UNIVERSITI MALAYSIA TERENGGANU

FACULTY OF COMPUTER SCIENCE AND MATHEMATICS (FSKM)

2024

CSM3114

FRAMEWORK BASED MOBILE APPLICATION DEVELOPMENT

Prepared By:

MUHAMMAD AFIQ BIN MOHAMAD

(S63755)

Prepared For:

DR. MOHAMAD NOR BIN HASSAN

Project 1 – MarineScheduler Final Report

Bachelor of Computer Science (Mobile Computing) with Honours

SEMESTER I 2023/2024

Executive Summary of the Prototype

Introduction

In order to improve campus life in the fast-paced, digitally connected world of today, ABC University understands the need for creative solutions. Presenting "MarineScheduler": an application for smartphones designed to revolutionize how students interact with their educational environment. The aim is to provide users with the most up-to-date information and intelligent services possible to ensure your experience is efficient and seamless.

A dynamic timetable generator customized to each user's personal and academic schedule will be available in MarineScheduler. This feature makes it easier to manage classes, enabling all members of the ABC University community to go about their daily lives with clarity and ease. MarineScheduler promises to improve everyday university life and open the door for a smarter, more connected campus environment by incorporating real-time updates.

Key Features and Functionalities

1. **Advanced Timetable Automation**: Utilizes advanced algorithms to tailor class schedules, incorporating individual academic needs, course preferences, and extracurricular activities or elective courses.
2. **Real-Time Synchronization**: Ensures continuous updates with university website for class timings, and room changes, maintaining a dynamic and current schedule.
3. **Interactive User Interface**: Delivers a user-friendly platform, facilitating effortless navigation and stored of personal timetables.

The Prototype Design

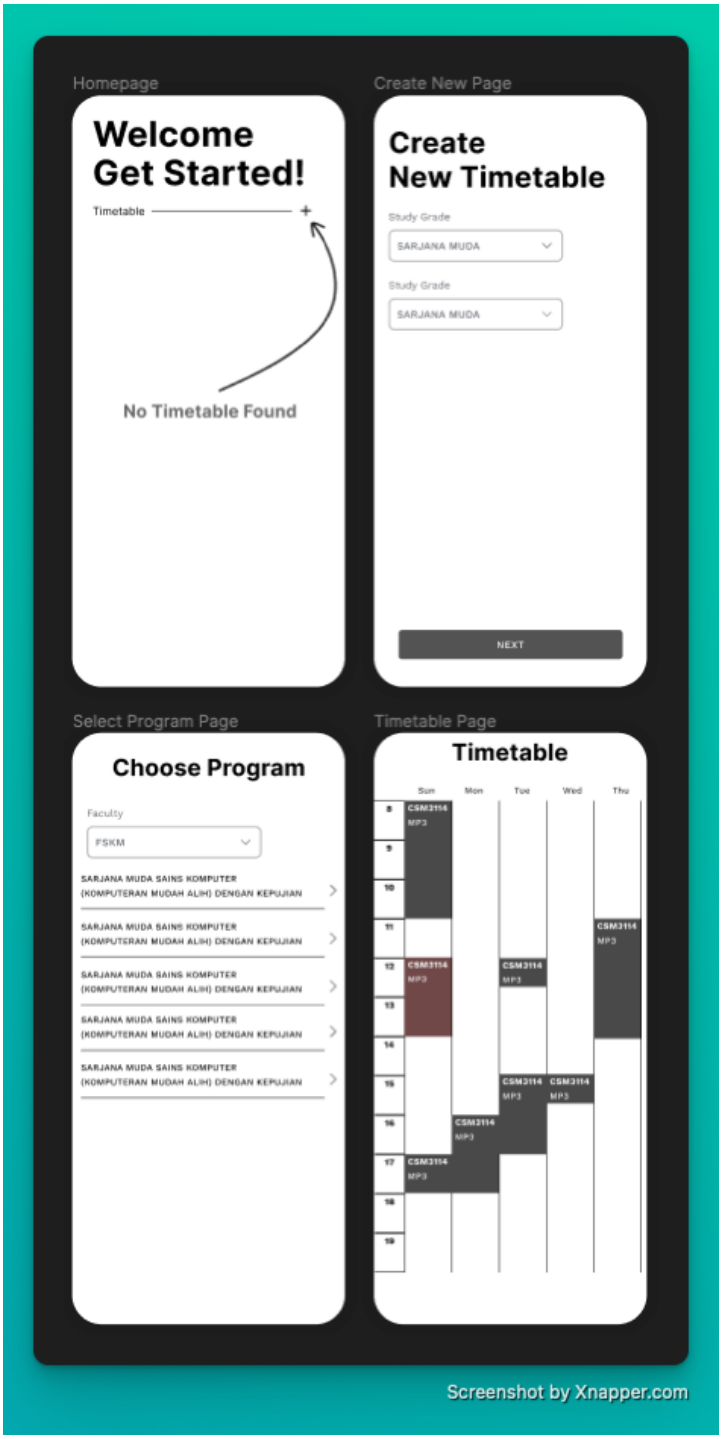

Figure 1 *MarineScheduler Prototype Design*

The UI of The Application

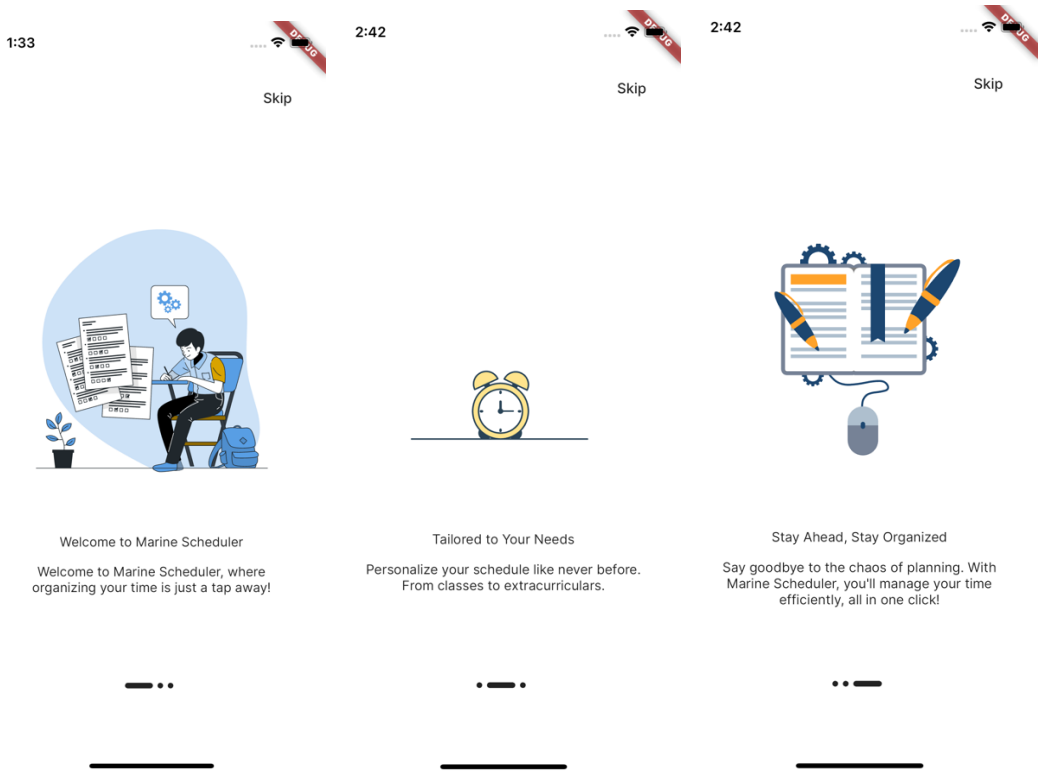

Figure 2 *Onboarding Screen*

Figure 2 displayed the UI that are part of an onboarding sequence for MarineScheduler app. The first screen welcome users and introduces the app's basic function followed by the other two screens. The option 'Skip' indicates that users can bypass the onboarding tour and proceed with using the app if they prefer.

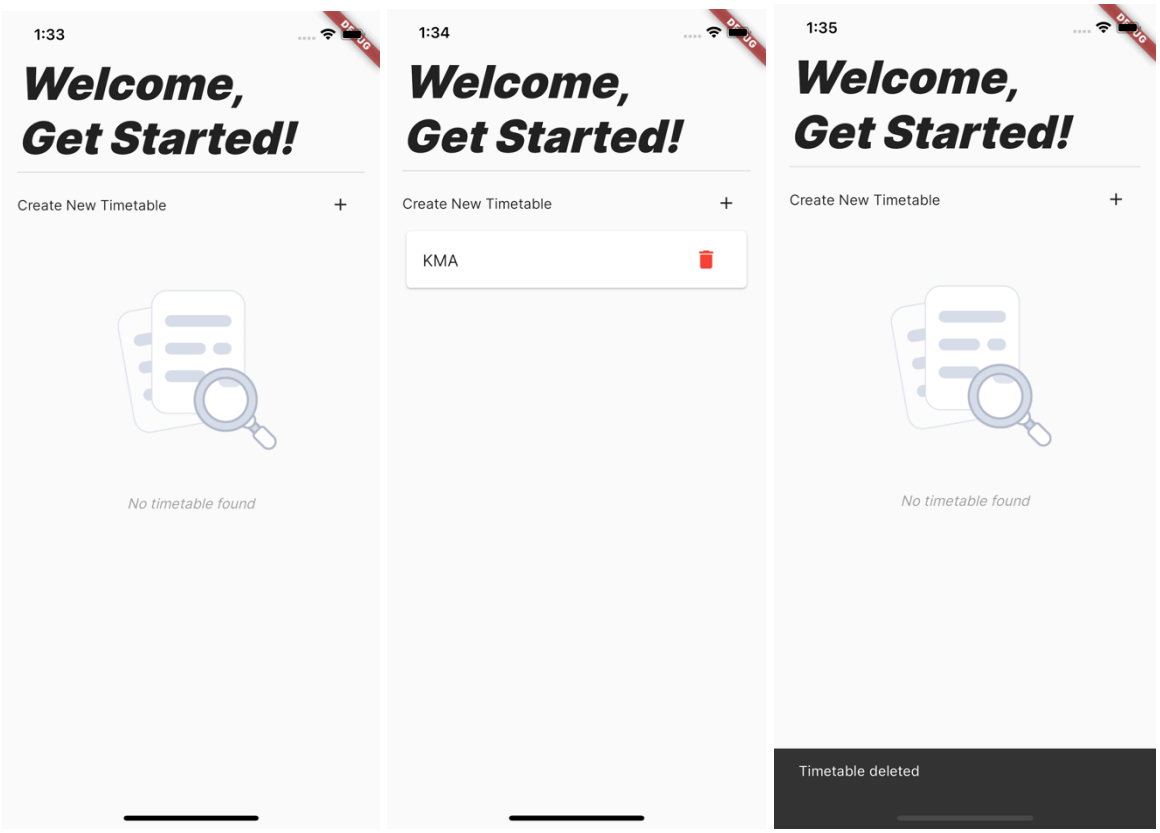

Figure 3 *Home Screen*

Figure 3 depict the home screen of the app, with a focus on timetable creation and management. There are 3 different states of the screen where the starting point shows to user that no timetable is found, prompting the user to create a new one. The second screen shows an added timetable with label and option to delete it, demonstrated by the red bin icon. The third states confirms the deletion of a timetable, returning to the state where no timetable is found, showing that the app is intuitive and responsive to user actions, allowing for easy management of schedules with clear visual cues for creation, deletion, and the absence of timetables.

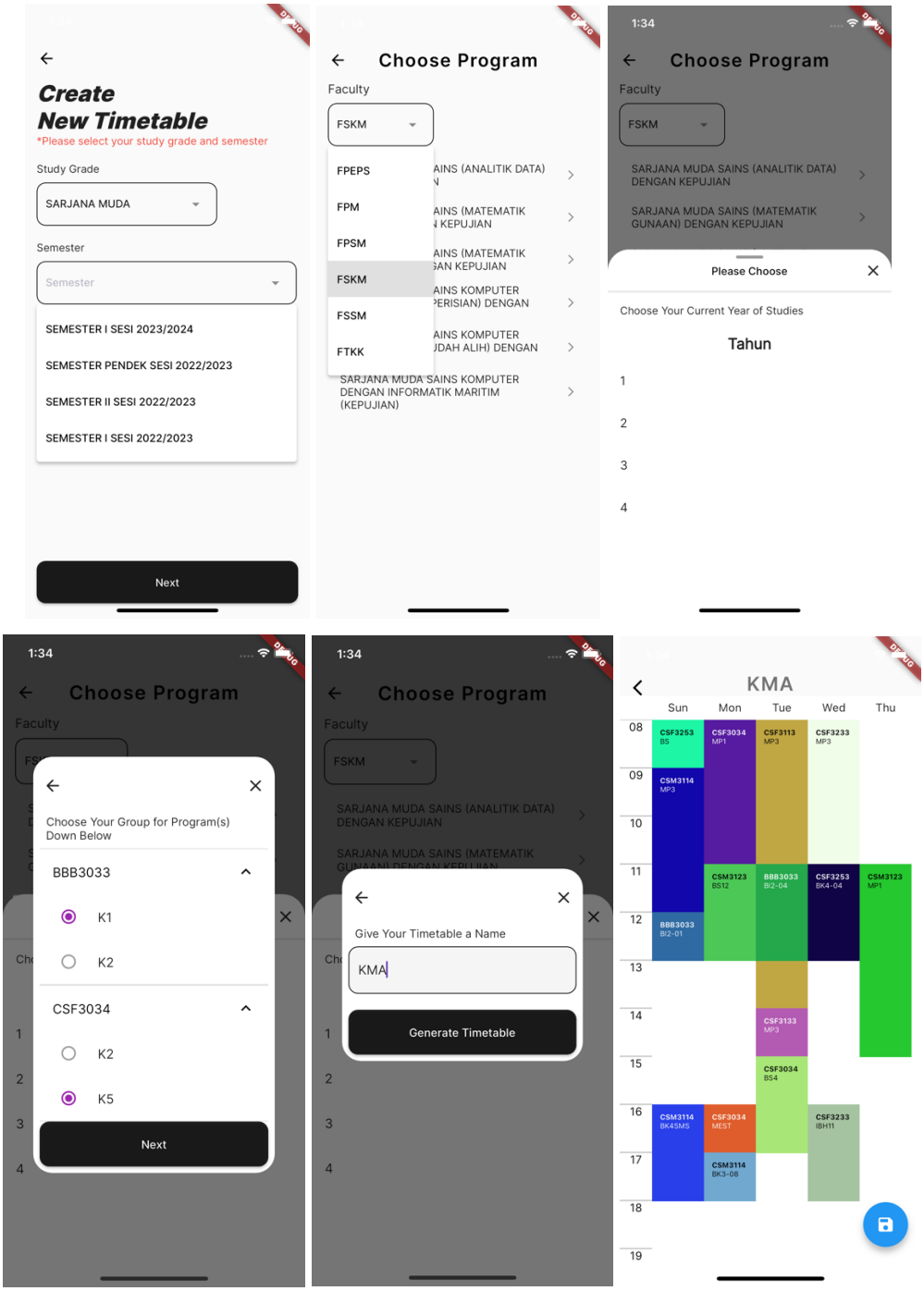

Figure 4 *Create and View Timetable Screen*

Figure 4 outline the process of creating and viewing a timetable within the app. Users start by selecting their program and semester, proceeding to specify their year of study and group for program modules. Once the details are inputted, a name for the timetable can be set. Upon generating the timetable, a colorful display appears, indicating different classes or activities scheduled throughout the week with clear time slots. This suggests a structured and user-friendly approach to organizing academic schedules, allowing for personalization and easy visual navigation.

Potential Commercial Value

Market Analysis

In higher education institutions, there is a dire need for automated and optimized scheduling. Universities can accommodate thousands of students with customized study plans and hundreds of unique course offerings spread across numerous departments. It is very challenging to create schedules and timetables by hand that satisfy all requirements. Most academic departments and university registrars still create course schedules and student timetables using antiquated manual or semi-automated systems each term.

For institutions, this poses a significant problem and a productivity drain as well as a chance for improvement. In a matter of seconds, the MarineScheduler App's algorithmic generation of ideal schedules will meet both student and university requirements.

Overall, the market analysis indicates a significant opportunity for the MarineScheduler App, especially in higher education settings where course offerings and student schedules are diverse and dynamic.

Monetization Strategies

1. **Subscription Models**: Implementing tiered subscription plans to offer access to exclusive features. These plans could range from basic to advanced, with a variety of features like ad-free experiences, priority customer support, and options for customization.
2. **Advertisements**: Include targeted, non-intrusive advertising in the free version of the app. This strategy aims to generate revenue without sacrificing the app's essential features. In order to strike a balance between monetization and user experience, advertisements will be carefully chosen to guarantee relevance and value to the user base.
3. **Partnership and Collaboration Revenues**: Establishing partnerships with ABC University. The approach could include advertising essential services, tools, or resources for academics right within the app. These partnerships not only generate a revenue stream but also enhance the user experience by incorporating helpful academic resources.

Pricing Strategy

Long-term profitability and affordability are the two main goals of the pricing strategy. To draw in a large user base, the app will be available with a limited-featured for the free version of the app. In order to make money, this free version will be backed by unobtrusive advertisements.

One of the cornerstones of the monetization strategy is offering a premium version of the MarineScheduler App. This provides users willing to pay an enhanced experience with additional functionalities and benefits. A subscription-based model will be implemented with both monthly and yearly payment options to cater to diverse needs:
The monthly premium subscription will be priced competitively at RM5.99 per month. The monthly premium subscription will cost RM5.99, which is a competitive price. Strong additional features are provided on a flexible month-to-month basis. A discounted yearly subscription for RM60.99 will also be provided to users who use the app more frequently. Users who pay annually save money over those who pay monthly. Yearly tier customers receive extensive value from advanced timetabling functionality and lock in ongoing access at a discounted rate. Ads are eliminated, limitless timetable creation is enabled, calendar integration is seamless, support services are expedited, access to custom templates is granted, and future premium features are integrated into both premium tiers. This dual strategy allows for subscription period flexibility while offering discounts to encourage increased loyalty and retention. Premium subscription income will be a crucial source of funding for continued app innovation and development.

As the user base expand, time-limited sales and promotions will be occasionally run. This hybrid strategy will strikes a balance between profitability and affordability. The model with tiers extracts value from discrete customer segments that are prepared to pay extra for improved features. Meanwhile, word-of-mouth marketing for the free version encourages natural expansion. All of these together help to present the solution as a desirable choice in the market.

Lesson Learned

There were a number of technical and design difficulties in the creation of the MarineScheduler App. The incorporation of various academic schedules into a unified, user-friendly interface was crucial among these. Aside from maintaining real-time data synchronization, other challenges included creating reliable algorithms that could manage institutional requirements.

The app was improved in large part thanks to user feedback. It offered important insights into feature requests and usability problems. The app's functionality was improved as a result of these comments, becoming more user-friendly and sensitive to the particular requirements of our university community.

Future plans call for the addition of new features like improved customization choices and integration with external calendars. To ensure that it continues to be an essential tool for improving campus life at ABC University, the app is also designed to be updated on a regular basis in response to changing user needs and technological advancements.

Conclusion

An important accomplishment has been the development of the Marine Scheduler App prototype for ABC University. It offers a practical and approachable way to deal with the intricate scheduling requirements of a changing academic setting.

I aspire for the app to continually evolve, with new features such as AI-driven schedule optimization and broader market expansion to other educational institutions being explored. The aim is for the app to become a standard tool in academic time management.

When I look back on this journey, creating the app has been a rewarding experience that has exposed the value of user-centric design and ongoing adaptation to changing user needs and technological advancements.

Project GitHub Repository

https://github.com/apikmeister/umt_timetable

References

Flutter - Dart API docs. (n.d.). https://api.flutter.dev/

IIUM schedule. (n.d.). GitHub. https://github.com/iiumschedule

Simple app state management. (n.d.). Flutter. https://docs.flutter.dev/data-and-backend/state-mgmt/simple

Afgprogrammer. (n.d.). *GitHub - afgprogrammer/Flutter-App-Intro-With-Indicator: Flutter App Intro Application Design and Animation - day 21*. GitHub. https://github.com/afgprogrammer/Flutter-App-Intro-With-Indicator

Apikmeister. (n.d.). *GitHub - apikmeister/umt-timetable-parser*. GitHub. https://github.com/apikmeister/umt-timetable-parser

Apikmeister. (n.d.-a). *GitHub - apikmeister/flutter_timetable_view: Timetable Widget Package for Flutter*. GitHub. https://github.com/apikmeister/flutter_timetable_view

Jadual UMT. (n.d.). MyNemo Jadual. https://pelajar.mynemo.umt.edu.my/eslip/index.php/jadual/muktmd_jadual_program

Lottie Animation Assets. (n.d.). Lottie Files. https://lottiefiles.com/

Biessek, A. (2019). *Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2*. https://openlibrary.telkomuniversity.ac.id/home/catalog/id/160493/slug/flutter-for-beginners-an-introductory-guide-to-building-cross-platform-mobile-applications-with-flutter-and-dart-2.html