UNIVERSITY MALAYSIA TERENGGANU

FACULTY OF OCEAN ENGINEERING TECHNOLOGY & INFORMATICS

[CSF3114] FRAMEWORK-BASED MOBILE APPLICATION DEVELOPMENT

PROJECT 2: HOTEL MANAGEMENT APP

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GitHub Link: https://github.com/anjeelinajahan/S61889-CSM3114-Project2

1.0 TABLE OF CONTENTS

## Contents

2.0 EXECUTIVE SUMMARY

The Hotel Management App, developed using the Flutter framework, offers a comprehensive solution for hotel-related activities. The app's primary functionalities include user authentication, room booking, and viewing bookings, with seamless communication with a Firebase Realtime Database for efficient data storage and retrieval.

The authentication system allows users to log in using their credentials or create a new account as a new customer. This ensures a secure and personalized experience for each user. The app's user interface is designed to be intuitive and user-friendly, providing a smooth navigation experience. The dashboard, a central hub within the app, provides users with a welcoming overview of the hotel's services. It showcases an image of the hotel and offers concise information about available room reservations. This feature serves as a quick reference point for users, offering a glimpse into the hotel's offerings and services.

A key feature of the app is the ability to book a room effortlessly. Users can specify the date of their stay, select the desired room type, and indicate the number of occupants. The booking information is securely stored in the Firebase Realtime Database, ensuring accuracy and accessibility for both users and hotel administrators. Users can conveniently view their confirmed bookings through the "View Booking" feature. This section provides a detailed overview of booked rooms, including information such as room type, date, and the number of occupants. Additionally, users have the flexibility to delete a booking if needed, enhancing the app's user-driven functionality. Upon successfully booking a room, users receive a booking confirmation message. This message outlines essential details such as the selected room type, date of stay, and the number of occupants. Users are encouraged to view their booking for additional information, fostering transparency and user engagement.

In conclusion, the Hotel Management App stands as a user-centric solution, providing a seamless experience for managing hotel reservations. Its intuitive design, coupled with secure authentication and efficient data handling through Firebase, caters to both guests and hotel administrators, establishing a convenient and efficient platform for hotel-related activities.
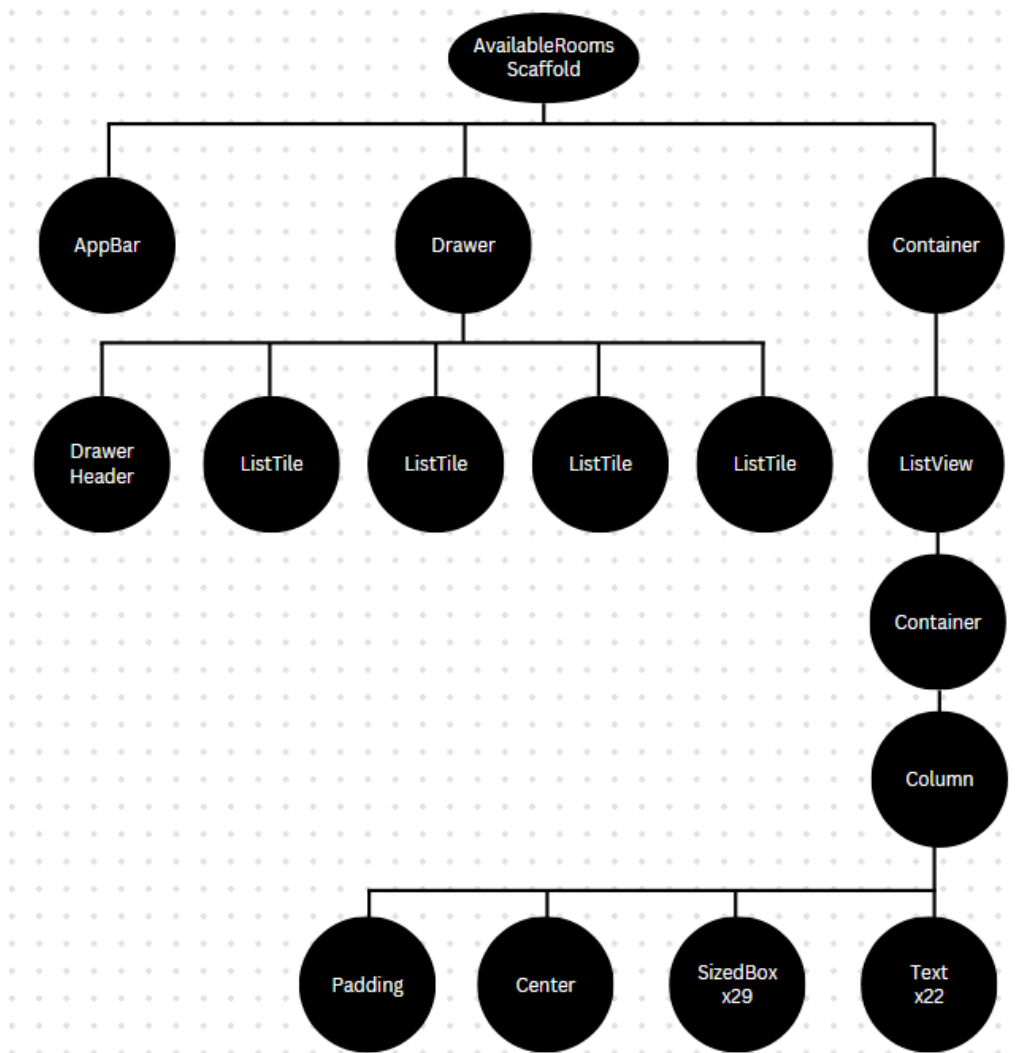
3.0 USE CASE
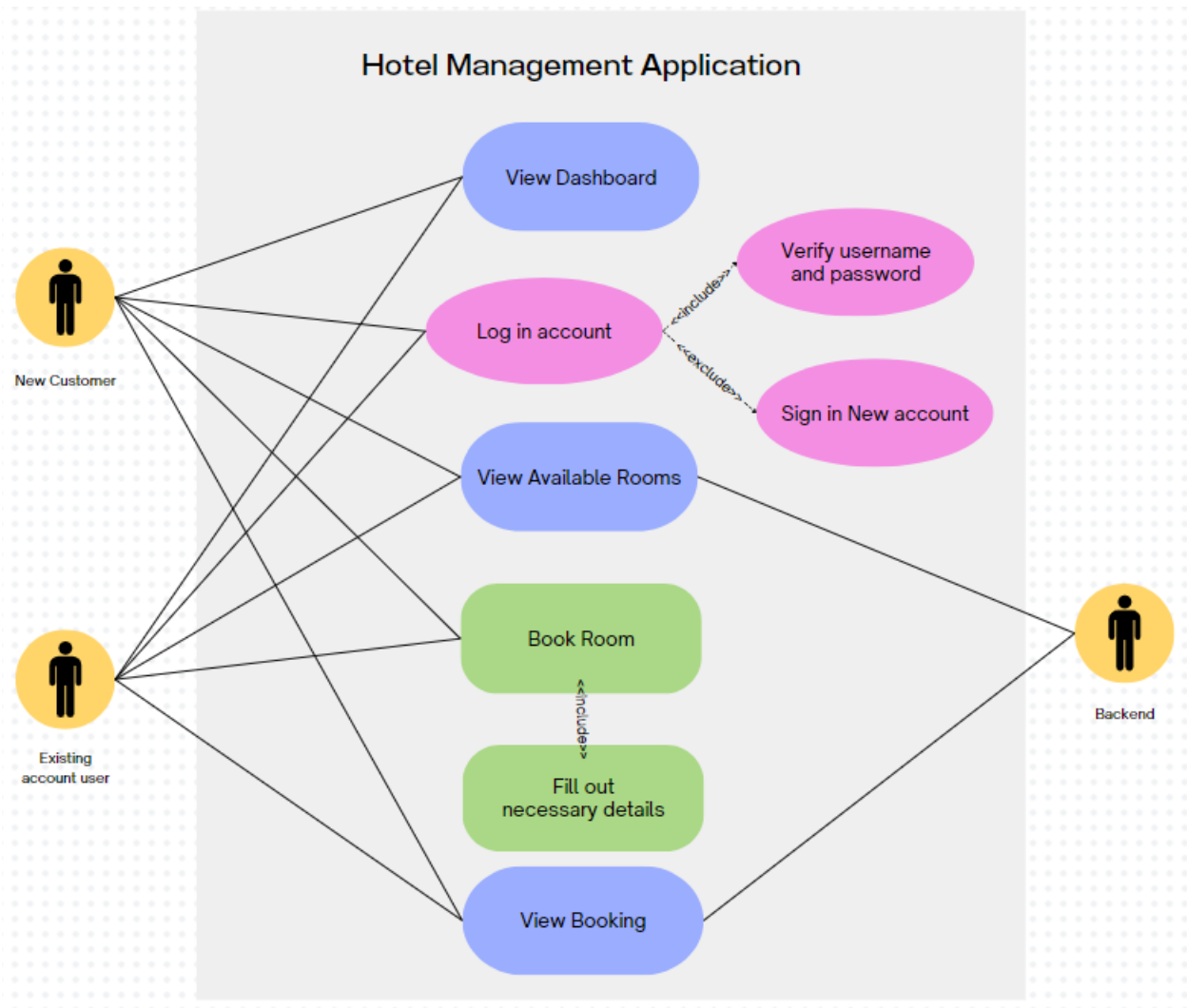
The Hotel Management App features three main actors: "New Customer," "Existing Customer," and "Backend." The "New Customer" actor can log in, view the dashboard, book a room, and view their bookings. During login, the system verifies the provided username and password. "Existing Customer" actors share similar functionalities, excluding the option to sign in as a new customer. The "Backend" actor handles the backend processes, particularly the viewing of bookings. Users can seamlessly navigate through the app, either as new or existing customers, with the backend ensuring smooth management of bookings and providing necessary data for viewing.

4.0 TREE WIDGET SAMPLES

4.1 AvailableRoom Wigdet Tree

4.2 BookARoom Widget Tree
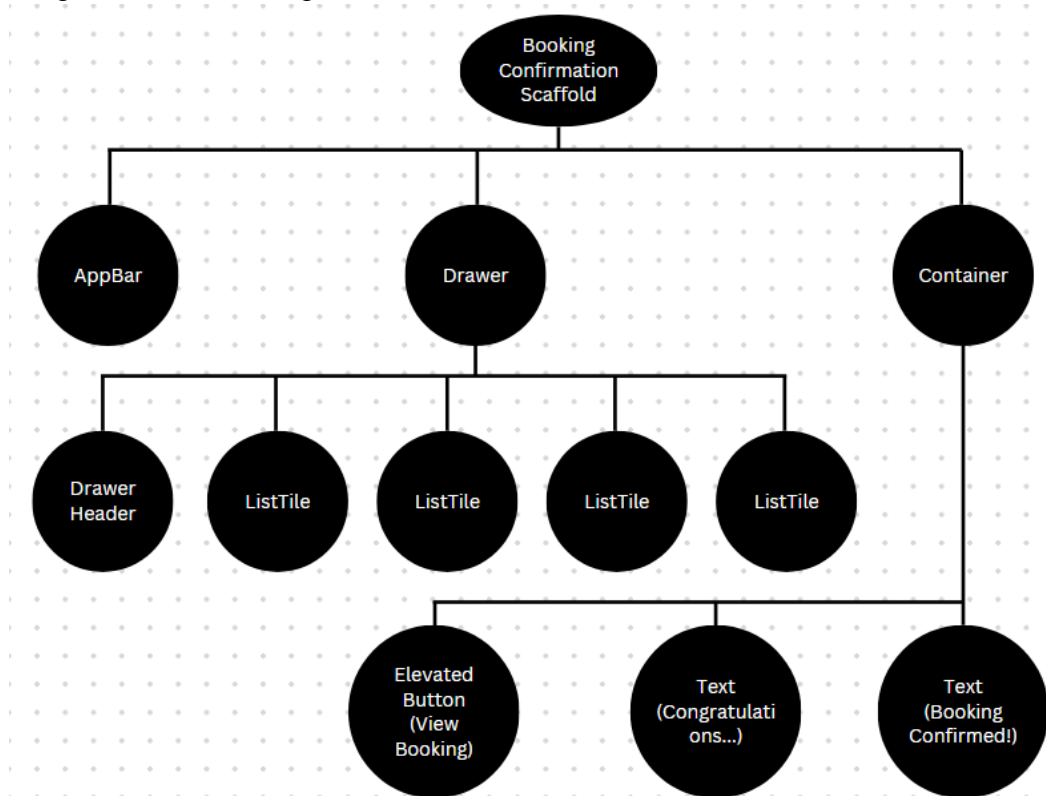
```
                          BookARoom
                           Scaffold
          ┌───────────────────┼───────────────────┐
        AppBar              Drawer             Container
              ┌──────┬────────┼────────┬────────┐        │
           Drawer  ListTile ListTile ListTile ListTile   │
           Header                                         │
              ┌────────────┬──────────────┬───────────────┤
          Elevated      DropDown       DropDown       DropDown
           Button        Button         Button         Button
          (BookRoom)    (No of Pax)   (Room Type)    (NoOfNights)
```
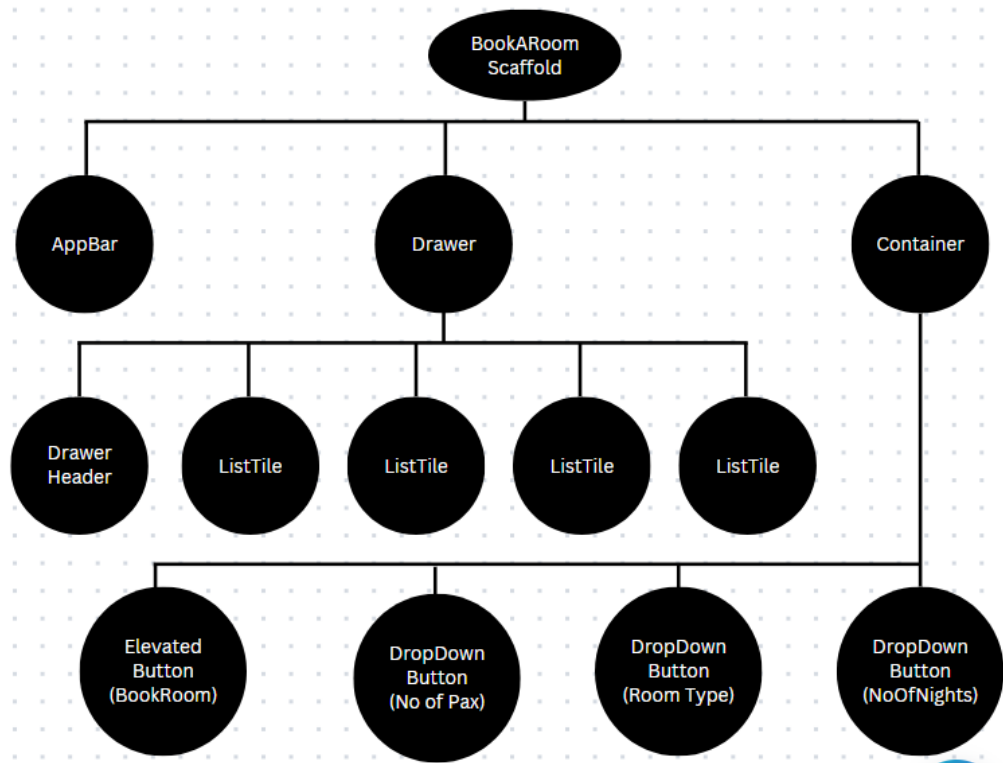
4.3 BookingConfirmation widget Tree

```
                          Booking
                        Confirmation
                          Scaffold
          ┌───────────────────┼───────────────────┐
        AppBar              Drawer             Container
              ┌──────┬────────┼────────┬────────┐        │
           Drawer  ListTile ListTile ListTile ListTile   │
           Header                                         │
                         ┌──────────────┬─────────────────┤
                      Elevated         Text             Text
                       Button      (Congratulati      (Booking
                       (View          ons...)        Confirmed!)
                      Booking)
```

5.0 WIDGETS AND FEATURES ADOPTED IN APPLICATION

The Hotel Management Application has been thoroughly designed, with a variety of Flutter widgets and features to provide users with a seamless and visually appealing experience. The combination of intuitive widgets and thoughtfully designed features contributes to the overall functionality and aesthetics of the application.

5.1 Widgets

5.1.1 TextFormField
Used for input fields, the TextFormField widget ensures a smooth and efficient way for users to enter information such as email, username, password, and confirmation password during the sign-in process.

5.1.2 ElevatedButton
 The ElevatedButton widget is employed for the action buttons, such as creating an account and booking a room. Its customizable styling enhances the visual appeal while maintaining consistency with the overall theme.

5.1.3 Drawer
The Drawer widget provides a convenient and accessible navigation bar. It allows users to switch between different pages of the application, including the dashboard, available rooms, booking a room, and viewing bookings.

5.1.4 ListTile
Within the Drawer, the ListTile widget is used for the creation of informative navigation items. Icons are incorporated to enhance visual recognition, making navigation more user-friendly.

5.1.5 Image

The Image widget is employed to display visuals, such as the background images and room photos. This improves the overall aesthetics of the application, providing users with a visually stimulating experience.

5.1.6 DropdownButton

For selecting options such as the room type, number of nights, and number of guests, the DropdownButton widget is used. This enables users to make choices from the lists in a user-friendly manner.

5.2 Features

5.2.1 User Authentication

The application incorporates user authentication features, allowing new customers to create an account securely. The use of TextFormField widgets for email, username, and password input ensures a smooth registration process.

5.2.2 Booking Functionality

The user-friendly BookARoom page makes it simple for users to make a hotel reservation. A simplified booking process is ensured by the DropdownButton widgets for choosing dates, types of rooms, and the number of guests, in addition to the booking confirmation.

5.2.3 View Booking

With the ViewBooking feature, users can review their booking. The ListView.builder widget fills the user interface with booked rooms, providing a clear overview. Users can also delete bookings with the built-in delete functionality.

6.0 INTERFACE SAMPLES

6.1 Dashboard and Available Rooms
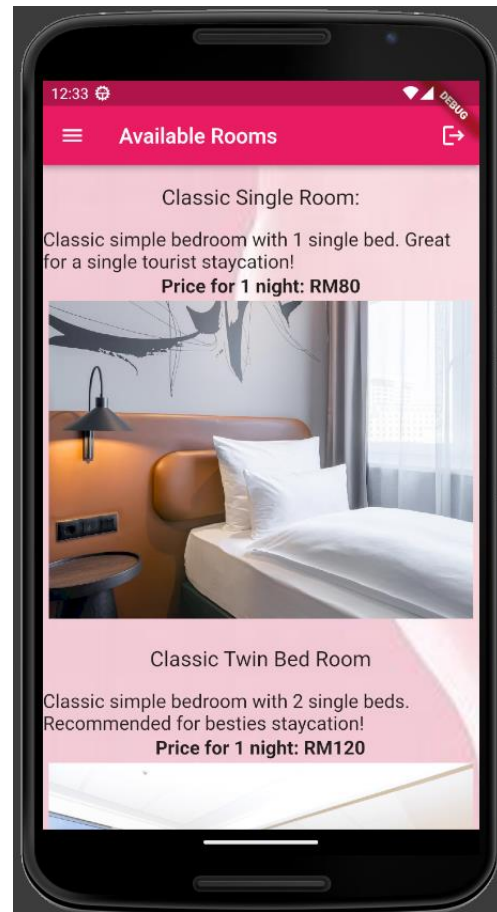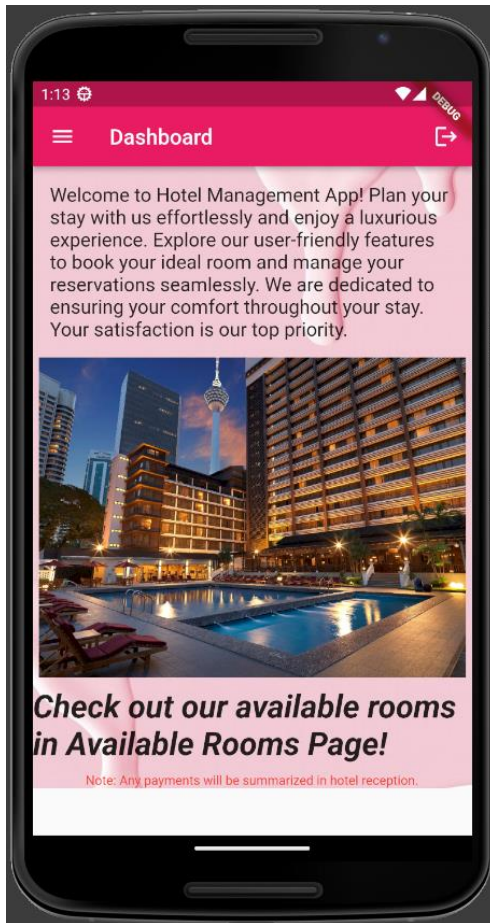
Our Dashboard explains what the application is all about. It also includes some notes for customers. Available Rooms is a page that shows what room that we offer customers to stay in. In this page, there are rooms pictures and descriptions shown. Prices also included to ease customer's curiosities about pricelist. On the AppBar, has a Logout Button which will log the user out and will need to login again to continue.

6.2 View Booking
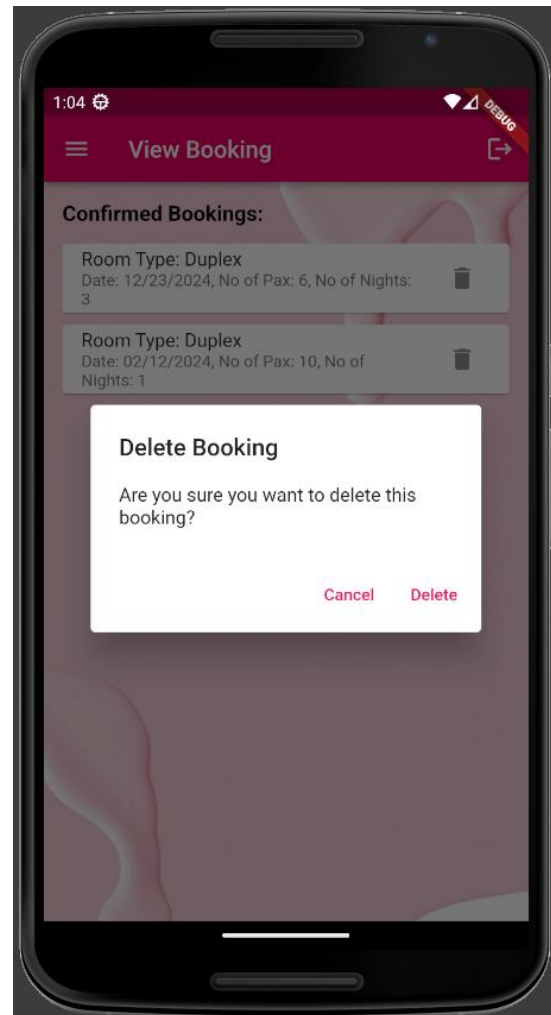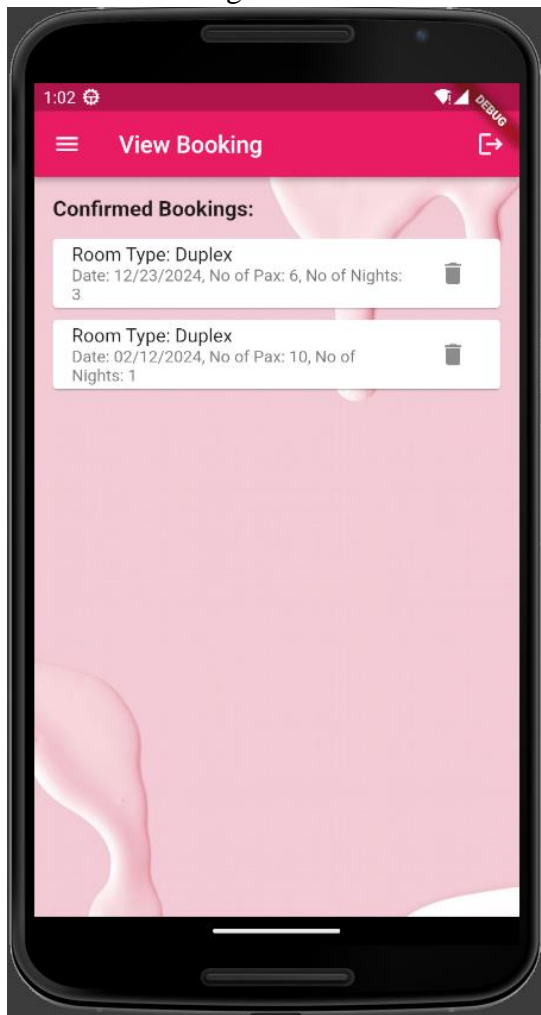
This is View Booking page. In this page, it shows what the customer have booked. This includes showing details of what room, number of pax and nights and also the date of the booking. Other than that, this page also has a function where customer can delete their booking if they change their mind.

6.3 Book A Room and Navigation Bar (Drawer)
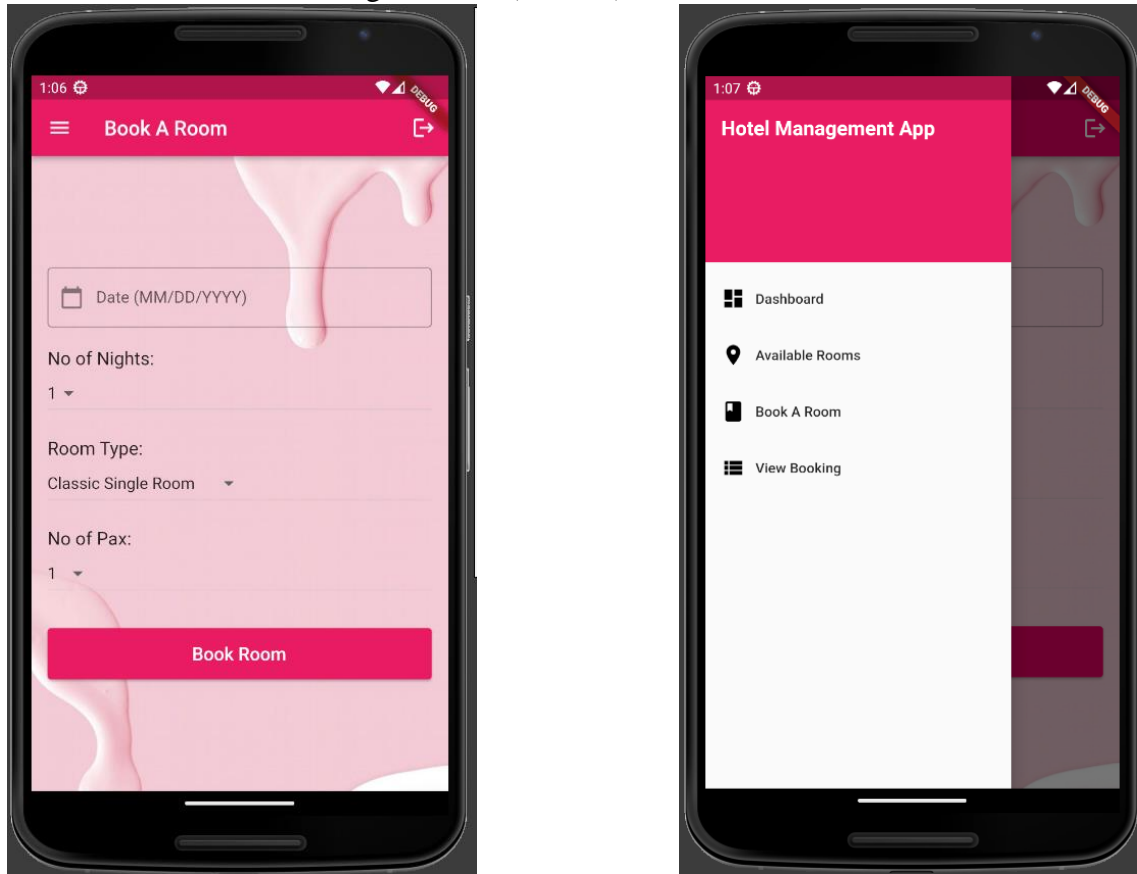
This is Book A Room page. It have functions like input date, choose no of nights to stay, choose room type and no of pax. These functions uses DropDownList widget. When user already input details needed and click book room, data will be stored in database. On the right side, is our Drawer (Navigation Bar). It will direct users to their selected pages and it also has different icons to enhance the user interface.

7.0 CONCLUSION

The Hotel Management Application represents a significant element in capturing and optimizing hotel operations. This application was designed to provide a comprehensive solution for managing room bookings, enhancing user experience, and providing efficient hotel management. Throughout the development process, developer focused on adding essential features such as room availability display, booking functionality, and a user-friendly dashboard.

One of the key features is the seamless booking process, which allows users to select their preferred room type, choose the number of guests, and confirm their reservation. The integration of a booking confirmation page and a view booking feature further adds to the application's effectiveness.

Moreover, the inclusion of drawer and well-designed navigation ensures easy access to various pages of the application. The system's adaptability which is the connection to Firebase for real-time data storage, promoting data consistency and accessibility. The Hotel Management Application aligns with digital industry needs by promoting contactless interactions, providing real-time updates, and ensuring a smooth user journey. Looking ahead, the application has the foundation for future enhancements, including more advanced features and scalability.

In conclusion, the Hotel Management Application is a great resource for hotels looking for an innovative and effective management solution because it not only satisfies today's requirements in the hospitality industry but also expects future developments.

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