UNIVERSITY OF MORATUWA

Faculty of Information Technology

IN 3000 Industrial Training

TRAINING REPORT

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Panaceata (Private) Limited

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Preface

This report includes the information I gained throughout my time working as a software engineering intern at Panaceata private limited. The B. Sc (Hons) in Information Technology degree from the Faculty of Information Technology at the University of Moratuwa requires completion of a non-GPA module for at least 24 weeks as part of the industrial training program run by the National Apprentice and Industrial Training Authority (NAITA). This is an opportunity to engage with the industry and put the academic knowledge into practice. A opportunity to develop as stable persons in the field of software engineering while also gaining the most recent knowledge and experience to influence our future IT careers.

This report includes information on my training as a trainee software engineer, as well as the general effectiveness and improvement areas I experienced while working as an intern at Panaceata private limited.

As for the first chapter, it contains details on the training facility, including its key functions, the field in which it works, its organizational structure, and a SWOT analysis based on observations. This also includes proposals for future performance improvement and potential roadblocks to achieving such goals both in the short and long terms follow.

The second chapter details my training-related work at Panaceata, including the technical and non-technical experiences I experienced there. Additionally, this contains details regarding the projects I had the opportunity to work on, as well as my responsibilities, tasks, and collaborative efforts. The chapter also describes my process for developing solutions and resolving issues inside projects, as well as any roadblocks I ran into during the training session.

The final main chapter provides a thorough review of my training at Panaceata as part of the practical experience I received as a software engineering intern, as well as a recap of all training events. Additionally, I have addressed both favorable and unfavorable comments on the overall training program as well as recommendations to enhance the current training program. This will improve the training programs offered by NAITA, Moratuwa University, and the Division of Industrial Training.

Acknowledgement

I would like to begin by expressing my gratitude to Mr. B.H. Sudantha, Dean of the Faculty of Information Technology at Moratuwa University, and Ms. Ashika Fernando, Training Engineer of the Faculty of Information Technology, for their dedication to ensuring that all undergraduate students receive the best training possible. I also want to thank the University of Moratuwa Training Division and the National Apprentice and Industrial Training Authority for making this program available to undergraduate students so they may get experience and easily take the first step toward becoming IT professionals.

My sincere gratitude goes out to Mr. Kaushalya Hemarathna, Director of Panaceata Pvt Ltd, for appointing me as an intern in the company. My sincere gratitude goes out to Mr. Dilum Jayathilaka, Mr. Supun Aravinda (Senior SE), Mr. Dilantha Wijesekara, Mr. Waruna Gayashan (Senior SE), Mrs. Nadeesha Liyanage (Senior SE), Mrs. Rajitha Munasighe, and Mr. Chanuka Peiris for their guidance in helping me get the most out of and succeed in my internship.

In addition, each and every member of the Panaceata Pvt Ltd team who assisted me in learning offered me invaluable training-related experience. In closing, I'd want to express my gratitude to my friends for supporting me when I needed them during my work from home days during the COVID-19 epidemic.

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Chapter 1

1. Introduction

1.1 Introduction to the training establishment

In bringing vision to life, Panaceata is their all-encompassing technological partner. They may co-create customers' aspirations as a digital accelerator. What counts to them is the value they offer to clients, which greatly increases the value of clients' ideas to the world. They provide their clients quicker, more flexible, cost-effective, and more capable solutions, and they strive to be a trusted digital partner for all technology needs.

1.2 Company Logo

Figure 1 – Company logo

1.3 Brief history

In 2017, Mr. Jerome Akerlind formed Panaceata alongside Mr. Kaushalya Hemarathna, Mr. Dilum Jayathilake, and Mr. Jayath Fernando. The company's first primary objective was to offer web solutions. The company's registered name in 2018 was Panaceata (Pvt) Ltd. The workplace was then situated at Baththaramulla's Thakshila Garden. Like many new businesses, Panaceata experienced ups and downs, with some staff resigning, but to make up for those losses, extremely skilled new hires have joined the company. Now the company has more than 15 employees including 3 senior software engineers. Panaceata began offering internships to students in 2018. The business moved to its present location in January of 2019 (Temple Lane, Kaduwela Road, Battaramulla).

1.4 Company profile

Name	*Panaceata Pvt Ltd*
CEO	*Mr. Jerome Akerlind*
Director and COO	*Mr. Kaushalya Hemarathna*
Strategic Advisory Board	*Mr. Dilum Jayathilaka* *Mr. Jayath Fernando*
Founded in:	*2017 October*
Head Office:	*328/2 Temple Lane, Kaduwela Road, Battaramulla*
Hot Line:	*011 7520366*
Email:	*info@panaceata.com*
Website:	*http://panaceata.com /*
No. of Employees:	*Permanent: 13* *Interns: 03*
Working Hours:	*08:30 AM – 06:30 PM Monday - Friday*

1.5 Company Culture

Being able to describe the Panaceata culture is difficult because it is not a conventional company, but if you were to, you might classify it as a pragmatic culture where the employees' primary goal is to satisfy the customers. The importance for learning and personal growth of people is always given by Panaceata, a firm with several knowledge fields and enterprise goods. As long as they meet customer needs or make improvements, employees are free to propose and implement solutions to business challenges under company regulations. Employees are free to come up with the best solution while receiving advice and assistance from more senior designated individuals. When there is a pandemic, The firm continued to make success while the workers enjoyed the convenience of working from home. Organizing virtual gatherings while working from home proved to be a terrific experience and a secure method to meet up with coworkers. Additionally, they plan a monthly trip to improve the mental health of the staff members, who are tired out from working from home.

1.6 Vision

Bring technology innovation to the palmtop of the common people.

1.7 Mission

Augmented technology barriers for innovation with initiative implementation building blocks.

1.8 Main Functions

1.8.1 Mobility

The commercial equivalent of a grassroots movement is BYOD (Bring Your Own Device). The data also confirms this pattern. Business executives typically refer to this kind of mobility while discussing it. In the whole mobility value chain, Panaceata provides unmatched coverage of the full stack of mobile technologies. Technology, business verticals, and end-user analysis are all covered by Panaceata' integrated, collaborative, and responsive solution approach to mobility.

1.8.2 User Experience Management

One of the most demanding expectations from customers is D4C (Design for Context), which applies to both commercial and consumer markets in industries including financial services, healthcare, retail, consumer products, and technology. A client's enterprise strategy up-lifter is the Panaceata manifestation of UX and has an influence on how clients do (or wish to conduct) business. Panaceata helps customers in ways that go well beyond traditional marketing tools, including AI, IOT, analytics, blockchain, and cloud-based applications. Panaceata provides technology-driven and design thinking-based UX services for managing and innovating digital products as well as for digital transformation.

1.8.3 IOT

The go-to-market methods for the Internet of Things are expanding the fastest. Panaceata assists clients in utilizing the Internet of Things to enhance operational efficiency and generate new income streams. Also, they assisting in the transformation of after-market services through the use of augmented and virtual reality. Higher levels of efficiency and dependability are made possible by Panaceata's connecting assets with integrated intelligence.

1.8.4 BIG Data Analytics

Panaceata can see the benefits of Big Data as a Service as the field of big data matures and new business and service models are developed. The BdaaS continue to draw consumers by attacking the categories with quite diverse value offers. Through commoditization and service level abstraction, Panaceata assists industries in leveraging the value stream to be competitive on a performance level. Additionally, Panaceata supports business requirements from organizations who are less ready to take on the difficult tasks of creating their own data architecture and more eager to concentrate on their processes that create value in a particular area.

1.8.5 Cloud Computing

In order to provide quicker innovation, adaptable resources, and scale economies, cloud computing is the distribution of computer services via the Internet ("the cloud"), including servers, storage, databases, networking, software, analytics, and intelligence. Panaceata is the best choice for strategizing cloud journey across expanded cloud services across the clear SaaS, PassS, and IaaS borders.

1.9 Clients

1. Wireless Shop
2. Serendib Consultants
3. Ebuyer
4. StreetUK
5. Canada Gateway
6. KLP – Kids Learning Path
7. Tenaga
8. SLIIT
9. VSAST
10. iReach
11. Cloud Native

1.10 Panaceata SWOR Analysis

1.10.1 Strengths

- Friendly Culture

The culture of Panaceata is highly friendly. Their personnel are not bound to any particular rules and regulations. This welcoming workplace environment encourages individuals to think freely, enjoy their workday, and exceed limits. No excessive pushing to work and all are supportive as a family.

- Young Talent

Young, intelligent, and devoted people who work at Panaceata are employed there because of new company. They always strive to better themselves and learn new things. Panaceata is always ready to support people who are pursuing further studies. They have fresh thinking about problems and have innovative ideas.

- Effective Leadership

Mr. Jerome Akerlind, CEO of Panaceata, articulates an exciting vision. Mr. Dilum develops other leaders through attracting, motivating, and managing talent. He is a creative individual who is dedicated to getting things done and is always willing to take on challenges. He has a sound knowledge in all areas related to software engineering and supports every project with the most trending ideas and guidance. All active projects, customer meetings, sprint retrospectives, and employee-related matters are coordinated and organized by Mr. Kaushalya Hemarathna in well manner.

- Client Satisfaction

Panaceata places a high importance on client satisfaction. Panaceata works diligently to ensure client satisfaction. Panaceata continues to work hard even after the client declares it to be fine; they don't stop until the client declares it to be amazing. They plan before the client connects and decide what to on every situation. They are trying their best to give the optimum satisfaction.

- Dedicated Team

The people that work at Panaceata are extremely enthusiastic and committed to their jobs. To make anything flawless, people may occasionally work through the night or even on a holiday. They won't stop till the finished work is of outstanding quality. They work on their dedication. Not because of pushing management.

1.10.2 Weaknesses

Due to the small number of workers on a project, timelines might occasionally become challenging. As a result, the result fell a little short of being of remarkable quality. Also, due to the small number of employees, one employee has to be proficient in every aspect. Also, some projects are not documented.

1.10.3 Opportunities

Panaceata is concentrating on WEB Development and Mobile Application Development, two markets that have the potential to grow significantly in Sri Lanka over the next several years. Also, they use the most trending technologies to build the customer expectations.

1.10.4 Threats

There are several firms those that preserve their brand to deliver superior software items to the clients. Among them Panaceata should be distinctive and deliver better goods to their consumer. Therefore, competing other software businesses are dangers to Panaceata.

1.11 Suggestions for improvements

All projects should be documented to use in the future. Like Special functionalities, special procedures, and short ways to do that work like that. Also need to discuss with the employee and establish the needed time for the project.

Chapter 2

2. Internship Experience

2.1 Overview

The Panaceata internship program is very well structured and coordinated to ensure that each intern gets the most out of their time there. Additionally, the training program was praised for being excellent for interns and enabling them to gain a customized experience while being carefully overseen by professionals from the sector for the duration of their internship. I thought this was the finest internship program and I had a great time working here.

On their first day at Panaceata, all of the interns participated in an orientation session. Ms. Rajitha Munasinghe, a QA engineer, who is in charge of it, was given a good understanding of the company's principles, ethics, and culture as well as the primary technologies that are utilized in the company's products. To make sure interns had the best understanding of the organization and the most incentive to work there, she conducted three sessions over several days. I was then given Mr. Supun Aravinda, a senior software engineer at the organization, as my mentor. He also provides a general overview of projects and clarifies how free employment is handled in this organization. Then I went to the company to get my laptop to work, where I met Mr. Kaushalya Hemarathna and we configured it together.

I took part in the daily scrum meetings in the early going and formed my first connections with the staff. I'm getting more and more interested in working here and it's more likely a family than simply employees.

2.2 Assignments

All interns were given instructions to complete an assignment after the orientation sessions in order to learn more about the tech stack they utilize. Since the assignment was in line with industry standards, best practices, and constraints, a rigorous notice on meeting deadlines and fulfilling the functional need was given.

I had to create the front end of a school administration system using Angular and the DevExtream framework. Additionally, a backend has to be developed using sequelize and expressJs. MySQL

had to be used to implement a database as well. To learn how the task was done and gain experience, it was beneficial. Senior Software Engineer Ms. Supun Aravinda completed the evaluation for me, and I received the highest rating possible for my efforts. I gained knowledge regarding professional development. I worked on three projects for the company after that.

2.3 StreetUK

2.3.1 Overview

StreetUK is a financial institution that provides loans to its clients. They have several different direct debit loans available, ranging from same-day to pay-weekly. Loan amounts range from £200 to £2,000 with them. This is an old firm, and they use a legacy system that was established many years ago to manage their transactions and processes. This has highly outdated user interfaces and provides both consumers and staff with a poor user experience. System is difficult to manage and extremely sluggish.

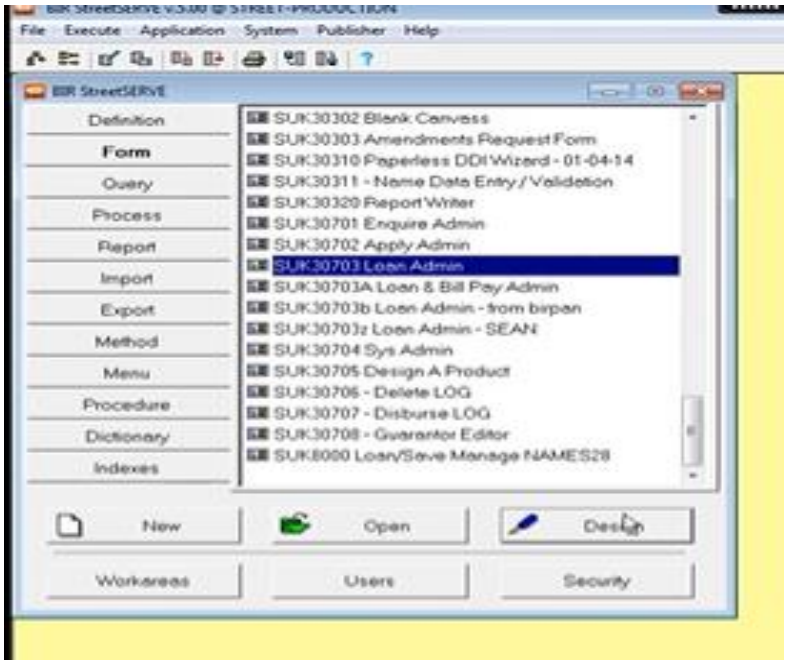


Figure 2 - UIs of legacy system

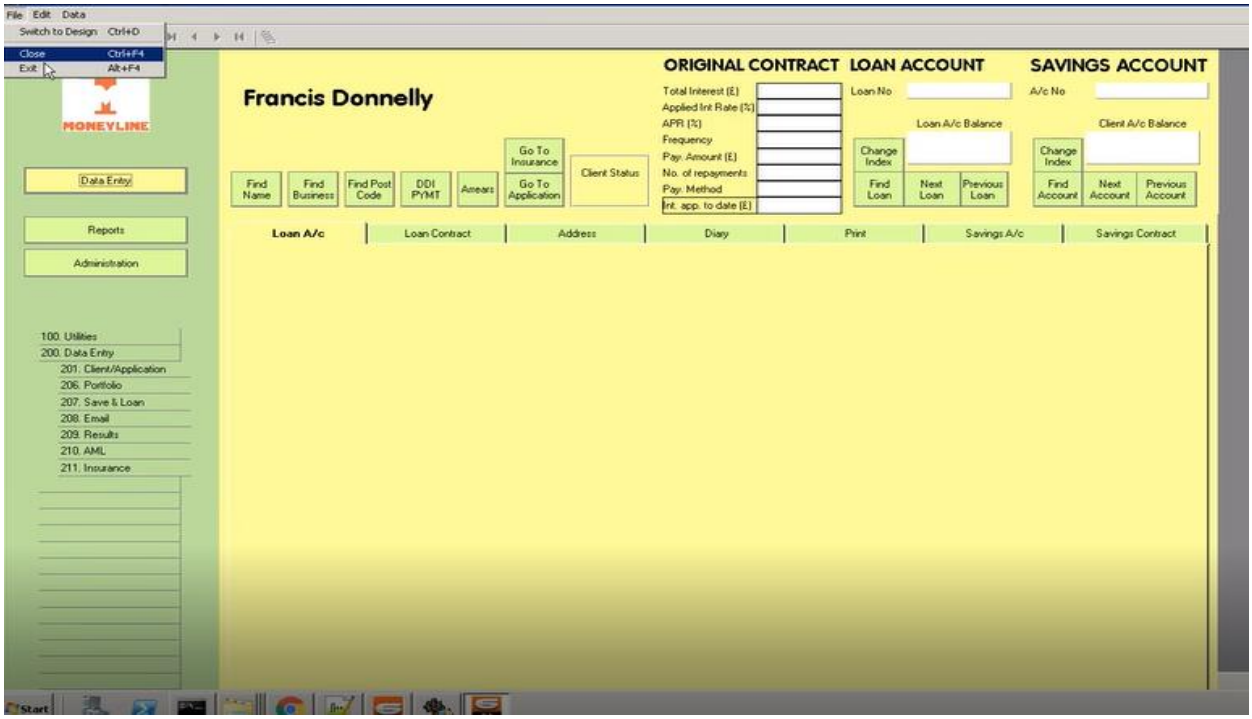


Figure 3 - UIs of legacy system

Due to these causes, StreetUK Company provides Panaceata to resolve these issues. Panaceata thus had two tasks to do.

1. Optimize and fix bugs of legacy system(equinox)
2. Create a web-based solution for replace old system

Panaceata had to do both tasks at once. Due to the outdated system's inability to manage organizational procedures. So, an upgrade to a higher version is required. Since StreetUK is a busy business, the system cannot be completely removed. Additionally, Panaceata needed to replace several functions of the old system as quickly as feasible with an improved web-based system that met the bare minimum of criteria.

Learning the legacy system was the Panaceata's first obstacle. That work was challenging. The reason for so is that it was developed using very old technology. They established best knowledge circles and received daily meetings with the legacy system's prior developers in order to quickly begin development. The company is currently in a strong position, and many developers are well-versed in the old system. The system is currently functioning better and is in good shape. However, until the development of the web solution is complete, there is still work to be done on this system. This legacy system has been developed by many interns up until this point. For those who were involved, this would have been a completely new experience.

The web solution has, up to now, taken the place of many of the legacy system's functionalities. The majority of the interns have experience in developing web solutions. This system has three sub systems.

- Admin Portal – Portal for working to administrators. User Management, Loan management can be done in here.
- Customer Portal – Portal for Customers. Customers can log in to here and manage their Loans.
- Application Portal – Portal for apply loan for customers

The iReach Team wants the Admin Portal to develop initially at the start of the development process. since the admin site has replaced the traditional system. The other two portals are likewise new to them. The Panaceata team was required to create all of the legacy system's features. This was a challenging undertaking since developers need to understand financial concepts in order to meet their expectations.

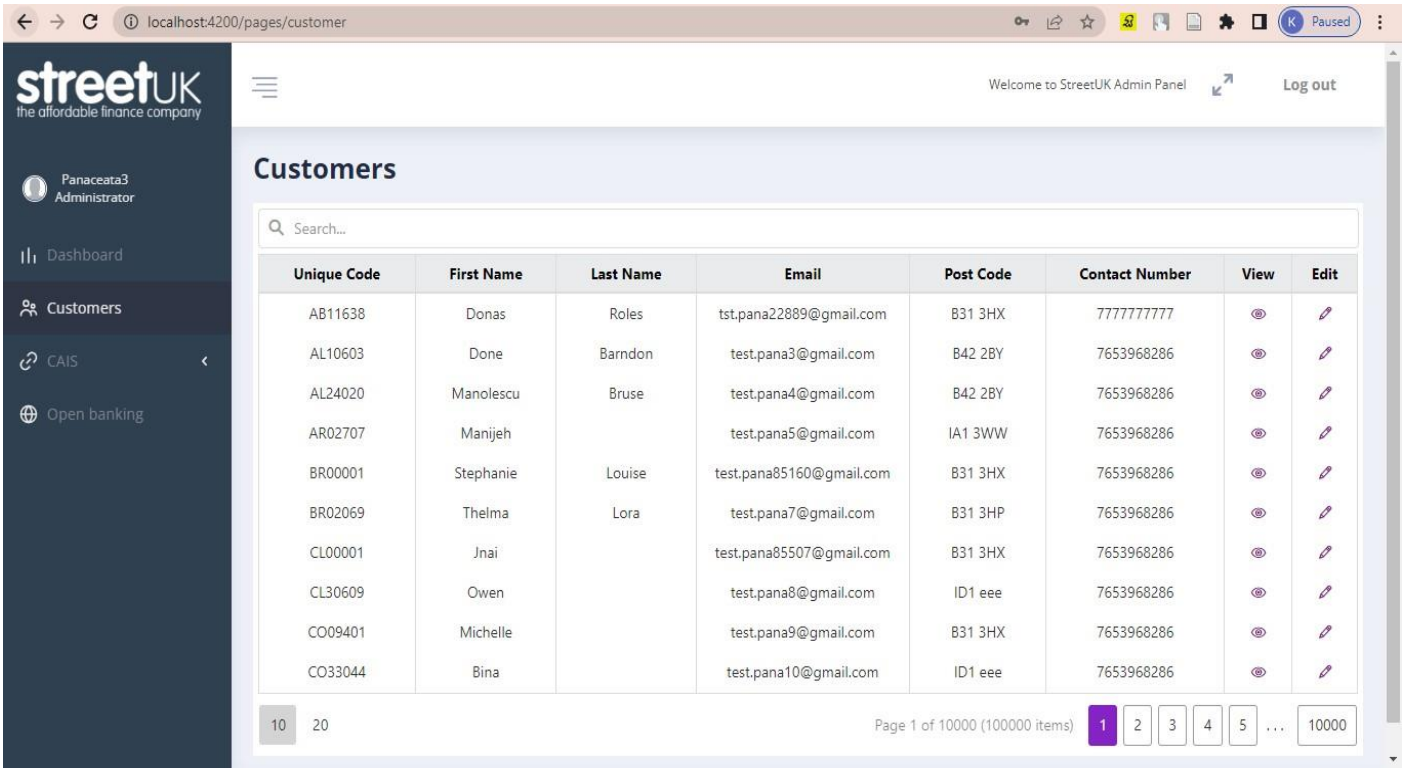


Figure 4 – Admin portal UI 1

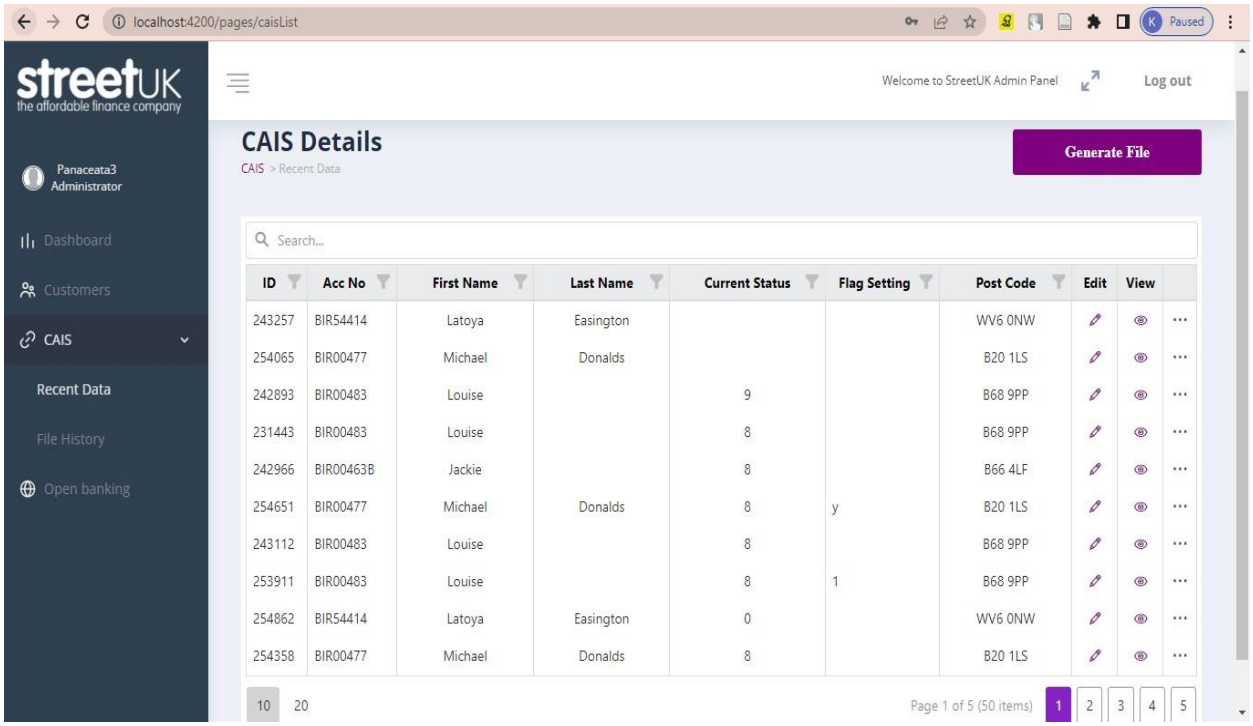


Figure 5 – Admin portal UI 2

2.3.2 My Contribution

2.3.1.1 CAIS Download task

The CIES report is a monthly summary of all loans in the system. This was produced using a Lambda function from AWS. Although the front end required me to download the file, the back end had already received it from AWS bucket. My first task with the company was this. I had to first set up the laptop to work on the project before that. Mr. Dilantha assisted me, and I completed the setup in one day. The reason for that is that I had to install many software programs and create many accounts. This task was for the admin portal, which was built with Angular frontend and NestJS backend.

First, I had to learn the NestJS framework for begin this task. I watched many videos and get an idea about it. That was helped me to understand the Backend code and finish the download part of the frontend.

I took just three days to complete the first task. Despite the fact that I was new with this technology, I quickly mastered it. Because of that, I have a positive first impression of the company.

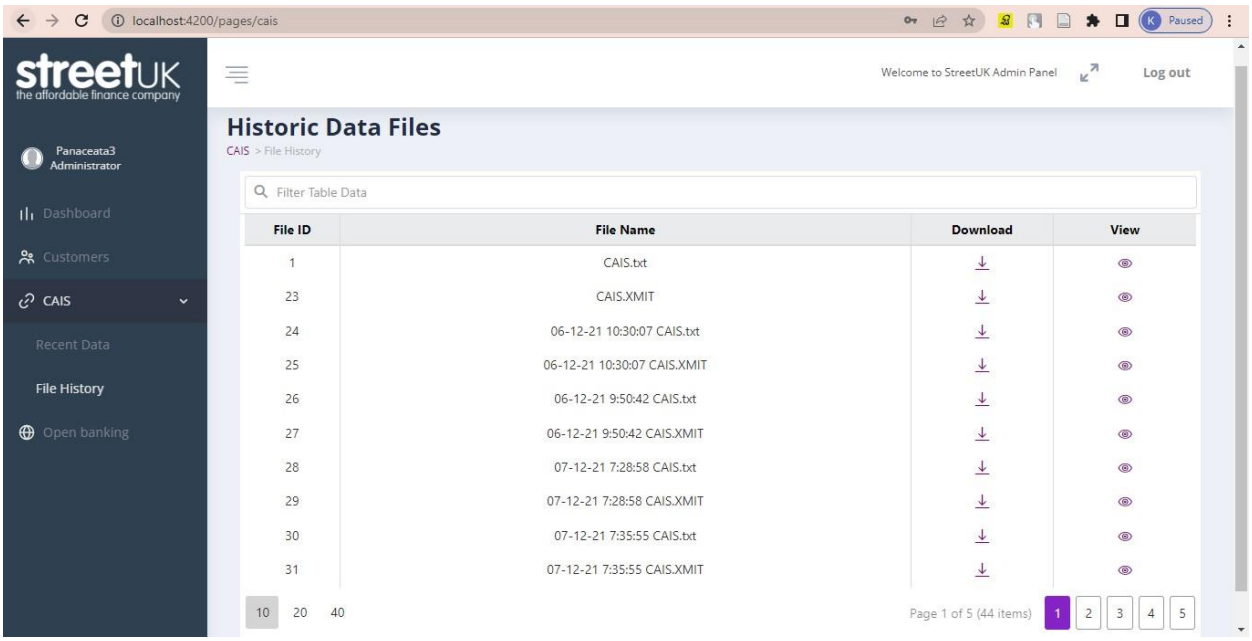


Figure 6 – Admin portal CAIS download

2.3.1.2 Application Portal UI Implementation

This website has not been initiated properly when I begin this task. First, I had to set up the laptop to work on the project and Mr. Dilantha assisted me again. For me, this was a whole new experience. because the AWS Sam framework was used in the development of the application portal's backend. To me, that was completely new. I'd never heard of that before.

In order to learn more about Sam, I first had discussions with Mr. Waruna, who was in charge of this project. I got a good idea from watching some videos about it after that. I started by creating some test APIs there. I then created some user interfaces for applying for a loan from StreetUK bank. I needed information from clients about their loans in order to do this. To gather information, I developed the user interface in four phases.

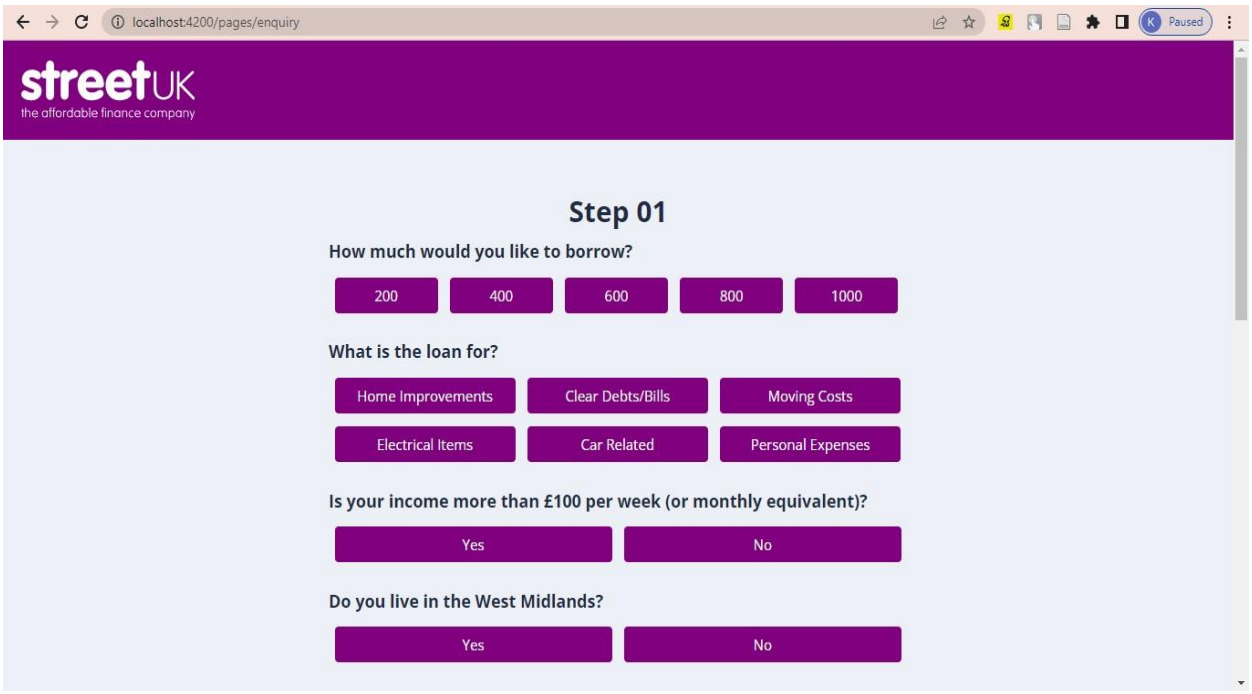


Figure 7 – Application portal UI 1

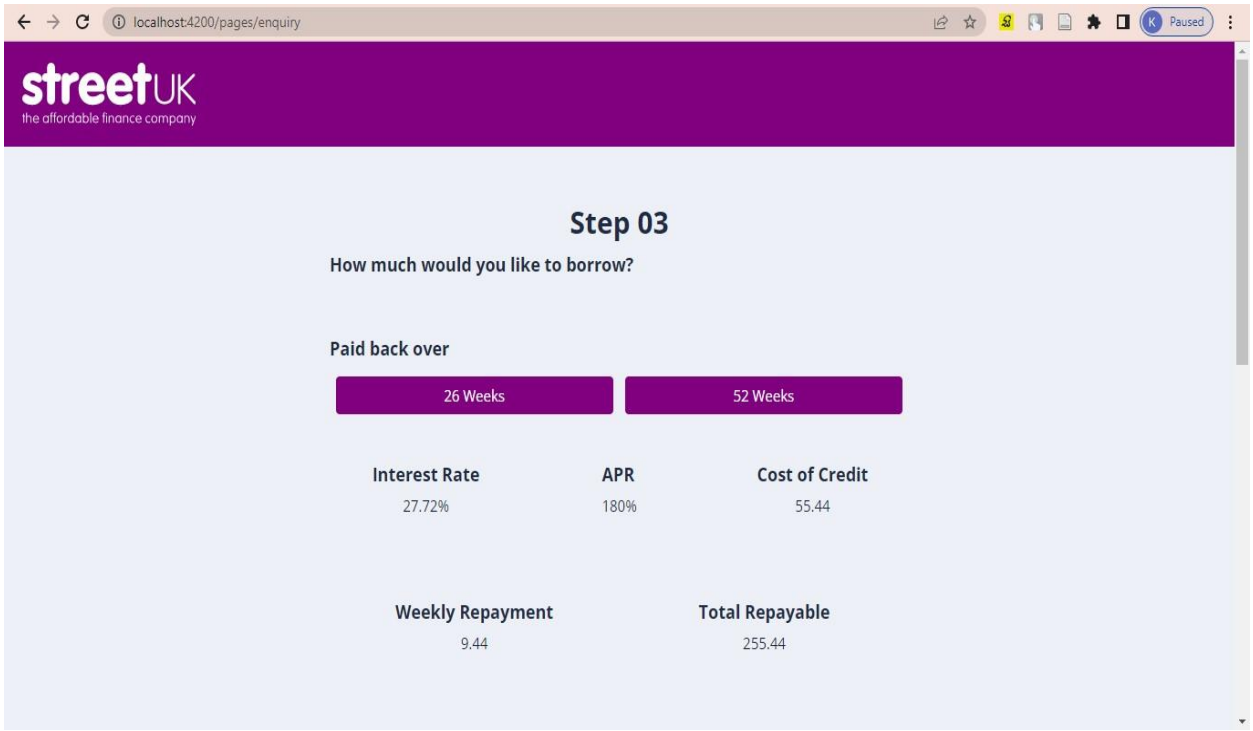


Figure 8 – Application portal UI 2

2.4 iReach Mobile

2.4.1 Overview

The iContext company made it easy to study online and assisted forward-thinking businesses in staying on top of the fashion. They founded I-Context because they foresaw that online learning will dominate education more than ten years ago. Simply said, the potential to give education to anybody, anytime, anywhere is superior than the established face-to-face paradigm. They have created a collection of eLearning solutions that businesses, institutions, academic institutions, and all of their students find enjoyable to use. To meet the eLearning demands of their consumers, they have created a variety of products. Even the infrastructure, staff, maintenance, and everything are handled by them.

However, they were limited to offering their clients online solutions. In this instance, the iContext customer desired a mobile application to complement their web solution. The customer, Dnata, was from the UAE. This Emirati airport services company offers cargo, travel, and flight food services as well as ground handling for aircraft on all five continents. IContext has developed its web solution and asked for a mobile solution for it.

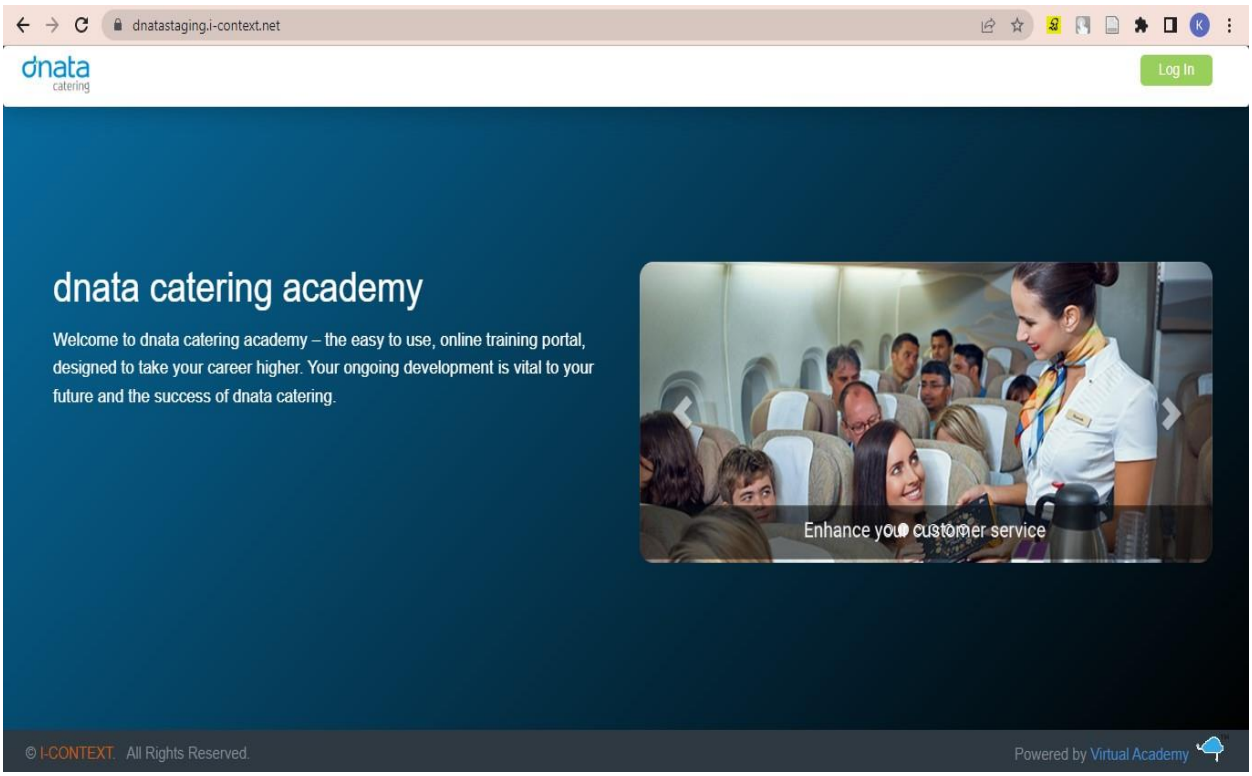


Figure 9 – Dnata Catering Web application

Since they do not currently develop for mobile devices, Panaceata was given the task. This product is intended to help Dnata staff learn new information. The web solution is operational, however the mobile solution required starting from scratch. The iContext company provided the UI design, and Panaceata was required to begin it as soon as possible.

2.4.2 My Contribution

2.4.2.1 Develop Login Screens

I found this project to be really interesting. as I have never before created a mobile application. Four people were formed into a team by Panaceata to develop this product. There were two developers and two QA engineers. They decided to use React Native to create this product. I was one of their two developers. Being able to contribute from the start of a project was a huge opportunity. The Panaceata company also trusted me with this task.

My first task was to start from scratch learning React Native. I was given a paid Udemy course from the Panaceata company, which I initially completed from beginning to end. After completing the course, I began creating the app's login screens. There were five screens to develop.

1. Splash screen
2. 3 Intro screens
3. Organization input screen
4. Mobile number input screen
5. OTP input screen

When an app is launched, a splash screen loads. I had to retrieve the entire app data when it started loading. I had to make several API calls and implement complex logic to do it. The 3-intro screen UI was more than simply UIs. To obtain images and data for it, I had to call APIs.

I had to retrieve organization information from the organization input screen relating to the name They supplied. Additionally, I had to add validations for it. The domain URL has to be obtained and then set up in environments.

I had to get user information about the inputted number from the mobile number input screen. Additionally, I had to add validations for it. The next step was to obtain OTP and configure

environments. I had to compare the OTP to the inputted OTP on the OTP entry screen. Additionally, I had to add validations for it. After successfully logging in, I had to retrieve the app data.

The challenging aspect of it was making the screen responsive. These screens must work with a variety of tablet and mobile phone sizes.

Figure 10 – Splash Screen

Figure 11– Intro Screens

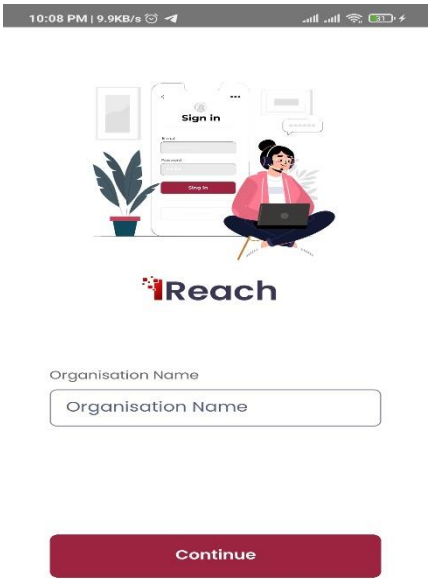


Figure 12– Organization input Screen

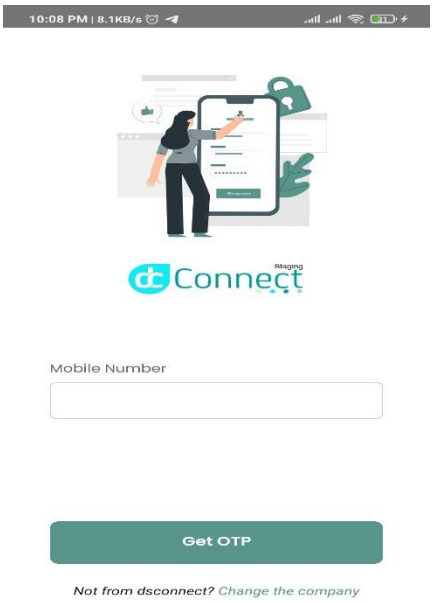


Figure 13– Mobile Number Input Screen

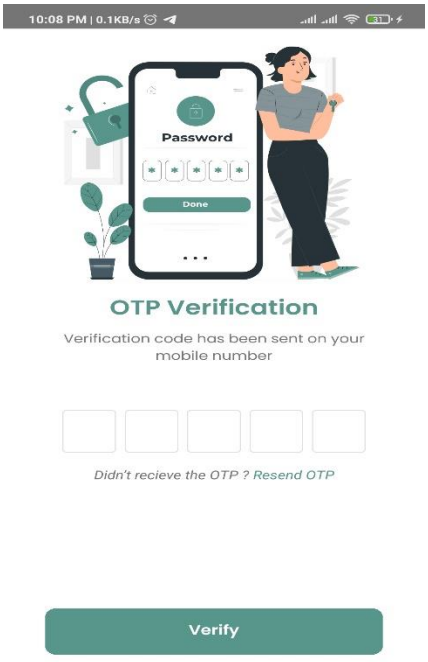


Figure 14 – OTP Input Screen

2.4.2.2 Develop Other main Screens

I was given the task of implementing several displays once the login screens were developed in the shortest amount of time possible. Therefore, I had to develop almost 90% of the app's screens. The team showed a lot of interest in my work, and I did a great job implementing it. Here is a list of the screens I have created.

1. Dashboard Screen
2. Dashboard global search screen
3. Video list screen
4. Video detailed view screen
5. Publish news and post screen
6. Statistics screen
7. Engagement screen
8. Get in touch screen

The dashboard screen is the app's main screen. This page of the app must be the most visually appealing and user-friendly. This will reflect the user's first impression. This page contains all of the app's summary information as well as several navigations, animations, and contents. I had to learn a lot of react native concepts for this screen. like the navigation options FlatList, Scroll View, etc.

The development of Dashboard global search was The Next Thing. The user may search all of the app's categories from here (News, Post and videos). I had to make multiple API calls to do this. I then had to combine these responses and view them in a user-friendly manner. Additionally, this search result's navigation must be perfect. My implemented logic affected how quickly search results were shown.

Another one of the app's key screens is the video list screen. I had to display all of the user-assigned videos on this screen. I had to display all system videos with an expired tag if the user was an admin. I also had to incorporate a search feature into this screen. I have to make an API request to do that. And for that, I had to create loading and search animations. Implementing pagination was the Screen's most difficult task. Only 20 videos were available in the apps' storage. I had to perform an API request to acquire extra 20 video items if the user scrolled the screen up to 20 items. until

the end of the assigned videos, I must repeat it after every 20 items. After several hours of research, I successfully put that into work.

I had to display all the information related to a certain video item in the video detailed view screen. I have to provide options for viewers to comment, rate, and like or dislike videos. In the news list screen and the post list screen, which were developed by other developers, I also had to add those functionalities. Additionally, I had to turn off such features when user was offline. I also had to call more than 4 APIs for this screen. The detailed view screen storage items also had to be updated. The toughest part of this screen to build was the rating UI. For this item, there were no libraries. I had to be clever, so I used a library to build my own logic. Additionally, I had to display any submitted attachments to a certain article and provide a download facility. Also, this needed to add in News and post list screens.

The publish news and post screen was the hardest one I have developed in the app. I had to develop a lot of functions, logics, and user interfaces. First hard thing was to get list of users and groups with the checkbox to assign that post. I had to create quite complex logic to do that. Now, that logic is working well. Next, upload an image or a video to illustrate the uploading process. I had to apply a lot of complex logics and libraries for that as well. Attachment upload was the next challenging step. To put that into practice, it took me almost a day. I had to display the kind of any submitted attachments. Likewise, the user-selected files had to be uploaded one by one.

I didn't have anything more complicated on the Statistics screen. All I had to do was display app data in a user-friendly format with appealing animations. I also had to look at a couple navigations for this.

One difficult task was required of the engagement screen. Implementing a diagram was what that was. I was unable to locate any relevant libraries. I have to spend a lot of time If I creating the diagram on my own. I thus made my own modifications using a well-known library.

Get in touch screen, the most straightforward screen I have created. All that is left to do is add some input fields and some validations. just call the API to post information’s. And then I had to develop some success screen to it if the user successfully sends the message.

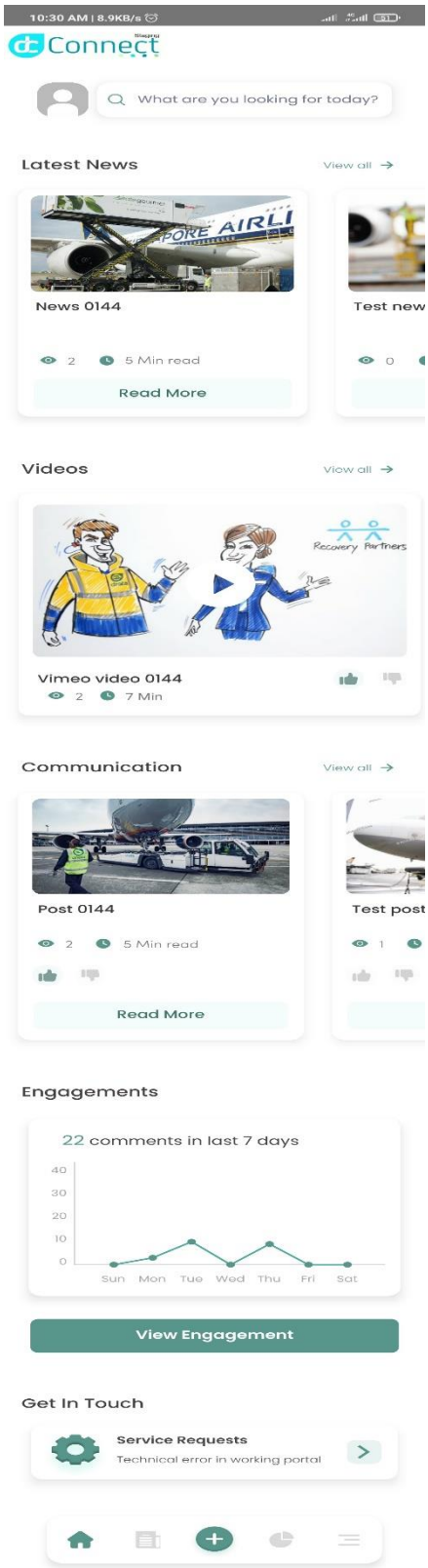


Figure 15– Dashboard Search Screen

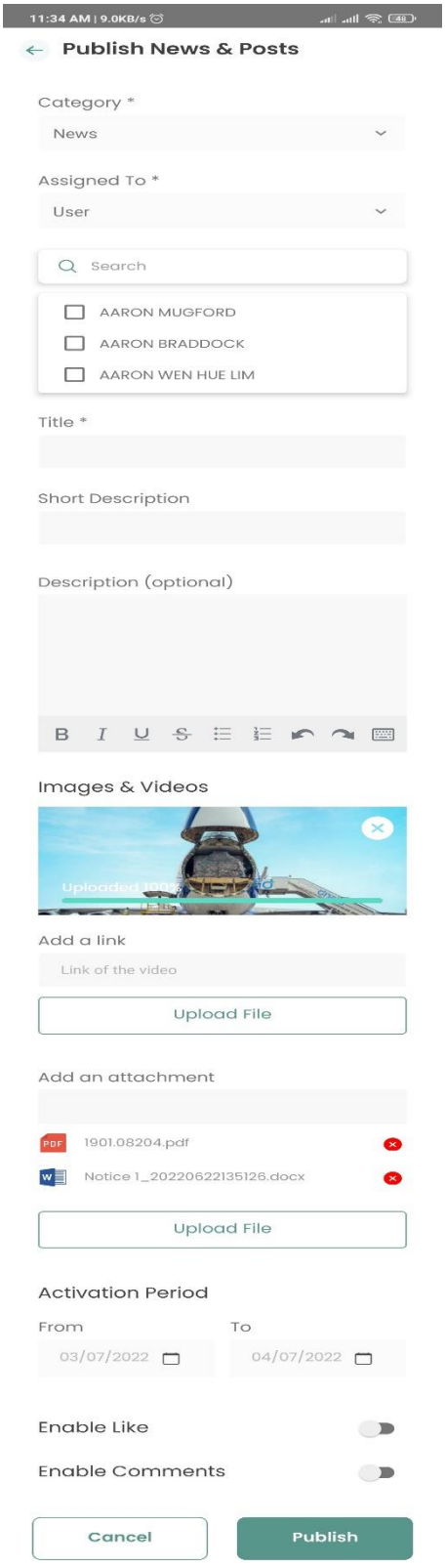


Figure 16– Post Publish Screen

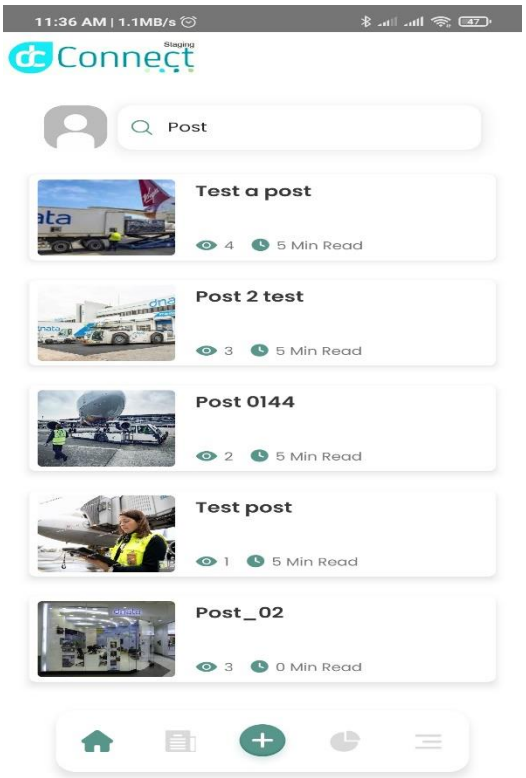


Figure 17 – Dashboard Screen

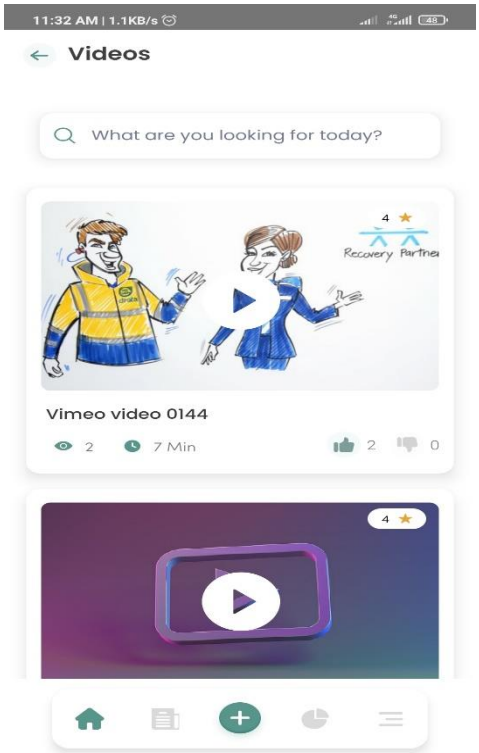


Figure 18– Video List Screen

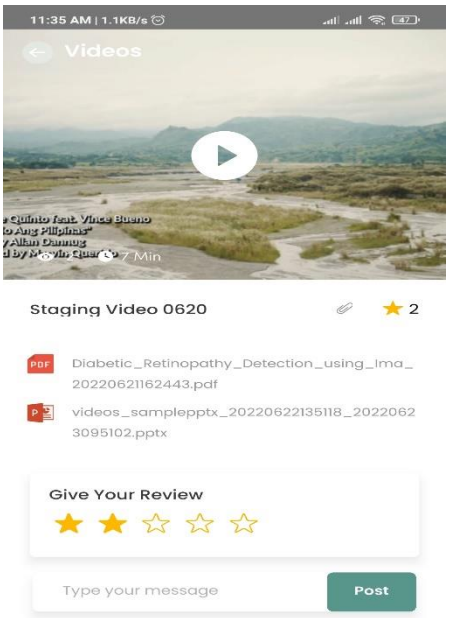


Figure 19– Video Detailed View Screen

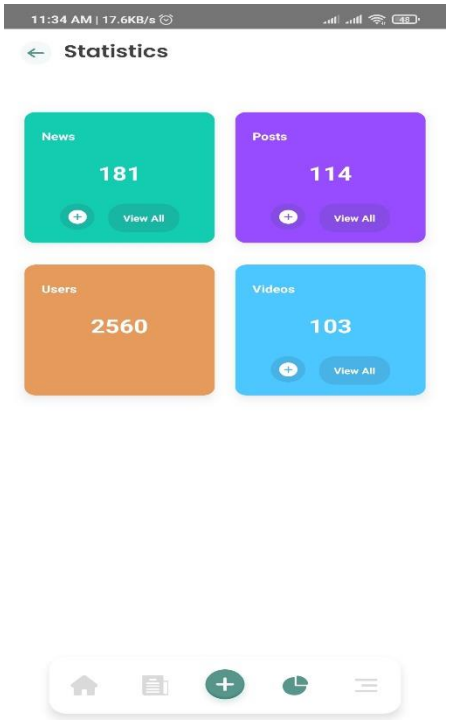


Figure 20– Statistics Screen

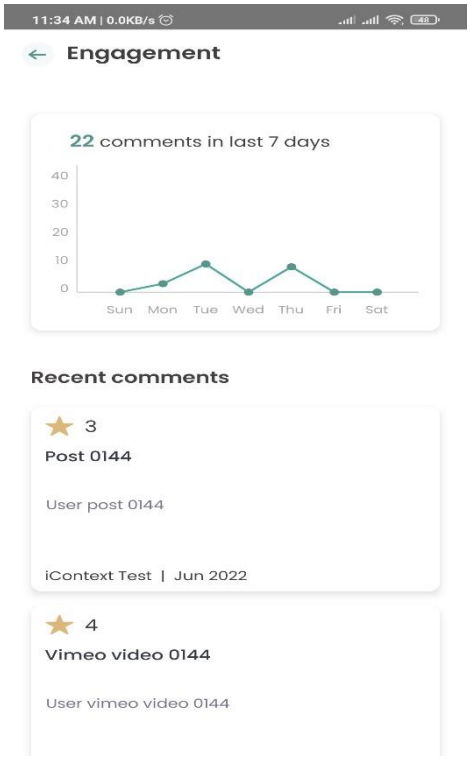


Figure 21– Engagement Screen

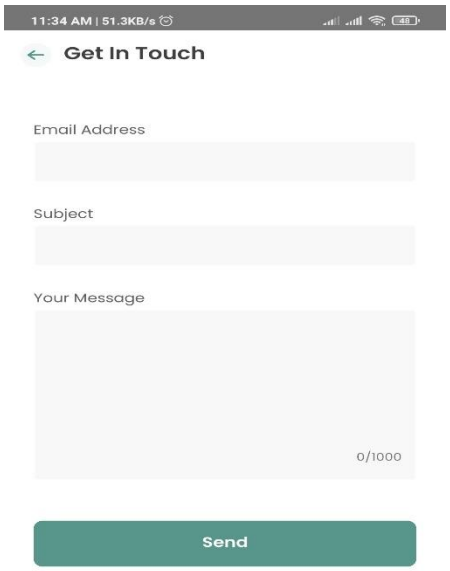


Figure 22– Get in touch Screen

I had to adjust the responsiveness after putting those screens in place. The customer required that this app work on a variety of mobile and tablet devices, which is the reason for that.

2.4.2.3 Develop Redux Store

Redux store is used in many react web applications and react native mobile devices. The whole state tree of application is stored in a store. Sending an action to it is the only method to modify the state inside of it.

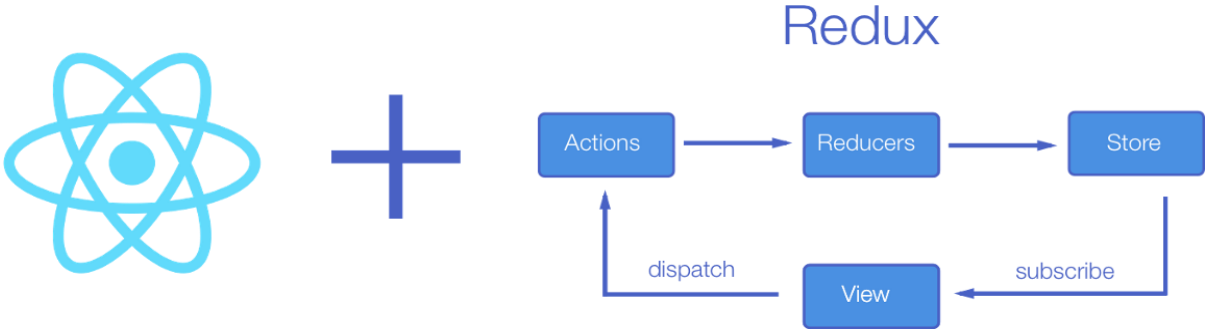


Figure 23– redux store overview

On that, I first had to do some research. I applied everything I had learned from the ground up to our native React app. I then structure the store after examining the UI of the app. Persisting with the store was the last thing to do. This means to keep the data in the storage permanently. I also did it, and the entire implementation took place in about two days.

2.4.2.4 Set up app navigation

The implementation of the app's navigation was another challenging task. The app has three different types of navigations.

- Drawer Navigation
- Bottom Navigation
- Stack Navigation

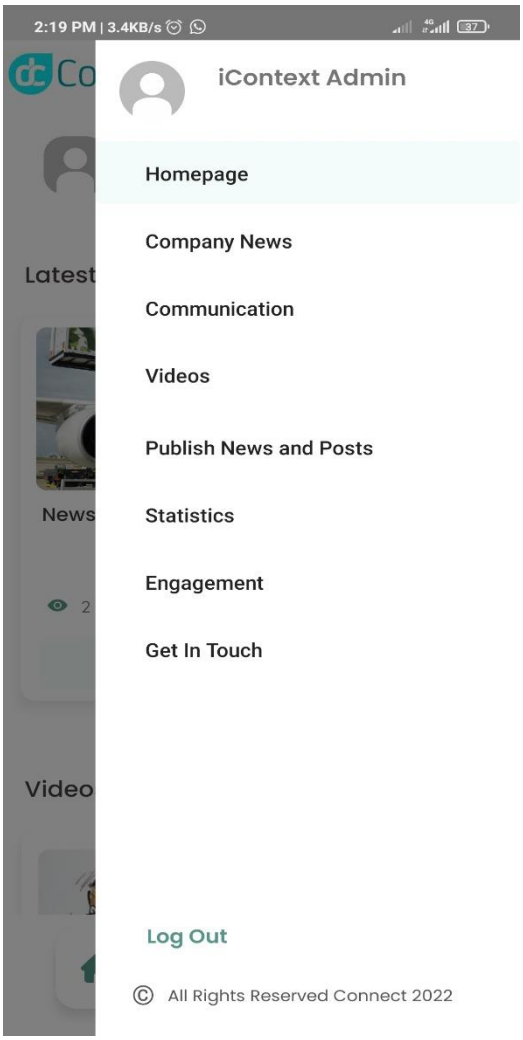


Figure 24– Drawer Navigator

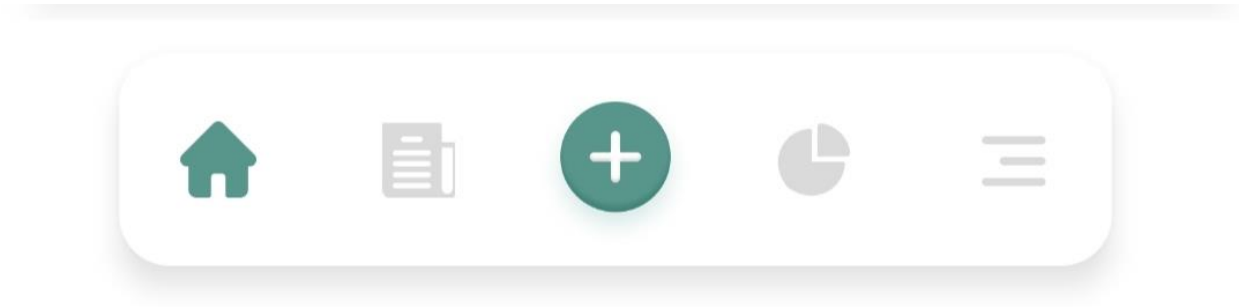


Figure 25– bottom Navigator

Building each one separately is not difficult. Its difficult mission is to build everything together. The initial login screen is built using stack navigation. The drawer navigator was then conditionally nestled inside the login stack navigator. The bottom navigator then conditionally nestled inside the drawer navigator.

2.4.2.5 Develop Phase 2 screens

After the iReach mobile app's first phase was implemented, the client was asked to begin phase 2 of the app's implementation. This application is on a whole new level and includes virtual reality elements as well. Unfortunately, I was only able to participate in the early stages of the implementation. However, I helped create a lot of the next phase's screens. Those are,

1. Dashboard Course section
2. Dashboard Polls and survey section
3. Pols and survey screen
4. Poll view screen
5. Survey view screen
6. Course view screen

I could only create UIs for them. The six-month internship period came to an end when the UIs were completed. I put a lot of effort on them. Many of them had sophisticated user interfaces, such as the course screen.

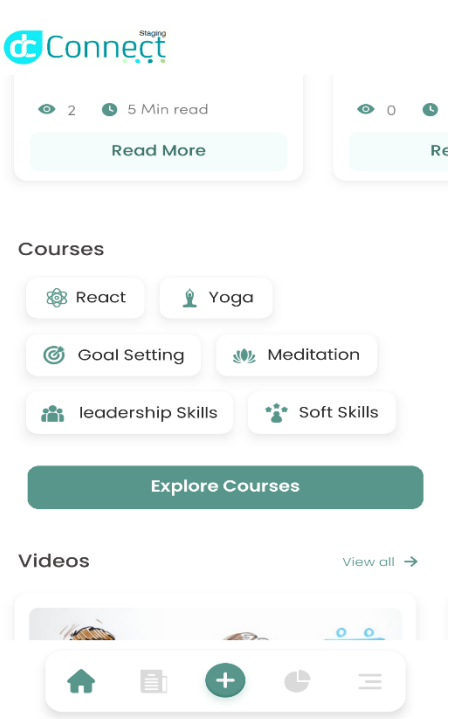
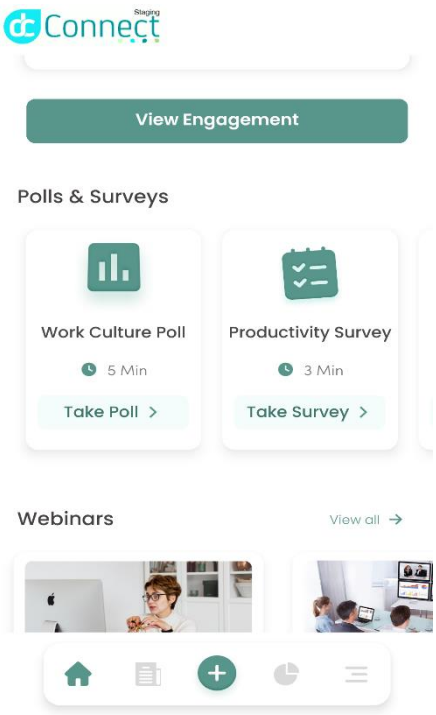


Figure 26 – Dashboard Course section Figure



27 – Dashboard Polls & survey section

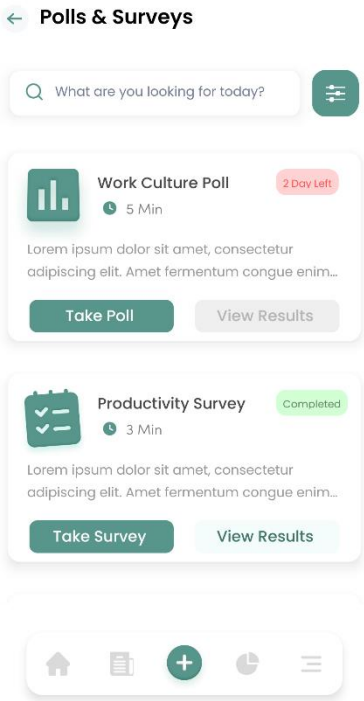


Figure 28 – Polls and survey screen

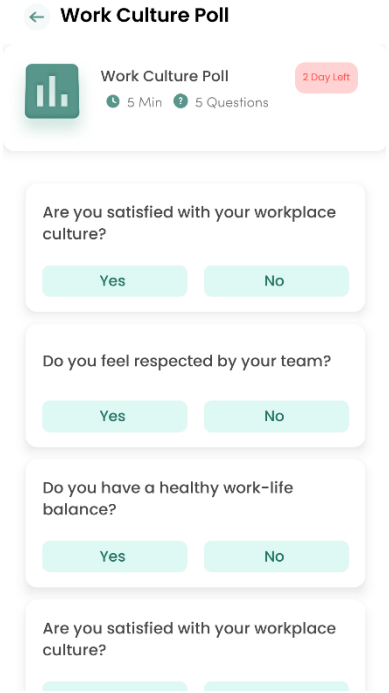


Figure 29 – Poll view screen

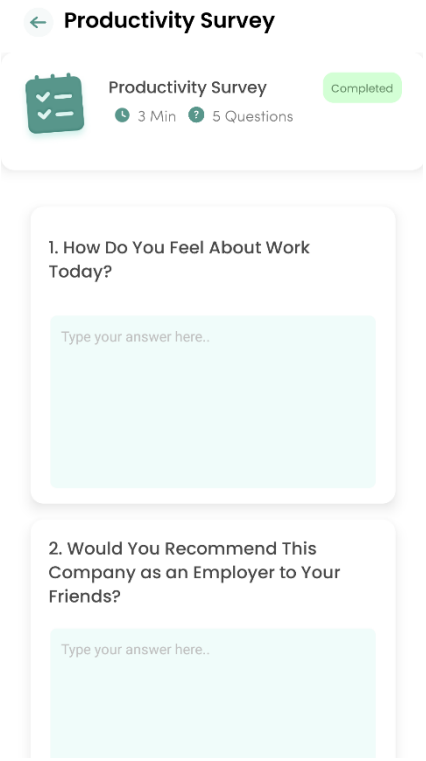


Figure 30 – Survey view screen

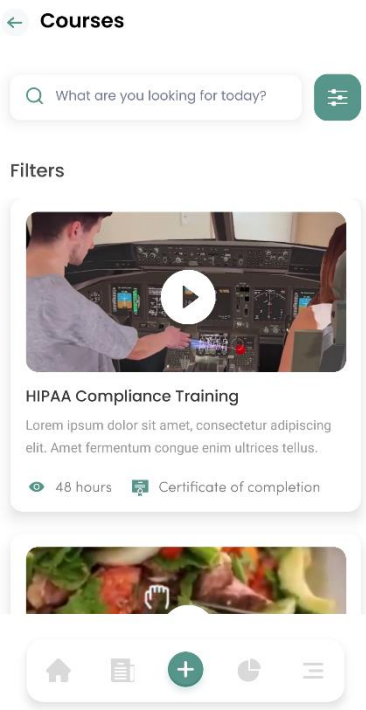


Figure 31 – Course screen

2.5 Cloud Native

2.5.1 Overview

Cloud Native project is not given by a client. This project is for build structural layout for start any project. If a customer gives Panaceata a project, it can begin with this project structure. The Angular framework was used for this project's front end. However, it will also develop using React Framework at the next phase. The NestJS frameworks were used to develop the project's backend. In Sri Lanka, this framework is in trend. PostgreSQL. No SQL database will be used throughout the second phase of development. It may be MongoDB. There aren't many requirements for this. The mobile application was created using React Native.

- Login and signup
- Authentication and Authorization
- Permission, Role and user management

AWS Cognito was used in the initial phases of login and registration. It will begin with another identity provider in the second phase. Both the frontend and the backend handle authentication and authorization. The user can have many roles and each role have many permissions. if the admin wants to give another permission other than role permission, he can do it. On this system, CRUD operations for users and roles are both possible.

When creating a user, the administrator can give it a role and additional permissions. When updating user, it is also possible. An administrator can include permission while creating a role. When updating, it is also possible.

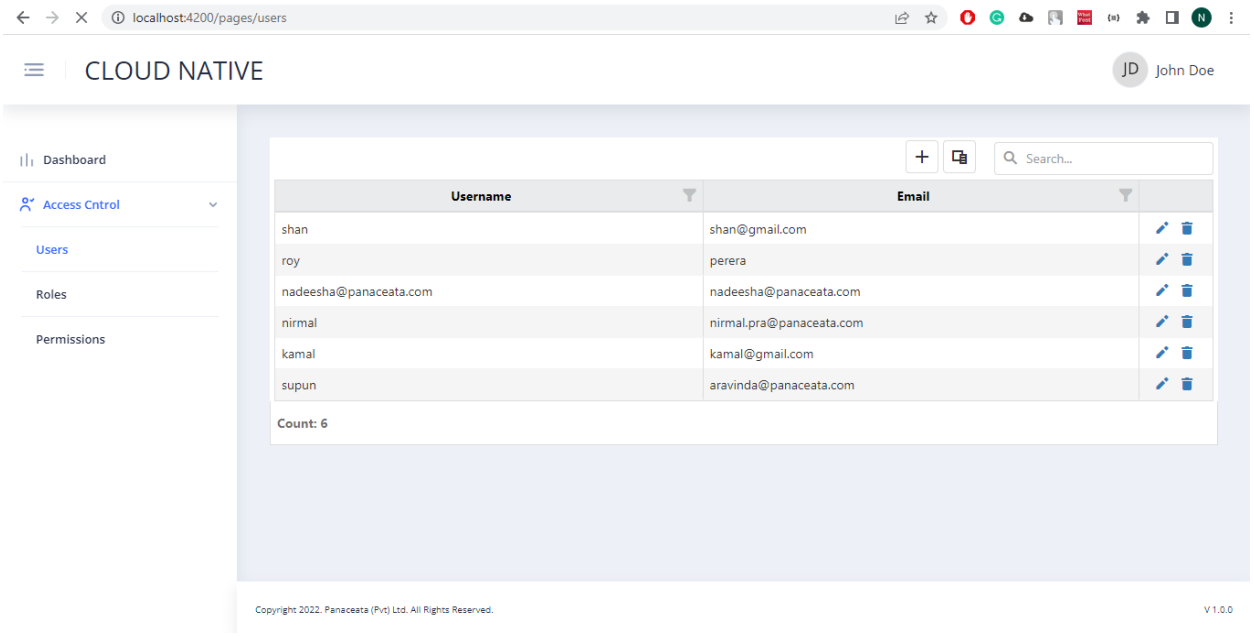


Figure 32 – Cloud native Frontend

2.5.2 My Contribution

2.5.2.1 Create React native app login and signup

I was completely assigned to develop a react native app for this cloud-native project. It just had me as a developer. I was the only developer for it. I started by making a react native app and adding a splash screen. That will appear when the app opens. That screen was designed by me. Then, in order to draw users to the app, I built three intro screens. My UI designs were included on the screen.

Figure 33– Cloud native splash screen

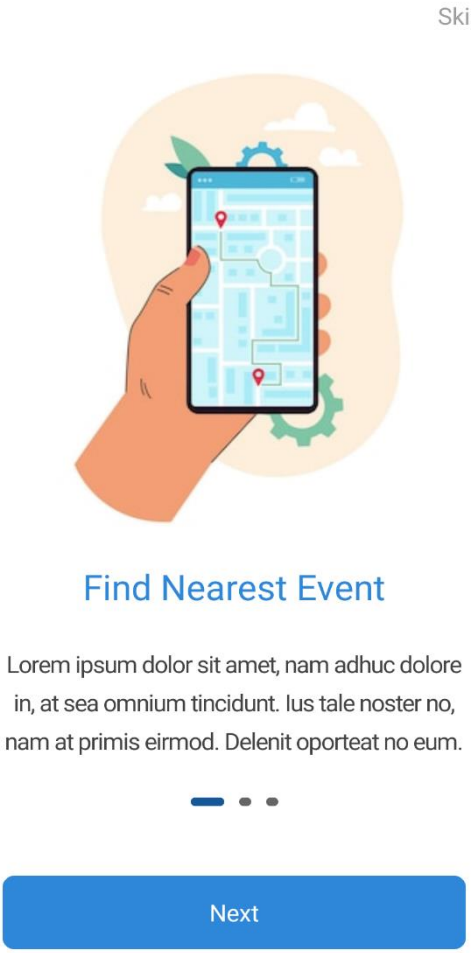


Figure 34– Cloud native Intro screen

Following that, I had to research AWS Cognito. I work on it all day since the subject is so broad. I referenced the AWS documentation on Cognito and number of medium courses. As a result, I gained a solid understanding of the AWS Cognito. I then began working on the app's development. First, I created the AWS Cognito-required login and registration screens. I added my own user interfaces for this and began to create Cognito login on a React native app according to a medium article. It took a long time to complete, required installing a lot of libraries, and required setting up a lot of AWS configurations. After completing the process, the user was added to the Cognito user pool and signed in.

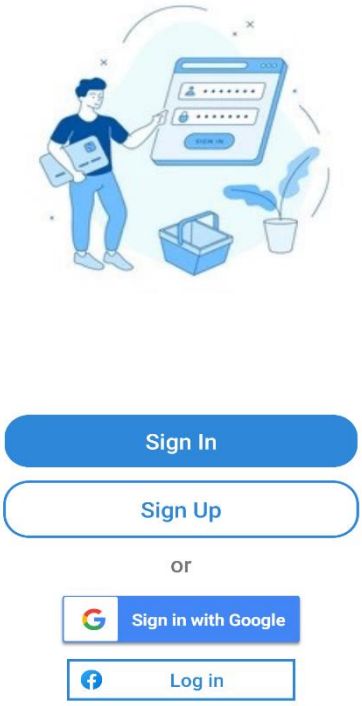


Figure 35– Cloud native main screen

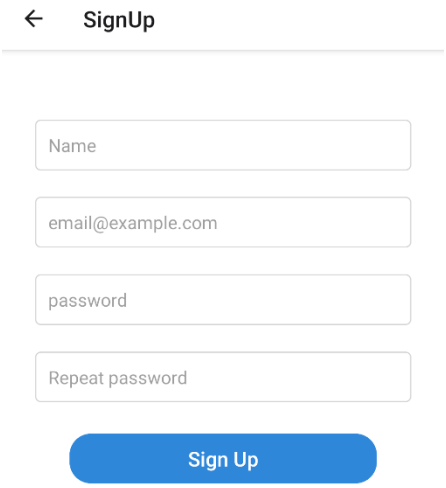


Figure 36– Cloud native Sign up screen

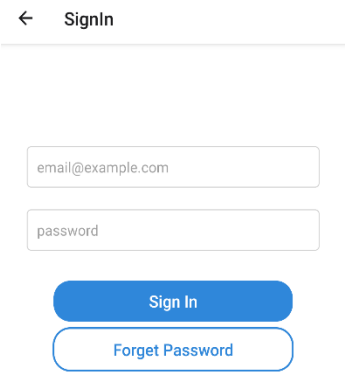


Figure 37– Cloud native Sign in screen

Implementing Google and Facebook sign in seemed to be the most challenging task for this project. I had to spend about a week to this task. The lack of appropriate documentation or a medium article is the cause of this. I had to conduct further study on this and test a variety of options. The issue was that all of the documentation on social login used AWS Cognito's federated identity. That federated identity method not creating a user on the Cognito user pool. So, I had to research on that almost 3 days.

Utilizing Cognito hosted UI was the only solution for this. However, that UI was used for projects that were web-based. I then had to figure out how to incorporate that into a mobile app. I discovered a method after much investigation that involves accessing the in-app browser. The completion of the Google and Facebook logins was finally made.

2.5.2.2 Create NestJS backend

Prior assignment was completed many days sooner than expected. The Panaceata team was impressed and gave me another work that involved implementing the back end. This assignment was previously given to another developer, who completed it to a certain extent. I had to start over at that point, and there were other tasks to complete. This is a list of the APIs that I have completed.

- User creating with permission and roles
- User Update with Permission and roles
- User Delete and view
- Role creating with permission
- Role Update with permission
- Role Delete and View
- Permission creating

There was almost 15 APIs I had to implement. The sequelize library was used to query this APIs. The final step after finishing those APIs was to create a Cognito user when creating a user in the database. I found the necessary documentation and completed the task in a single day. That task was successfully completed.

2.6 Problem and Difficulties faced

The main challenge was that we had to complete our internship at home rather than physically coming into the workplace. I also had power outages and troubles with internet connectivity. I struggled to get along with the other project team members on a personal level.

The StreetUK team has so many areas that I am unfamiliar with, so joining was a huge challenge for me. For that, I had to learn AWS, Sam framework, and NestJS framework. It was a little challenging for me and required some time spent on self-study, but after completing some effort, it was not tough. Issues with project settings are another problem. I struggled with that assignment because I work remotely. The Sam Framework is not properly documented, so I had to put in extra work on that.

The most difficult aspect of the react native project is learning a completely new framework. Additionally, there were no developers who have worked with the react native framework. Because of this, I was forced to complete my own job and find a solution to my own. As soon as developers started working on it, the issue was resolved. I received a lot of assistance from Mr. Supun Aravida, who quickly became an expert at react native framework.

2.7 Skills and Experience acquired

I was able to learn a variety of skills throughout my 24-week internship at Panaceata. This includes knowledge of technical, problem-solving abilities, interpersonal, as well as knowledge of research. In the course of working on the project I was given; I was able to gain the following technical skills.

- Angular
- NestJS
- Sam
- React Native
- Git
- React Redux
- AWS

My interpersonal and problem-solving abilities had also much improved. The list of skills I picked up throughout my internship is shown below.

- Public speaking, presenting, and communication abilities
- time management skills
- the ability to interact and associate with new persons
- working under pressure and meeting deadlines

Chapter 3

3. Conclusion

3.1 Overview

Being a trainee software engineer on the StreetUK project, the Cloud Native project, and the project iReach mobile app exposed me to new technologies that are utilized in the current world. Also, I was able to put the knowledge I had acquired during the previous 2.5 years to use. I got the chance to work as a full stack developer, from front to back end, and I also joined a project that was just getting started, which was also extremely significant to me. My soft skills have greatly improved thanks to the Panaceata internship program, in addition to the technical work. Also, I had opportunity to develop my leadership and presenting abilities at the same time.

3.2 Companies' ability to provide on useful Industrial training

I think Panaceata can provide interns a unique and well-organized internship program that will also expose them to cutting-edge technologies. Assignments are given throughout the first week to promote early expression and knowledge. According to assignments, they split up interns into several projects and provide the proper supervision. Additionally, they offer opportunities for interns to engage on projects with clients and develop their soft skills. All of this is being closely led and supervised by the designated supervisors during the internship program. The guidance and instruction given by the team member and the Panaceata personnel is the most important factor. That was incredibly helpful in enabling me to succeed during my internship term.

The duty of being a full stack developer is given to interns. This is because each activity is unique and offers the opportunity to learn new things. In addition to concentrating on technical abilities, they also emphasize soft skills like leadership and communication skills. I had the impression I was a permanent employee throughout the internship. They take interns into consideration and offer equal opportunities. With all the knowledge, they provide trainees the possibility to take part in workplace social activities like team outings and trips, etc. In my internship period I participated 3 trips and many fun events.

3.3 Training Personal of the establishment

Panaceata has highly skilled and knowledgeable training staff that can give the interns a best training. The internship program was run by Mr. Supun aravinda and Mrs. Rajitha Munasinghe from the very beginning. Every day, they monitor interns' development and provide them with helpful information. I received a wide range of expertise from the several Senior Software Engineers that mentored me. My supervisor after being assigned to the StreetUK project was Mrs. Nadeesha Liyanage. Mr. Supun Aravinda closely monitored my work on the iReach project. He kept an eye on me every day and offered me his complete support. He was also my mentor on the cloud native project. They are well-equipped to steer clear of any work-related roadblocks and gain the most information possible from these 24 weeks. I shall be really thankful for the mentorship and direction I received from these people, which was beyond words.

3.4 Deficiencies in the training establishment and suggestions to improve

The organization and planning of the internship program should be much better. It is preferable to have sufficient project documentation when assigning a trainee to a project. I would want to recommend a lot more technical sessions for Panaceata's interns and they had to perform more knowledge-sharing sessions to discuss the developer's development experience. Other than that, there are no issues at the Panaceata company. Interns are sadly unable to collaborate with the Panaceata team due to the pandemic crisis. That was my biggest issue. Using AI for projects will make it possible for the firm to conduct more internal research initiatives.

3.5 Suggestions for university and NAITA

The Industrial Training Program run by the University of Moratuwa in association with NAITA is the best opportunity to the undergraduates to get base for start their career. This is the most crucial of the modules, despite the fact that it is not a GPA module. Instead of keeping diaries, it will be beneficial if there is a mechanism in place to track the intern's work. Additionally, despite some colleges offering longer time for that, 24 weeks is not nearly enough time for an intern who plans to set up a career to gain additional experience in the field in a world that moves quickly.

3.6 Overall training program

3.6.1 Internship expectations and the degree to which these were met

Before starting my internship, I had a long list of goals I wanted to accomplish. Overall, I was successful in completing all of the high-level objectives. Learning the newest, most popular technology in the field was my main objective. Additionally, I'm interested in learning how such technologies should be used. During this internship, that objective was successfully attained. not just in the field of technology, but also in soft skills I want to interact with staff members more and be a part of them. I think that towards the end of this training time, I was able to complete my internship goals with a few unexpected new things. I conducted many tech workshops for the employees of the company. These were the modern technological capabilities I discovered through react native. To me, that represented a huge opportunity. Finally, I received a lot more than I had expected.

3.6.2 Positive aspect of exposure

I had the opportunity to experience teamwork and research and development. I did lot of research there. Furthermore, I wasn't supposed to work on AWS. However, throughout my internship, I was able to get experience utilizing AWS services. I was exposed to both project and team management as well. I gained knowledge on Azure DevOps. I then had to manage my time for every activity I completed. I also made predictions and estimates on tasks. I also had the wonderful opportunity to get involved in a project initiative.

3.1.1 Negative aspect of exposure

Working on the project with the complicated domain was challenging for me. New technologies have to be learned as well. Both had a tight deadline. The majority of the duties were research-related, and deadlines required long hours of effort. That was an extremely difficult task. I had to meet that deadline even if I was unfamiliar with the technology or project.

3.1.2 Suggestions avoid negative aspects

If the assignment is hard or the technology is new, the company should grant additional time and a flexible deadline. This should continue until the intern is comfortable with that. When assigned a complicated or novel project, newly hired staff and interns should get separate training.

3.1.3 Message for future trainees

One of the best places to begin an internship is at Panaceata. However, in before, students must get ready for any difficulties that can arise during their internship. Trainee must have a basic understanding of the tech stack used by the organization before joining. technical abilities, public speaking, , communication abilities , interpersonal abilities, Leadership, and so many other things may all be improved during internship, but first you must have the foundation.