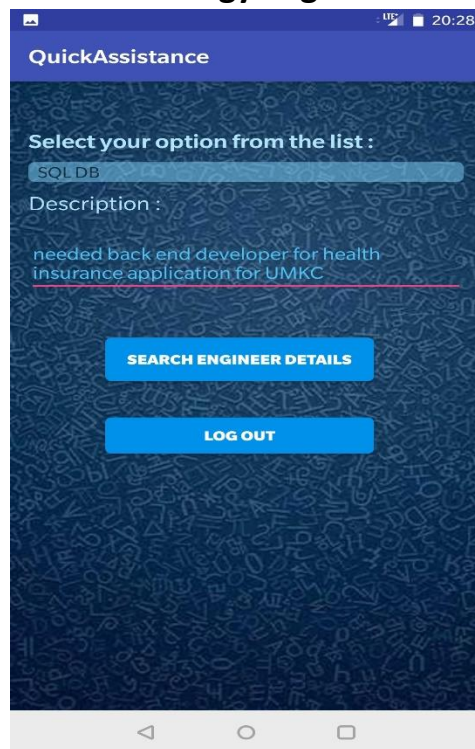
 **Back End Developer**

 **Full Stack Developer**

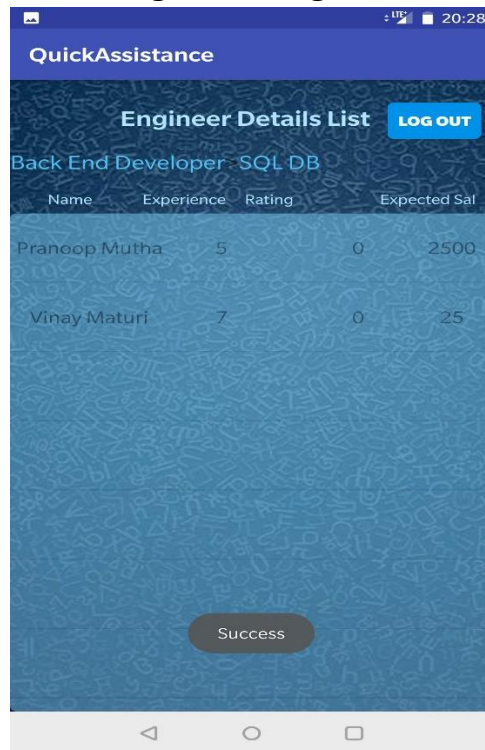
 **Test Engineer**



11.Sub Technology Page:



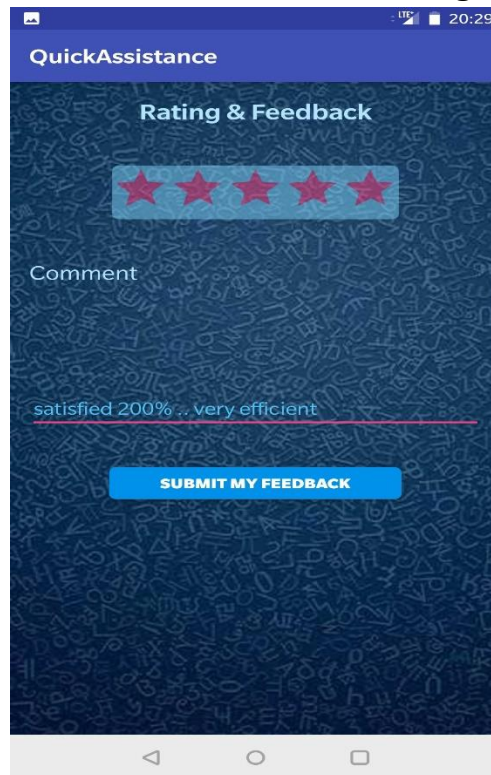
12. List of Engineers Page



13. Engineer Detail Page



14. Feedback and Comments Page



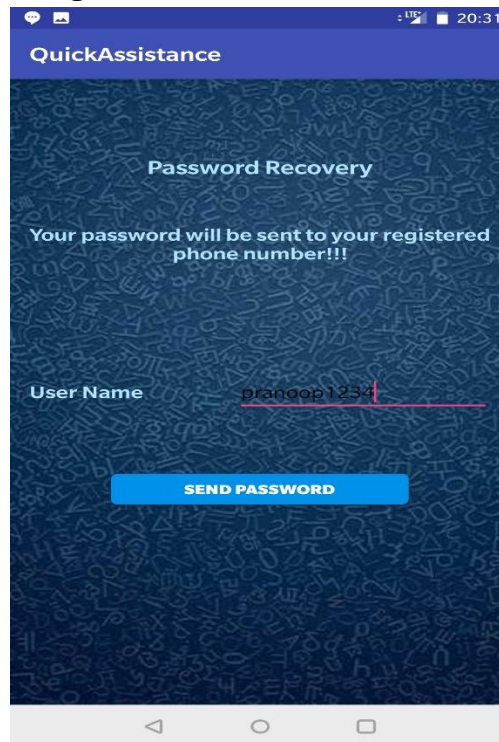
The screenshot shows the 'Feedback & Comments' section of the QuickAssistance app. At the top, there's a header 'QuickAssistance' and a status bar with the time '20:29'. Below the header, the title 'Rating & Feedback' is centered. A row of five red stars is displayed. Underneath, there's a 'Comment' label and a text input field containing the text 'satisfied 200% .. very efficient'. A blue button labeled 'SUBMIT MY FEEDBACK' is positioned below the input field. The background is a dark blue pattern of various mathematical symbols.

15. Hirer Confirmation SMS:



The screenshot displays the 'Engineer's Profile' page in the QuickAssistance app. The header 'QuickAssistance' and the time '20:30' are visible. A profile icon is shown next to the title 'Engineer's Profile', with a 'LOG OUT' button to its right. The profile details listed are: Name: Pranoop Mutha, Experience: 5, Technology: Back End Developer, Contact Number: 8168329015, Email ID: pranup3@gmail.com, and Previous project description: Doctor's App in UMKC Hackathon. A notification bubble at the bottom states 'User has been notified through sms'. At the very bottom, there are two buttons: 'LEAVE FEEDBACK' and 'SEND EMAIL'. The background features the same dark blue mathematical symbol pattern.

16. Forgot Password SMS:



The screenshot shows the 'QuickAssistance' app interface for 'Password Recovery'. The background is dark blue with a pattern of white numbers and symbols. The text 'Your password will be sent to your registered phone number!!!' is displayed. Below this, the 'User Name' field contains the text 'pranoop1234'. A blue button labeled 'SEND PASSWORD' is positioned below the input field. The top status bar shows the time as 20:31.

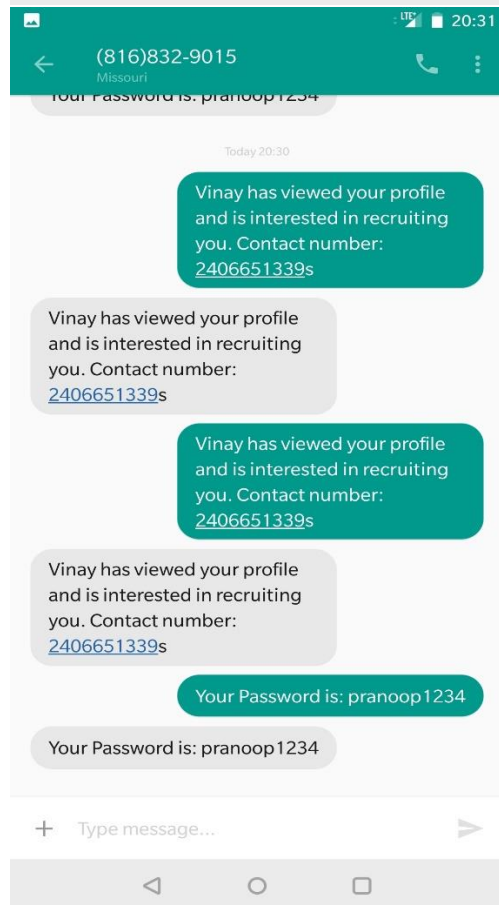
QuickAssistance

Password Recovery

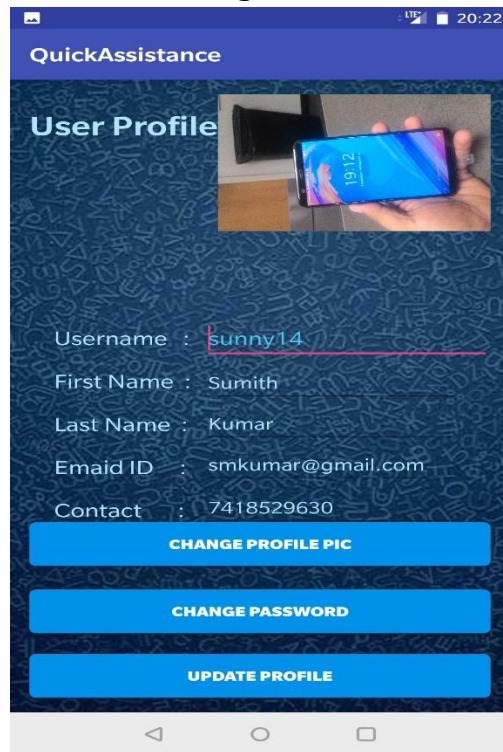
Your password will be sent to your registered phone number!!!

User Name

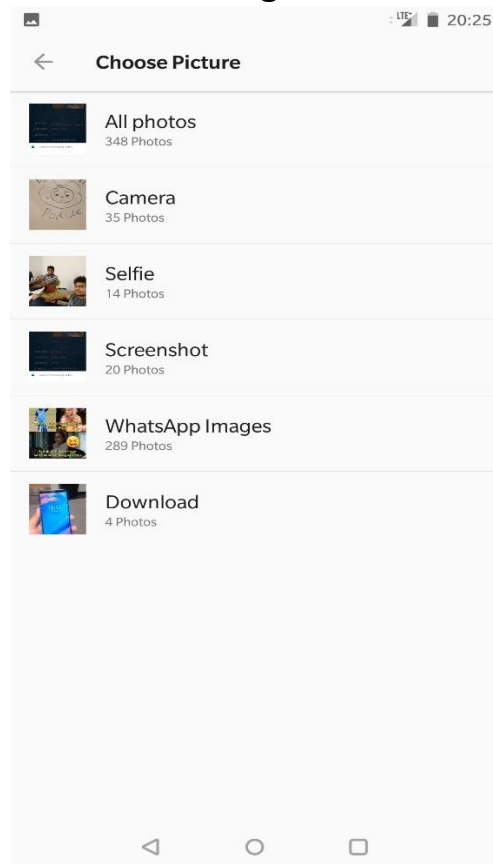
SEND PASSWORD

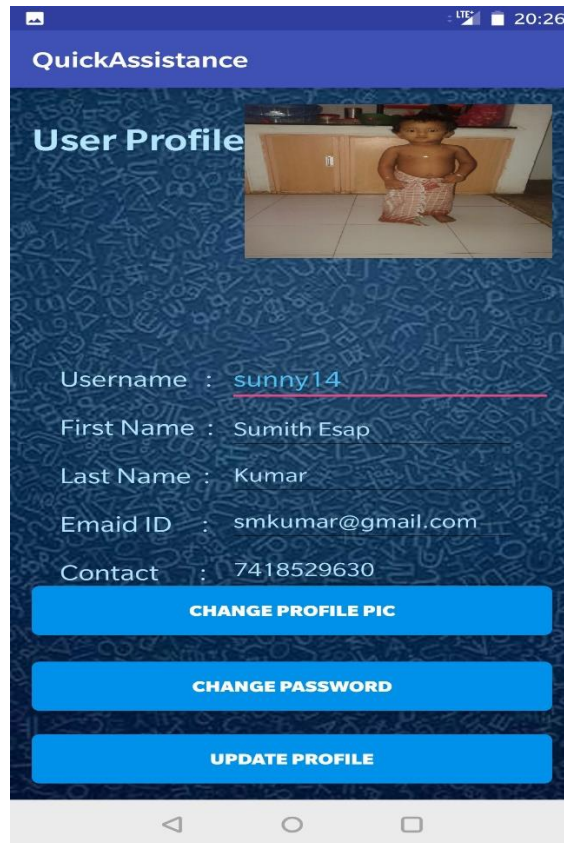


17. Edit Profile Pages:

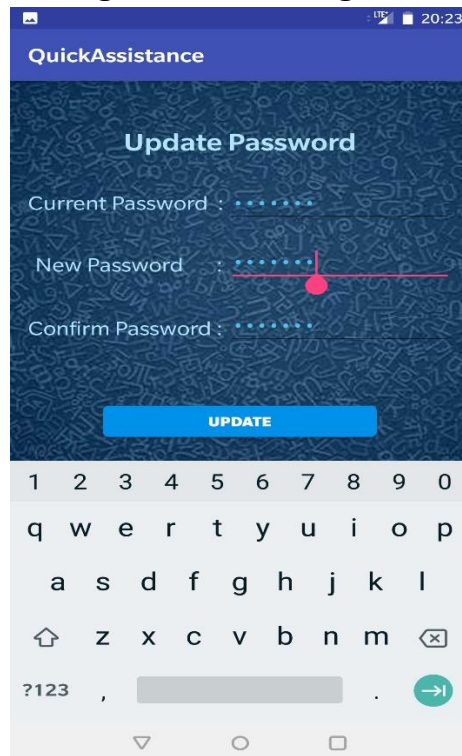


18. Profile Pic Change:

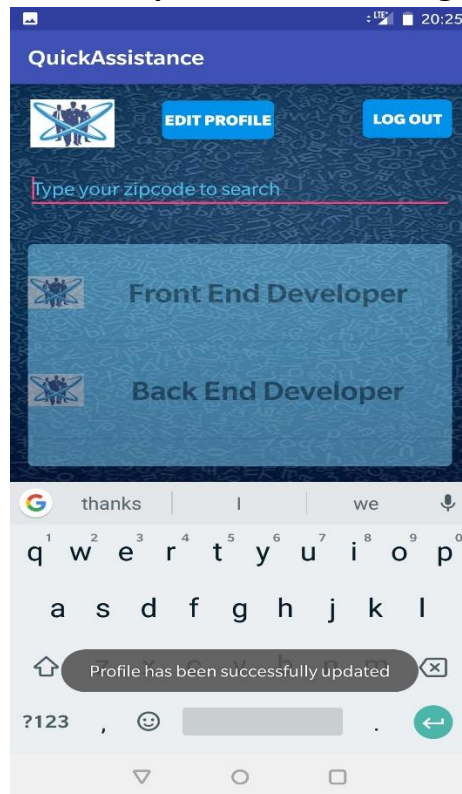




19. Change Password Page:



20. Profile Updated Success Page:



Future Enhancements:

We would like to extend our project integrating with Bitcoin API and adding some technical videos to gain points for the users.

- **Important Links**

GitHub Link: <https://github.com/PranoopMutha/ASEFinalProject>

Wiki Link: <https://github.com/PranoopMutha/ASEFinalProject/wiki>

Zen Hub Link:

<https://app.zenhub.com/workspace/o/pranoopmutha/asefinalproject/boards?repos=104144669>

YouTube Link for Video:

<https://www.youtube.com/watch?v=5YqBmkJA8bl&t=6s>

- **Bibliography**

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www.developers.facebook.com

www.blockchain.info/api

www.creately.com

www.developers.firebase.com

Quick Assistance



VINAY JAIBHEEM

PRANOOP MUTHA

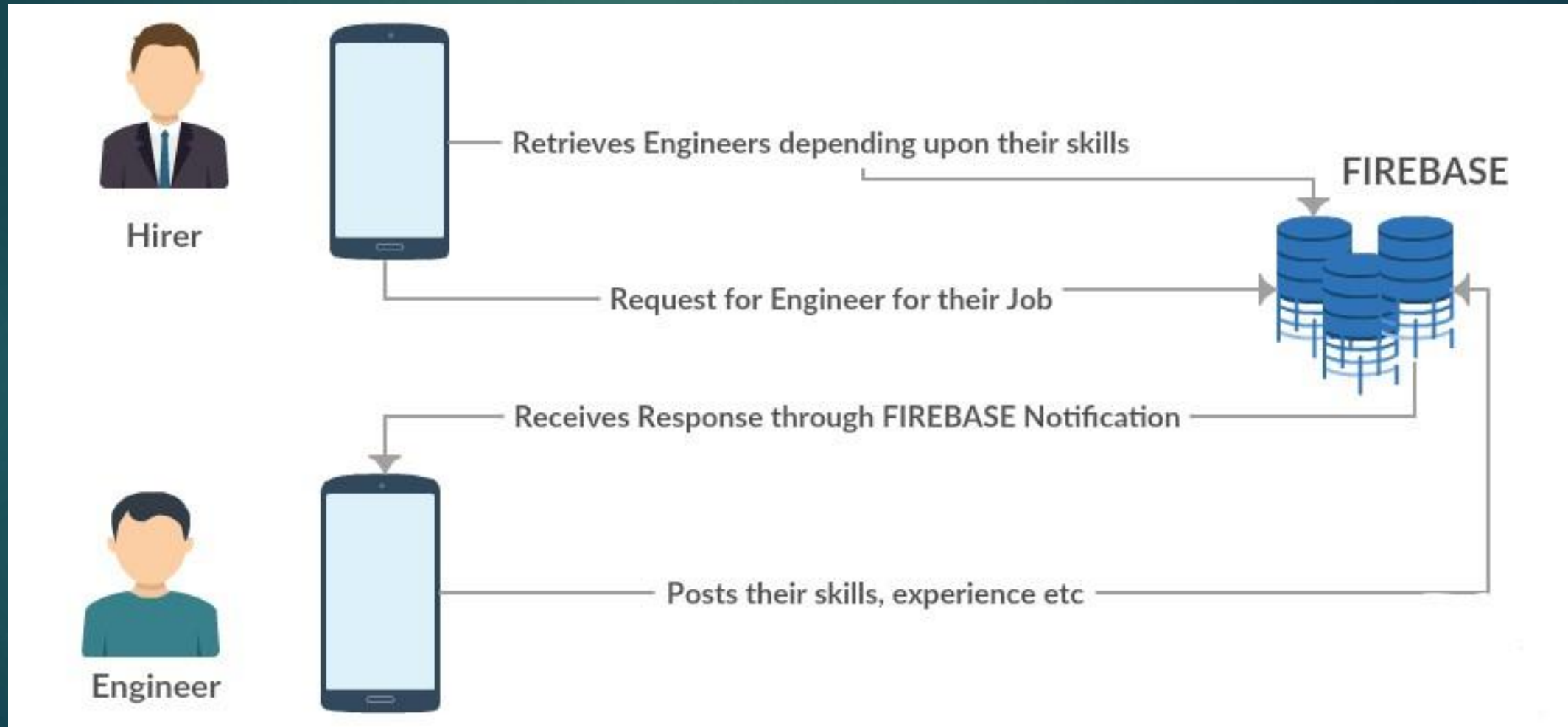
LAKSHMI MRUDULA CHAMALA

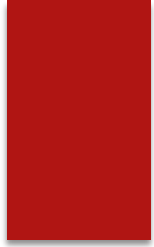
DINESH TIRUMANDYAM

Objective

- ▶ Motivation: There are a number of people with skill and expertise but not communication skills and place to find a job. They need some global crowd sourcing marketplace where the potential employers to post jobs and hire employees can show case their skills to promote themselves and complete the work more efficiently and economically.
- ▶ Delivers knowledge and expertise exchange between people where no real currency is involved.

ARCHITECTURE





Android
Studio



Firebase

Technology

Features

- ▶ Helps the hirers to find engineers of a particular technology
- ▶ Helps the engineers to post their skills related to their work based on their technology.
- ▶ The engineers can give their previous project details as a part of professional experience which will be helpful for the hirers to know more about the engineer.
- ▶ Engineer can also upload their profile pic.
- ▶ Notification for Forgot Password
- ▶ Notification for Engineer after the Hirer has recruited.

Future Scope

- ▶ Integrating Bitcoin API which can be used for virtual currency.
- ▶ Watching some Technology Videos from which they can gain some points.



THANK YOU