

**REPORT OF INDUSTRIAL TRAINING
AT DATABOOST SDN. BHD.**



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**UNIVERSITI MALAYSIA TERENGGANU
2023**

REPORT OF INDUSTRIAL TRAINING
AT DATABOOST SDN. BHD

BY
PUTERI AMIRAH AHMAD GHAZALI

THIS INDUSTRIAL TRAINING REPORT IS SUBMITTED IN FULFILMENT FOR
THE AWARD OF BACHELOR OF COMPUTER SCIENCE WITH MARITIME
INFORMATICS WITH HONOURS

FACULTY OF COMPUTER SCIENCE AND MATHEMATICS
UNIVERSITI MALAYSIA TERENGGANU
2023

REPORT CONFIRMATION AND APPROVAL

This is acknowledged and confirmed that the Report of Industrial Training at Databoost Sdn Bhd by Puteri Amirah Ahmad Ghazali, Matric No. S59950 has been checked. All the information mentioned in this report is authentic and not confidential to Databoost Sdn Bhd. This report is submitted to the Faculty of Ocean Engineering Technology and Informatics, Universiti Malaysia Terengganu in fulfillment of the requirements in obtaining a Bachelor of Computer Science with Maritime Informatics with Honours.

Authorized by:

.....
Industrial Supervisor

Name: Mohd Rizam Bakar

Official Stamp:

Date: 9/1/2024



DECLARATION

I hereby declare that this report is my own work except excerpts and summaries which have been cited in the references.

Signature :
Name : PUTERI AMIRAH AHMAD GHAZALI
Matric No. : S59950
Date : 25/01/2024

ACKNOWLEDGMENT

My industry supervisor provided me with invaluable advice and support during my industrial training period, for which I am truly grateful. Their knowledge, guidance, and helpful criticism have been extremely helpful in helping me grow professionally and improve my comprehension of the field. With their constant support and encouragement, I am sincerely appreciative of the chances they have given me to put my theoretical knowledge to use in a real-world situation. My profound gratitude also goes out to my UMT supervisor, whose dedication to my academic and personal growth has been admirable. Their support and encouragement have greatly enhanced my overall learning experience by helping me to successfully navigate the difficulties of both the academic and professional facets. I am grateful for the time and effort invested in helping me bridge the gap between theory and real-world applications.

Furthermore, my appreciation extends to the Industrial Training Coordinator for their pivotal role in facilitating the entire internship process. Their efforts in coordinating between the academic institution and the industry have been crucial in ensuring a seamless and enriching experience for me. I would also like to express my gratitude to all the lecturers whose knowledge-sharing and dedication have laid the foundation for my academic success. Their commitment to providing quality education has been a source of inspiration, and I am thankful for the knowledge and skills acquired under their guidance.

Lastly, I owe a debt of gratitude to my parents for their unwavering support and encouragement throughout my academic journey. Their love, understanding, and encouragement have been my pillars of strength, motivating me to strive for excellence. I am deeply thankful for their sacrifices and belief in my abilities, which have been instrumental in reaching this point in my academic and professional career.

EXECUTIVE SUMMARY

The mission of the Databoost organisation is to advance technology landscapes by creative solutions. Software engineers are involved in a wide range of tasks that help design, maintain, and optimize software systems to guarantee reliable functionality and smooth user experiences.

In order to create user-friendly interfaces, UI/UX design is crucial, and resources like Dribbble and Figma are quite helpful. Gaining knowledge about Expo, Ionic, and React Native enhances one's capacity to create cross-platform applications effectively. Exploring Google Firebase improves knowledge of cloud services and has the extra benefit of smoothly integrating Angular, resulting in a cooperative environment for dynamic web applications. Angular and Google Firebase work together to improve user interactions by streamlining data management and enabling real-time updates. Improved productivity, scalability, and a more responsive user interface are the three main advantages. This integration puts professionals in a position to manage changing industry norms because it is consistent with modern software engineering processes.

Unique benefits arise from industrial training in the context of work-from-home employment. Working remotely improves communication abilities and encourages flexibility, two qualities that are essential in today's digital environment. Additionally, it fosters time management and self-discipline, two qualities necessary for successful employment in software engineering. The ability to successfully manage work and life in a remote setting fosters a more positive workplace culture.

In summarised form, the Databoost company is built on a heritage of innovation. A new level of skill is ushered in by embracing UI/UX design tools, becoming proficient in cross-platform development, and utilising Angular and Google Firebase. The distant nature of the industrial training programme develops critical soft skills in addition to sharpening technical ones, thereby preparing participants for exciting employment in the rapidly changing field of software engineering.

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LIST OF ABBREVIATIONS

| | |
|--------|--------------------------|
| UI | User Interface |
| AI | Artificial Intelligence |
| VSCode | Visual Studio Code |
| SDK | software development kit |
| npm | package manager |

CHAPTER 1

INTRODUCTION TO ORGANIZATION

1.1 Background of Databoost Sdn. Bhd.

Databoost was founded in 2017 by a team of experienced professionals in the fields of data science, artificial intelligence, web development, and mobile development. The founders envisioned a company that would revolutionize how businesses leverage data to drive success. The company's mission from the outset has been to empower businesses with cutting-edge solutions that seamlessly integrate AI technologies, web development strategies, and mobile app development.

When Databoost first started out, it concentrated on assembling a bright and varied group of professionals and made research and development investments to be on the cutting edge of technology. The organization immediately became well-known for its creative method of using data to drive company expansion. The business gained recognition for its dedication to providing clients in a range of industries with specialized and scalable data-driven solutions.

Databoost's success story includes milestones such as the release of revolutionary AI apps, the successful implementation of large-scale web development projects, and the creation of user-friendly and feature-rich mobile applications. The organization's emphasis on staying ahead of technical developments, ethical data practices, and client satisfaction has established it as a reliable partner for organizations looking to succeed in the digital era.

1.2 Location of Databoost Sdn. Bhd.

Databoost Sdn. Bhd. is located at 18-3 in Jalan Impian Mahkota 1, Saujana Impian, 43000 Kajang. Figure 1.1 shows the exact location of Databoost Sdn. Bhd.

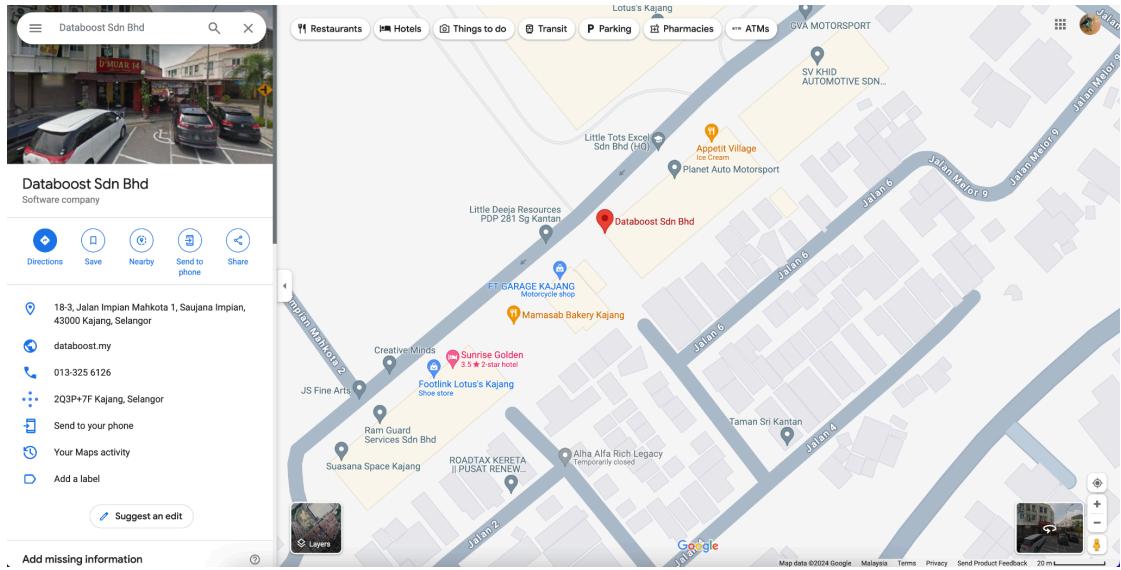


Figure 1.1: Map of Databoost Sdn. Bhd.

1.3 Organization's Main Activities

Databoost Sdn. Bhd. The main activity is to empower companies through data -driven solutions. Lots of tasks need to be done by Databoost Sdn. Bhd. such as:

i. Data Insights Extraction.

Databoost specializes in extracting valuable insights from raw data, recognizing its significance as a crucial asset for modern businesses. Through advanced analytics and data processing techniques, we transform raw data into actionable information, providing a foundation for strategic decision-making.

ii. AI Solutions Implementation.

Leveraging our expertise in artificial intelligence, Databoost ensures that businesses stay ahead in the rapidly evolving technological landscape. Our AI integration services encompass a spectrum of applications, including predictive analytics and machine learning, designed to optimize operations and enhance overall efficiency within the organization.

iii. Web Development.

Databoost crafts cutting-edge web solutions tailored to your unique business needs. We design and develop websites that not only captivate your audience but also provide a seamless user experience.

iv. Intuitive Mobile App Development.

Stay connected with your audience on the go. Our mobile development team creates intuitive and feature-rich applications that keep your business in the palm of your customers' hands.

1.4 Organization Chart

En. Mohd Rizam is the director of the Technical Team in Databoost Sdn. Bhd. The Director of the Finance Team is Zairul Izran. It is divided into five sections which are Human Resources, Mobile Programmer, Web Programmer, Marketing & Media Executive. Figure 1.3 shows the organization chart of Databoost Sdn. Bhd. The students were placed in the Technical Team under En Mohd Rizam supervision. En Mohd Rizam assigned another two programmers, Ansar Azhar & Amalina to help students along the internship journey.

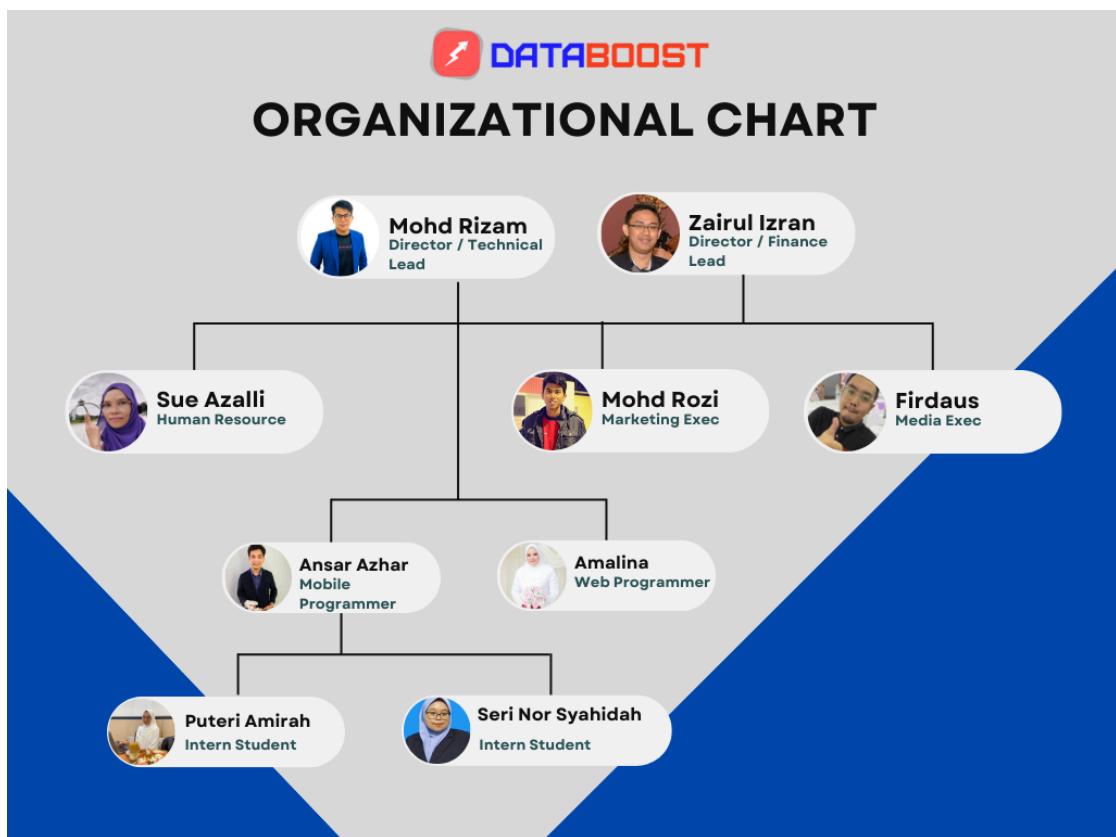


Figure 1.3: Organization Chart of Databoost Sdn. Bhd

CHAPTER 2

UIUX DESIGN

2.1 Introduction

System design refers to the process of building a system's various components, such as its architecture, modules, and components, as well as its numerous interfaces and the data it processes. The student was assigned to create a User Interface (UI) for the KawwinAi System's Introduction, To Do List, and Vendor List modules using Figma and concepts from Dribbble and Pinterest.

The design process begins with ideation, which is aided by Dribbble and Pinterest. Dribbble's design showcase collection offers insights into the most recent trends, inventive user interfaces, and fascinating interactions. Designers can glean ideas for layout, colour schemes, and typography. Pinterest adds to a broader brainstorming phase by combining non-traditional design aspects and holistic aesthetic notions.

Designers can gather insights from team members and stakeholders, iterating on the initial concepts inspired by Dribbble and Pinterest. Figma's version history and commenting features facilitate a streamlined feedback loop, allowing for effective collaboration.

In essence, Figma serves as the conduit through which the functional and creative aspects of the design process converge. It enables a seamless transition from ideation to prototyping and iterative refinement, ensuring that the system design reflects the fusion of innovative design trends from Dribbble and the diverse creative inspirations

from Pinterest. The collaborative and iterative nature of Figma facilitates a holistic and dynamic design process that results in a visually compelling and functionally robust system.

2.2 Problem Statement

The KawwinAi system is an AI-powered Virtual Assistant app for weddings in Malaysia. However, before proceeding to the following phase, which is the development stage, students must properly understand the system flow. The student is having difficulty understanding the system flow. As a result of building the Figma UI design, the student will have a better understanding of the system's flow, functioning, and linkages.

Secondly, it is harder to understand a written explanation than a user interface (UI). As a result, system design aids in the understanding of the KawwinAi system's requirements by team members and other stakeholders, including developers. Furthermore, system design will guarantee that all parties are in agreement and that the finished product satisfies the necessary requirements.

2.3 Objectives

The report is sets out to accomplish the following goals:

- i. To have a deeper comprehension of the KawwinAi system's flow.
- ii. To inform all parties involved of the system's requirements and design.
- iii. To guarantee that the finished product is user-centric.

2.4 Details of Activity

For the system design task, the student was assigned to design the UI design.

A digital information system's user interface (UI) design dictates how a user interacts with it. When a user interacts with a digital gadget, it is simply a collection of graphic elements. The goal of any UI design should be to maximise the user's seamless engagement with the device and interface. KawwinAi was given the hue black purple for this system.

A. Splash Screen Page

Students used an image of the wedding as the background for the splash screen. To proceed to the introduction page, a slider has been added to the page. The UI design of the KawwinAi system splash screen page is displayed in Figure 2.1.



Figure 2.1: Splash Screen

B. Introduction Page

The background of the Introduction page is a combination of black, purple, and peach. Every page's logo serves as a representation of the page's title and description. To further inform the user of which introduction page they are on, a slide indicator was added to the page. The user will navigate through the SignUp page after viewing the introduction. The page layout is enhanced with a black text button and a white background. The five introduction pages that the user sees are displayed in Figure 2.2 & 2.3.

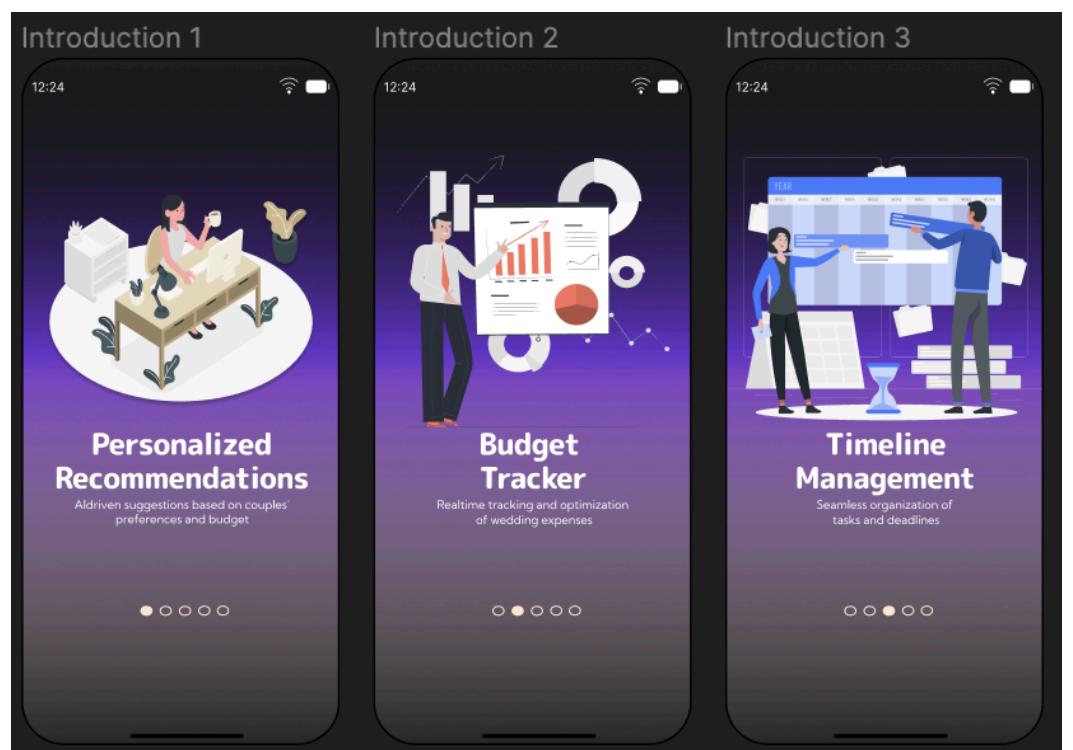


Figure 2.2: Introduction

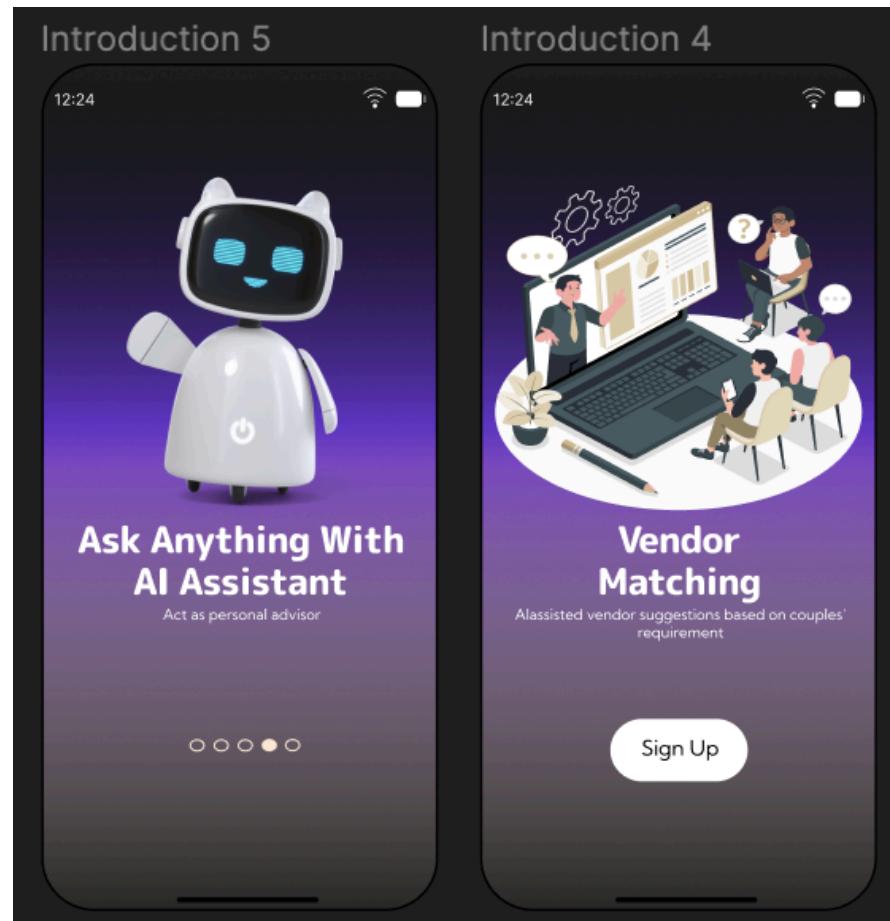


Figure 2.3: Introduction

C. To Do List Page

There are two parts in the to do list page which are insert a to do task and list of to do task. There are three input fields in the first part. The input fields included title, categories and description. The list of tasks will be shown in the second page including day and date. Figure 2.4 shows the first part of the to do list page.

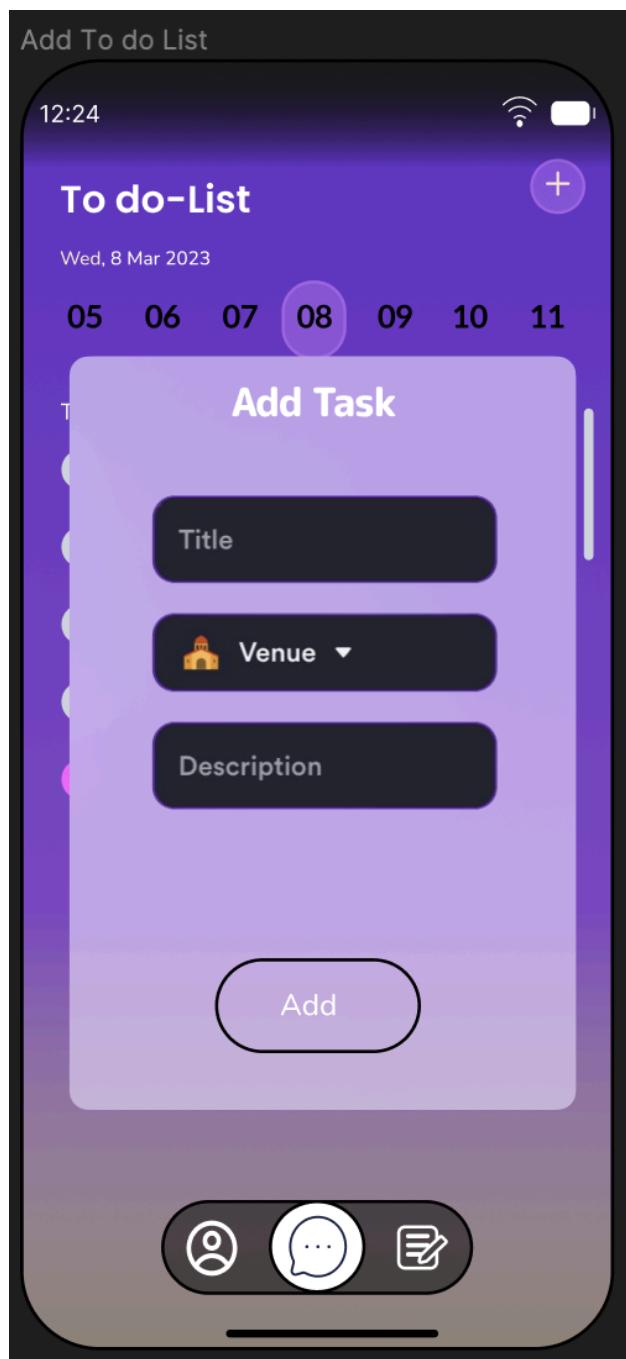


Figure 2.4: Add To Do List

The second part of the to do list page consists of a list of tasks that have been submitted from the input field, date and task highlight. Figure 2.5 shows the list of task to do list.

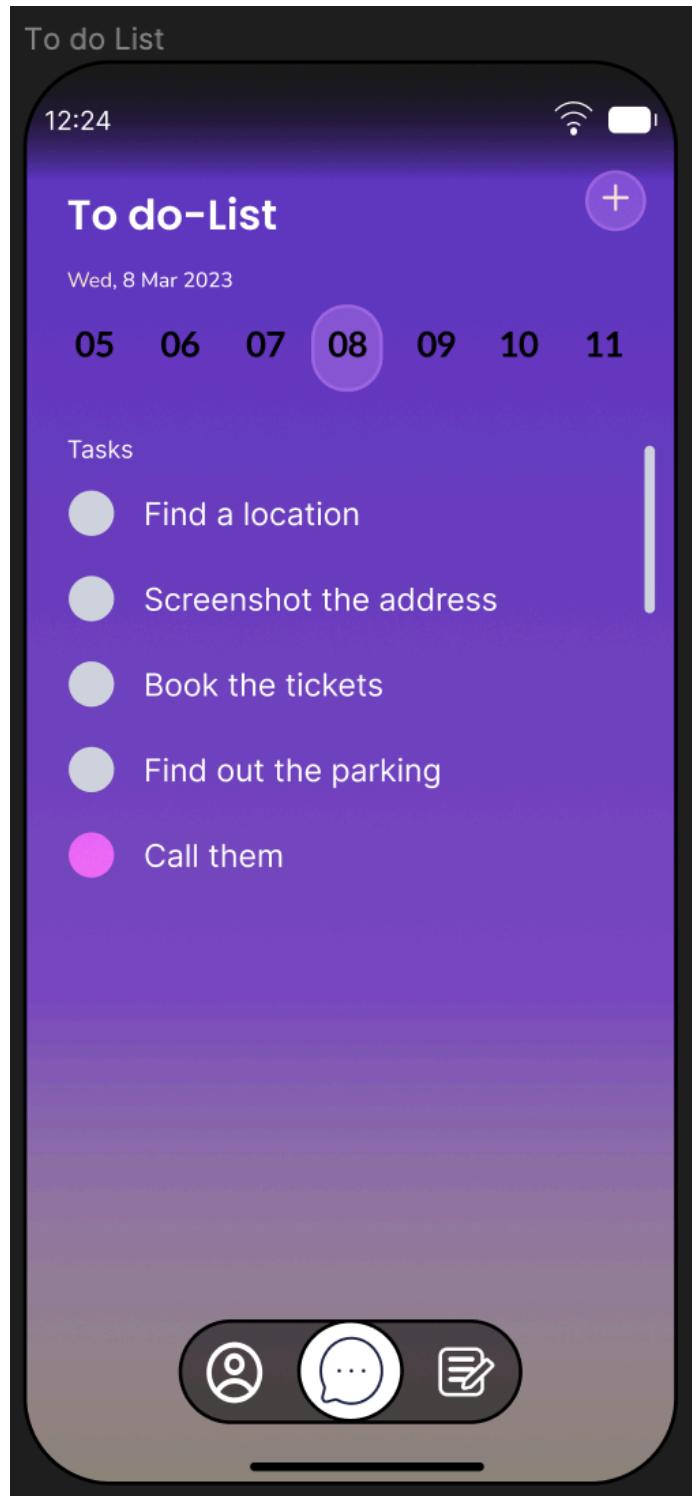


Figure 2.5: Task To Do List

D. Vendor List Page

The vendor list page is divided into three sections: the vendor list, the filter from a vendor detail, and the vendor details. Using the filter and search options, users will be able to select a filter from the list on the vendor list pages. A page describing the vendor will emerge when a user clicks on one of the vendors; it has two buttons that allow users to contact the vendor via phone or go back to the vendor list. Figure 2.6 shows a list of vendor pages.

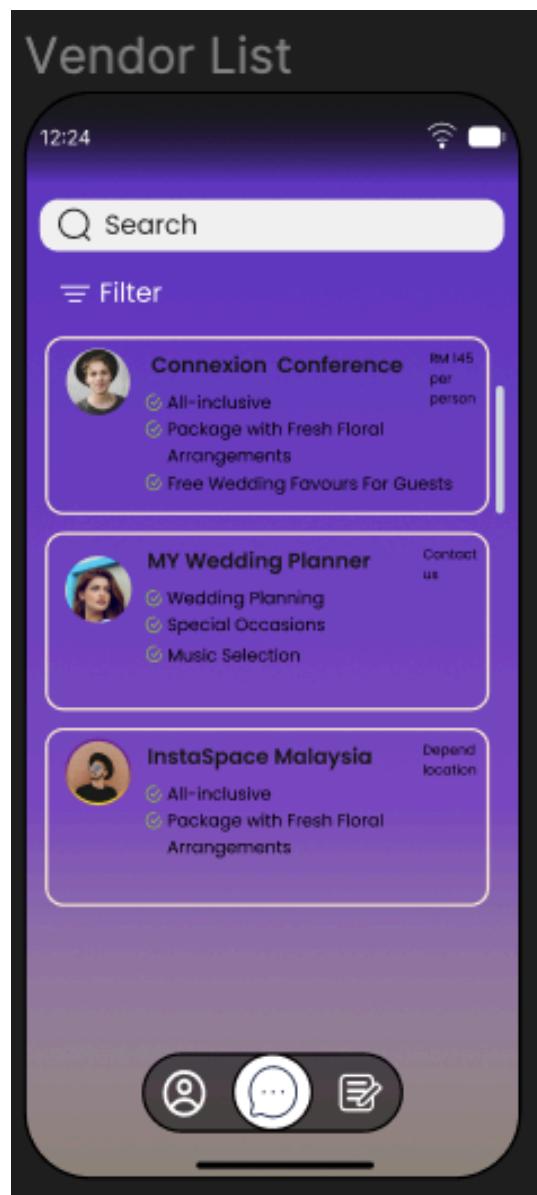


Figure 2.6: Vendor List

The second part is a filter from a vendor detail. Using the filter and search options, users will be able to select a filter from the list on the vendor list pages. Figure 2.7 & 2.8 shows the filter page for the vendor details.

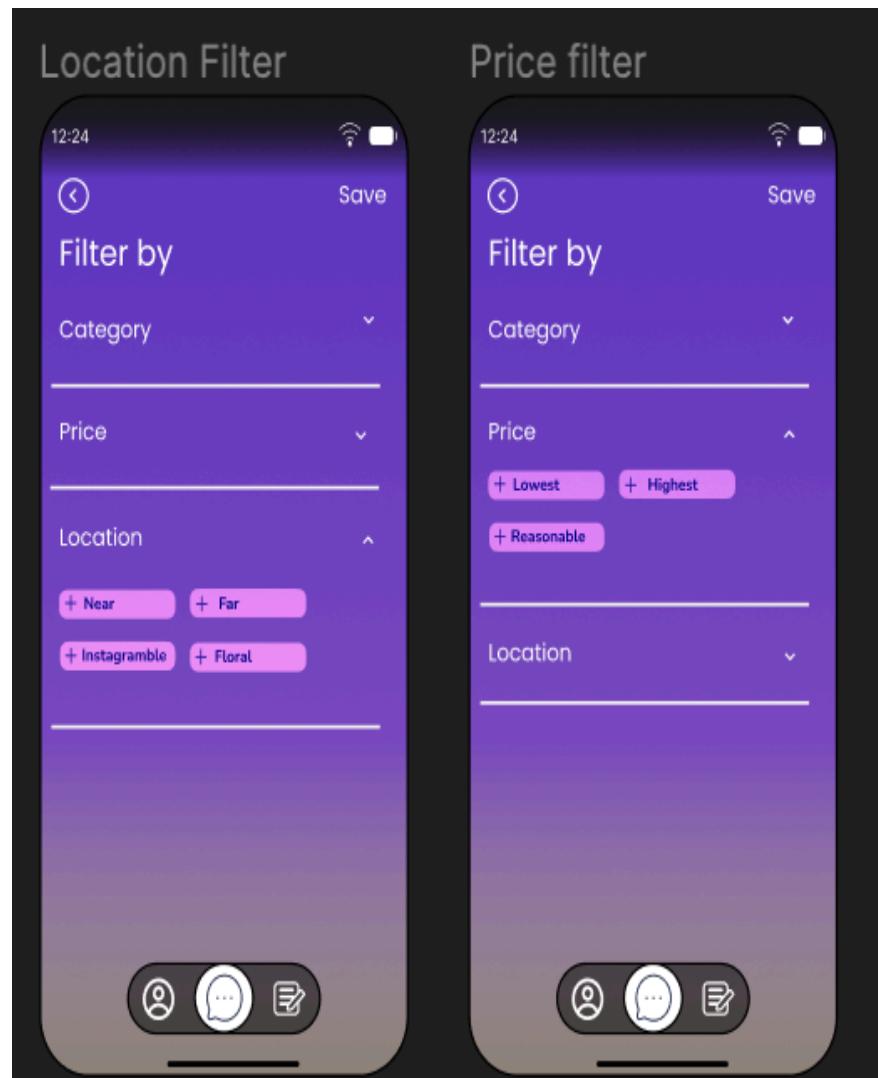


Figure 2.7: Filter Vendor

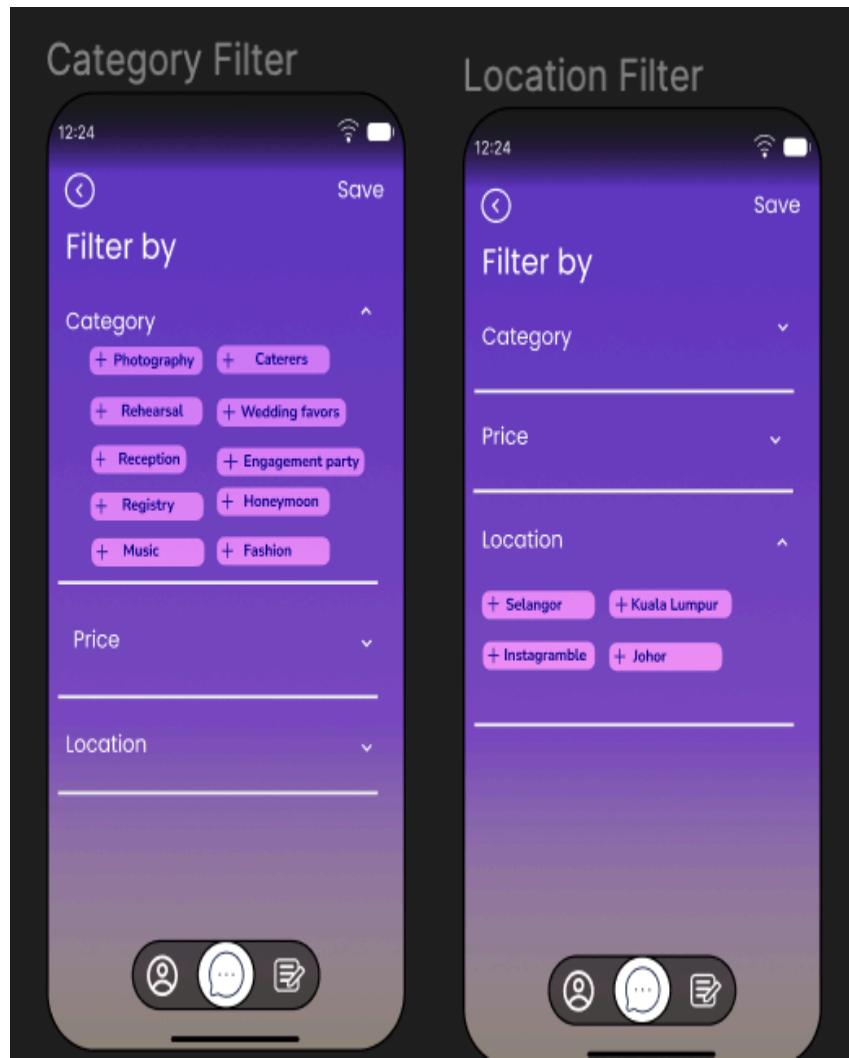


Figure 2.8: Filter Vendor

The third part is vendor details. A page describing the vendor will emerge when a user clicks on one of the vendors; it has two buttons that allow users to contact the vendor via phone or go back to the vendor list. Figure 2.9 shows the details of the vendor.

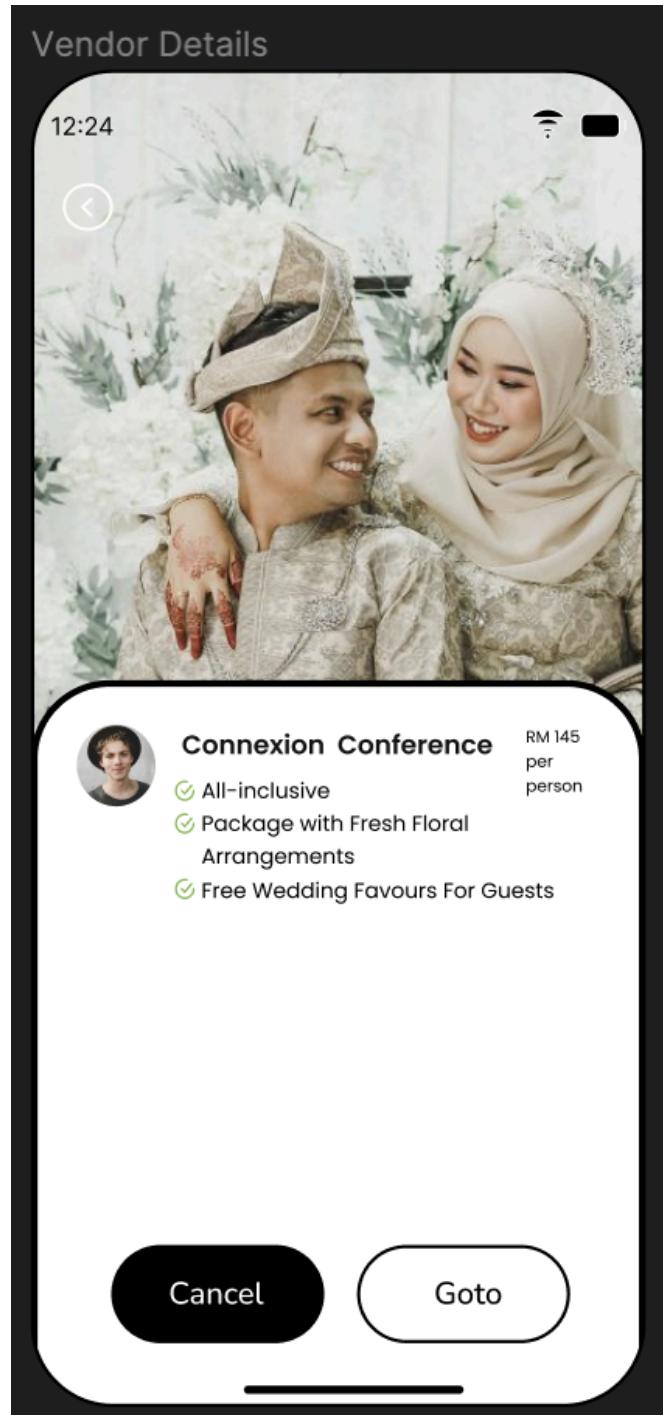


Figure 2.9: Vendor Details

E. Mainpage Page

This mainpage will be divided into two which are the AI inspire and the main tools in kawwin.ai. Once the kawwinAi bot waves, the user can ask questions or give commands to the kawwinAi bot. Figure 2.10 shows the AI inspire page.

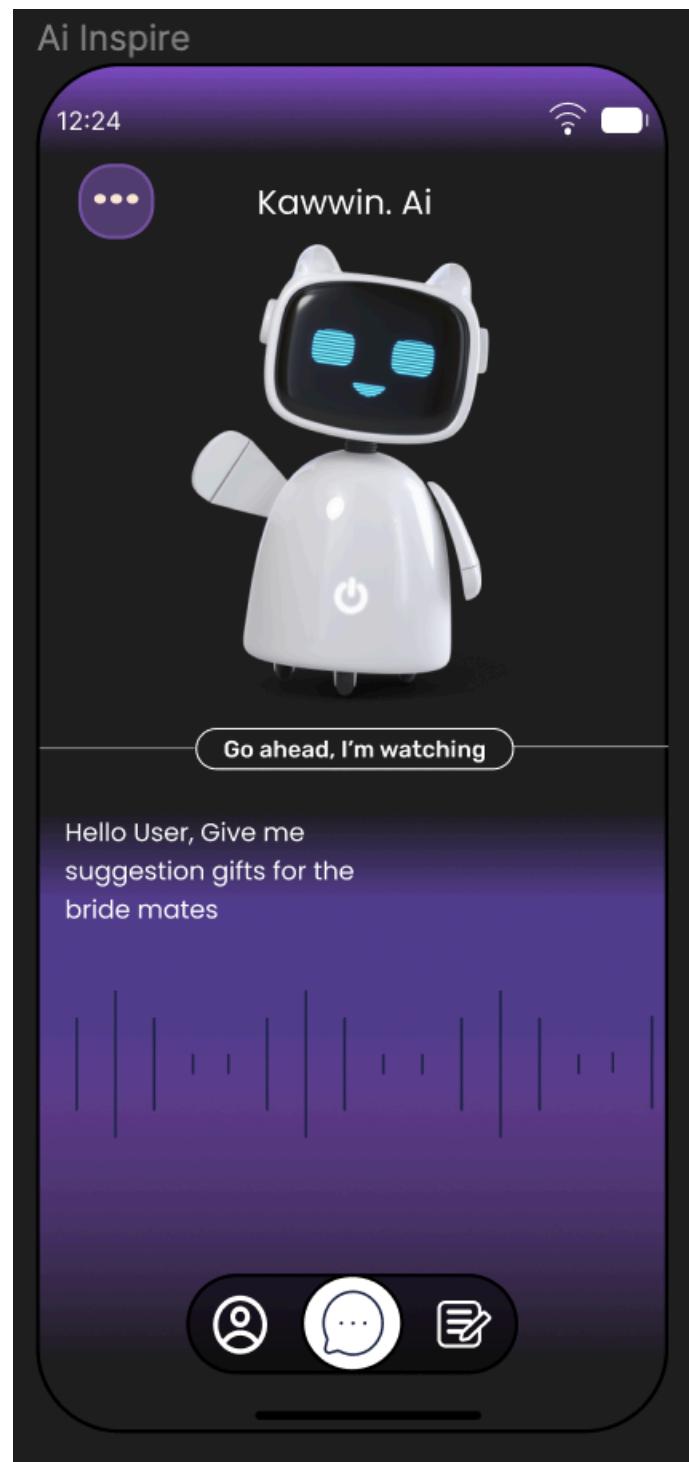


Figure 2.10: AI Inspire

The main tools page of kawwin.ai will show the tools that can be used in the kawwin.ai like to-do list, calendar and kawwin.ai bot. Users can explore all the tools in kawwin.ai here and play with the kawwin.ai bot. Figure 2.11 shows the main tools page of kawwin.ai

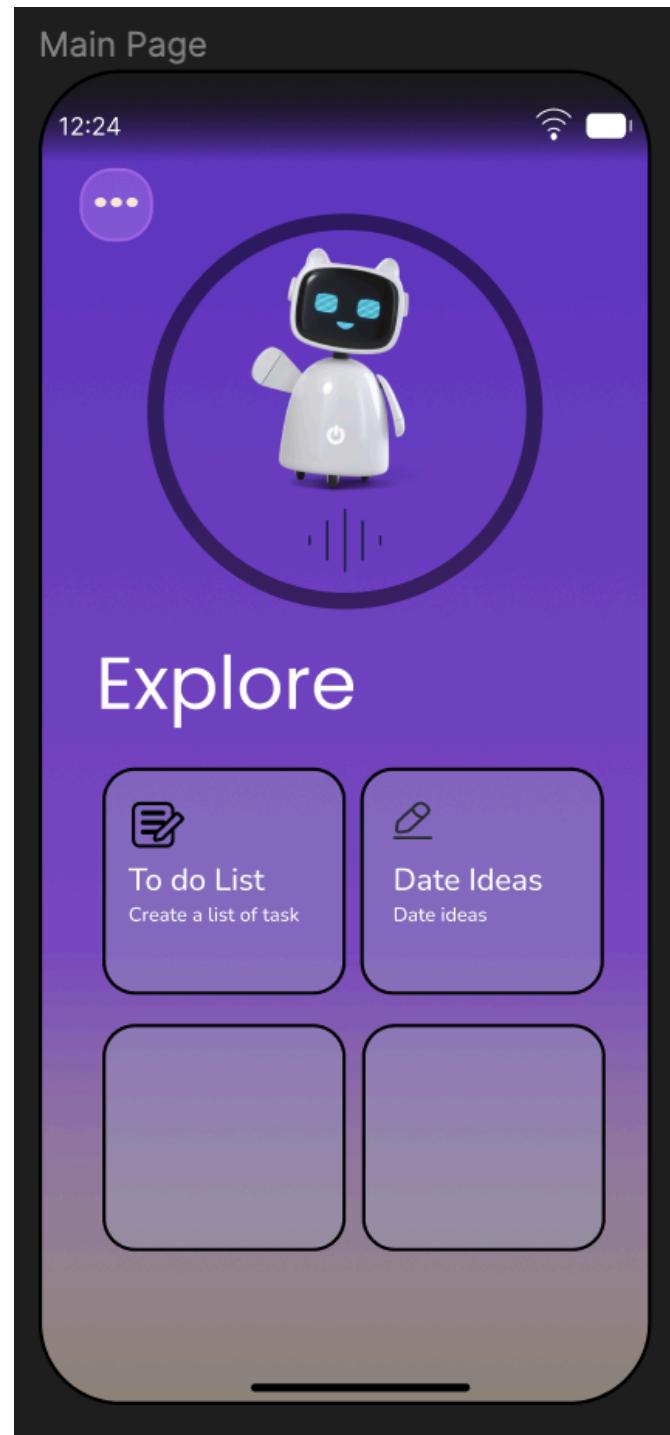


Figure 2.11: Mainpage

2.5 Outcomes

Following completion of the system design assignment, the students were able to submit the KawwinAi system's overall design, which included the UI and system flow designs. The vendor module, to-do list, and introduction are all appropriate for the user interface designs that the students designed. The team was shown the KawwinAi user interface design by the student. In the system design activity, students successfully finish every assignment assigned.

CHAPTER 3

IONIC PROGRAMMING LANGUAGE

3.1 Introduction

In the field of developing hybrid mobile apps, Ionic and Visual Studio Code's stable development environment work well together. Ionic is a framework rather than a programming language that makes use of web technologies, including HTML, CSS, and JavaScript, to enable developers to construct cross-platform mobile applications. It is a versatile and developer-friendly option for creating apps that function flawlessly on both the iOS and Android platforms because of its base in web standards. In contrast, Visual Studio Code functions as an advanced and expandable code editor, providing an extensive array of tools and add-ons to improve the development process. Ionic and Visual Studio Code work together to offer an environment that makes it easy and efficient for developers to construct high-performance mobile applications.

Fundamentally, Ionic is based on Angular, a well-liked JavaScript online application framework. With this integration, developers may leverage their existing web development abilities to create feature-rich, responsive mobile applications, thereby leveraging the potential of Angular for mobile development. Additionally, Ionic offers a library of premade user interface (UI) components, guaranteeing a polished and uniform appearance across various platforms. We investigate how Visual Studio Code and the Ionic programming environment simplify the development process, from creating code to testing and debugging.

The combination of Visual Studio Code's flexible toolkit and Ionic's cross-platform capabilities creates a synergy that speeds up the development of reliable, eye-catching, and extremely functional mobile applications.

Visual Studio Code's widespread adoption is attributed to its lightweight yet feature-rich design, offering developers a plethora of extensions to enhance functionality and streamlined Git support for version control. The Ionic programming experience within Visual Studio Code is marked by real-time collaboration features and integrated debugging tools, contributing to a highly efficient development workflow. Visual Studio Code's seamless integration with specialized plugins and extensions tailored for Ionic development solidifies its role as an essential companion, empowering developers to create cross-platform mobile applications with agility and precision.

3.2 Problem Statement

The main programming language utilised at Databoost Sdn Bhd is called Ionic. Since Ionic is not covered in the syllabus, the student lacks a solid foundation in the language of programming. Students must also use Ionic to create hybrid mobile applications. Since Ionic is a foreign language to students, issues could therefore arise during the development process. Ionic-taught students may create hybrid mobile apps that adapt how they deliver content according to user interaction and other variables. With Ionic, students may construct forms, process user input, and communicate with databases. The lack of coverage of Ionic in the syllabus means that the student's foundation in programming language is weak. In order to construct hybrid mobile applications, students must also use Ionic. Since Ionic is a foreign language to students, problems could occur while the application is being developed. Ionic-taught students may create hybrid mobile apps that adapt how they deliver content according on user interaction and other variables. With Ionic, students may construct forms, process user input, and communicate with databases.

In order for the student to apply the framework while developing the project, the supervisor requested that the student learn Visual Studio Code. For students, the Visual Studio Code foundation is entirely new. Students learn the fundamentals of utilising Visual Studio Code in relation to the university-taught Bootstrap framework. The student is able to acquire the best practices for Visual Studio Code, including file management and error handling, to help maintain the maintainability, organisation, and cleanliness of the codebase.

3.3 Objectives

This study embarks the following objectives:

- i. To develop a mobile hybrid application.
- ii. To make use of pre-built modules and libraries.
- iii. To carry out routine activities for mobile applications.
- iv. To communicate with a database.

3.4 Details of Activity

As the foundation for all subsequent tasks, studying the Ionic language and Visual Studio Code is one of the most crucial ones. Student self-study and assistance from Ionic Documentation were necessary for this assignment. Ionic and the Visual Studio Code environment took three weeks to grasp. The following sections of the activity have been completed:

3.4.1 Ionic programming language self-study.

Online resources are the primary means of self-study for students. Students utilize free services like Javatpoint, Tutorialspoint, and freecodecamp as well as YouTube. Students have several YouTube profiles subscribed to, including Alan Montgomery & Academind. Figure 3.1, 3.2 & 3.3 illustrate the relevant webpage that students utilise for Ionic self-study and the accompanying

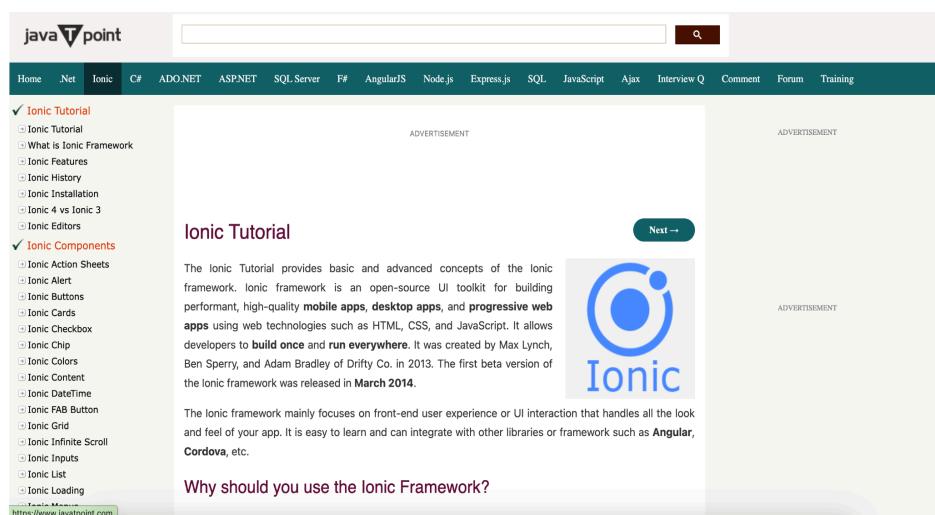


Figure 3.1: javaTpoint

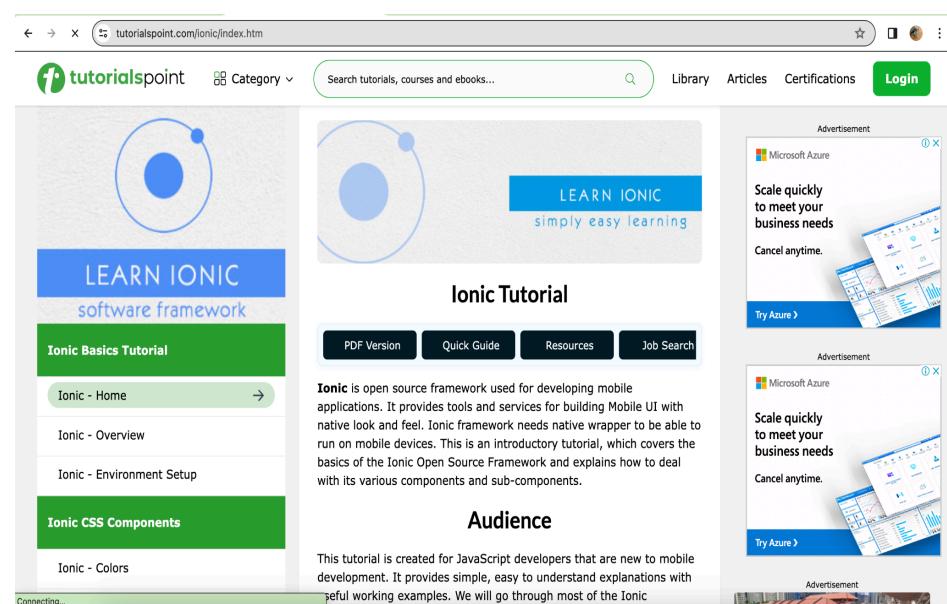


Figure 3.2: TutorialsPoint

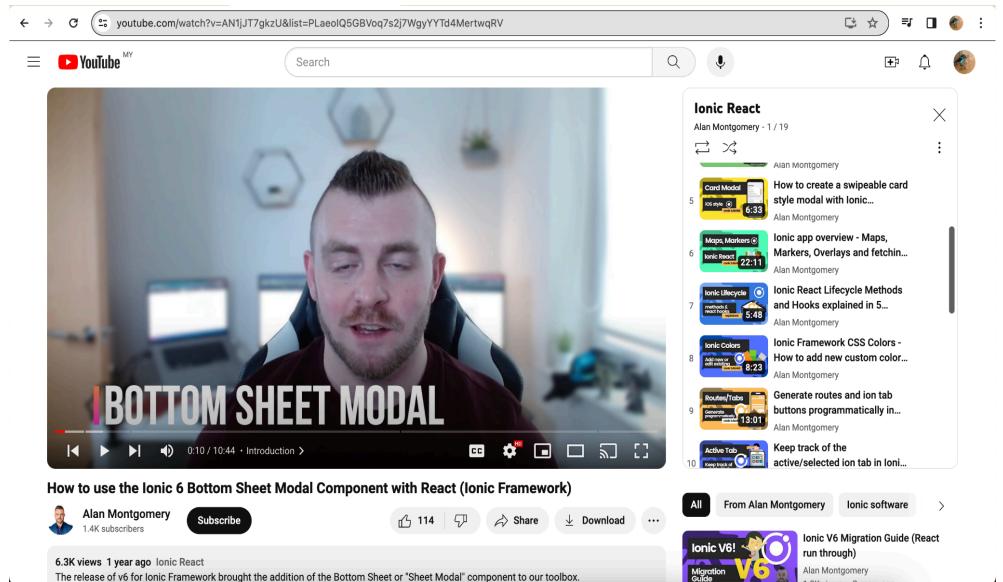


Figure 3.3: Alan Montgomery Channel

3.4.2 Visual Code Studio & Ionic Study.

Encik Rizam assisted the student with the installation and introduction of Ionic Framework in Visual Studio Code. Encik Rizam gave the students an introduction to the Ionic structure during the meeting, along with the model, controller, and view files. However, students also make use of websites like medium.com and freecodecamp in Figure 3.4 & 3.5

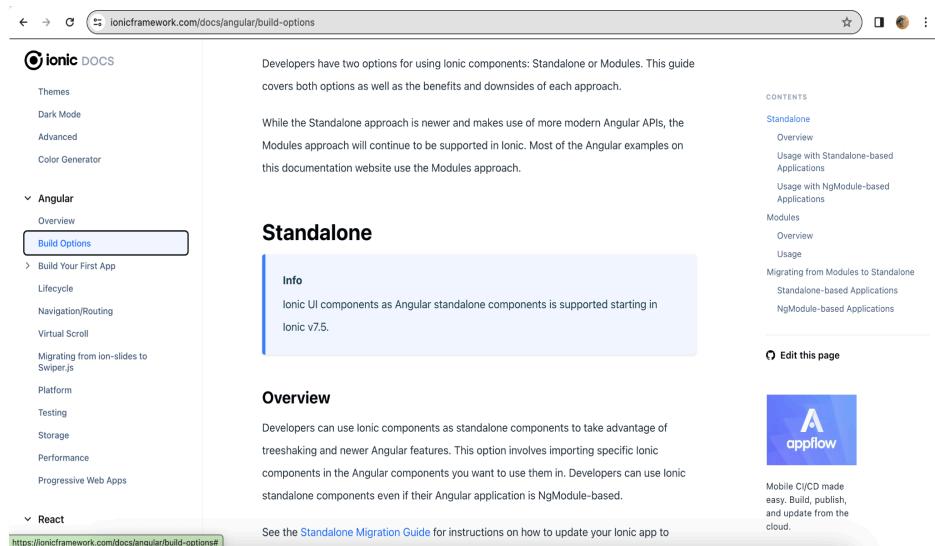


Figure 3.4: Ionic Documentation

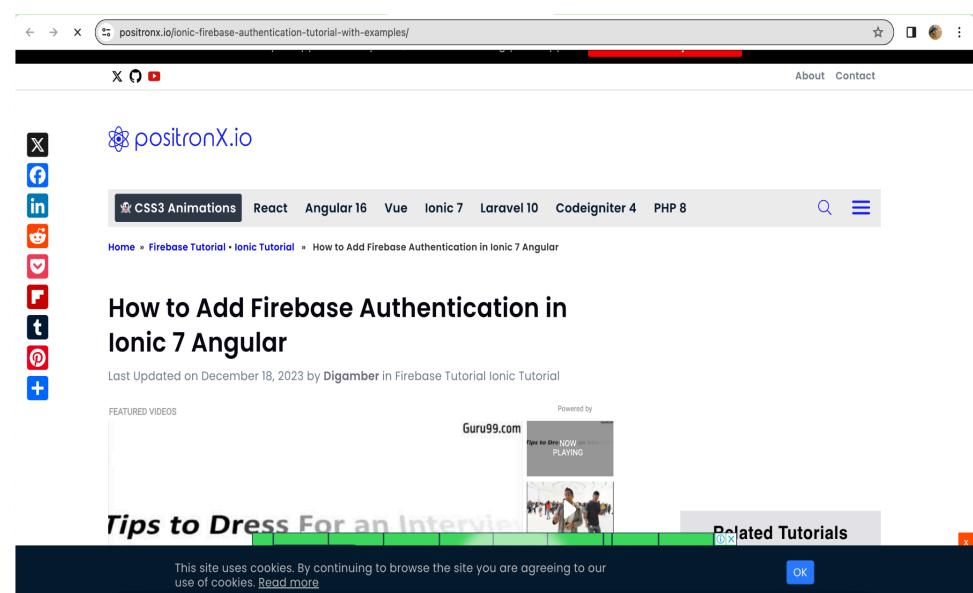


Figure 3.5: PositronX.io

3.4.3 Sample of Ionic Project

Encik Rizam gave the students a few ionic sample projects to build by themselves and learn about the problem faced by ionic. The students would leverage Ionic's styling and theming capabilities to ensure a cohesive and visually appealing user interface. Through Angular's two-way data binding and reactive programming features, you can create a dynamic and responsive mobile application with seamless integration of Ionic components shown in Figure 3.6, 3.7 & 3.8.

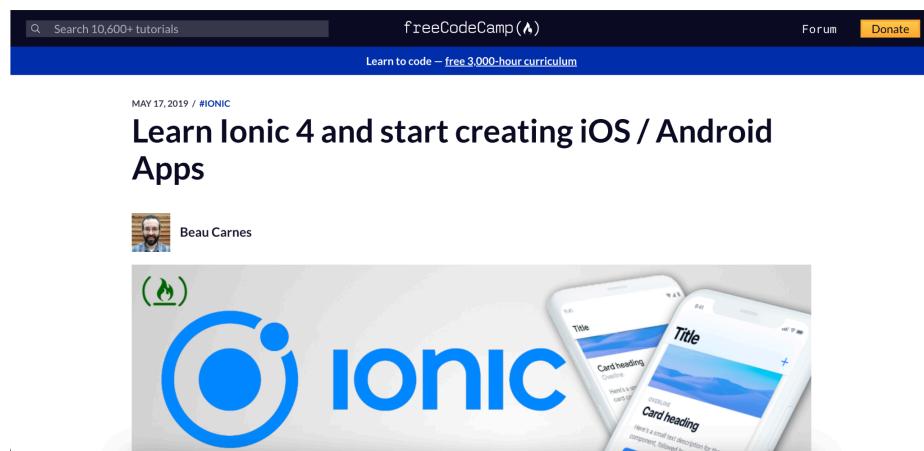


Figure 3.6: Ionic 4 Sample Project

A screenshot of the Enapp.com website. On the left, there is a sidebar with "Blog sections" including "Modifying the app", "Conclusion", "Next Steps", "Ionic React Full App with Capacitor", "Ionic Capacitor Full App (Angular)", and "Ionic Full App (Angular and Cordova)". Below this is a section for "Popular App Starters" with links to "Ionic 5 Grocery Complete Platform", "Ionic 5 Taxi Booking Platform", "Ionic 5 Full App", and "Ionic 5 React Full App", each with a "Download" button. In the center, there is a large image of multiple smartphone screens showing various app interfaces. Below the image is the text "Ionic Full App in Cordova, with huge number of layouts and features". On the right, there are sections for "Integrations" (Firebase, Capacitor, Cordova, Socket, Sentry, Redux, Bot), "UI/UX" (Dark mode, Dev tools), "Authentication" (Google, Facebook, Twitter, Anonymous, Passwordless, Phone, Email), "Features" (Maps, Push Notifications, Camera, Contacts, APIs, SMS, Chat, Localization, PDF, Geolocation, PWAs, RTL), and "Payments" (Paypal, Stripe, Braintree, Apple pay). The bottom of the page shows a footer with social media links for Facebook, Twitter, and LinkedIn, and a URL "https://enappd.com/blog/how-to-create-an-ionic-app-for-beginners#144/#9ce9" and a "Share" button.

Figure 3.7:Enapp.com Sample Project

The screenshot shows a dark-themed web page with a navigation bar at the top containing links for 'BECOME A MEMBER', 'QUICK WINS', 'COURSE LIBRARY', 'TEMPLATE LIBRARY', and 'SUCCESS STORIES'. Below the navigation bar, a section titled 'Code Editor' is displayed. It includes a paragraph about Visual Studio Code, a note about using Sublime, Atom, or VSC, and a list of three Atom themes:

- Atom One Dark Theme** 1.3.2
One Dark Theme based on Atom
Mahmoud Ali
- Atom One Light Theme** 1.3.2
One Light Theme based on Atom
Mahmoud Ali
- Auto Close Tag** 0.3.10
</tag> Automatically add HTML/XML close tag, same as Visual Studio IDE or Sublime ...
Jun Han

To the right of the code editor section is a vertical sidebar with a dark header containing the text 'JOIN THE IONIC ACADEMY'. Below the header, there are three sections with horizontal lines separating them:

- IN-DEPTH COURSES & TUTORIALS
- EXCLUSIVE HANDS ON PROJECTS & RESOURCES
- ACTIVE SUPPORTIVE COMMUNITY

At the bottom of the sidebar is a blue button labeled 'CLICK HERE TO GET STARTED'.

Figure 3.8: Ionic Academy Sample Project

3.5 Outcomes

Upon completion of the task, students gained a great deal of knowledge regarding Ionic-related hybrid mobile applications. The ability to design and interact with databases is among the many skills that students acquire in system development. Aside from that, the learner is able to improve their ability to solve problems. Ionic helps students develop their problem-solving abilities by requiring a solid grasp of algorithms and data structures. Aside from that, because Ionic provides a structured method for developing hybrid mobile apps, studying it can help students better understand how to build robust and scalable mobile applications.

CHAPTER 4

SYSTEM IMPLEMENTATION

4.1 Introduction

The KawwinAi System implementation phase is when students must begin working on it. The task assigned to the student was to build a module based on the user interface. The student and team employ programming languages, tools, and techniques to transform the system design into a working software application or system during the system implementation.

When the system is being implemented, the student will complete the two prior tasks in full. To create the KawinAi System, the student must utilize the Ionic framework and programming language. In order to make sure the system satisfies the requirements, the student and team will write code, integrate Angular to the Google Firebase, and conduct testing in this activity. The student stores data in a Google Firebase database and edits code using VSCode.

Thus, the system implementation is a critical task for the student since it determines the design's applicability in real-world situations and establishes the foundation for the system's deployment and operation.

4.2 Problem Statements

KawwinAi is an excellent hybrid mobile application system because of its good functionality and requirements. However, KawwinAi needs to update a few things, including the user interface and a few back-end features. KawwinAi's outdated user interface is unsuitable for modern use. The students think KawwinAi should receive a makeover. Aside from that, KawwinAi has far too many hard coded values. Hard code is proving to be problematic for the developers, particularly when it comes to maintenance. Hardcoded values can cause downtime when changes are made and are challenging to adjust without altering the source code. Moreover, they are incompatible with other system components, which leads to code duplication. Besides that, the arrangement of checking vendor modules and to do module functions was quite jumbled. Therefore, a second version of KawwinAi need to be develop.

4.3 Objectives

There is the main objective for this task is:

- i. To develop a to do list module system with a better user interface.
- ii. To build a mainpage module system with less hardcoded values.
- iii. To set up a vendor list module with a better function arrangement

4.4 Details of Activity

The systems development process defines, designs, tests, and implements a new software application or programme. It might entail creating database systems and constructing specialised systems internally. The KawwinAi System consists of eleven modules in total. Three out of eleven modules, the Main Page, Vendor List, and To Do List modules were given to the student to develop.

A. Setup Ionic Project in VSCode

In VSCode, a few things must be configured. Since KawwinAi System development uses the Ionic programming language, students must clone the Github repository to VSCode, add Node modules that were initialised using npm, and ensure a consistent development environment. It was made easier to test and preview the application by using Ionic serve, which also made it easier to open a local server. This allowed for quick feature iterations and problem-solving. Figure 4.1, 4.2, 4.3, 4.4, 4.5 & 4.6 showed the Ionic project setup.

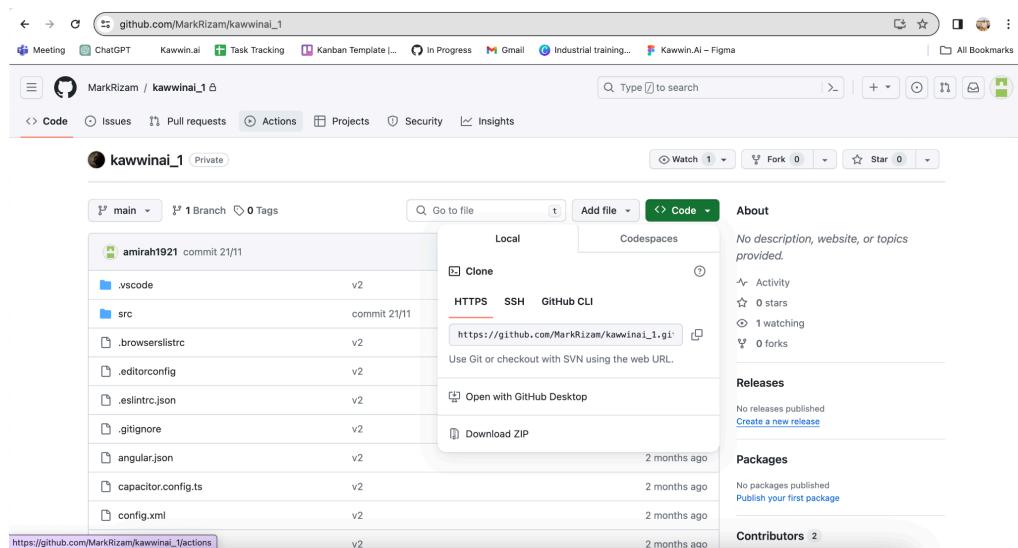


Figure 4.1: kawwinAi Github Project

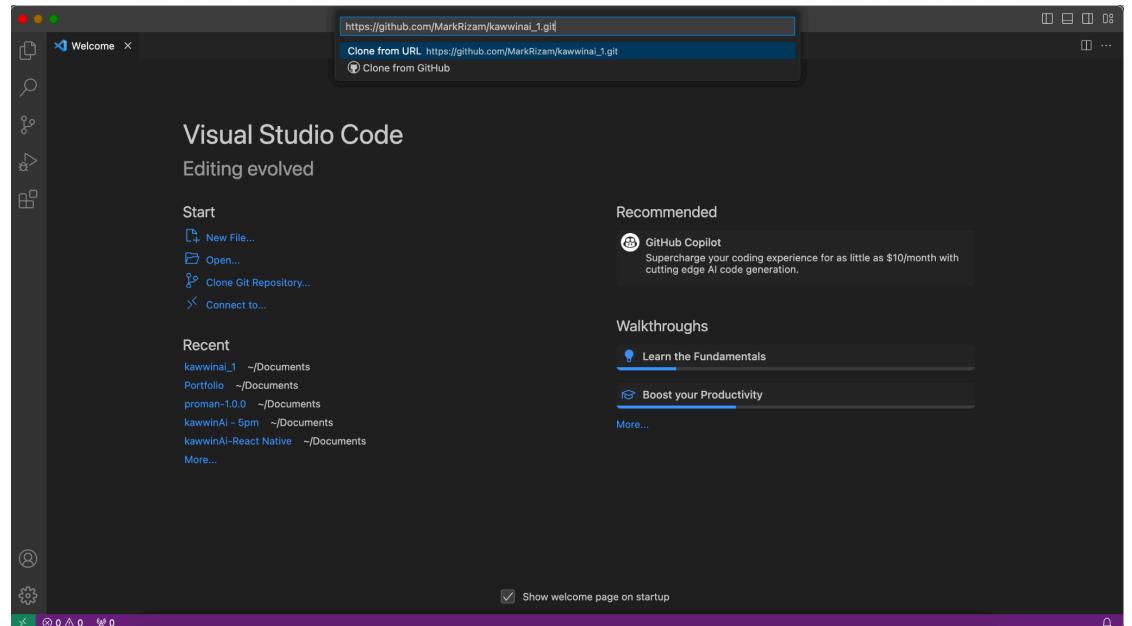


Figure 4.2: Clone Git in VSCode

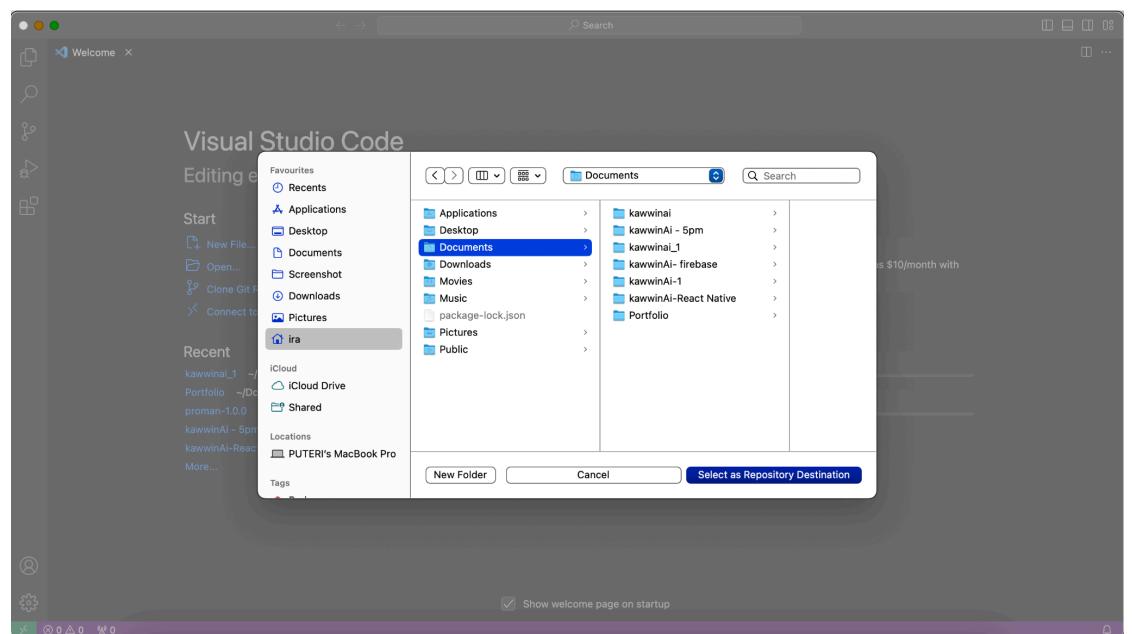


Figure 4.3: Add project kawwinAi

The screenshot shows the VS Code interface with the terminal tab active. The command `npm install` was run, and the output shows several deprecation warnings from various packages like babel-plugin-proposal-unicode-property-regex, babel-plugin-transform-unicode-property-regex, and wscript-time. It also indicates that 1544 packages were added and 1545 were audited in 19s.

```

i iza@UTERis-MacBook-Pro kawinaI_1 % npm install
npm WARN deprecated @babel/plugin-proposal-unicode-property-regex@7.18.6: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-unicode-property-regex instead.
npm WARN deprecated @babel/plugin-proposal-sync-generator-functions@7.20.7: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-async-generator-functions instead.
npm WARN deprecated wscript-time@1.0.2: Use your platform's native performance.now() and performance.timeOrigin.
npm WARN deprecated @ensberg/ts-evaluator@0.0.27: this package has been renamed to ts-evaluator. Please install ts-evaluator instead

added 1544 packages, and audited 1545 packages in 19s
192 packages are looking for funding
  run 'npm fund' for details
3 moderate severity vulnerabilities

To address all issues, run:
  npm audit fix
Run 'npm audit' for details.
npm notice New major version of npm available! 9.8.1 => 10.2.5
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.5
npm notice Run npm install -g npm@10.2.5 to update!

```

Figure 4.4: Install Node Modules

The screenshot shows the VS Code interface with the terminal tab active. The command `ionic serve` was run, and the output shows the build process starting at 2023-12-27T10:21:30.693Z, the local host URL (http://localhost:8100), and a browser window opening to that URL. The terminal also displays a file list for the build products.

```

[ng] node_modules/ionic/core/dist-esm/ion-avatar_3_entry.js
[ng] node_modules/ionic/core/dist-esm/ion-img_entry.js
[ng] node_modules/ionic/core/dist-esm/ion-modal_entry.js
[ng] node_modules/ionic/core/components_md_transition.js
[ng] node_modules/ionic/core/dist-esm/status-tap-4e96ecf3.js
[ng] node_modules/ionic/core/dist-esm/ion-text_entry.js
[ng]
[ng] Build at: 2023-12-27T10:21:30.693Z - Hash: 90d0f37f59561c1d - Time: 12178ms
[ng] ✓ Compiled successfully.

INFO: Development server running!
Local: http://localhost:8100
Use Ctrl+C to quit this process
[INFO] Browser window opened to http://localhost:8100!

```

| - | - | 5.56 kB |
|---|------------------------|---------|
| - | - | 4.63 kB |
| - | - | 1.21 kB |
| - | md-transition.js | 2.98 kB |
| - | status-tap-4e96ecf3.js | 2.88 kB |
| - | - | 1.79 kB |

Figure 4.5: Ionic Serve

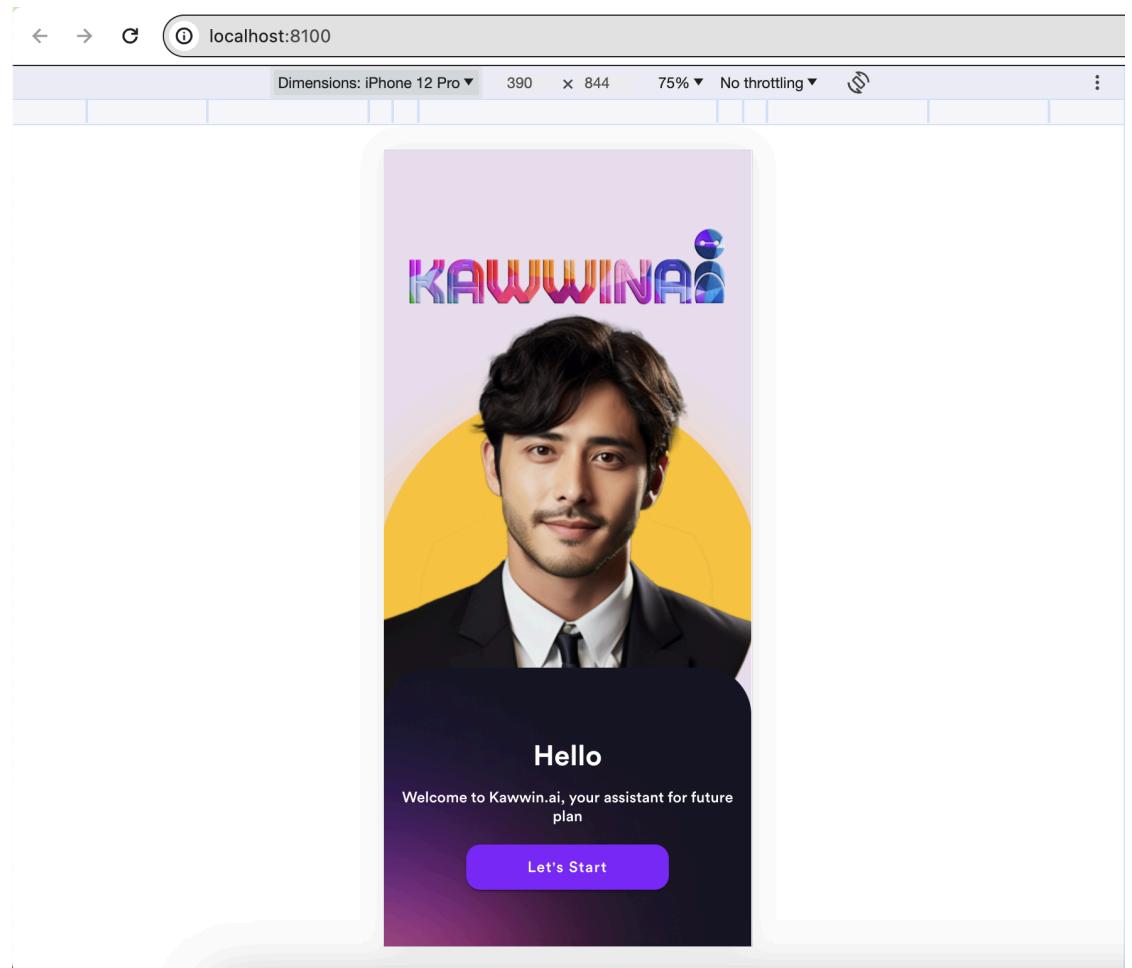


Figure 4.6: Local Server

B. Create database using Google Firebase

The KawwinAi System's database must be created by students. Google Firebase is the database utilised by the KawwinAi System, and its database name is Kawwin. To get started, add firebase to the web application, install the most recent SDK using npm, and initialise firebase by adding its details to the environment text file. Figure 4.7, 4.8, 4.9, 4.10, 4.11 & 4.12.

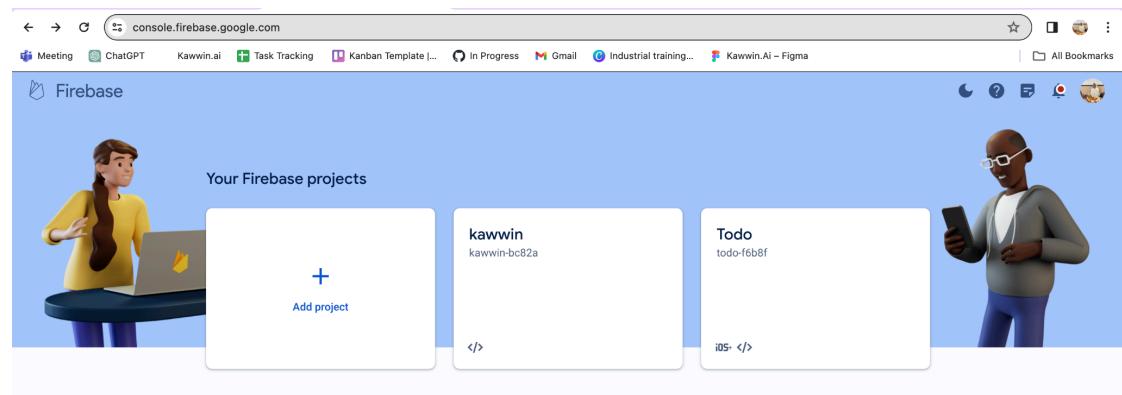


Figure 4.7: Google Firebase

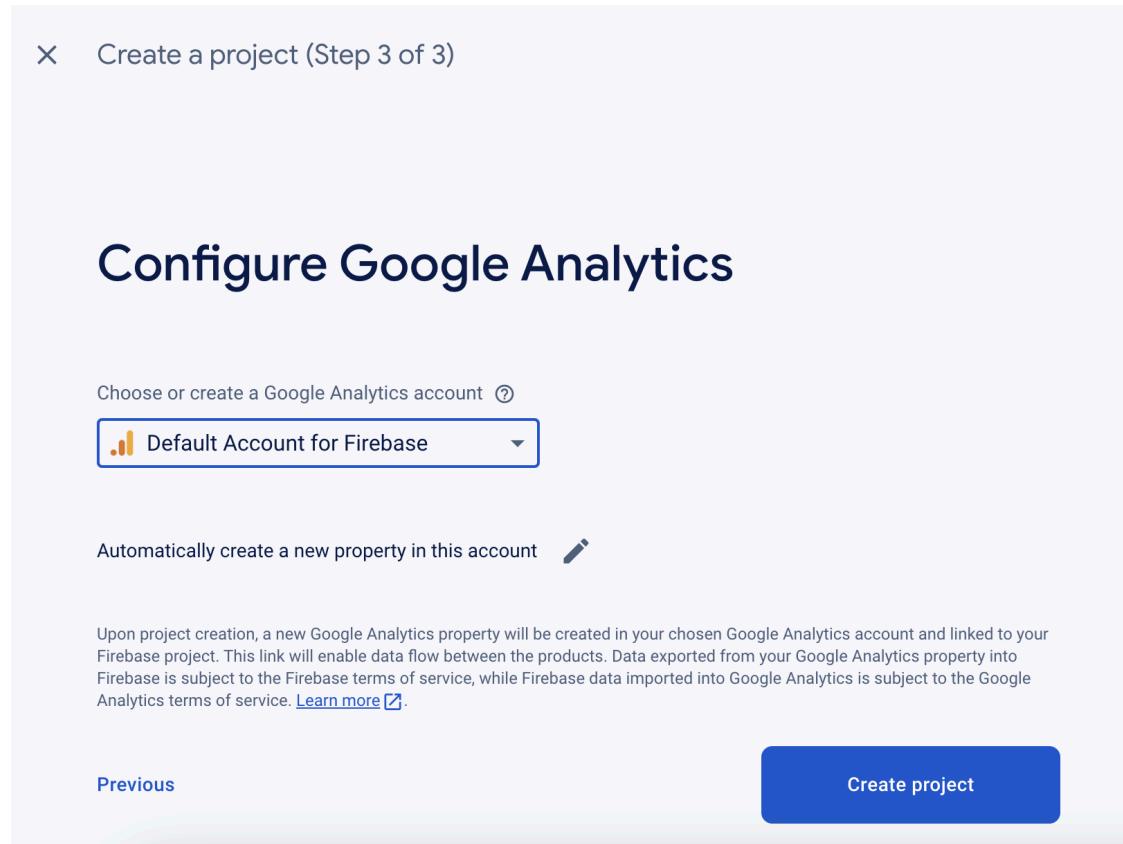


Figure 4.8: Configure Google Analytics

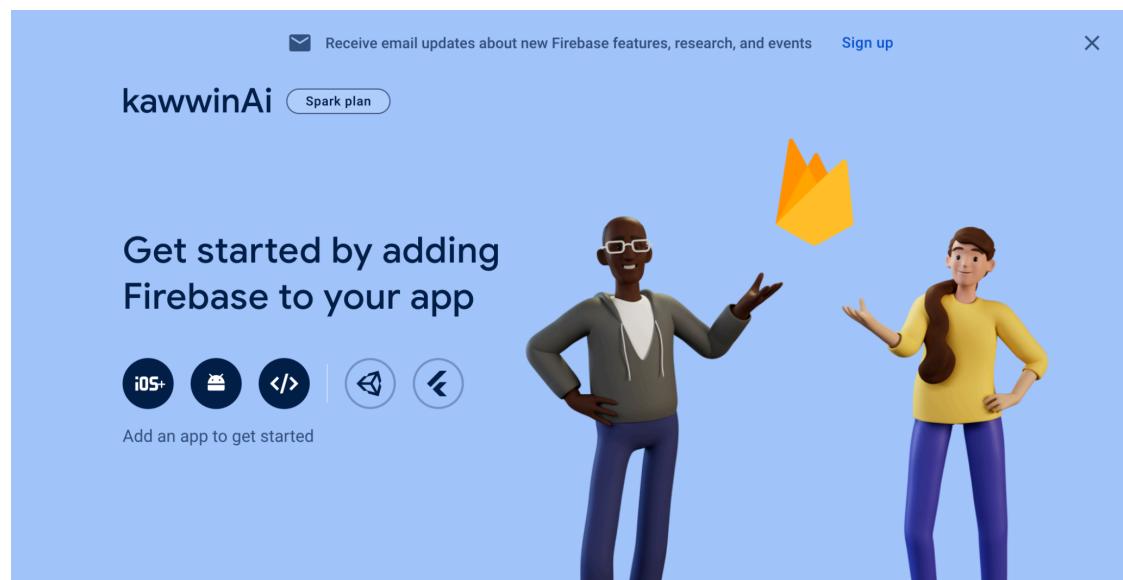


Figure 4.9: kawwinAi database

× Add Firebase to your web app

1 Register app

App nickname ②

kawwinAi

Also set up **Firebase Hosting** for this app. [Learn more ↗](#)

Hosting can also be set up later. There is no cost to get started anytime.

Register app

2 Add Firebase SDK

Figure 4.10: Register app server in kawwinAi

2 Add Firebase SDK

Use npm Use a <script> tag

If you're already using [npm ↗](#) and a module bundler such as [webpack ↗](#) or [Rollup ↗](#), you can run the following command to install the latest SDK ([Learn more ↗](#)):

\$ npm install firebase

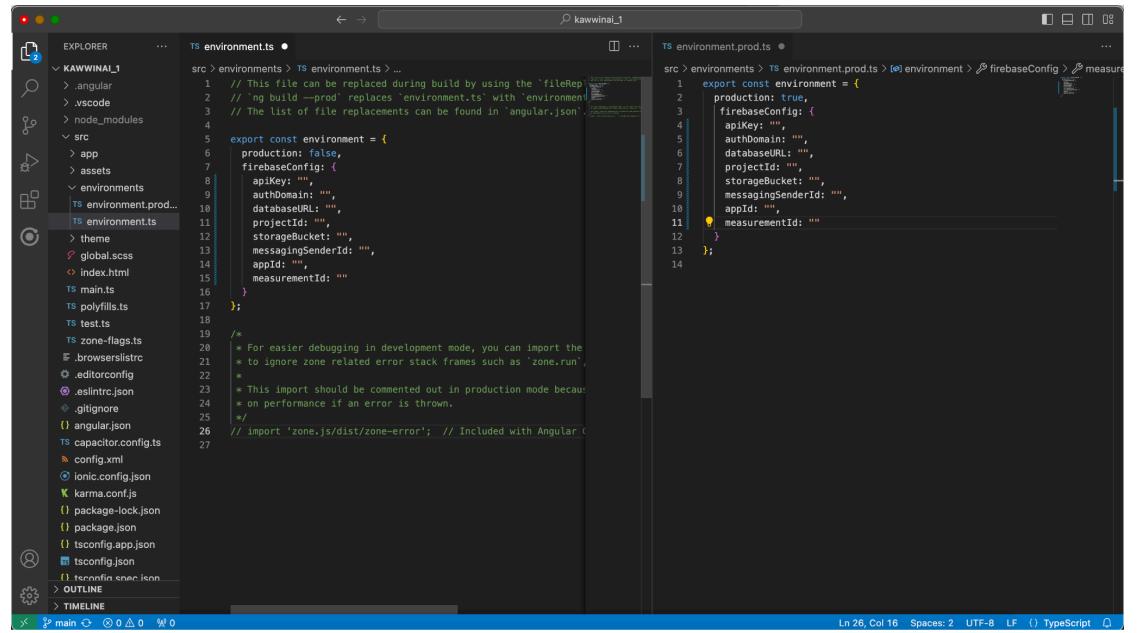


Then, initialize Firebase and begin using the SDKs for the products you'd like to use.

```
// Import the functions you need from the SDKs you need
import { initializeApp } from "firebase/app";
import { getAnalytics } from "firebase/analytics";
// TODO: Add SDKs for Firebase products that you want to use
// https://firebase.google.com/docs/web/setup#available-libraries

// Your web app's Firebase configuration
// For Firebase JS SDK v7.20.0 and later, measurementId is optional
const firebaseConfig = {
```

Figure 4.11: Firebase SDK



The screenshot shows a code editor interface with two tabs open: 'environment.ts' and 'environment.prod.ts'. The left tab, 'environment.ts', contains the following code:

```
// This file can be replaced during build by using the 'fileReplacements' option in 'angular.json'.
// `ng build --prod` replaces 'environment.ts' with 'environment.prod.ts'.
// The list of file replacements can be found in 'angular.json'.
export const environment = {
  production: false,
  firebaseConfig: {
    apiKey: '',
    authDomain: '',
    databaseURL: '',
    projectId: '',
    storageBucket: '',
    messagingSenderId: '',
    appId: '',
    measurementId: ''
  }
}

/*
 * For easier debugging in development mode, you can import the
 * to ignore zone related error stack frames such as 'zone.run'.
 * This import should be commented out in production mode because
 * it will be ignored.
 */
import 'zone.js/dist/zone-error'; // Included with Angular Core
```

The right tab, 'environment.prod.ts', contains the following code:

```
export const environment = {
  production: true,
  firebaseConfig: {
    apiKey: '',
    authDomain: '',
    databaseURL: '',
    projectId: '',
    storageBucket: '',
    messagingSenderId: '',
    appId: '',
    measurementId: ''
};
```

Figure 4.12: Environment setup

4.5 Outcomes

After completing the system implementation tasks, the team used Git version control to successfully streamline the development process. The GitHub codebase for the project was easily clonable by team members due to its easy accessibility. Npm was used to initialise the Node modules, guaranteeing a consistent development environment. It was made easier to test and preview the application by using Ionic serve, which also made it easier to open a local server. This allowed for quick feature iterations and problem-solving.

Furthermore, the integration of Google Firebase for database operations was part of the implementation. Using environment variables, database details were effortlessly injected into the code of a Firebase project. To ensure that the system's features were well-integrated and responsive to database interactions, the team used Ionic serve once again to establish a connection with the Firebase database. This methodical approach to development guaranteed a seamless integration of Firebase database services for a dependable and efficient application, while also improving collaboration via Git.

CHAPTER 5

EXPERIENCES AND SKILLS

5.1 Experiences and Knowledge Obtained

At Databoost Sdn Bhd, the student completes a six-month internship programme from August 2023 to January 2024. One can gain far more than just cash or academic credits from an internship. The student gained invaluable life and professional skills, insights, and lessons. The student gained a great deal of information and experience during the internship programme, including soft skills and computer scientific understanding.

Through involvement in actual projects in a genuine work setting, the student acquired substantial understanding in system development. The student asked more experienced programmers for assistance, which improved her communication skills and allowed her to interact with a more diverse set of people while also gaining confidence. The internship helped the student choose a suitable future by giving them a thorough overview of several professional pathways. It confirmed that a job as a software engineer is not only worthwhile but also pleasurable, and it enhanced their comprehension of system development.

The student came to the realization that working as a software engineer provides constant opportunity to expand one's knowledge and skill set in the ever-changing field of technology. The internship also demonstrated how technology may facilitate productivity and connectivity outside of traditional office environments, underscoring the potential advantages of working remotely.

5.2 Skills in Computer Science

By completing the internship, students manage to learn a lot of new skills in computer science and especially related to system development. The new skills are including:

i. Ionic Programming Language

Ionic allows developers to build cross-platform mobile applications using a single codebase. This means that the same code can be used to deploy applications on both iOS and Android platforms.

ii. Dribble with Figma

Integrating with design tools like Dribbble and Figma allows developers to seamlessly collaborate with designers. They can easily translate design mockups into functional code, ensuring that the final product aligns with the intended visual experience.

iii. Google Firebase

Firebase provides a serverless backend, allowing developers to focus on building the frontend without managing server infrastructure. It offers features like real-time database, authentication, and cloud functions, making it easier to develop scalable and dynamic applications.

iv. Visual Studio Code

Throughout their internship, students switched from Netbeans to Visual Studio Code (VSCode) for modifying code. Microsoft's free, open-source VSCode cross-platform editor facilitates the development of mobile and cloud apps in a number of languages, including Ionic, JavaScript, TypeScript, and Python. Developing the KawwinAi System with the Ionic Framework was made possible by its features, which included source control, debugging, syntax highlighting, code completion, and an integrated terminal.

5.3 Relationship Network

Throughout the industrial training work-from-home phase, the student established a strong professional network inside the department. Consistent virtual gatherings and cooperative online environments facilitated significant communication with department personnel. Interacting with teammates and managers gave the student insightful knowledge about the organization's operations, and asking for help with assignments facilitated building relationships with coworkers. This network developed into a vital resource for assistance, encouraging teamwork even in the context of remote employment.

The student had a special chance to grow their network outside of the department by spending three days at the Jom Launch event. By engaging with professionals from various backgrounds, such as industry insiders, prospective customers, and colleagues, the student was able to establish relationships that went beyond the confines of the workplace. Talking with others, taking part in online networking events, and going to presentations offered a forum for exchanging concepts and making connections that might come in handy later. The student was connected to a wider professional community through the event, which served as a bridge.

The student looked for guidance from seasoned professionals both inside and outside the department during the industrial training. This mentorship went beyond technical advice to include career advising, skill development, and industry insights. Having a mentor relationship aided the student in overcoming obstacles, establishing goals for their profession, and developing a more comprehensive grasp of the field. In addition to fostering the student's professional and personal development, the mentorship process builds relationships that may lead to long-term partnerships and collaborations.

5.4 Summary

Many things were learned over the programme. not just technical expertise but also knowledge pertaining to soft skills. Students are able to enhance and expand a multitude of computer-related abilities. Students can now create hybrid mobile applications using the Ionic programming language. Additionally, students now understand how to leverage the Ionic framework to improve the security, user experience, and system control of hybrid mobile applications. Then, in addition to PHPMyAdmin, students can now use Google Firebase with Angular integration as a new database. Every technical skill that a student acquires in less than six months is beneficial, particularly for future use.

Aside from that, students have improved several soft skills, particularly problem-solving and communication abilities. Students are able to establish more effective lines of communication with teammates and coworkers. Collaborating with a large group of people has improved students' communication skills. Additionally, students can exercise problem-solving strategies and consider the advantages of the issue. Participating in a brainstorming session with the organization's top programmers and data analysts helps students learn a lot and get experience. Students have the opportunity to build a few beneficial ties during their internship period. The student now has a network of contacts that will be useful in the future.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

6.1 Problems Encountered

There is no serious problem that I encounter during the internship program. But there are a few bearable problems for students. The problem are

i. Miscommunication

Throughout the internship, there were sporadic miscommunications that resulted in little setbacks. To ensure that activities were completed accurately and effectively, the student learnt the importance of having clear communication channels and to proactively seek clarification when needed.

ii. Compatibility issues with React Native Libraries

One obstacle was running into issues with Expo's compatibility with some React Native libraries.

iii. Versioning Challenges on M1 Chips

Versioning problems on the M1 chip caused a little deterrent. In order to address this, the student showed resilience in adjusting to new technologies and hardware configurations by keeping up with software upgrades, working with the IT team to assure compatibility, and changing coding approaches to suit the architecture.

iv. Limited Support from Team Members

Dealing with noncompliant team members proved to be difficult. The student actively sought out supportive peers, made use of internet tools, and encouraged self-reliance in order to finish assignments in order to cope. This showed flexibility and inventiveness in a setting devoid of encouragement.

6.2 Action on Troubleshooting

Following the identification of the issue, not many steps were taken to solve it. The steps involved in troubleshooting the issue are

- i. By keeping up with software updates, working with the IT team to ensure compatibility on the M1 chip, and modifying coding practices, the student showed resilience.
- ii. Versioning issues were resolved with proactive modifications and regular communication with the IT staff.
- iii. When confronted with uncooperative teammates, the student actively looked for support from peers who were more cooperative, used online resources to get advice, and encouraged independence.
- iv. By investigating alternate libraries, interacting with the development community, and working with the team to find practical workarounds, the student adopted a solution-oriented approach. Proactive troubleshooting was necessary to guarantee that Expo's React Native libraries integrated seamlessly.

6.3 Recommendations to FTKKI, UMT

Based on the industrial training for the six months, there were several suggestions that students can give to FTKKI.

- i. Provide a special section on Google Firebase in the curriculum, highlighting its use in backend development. Considering how frequently Firebase is used in real-world projects, it would be beneficial to give students a thorough understanding of all of its features in order to improve their skill set and marketability.
- ii. In order to improve students' design and teamwork abilities, include design tools such as Figma and Dribble in the curriculum. Giving students hands-on practice with these tools and projects would help them become accustomed to the teamwork involved in contemporary software development.

6.4 Recommendations to Organization

Although Databoost Sdn Bhd is a great place to work, the company could benefit from the following suggestions to better assist students undergoing industrial training

- i. Opportunities for Continuous Training. To address incompatibilities with technologies like Expo, React Native, and other tools used during the internship, offer ongoing training sessions or workshops. This keeps the team abreast of best practices and enables it to quickly adjust to new obstacles, which eventually improves the development process's overall efficiency.
- ii. Platforms for Team Collaboration. Introduce collaboration platforms such as Slack, Microsoft Teams, or other suitable tools to enhance communication and coordination among team members. These platforms can also help with successfully tracking project versions and resolving compatibility problems.
- iii. Version Control System. Implement robust version control systems such as Git to track project versions systematically. This not only helps in resolving compatibility issues but also ensures a smooth and organized development process. Training interns on version control practices ensures that they are well-versed in managing code changes and collaborating effectively with team members.
- iv. Regular Feedback Mechanism. Establish regular feedback mechanisms to assess the effectiveness of the training programs and identify areas for improvement. This could involve periodic reviews, surveys, or feedback sessions with interns to gauge their learning experiences and address any concerns. Continuous improvement based on feedback ensures that the industrial training program at Databoost remains relevant and valuable for future interns.

6.5 Overall Summary

An internship programme is a brief employment opportunity at a company or organisation that provides students with practical experience in a certain field. It is designed to give people opportunities for professional growth and practical training so they may work in the industry and get practical experience. Frequently, interns carry out preset tasks under the guidance of more experienced staff members. An internship typically lasts anything from a few months to a year, however it can last longer. The primary objectives of an internship programme are to provide students with practical job experience, the ability to use their knowledge and skills in a professional setting, and the opportunity to build industry relationships that will be beneficial for future career opportunities.

Students are able to gain a great deal of fresh information and experience throughout their six-month internship, particularly in the field of software engineering. Instead of utilising raw code, students are able to have a better knowledge of how to construct a web-based system by using a framework. Students meet a lot of seasoned programmers and are able to pick up a lot of new skills from the elders.

Along with developing their technical abilities, students were also successful in honing their soft skills, which include problem-solving and communication. Meeting a lot of new individuals and having to work in a group helped the students' communication abilities.

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