<u>Project Name :</u> University Hall Dining Management System App

Project Details :

1. Set up Android Studio and Firebase

- Install Android Studio.
- Create a new project in Android Studio.
- Set up Firebase for authentication and database .

2. User Authentication

- Add user authentication (email/password login).
- Separate user roles (student and manager).

<u>Code for Firebase Authentication:</u>

FirebaseAuth mAuth = FirebaseAuth.getInstance();

// Registration

mAuth.createUserWithEmailAndPassword(email, password)

  .addOnCompleteListener(this, task -> {

    if (task.isSuccessful()) {

      FirebaseUser user = mAuth.getCurrentUser();

      // Save user role (student/manager) in Firestore or Realtime Database

    } else {

      // Handle failure

    }

  });

// Login

mAuth.signInWithEmailAndPassword(email, password)

```
    .addOnCompleteListener(this, task -> {
        if (task.isSuccessful()) {
            FirebaseUser user = mAuth.getCurrentUser();
            // Redirect to appropriate screen (student/manager)
        } else {
            // Handle failure
        }
    });
```

3. Menu Display

- Create a menu display screen.
- Use Firebase Firestore/Realtime Database to store and fetch the daily menu.

Code for Menu Fetching:

```
FirebaseFirestore db = FirebaseFirestore.getInstance();

db.collection("Menu")
    .get()
    .addOnCompleteListener(task -> {
        if (task.isSuccessful()) {
            for (QueryDocumentSnapshot document : task.getResult()) {
                String dishName = document.getString("dishName");
                String price = document.getString("price")
            }
        } else {
            // Handle error
        }
```

});

4. Meal Booking System

- Allow students to book meals by selecting options from the menu.
- Store booking information in Firebase.

Code for Booking:

```
Map<String, Object> booking = new HashMap<>();

booking.put("studentId", studentId);

booking.put("meal", selectedMeal);

booking.put("date", selectedDate);


db.collection("Bookings").add(booking)

    .addOnSuccessListener(documentReference -> {

        // Booking successful

    })

    .addOnFailureListener(e -> {

        // Handle failure

    });
```

5. Feedback System

- Create a form where students can submit feedback.
- Save feedback in Firestore.

6. Notifications using Firebase Cloud Messaging (FCM)

- Configure Firebase Cloud Messaging to send notifications about new menus or updates.

7. UI/UX Design

- Use XML to design user-friendly layouts.
- Material design components (buttons, cards, RecyclerView for the menu, etc.).

Project Structure:

- **MainActivity.java** – Handles user login.
- **StudentDashboard.java** – Displays menu, booking system for students.
- **ManagerDashboard.java** – Allows dining hall managers to manage menus and view bookings.
- **FeedbackActivity.java** – Form for student feedback.