Software Design Specification Document (CS360)

Project Avocado

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Contents

1 CHANGE LOG

1.1 PROJECT SCOPE

Project Avocado is a mobile application which follows the concept of a marketplace that would provide a two-sided platform for people to buy and sell a variety of digital services typically offered by freelance contractors. Services offered through this mobile include writing, translation, graphic design, video editing and programming.

Project Avocado provides a client with multiple options to select a freelancer for their appropriate job. There will be 3 main users of this app which will be the administrator, the client and the freelancer. The client will log in using their email and will specify the job they want done, in return the app will display a list of freelancers which can fulfill the job. The list will be sorted based on a rating system that will incorporate the reviews of the users, the duration of the freelancers and then experience. After the client has selected the job, he and the freelancer can contact through email and decide on the job. This will help our client manage his company as he can overlook everything through the app and doesn't have to get involved directly with the client and the freelancer.

1.2 CHANGE LOG

We made no changes in the functionality of app.

2 INTRODUCTION

2.1 DOCUMENT PURPOSE

This document is for an app called Project Avocado. This is app provides a platform which serves the purpose of connecting clients and free lancers. The initial release will be 1.0. It will provide an ease for our client to manage his clients while also keeping a track of his employees and freelancers.

The main objective of this app is to give the clients and freelancers a single platform where they both can communicate with each other directly and avail services like content writing, web pages development and tutorials. This will be a mobile based app which will be available on the Play Store and the App Store after deployment.

2.2 PRODUCT SCOPE

Project Avocado is an app which provides a client with multiple options to select a freelancer for their appropriate job. There will be 3 main users of this app which will be the administrator, the client and the freelancer. The client will log in using their email and will specify the job they want done, in return the app will display a list of freelancers which can fulfill the job. The list will be sorted based on a rating system that will incorporate the reviews of the users, the duration of the freelancers and then experience. After the client has selected the job, he and the freelancer can contact through email and decide on the job. This will help our client manage his company as he can overlook everything through the app and doesn't have to get involved directly with the client and the freelancer.

2.3 INTENDED AUDIENCE AND DOCUMENT OVERVIEW

This document is intended for

1. The course instructor Suleiman Shahid.
2. The Teaching Assistant Assigned to us.
3. The client Abdullah Naseem.
4. The members of our group working on the project.

The document is divided into 5 sections. The change log will provide updates on the changes this document reflects compared to the SRS document of this project. The overall description will talk about the app and its perspective, functionality, user characteristics and the assumptions that we are making for this app. The system architecture will describe the structure of the app using UML diagrams. The User Interface Designs include the screens of the app and how the user will be able to use that app. The non-functional requirements sections talk about the additional features that the app provides and the benefits of using this app. Finally, the appendix will talk about the man ours that individuals have put in the project and how the document was created. However, the main section to focus on are The System Architecture and the User Interface design as these sections provides detailed insight of the working and the outlook of the final app.

2.4 Definitions, Acronyms and Abbreviations

- **A.W.S**: (short for Amazon Web Services) is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis
- **React Native:** A framework that lets you build mobile apps using only JavaScript.
- **MYSQL**: open source database management system (DBMS).
- **API**: Application programming interface.
- **App**: Mobile application (android in our case).
- **GUI**: is a type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, instead of text-based user interfaces, typed command labels or text navigation.
- **DB**: (short for database) A database is an organized collection of data. A relational database, more restrictively, is a collection of schemas, tables, queries, reports, views, and other elements.
- **Seed**: Also referred to as ‘Task’
- **RAM**: Allocates storage to the current task

2.5 References and Acknowledgments

Not Applicable

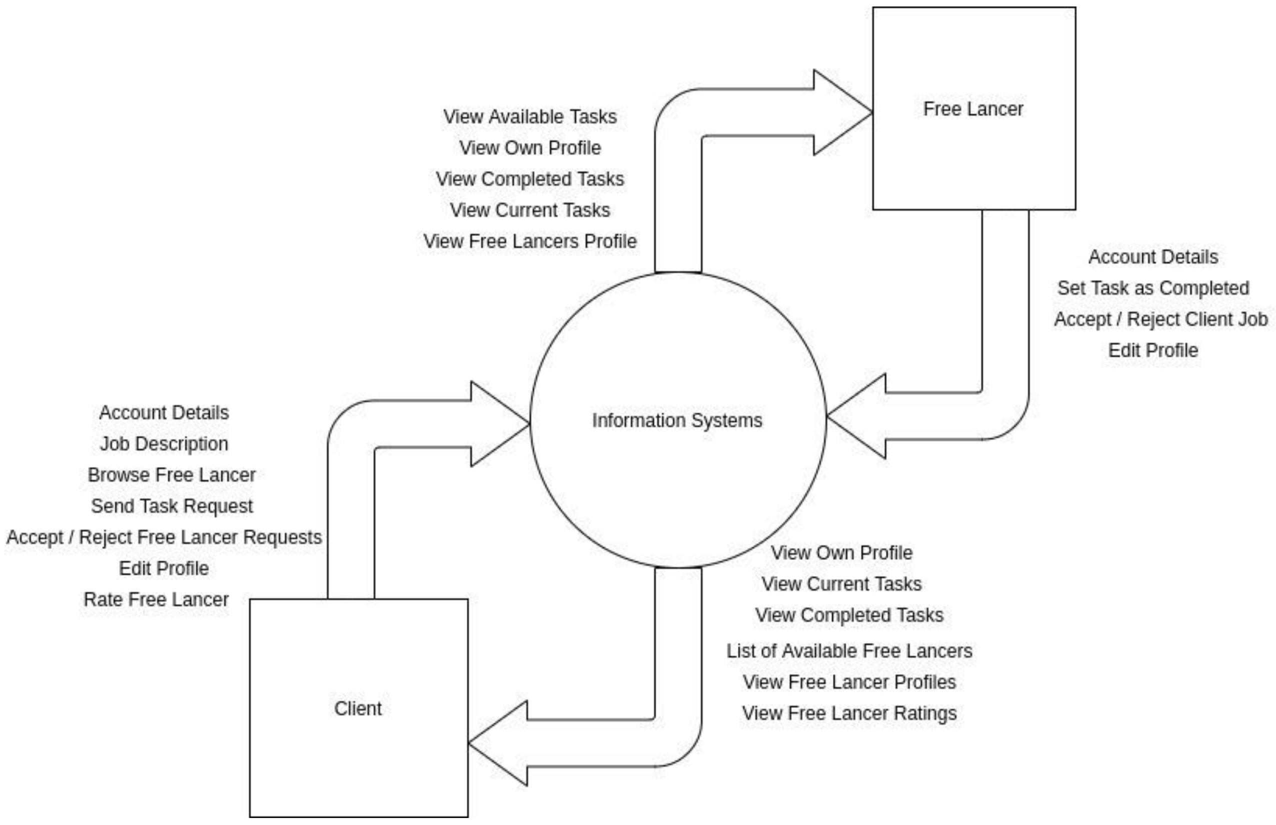
3 OVERALL DESCRIPTION

3.1 SYSTEM OVERVIEW

3.1.1 Overview

As described before, our application forms a bridge between freelancers who want to earn through their work and clients who can offer them such work. Hence, the structure of the system and any interaction with the environment must facilitate this functionality. Our app comprises of clients and freelancers who can access information systems to store and obtain data about the jobs that they collectively work on and their personal profiles.

3.1.2 Final Context Diagram



3.2 System constraints

3.2.1 Hardware or software environment

The system will be only available to the user via a mobile app. For android users, they must have an Android 5.0 or above for the app to be able to run smoothly. Whereas for IOS users, they must have IOS 10 or above to make this application work.

3.2.2 End-user environment

As our main target audience are active users of such apps, the users must have a basic knowledge of the workings of a mobile application. Our easy to understand GUI will aid in this learning process.

3.2.3 Availability or volatility of resources

As our servers will be on AWS, a system needs to be allocated so that it can run the servers for the application. The system should have adequate RAM and a powerful processor so that it can support hosting the server around the clock.

3.2.4 Network Communications

The response time for any task query or task display asked by the user should respond within 1 to 5 seconds. This will ensure that the communications between our backend and the front will be optimal for the client's usage.

3.2.5 Security requirements

The passwords and usernames should all be encrypted in our database to which only the admin has access to. We need to make sure that all the no outside user can in any way change, corrupt or steal data from the database.

3.2.6 Standards Compliance

To ensure the delivery of highest quality of software, the app should be up to the industry standards which includes Visibility and Timing, security and data retention, data encryption and so on.

3.2.7 Data Repository and distribution

The client should only be able to see the data which concerns them which includes, the tasks he has assigned, the freelancers available. Whereas the freelancer should only be able to see the tasks that are assigned to him and not the tasks of other freelancers. However, the administrator should be able to view all the current tasks of all the users.

ARCHITECTURAL STRATEGIES

3.2.8 Client-Server
Our system will be based on the client server architecture. The client in this case will be both the free lancers and the users. The server will be online using AWS and all the information regarding the assignment of the tasks and the individual data of clients and freelancers will be on the database.

3.2.9 Mobile Application
Mobile devices will be our primary device in market as this is the most popular, used, and easy to access device in the world, making our **customer base** very vast. This app will be compatible for both android and IOS hence further expanding our market. Moreover, mobile devices suit our app based on their **ease of use**, and **portability**. Eventually this app will be expanded on to desktops so it can become more official but that is not in the scope of our current project.

3.2.10 React Native
We have decided to use react native for developing our app. It is the latest technology in the market and has ample documentation available. Also react native can be used for both android and IOS development which will help as we don’t have to learn different tools for the implementation of both.

3.2.11 MySQL and AWS
We plan to use MySQL for our database as it provides data security and on demand scalability. For hosting the web application, we will use AWS because of its **security** and flexibility features will be of great use for future versions.

4 System Architecture

4.1 System Architecture

Our system is divided into three sub-systems, which will collectively function to complete the application. The decision to divide the system as said was made to best suit the requirements of the client for this software and to provide us with a plan for an organized approach to development. These three sub-systems are as follows:

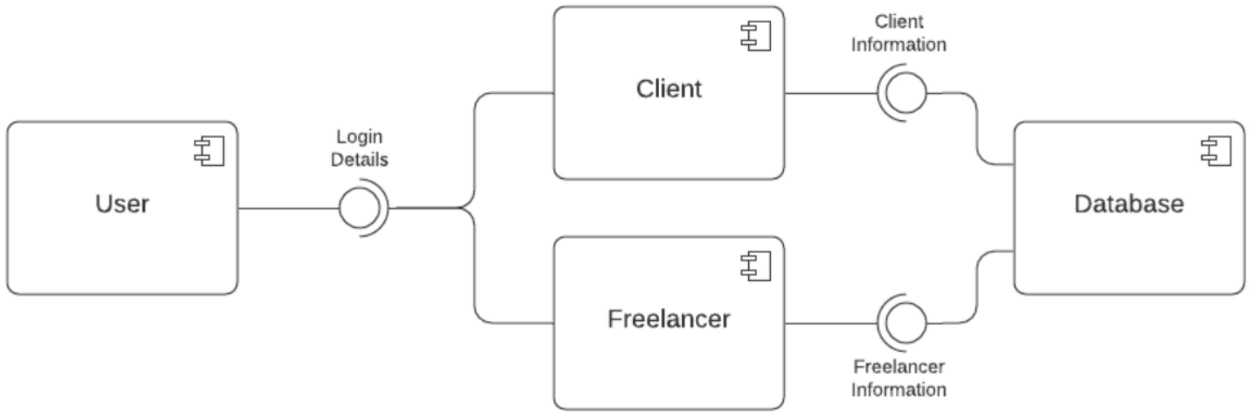
1. **Client:** Client is one of two kinds of users that our application can have. Since the requirements call for the client to have a separate interface where the client side of the jobs is dealt with, this will be a separate subsystem on its own. Here the client can add jobs, access a list of pending jobs, rate the assigned freelancer upon completion of the job and view/edit their profile. All use cases are elaborated through sequence diagrams later in the document.

2. **Freelancer:** Freelancer is the second kind of user our application can have. Just like the client, the freelancer will also have a separate interface were the freelancer side of the jobs is dealt with, and this will also be a separate subsystem on its own for our application. Here, the freelancer gets to accept requests for jobs, browse available jobs, access and work on current jobs and view/edit their profile. All use cases for the freelancer are also elaborated in the following sub sections.

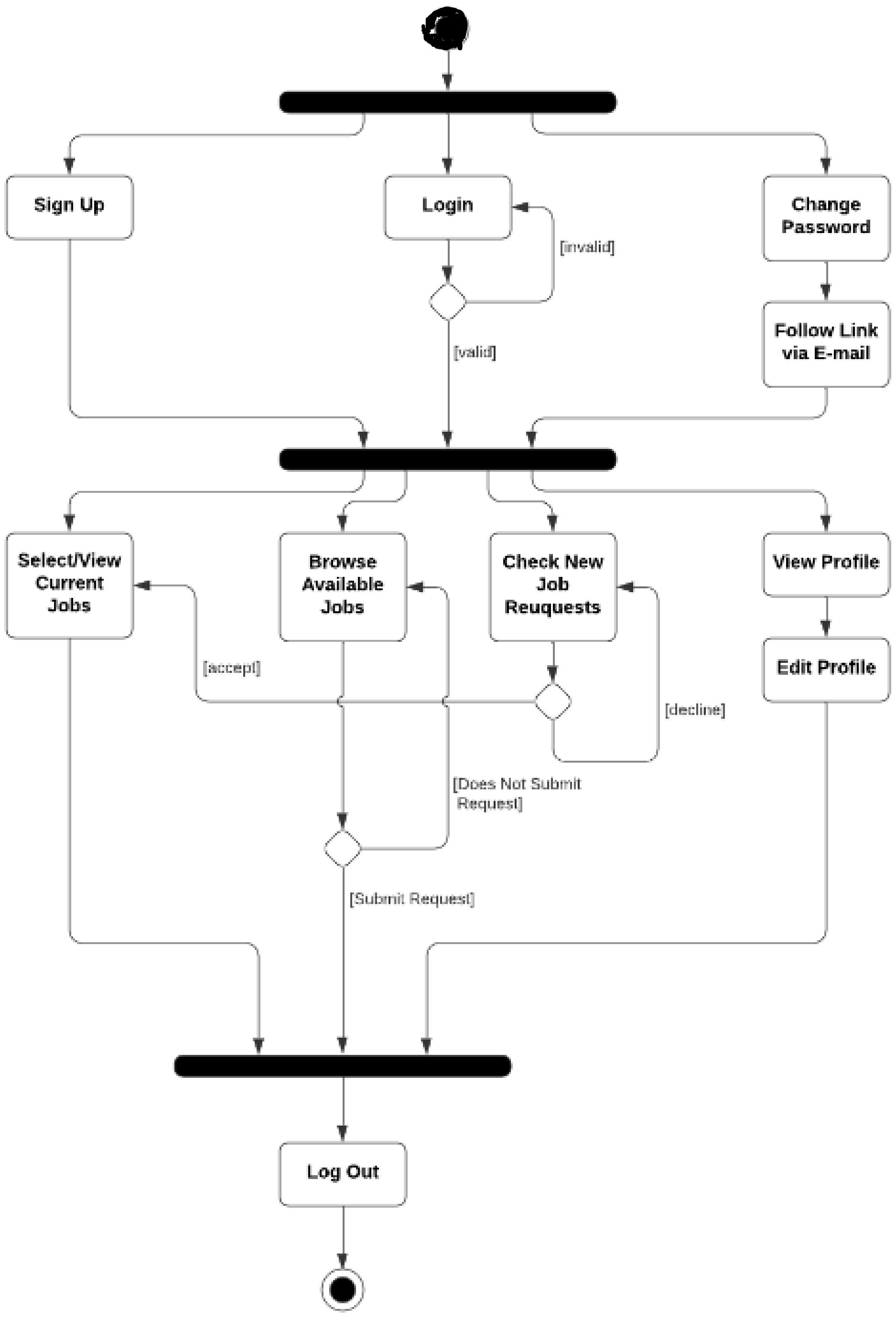
3. **Database:** The database is where all information for the client, the freelancer and the jobs that they work on is stored and managed. The clients and freelancers will access this information separately.

Each user will be shown the same login screen, which, upon authentication, will lead to either the client side or the freelancer side of the application, based on the kind of user who has logged in. A component diagram is inserted below to exhibit, on a basic level, how these sub-systems link together. Furthermore, below the component diagram, are activity diagrams for the client and the freelancer, to exhibit how their functions and contribution to the application differ.

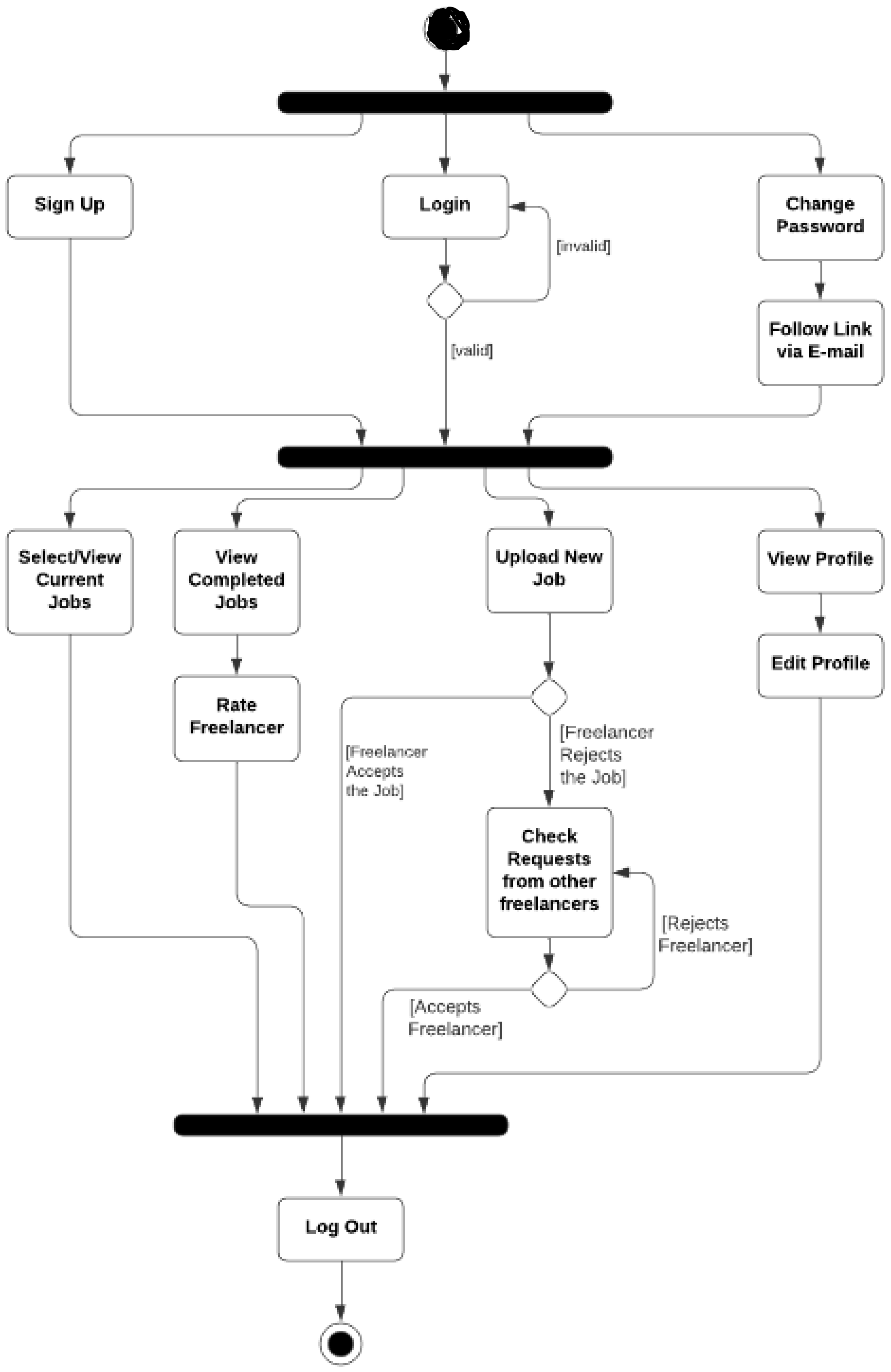
4.1.1 Component Diagram



4.1.2 Freelancer Activity Diagram



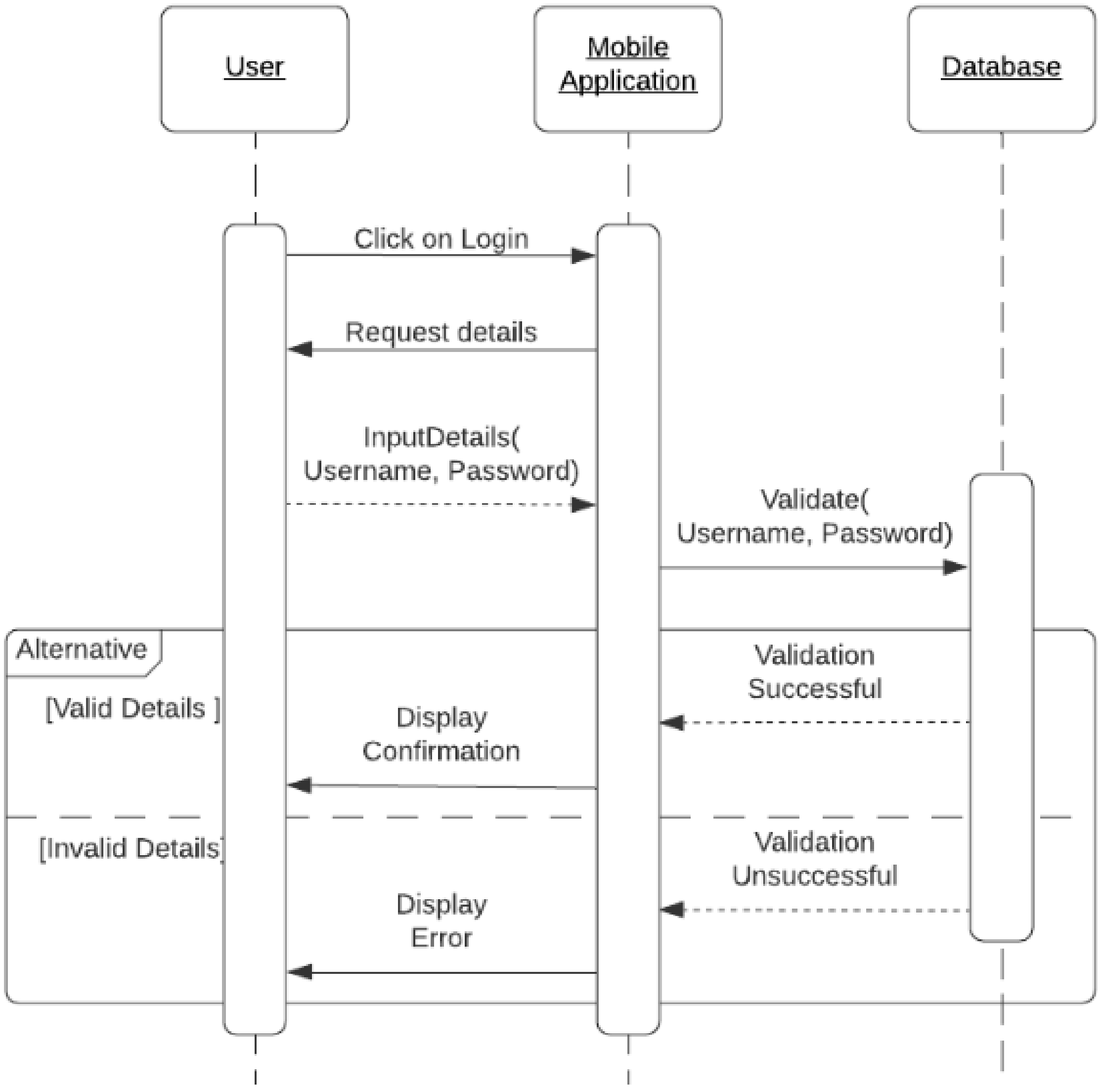
4.1.3 Client Activity Diagram



4.2 Subsystem Architecture

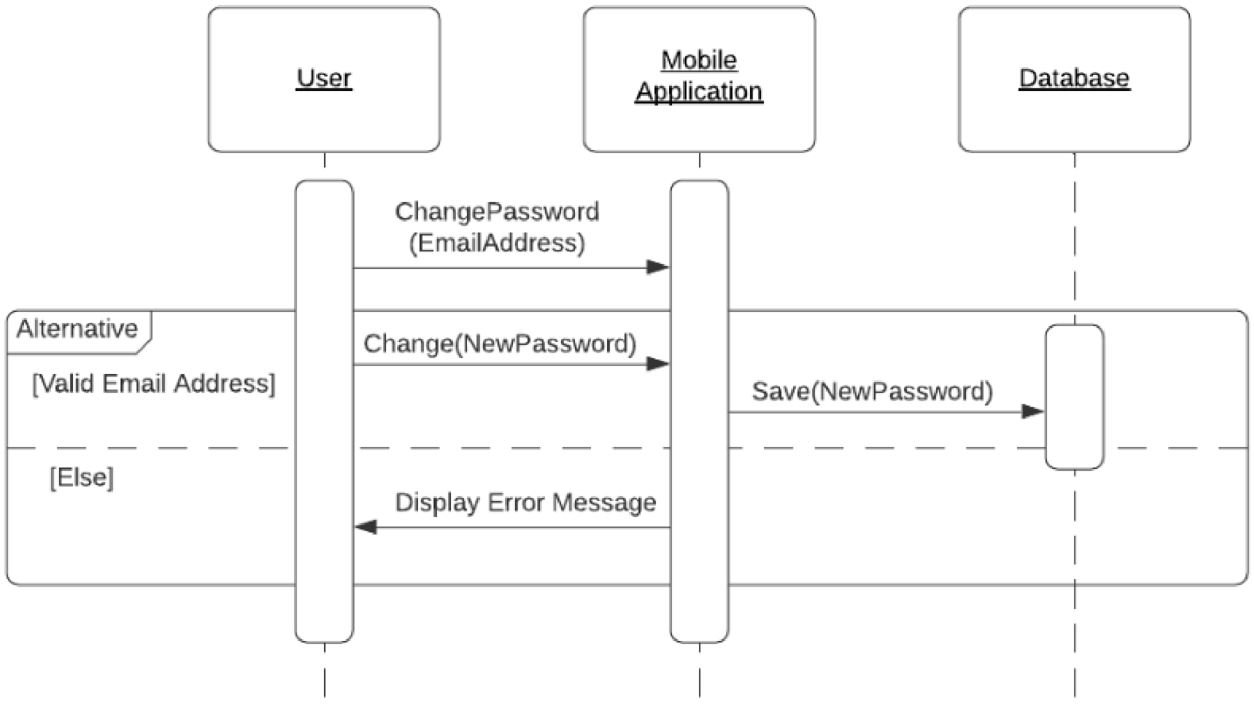
4.2.1 Sequence Diagrams

Sequence Diagram 1: Log In (Freelancer and Client)



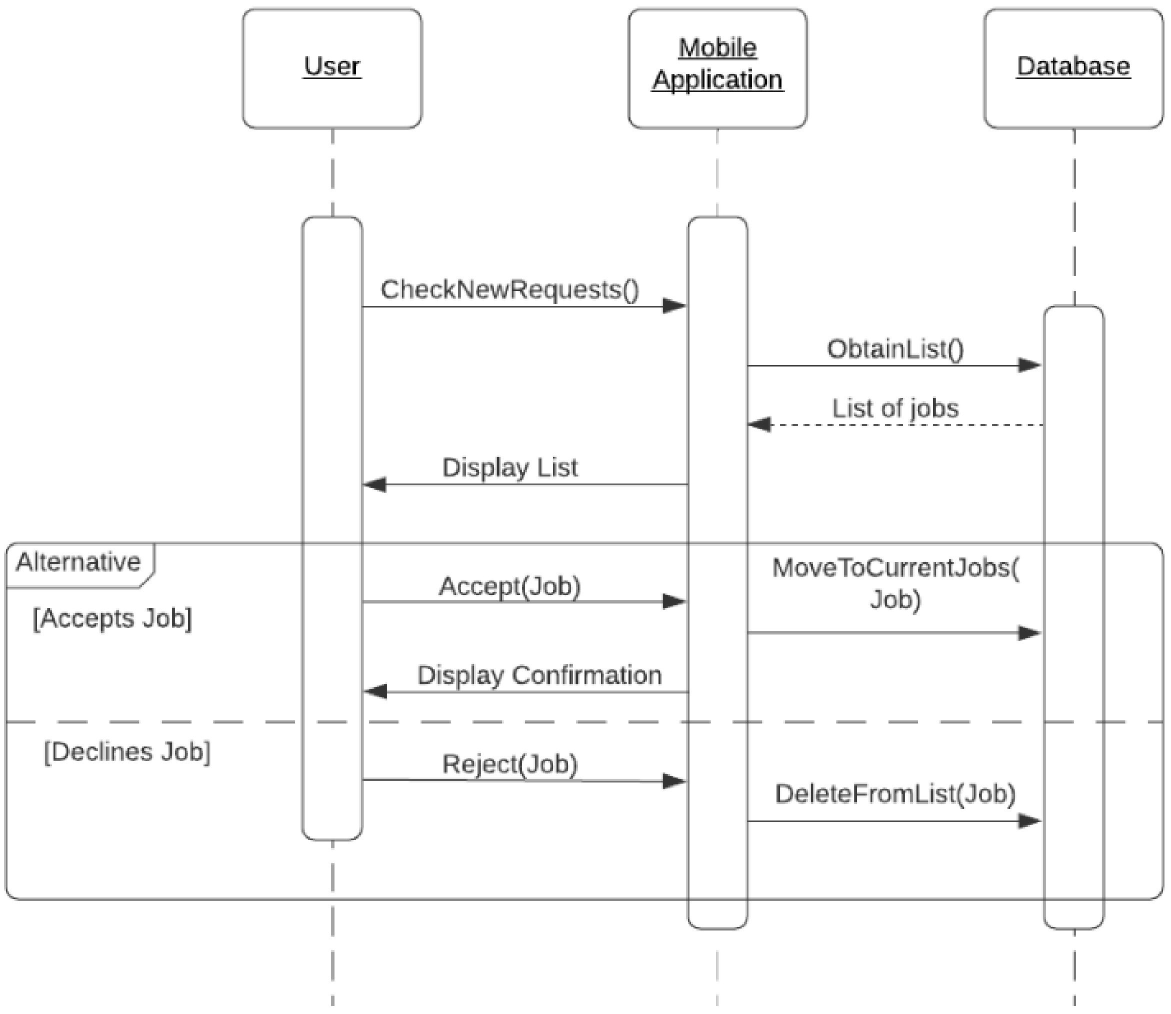
Log In will follow the same sequence for both freelancer and client. They will enter their login details, which will prompt a confirmation message and lead to their respective screens. An error message will be displayed in case of invalid log in details.

Sequence Diagram 2: Change Password (Freelancer and Client)



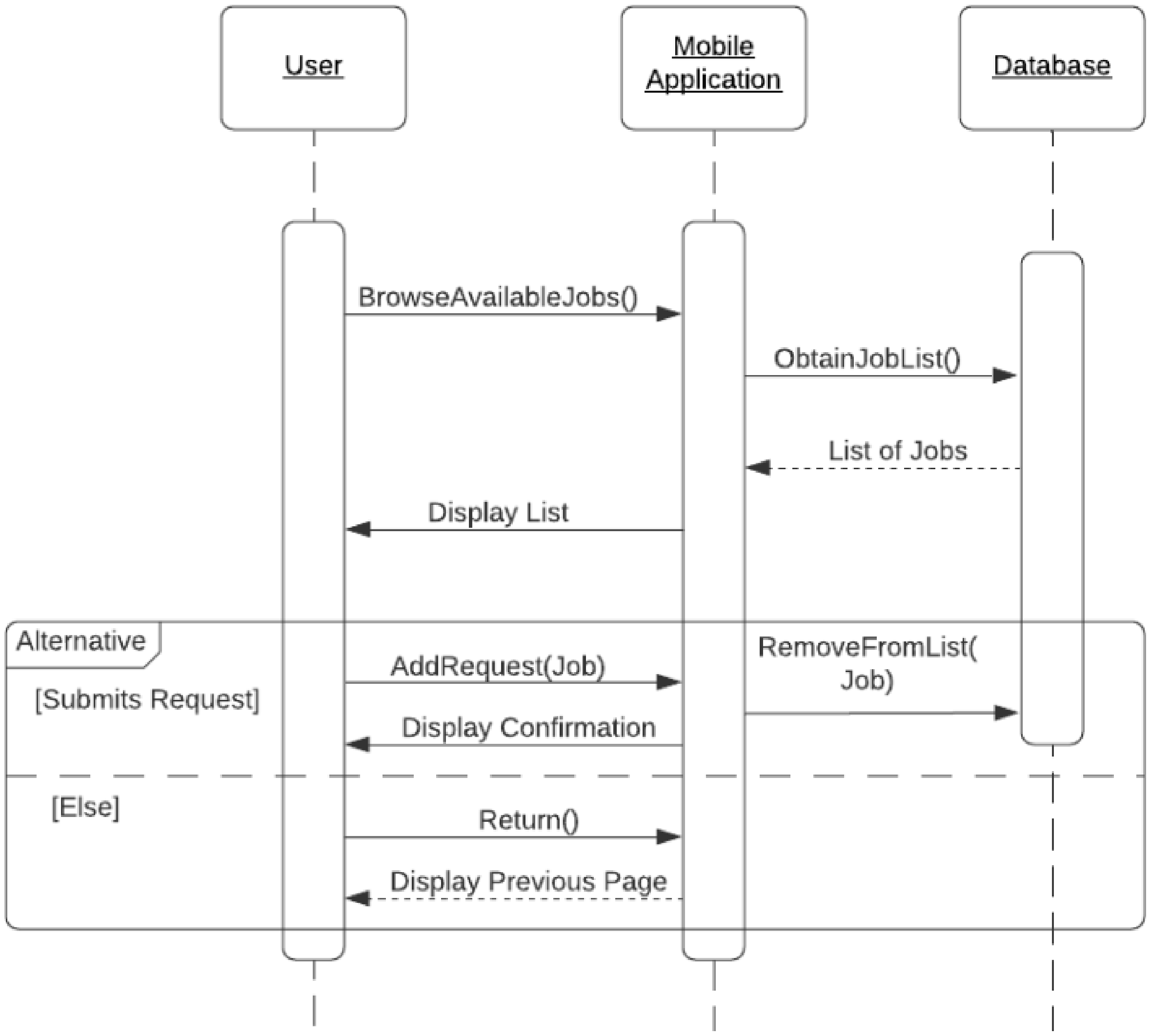
Change Password will also follow the same sequence for both freelancer and client. They will be asked to enter their email address. If the email address is invalid, they will be shown an error message. If it is valid, they will be e-mailed a link. By following this link, they will be able to enter a new password and the changes will be saved.

Sequence Diagram 3: View Job Requests (Freelancer)



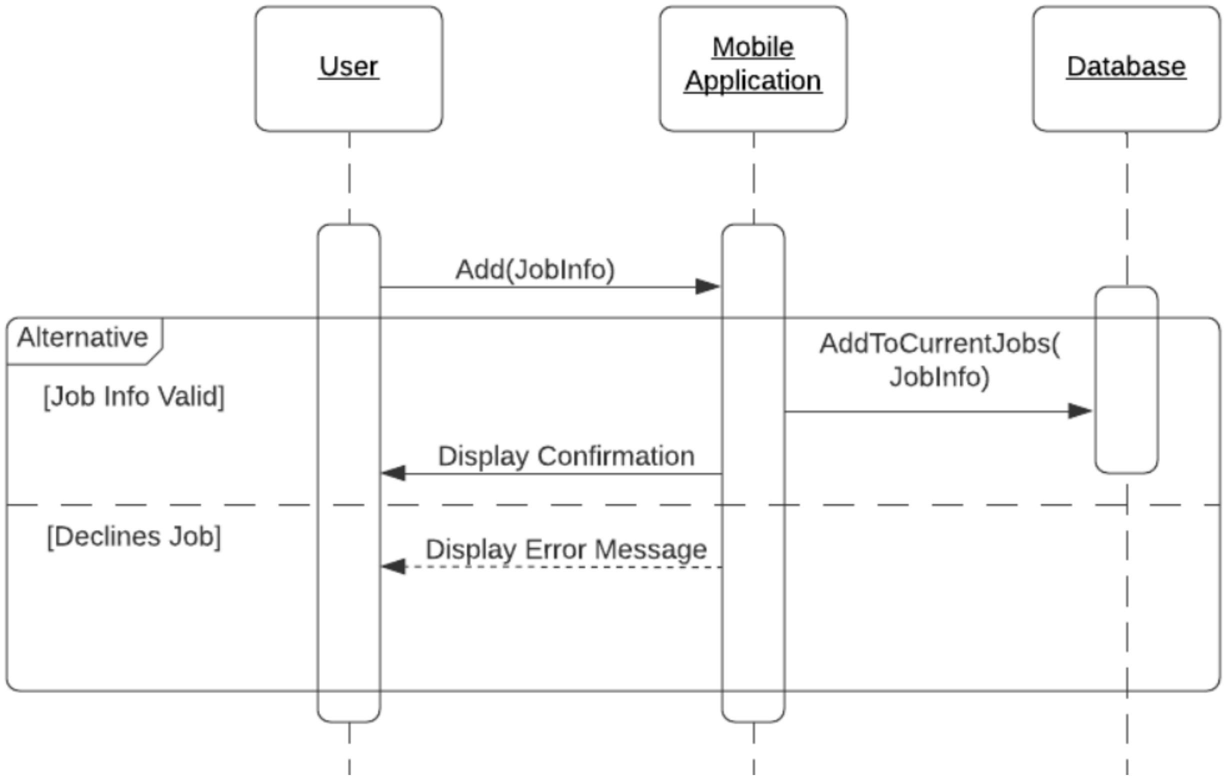
If a freelancer chooses to view job requests, they will be shown a list of all such requests and will have the option to either accept or reject the job. A confirmation option will be displayed, and the job will be moved to their list of current jobs if they choose to accept it. If not, it will be deleted from the list of job requests.

Sequence Diagram 4: Browse Available Jobs



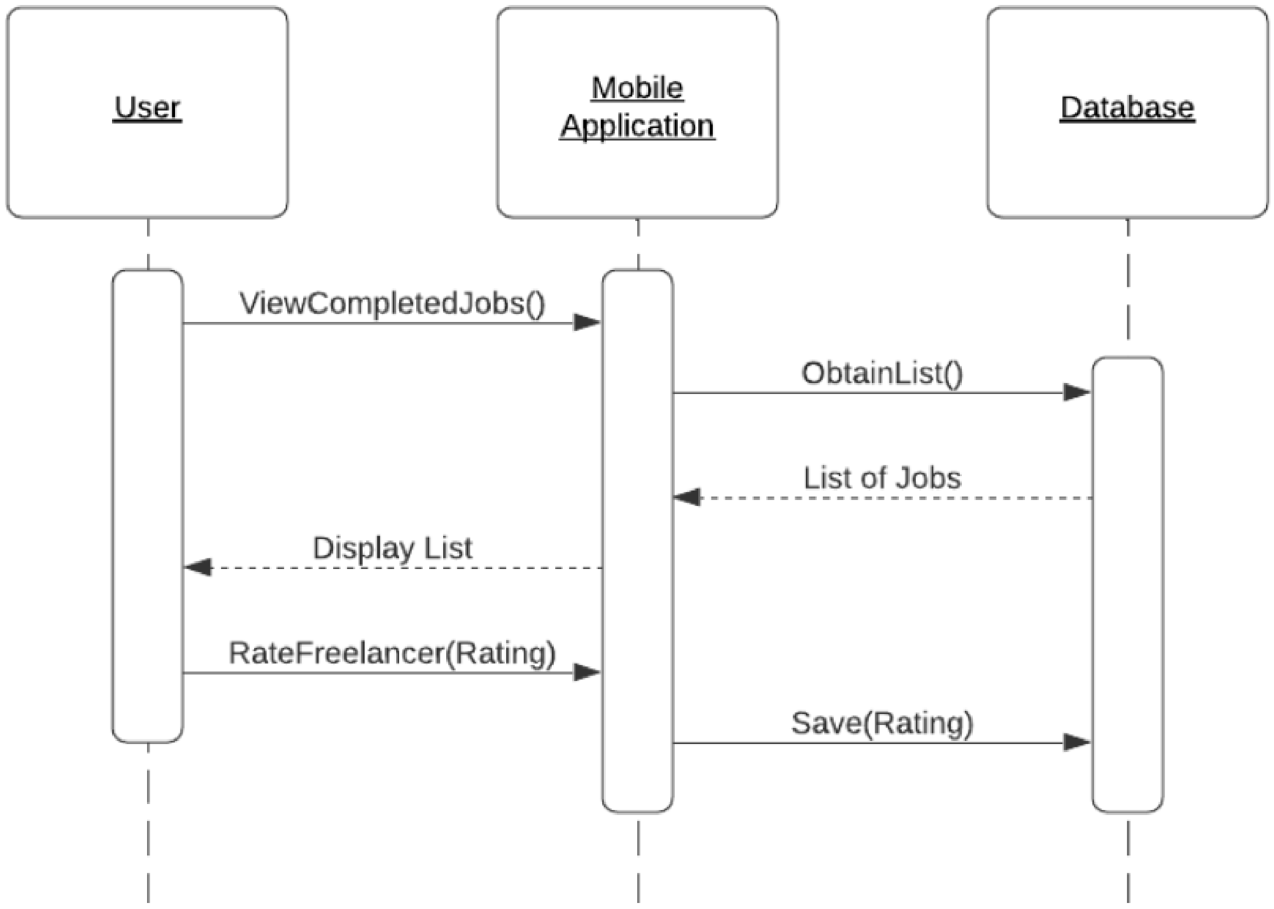
If a freelancer chooses to browse available jobs, they will be shown a list of such jobs, and will have the option to submit a request for any of the jobs. If they choose to do so, this job will be removed from the list of available jobs and they will be shown a confirmation message for the successful submission of their request.

Sequence Diagram 5: Add Job (Client)



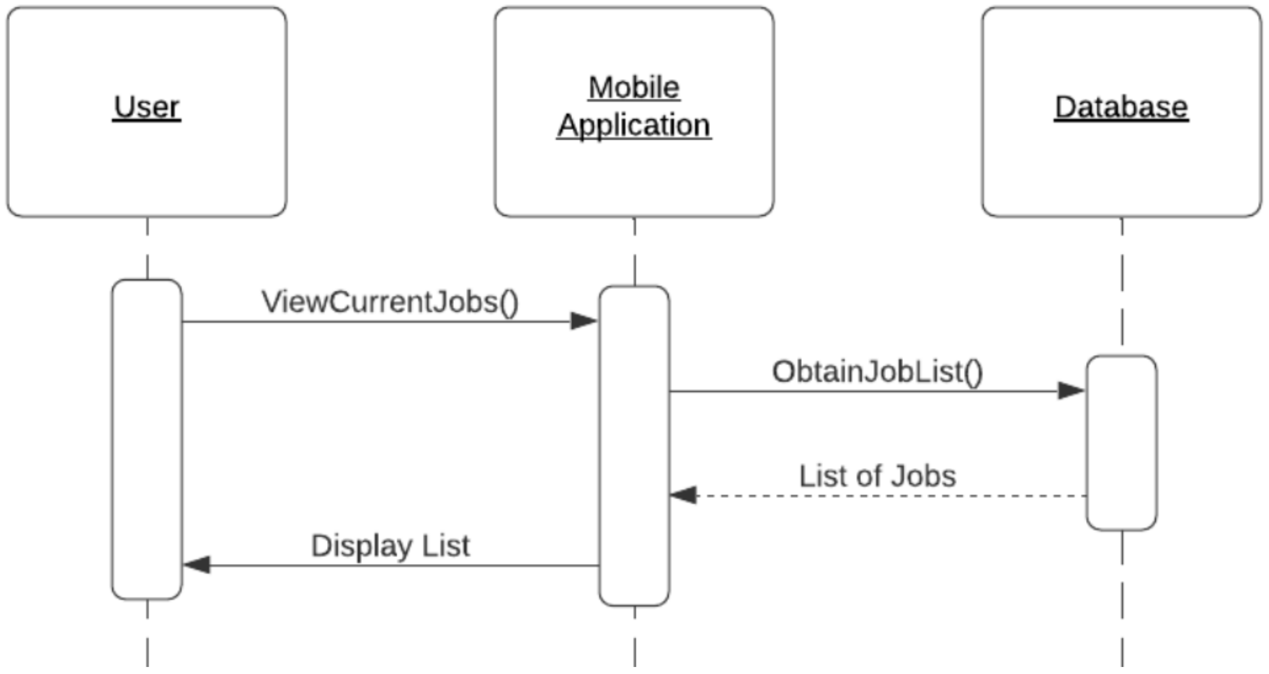
If a client chooses to add a job, they will be made to input the necessary information for the job (title, category etc.). If all information follows the correct format, their job will be added to their list of current jobs and they will be shown a confirmation message If not, they will be shown an error message and will have to re-enter all information.

Sequence Diagram 6: View Completed Jobs (Client)



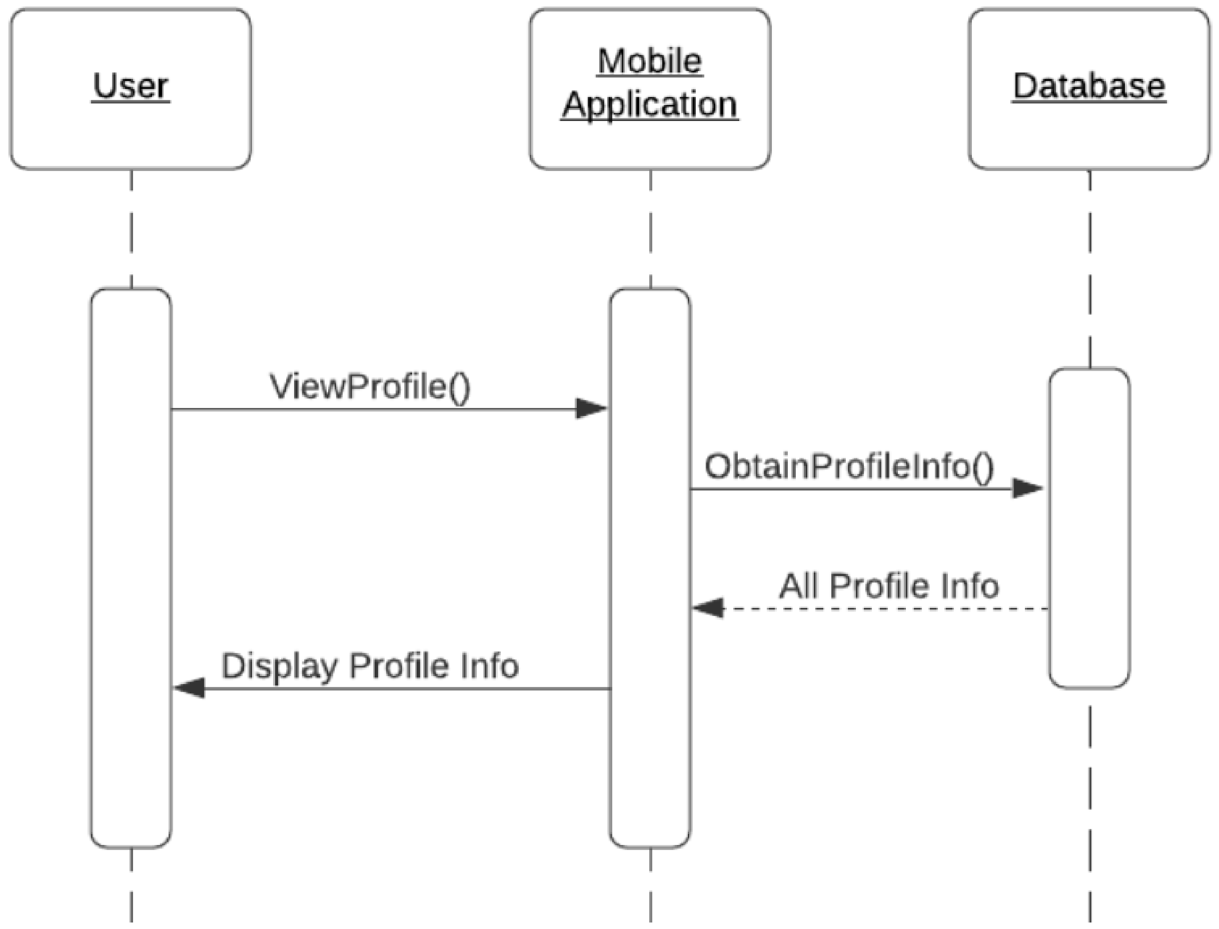
If a client chooses to view their completed jobs, they will be shown this list and asked to give the option to rate the freelancer. If they rate the freelancer, the rating for that freelancer will be saved.

Sequence Diagram 7: View Current Job (Freelancer and Client)



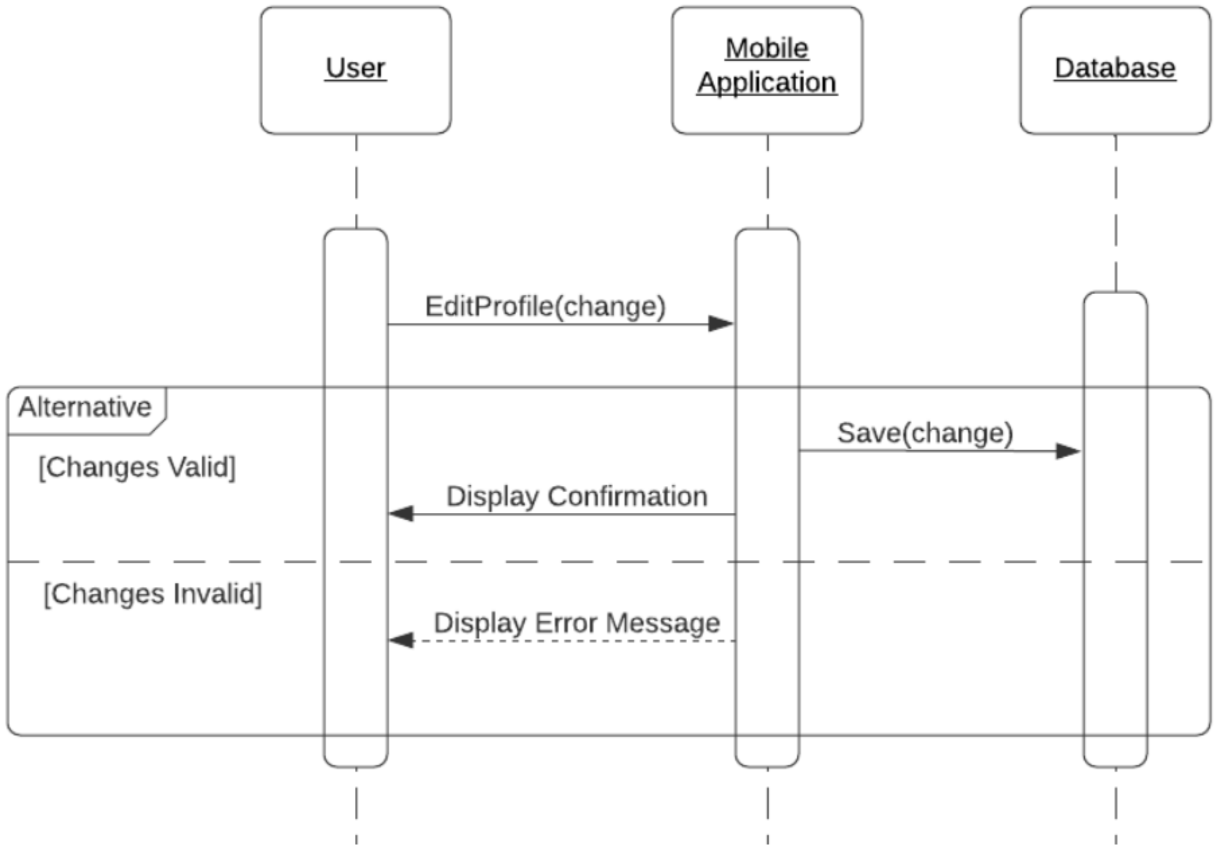
The View Current Jobs option for the freelancer and client will follow the same sequence. In each case, the list, simply, will be fetched from the database and shown to the user.

Sequence Diagram 8: View Profile (Freelancer and Client)



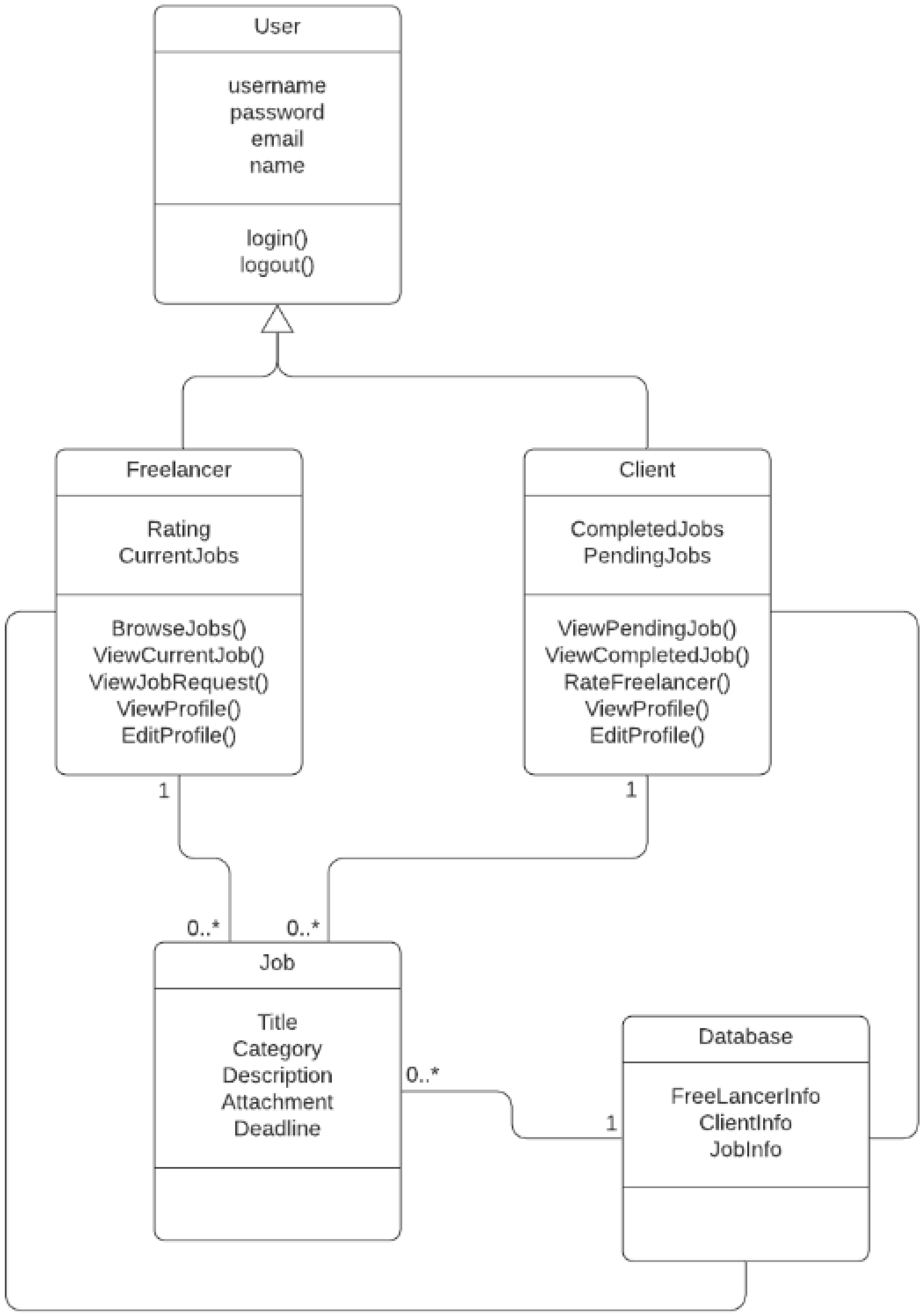
The View Profile option for the freelancer and client will follow the same sequence. In each case, the profile information, simply, will be fetched from the database and shown to the user.

Sequence Diagram 9: Edit Profile



The Edit Profile option for the freelancer and client will follow the same sequence. In each case, the user will submit the changes. If the changes follow the correct format, they will be saved and a confirmation message will be displayed. If not, an error message will be displayed.

4.2.2 Class Diagram



4.3 DATA STRUCTURE

4.3.1 Internal software data structure

- Data structures that are passed among components of the software are described.
- Only strings and float data will be passed around the components of the software.
- Arrays/linked list will be used but only for short lived purposes and hence are mentioned under temporary data structures.

4.3.2 Global data structure

- No global data structure is to be used since all the data managed will be temporary and will live only for the duration of the fetched command. Global data used is also known to pose threat to the security aspect of the software.

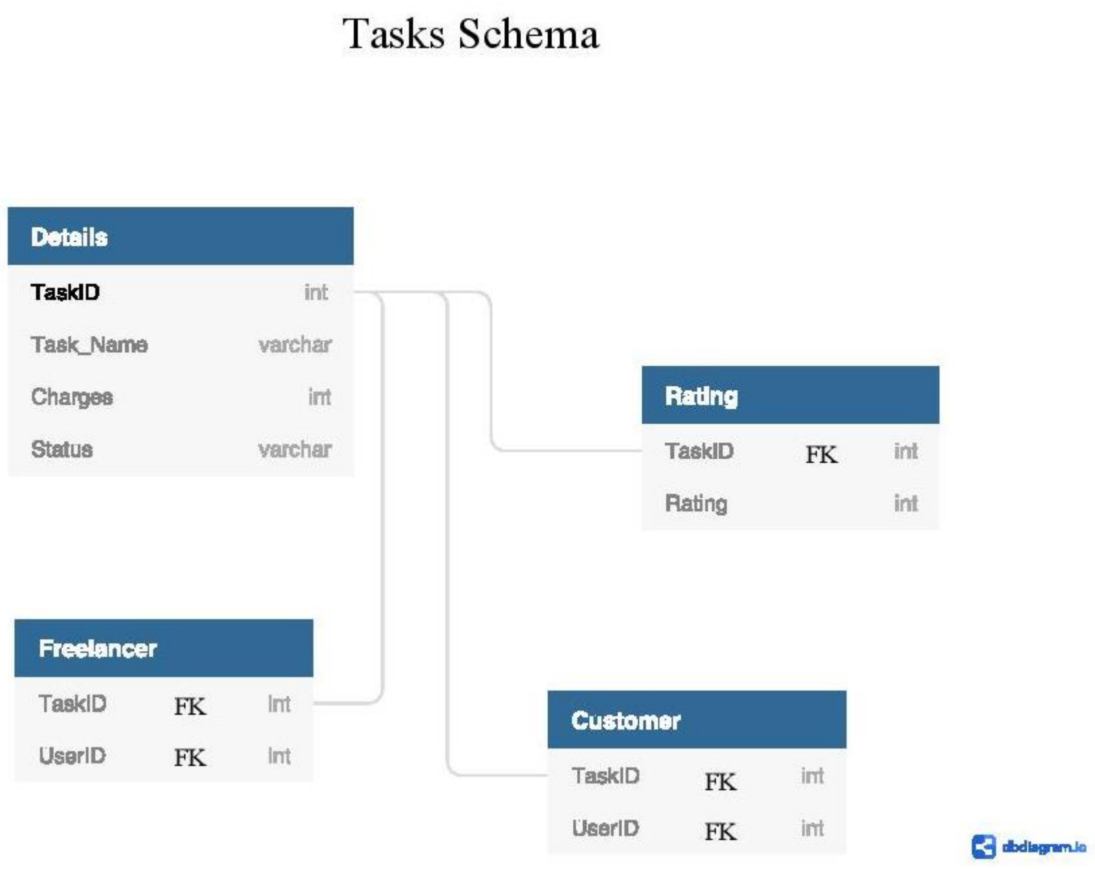
4.3.3 Temporary data structure

- The main data structure we will use are 2 dimensional linked lists/arrays to store the fetched details of the suitable freelancers.
- This information is to be displayed in a queue manner depending on the first dimension, where the freelancer who has recently done a job will be at the end and the one who has been available for some time will be at the top.
- The customer will be allowed to choose any freelancer they want therefore a First in First out order is not necessary. Same is the scenario in case of fetching jobs available, they will be sorted on the basis of First in but the freelancer will be able to choose any job out of all those available.

4.4 DATABASE MODEL

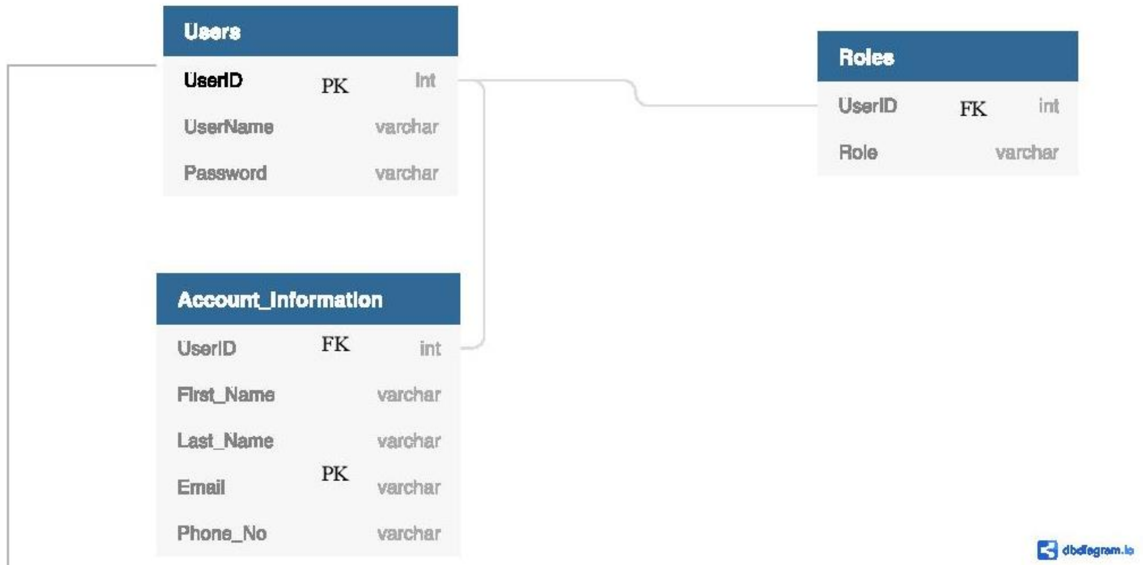
4.4.1 Database scheme and detailed description

We will be using 4 different schemas on demand of client. Another advantage of having 5 different multiple private schemas is an effective way of separating database users from one another. Users are granted access to only one schema and its contents, thus providing database security at the schema level.

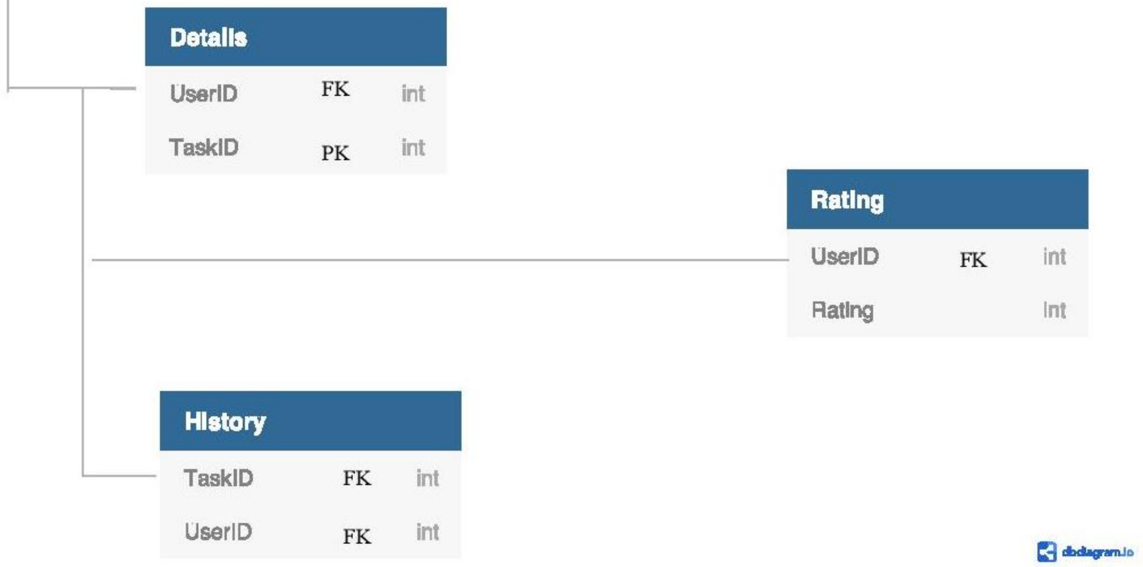


FK – Freelancer.User ID and Customer.UserID references to Login Schema Users.UserID

Login Schema



Customer and Freelancer Schemas



- The database has multiple schemas linked by UserID and TaskID mostly due to the reason mentioned above.

- Each schema is in 3NF and there are more entities than the minimum required mostly since some of the entities are to be filled at different stages than the other entities.

- The attributes are kept to the minimum possible in order to save space. For e.g. the entities for History and Tasks inside the Customer Schema is separate since the history entity is to be populated after the task is completed whereas the Tasks entity is to be populated with the tasks going on.

4.4.2 Database

The database chosen was mysql with sql connector python library used for querying. The choice was made mostly due to data security as it is also used by the largest web applications today.

- It is cost efficient and will have no cost for setting up a mysql server for out small-scale software.

- The on-demand scalability provided by mysql is unmatched by any other competing database and it is guaranteed to have a 24x7 uptime.

- Features like complete atomic, consistent, isolated, durable transaction support, multi-version transaction support, and unrestricted row-level locking make it suitable for out project.

4.5 EXTERNAL INTERFACE REQUIREMENTS

4.5.1 User Interfaces

Interactions with the software will be at 2 levels:

1. Mobile Application GUI for Users
2. The interface for the Server

Mobile application GUI for Users:

- Our software will make use of a GUI where users will be able to browse, search and submit requests using an interactive touch screen.
- The user will be showed multiple screens to complete their respective tasks. These will be a little different for the Customer and the Freelancer, but both will only make use of the GUI.
- The GUI will consist of buttons and scrolling options. The interface will be based on a consistent theme. It will be engaging and simple for it to be accessible and understandable by users of all age groups.
- There will be a contrast of colors used so that users are able to differentiate between the background and the front buttons.
- The text displayed will be in a formal, legible font and size in order to follow the ADA.
- The voiceover option inside the android and IOS smartphones will also be able to interpret the fonts inside the software.
- There are no special interface requirements apart from the non-functional requirement of the user interface matching the interface of the mobile application of FoodPanda which is based on a similar concept of supply and demand of services/items.
- The UI will be optimized as it will be kept in line with the latest designs of applications. The buttons and boxes for entering information will be of smooth interface so that the users have a positive response to the application.
- The flow of screens and transitions will be smooth; the overall focus will be laid on providing aesthetic pleasure to the user through the software.

- The application can be used by users of all different professions, including and not only limited to students, hence simplicity in the design will also be our priority.

The interface for the server:

- This interface will be for the use of the client themselves.
- This will be a command line interface where all the errors and history of the requests made will be visible to the client.
- This is solely for the purpose of improving the application overtime and to oversee and improve security for the application.
- This will also be the interface for the requests sent to the database and the response sent back to the user. The privacy of the user will be well respected here as all personal information especially password will only be communicated using a hashed encryption.
- This will not be available for the public use only set up for the use of our client. This interface will be minimal since there is more of a need to view than to provide input.

4.5.2 Hardware Interfaces

Smart Phones:

- The hardware on which our application will work will be android smart phones and smart phones supporting IOS.
- The hardware communicates to the software through android operating system or the IOS. The bridge between the hardware and software is hence a grey area for us which will work on its own.
- The software will interact with the 2 operating systems only.
- React Native NPM packages etc. will do the job for us and hence we do not have to develop any bridge between the operating system and software, we do not need to create our own Native Module.

- The package will take care of all alerts, push notifications and more features required by the software.

- The data communicated will be strings and numbers only.

- The software will require connection of internet from the smart phone and a port from the smart phone will be required to send requests and receive responses to display the data, including lists of strings and numbers etc.

- Android devices with API 16 (android version 4.1 or higher) will be required for the software.

- IOS devices will be required to have a version of 9.0 or above.

- There will be no interaction control since security will be practiced at the backend mostly.

Hardware for server:

- A computer will be running round the clock to respond to all queries from the database.

- An internet connection will also be required by this computer and multiple ports will be required by this computer to respond to all the queries.

- This computer will contain the database for the software.

- The mysql server will be running on a LINUX machine.

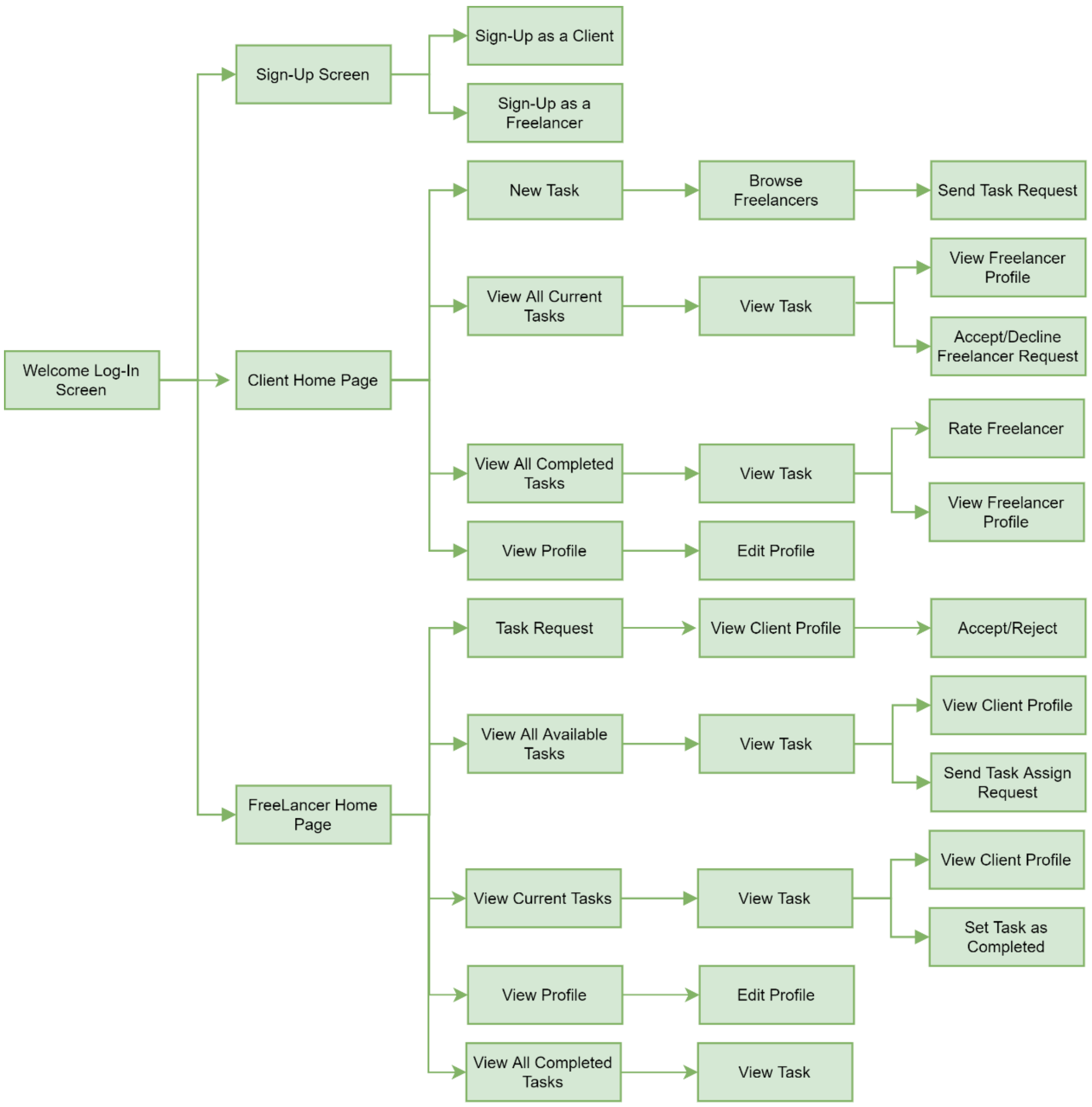
- The software will be mysql connector which will communicate using python libraries.

5 USER INTERFACE DESIGN

5.1 DESCRIPTION OF THE USER INTERFACE

We will be using react native for our project for a couple of reasons. React native allows *easy cross platform* coding. It has a large online community, so it has a lot of documentation available. It also has support for various APIs which we plan to use in the application. It also provides with fast rendering which is essential to our project.

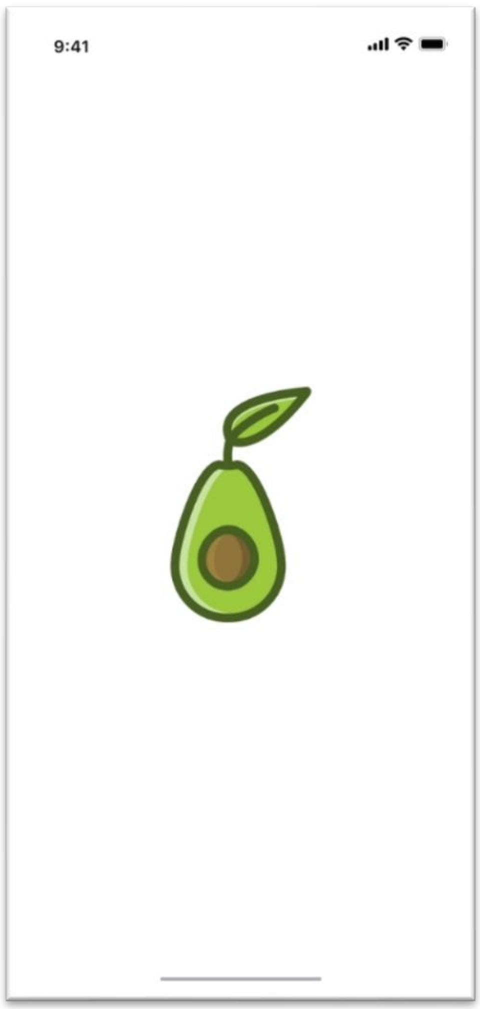
5.2 INFORMATION ARCHITECTURE



5.3 SCREENS

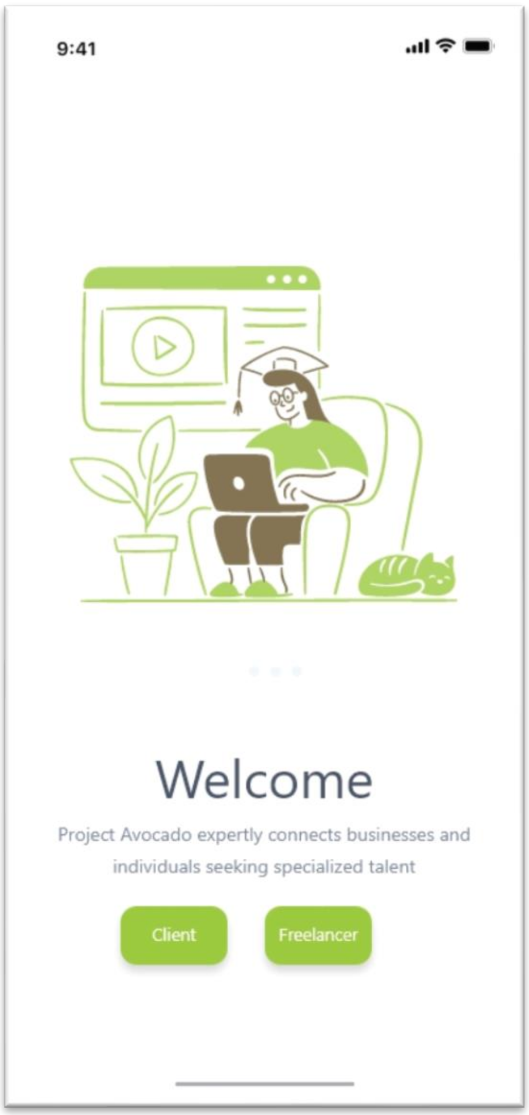
5.3.1 Loading Screen:

This is the loading screen every user sees when they open the mobile application. This will be common to both the client and the freelancer. This includes the logo of our app.



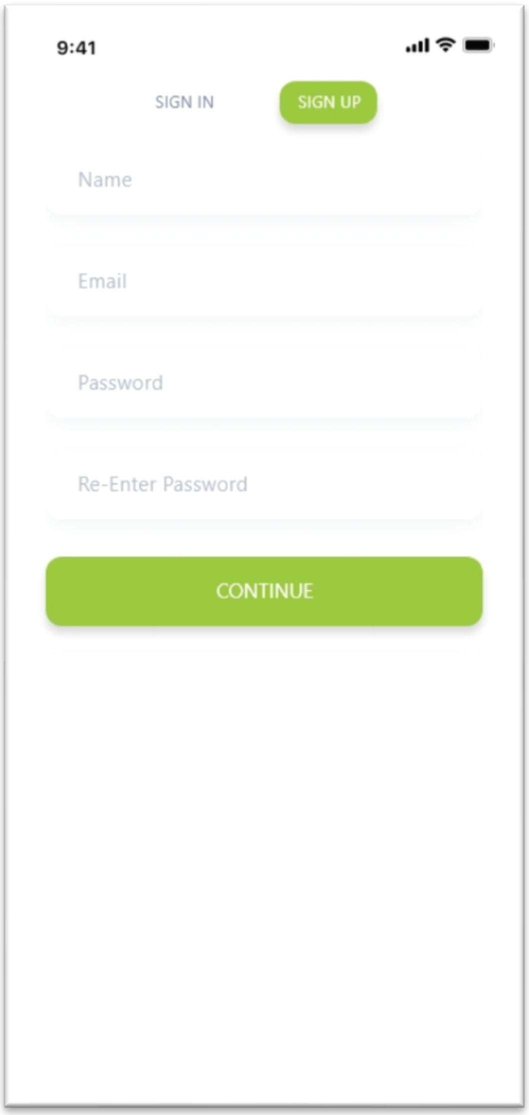
5.3.2 Welcome screen:

This is the welcome screen that every user sees once the app is loaded. It contains a short intro of the app and two options of client and freelancer. These will take the user to the respected login screens depending upon the choice.


9:41
Welcome
Project Avocado expertly connects businesses and individuals seeking specialized talent
Client
Freelancer

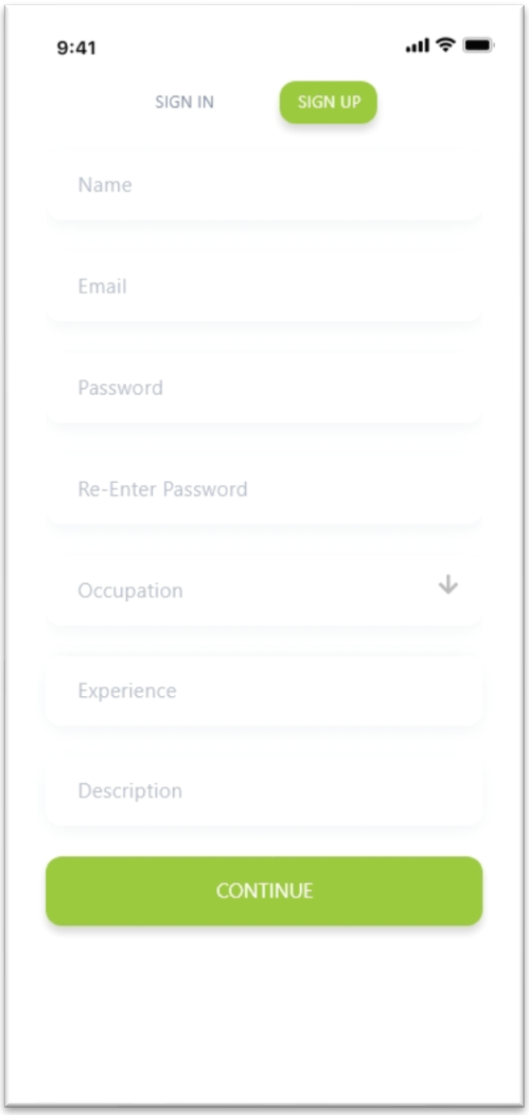
5.3.3 Client sign-up page:

This is the sign-up page for the client. After choosing the client option on the welcome page, this page will open. There we will ask the client for their name, email and password. After all the slots have been filled the client can press the continue button to take it to the sign-in page. Or if they already have an account, they can directly click the sign-in button on the top left.



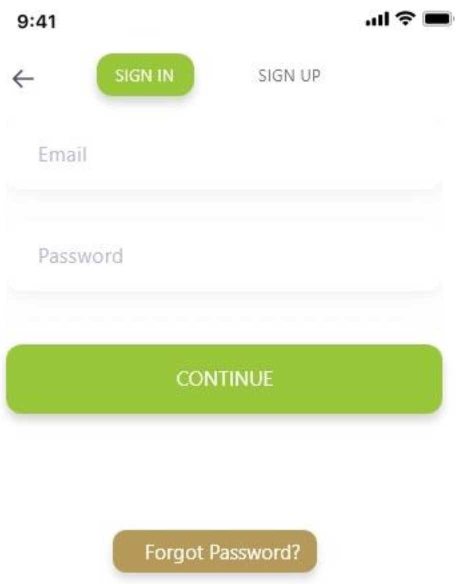
5.3.4 **Freelancer sign-up page:**

This is the sign-up page for the Freelancer. After choosing the freelancer option on the welcome page, this page will open. There we will ask the freelancer for their name, email, password, occupation, job description and job experience. After all the slots have been filled, the freelancer can press the continue button to take it to the sign-in page. Or if they already have an account, they can directly click the sign-in button on the top left.



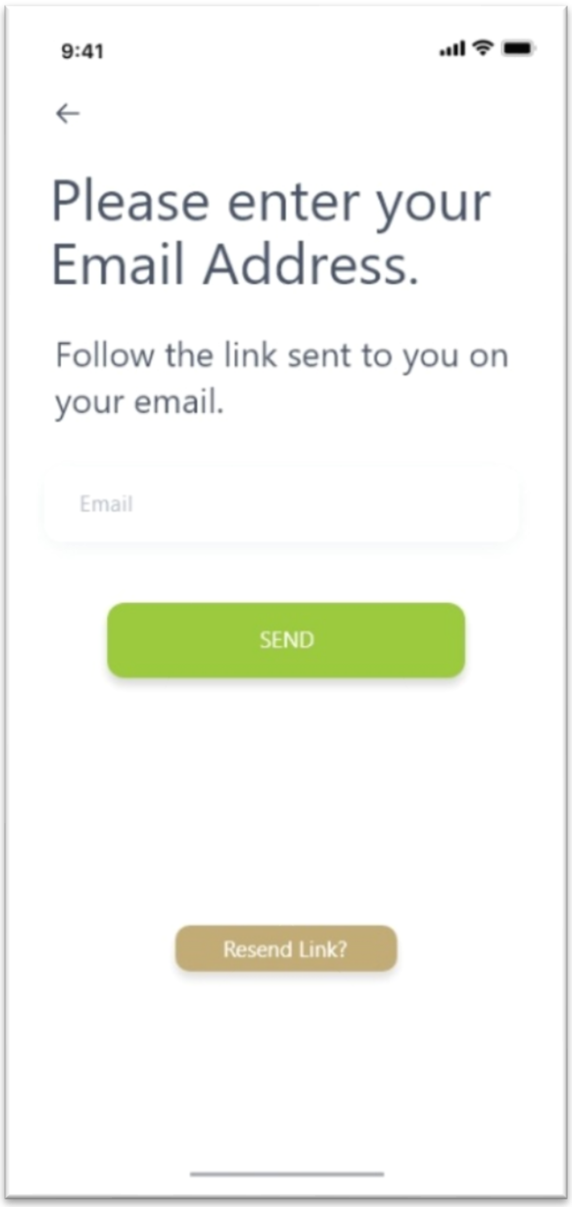
5.3.5 **Sign-in Page:**

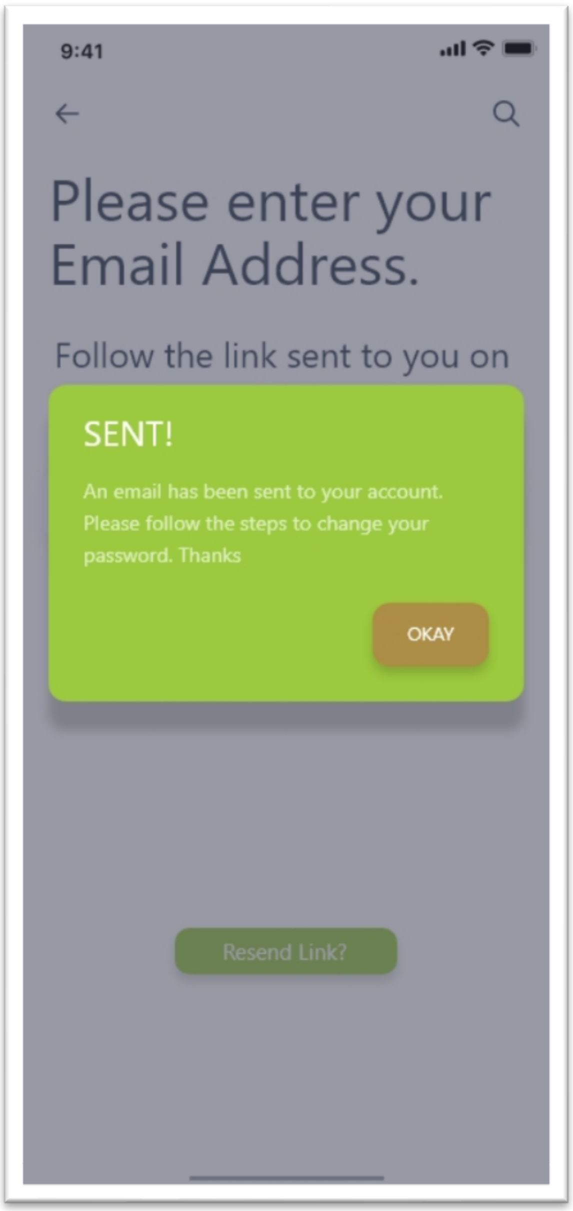
After filling out the signup of either the client or the freelancer and pressing continue, the user will be redirected to this page. Here the app will ask the user their email or password. In case the user has forgotten their password, there is a forget password button as well. If the user wants to make another account, he can press the sign-up button on the top left.



5.3.6 **Forgot Password** *Page:*

If the user clicks the forget button in the sign-in page, they will be directed to this page where they will enter their email and a link will be send to their email address. A pop-up message will be displayed on the screen of the user if the link has been successfully sent. If the user doesn't receive a link, that they can press the resend link button. If the user has accidently pressed forgot password button, they can go back to the sign-in page by pressing the top left button.

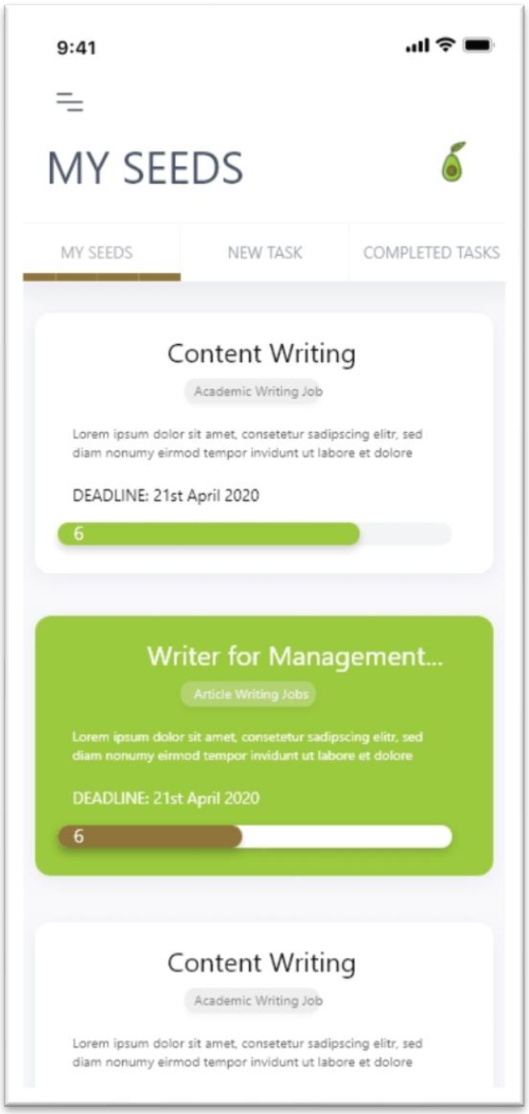

9:41
Please enter your Email Address.
Follow the link sent to you on your email.
Email
SEND
Resend Link?


9:41
Please enter your Email Address.
Follow the link sent to you on
SENT!
OKAY
Resend Link?

An email has been sent to your account. Please follow the steps to change your password. Thanks

5.3.7 **Client home** *page/my seeds:*

After successfully signing in as a client, this is the homepage that the client will be able to see. My seeds will show the client the tasks that he has allotted to the freelancers and the description of the jobs. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then on the bottom right there is an option to refresh the page. Then there is a navigation bar which contains the options of new task and completed task.


9:41
MY SEEDS
MY SEEDS
NEW TASK
COMPLETED TASKS
Content Writing
Academic Writing Job
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DEADLINE: 21st April 2020
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Writer for Management...
Article Writing Jobs
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DEADLINE: 21st April 2020
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Content Writing
Academic Writing Job
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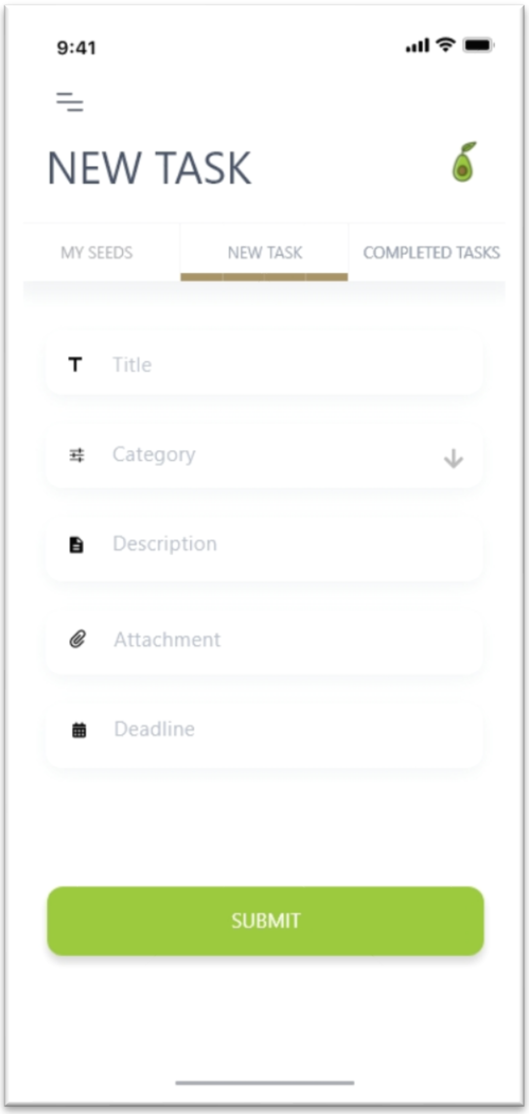
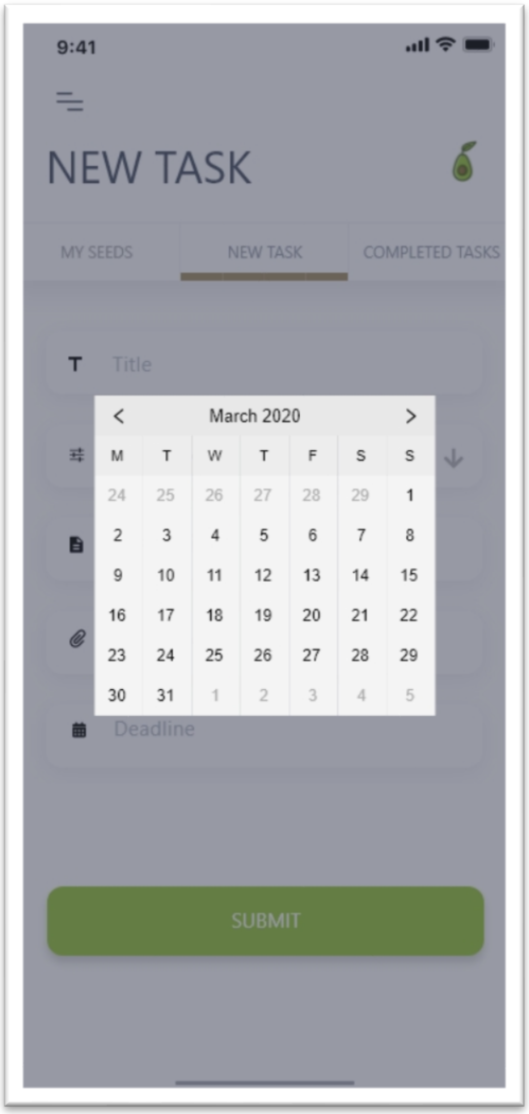
5.3.8 New Task:

If the user clicks the new task button, they will be redirected to this page. Here the client can create a new task to get completed. The app will ask the client for the title of the task, which category the task lies in, the description of the task, any attachments related to the task and the deadline of the task. After filling out all the requirements, the client should press submit to upload the task onto the servers. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then there is a navigation bar which contains the options of My seeds and completed task.



5.3.9 Expanded deadline

When the user is filling out details for a new task, one of the options is to decide the deadline. To make it a user-friendly process, a pop-up calendar appears whenever you click on the deadline box. This will help the user to easily find and set a deadline without worrying about the format of the date.



5.3.10 Completed Task for Client:

If the client pushes the completed task button on the navigation bar, they will be directed to this page. Here they can view all the tasks that they assigned and that have been completed. It will show the freelancer that took the task, the description of the task and if you press the task, the full details of the task will open. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then there is a navigation bar which contains the options of My seeds and completed task

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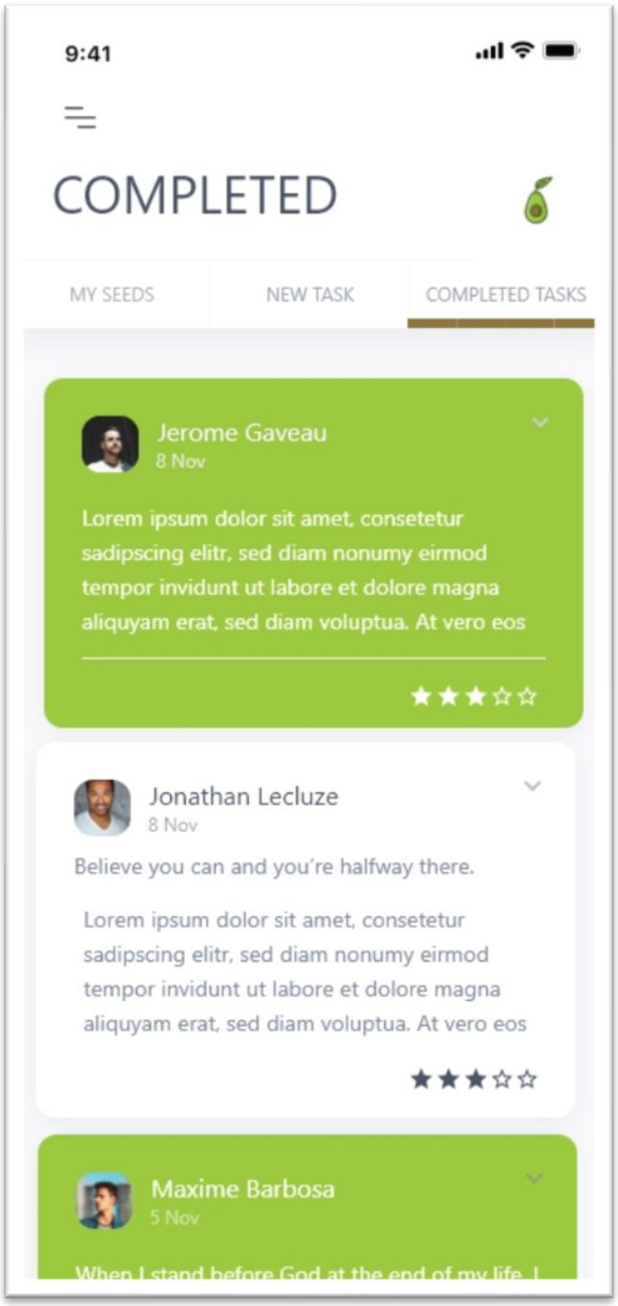

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Believe you can and you're halfway there.

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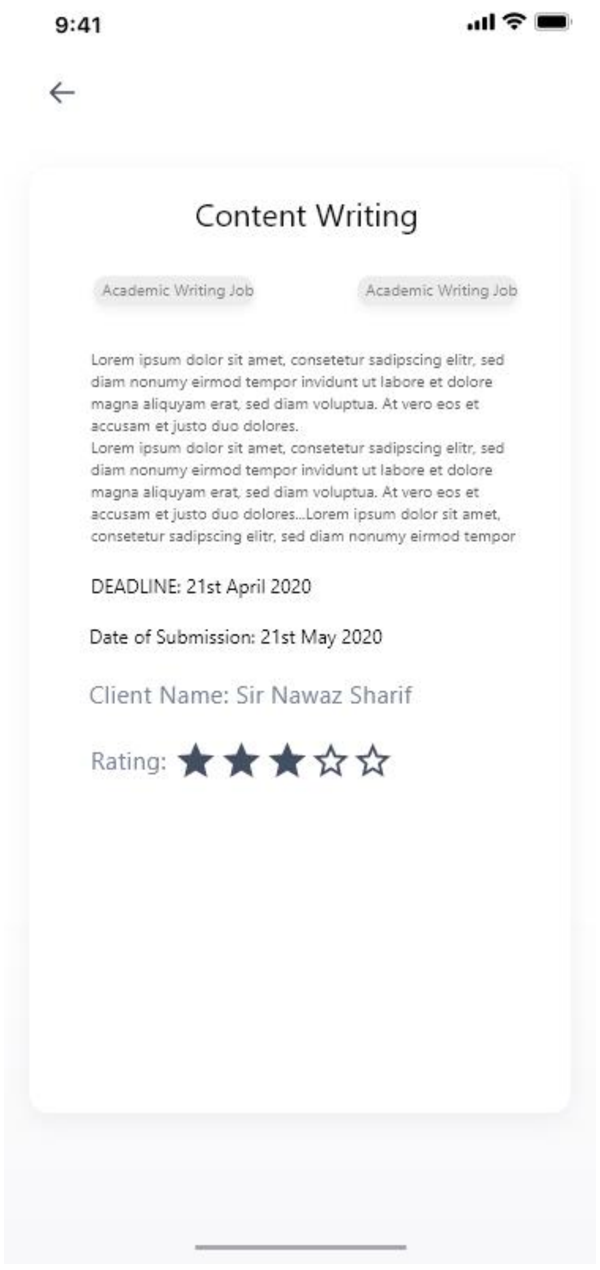
When I stand before God at the end of my life, I

5.3.11 Completed Task description:

If a user clicks on the completed task, that job will pop up. This will display the category of the job, the description, the completed date and the freelancer who completed the task. Below that there is an option to rate the freelancer depending on how well he has completed the task. 1 star will represent a terrible job in which your requirements haven't been met properly, whereas 5 stars will represent a perfect job where all the requirements have been met.



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DEADLINE: 21st April 2020

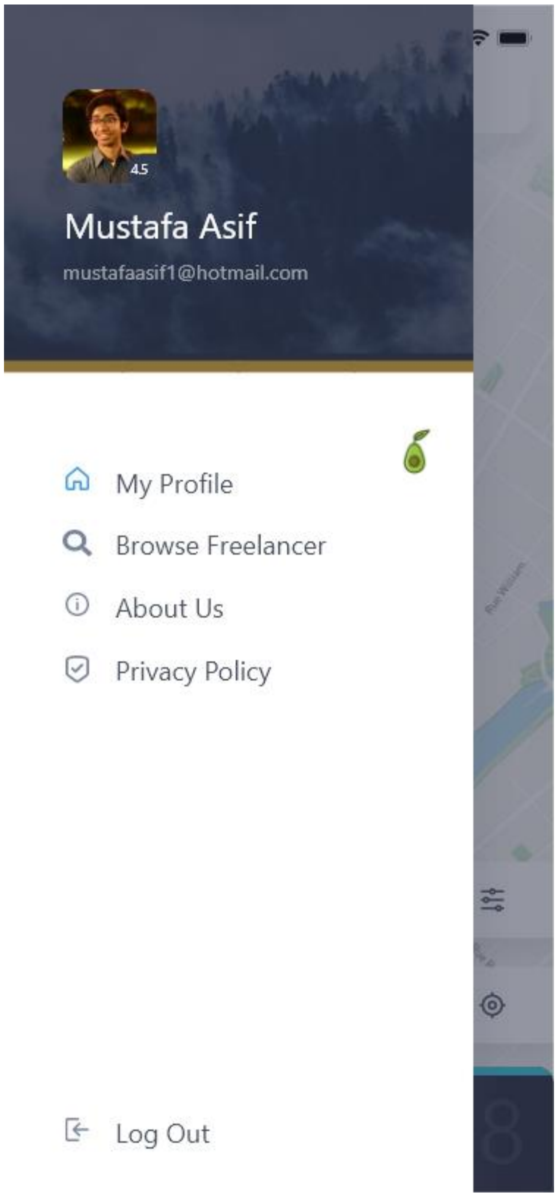
Date of Submission: 21st May 2020

Client Name: Sir Nawaz Sharif

Rating: ★★★☆☆

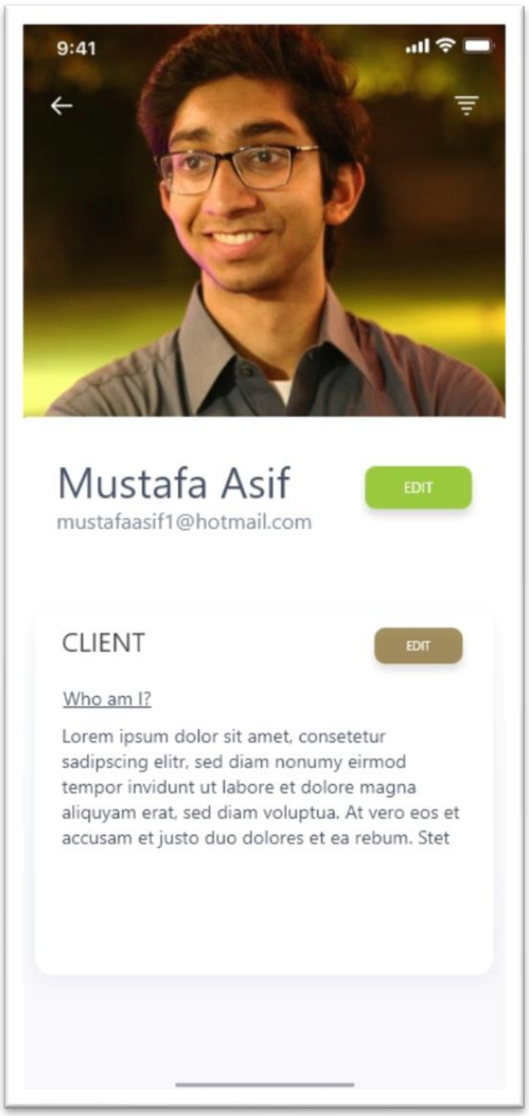
5.3.12 Dashboard client:

If we press the dashboard sign in any of the screens, this screen will show. Here the client has the options to view his profile, browse freelance to assign his task, view the about us section, check out the privacy policies and to log out. If you press the logout button, you will be directed to the welcome page. The rating of the user is also displayed with his image. And if the user wishes to go back, he can press the avocado sign on the middle right of the dashboard which will take him back to the home page.



5.3.13 My Profile:

If the client presses the “My profile” button on the dashboard, they shall be directed here. On this page you see your email, your name and a description of yourself. To edit any of these things, press the edit button in front of them and to return press the back arrow on the top left of the screen.



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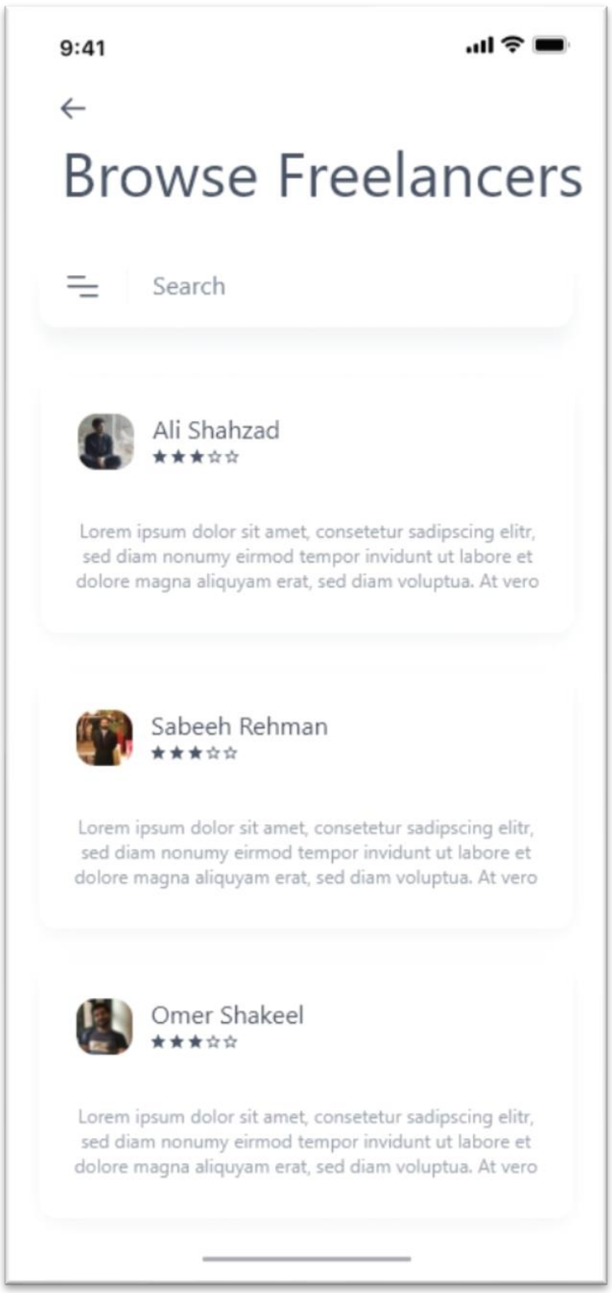
5.3.14 Browse Freelancer

The client is directed to this page after pressing the Browse freelancer button. Here the client can browse different freelancers and assign a task to them that hasn't already been assigned. The names of the freelancers, their ratings and a short description of themselves. To go back to the home page, there is a back arrow on the top left. Above the list, there is an option to search a specific freelancer and to its left is a filter option that a client can use to reduce the number of freelancers shown according to their preference.



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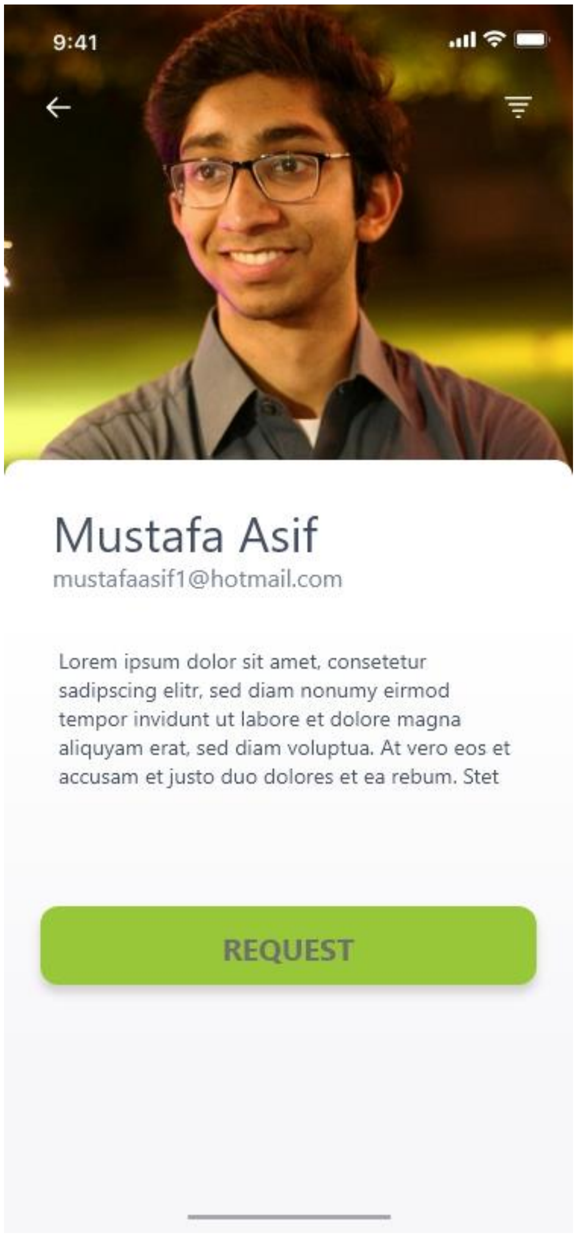
5.3.15 Requesting Freelancer:

After pressing on a freelancer icon on the browse freelancer page, the user will be directed here. Here the freelancers name, email and description of their jobs will be available to the client. If the client decides to avail the services of this specific freelancer, they will press the request button to submit a request. If the client wishes to go back to browsing, they will press the backwards arrow on the top left of the screen.



Mustafa Asif
mustafaasif1@hotmail.com

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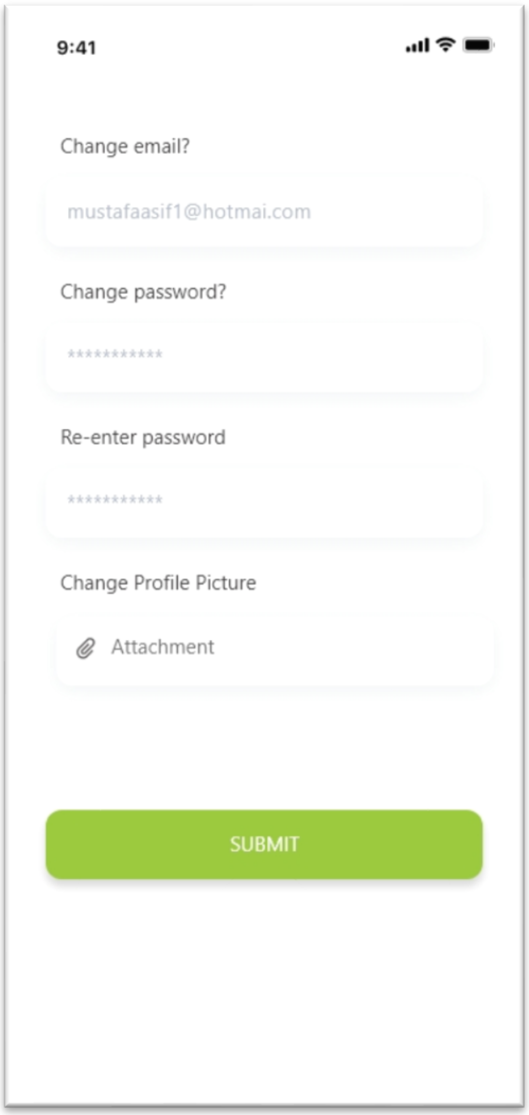
5.3.16 Edit profile:

Once you click on the edit button in front of your name, you will be directed to this page. Here the client can edit his details which include change email, change password and to change their profile picture. Once done, press the submit button to apply the changes.


9:41

Change email?

mustafaasif1@hotmai.com

Change password?

****

Re-enter password

****

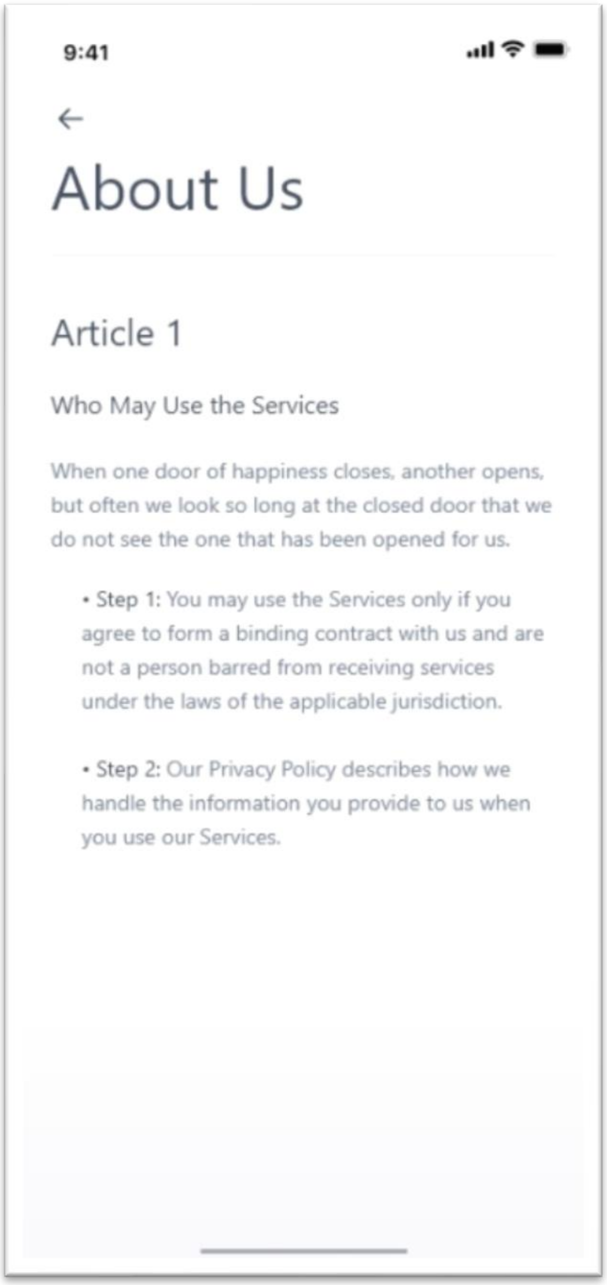
Change Profile Picture

Attachment

SUBMIT

5.3.17 Privacy Policies and About Us screens:

On the dashboard, if you press the Privacy Policies or the about us buttons, you will be shown the details of the respected screens.



9:41

About Us

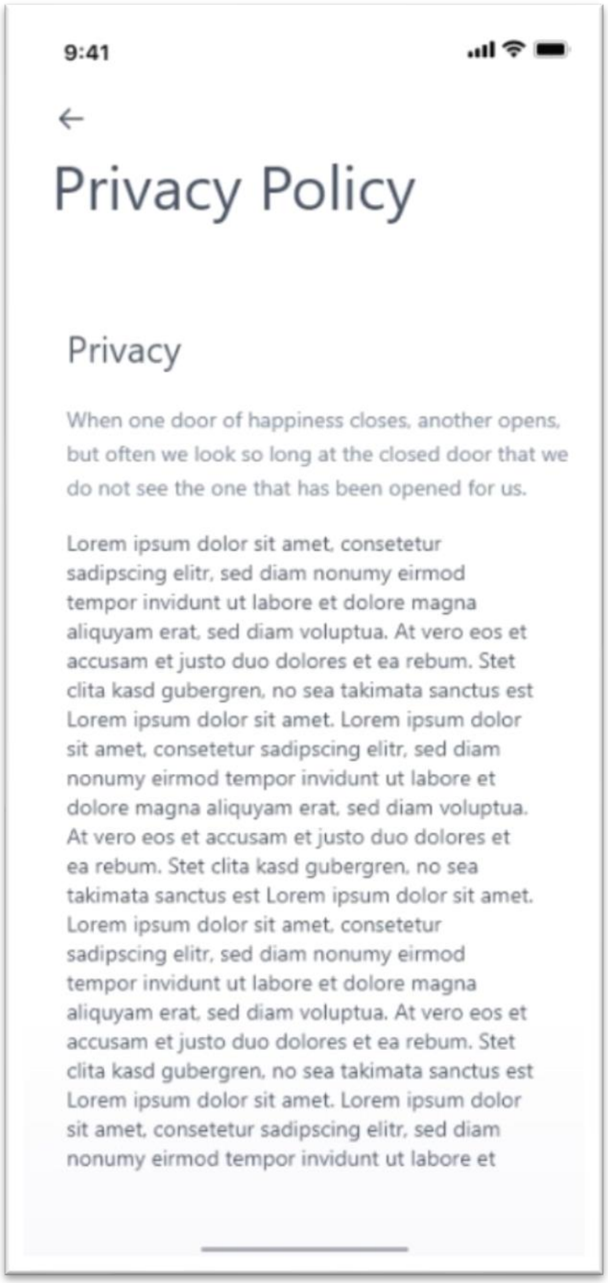
Article 1

Who May Use the Services

When one door of happiness closes, another opens, but often we look so long at the closed door that we do not see the one that has been opened for us.

- Step 1: You may use the Services only if you agree to form a binding contract with us and are not a person barred from receiving services under the laws of the applicable jurisdiction.

- Step 2: Our Privacy Policy describes how we handle the information you provide to us when you use our Services.



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Privacy Policy

Privacy

When one door of happiness closes, another opens, but often we look so long at the closed door that we do not see the one that has been opened for us.

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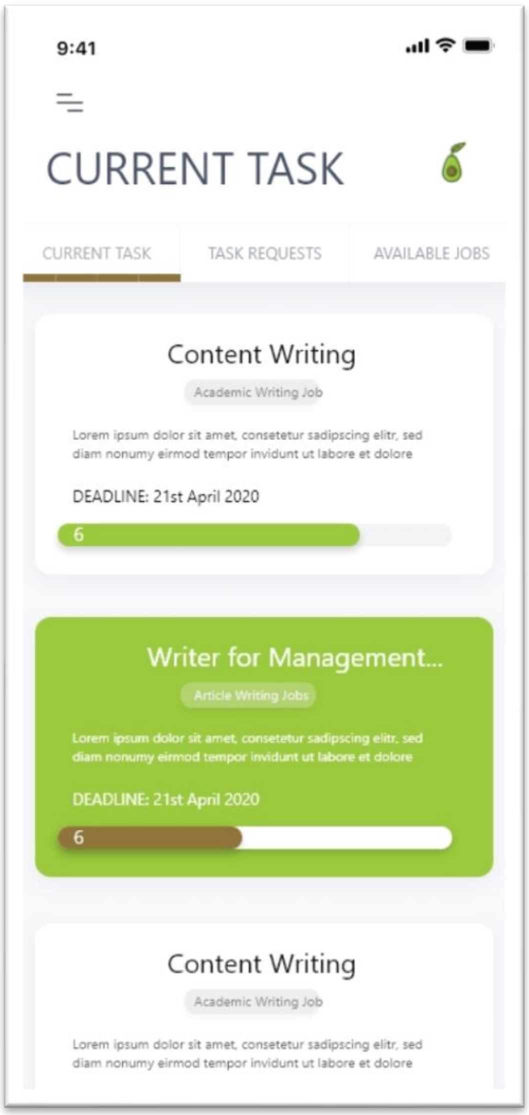
5.3.18 Freelancer’s home page:

After successfully signing in as freelancer, this is the homepage that the freelancer will be able to see. Current Task will show the freelancer the tasks that he has taken from the clients and the description of the jobs. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then on the bottom right there is an option to refresh the page. Then there is a navigation bar which contains the options of task requests and Available task.



Content Writing
Academic Writing Job
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DEADLINE: 21st April 2020
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Writer for Management...
Article Writing Jobs
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DEADLINE: 21st April 2020
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Content Writing
Academic Writing Job
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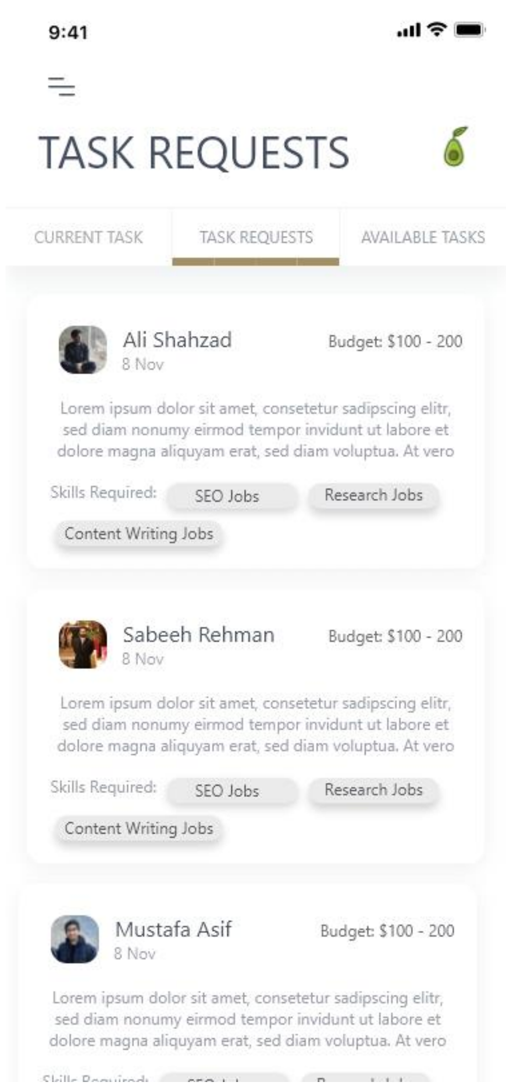
5.3.19 **Task Requests:**

After the freelancer presses Task Requests button, they will be redirected to this page. Here if some client has specifically asked for their service, their request will be shown on this page. After pressing on a specific task, the full details of the tasks will be shown with the option to either accept the task or to reject it on the button of the screen. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then there is a navigation bar which contains the options of current task and available task.



Ali Shahzad
8 Nov
Budget: $100 - 200

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Sabeeh Rehman
8 Nov
Budget: $100 - 200

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Mustafa Asif
8 Nov
Budget: $100 - 200

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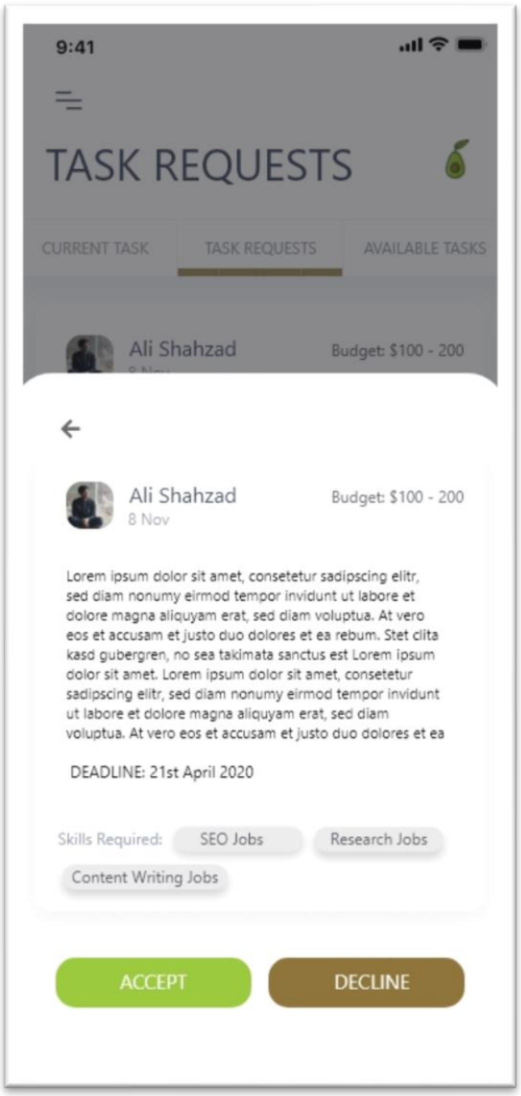

Ali Shahzad
8 Nov
Budget: $100 - 200

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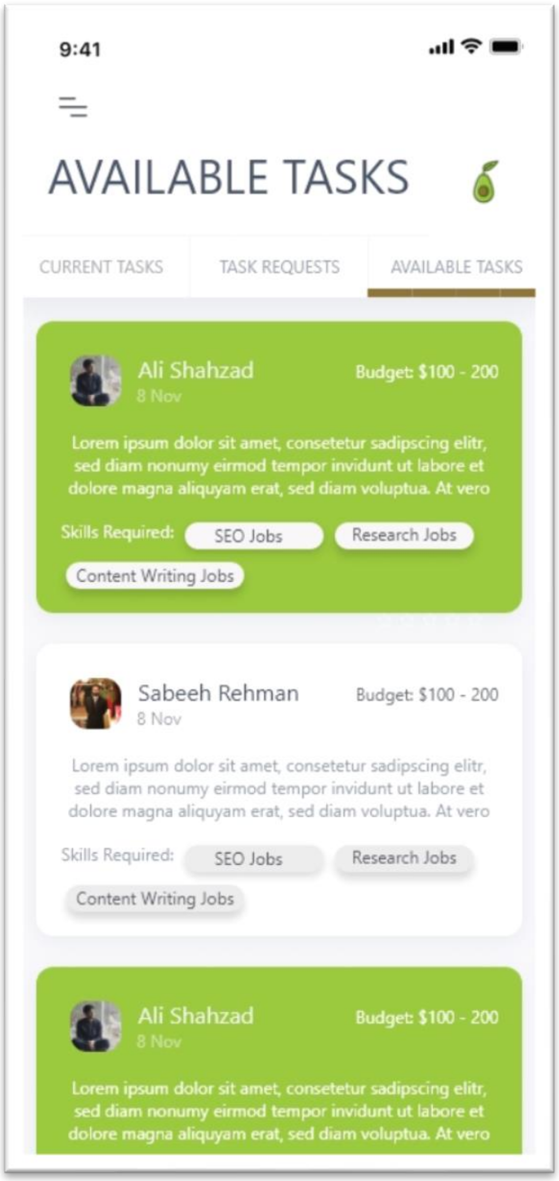
DEADLINE: 21st April 2020

5.3.20 **Available Tasks**

If the freelancer presses the available task button on the navigation bar, he will be redirected here. On this page the freelance view tasks that haven't been taken up by anyone yet, for such tasks they can submit a request. To submit a request, you click on a task which will open its details and at the bottom there is a submit request button. After you have submitted a request, the client gets to accept or reject their request. On the top right there is a shape of an Avocado. This is the home button on the app. On the top left there is a button which will display the dashboard. Then there is a navigation bar which contains the options of current task and available task.



Ali Shahzad Budget: $100 - 200
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Skills Required: SEO Jobs Research Jobs Content Writing Jobs

Sabeeh Rehman Budget: $100 - 200
8 Nov
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Skills Required: SEO Jobs Research Jobs Content Writing Jobs

Ali Shahzad Budget: $100 - 200
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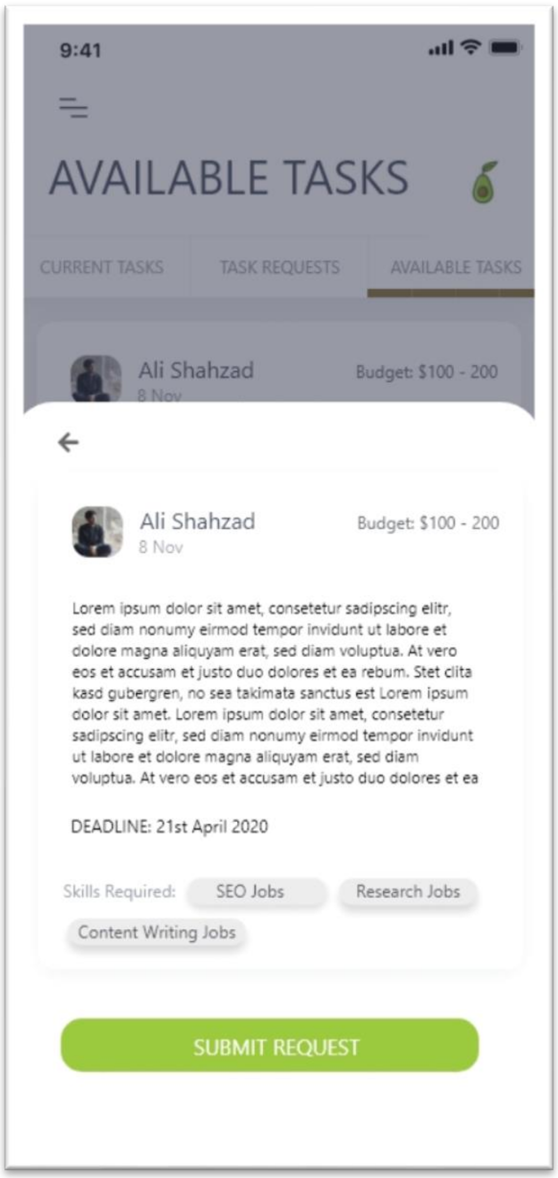

Ali Shahzad Budget: $100 - 200
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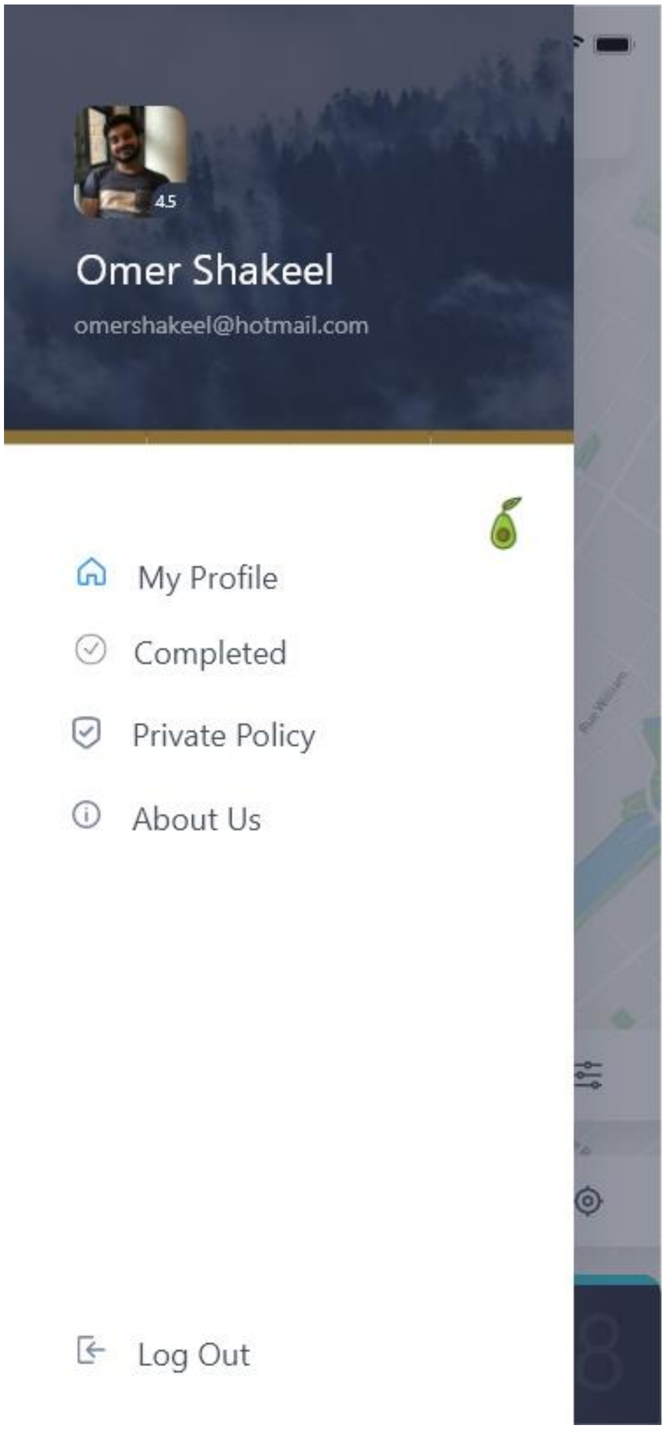
DEADLINE: 21st April 2020
Skills Required: SEO Jobs Research Jobs Content Writing Jobs

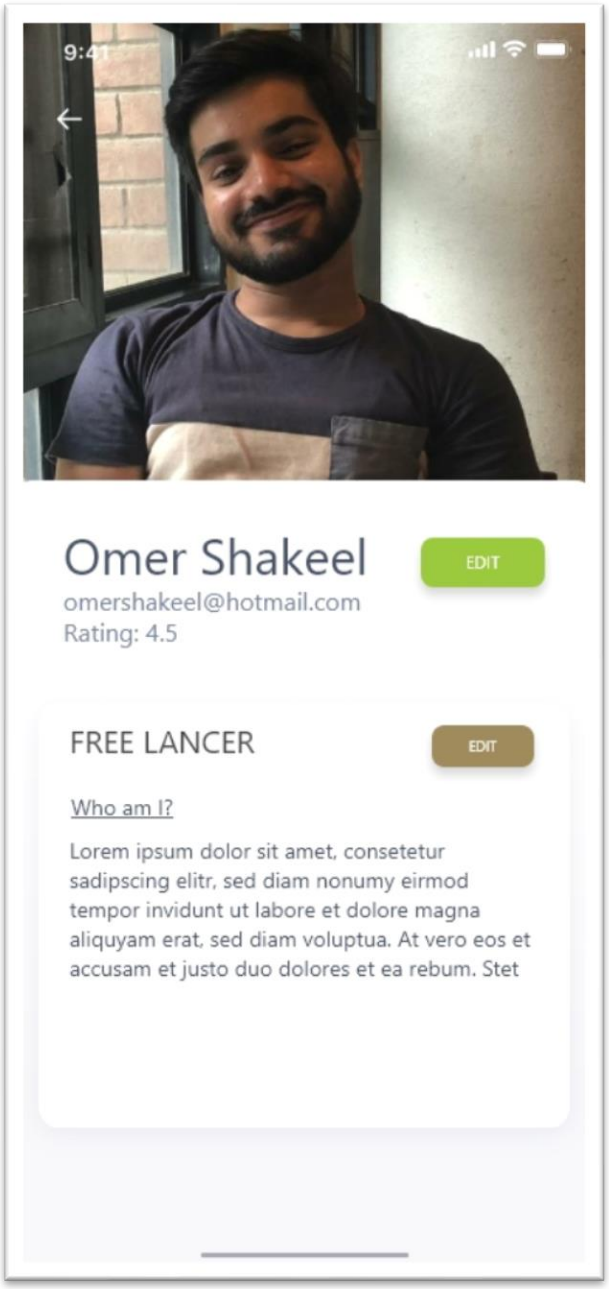
5.3.21 Dashboard Freelancer:

If we press the dash board sign in any of the screens, this screen will show. Here the freelancer has the options to view his profile, view the about us section, check out the privacy policies, see his completed tasks and to log out. The about us and privacy policies are the same as mentioned in the client part so we will not be showing them again. If you press the logout button, you will be directed to the welcome page. The rating of the user is also displayed with his image. And if the user wishes to go back, he can press the avocado sign on the middle right of the dashboard which will take him back to the home page.



5.3.22 My Profile:

If the freelancer presses the “My profile” button on the dashboard, they shall be directed here. On this page you see your email, your name and a description of yourself. To edit any of these things, press the edit button in front of them and to return press the back arrow on the top left of the screen.



Omer Shakeel
omershakeel@hotmail.com
Rating: 4.5

FREE LANCER

Who am I?

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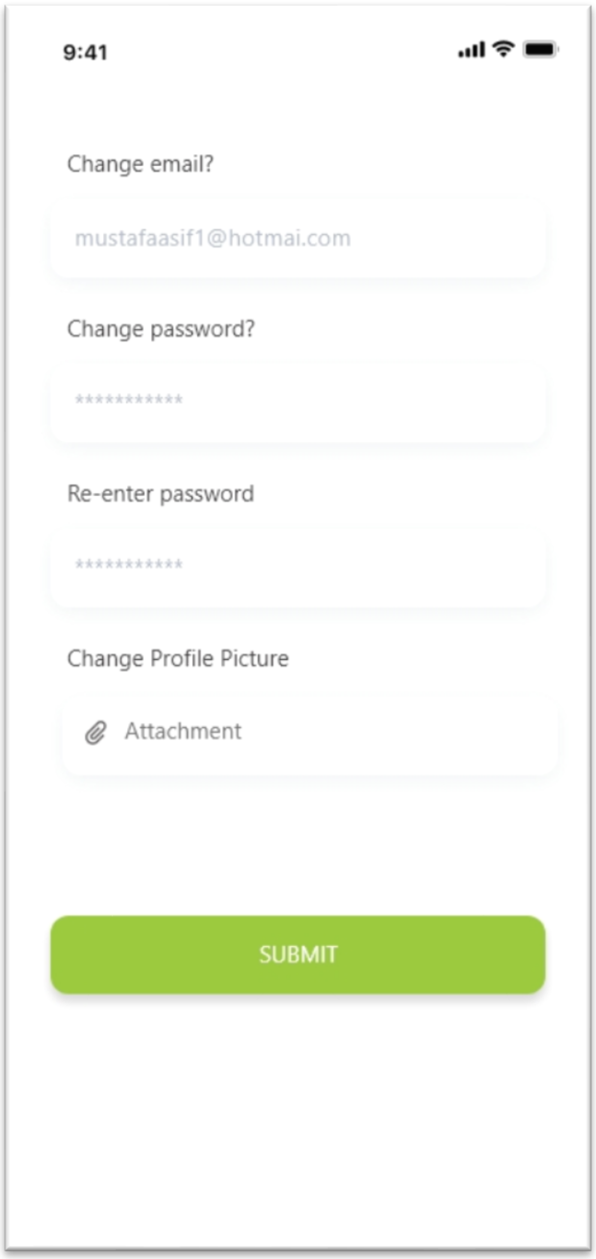
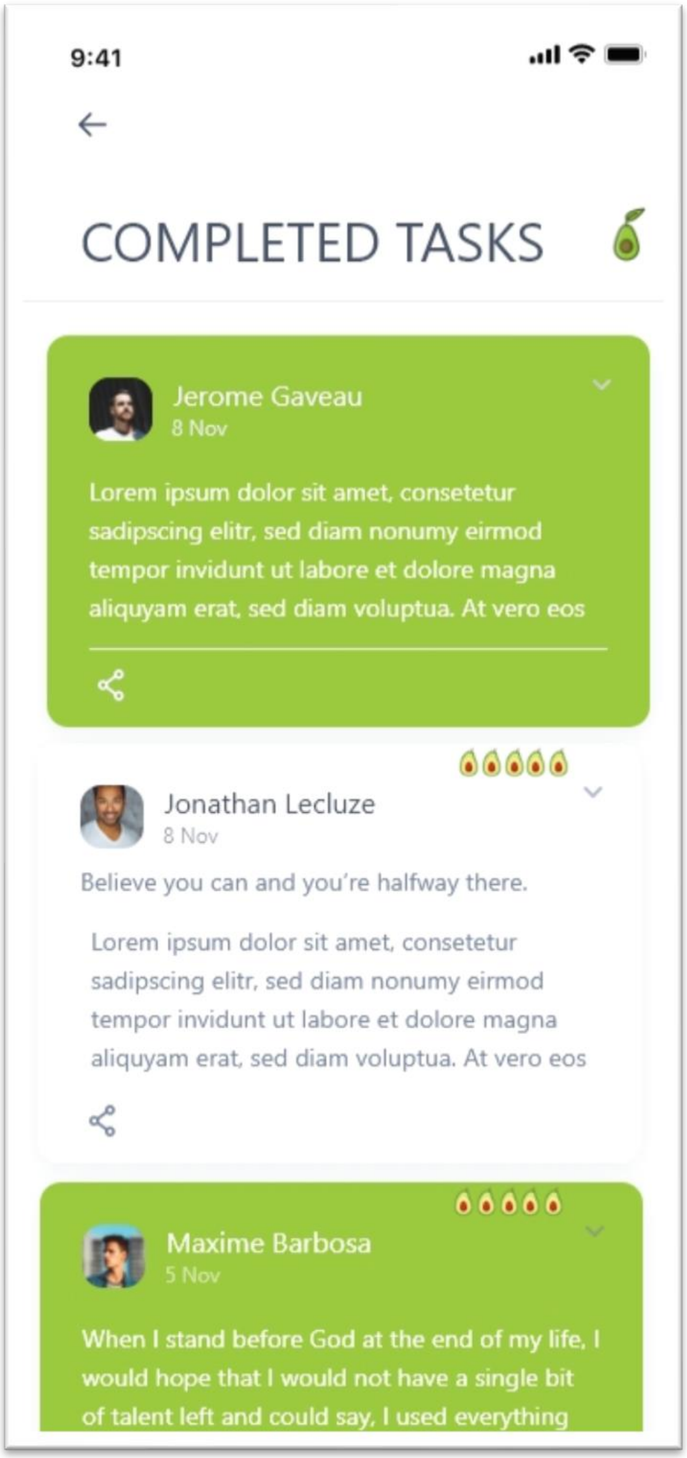
5.3.23 Edit profile:

Once you click on the edit button in front of your name, you will be directed to this page. Here the client can edit his details which include change email, change password and to change their profile picture. Once done, press the submit button to apply the changes.



5.3.24 Completed Tasks

After pressing the completed task button on the dashboard, the freelance will be directed to this page. Here they can view all the previous tasks that they have completed, and the rating given on those tasks. To go back to the dashboard, press the arrow button on the top left and to go back to the home page press the avocado button on the top right.



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COMPLETED TASKS

Jerome Gaveau
8 Nov

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Jonathan Lecluze
8 Nov

Believe you can and you're halfway there.

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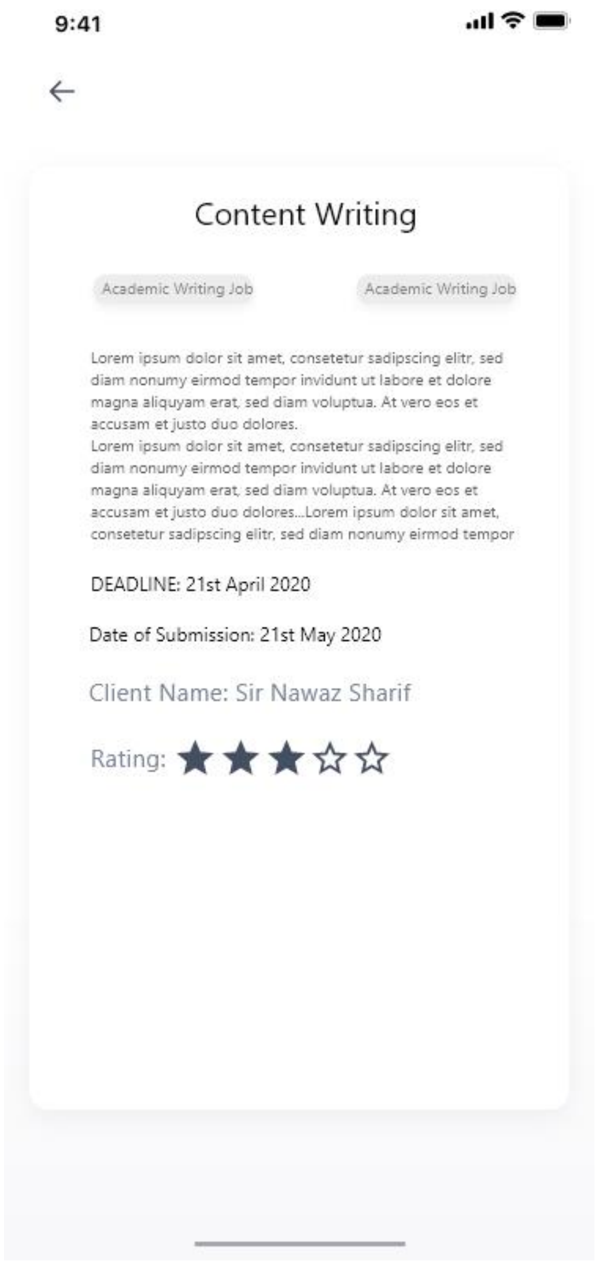
Maxime Barbosa
5 Nov

When I stand before God at the end of my life, I would hope that I would not have a single bit of talent left and could say, I used everything

5.3.25 Completed Task description:

If a user clicks on the completed task, that job will pop up. This will display the category of the job, the description, the completed date, the deadline and the name of the client who assigned the task. Below that there is an option to rate the client depending on his cooperation, flexibility and professionalism. 1 star will portray a terrible client, whereas 5 stars will portray an excellent client.



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DEADLINE: 21st April 2020

Date of Submission: 21st May 2020

Client Name: Sir Nawaz Sharif

Rating: ★★★☆☆

5.4 USER INTERFACE DESIGN RULES

- Provide meaningful paths and exits. Getting to a specific function of the app and returning back from it should be simple and straight forward. Users shouldn't have a lot of technical knowledge to operate this app. Overall the user should be able to find what they are looking for without any problem.

- Accommodate users with different skill levels and should be accessible to all types of users. System will be used by users with many skill levels. And all of them should be able get their job done without specific technical support. This system will be designed with simple interfaces, easy to understand operations.

- To improve the workings for the app. The rating system given to the user will make sure to tackle all the areas that are lacking in terms of performance and authenticity of the freelancers and the clients

6 Other Non-functional Requirements

6.1 Performance Requirements

1. The Average response time for loading tasks or finding new results will always be between 1-10 seconds.
2. If there are a lot of users online, any result search should not take more than 20 seconds.
3. The system must support at least 30 concurrent users as multiple users are expected to work concurrently.
4. The database must be able to store data of at least 1000 clients and freelancer records without any duplicates and shall have the ability to expand at later stage.
5. The database capacity should be expandable and shouldn't be bounded by any constraint of the app.
6. Any operation done must instantaneously update the database.
7. The error rate shall be 5% i.e. requests resulting in errors
8. The system shall be able to handle at least 3000 requests per second.
9. Average load time must be no more than 2 seconds.
10. The software shall be optimized to use no more than 512 MB of Ram so that it is able to run on almost all mobile devices.

6.2 Safety and Security Requirements

6.2.1 Confidentiality

- The network communication must also be secured to prevent misuse of user's data. The details of the users should be secured in the database for which only our client has access to.
- Private information will be protected even inside the database since multiple schemas are used solely for this purpose.

- The passwords and other sensitive information will not be accessible to the client.
- Sensitive information will only be communicated by using a hash which can only be encrypted but not decrypted.
- Sensitive information stored in the database will also be a hash.

6.2.2 Authentication

- Each login will use a double encryption technique to ensure that the user itself is the one who is login in.
- Username will be unique for each user and both password and username will be checked on login.
- Password will be confirmed on each log in and a password will have a minimum requirement in order to prevent common, easily breakable passwords. The option to change password will be available at any time.
- The client expects us to provide the minimum security provided by all software i.e a common login with unique password which can be updated.

6.2.3 Safety

- In case of a failure of the database, all the data stored should be recovered by the backups that are constantly being made.
- In case of a client being scammed by a freelancer or any concerns by the customers, the users will be able to communicate with the client to get the issue rectified. Issues will be communicated using email application.
- Database will be designed to provide maximum security, i.e. There will be multiple schemas which will provide a barrier between the different users in order to provide privacy.

6.3 SOFTWARE QUALITY ATTRIBUTES

6.1.1 Scalability

- The system should be able to expand as more and more people join without major changes in the database or the application design.
- The jobs should grow to the scale that all freelancers are able to request for a job of their interest at all time. Hence making the software usable even when they do not have requests sent to them particularly.
- The customers will be able to find freelancer for their jobs no matter how spef
- All freelancers should be identified with their ratings in the long run with any scams filtered out when reported.
- All users will be able to view all their previous tasks and view the freelancer they hired if they want to hire the same in future.

6.3.2 Availability

- We shall be using A.W.S as the database platform for our application. This always enables the application to be available to users. However, the availability will be dependent on a stable internet connection.
- The list of freelancers and the list of jobs will be visible to the customers whenever requested given a stable internet connection.
- The jobs will be available to view as soon as posted.

6.3.3 Interoperability

- The system should be able to communicate, send and receive data over both android and for IOS applications.
- The exchange of information will be reliable and timely.

6.3.4 Reliability

- The system shall have an uptime rate of 98%. This will be done by rigorous testing after development.
- System will never lose customers' private data especially about jobs in progress.
- System will send request to the correct user from the correct user.

6.3.5 Usability

- The user interface should be optimized to according to the user profiles so that they don't find any difficulties to understand the procedures.
- The requests made will be transmitted quick and response time will be fast enough to keep users indulged.
- User interface will be optimized to be attractive and indulging towards the user so that they are convinced to use it repeatedly.

Appendix A - Group Log

15th March: Started discussion about the document and assigned roles to everyone and divided work (2 hour)

20th Mar made our initial screens and video called about changes (1 hour)

22nd Mar made a sample document and discussed areas of improvement. (1 hours)

28th Mar: finalized screens for our app and got them approved from our client (1 hour)

2nd April: cross checked all the diagrams (1 hour)

5th April took critique from the TA and finalized the document and applied uniform formatting (5 hours)

Appendix B – Contribution Statement

Name	Contributions in this phase	Approx. Number of hours	Remarks
Muhammad Sabeeh Rehman	Section 2,3,5 and screens designs	30	
Muhammaf Ali Shahzad	Section1 and 6 and formatting the document	12	
Maroof Azeem Saleemi	Section 4 and section 6	10	
Omer Shakeel	Section 4	10	
Mustafa Asif	Section 3 and screens	15	