UNIVERSITY MALAYSIA TERENGGANU

FACULTY OF COMPUTER SCIENCES AND MATHEMATICS

[CSM3114]

FRAMEWORK – BASED MOBILE APPLICATION DEVELOPMENT

ASSIGNMENT 2 – PROJECT MONITORING AND TRACKING APP

THE DEVELOPMENT OF MOBILE APPS PROTOTYPING ABC TECHNOLOGIES

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SEMESTER I 2023/2024

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EXECUTIVE SUMMARY OF THE PROJECT

In response to the evolving dynamics of the IT industry, ABC Technologies is strategically investing in the development of mobile applications to augment its market position. The imperative to integrate mobile solutions into corporate structures has never been more apparent. ABC Technologies envisions a suite of applications that will redefine business interactions, emphasizing accessibility, ease of use, and personalization. As part of this initiative, the Project Monitoring & Tracking App emerges as a cornerstone, offering a robust platform to optimize remote project management and elevate user experience.

The Project Monitoring & Tracking App, built on the Flutter framework for its cross-platform prowess, promises a transformative approach to project management. Users will navigate a seamless interface, facilitating actions such as secure login, intuitive project registration, dynamic activity tracking, and real-time progress updates. Leveraging Flutter's versatility ensures a consistent and visually compelling experience across diverse devices. The app's design aims to empower project managers and team members, fostering collaboration, transparency, and an unwavering focus on project milestones.

ABC Technologies anticipates substantial enhancements in project management efficacy with the implementation of the Project Monitoring & Tracking App. Real-time progress tracking and activity updates will facilitate agile decision-making, fostering improved communication and streamlined workflows. The app's impact extends beyond efficiency gains; it positions ABC Technologies as a trailblazer in delivering tailored and accessible business solutions. As the corporate landscape seeks such innovative tools, the app is poised not only to meet but exceed the expectations, establishing ABC Technologies as a vanguard in the fiercely competitive IT domain.

USE CASE OF THE PROJECT

The Project Monitoring & Tracking App's use case diagram visually outlines user interactions and system functionalities. It serves as a blueprint for development, offering stakeholders a clear understanding of how actors engage with the app to achieve goals, enhancing overall system architecture clarity.

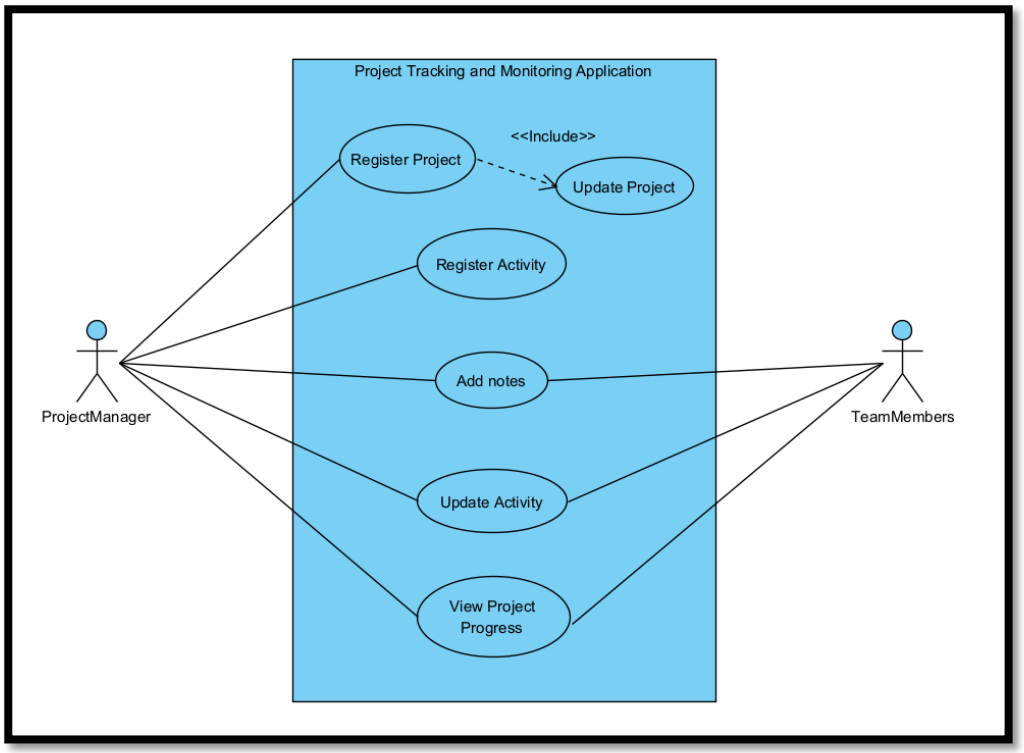
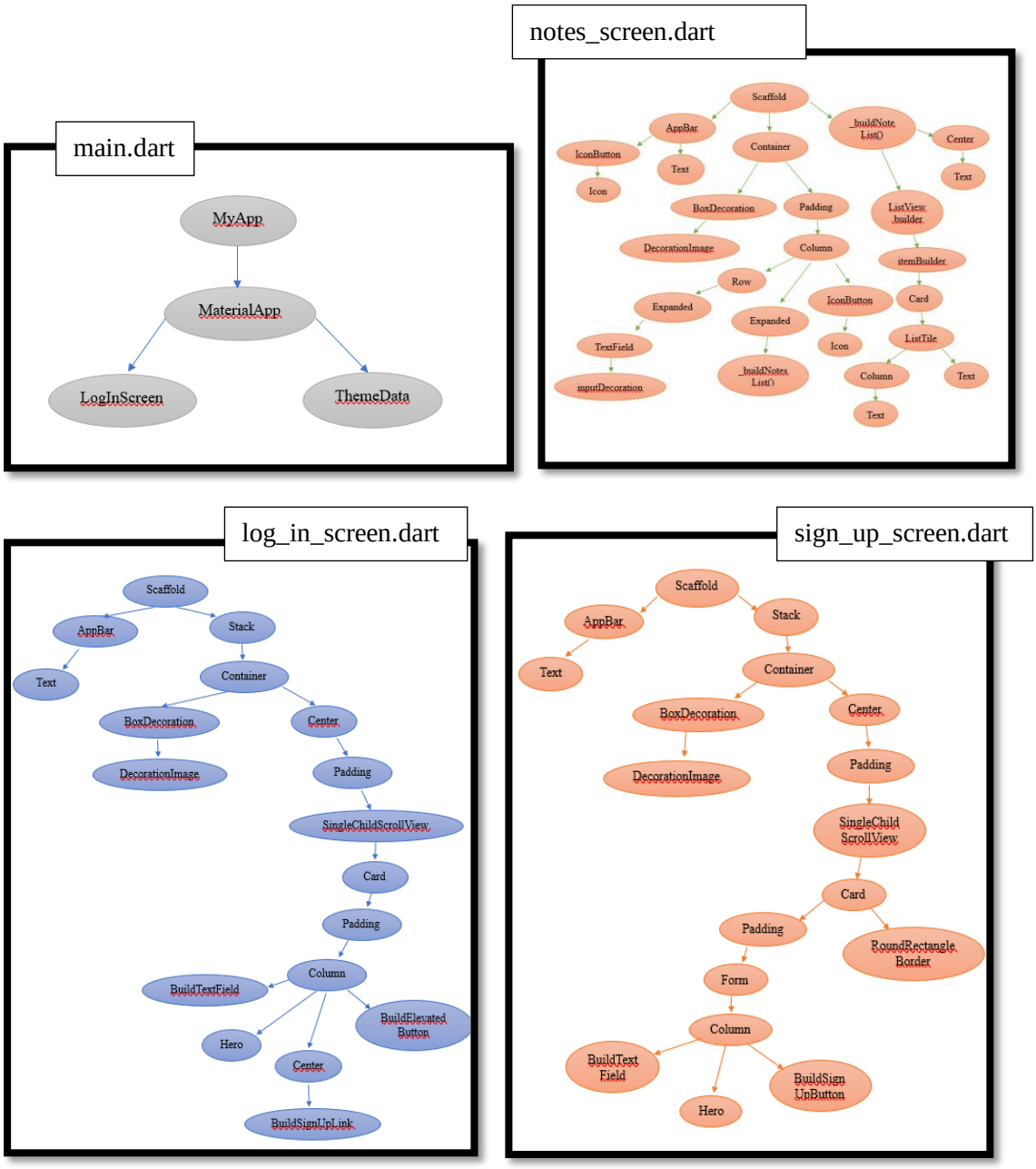


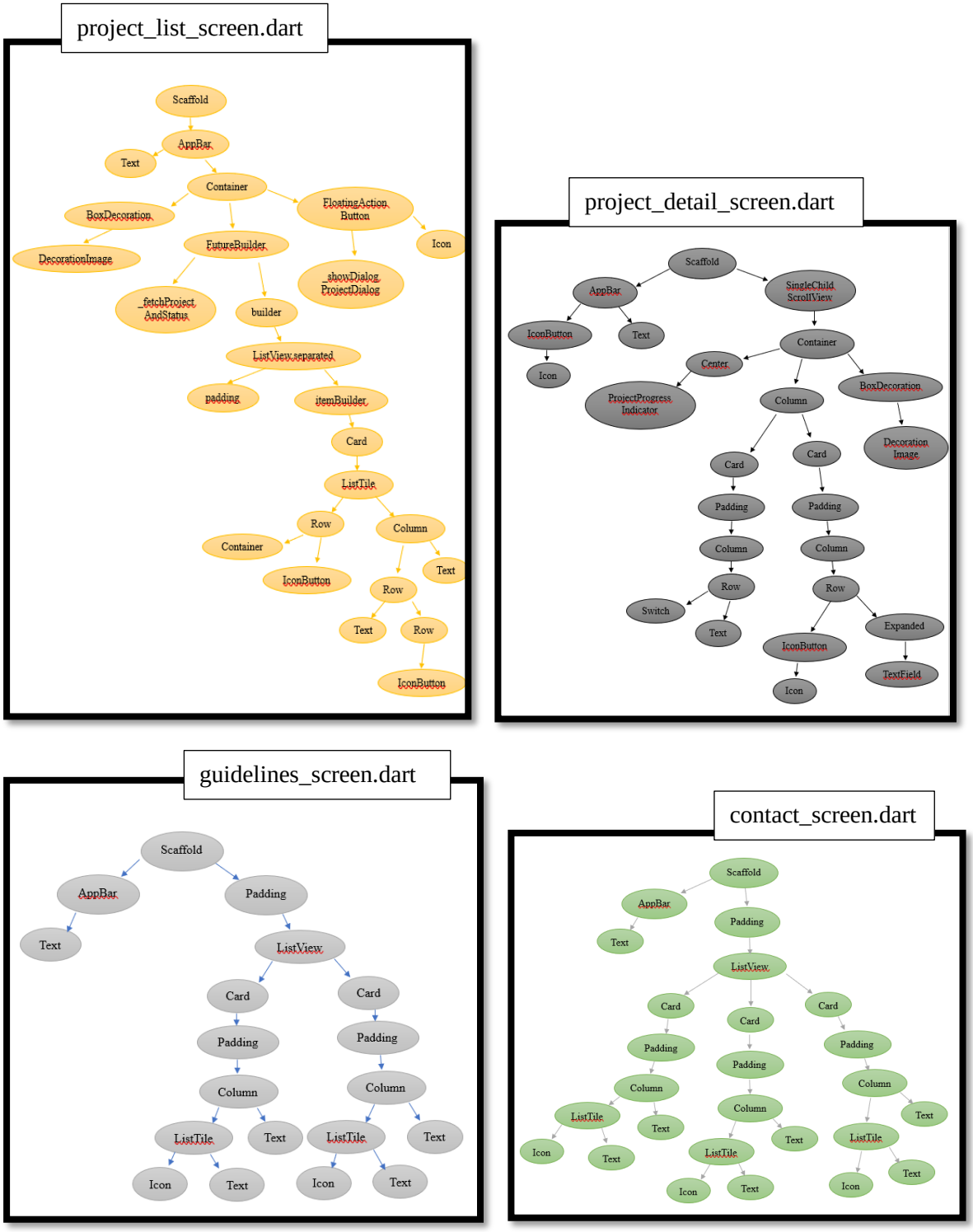
Figure 1 - Use Case of this application

The app would allow project managers to create and register projects, as well as track their progress. They would be able to add team members to projects and give them access to view and update project progress. Team members would be able to register activities, such as tasks or milestones, and add notes to them. They would also be able to update the status of activities and view the overall progress of the project.

COMMON STRUCTURE OF TREE WIDGETS

Widget trees, a fundamental component in graphical user interface (GUI) development, follow a common structure to organize and display various elements on a screen. These structures play a pivotal role in the design and functionality of applications, providing a hierarchical representation of widgets, their relationships, and the flow of user interactions. Understanding the common structure of widget trees is essential for developers and designers to create cohesive and user-friendly interfaces. Let's delve into the key aspects that define this structural framework.





In summary, widget trees are the essential framework for organizing and presenting elements in a graphical user interface (GUI). It define the hierarchical structure of widgets, shaping relationships and user interactions. This foundational component is critical for developers and designers, ensuring cohesive and user-friendly interfaces in applications. Understanding this structural framework is key to successful design and implementation.

FLUTTER WIDGET AND FEATURES

The provided Flutter code showcases the implementation of a comprehensive project management application, featuring a range of Flutter widgets and functionalities. Below is an elaboration of the prominent Flutter widgets used and key features incorporated throughout the application.

FLUTTER WIDGET

1. **AppBar**
   A Material Design app bar used for consistent top-level navigation.
2. **Text**
   Used for displaying textual content with various styles and formatting.
3. **Image**
   Incorporation of images for logos and background, enhancing visual appeal.
4. **Container**
   A versatile box model for containing other widgets, allowing customization of dimensions, padding, and decoration.
5. **SingleChildScrollView**
   Enables scrolling when content exceeds the available screen space, ensuring a seamless user experience.
6. **Card**
   Material Design card for presenting information in an organized and visually appealing manner.
7. **Column & Row**
   Flex widgets for vertical and horizontal arrangement of child widgets.
8. **ListView & ListTile**
   Used for displaying a scrollable list of items efficiently, with ListTile for list items.
9. **Hero**
   Facilitates smooth transitions between different screens by animating shared elements.
10. **TextField**
    A text input field for user interaction, with various customization options.
11. **ElevatedButton, IconButton, TextButton**
    Different types of buttons for triggering actions, each with distinct visual styles.

12. **BottomAppBar**

    A container for placing app-specific actions at the bottom.

13. **GestureDetector**

    Captures gestures for interactivity, enhancing the user experience.

14. **AlertDialog**

    A dialog that interrupts the user with urgent information, choices, or requests.

15. **SnackBar**

    Brief messages displayed at the bottom of the screen, providing feedback to users.

FEATURES OF APPLICATION

1. **User Authentication (Login)**

   Secure user login functionality for personalized experiences.

2. **Password Visibility Toggle**

   Allows users to toggle the visibility of entered passwords for convenience.

3. **Navigation Between Screens**

   Seamless transition between different screens for a cohesive user journey.

4. **Guidelines and Tips Display**

   Informative content offering guidelines and additional tips for users.

5. **Contact Information Display**

   Provides contact information for users seeking assistance.

6. **Notes Handling with Date and Time**

   Management and display of user notes, each with associated date and time.

7. **Project Creation and Validation**

   Form input validation for creating new projects, ensuring data integrity.

8. **Date and Time Picking**

   Integration of date and time pickers for selecting project deadlines.

9. **Project Display with Status**

   Visualization of projects, each indicating its completion status.

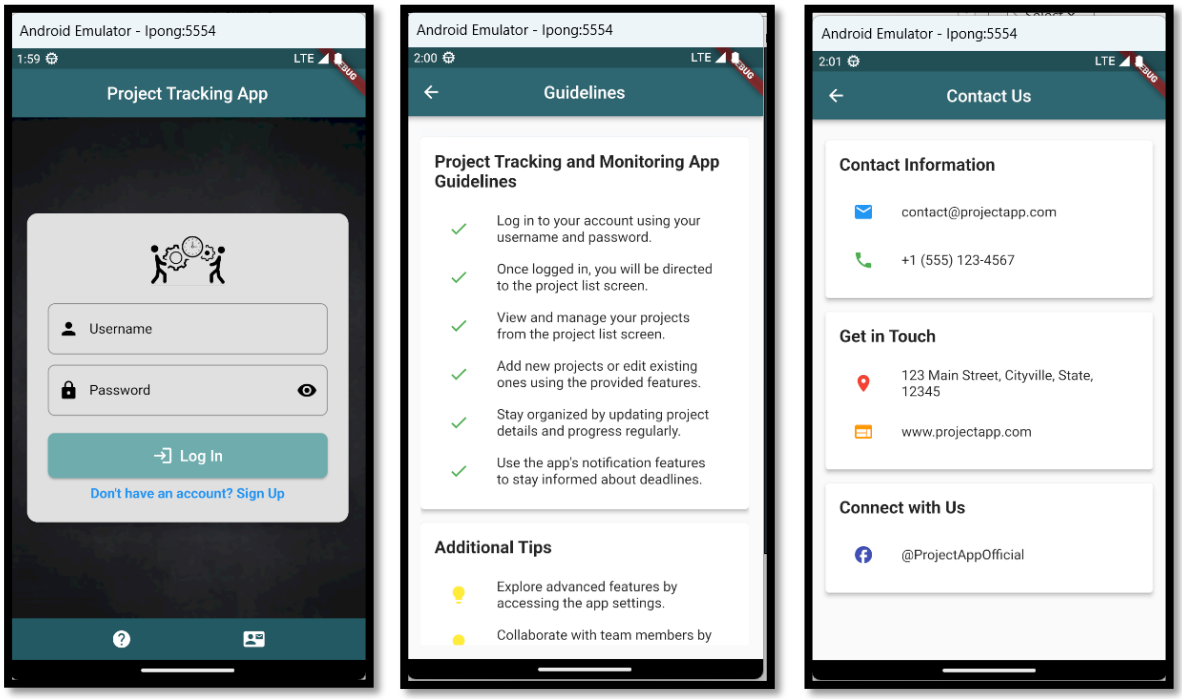
10. **Confirmation Dialogs**

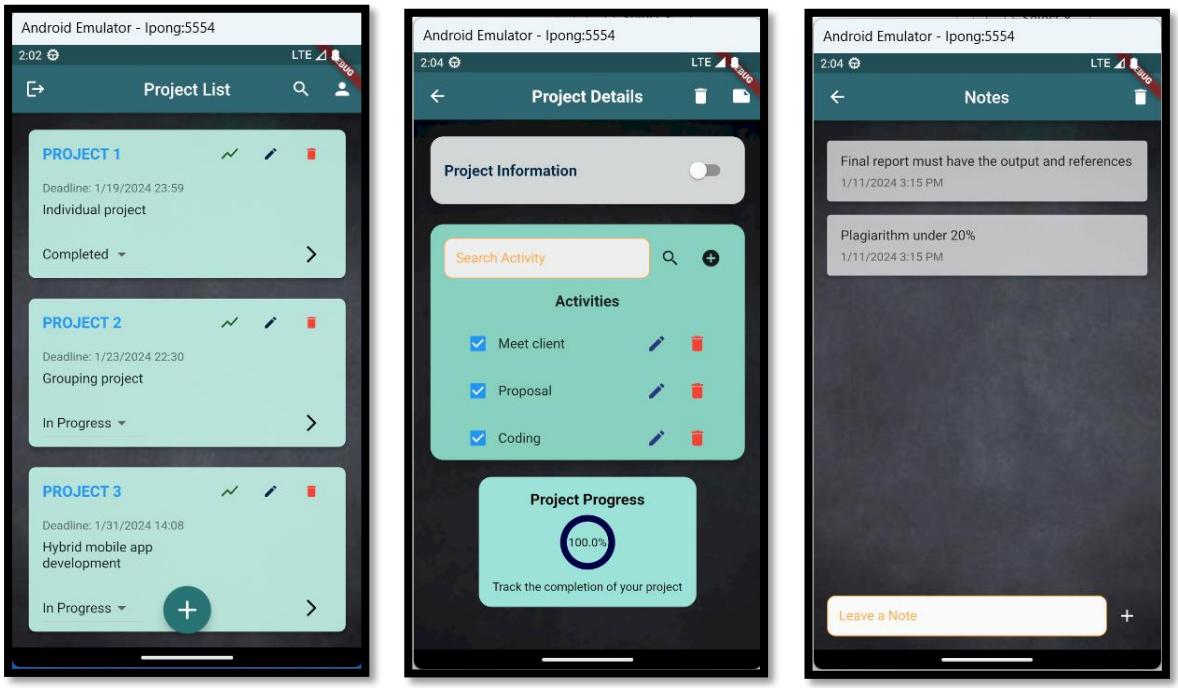
    Dialogs confirming user actions, such as note or project deletion.

In summary, the application demonstrates a rich user interface, leveraging a variety of Flutter widgets and features to create an engaging and functional project management experience.

SAMPLE OF INTERFACE

The Flutter-based interface seamlessly integrates diverse widgets, ensuring secure authentication, intuitive navigation, and effective project management. With cohesive visuals, real-time feedback, and user-friendly elements, it provides a positive and streamlined user experience.





Login Screen

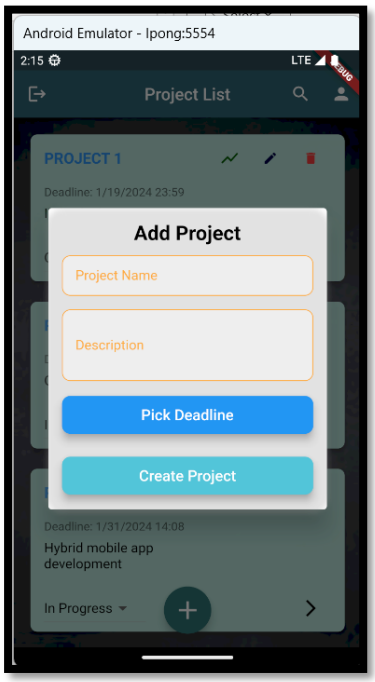
The Login Screen is crafted using a StatefulWidget to manage dynamic elements. It incorporates a form for username and password input, facilitated by TextEditingController. Upon form submission, a validation function ensures credentials are accurate before navigating to the subsequent screen.

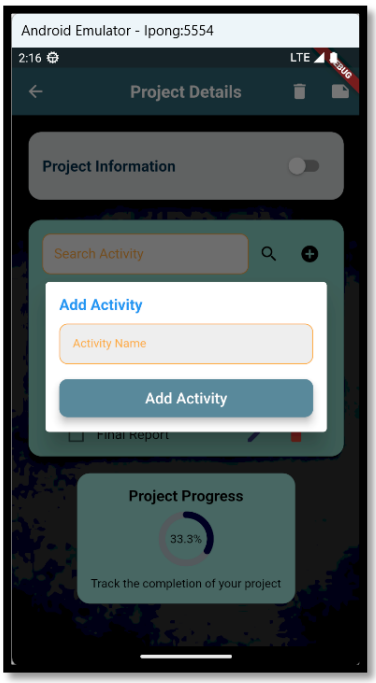
Project List Screen

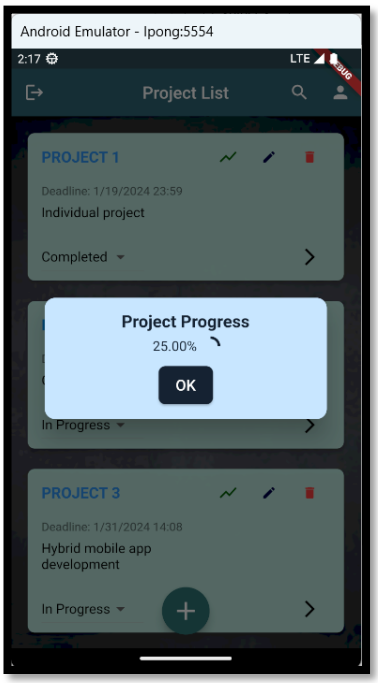
Implemented with a ListView, the Project List Screen showcases a scrollable list of projects. Each project entry, encapsulated as a custom widget, elegantly displays project details such as name and status. The Provider pattern efficiently manages project data, updating the list dynamically.

Project Details Screen

Leveraging either a SingleChildScrollView or a Column widget, the Project Details Screen provides a comprehensive view of a specific project's information. Employing various widgets, it seamlessly integrates text, images, and progress indicators. Intuitive buttons and icons empower users to perform actions like project editing or note addition.







Project List Screen

The Project List Screen serves the purpose of presenting a comprehensive list of all projects for user access. Featuring a list view with project names and statuses, it facilitates a quick overview. The inclusion of buttons or icons allows users to perform actions like adding new projects or exploring detailed project information.

Project Details Screen

Dedicated to offering in-depth insights, the Project Details Screen provides comprehensive project information. This includes essential elements such as project name, type, and a progress indicator for visualizing completion status. Users can also add activities, and potentially manage notes or comments associated with the project.

Add Project Screen

The Add Project Screen is designed to empower users in creating new projects effortlessly. Key elements include fields for entering project name and selecting a deadline, with a button initiating the project creation process.

In summary, the Flutter-based interface seamlessly combines secure authentication, intuitive navigation, and effective project management. The dynamic Login Screen ensures a secure entry point, while the Project List Screen, powered by a ListView and Provider pattern, allows easy project management. The detailed Project Details Screen, leveraging widgets like SingleChildScrollView or Column, enables comprehensive project oversight. The interface maintains a positive and streamlined environment, fostering user engagement with cohesive visuals and real-time feedback.

CONCLUSION

In conclusion, the development of the Project Monitoring & Tracking App aligns seamlessly with ABC Technologies' broader strategic vision. The app addresses the growing demand for agile and accessible project management solutions in the corporate landscape. Its integration into existing business structures promises to elevate efficiency, communication, and decision-making, thereby contributing to the overarching goal of enhancing organizational agility and competitiveness.

One of the distinguishing features of the Project Monitoring & Tracking App lies in its user-centric design, leveraging the Flutter framework. Flutter's versatility not only ensures a uniform visual appeal across platforms but also facilitates a responsive and engaging user experience. The app's intuitive interface, coupled with the common structure of the tree widget, empowers users to effortlessly navigate project hierarchies, update activities, and monitor progress. This user-friendly design is poised to set a new standard for project management applications, making it an indispensable tool for professionals seeking both functionality and ease of use.

The incorporation of features such as real-time progress tracking and dynamic activity updates underscores the app's commitment to providing users with actionable insights. The use of tree widgets in the common structure further enhances data organization, ensuring clarity and accessibility. Looking ahead, ABC Technologies envisions not just an application but a dynamic tool that evolves with the ever-changing business landscape. As Flutter continues to evolve, the Project Monitoring & Tracking App is positioned to embrace new features and functionalities, ensuring it remains at the forefront of cutting-edge mobile application development, consistently delivering value to users and reinforcing ABC Technologies' position as an innovator in the IT sector.

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