UNIVERSITI MALAYSIA TERENGGANU

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FACULTY OF COMPUTER SCIENCE AND MATHEMATICS

CSM3114

FRAMEWORK – BASED MOBILE APPLICATION DEVELOPMENT

PROJECT 2 REPORT

E-COURSE APP

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EXECUTIVE SUMMARY

The E-course App project aims to create a comprehensive mobile application to facilitate online learning by providing users with a user-friendly platform to access, register for, and manage various courses. Developed for both iOS and Android platforms using Flutter, the app offers a seamless and intuitive user experience. The application includes features such as course categorization, registration, and a personalized user dashboard.

The primary functionalities of the app revolve around the user's ability to explore and register for courses. The Categories section organizes courses into distinct groups, such as Coding, Cooking, and Mathematics, each featuring a variety of associated courses. Users can register for courses directly through the app, enhancing their learning experience. The My Courses section provides a convenient overview of the courses a user is currently enrolled in, promoting efficient course management.

To ensure a dynamic and engaging user interface, the app integrates real-time data retrieval from a Firebase database. Courses, categorized based on subject matter, are dynamically loaded, allowing for easy updates and expansion of the course catalog. The user's registered courses are stored in the database, supporting personalized content delivery and facilitating course registration and removal processes.

The app also incorporates additional features, such as a Schedule Screen, where users can view their course schedules, displaying key information like date and time. This provides users with a structured overview of their learning commitments, aiding in effective time management.

In summary, the E-course App project delivers a sophisticated yet user-friendly solution for online learning. Its intuitive design, seamless database integration, and diverse feature set cater to a broad audience, promoting an accessible and enriching educational experience for users across various domains.

USE CASE
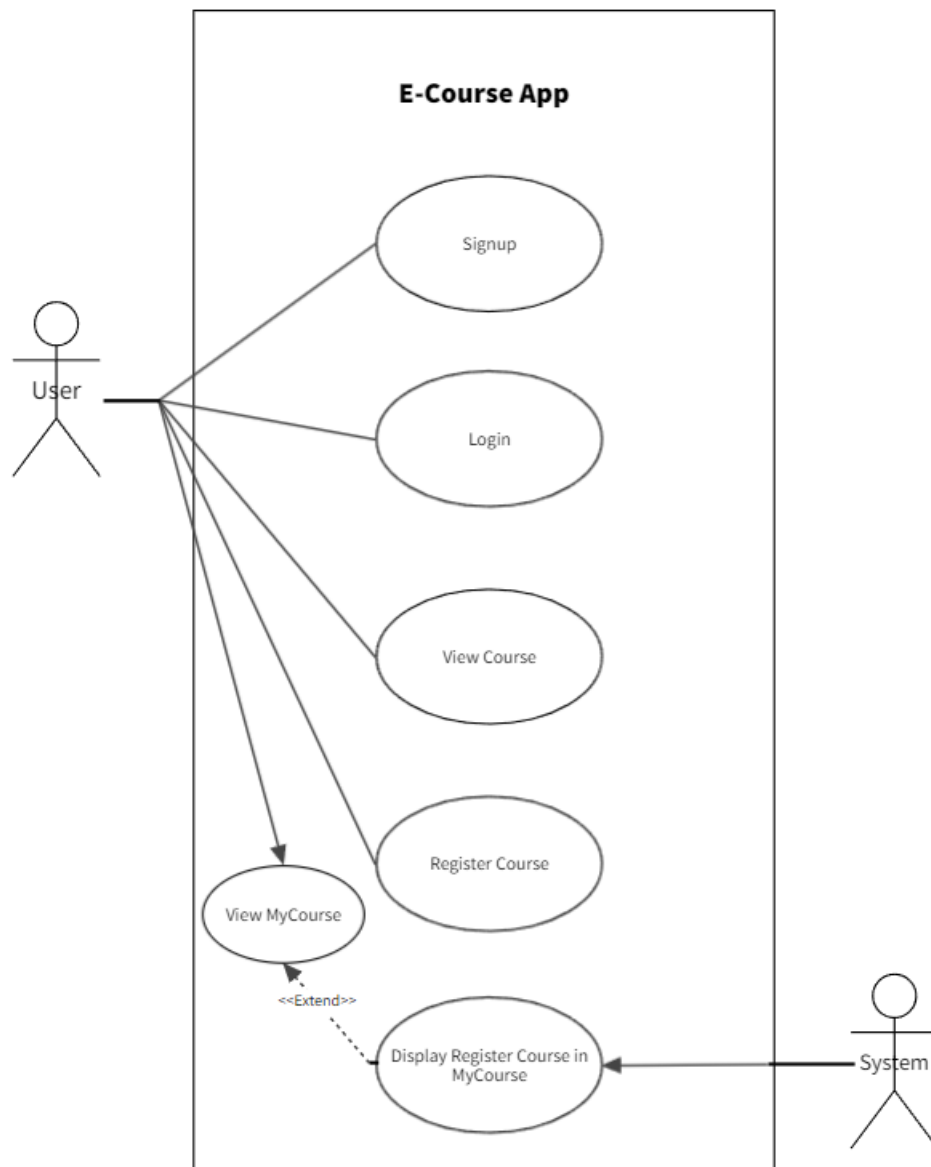
COMMON STRUCTURE OF TREE WIDGET

HomeScreen
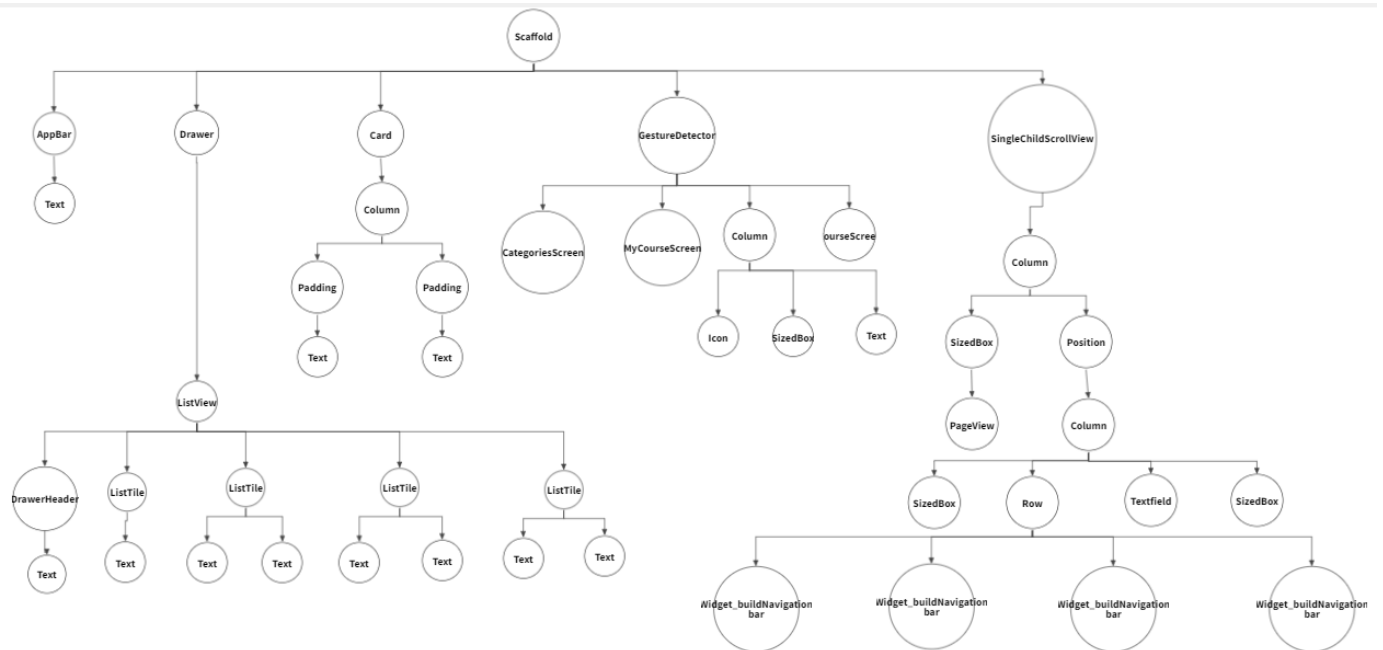
FLUTTER WIDGETS AND FEATURES ADOPTED IN THE APPLICATION

The E-course App utilizes various Flutter widgets and features to create a responsive and engaging user interface. Here are some of the key widgets and features adopted in the application:

1. AppBar:

- The AppBar widget is employed to create a consistent top app bar across screens.
- It displays the app's title, providing a clear indication of the current context.

2. Drawer:

- The Drawer widget is utilized to implement a navigation drawer.
- It allows users to access additional app features and navigate between different screens.

3. ListView:

- The ListView widget is employed to display lists of data, such as the list of courses in the "Categories" screen.
- It enables smooth scrolling and efficient handling of large datasets.

4. Card and ListTile:

- The Card and ListTile widgets are used to structure and present information about individual courses in a visually appealing way.
- They provide a consistent and organized layout for each course entry.

5. ExpansionTile:

- The ExpansionTile widget is adopted to create collapsible tiles for different course categories.
- It allows users to expand and collapse categories, providing a clean and hierarchical view.

6. TextField:

- The TextField widget is utilized to implement a search bar, enabling users to search for specific courses.

7. PageView:

- The PageView widget is used to create a horizontally scrolling list of popular courses on the home screen.
- It enhances the user experience by showcasing featured content.

8. FutureBuilder:

- The FutureBuilder widget is employed to asynchronously fetch and display data, such as the list of courses from the server.

9. Navigation:

- Flutter's navigation system is leveraged to facilitate screen transitions when users navigate between different sections of the app.
- Navigator and MaterialPageRoute are used for screen navigation.

10. Icons:

- Flutter's built-in Icons class is utilized to incorporate relevant icons for course categories and navigation items.

11. State Management:

- The StatefulWidget and State classes are employed for managing and updating the state of dynamic elements within the app.

12. HTTP Requests:

- The http package is used to make HTTP requests to a server for fetching and updating course-related data.
- These widgets and features contribute to a visually appealing, interactive, and responsive user interface in the E-course App, enhancing the overall user experience.

SAMPLE OF INTERFACE WITH EXPLAINATION
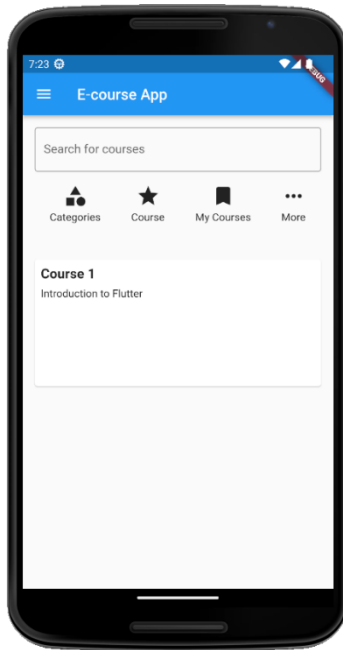
Home Screen

The Home Screen serves as the app's main hub, featuring an AppBar with the app title and a navigation drawer icon. A horizontally scrolling PageView displays popular courses, allowing users to swipe through featured content. A search bar (TextField) is present at the top, enabling users to search for courses
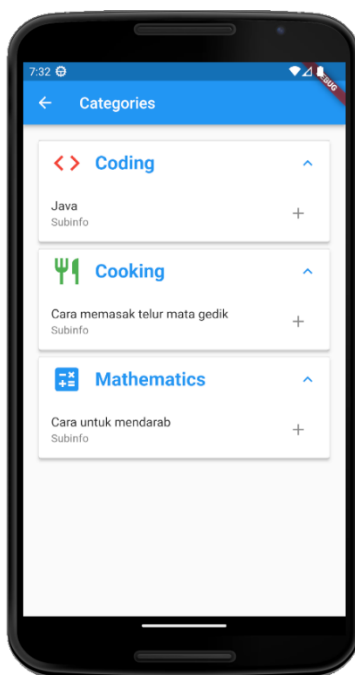

Categories Screen

This screen displays course categories using ExpansionTile widgets. Each tile represents a category like Coding, Cooking, and Mathematics, with an icon, title, and a list of courses. Users can expand each category to view and register by clicking the add icon button and will navigate to My Courses Screen.
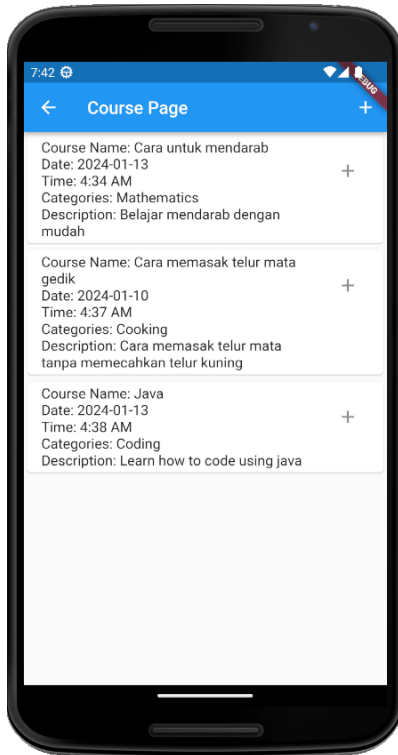
Course Screen

The Course Screen lists all available courses using a ListView and Card widgets. Each course entry includes details like course name, date, time, and a registration button (IconButton) to register for the course. An app bar provides navigation to the user's registered courses and an "Add" button to register for new courses.
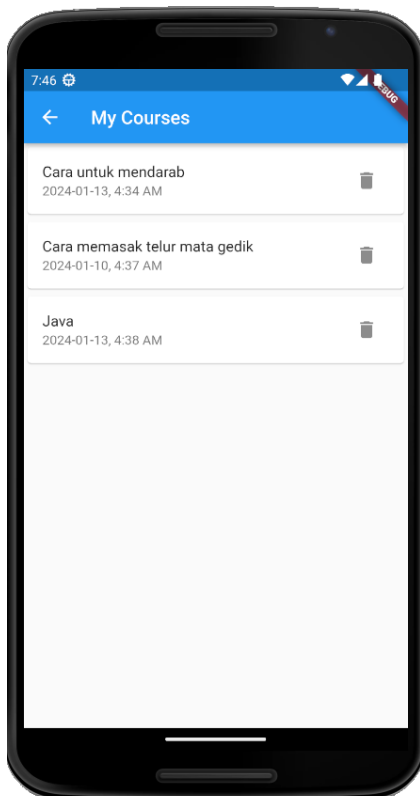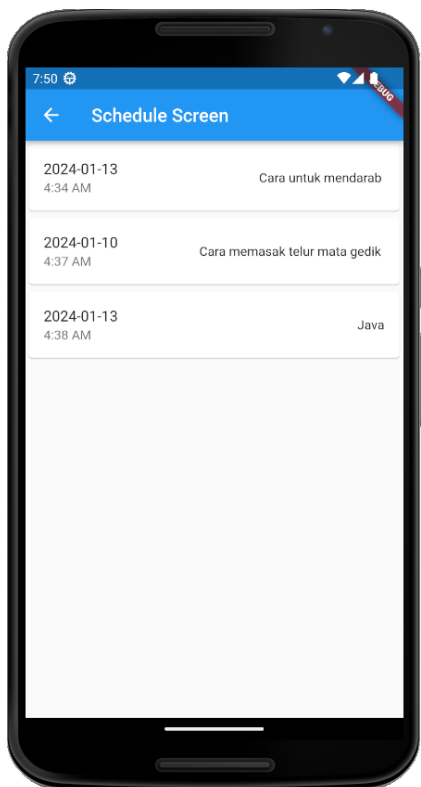

My Course Screen

Displays a list of the user's registered courses. Courses are presented in a ListView with Card and ListTile widgets. Users can delete courses by tapping the delete icon (IconButton) next to each course.
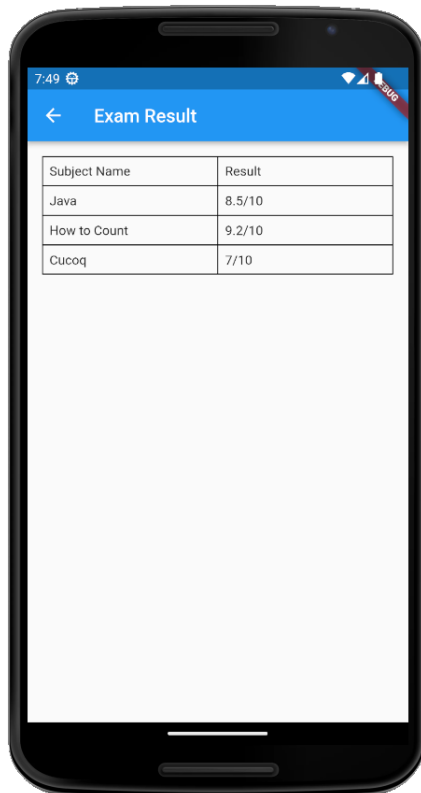
Exam Result Screen

Exam results are presented in a table format using a combination of Card, ListTile, and Column widgets. Each row represents a subject, displaying the subject name and result in a clear tabular layout.

Schedule Screen

The Schedule Screen showcases the user's course schedule. Course details, including date, time, and course name, are presented in a ListView with Card and ListTile widgets.

CONCLUSION

In conclusion, the E-course App stands as a testament to the fusion of innovative technology and educational pursuits. Throughout the development process, careful consideration was given to the user experience, resulting in a seamless and intuitive platform. The app's architecture leverages the power of Flutter, enabling cross-platform compatibility without compromising on performance or visual appeal. By incorporating essential features such as dynamic navigation, categorized course exploration, and efficient course registration, the app addresses the diverse needs of students in a digital learning landscape.

The user-centric design extends to the meticulous organization of course information, providing clarity and ease of use. From the engaging Home Screen, where popular courses are showcased, to the functional My Courses Screen, allowing users to manage their enrolled classes, every aspect contributes to a cohesive and enjoyable learning experience. The Exam Result Screen and Schedule Screen offer valuable insights into academic performance and course schedules, respectively, enhancing the holistic utility of the app.

Moreover, the application's robust back-end, powered by Firebase, ensures secure user data management and efficient retrieval of course information. The implementation of asynchronous operations further refines the user interface, providing real-time updates and responsiveness. As the educational landscape continues to evolve, the E-course App emerges as a versatile and adaptive tool, poised to facilitate learning journeys for students across various disciplines. This project not only showcases technical proficiency but also a commitment to enhancing the educational experience through thoughtful and user-centric design.

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Github
https://github.com/fareezizhar02/project2