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Experiment - 6

Aim: To connect Flutter UI with Firebase Database.

Theory:

Configuring Firebase involves several steps including setting up a Firebase project, enabling required services, and integrating Firebase SDKs into your Flutter project. Here are the detailed steps:

Step 1: Create a Firebase Project

1. Go to the [Firebase Console](https://console.firebase.google.com/).
2. Click on "Add project" and enter your project name.
3. Follow the on-screen instructions to create your project.

Step 2: Set up Firebase Authentication

1. In the Firebase Console, select your project.
2. Navigate to "Authentication" from the left sidebar.
3. Enable the sign-in method you want to use (e.g., Email/Password).
4. Configure other settings as per your requirements.

Step 3: Set up Firebase Firestore

1. In the Firebase Console, select your project.
2. Navigate to "Firestore Database" from the left sidebar.
3. Click on "Create database" and choose your location preference.
4. Set up security rules for Firestore according to your app requirements.

Step 4: Integrate Firebase into Flutter Project

1. Add Firebase to your Flutter project by following the instructions provided by Firebase:
   - For Android:
     - Download `google-services.json` from Firebase Console.
     - Place the `google-services.json` file into the `android/app` directory of your Flutter project.
   - For iOS:
     - Download `GoogleService-Info.plist` from Firebase Console.
     - Place the `GoogleService-Info.plist` file into the `ios/Runner` directory of your Flutter project.

2. Add Firebase SDK dependencies to your `pubspec.yaml` file:
yaml

```
dependencies:
   firebase_core: "^1.11.0"
   firebase_auth: "^4.4.0"
   cloud_firestore: "^3.1.5"
```

3. Run `flutter pub get` to install the Firebase SDK dependencies.

Step 5: Initialize Firebase in Flutter

1. Initialize Firebase in your Flutter app by adding the following code in your `main.dart` or wherever your app initializes:
dart

```
import 'package:firebase_core/firebase_core.dart';

  void main() async {
    WidgetsFlutterBinding.ensureInitialized();
    await Firebase.initializeApp();
    runApp(MyApp());
  }
```

Step 6: Test Firebase Integration

1. Test Firebase Authentication:
- Implement authentication features (e.g., sign-in, sign-up) using Firebase Authentication SDK.
- Test these features in your app to ensure they work correctly.

2. Test Firestore Integration:
- Implement Firestore database operations (e.g., read, write) using Firestore SDK.
- Test these operations in your app to ensure they interact correctly with Firestore.

Steps for connecting to Firebase:

- Step 1: Install the required command line tools.
- Step 2: Configure your apps to use Firebase.
- Step 3: Initialize Firebase in your app.
- Step 4: Add Firebase plugins.

Code:

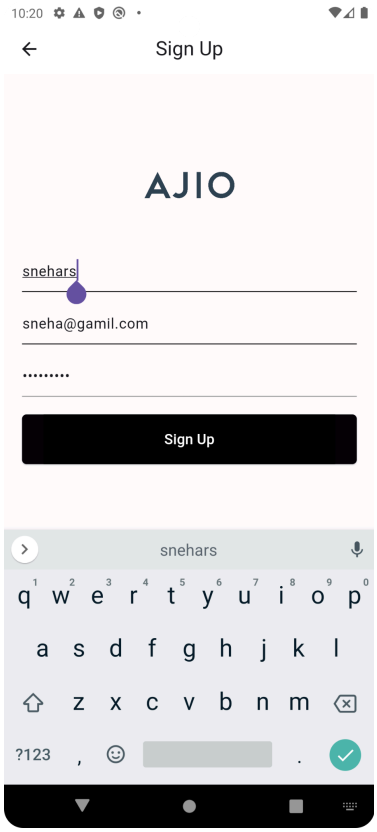
LoginPage.dart

```
import 'package:flutter/material.dart';
import 'package:firebase_auth/firebase_auth.dart'; // Import Firebase Auth
import 'SignupPage.dart'; // Import the SignupPage.dart file
import 'account_page.dart';

class LoginPage extends StatelessWidget {
 final FirebaseAuth _auth = FirebaseAuth.instance;

 // Function to handle login
 Future<void> _loginWithEmailAndPassword(BuildContext context, String email, String password)
async {
  try {
   await _auth.signInWithEmailAndPassword(email: email, password: password);
   // If login is successful, navigate to AccountPage
   Navigator.pushReplacement(
    context,
    MaterialPageRoute(builder: (context) => AccountPage()),
   );
  } catch (e) {
   print('Login Error: $e');
   // Handle login error, show message to the user
  }
 }


 @override
 Widget build(BuildContext context) {
  String email = '';
  String password = '';

  return Scaffold(
   appBar: AppBar(
    title: Text(
     'Log In',
     style: TextStyle(color: Colors.black), // Set the title color to black
    ),
    backgroundColor: Colors.white,
    centerTitle: true,
   ),
   body: Center(
    child: SingleChildScrollView(
     child: Column(
```

```
mainAxisAlignment: MainAxisAlignment.center,
children: [
  // Ajio logo (replace with your image path)
  Image.asset('assets/ajio_logo.png', height: 100.0, width: 100.0),
  SizedBox(height: 20.0),

  // Email field
  Padding(
    padding: const EdgeInsets.symmetric(horizontal: 20.0),
    child: TextField(
      onChanged: (value) {
        email = value; // Update email variable on change
      },
      decoration: InputDecoration(
        hintText: 'Enter your Email or Username',
        enabledBorder: UnderlineInputBorder(
          borderSide: BorderSide(color: Colors.black),
        ),
        focusedBorder: UnderlineInputBorder(
          borderSide: BorderSide(color: Colors.black),
        ),
      ),
    ),
  ),
  SizedBox(height: 10.0),

  // Password field
  Padding(
    padding: const EdgeInsets.symmetric(horizontal: 20.0),
    child: TextField(
      onChanged: (value) {
        password = value; // Update password variable on change
      },
      obscureText: true,
      decoration: InputDecoration(
        hintText: 'Enter your Password',
        enabledBorder: UnderlineInputBorder(
          borderSide: BorderSide(color: Colors.grey),
        ),
        focusedBorder: UnderlineInputBorder(
          borderSide: BorderSide(color: Colors.grey),
        ),
      ),
    ),
```

```
),
SizedBox(height: 10.0),

// Login button with increased padding
Padding(
  padding: const EdgeInsets.symmetric(horizontal: 20.0),
  child: ElevatedButton(
    onPressed: () {
      // Handle login attempt
      _loginWithEmailAndPassword(context, email, password);
    },
    style: ButtonStyle(
      backgroundColor: MaterialStateProperty.all<Color>(
        Colors.black,
      ),
      shape: MaterialStateProperty.all<RoundedRectangleBorder>(
        RoundedRectangleBorder(
          borderRadius: BorderRadius.circular(5.0),
        ),
      ),
    ),
    child: Container(
      width: double.infinity,
      padding: EdgeInsets.symmetric(vertical: 16.0), // Increased padding
      child: Center(
        child: Text(
          'Log In',
          style: TextStyle(
            color: Colors.white,
            fontSize: 16.0,
          ),
        ),
      ),
    ),
  ),
),
SizedBox(height: 20.0),

// New user link (Ajio-style button)
ElevatedButton(
  onPressed: () {
    // Navigate to the SignupPage when the button is clicked
    Navigator.push(
      context,
```

```
              MaterialPageRoute(
                builder: (context) => SignupPage(),
              ),
            );
          },
          style: ButtonStyle(
            backgroundColor: MaterialStateProperty.all<Color>(
              Colors.white,
            ),
            shape: MaterialStateProperty.all<RoundedRectangleBorder>(
              RoundedRectangleBorder(
                borderRadius: BorderRadius.circular(5.0),
                side: BorderSide(color: Colors.black),
              ),
            ),
          ),
          child: Text(
            'New to Ajio? Sign Up',
            style: TextStyle(
              color: Colors.black,
              fontSize: 14.0,
            ),
          ),
        ),
      ],
    ),
  ),
 ),
 );
 }
}
```




```
I/AssistStructure( 2048): Flattened final assist data: 508 bytes, containing 1 windows, 3 views
I/FirebaseAuth( 2048): Logging in as sneha@gmail.com with empty reCAPTCHA token
W/System  ( 2048): Ignoring header X-Firebase-Locale because its value was null.
```

ProductDetailScreen.dart

```
import 'package:flutter/material.dart';
import 'category.dart';
import 'account_page.dart';
import 'main.dart';
import 'explore.dart';
import 'package:firebase_auth/firebase_auth.dart';
import 'package:cloud_firestore/cloud_firestore.dart';
import 'LoginPage.dart';


User? getCurrentUser() {
  return FirebaseAuth.instance.currentUser;
}

class ProductDetailScreen extends StatelessWidget {
  final String productName;
```

```
final String productImage;
final double productPrice;
final double productRating;

ProductDetailScreen({
  required this.productName,
  required this.productImage,
  required this.productPrice,
  required this.productRating,
});

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('Product Details'),
    ),
    body: Column(
      crossAxisAlignment: CrossAxisAlignment.start,
      children: [
        Image.network(
          productImage,
          width: double.infinity,
          fit: BoxFit.cover,
        ),
        Padding(
          padding: EdgeInsets.all(16),
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            children: [
              Text(
                productName,
                style: TextStyle(
                  fontSize: 24,
                  fontWeight: FontWeight.bold,
                ),
              ),
              SizedBox(height: 8),
              Text(
                '\$$productPrice',
```

```
  style: TextStyle(
    fontSize: 18,
    color: Colors.grey[800],
  ),
),
SizedBox(height: 8),
Row(
  children: [
    Icon(
      Icons.star,
      color: Colors.amber,
      size: 20,
    ),
    SizedBox(width: 4),
    Text(
      '$productRating',
      style: TextStyle(
        fontSize: 18,
      ),
    ),
  ],
),
SizedBox(height: 16),
Row(
  children: [
    ElevatedButton(
      onPressed: () {
        handleBuyButton(context);
      },
      child: Text('Buy'),
    ),
    SizedBox(width: 16),
    ElevatedButton(
      onPressed: () {
        handleAddToCartButton(context);
      },
      child: Text('Add to Cart'),
    ),
  ],
),
```

```
        ],
      ),
    ),
  ],
),
bottomNavigationBar: BottomNavigationBar(
  items: [
    BottomNavigationBarItem(
      icon: Icon(Icons.store),
      label: 'Switch Stores',
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.home),
      label: 'Explore',
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.trending_up),
      label: 'TRENDin',
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.category),
      label: 'Categories',
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.account_circle),
      label: 'Account',
    ),
  ],
  selectedItemColor: Colors.black,
  unselectedItemColor: Colors.black,
  showUnselectedLabels: true,
  type: BottomNavigationBarType.fixed,
  onTap: (int index) {
    // Handle bottom navigation item clicks
    switch (index) {
      case 0:
      // Handle 'Switch Stores' action
        Navigator.push(
          context,
          MaterialPageRoute(builder: (context) => MyHomePage()),
```

```
          );
          break;
        case 1:
        // Handle 'Explore' action
          Navigator.push(
            context,
            MaterialPageRoute(builder: (context) => Explore()),
          );
          break;
        case 2:
        // Handle 'TRENDin' action
          break;
        case 3:
        // Navigate to the category section page
          Navigator.push(
            context,
            MaterialPageRoute(builder: (context) => CategorySection()),
          );
          break;
        case 4:
        // Handle 'Account' action
          Navigator.push(
            context,
            MaterialPageRoute(builder: (context) => AccountPage()),
          );
          break;
        default:
      }
    },
   ),
  );
}

void handleBuyButton(BuildContext context) {
  final user = getCurrentUser();
  if (user != null) {
    // User is logged in, store product details in Firestore
    storeProductDetails('buy');
  } else {
    // User is not logged in, navigate to login page
```

```
    Navigator.push(
      context,
      MaterialPageRoute(builder: (context) => LoginPage()),
    );
  }
}

void handleAddToCartButton(BuildContext context) {
  final user = getCurrentUser();
  if (user != null) {
    // User is logged in, store product details in Firestore
    storeProductDetails('cart');
  } else {
    // User is not logged in, navigate to login page
    Navigator.push(
      context,
      MaterialPageRoute(builder: (context) => LoginPage()),
    );
  }
}

void storeProductDetails(String collection) {
  final user = getCurrentUser();
  if (user != null) {
    // Add product details along with user email to Firestore
    FirebaseFirestore.instance.collection(collection).add({
      'productName': productName,
      'productImage': productImage,
      'productPrice': productPrice,
      'productRating': productRating,
      'userEmail': user.email,
    }).then((value) {
      // Successfully stored product details
      print('Product details stored successfully');
    }).catchError((error) {
      // Failed to store product details
      print('Failed to store product details: $error');
    });
  }
}
```

}

```
I/flutter ( 2048): Product details stored successfully
W/om.example.dem( 2048): Accessing hidden method Lsun/misc/Unsafe;->putObject(Ljava/lang/Obj
W/om.example.dem( 2048): Accessing hidden method Lsun/misc/Unsafe;->getInt(Ljava/lang/Object
```