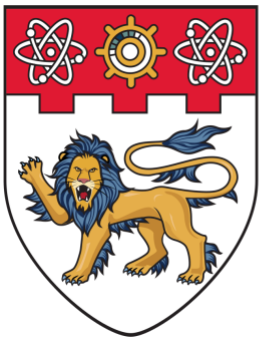
Project No: A3257-231



NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

Web Application for Student-related Activities (Front-end)

Interim Report

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Supervisor: Assoc Prof Andy Khong Wai Hoong

School of Electrical & Electronic Engineering

2023

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Acronyms

NTU	Nanyang Technological University
I&E	Innovation and Entrepreneurship
UI/UX	User Interface and User Experience
UI	User Interface
UX	User Experience
SDLC	Software Development Life Cycle
UAT	User Acceptance Testing
CTA	Call to Action
JS	JavaScript
JSX	JavaScript Syntax Extension
DOM	Document Object Model
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
CV	Curriculum Vitae
FAQ	Frequently Asked Questions
T&C	Terms and Conditions
API	Application Programmable Interface

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Chapter 1
Introduction

1.1 Motivations

In recent years, Nanyang Technological University (NTU) has received feedback from students highlighting the absence of an ideation platform. This hampers students' ability to connect with peers who shares similar interests and skillsets, making it challenging to form teams to participate in competitions and entrepreneurial projects. In collaboration with the NTU Innovation and Entrepreneurship (I&E) department, which aims to promote holistic entrepreneurship education and experiential learning, this project aims to empower students with the tools and resources needed to form effective project teams, collaboration, and innovation, through a web application.

1.2 Objectives and Scope

The primary objectives of this project are to design and develop a user-centric web application aimed at supporting the dynamic needs of students within NTU, fostering a positive user experience. The application will serve as a digital platform for students to feature project ideas, showcase their skillsets, and express personal interests. This facilitates the seamless formation of student teams across diverse project types, spanning competitions, entrepreneurship ventures, and collaborative projects of any nature. Additionally, the application aspires to foster a strong social support system

within the NTU community, encouraging cross-disciplinary interactions enhancing the overall academic experience. Ultimately, this project aims to deliver an intuitive, engaging, and visually appealing application, aligning with the critical role of User Interface (UI) and User Experience (UI/UX), providing great user experience, allowing NTU students of similar interest to connect.

1.3 Project Plan and Strategy

1.3.1 Agile Methodology and Its Application

Software Development Life Cycle (SDLC) methodologies are fundamental in planning, designing, developing, testing, and deployment software applications. Agile, chosen over the traditional Waterfall methodology, provides flexibility, increased user engagement and supports the application's ever evolving needs through iterative improvements. Agile is particularly suited for this user-centric project as it aligns with the goal of prioritising user involvement and feedback. Where in contrast, Waterfall's linear and sequential approach is better suited for projects with stable requirements and limited user interactions.

1.3.2 Gantt Chart Overview

The following Gantt chart serves as a visual representation of the project's roadmap, mapping out phases such as Planning & Requirements Analysis, Design, Development, Testing, and Deployment. Each stage within the Gantt chart reflects Agile principles, focusing on flexibility, collaboration, and continuous improvement, aiming to deliver a robust and user-centric solution. Further details for each stage are described below the Gantt chart.

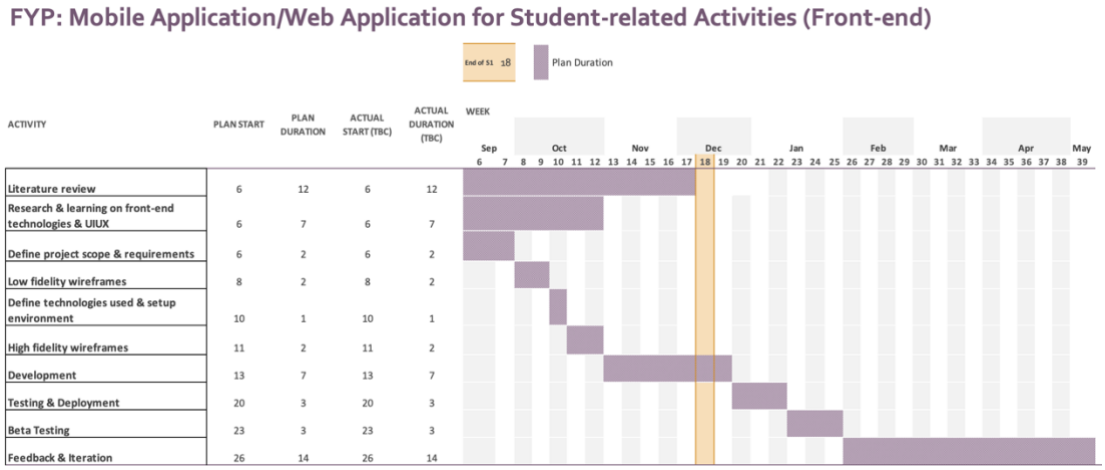

Figure 1: Gantt Chart

Planning & Requirements Analysis Stage

Literature review: Research and review of relevant projects/sites.

Research & learning on front-end technologies and UI/UX: Initiate preliminary research to enhance understanding of front-end technologies and fundamental UI/UX design principles.

Define project scope & requirements: Clearly outline the project's scope and gather detailed requirements from users' needs.

Design Stage

Low fidelity wireframes: Create low-fidelity wireframes to visualise the initial layout and functionality of the application.

High fidelity wireframes: Create high-fidelity wireframes from the feedback garnered from users with the low-fidelity wireframes.

Define technologies used and setup environment: Choose the specific technologies and set-up development environment.

Development, Testing and Deployment Stage

Development: Begin coding and developing the software based on the design and technical specifications outlined.

Testing and Deployment: Thoroughly test both functional and non-functional components and deployment of the application.

Beta Testing: Launch a beta version for a select group of end-users to conduct User Acceptance Testing (UAT) to verify and validate whether the system meets its requirements.

Feedback & Iteration: Collect users' feedback and possible iteration of new lifecycle due to bugs or change of requirements to users' needs.

1.4 Purpose of interim report

The interim report serves to highlight the ongoing advancements of this final year project, documenting accomplished milestones and outlining forthcoming tasks. The report's structure encompasses the introduction, work done so far, future work to be done, and concludes by summarising the key insights.

Chapter 2

Work done so far

2.1 Planning and Requirements

2.1.1 Design analysis of relevant sites

UI focuses on visual and interactive aspects of a product, while UX is concerned with the holistic user experience, including usability, user satisfaction, and problem solving.

This section will showcase some of the ideation platforms with similar or relevant goal of this project to analyse their UI/UX design.

Kickstarter

Kickstarter is a crowdfunding platform where creators showcase their projects, seeking support from backs to fund their projects, bringing their creative ideas to life. Their website's UI is designed with clean and intuitive layout that prioritises project discovery and user engagement.

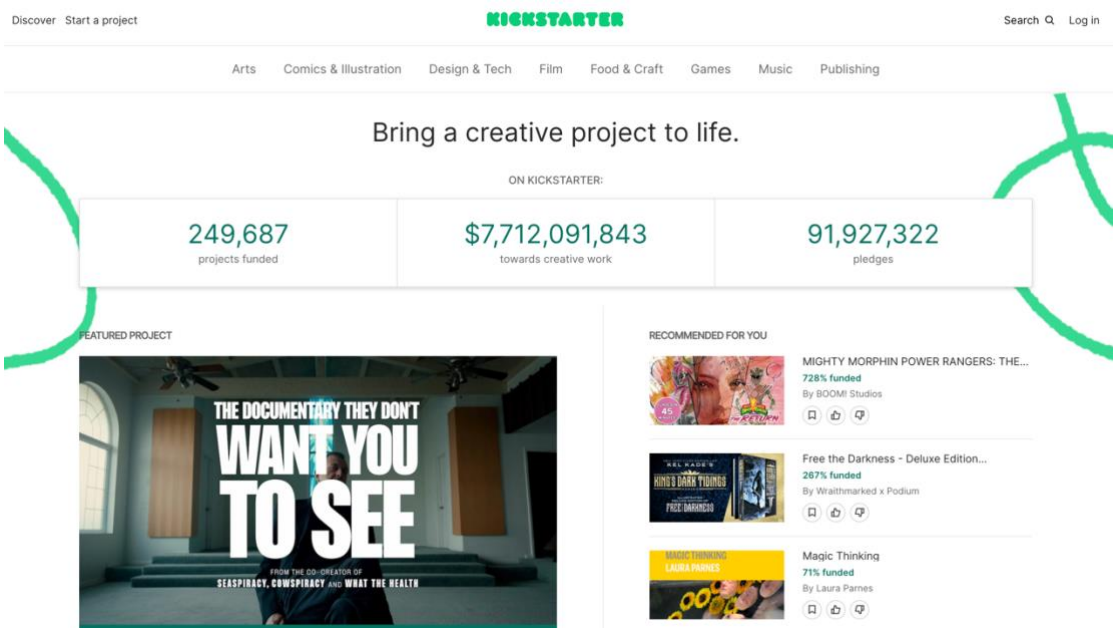

Figure 2: Kickstarter home page

The homepage showcases a feature of selection of featured and recommendation projects for a particular user with compelling visuals, title, and short description to catch the users' attention. It The nav bar provides a huge selection of category for user to select such as Arts, Comics & Illustration, Design & Tech, etc, allowing users to view projects of their interest. Users can also start a project or search for a project of their choice.

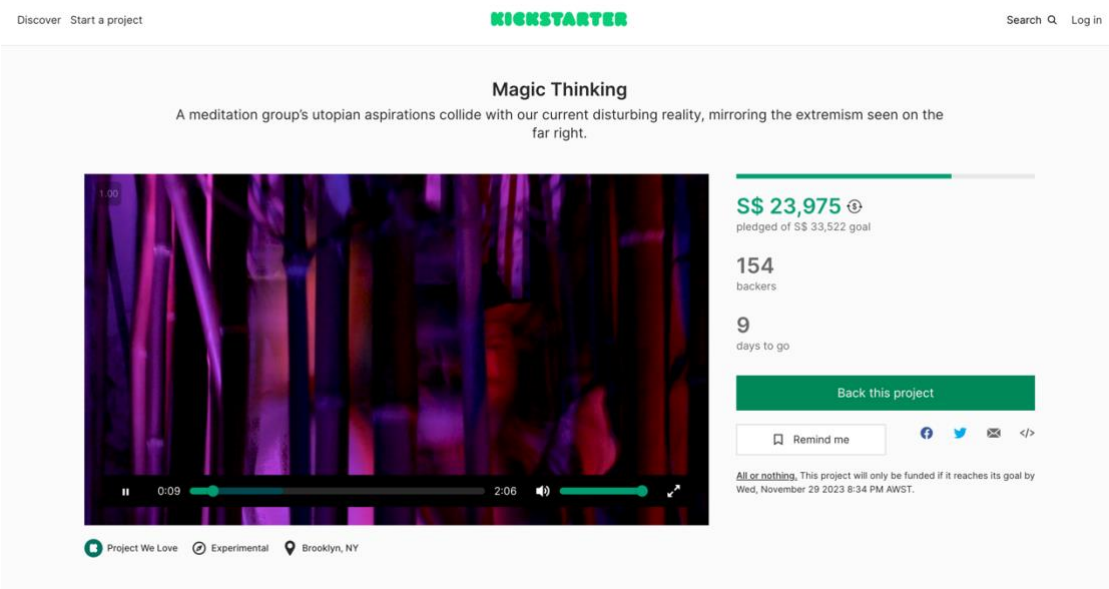

Figure 3: Kickstarter project page 1

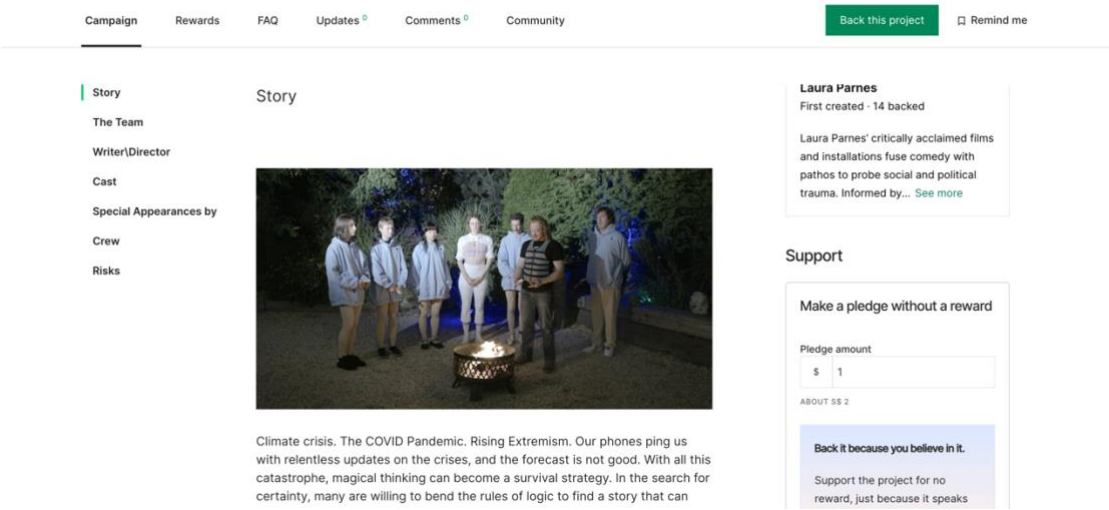

Figure 4: Kickstarter project page 2

Each project has a dedicated page that showcases detailed information, videos, images, funding goals, backer rewards, updates, and many other relevant information user needs to know. This layout allows users to have a full grasp on the project's details and emphasise on transparency to focus trust among backers. There is also a Call-to-Action (CTA) button placed strategically to guide users to support the project.

In general, Kickstarter's interface looks towards project discovery and fostering engagement, providing a very intuitive and user-friendly experience for users navigating through the platform.

GoFundMe

GoFundMe is a crowdfunding platform that focuses on raising funds to support emergencies, medical expenses, charity, or any personal causes. Their website interface is designed for easy navigation and clear communication to facilitate fundraising for various causes.

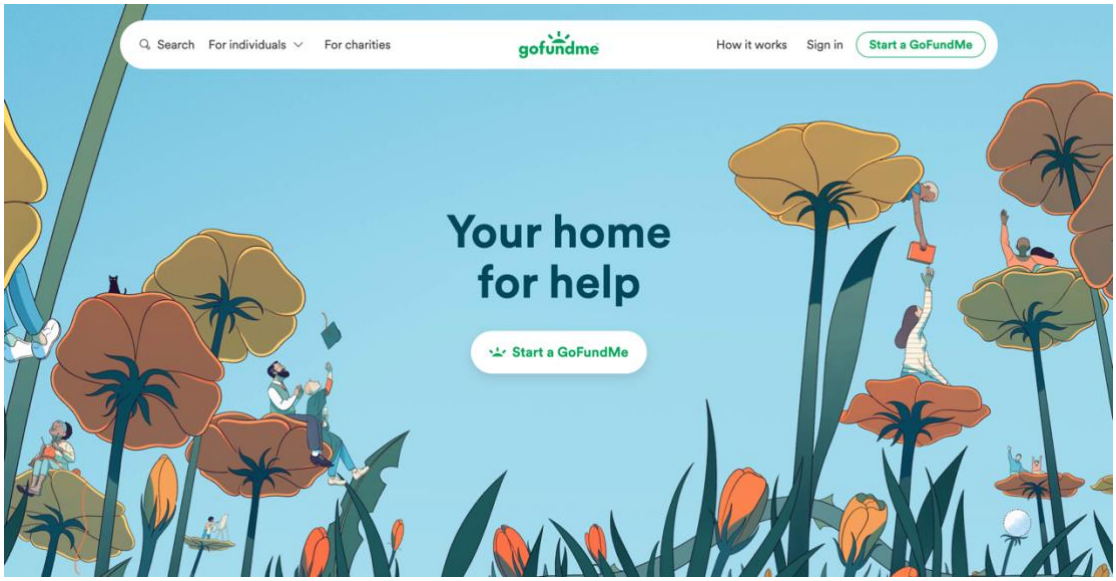

Figure 5: GoFundMe home page 1

On the home page, they have a navigation bar that allow users to search, discover – For individual users/charities, allowing users to delve into their area of interest. It also has a "how it works" page and call to action button for users to start a funding project.

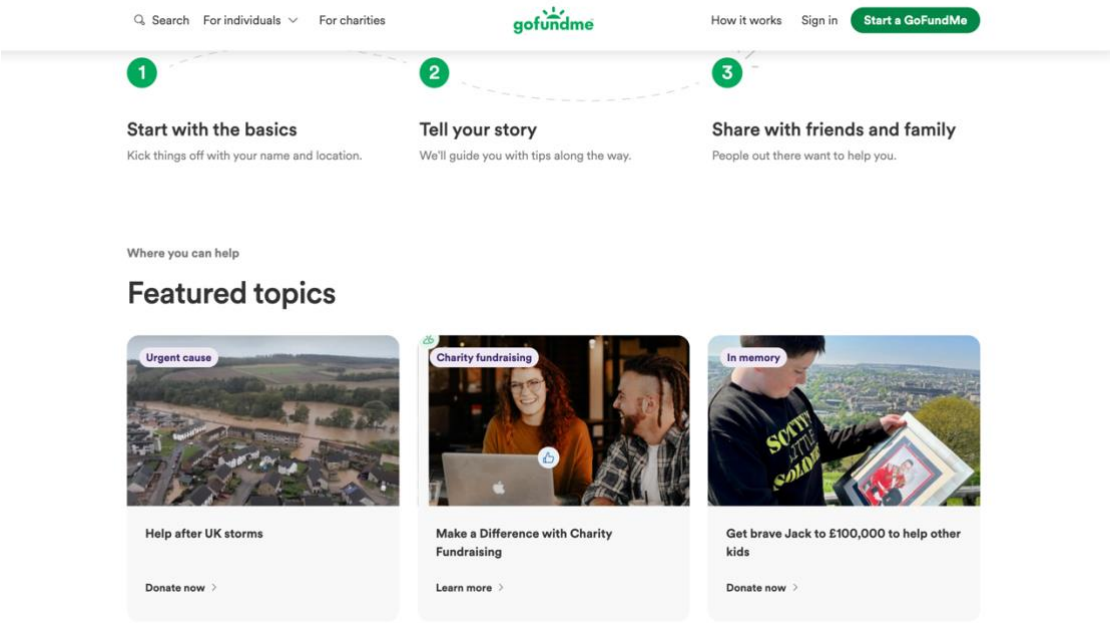

Figure 6: GoFundMe home page 2

Upon scrolling down, they have a focus on showcasing a variety of active campaigns, featuring compelling visuals, titles, descriptions, and encouraging visitors to explore and engage with them.

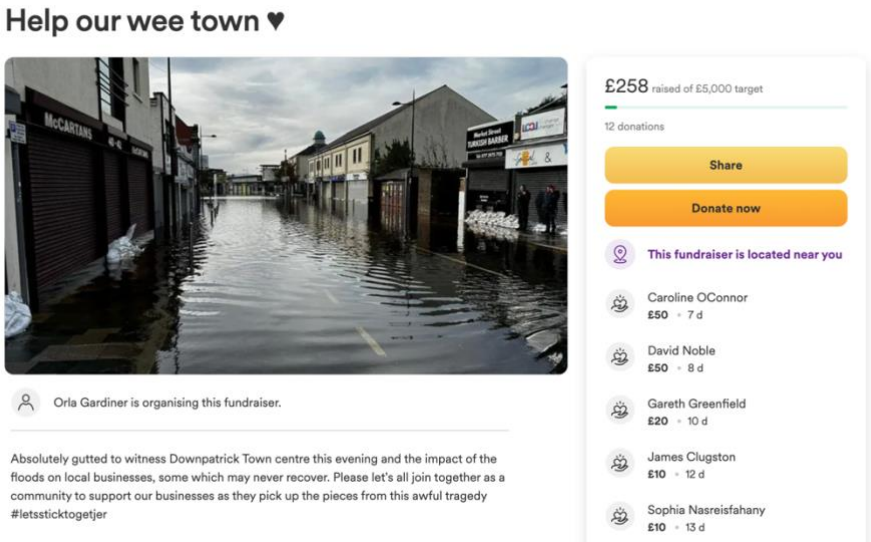

Figure 7: GoFundMe project page

On the campaign page, it contains the title, images, the detailed information about the cause, fundraising goals, updates, sometimes videos, and total donated amount, showcasing transparency and empathy to encourage users to donate. There are also two CTA buttons to encourage users to

Share or Donate to the project.

In general, GoFundMe UI aims to create an empathetic and supportive environment, which allows individuals to discover, donate, and share campaigns that relates to them.

2.1.2 Choice of technologies and design framework

2.1.2.1 Front-End Technologies

Three front-end frameworks/libraries have been taken into consideration for this project. Namely, React, Angular and Vue.js.

ReactJS

React is a JavaScript (JS) library that emphasises building user interfaces through a component-based approach. Instead of building pages one by one, developers can create reusable components, each managing its own state and rendering independently which allows for easy maintenance and updates. React also uses virtual Document Object Model (DOM), a lightweight copy of the actual DOM which enables efficient updates by only re-rendering components that have been changed. It also uses JavaScript Syntax Extension (JSX), a syntax allowing Hypertext Markup Language (HTML)-like code within JS which enhances readability and maintainability.

Angular

Angular is a TypeScript-based framework which offers full suite of tools and features like depending on injection, forms handling, routing, and an Hypertext Transfer Protocol (HTTP) client. Angular provides a structured approach, enforcing certain practices. Its two-way binding allows automatic synchronisation between the model and the view, simplifying development but

potentially impacting performance in complex applications. TypeScript, a statically typed language, brings robustness to the development process as it catches error during compilation.

Vue.JS

Vue.js is a JavaScript framework designed for building user interfaces known for its simplicity and flexibility. This allows developers to integrate it gradually into their projects. Vue uses reactive data binding, efficiently updating the DOM where there are changes. It also employs templates for rendering HTML and supports building components like React. Its syntax is intuitive and approachable, making it easy to learn and use effectively. It is a popular choice for small scale projects due to its lightweight nature.

Choice of Technology

React – As this project's objectives is to design a user-centric web application, React stands out as the ideal framework for several reasons. React's fundamental architecture based on components allows the creation of reusable elements, perfectly suited for showcasing project ideas, skillsets, and personal interests. This also allows ease of maintenance and updates as the application evolves to meet users' requirements. Additionally, React's virtual DOM feature enables seamless handling of content changes, which is efficient when students update and interact with projects or profile pages. Moreover, React offers a rich ecosystem or UI/UX focused libraries and tools, empowering developers to craft a visually appealing interface, enhancing the overall user experience. Lastly, if considering the future expansion of an application into a mobile platform, React Native, an extension of React for mobile development could be leverage which allows the conversion from web application into a mobile application with ease.

2.1.2.2 Design Technology

Choice of Design Tool

Figma

Figma was chosen as the designing tool as it is free to use and has tons of useful feature. Tools in the market such as Adobe XD and Sketch requires a subscription to gain access to their full features. Figma is also a cloud-based design tool, meaning that it can be accessible from any web browser. It also has many libraries that intuitive tools that makes prototyping much easier, saving time while still producing a quality prototype. Lastly, it offers real-time collaboration between multiple users. This allows multiple users to access, view and interact with the project at the same time, which helps in garnering feedback.

2.1.2.3 Design Process

Design Thinking framework

The design thinking framework is chosen for the design process as it proves ideal in a user-centric project, prioritising understanding users' needs, ensuring a user-cantered approach. By empathising with students' challenges in forming teams and fostering cross-disciplinary interactions we can understand their pain points better. This framework also enables iterative development, which is perfect for the project's goal to create a user-centric web application as tests can be continued to be carried out throughout the duration of the project and iterate to any of the phase if needed.

Figure 8: Design Thinking Framework

Description of each phase

Empathise: Understand problems end-users are facing, conduct interviews to gain insight. Have a human centred understanding of the problem.
Define: Define user stories and pain points in a clear and actionable way based on users' needs.
Ideate: Brainstorming phase where we generate a wide range of creative solutions.
Prototyping: Tangible representations of our ideas. Low-fidelity/High-fidelity prototypes.
Test: Gather feedback by sharing the prototypes with the end-users to evaluate the effectiveness and usability of the product. (Where iteration process starts)
Implement: Start developing on the product, which in this case is the application.

2.1.3 Project scope

Scope

The scope of this project encompasses research, design, development and testing of a user-centric application. This project focuses on the front-end while there will be two other students from the team that will focus on the back-end for server-side, and machine learning for course recommendation to users.

Some requirements were provided; however, further research was conducted to get an in-depth understanding of users' needs and enhance the current requirements for a more user-centric application. This was done through the first three stages of the design thinking process.

Empathise

Empathise is the first stage. This stage involves finding out who the target audience is and understanding the pain-points and challenges from their perspective by conducting interviews and surveys to gather information, most importantly putting yourself in their shoes to empathise with them. The following is the breakdown of the empathise stage conducted to understand pain-points and suggestions of the students/past-students when trying to form project teams and what they would like to be incorporated to improve the usability of the application.

Target audience: Students/Past-Students that struggled to find team members for projects

Questions asked:

1. How did you discover and connect with students who share similar interests/skills in the past for collaborative projects?

   Responses:

   - Bound by professors introducing me to other teammates.
   - Bound by the people I know.
   - It was hard to find students of required expertise from other courses.
   - It was hard to know the right people for my project.
   - It would be great if students are able to connect with those specialised in a particular field.

2. Are there any specific features you think are important in facilitating a project team formation?

   Reponses:

   - It would be great if this platform can help present a project idea clearly, encourage discussion of ideas before people adopt it.
   - It would be nice if the platform can cater to different type of projects across all disciplines.
   - It would be nice have different phases for a project.

3. What elements do you find most important in a user-friendly web application?

Responses:

- Build a prototype and have people interact with it to get feedback.
- Search function must be smart enough not recognise users' intent.
- If users want to browse the existing projects and is not looking for a particular one, kick-starter format would be nice.

4. What specific sections do you think will be important on a profile page that allows students to effectively present themselves on the platform?

   Responses:

   - What they have previously done and their experience
   - Short description and their portfolio
   - Try to minimise bias by hiding information like grades.
   - Select carefully what to spotlight on the profile page.

5. What is your preferred way of receiving notifications about potential projects or collaboration opportunities? (Are there specific events or updates that you would like to be notified about?)

   Responses:

   - I do not like to receive notifications that I did not subscribe for
   - Notifications on posts that I liked/bookmarked are fine, I personally prefer notification through email.

6. In cases of unpopular projects, is it preferred for the platform to intervene, and if yes, in what ways? (e.g., providing feedback, but from who? Promoting the unpopular projects, letting the project die out and encourage proposer to propose new project)

   - Recommendation algorithm (e.g., When someone searches for a project about growing an apple, perhaps projects with similar concepts such as growing a durian can be recommended to the user. Use this algorithm to bring up struggling projects)
   - Ability to spotlight projects, for example, Carousell's spotlight function.

Define

The next stage is define. After gathering information about the users from the empathise stage, the define stage focuses on analysing the gathered data, in particular, challenges and pain-points of the

users. From these data, core problems and needs of the users are defined. Here are the problem statements that have been derived after analysing the pain-points from the empathise stage.

Problem Statements

1. How can the application help users find other users of the required expertise from their projects?
2. How can the application help users present their ideas clearly?
3. How can the application recommend projects to the users?
4. How can we have a profile page that is intuitive?
5. How can we send out only notifications that is personalised to the user?
6. How can we allow users to discuss ideas before creating projects?

Ideation

The third stage is the ideation stage where ideas are generated. Designers will brainstorm and generate solutions to counter the problems defined in the define stage. Techniques like brainstorming and mind mapping are commonly used to generate a free flow of ideas, aiming for quantity and variety, and narrowed down later on. Here are the ideas generated derived from the problem statements in the define stage, the ideas are categorised into primary and secondary features planned for implementation.

Primary Ideas

1. How can the application help users find other users of the required expertise from their projects?

    - A search function and filter that allows users to search for profiles of other users from a specific specialisation. Their profile page will then contain their contact information.

2. How can the application help users present their ideas clearly?

- The project page should contain all the relevant information about the project such as name, details, goals, whether they are recruiting, age of project, what requirements they seek, what roles they are looking for, owner details.
- The project can be divided into four phases, namely: *Onboarding* (recruiting) -> *Initiation* (start of project, mostly planning and requirements gathering) -> *Execution* (development stages) -> *Closed*. Recruiting can be set to "Yes" for the first three phases.

3. How can the application recommend projects to the users?

- Algorithm to display recommended projects on the home page, based on users' skill sets and interests.

4. How can we have a profile page that is intuitive and present their interest/skill-sets clearly?

- Description of users (field of major, year, hobbies, etc).
- Projects they are currently taking up.
- Specific section for skillsets/interest.
- Portfolio, Experience, Education, and list of certifications.
- Able to attach Curriculum Vitae (CV).

5. How can we send out only notifications that is personalised to the user?

- Notifications are only sent out regarding projects that are liked/bookmarked.
- Notifications to be sent via email.

6. How can we allow users to discuss ideas before creating projects?

- Allow users to leave their contact information in their profile to allow other users to contact them.

<u>Secondary Ideas</u>

7. Ideas suggested by users

- Ability to spotlight projects (e.g., Carousell spotlight)
- Search Algo for struggling projects (e.g., When someone searches for a project about growing an apple, perhaps projects with similar concepts such as growing a durian can be recommended to the user. Use this algorithm to bring up struggling projects)

- Have a section in the application where users can brainstorm prior to creating a project page, reddit concept.

Pages and their requirements

After thorough analysis of the ideas generated, the sitemap below offers a visual representation that encapsulates these concepts. This provides a clear overview of the hierarchical arrange of content and functionality. This blueprint also offers a view of the navigation flow, showing its connection and relationship among different sections. It is an essential foundation guide for subsequent design and development.

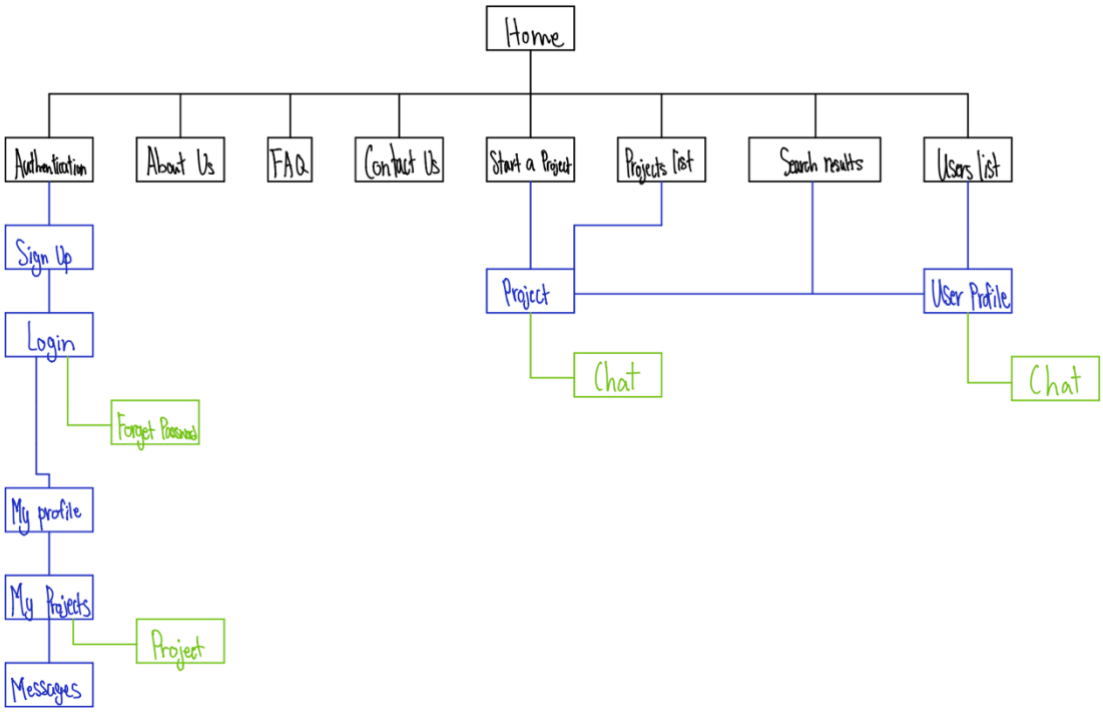

Figure 9: Sitemap 1.0

Initially, in Sitemap 1.0, our hierarchical plan included the Messages page and Chat function. However, these features were removed as the directions were changed to opt for users to

communicate externally off the application, primarily through email. Sitemap 2.0 as revised below reflects the updated structure with the requirements of each corresponding page listed under “Page & its features”.

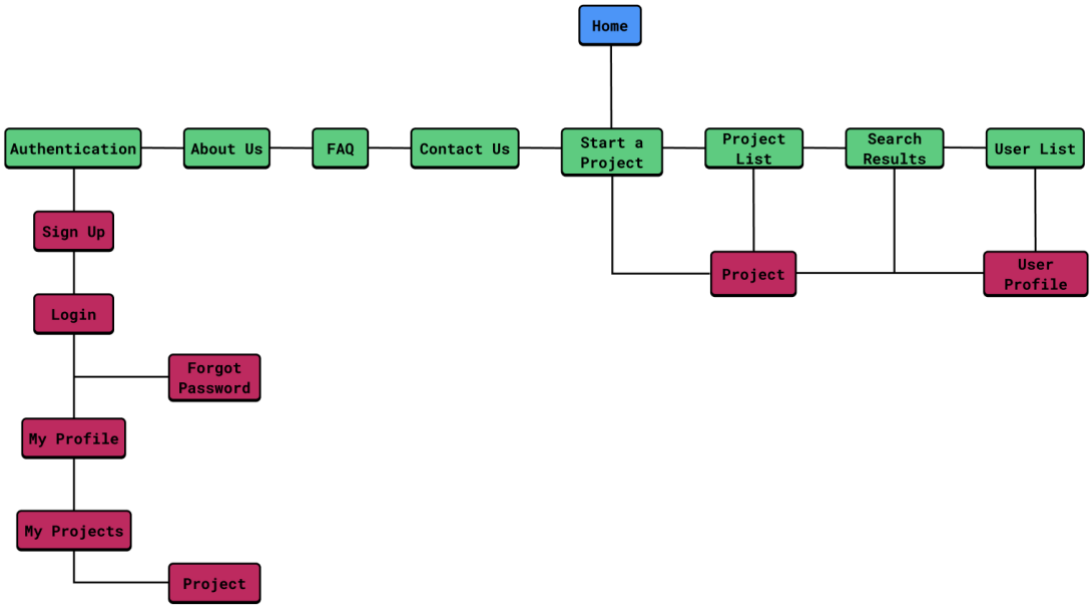

Figure 10: Sitemap 2.0

Page & its features

General

- Navbar includes
    - Explore > Projects/Users
    - Start a Project
    - How it works
    - Search bar (Filter: Projects/Users)
    - User Icon > Signup/Login -> My Profile/My Projects/Logout
- Footer includes
    - About Us
    - Contact Us
    - Frequency Asked Questions (FAQ)
    - Terms and Conditions (T&C)
- Users should receive notifications for post for Liked projects

Home Page

- The recommended projects will be displayed in the first half of the home page.
    - Each recommendation will include project title, brief description, skillsets and a button to go to the project's page.
    - 10 new projects/week are recommended to a single user.
- The application guidance system will be displayed in the second half of the homepage. This section tells users how the application works. Naming convention:
    - Users that propose projects are named 'Proposers'.
    - Users that seek to join existing projects are named 'Seekers'.
    - A user can be both a 'Proposer' and 'Seeker'.

Search Page

- This page should redirect the user to the Project List Page or User List Page depending on the search query whether it is a Project or User search.

Project List Page

- This page should display the list of projects that are publicly listed. Field includes:
    - Hyperlink to project page
    - Project Name
    - Short description
    - Skillsets
    - Phase
    - Recruiting
    - Date Created
- Other function on this page includes:
    - Search bar
    - Filter for category, skills required, phase, recruiting
    - Sort function

Project Page

- This page should display the details of a project. Field includes:
    - Project title and details
    - Phase
    - Recruiting
    - Date created
    - Owner details

- Contact button
- Roles available
- Roles requirements
- Skillsets
- Members of the team
- Similar projects
- View, Likes & Interaction metrics of the project
- Edit Project button (For Admin of project only)
- Public/Private project (For Admin of project only)
- Delete project button (For Admin of project only)
- Promote user to admin (For Admin of project only)

My Project Page (Project page of a particular project that you own)

- Please refer to the requirements stated in "Project Page". This page includes all the admin functions.

My Projects Page (List of projects that you are involved in)

- The page should display the list of projects the user is involved in. Field includes:
  - ID
  - Name
  - Role
  - Phase
  - Recruiting
  - Owner
  - Date Created
  - Last Updated
- Users can filter through 'Active', 'Closed', 'Liked' projects.
- Active projects: This filter displays a list of active projects that the user is involved in
- Closed projects: This filter displays a list of closed projects that the user is involved in
- Liked projects: This filter displays a list of active/closed projects that the user Liked.
- Other features:
  - Sort function
  - Remove liked projects

User List Page

- This page should display the list of users that are publicly listed. Field includes:
  - Hyperlink to profile page

- Username
- Name
- Course
- Year
- Top Skills

User Profile Page

- This page should display the details of the user. Field includes:
  - Name
  - Username
  - Status
  - Tagline
  - CV (Downloadable)
  - Contact Details
  - Description
  - Projects involved
  - Top Skills
  - Portfolio
  - Experience
  - Education
  - Certifications
  - Public/Private profile (For Owner of the profile only)
  - Edit Profile button (For Owner of the profile only)

My Profile Page

- Please refer to the requirements stated in "User Profile Page". This page includes all the owner functions

Sign up Page

- The sign-up page allows users to input their details to sign up for an account. Field includes:
  - First Name, Last Name, Username, Email, Password, Confirm Password

Login Page

- The login page allows users to input their details to login to their account. Field includes:
  - Username/Email

- Password

Forgot Password Page

- The forgot password page allows users to input their email to receive an email with instructions on how they can reset their password. Field includes:
  - Email

About Us Page

- The page should display the mission, vision, and background information of this application.

FAQ Page

- The page should display a list of commonly asked questions. The section of questions is split into:
  - General, Proposer, Seekers

Contact Us Page

- The page should display contact information of the application's help team.
- The user should be able to submit a Questions/Feedback form. Field includes:
  - Name
  - Email
  - Subject
  - Comments

Secondary Features for considerations

- Proposer can upload videos in their project page
- Friend-matching feature
- Mobile Application version
- Reddit like section where students can brainstorm and discuss ideas before creating a project
- Report/Flagging System
- Events page

After successfully analysing and visualising these features, the prototyping stage can commence, beginning with low-fidelity wireframes for initial user testing and getting feedback, followed by the design of the high-fidelity wireframes.

2.2 Design

2.2.1 Low fidelity wireframes

Low-fidelity wireframes serves as a simplified visual blueprint that prioritises structure and layout, offering a quick, cost-effective way to conceptualise the application, helping in early user testing and feedback. These wireframes allow exploration of various design ideas before delving into detailed design and development phases. The following low-fidelity wireframes are designed with regards to the design and user research conducted in the previous section, 2.1.

Home Page

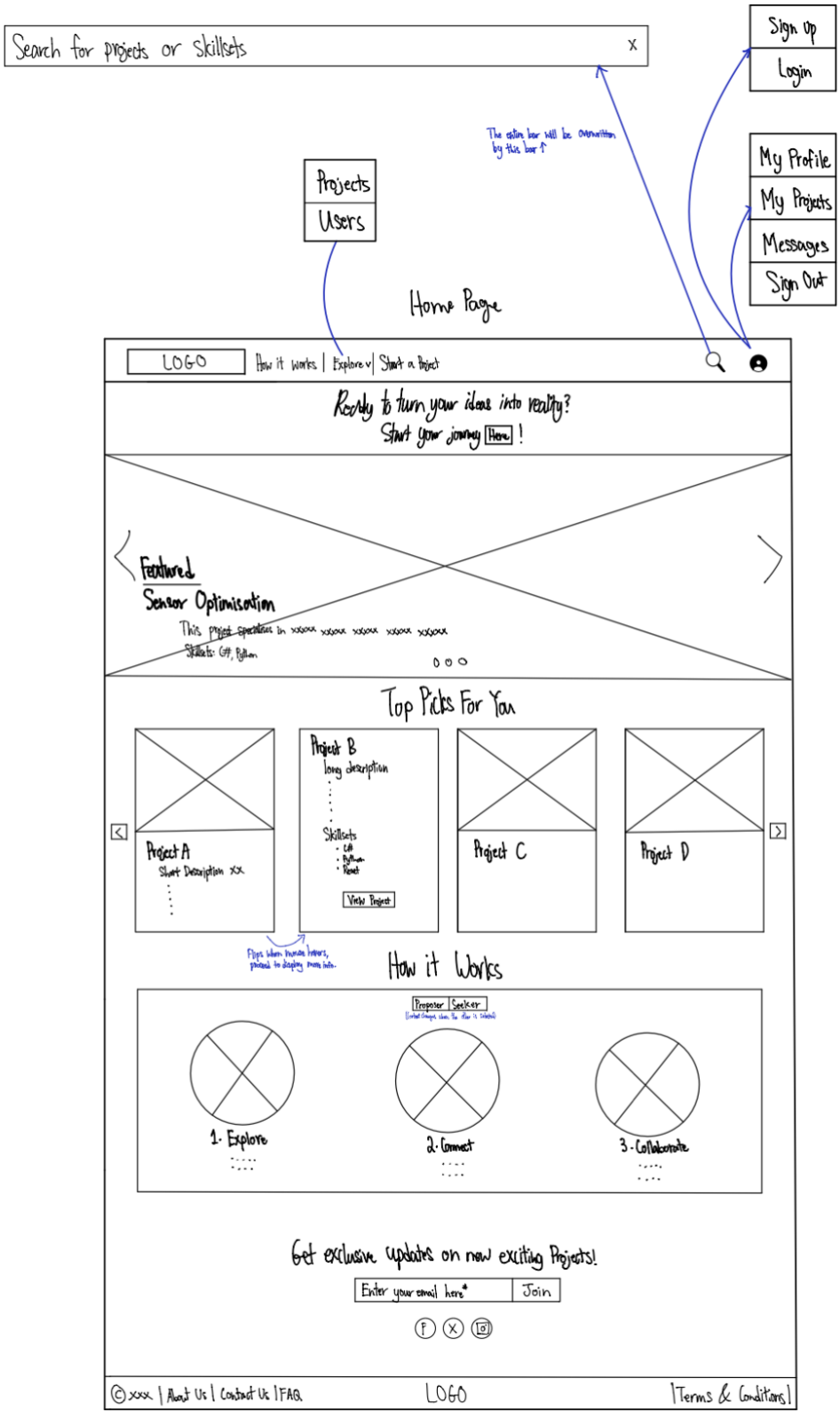

Figure 11: Home page (lo-fi)

Please note that the “Messages” tab has been removed as previously mentioned.

Project Page

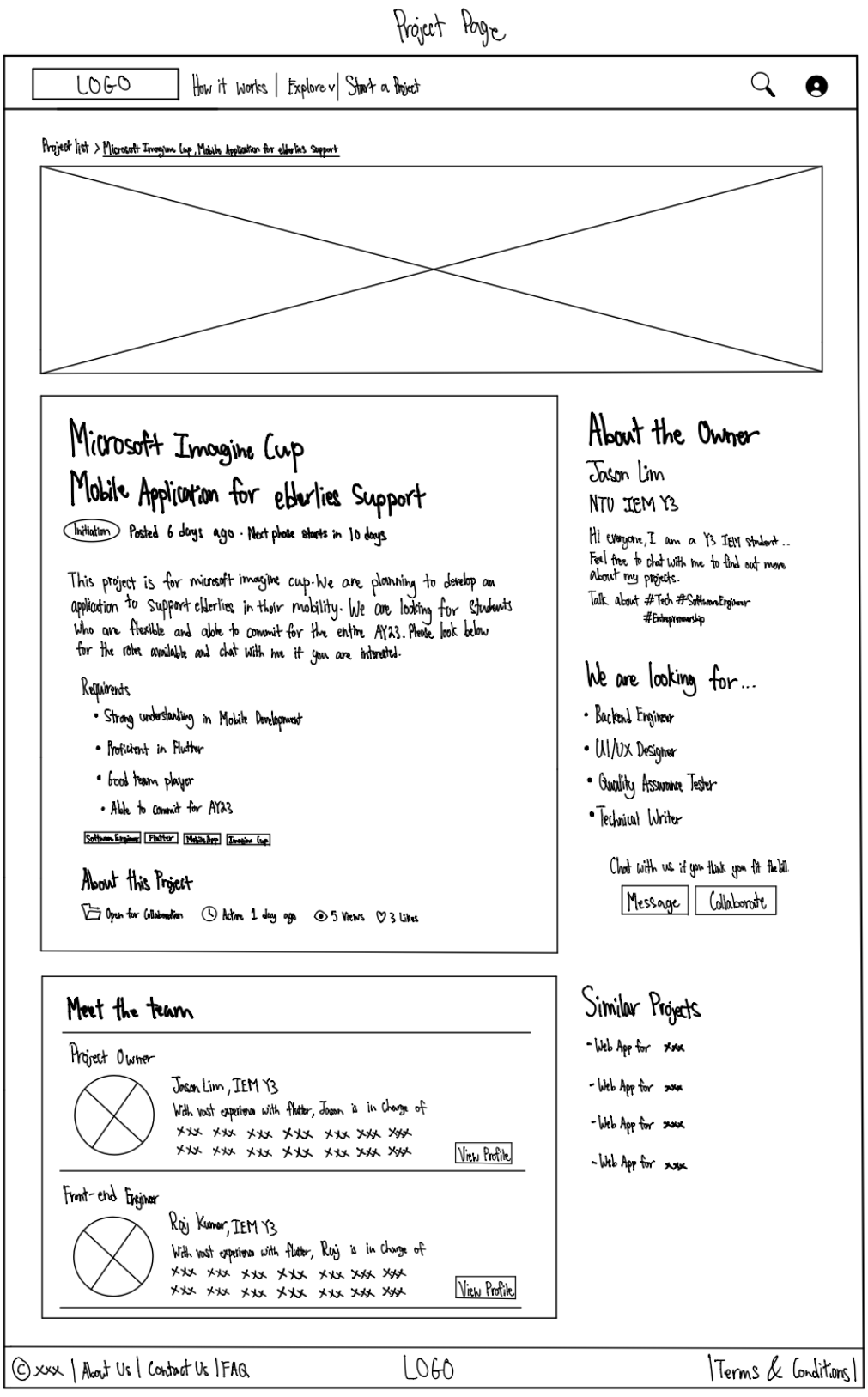

Figure 12: Project page (lo-fi)

Profile Page

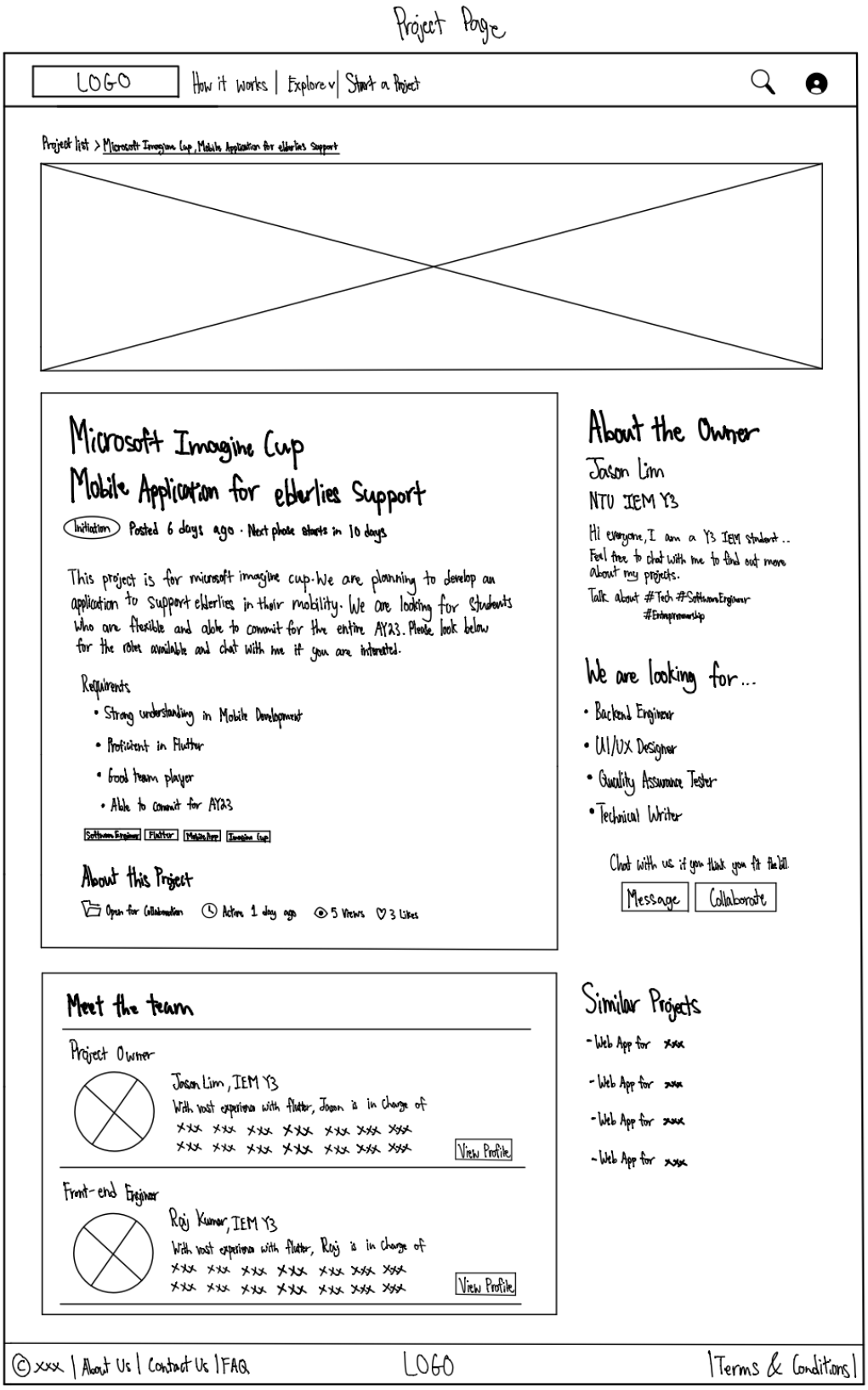

Figure 13: Profile page (lo-fi)

2.2.2 High fidelity wireframes

The high-fidelity wireframes are refined base on the insights gathered from the low-fidelity wireframe, now polished with detailed design of the application's interface and functionality. This stage shows the visual and interactive aspects of the application, infusing precise aesthetics, colours, graphics, providing a more accurate and immersive preview of the final application.

Home page

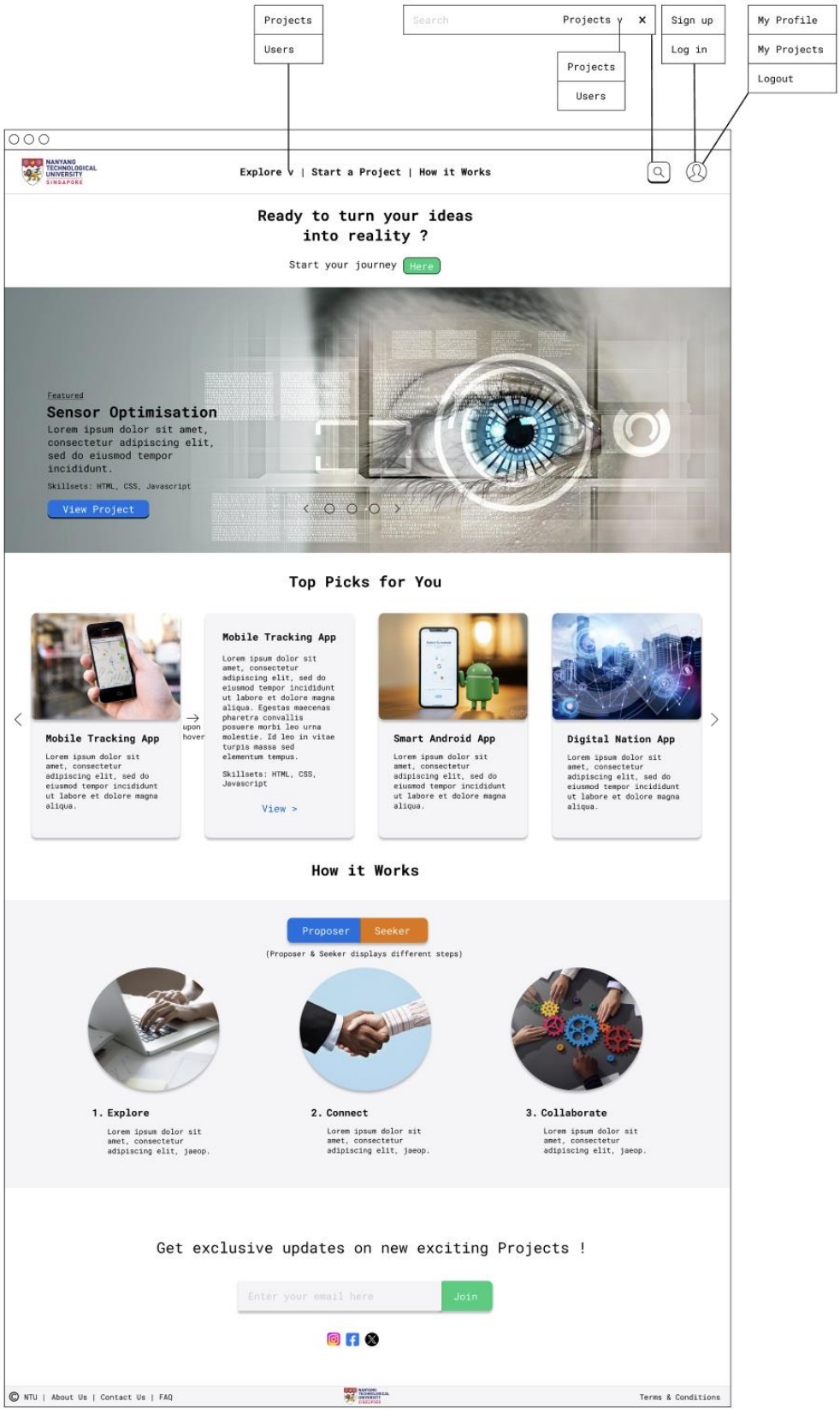

Figure 14: Home page (hi-fi)

About Us Page

Figure 15: About us page (hi-fi)

Contact Us Page

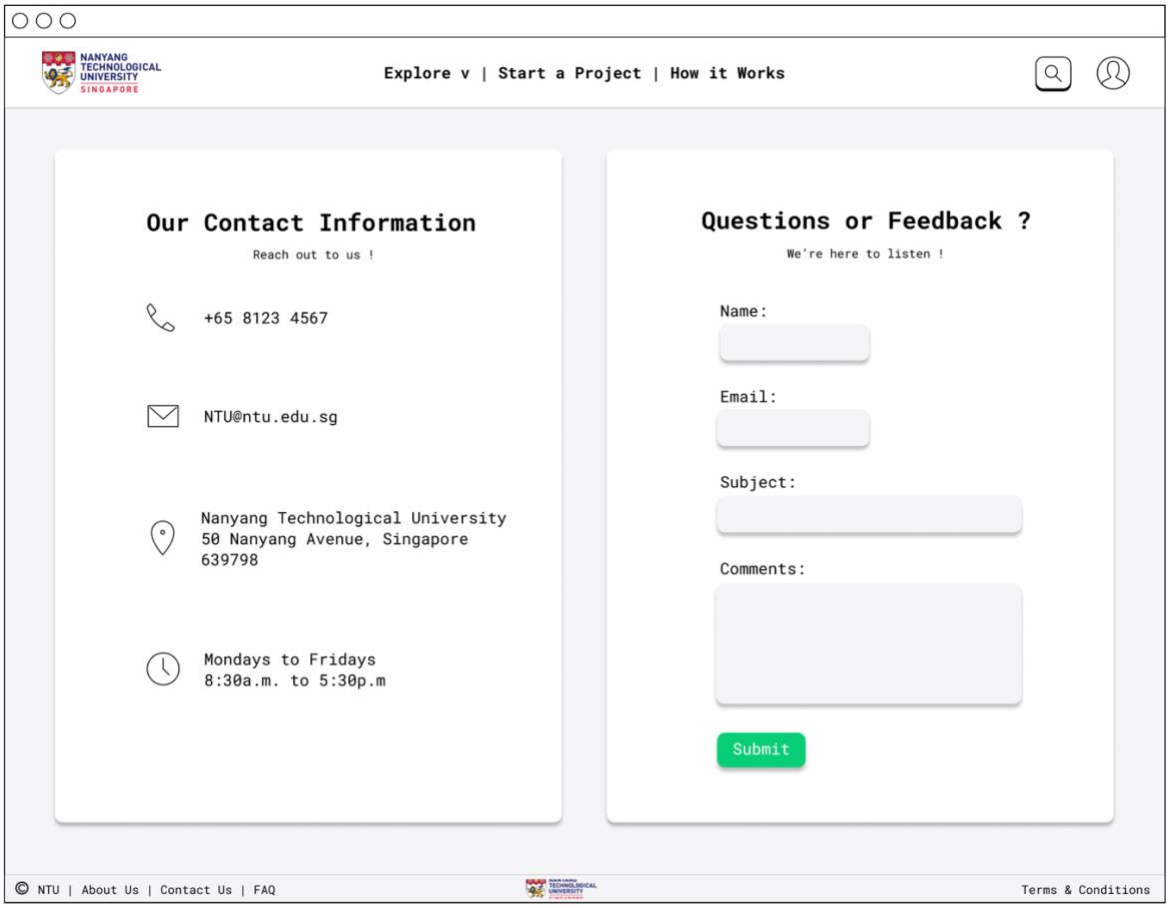

Figure 16: Contact us page (hi-fi)

FAQ Page

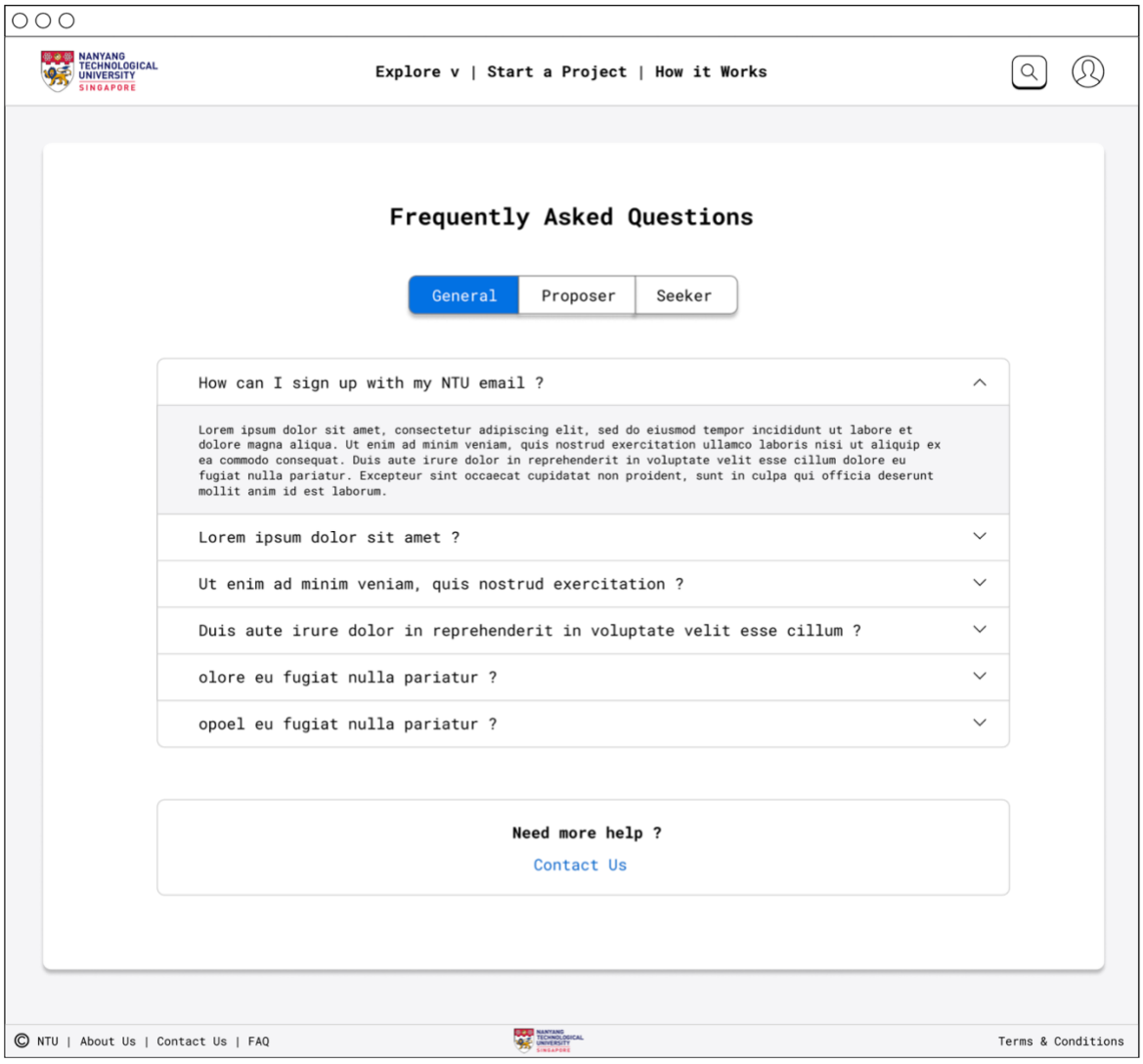

Figure 17: FAQ page (hi-fi)

Project Page

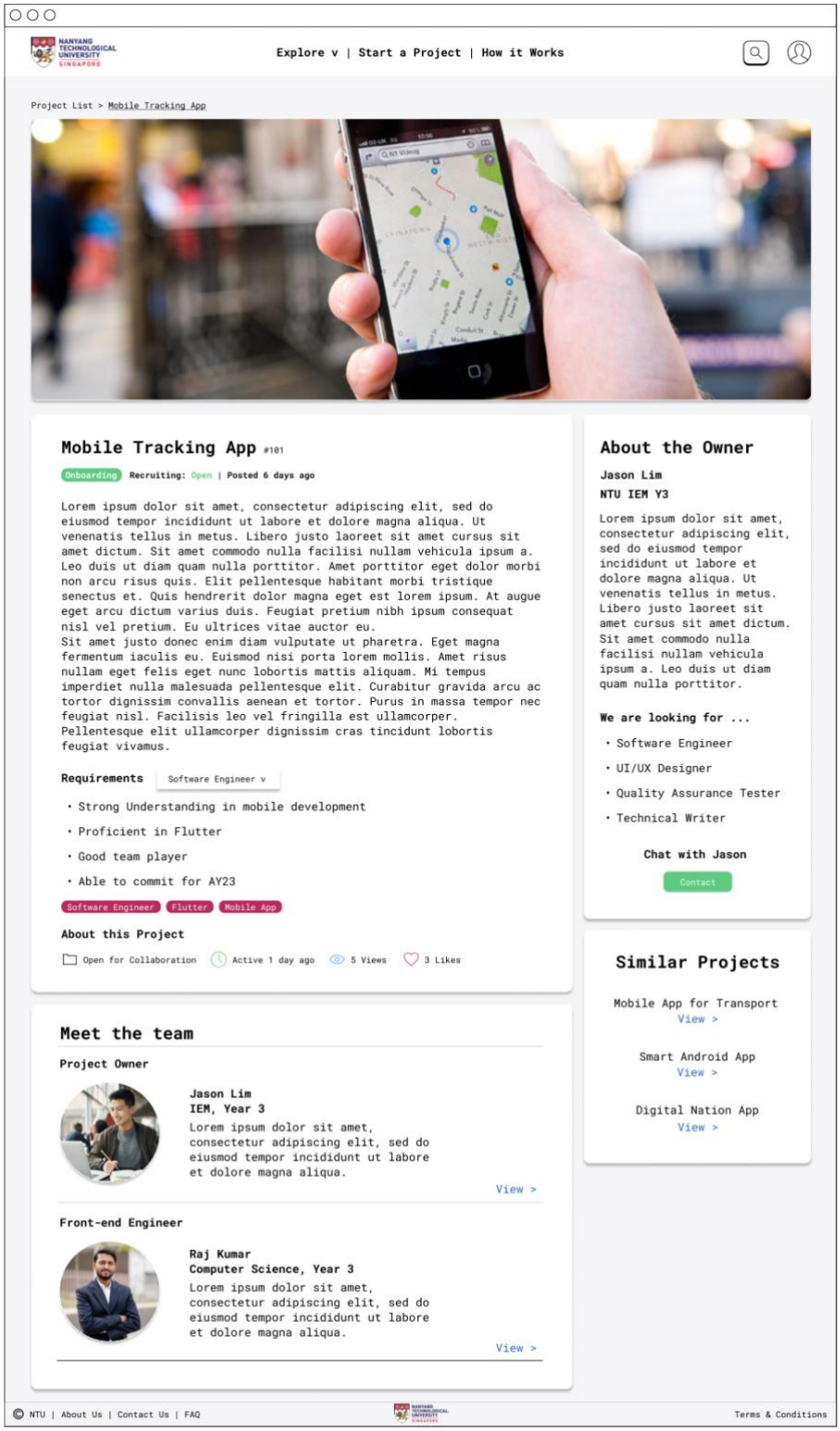

Figure 18: Project page (hi-fi)

User Profile Page

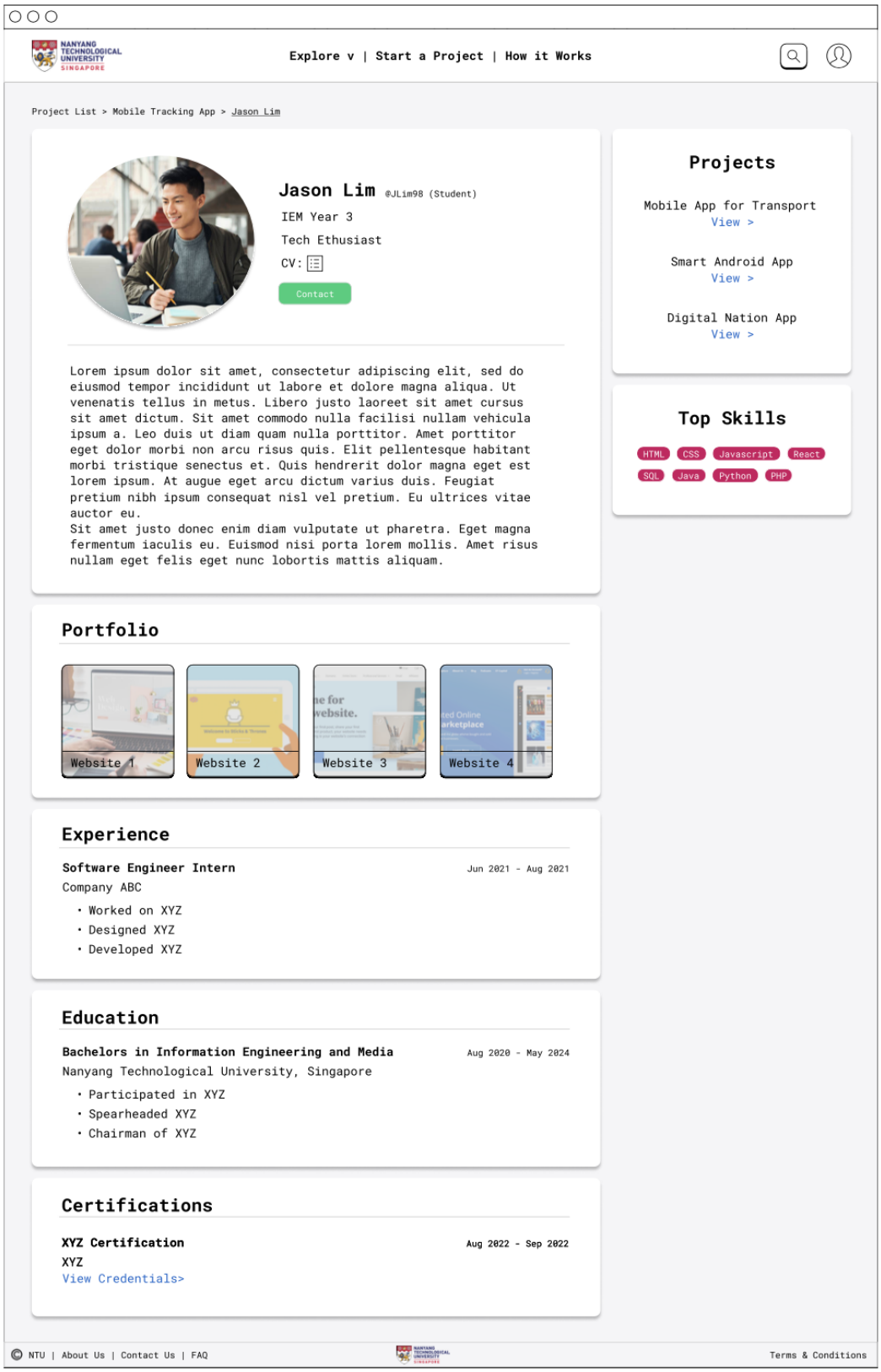

Figure 19: Profile page (hi-fi)

User List Page

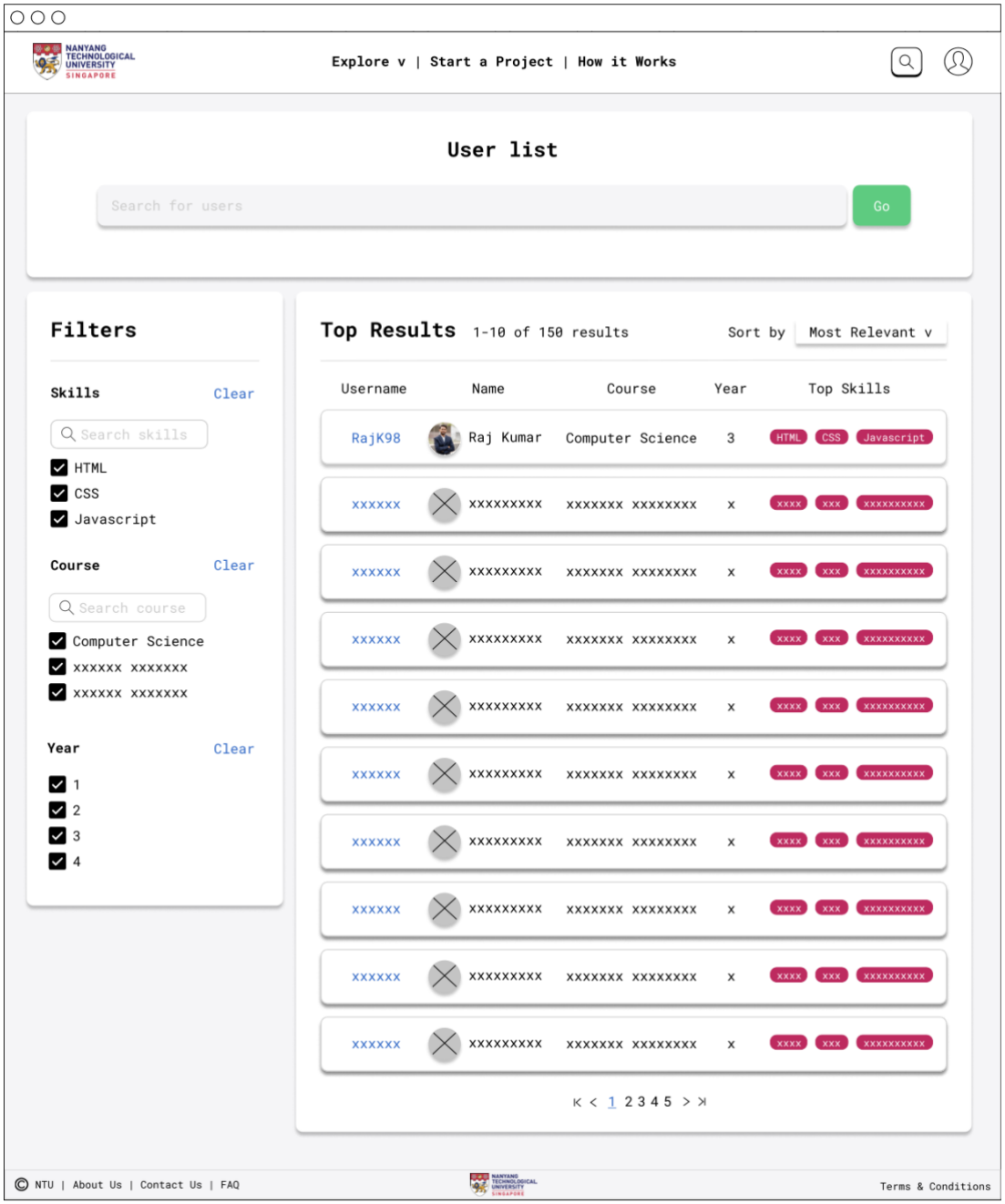

Figure 20: User list page (hi-fi)

Project List Page

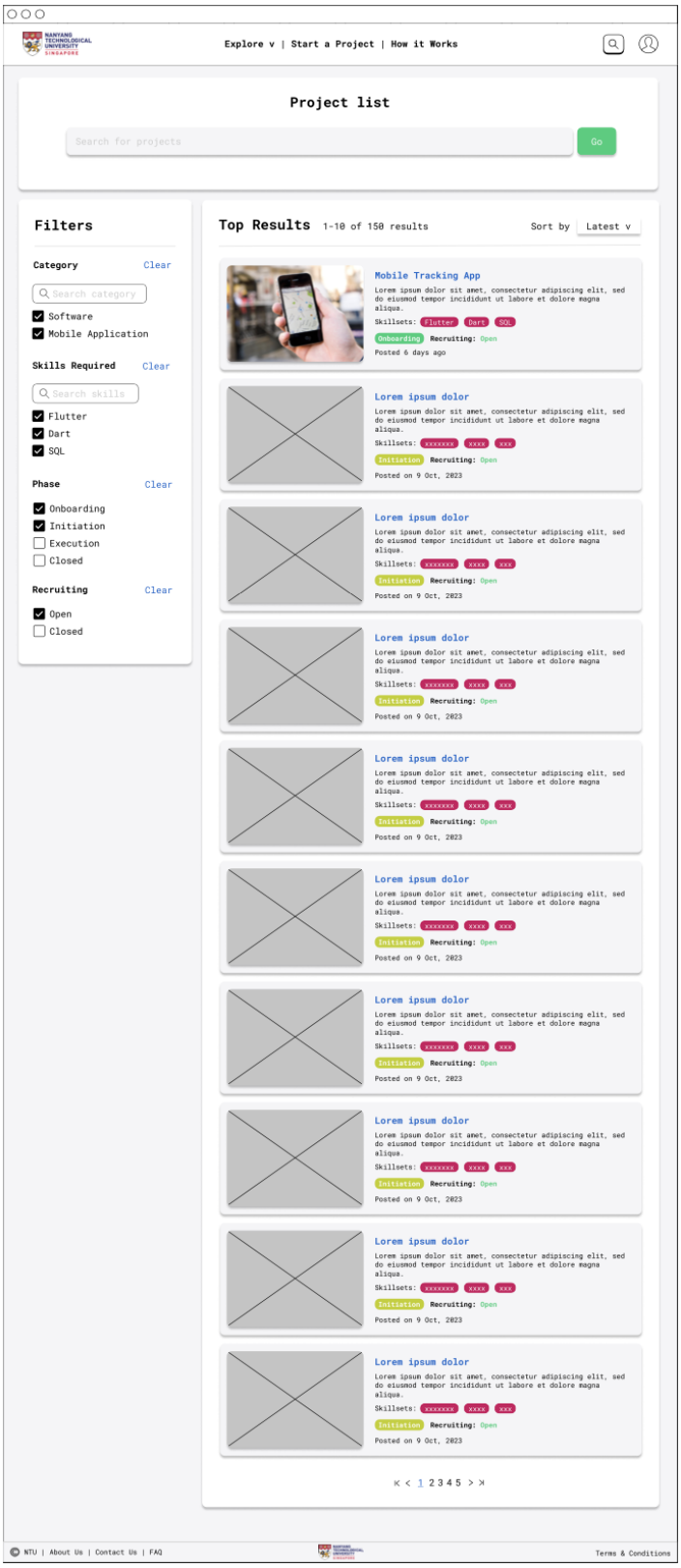

Figure 21: Project list page (hi-fi)

My Projects Page

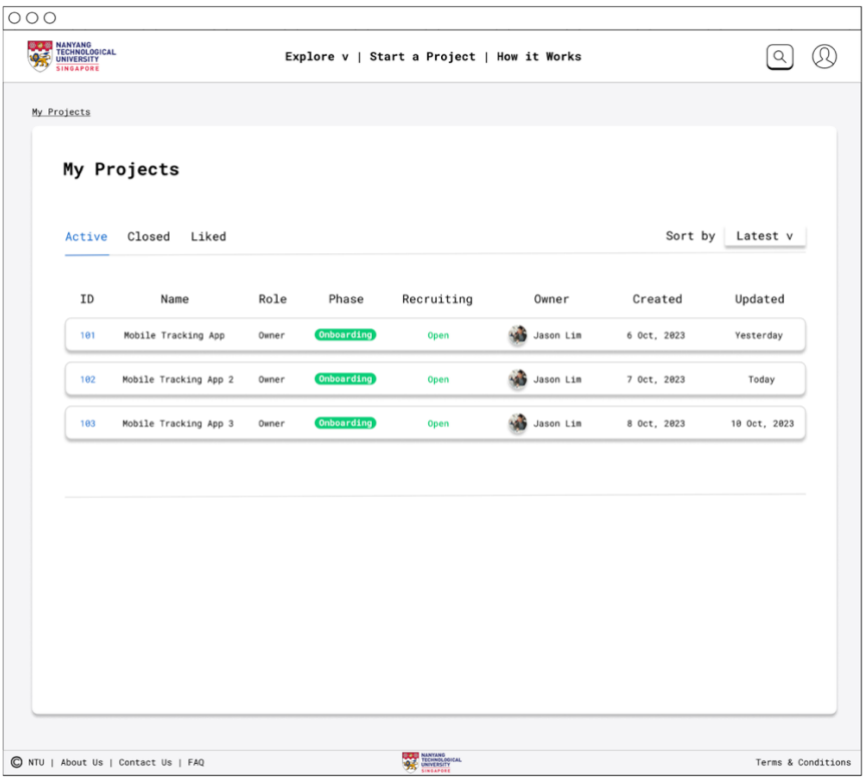

Figure 22: My Projects page 1 (hi-fi)

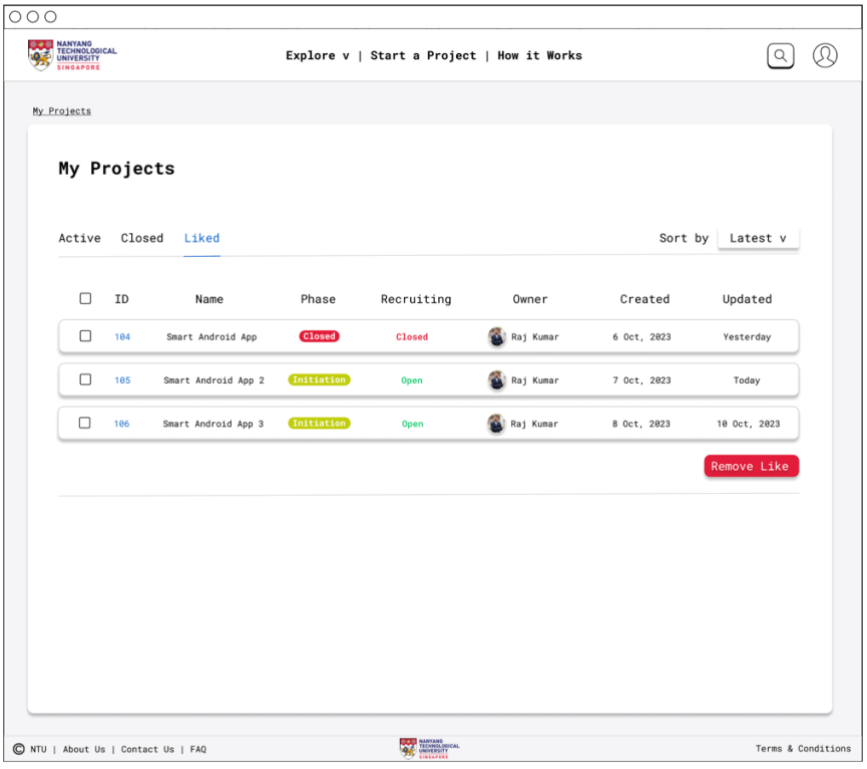

Figure 23: My Projects page 2 (hi-fi)

Sign Up Page

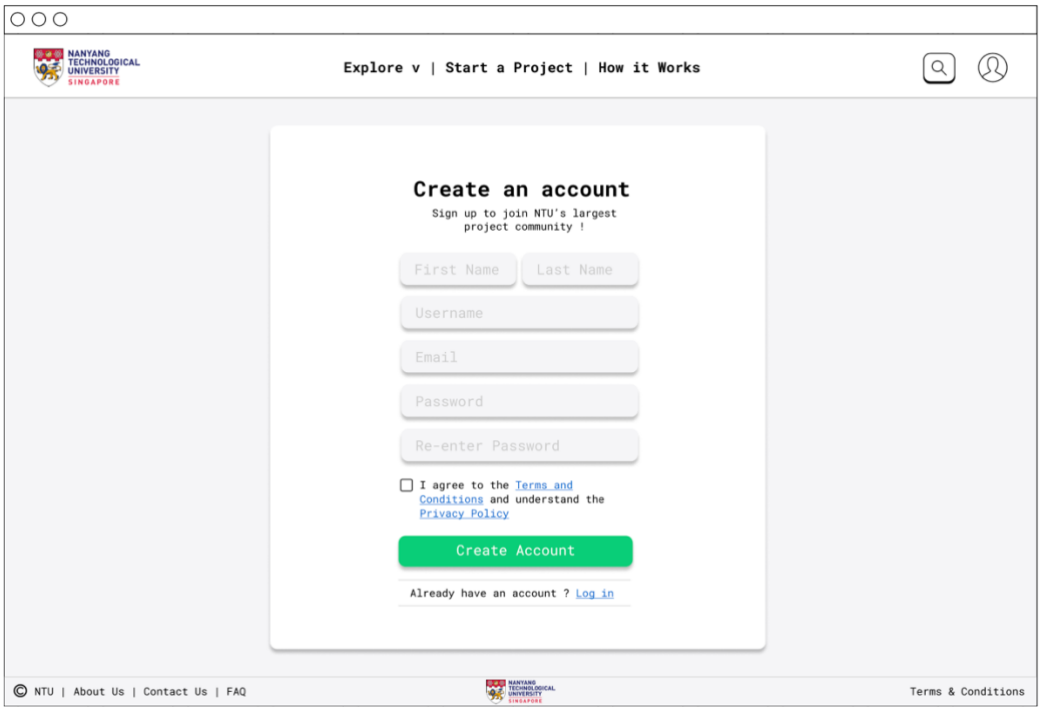

Figure 24: Sign up page (hi-fi)

Log In Page

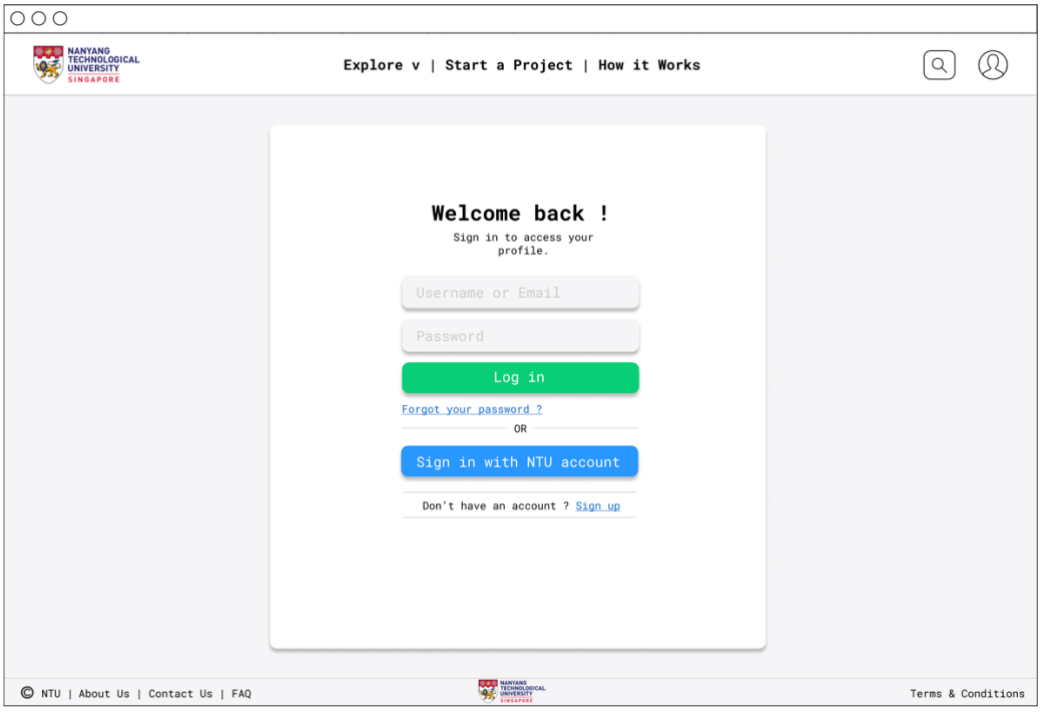

Figure 25: Log in page (hi-fi)

Forgot Password Page

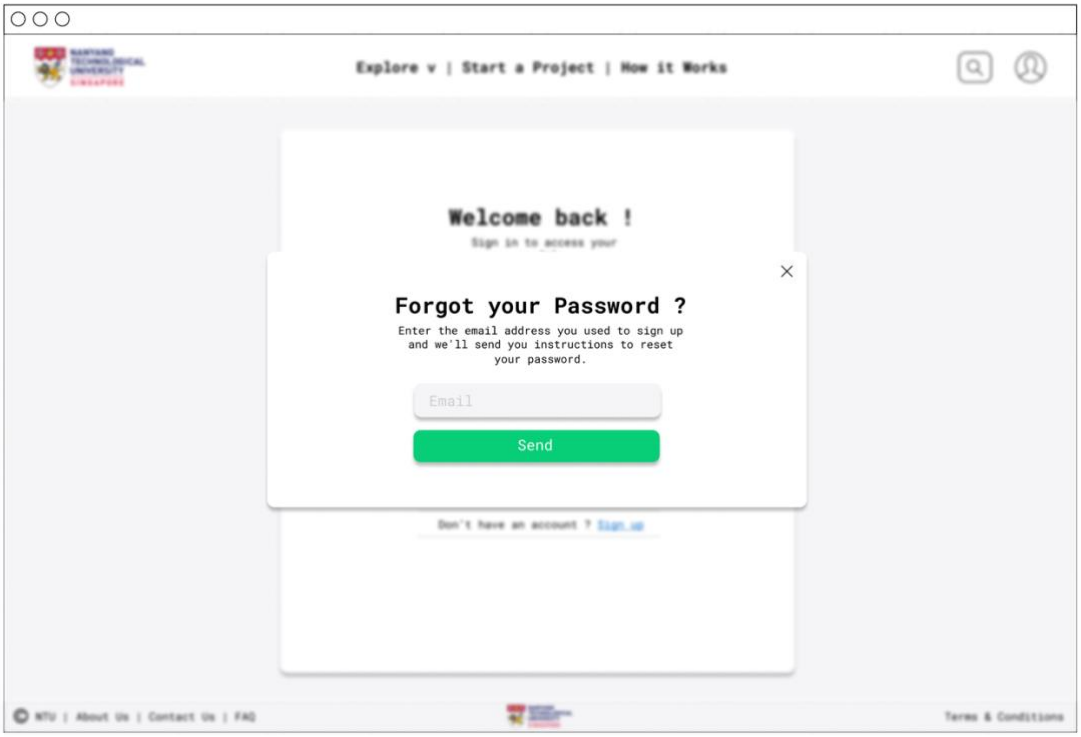

Figure 26: Forgot Password page (hi-fi)

2.2.3 Environment Setup

As previously mentioned, Figma and React will be used for the design and the development of the application respectively. Figma needs no setup as it is a cloud-based platform that is accessible anywhere with a browser. Setting up React is relatively easy and only consists of three simple steps.

Setting up React

1. Install Node.js (A JS run-time environment)
2. Create a new React project

   Run command “npx create-react-app <project name>”

3. Build Project

   After the first two steps are done, project can be started by running command “npm start”. The environment is then setup successfully and ready for coding.

2.2.4 Sample Applications with React

Here are three sample applications build with React.

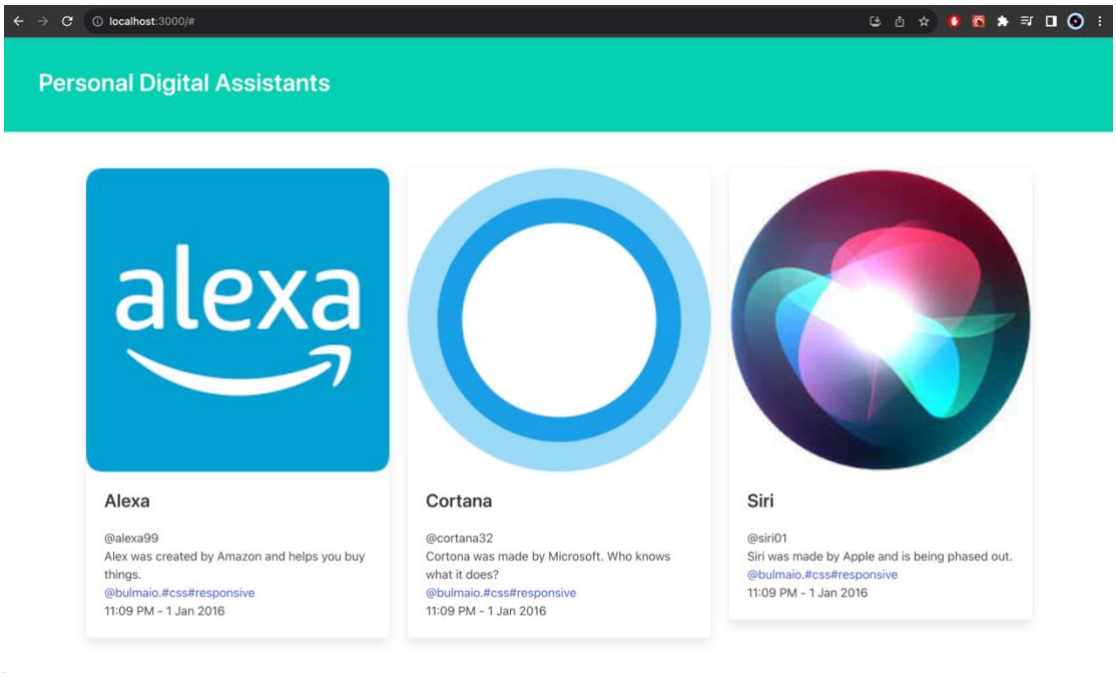

Figure 27: Sample App 1

The first application is a small page showing information about personal digital assistants. The general structure of each column looks similar except for the text and image as they use the same components. This example focuses on building reusable components.

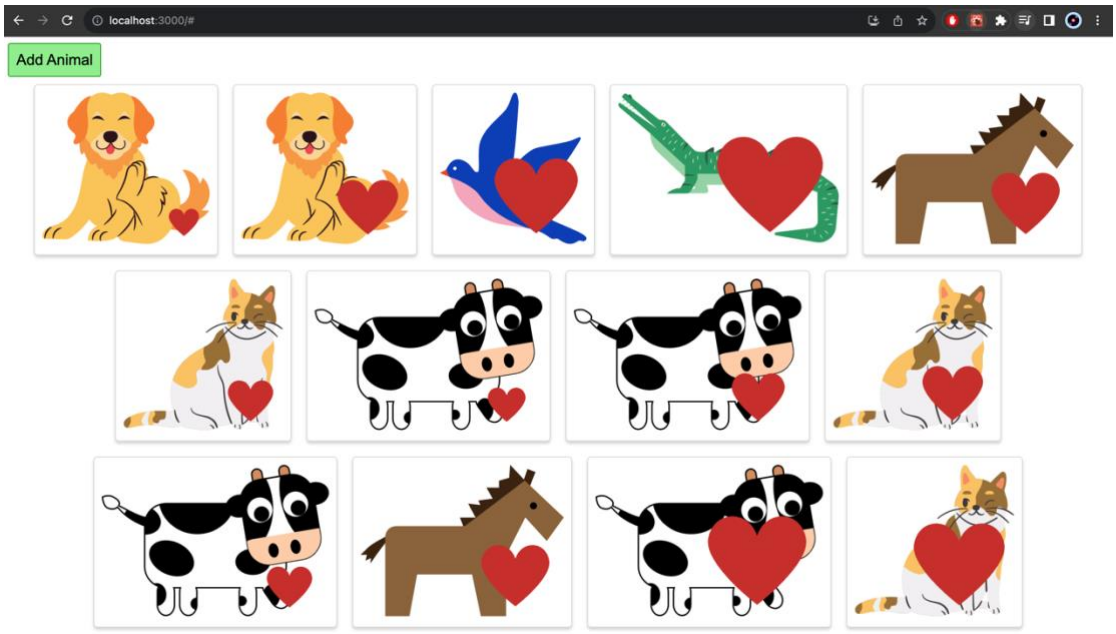

Figure 28: Sample App 2

The second application is a dynamic application where the content on the page changes when users interact with the application. When user clicks on “Add Animal”, an image of an Animal will be added to the web page with a heart icon on the bottom right of the image. When user clicks on a particular image each time, the heart increases in size. This example focuses on building reusable components and the change of state.

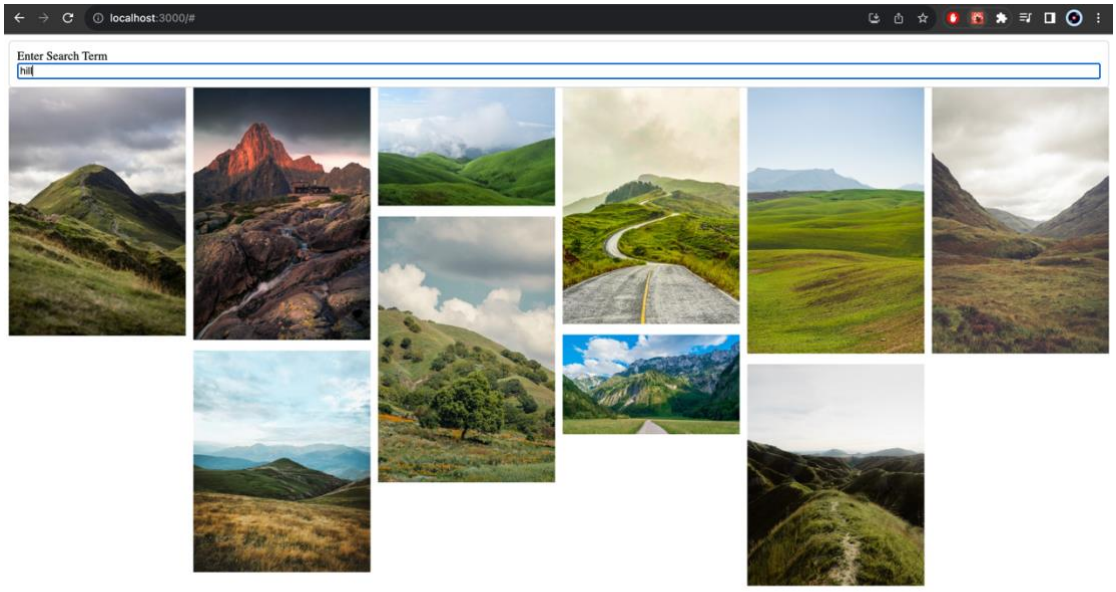

Figure 29: Sample App 3

The third application is a dynamic application that allows users to search for images. When user types in an input, the application takes the search input and make an Application Programmable Interface (API) request to a third-party server. This server sends back a list of images to show on the screen. This example focuses on building reusable components, change of state, and making an API request.

These are all very simple applications; however, it covers the fundamental concepts of React such as Components and State.

Chapter 3

Future Work

Development, Testing and Deployment Stage

The next phase will involve the crucial Development, Testing and Deployment stage. Development is basically the start of coding and software creation, adhering to the outlined design in the wireframes and technical specifications. Following this, comprehensive Testing will be done to ensure both the functional and non-functional components are working as expected prior to going live. In Beta Testing, a selected group of end-users will be involved, facilitating UAT to validate the system against its requirements. Lastly, user feedback will be garnered and analysed, allowing for potential iterations to any of the previous phase in response to identified bugs or evolving requirements/user needs, potentially leading a new life cycle.

Chapter 4

Conclusions

As the project transitions from planning and design into the development phase, the progress has been on track as development of sample applications has started, with the development of the main application starting soon, the project remains on track with the established timelines. The completion of meticulous planning of requirements, in-depth research on design elements, front-end technologies, and the creation detailed wireframes will provide a solid foundation for upcoming development of the application. The bigger challenge awaits during the coding, testing and the stage where there will be need for iterative changes. However, there is confidence to tackle these challenges with a firm commitment on delivery an intuitive and user-centric application. In conclusion, the progress has been well, and the focus remains on converting the design into functional code, aiming to ensure the final product closely align with the users' needs and expectations.