ICT ACADEMY OF KERALA

Monsoon Internship Report

Flutter App Development

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EXECUTIVE SUMMARY

The internship project involved the development of a Body Mass Index (BMI) application using Flutter, aimed at helping users calculate and track their BMI.The primary objective was to gain hands-on experience with Flutter, improve mobile application development skills, and explore state management using Provider. Key activities included setting up the Flutter environment, designing the user interface, implementing BMI calculation logic, and integrating essential features such as user authentication and data persistence. The project successfully resulted in a functional BMI app that allows users to calculate their BMI, view health-related information, and save their data for future reference.

INTRODUCTION

The BMI app project was initiated as part of an internship to provide practical exposure to Flutter, a popular framework for cross-platform mobile development. The need for fitness and health tracking apps has increased, and BMI calculation is a fundamental feature of such apps. This project builds upon existing studies that emphasize the importance of maintaining a healthy BMI, providing users with a simple tool to monitor their health. The project's specific context involved implementing a user-friendly mobile application that can calculate BMI, store user data, and offer a smooth user experience.

OBJECTIVES

The primary objectives of the BMI app project were:

1. **Develop a functional mobile application**: Create an app that allows users to calculate and monitor their BMI.
2. **Learn and implement Flutter and Provider**: Gain practical experience in using Flutter for mobile development and Provider for state management.
3. **Enhance problem-solving and coding skills**: Address challenges in app development, including UI/UX design, data persistence, and app performance optimization.

SCOPE AND DELIVERABLES

The scope of the project included the following tasks:

- **Setting up the Flutter development environment**: Install necessary tools and configure the development environment for Flutter.
- **User Interface Design**: Design a simple and intuitive UI for the BMI calculator app, including login screens, BMI input forms, and result displays.
- **BMI Calculation Logic**: Implement the logic to calculate BMI based on user input (height and weight).
- **State Management**: Use the Provider package for managing app state, particularly user authentication and data persistence.
- **Testing and Debugging**: Perform rigorous testing to identify and fix bugs, ensuring a smooth user experience.

METHODOLOGY

The project followed an agile methodology, allowing iterative development and continuous feedback. The approach included:

- **Planning and Requirement Gathering**: Define the app features and technical requirements.
- **Design Phase**: Create wireframes and design the UI components.
- **Development**: Implement the app using Dart in Flutter, with key packages like provider, shared_preferences, and email_validator.
- **Testing**: Conduct unit tests and manual testing on different devices to ensure functionality across platforms.
- **Deployment**: Prepare the app for deployment on Android and iOS platforms, though actual deployment was out of scope for this internship.

PROJECT ACTIVITIES

The major activities undertaken during the internship included:

- **Setting Up the Project**: Initialized a new Flutter project and configured dependencies in pubspec.yaml.
- **Designing UI**: Designed the user interface, focusing on ease of use and visual appeal. This included creating responsive layouts and integrating images.
- **Implementing Core Features**: Wrote the BMI calculation logic and integrated it with the user interface. Used the Provider package for state management and shared_preferences for saving user data locally.
- **Integrating User Authentication**: Implemented basic user authentication using a combination of email validation and mobile OTP functionality (though not fully functional in this stage).
- **Testing and Optimization**: Performed tests to identify and resolve UI issues and optimize app performance.

RESULTS & FINDINGS

The project concluded with the successful development of a BMI calculator app that meets the initial objectives. Key findings include:

- **Effective use of Flutter**: The project demonstrated Flutter's efficiency in building cross-platform apps with a single codebase.
- **State Management**: The Provider package proved to be effective for managing app state, particularly in handling user data across different screens.
- **Challenges**: The project encountered challenges with user authentication and data validation, which required deeper exploration into secure authentication methods.

CONCLUSION

The internship project was a valuable learning experience, successfully achieving the objectives set at the outset. The completed BMI app serves as a practical tool for users to monitor their BMI, while the development process significantly enhanced the intern's skills in Flutter and mobile app development. Future work could involve adding more features such as integration with health tracking APIs, improving user authentication, and deploying the app on app stores.

APPENDIX

Project Presentation :

https://drive.google.com/file/d/1J7xl1L0ryaWvEjxeq4PC9c93FfexuQcJ/view

Project Zip File:

https://drive.google.com/file/d/1PNRejjFWKw4Cwvz4X7KLZCbMxCZ3aUHW/view?usp=sharing