MPL Experiment 6

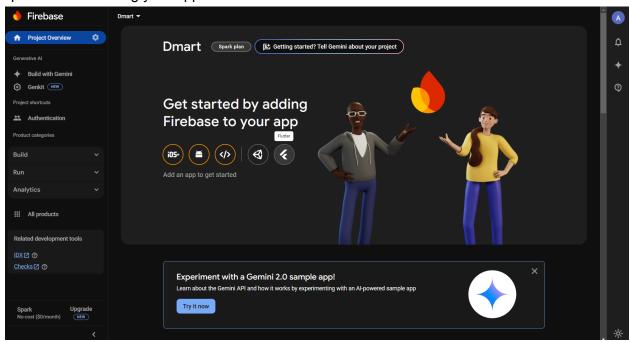
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Aim: How To Set Up Firebase with Flutter for iOS and Android Apps

Steps to Set Up Firebase with Flutter:

Step 1:

Go to the Firebase Console (https://console.firebase.google.com/). Click on "Add Project" and follow the steps to create your Firebase project. Once the project is created, select the Flutter option for connecting your app with Firebase.



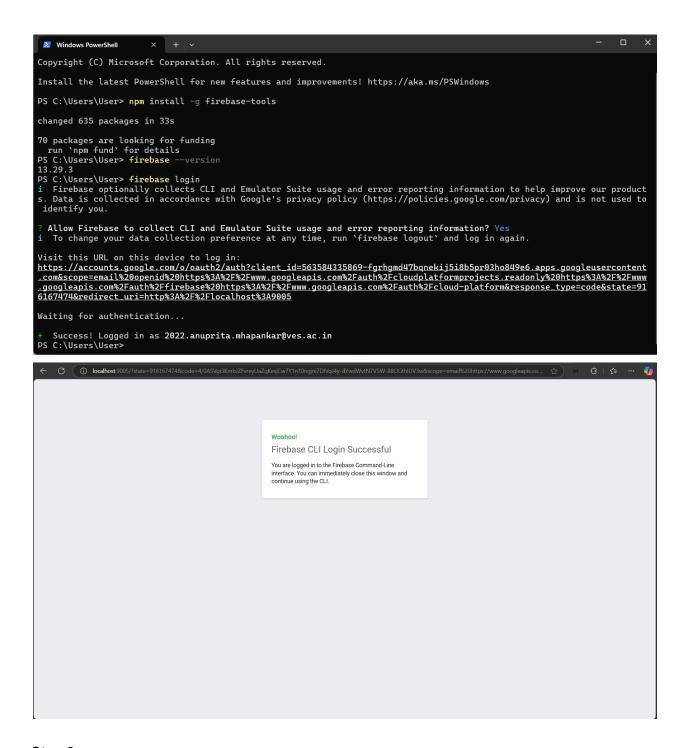
Step 2:

Open Windows PowerShell (or any terminal you prefer).

Run the following commands to install Firebase CLI and verify the installation:

npm install -g firebase-tools
firebase --version
firebase login

This will install the **Firebase CLI**, check the version, and log you into your Firebase account.



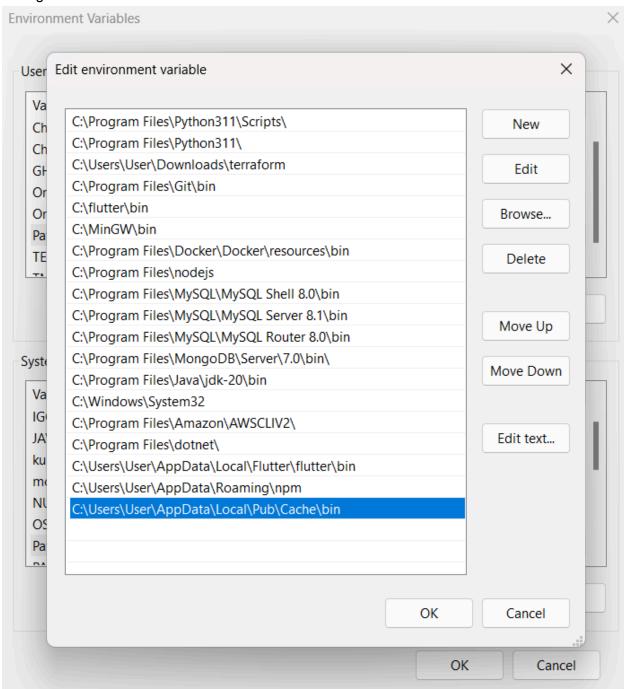
Step 3:

Open your Flutter app in **Android Studio**.

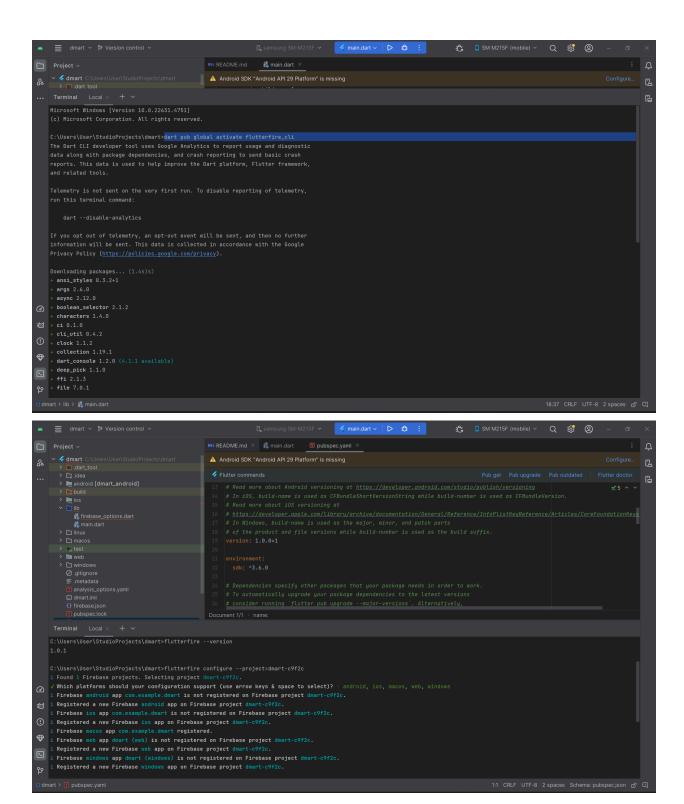
In the terminal of Android Studio, run the following command to activate flutterfire_cli: dart pub global activate flutterfire_cli

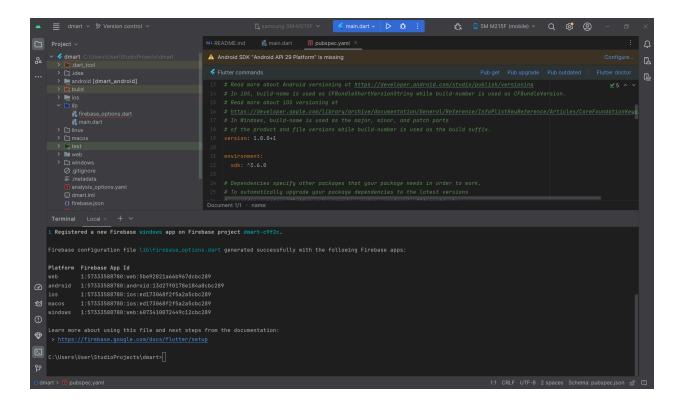
Add flutterfire to your Environment Variables. You may need to restart Android Studio after

adding it.



Step 4:Run the following command to configure Firebase with your project: flutterfire configure --project=dmart-c9f2c
Replace dmart-c9f2c with your Firebase project ID.

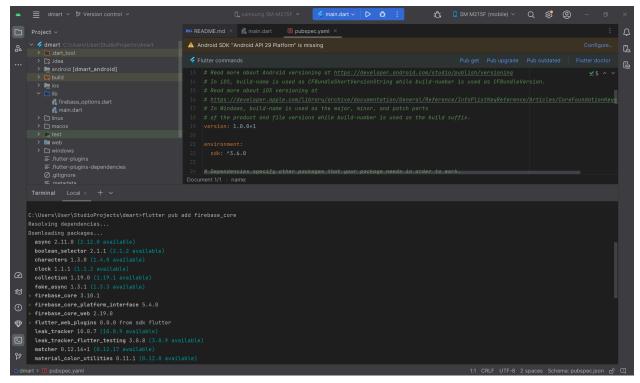




Step 5:

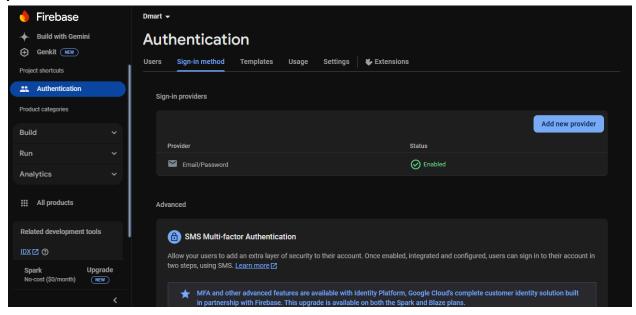
Run this command to add Firebase Core dependency to your app:

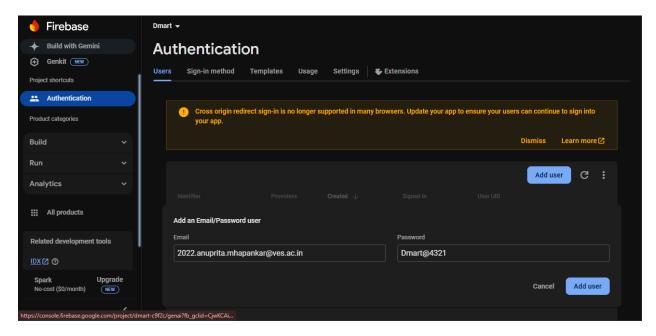
flutter pub add firebase_core

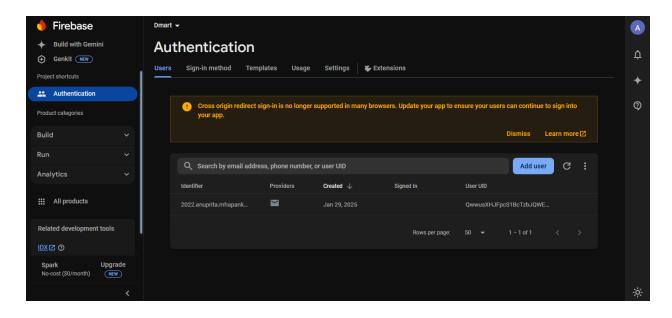


Firebase Authentication SetUp Step 1:

Go to the Firebase Console (https://console.firebase.google.com/). In your Firebase project, navigate to **Authentication**. Under the **Sign-in method** tab, enable **Email/Password** sign-in. Once enabled, go to the **Users** section and click on **Add User**. Enter a **username** (email) and a **password** for the new user.





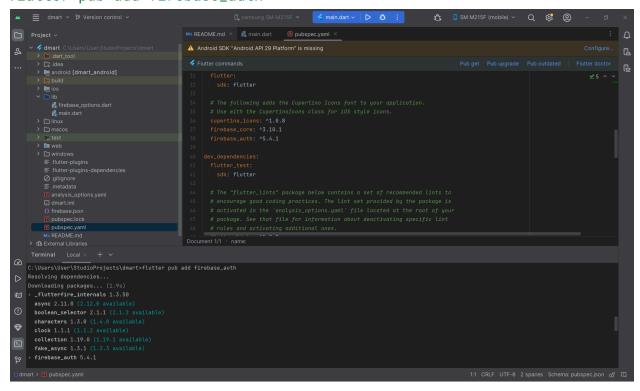


Step 2:

Open your app in Android Studio.

In the terminal, run the following command to add the Firebase Authentication dependency:

flutter pub add firebase_auth

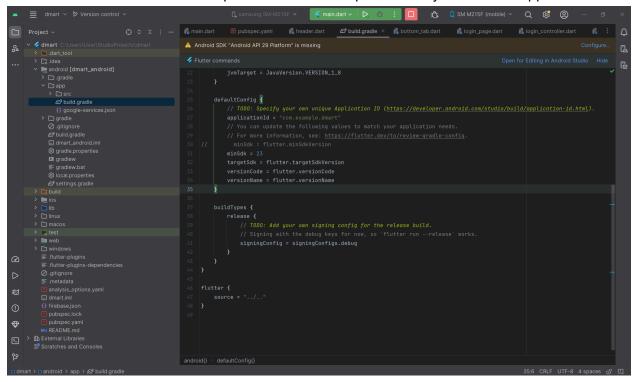


Step 3:

If you encounter any issues, add the following configuration to your android/app/build.gradle file:

```
android {
    defaultConfig {
        minSdk = 23
        targetSdk = flutter.targetSdkVersion
        versionCode = flutter.versionCode
        versionName = flutter.versionName
    }
}
```

This ensures that the Firebase dependencies are compatible with your Android app.

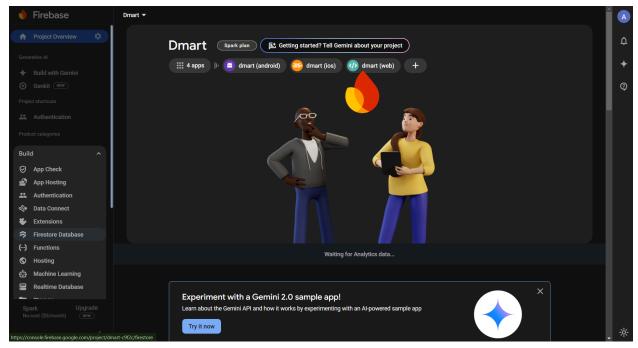


Now, firebase is successfully connected to our app.

Firestore Database Setup

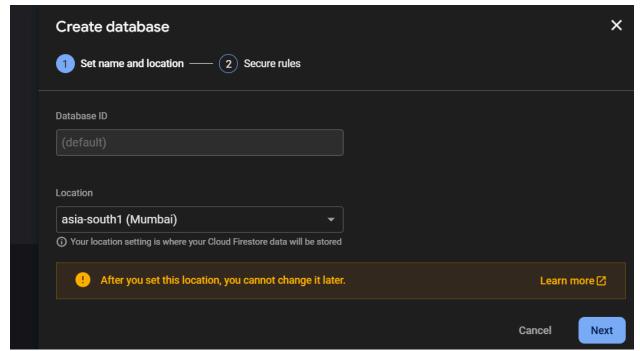
Step 1:

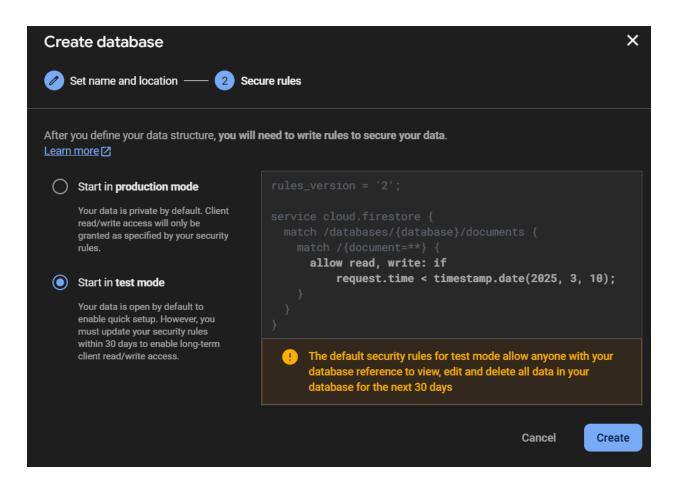
Select Firestore Database from Build in the sidebar.



Then click on Create database. For location select asia-south1(Mumbai). Then choose **Start in test mode** (for development).

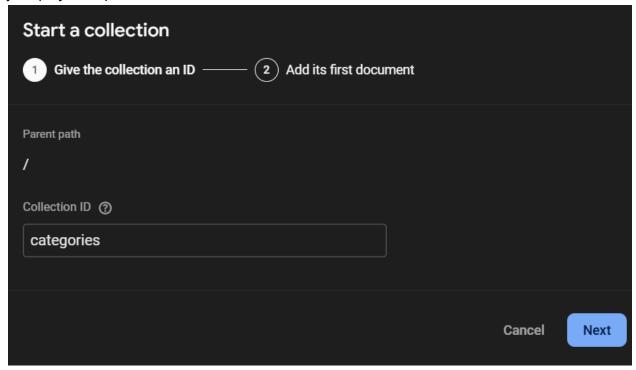
Click **Next** and choose a location, then **Enable**.

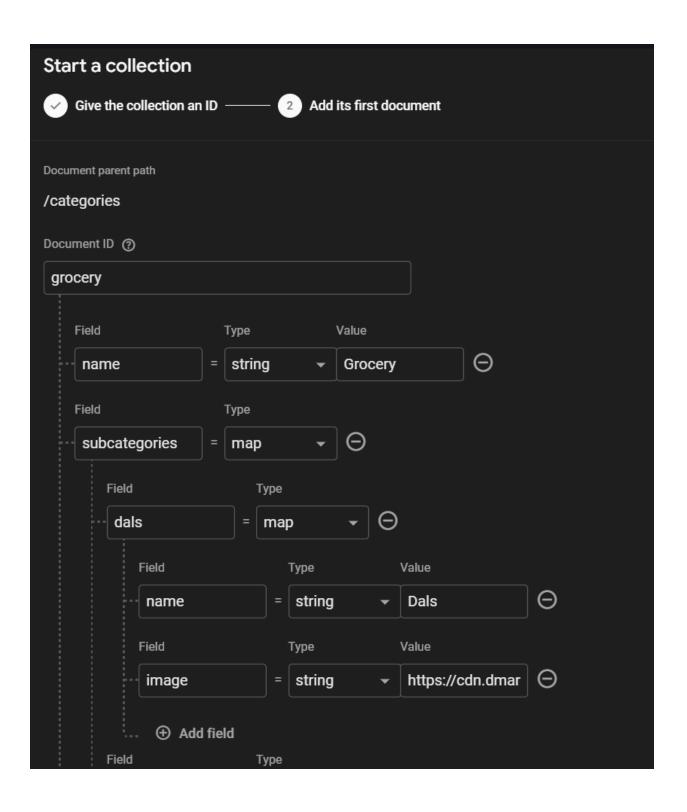


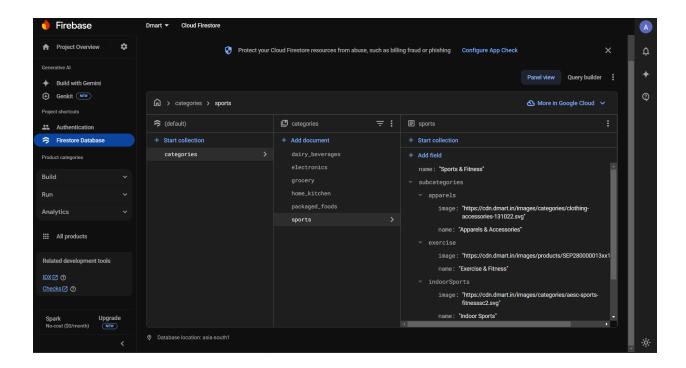


Step 2: Start by creating a **collection**. Add a **document** within the collection. Define the **fields** as per

your project requirements.







Step 3:

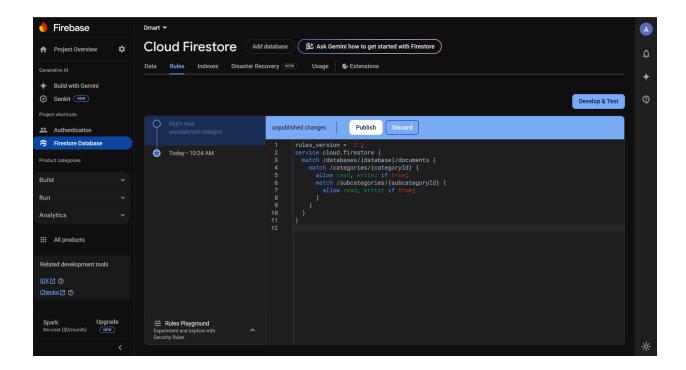
Run the following command to add Firestore to your Flutter app: flutter pub add cloud_firestore

Go to Firebase Console → Firestore Database → Rules

Step 4:

```
Set the following rules:
rules_version = '2';
service cloud.firestore {
  match /databases/{database}/documents {
    match /categories/{categoryId} {
      allow read, write: if true;
      match /subcategories/{subcategoryId} {
        allow read, write: if true;
    }
    }
}
```

and then click Publish to apply changes.



Code:

```
//category_page.dart
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:flutter/material.dart';
import 'package:dmart/screens/category/productList_page.dart';
import 'package:provider/provider.dart';
import 'package:dmart/providers/cart_provider.dart';
import 'package:dmart/screens/cart/cart_page.dart';
class CategoryPage extends StatefulWidget {
 const CategoryPage({super.key});
 @override
 State<CategoryPage> createState() => _CategoryPageState();
}
class _CategoryPageState extends State<CategoryPage> {
 List<Map<String, dynamic>> categories = [];
 String selectedCategoryId = '';
 @override
 void initState() {
    super.initState();
   testFirestoreConnection();
    fetchCategories();
  }
```

```
void testFirestoreConnection() async {
 try {
    // Fetch the Firestore collection
    var snapshot =
        await FirebaseFirestore.instance.collection('categories').get();
    // Print each document's data to the console
    for (var doc in snapshot.docs) {
      print("Category ID: ${doc.id}, Data: ${doc.data()}");
    // Optionally, log the total count of documents
    print("Total Categories: ${snapshot.docs.length}");
  } catch (e) {
    print("Error fetching categories: $e"); // Error handling
  }
}
Future<void> fetchCategories() async {
 try {
    var snapshot =
        await FirebaseFirestore.instance.collection('categories').get();
    setState(() {
      categories = snapshot.docs.map((doc) {
        Map<String, dynamic> data = doc.data();
        return {
          'id': doc.id,
          'name': data['name'] ?? 'Unknown Category',
          'subcategories':
              Map<String, dynamic>.from(data['subcategories'] ?? {})
        };
      }).toList();
      if (categories.isNotEmpty) {
        selectedCategoryId = categories[0]['id'];
      }
    });
  } catch (e) {
    print("Error fetching categories: $e");
  }
}
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      backgroundColor: Colors.green,
```

```
title: const Text(
    'Shop By Category',
   style: TextStyle(
      color: Colors.white, // White text color
     fontWeight: FontWeight.w600, // Semi-bold font weight
   ),
 ),
 actions: [
   IconButton(
      icon: const Icon(Icons.search, color: Colors.white),
      onPressed: () {
        // Implement search functionality
      },
    ),
    Padding(
      padding: const EdgeInsets.only(right: 20), // Add right padding here
      child: Consumer<CartProvider>(
        builder: (_, cart, ch) => cart.itemCount > 0
            ? Badge(
                label: Text(cart.itemCount.toString()),
                child: IconButton(
                  icon: const Icon(Icons.shopping_cart,
                      color: Colors.white),
                  onPressed: () {
                    Navigator.push(
                      context.
                      MaterialPageRoute(
                          builder: (context) => const CartPage()),
                    );
                  },
                ),
            : IconButton(
                icon:
                    const Icon(Icons.shopping_cart, color: Colors.white),
                onPressed: () {
                  Navigator.push(
                    context,
                    MaterialPageRoute(
                        builder: (context) => const CartPage()),
                  );
                },
              ),
     ),
   ),
 ],
),
```

```
children: [
      // Left side - Category List
      Container(
        width: 150,
        color: Colors.white,
        child: ListView.builder(
          itemCount: categories.length,
          itemBuilder: (context, index) {
            final category = categories[index];
            final isSelected = category['id'] == selectedCategoryId;
            return Container(
              color: isSelected ? Colors.lightGreen.withOpacity(0.2) : null,
              child: ListTile(
                title: Text(
                  category['name'],
                  style: TextStyle(
                    fontSize: 14,
                    color: isSelected ? Colors.green : Colors.black,
                  ),
                ),
                onTap: () {
                  setState(() {
                    selectedCategoryId = category['id'];
                  });
                },
              ),
            );
          },
        ),
      ),
      // Vertical Divider
      Container(
        width: 1,
        color: Colors.grey[300],
      ),
      // Right side - Subcategories Grid
      Expanded(
        child: categories.isEmpty
            ? const Center(child: CircularProgressIndicator())
            : buildSubcategoriesGrid(),
      ),
    1.
  ),
);
```

body: Row(

```
Widget buildSubcategoriesGrid() {
  final selectedCategory = categories.firstWhere(
    (category) => category['id'] == selectedCategoryId,
    orElse: () => categories[0],
  );
  final subcategories =
      selectedCategory['subcategories'] as Map<String, dynamic>;
  return GridView.builder(
    padding: const EdgeInsets.all(16),
    gridDelegate: const SliverGridDelegateWithFixedCrossAxisCount(
      crossAxisCount: 2, // Keeps two tiles per row
      crossAxisSpacing: 16,
      mainAxisSpacing: 16,
      childAspectRatio: 0.75, // Decreased to make tiles bigger
    ),
    itemCount: subcategories.length,
    itemBuilder: (context, index) {
      String subcategoryId = subcategories.keys.elementAt(index);
      Map<String, dynamic> subcategoryData = subcategories[subcategoryId];
      return GestureDetector(
        onTap: () {
          Navigator.push(
            context.
            MaterialPageRoute(
              builder: (context) => ProductListPage(
                categoryId: selectedCategoryId,
                subcategoryId: subcategoryId,
                subcategoryName: subcategoryData['name'] ?? 'Unknown',
              ),
            ),
          );
        },
        child: buildSubcategoryTile(
          subcategoryData['name'] ?? 'Unknown',
          subcategoryData['image'] ?? '',
        ),
     );
   },
  );
Widget buildSubcategoryTile(String title, String imageUrl) {
  return SizedBox(
    width: 160,
```

```
height: 180, // Adjusted height to prevent overflow
child: Card(
 color: Colors.white,
 elevation: 5,
 shape: RoundedRectangleBorder(
   borderRadius: BorderRadius.circular(12),
 ),
 shadowColor: Colors.black38,
 child: Padding(
    padding: const EdgeInsets.all(8.0),
   child: Column(
      mainAxisAlignment: MainAxisAlignment.center,
      mainAxisSize: MainAxisSize
          .min, // Ensures content doesn't expand unnecessarily
      children: [
        SizedBox(
          width: 80,
          height: 80,
          child: imageUrl.isNotEmpty
              ? Image.network(
                  imageUrl,
                  width: 80.
                  height: 80,
                  fit: BoxFit.cover,
                  errorBuilder: (context, error, stackTrace) {
                    return const Icon(Icons.image_not_supported,
                        size: 80);
                  },
              : const Icon(Icons.image_not_supported, size: 80),
        ),
          // This ensures text doesn't push content beyond limits
          child: Text(
            title,
            style: const TextStyle(
              fontWeight: FontWeight.bold,
              fontSize: 12,
            ),
            textAlign: TextAlign.center,
            maxLines: 2,
            overflow: TextOverflow.ellipsis,
          ),
       ),
     ],
   ),
 ),
```

```
);
};
}
```

```
//productList_page.dart
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:flutter/material.dart';
import 'package:provider/provider.dart';
import 'package:dmart/providers/cart_provider.dart';
import 'package:dmart/providers/favorite_provider.dart';
import 'package:dmart/screens/cart/cart_page.dart';
class ProductListPage extends StatefulWidget {
 final String categoryId;
 final String subcategoryId;
 final String subcategoryName;
 const ProductListPage({
    super.key,
    required this.categoryId,
    required this.subcategoryId,
    required this.subcategoryName,
 });
 @override
 State<ProductListPage> createState() => _ProductListPageState();
}
class _ProductListPageState extends State<ProductListPage> {
 List<Map<String, dynamic>> products = [];
 // Map<String, int> productQuantities = {};
 // Map<String, bool> wishlist = {};
 bool isLoading = true;
 @override
 void initState() {
    super.initState();
    fetchProducts();
 Future<void> fetchProducts() async {
      var doc = await FirebaseFirestore.instance
          .collection('categories')
          .doc(widget.categoryId)
          .get();
      if (!doc.exists) {
        setState(() => isLoading = false);
        return;
      var data = doc.data();
```

```
if (data == null) {
      setState(() => isLoading = false);
      return;
    }
    var subcategories = data['subcategories'] as Map<String, dynamic>?;
    var subcategory =
        subcategories?[widget.subcategoryId] as Map<String, dynamic>?;
    var productsList = subcategory?['products'] as List<dynamic>?;
    if (productsList != null) {
      setState(() {
        products = productsList.map((product) {
          return {
            'id': product['id'] ?? '',
            'name': product['name'] ?? 'Unknown Product',
            'imageUrl': product['imageUrl'] ?? '',
            'dmartPrice': product['dmartPrice']?.toString() ?? '0',
            'mrpPrice': product['mrpPrice']?.toString() ?? '0',
            'quantity': product['quantity'] ?? '',
            'isOutOfStock': product['isOutOfStock'] ?? false,
          }:
        }).toList();
        isLoading = false;
     });
    } else {
      setState(() => isLoading = false);
  } catch (e) {
    print("Error fetching products: $e");
    setState(() => isLoading = false);
  }
void incrementQuantity(String productId) {
  final cartProvider = Provider.of<CartProvider>(context, listen: false);
  final product = products.firstWhere((p) => p['id'] == productId);
  cartProvider.addItem(
    productId: productId,
    name: product['name'],
    dmartPrice: double.parse(product['dmartPrice']),
    mrpPrice: double.parse(product['mrpPrice']),
    imageUrl: product['imageUrl'],
    quantity: product['quantity'],
 );
void decrementQuantity(String productId) {
  final cartProvider = Provider.of<CartProvider>(context, listen: false);
  cartProvider.removeItem(productId);
```

}

}

```
}
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      backgroundColor: Colors.green,
      title: Text(
        widget.subcategoryName,
        style: const TextStyle(
          color: Colors.white,
          fontWeight: FontWeight.w600,
       ),
      ),
      iconTheme: const IconThemeData(color: Colors.white),
      actions: [
        IconButton(
          icon: const Icon(Icons.search, color: Colors.white),
          onPressed: () {
            // Implement search functionality
          },
        ),
        Padding(
          padding: const EdgeInsets.only(right: 20), // Add right padding here
          child: Consumer<CartProvider>(
            builder: (_, cart, ch) => cart.itemCount > 0
                ? Badge(
                    label: Text(cart.itemCount.toString()),
                    child: IconButton(
                      icon: const Icon(Icons.shopping_cart,
                          color: Colors.white),
                      onPressed: () {
                        Navigator.push(
                          context,
                          MaterialPageRoute(
                               builder: (context) => const CartPage()),
                        );
                      }.
                    ),
                  )
                : IconButton(
                    icon:
                        const Icon(Icons.shopping_cart, color: Colors.white),
                    onPressed: () {
                      Navigator.push(
                        context,
                        MaterialPageRoute(
```

```
builder: (context) => const CartPage()),
                      );
                    },
                  ),
          ),
        ),
     ],
    ),
    body: isLoading
        ? const Center(child: CircularProgressIndicator())
        : products.isEmpty
            ? const Center(
                child: Text(
                  'No products available',
                  style: TextStyle(fontSize: 16),
                ),
              )
            : ListView.builder(
                padding: const EdgeInsets.all(8),
                itemCount: products.length,
                itemBuilder: (context, index) {
                  final product = products[index];
                  return buildProductTile(product);
                },
              ),
 );
Widget buildProductTile(Map<String, dynamic> product) {
  String productId = product['id'];
  print("productId ID: ${productId}");
  print("productcheck: ${product}");
  return Consumer2<CartProvider, FavoriteProvider>(
    builder: (context, cart, favorite, child) {
      int quantity = cart.getItemQuantity(productId);
      bool isWishlisted = favorite.isInFavorites(productId);
      return Card(
        margin: const EdgeInsets.symmetric(horizontal: 10, vertical: 5),
        elevation: 4,
        shadowColor: Colors.black26,
        color: Colors.white,
        shape:
            RoundedRectangleBorder(borderRadius: BorderRadius.circular(10)),
        child: Padding(
```

```
padding: const EdgeInsets.all(10.0),
child: Row(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
   ClipRRect(
      borderRadius: BorderRadius.circular(8),
      child: Image.network(
        product['imageUrl'] ?? '',
        width: 100,
        height: 120,
        fit: BoxFit.cover,
        errorBuilder: (context, error, stackTrace) =>
            const Icon(Icons.image_not_supported, size: 100),
      ),
    ),
    const SizedBox(width: 10),
   Expanded(
      child: Column(
        crossAxisAlignment: CrossAxisAlignment.start,
        children: [
          Text(
            product['name'] ?? 'Unknown Product',
            style: const TextStyle(
              fontWeight: FontWeight.bold,
              fontSize: 16,
            ).
            maxLines: 2,
            overflow: TextOverflow.ellipsis,
          ),
          const SizedBox(height: 5),
          Align(
            alignment: Alignment.centerLeft,
            child: Container(
              width: double.infinity,
              padding: const EdgeInsets.symmetric(
                  horizontal: 6, vertical: 4),
              decoration: BoxDecoration(
                border: Border.all(color: Colors.grey, width: 1),
                borderRadius: BorderRadius.circular(5),
              ),
              child: Text(
                "Qty: ${product['quantity']}",
                style: const TextStyle(
                    fontSize: 12, fontWeight: FontWeight.w500),
              ),
            ),
          ),
```

```
mainAxisAlignment: MainAxisAlignment.spaceBetween,
                        crossAxisAlignment: CrossAxisAlignment.center,
                        children: [
                          Column(
                            crossAxisAlignment: CrossAxisAlignment.start,
                            children: [
                              Text(
                                 "DMart: ₹${product['dmartPrice']}",
                                 style: const TextStyle(
                                   fontSize: 14,
                                   color: Colors.green,
                                   fontWeight: FontWeight.bold,
                                 ),
                               ),
                               const SizedBox(height: 2),
                              Text(
                                 "MRP: ₹${product['mrpPrice']}",
                                 style: const TextStyle(
                                   fontSize: 14,
                                   decoration: TextDecoration.lineThrough,
                                   color: Colors.grey,
                                 ),
                              ),
                            ],
                           ).
                           const SizedBox(width: 10),
                          Expanded(
                            child: Align(
                               alignment: Alignment.centerRight,
                               child: Container(
                                 padding: const EdgeInsets.symmetric(
                                     horizontal: 8, vertical: 4),
                                 decoration: BoxDecoration(
                                   color: Colors.amber.shade100,
                                   borderRadius: BorderRadius.circular(10),
                                 ),
                                 child: Text(
                                   "₹${(int.parse(product['mrpPrice']) -
int.parse(product['dmartPrice']))} OFF",
                                   style: const TextStyle(
                                     fontSize: 12,
                                     fontWeight: FontWeight.bold,
                                     color: Colors.brown,
                                   ),
                                ),
                               ),
```

Row(

```
),
    ),
  1.
),
const SizedBox(height: 10),
Row(
  mainAxisAlignment: MainAxisAlignment.spaceBetween,
  children: [
    Container(
      decoration: BoxDecoration(
        color: Colors.white,
        border:
            Border.all(color: Colors.white70, width: 2),
        borderRadius: BorderRadius.circular(5),
        boxShadow: [
          BoxShadow(
            color: Colors.grey.withOpacity(0.5),
            blurRadius: 4,
            offset: const Offset(2, 2),
          ),
        ],
      ),
      child: IconButton(
        onPressed: () {
          // Toggle favorite status
          favorite.toggleFavorite(
            productId: productId,
            name: product['name'],
            dmartPrice:
                double.parse(product['dmartPrice']),
            imageUrl: product['imageUrl'],
            quantity: product['quantity'],
          );
        },
        icon: Icon(
          favorite.isInFavorites(productId)
              ? Icons.favorite
              : Icons.favorite_border,
          color: Colors.green,
        ),
      ),
    ),
    product['isOutOfStock']
        ? const Text(
            "Out Of Stock",
            style: TextStyle(
              color: Colors.red,
```

```
fontWeight: FontWeight.bold,
   ),
 )
: quantity == 0
   ? SizedBox(
       width: 120,
       child: ElevatedButton(
          onPressed: () {
            cart.addItem(
              productId: productId,
              name: product['name'],
              dmartPrice: double.parse(
                  product['dmartPrice']),
              mrpPrice: double.parse(
                  product['mrpPrice']),
              imageUrl: product['imageUrl'],
              quantity: product['quantity'],
            );
          },
          style: ElevatedButton.styleFrom(
            backgroundColor: Colors.green,
            shape: RoundedRectangleBorder(
              borderRadius:
                  BorderRadius.circular(5),
            ),
            padding: const EdgeInsets.symmetric(
                vertical: 12),
          ),
          child: const Row(
            mainAxisAlignment:
                MainAxisAlignment.center,
            children: [
              Icon(Icons.shopping_cart,
                  size: 18, color: Colors.white),
              SizedBox(width: 5),
              Text(
                'ADD',
                style: TextStyle(
                  color: Colors.white,
                  fontWeight: FontWeight.w500,
                ),
              ),
            1.
          ),
       ),
    : Container(
```

```
width: 120,
decoration: BoxDecoration(
  border: Border.all(
      color: Colors.green, width: 2),
  borderRadius: BorderRadius.circular(5),
),
child: Row(
  children: [
    Expanded(
      child: SizedBox(
        height: 40,
        child: ElevatedButton(
          onPressed: () =>
              cart.removeItem(productId),
          style: ElevatedButton.styleFrom(
            backgroundColor: Colors.green,
            alignment: Alignment.center,
            minimumSize:
                const Size(0, 40),
            padding: EdgeInsets.zero,
                const RoundedRectangleBorder(
              borderRadius:
                  BorderRadius.only(
                topLeft:
                    Radius.circular(3),
                bottomLeft:
                    Radius.circular(3),
              ),
            ),
          ),
          child: const Icon(Icons.remove,
              color: Colors.white,
              size: 24),
        ),
      ),
    ),
    Container(
      alignment: Alignment.center,
      width: 40,
      child: Text(
        quantity.toString(),
        style: const TextStyle(
          fontSize: 16,
          fontWeight: FontWeight.bold,
        ),
      ),
```

```
Expanded(
                               child: SizedBox(
                                 height: 40,
                                 child: ElevatedButton(
                                   onPressed: () => cart.addItem(
                                     productId: productId,
                                     name: product['name'],
                                     dmartPrice: double.parse(
                                         product['dmartPrice']),
                                     mrpPrice: double.parse(
                                         product['mrpPrice']),
                                     imageUrl: product['imageUrl'],
                                     quantity: product['quantity'],
                                   style: ElevatedButton.styleFrom(
                                     backgroundColor: Colors.green,
                                     alignment: Alignment.center,
                                     minimumSize:
                                         const Size(0, 40),
                                     padding: EdgeInsets.zero,
                                     shape:
                                         const RoundedRectangleBorder(
                                       borderRadius:
                                           BorderRadius.only(
                                         topRight:
                                             Radius.circular(3),
                                         bottomRight:
                                             Radius.circular(3),
                                       ),
                                     ),
                                   ),
                                   child: const Icon(Icons.add,
                                       color: Colors.white,
                                       size: 24),
                                 ),
                              ),
                            ),
                          ],
                        ),
                      ),
          ],
       ),
     ],
   ),
 ),
],
```

),

```
),
),
);
},
);
}
```

Output: Login Page:

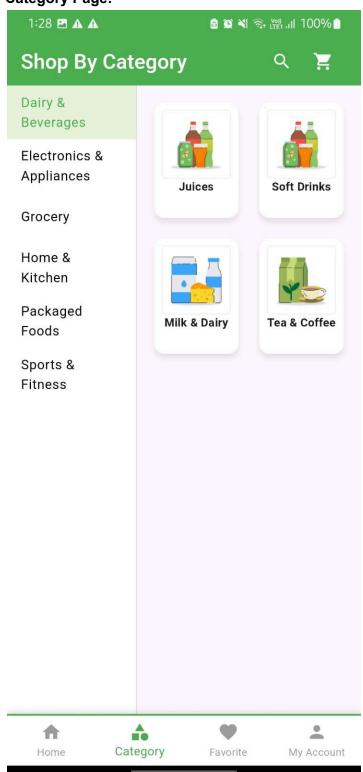
12:00 🍎 🗷 🛦

₫ 😭 💐 🛜 Voi) .ii| 48% 💈

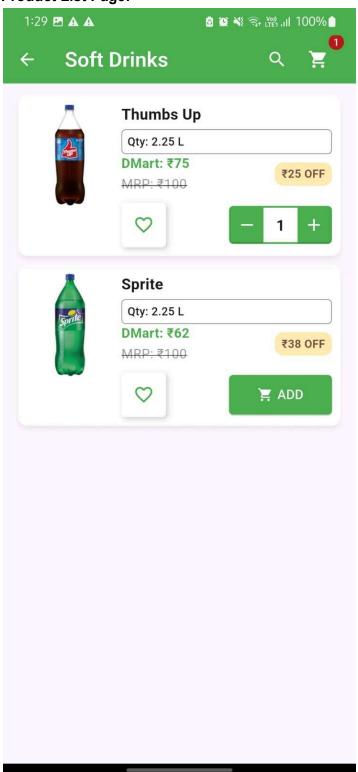
\leftarrow Let's Get You Logged In

Enter your Email	
Enter your Password	
LOGIN	

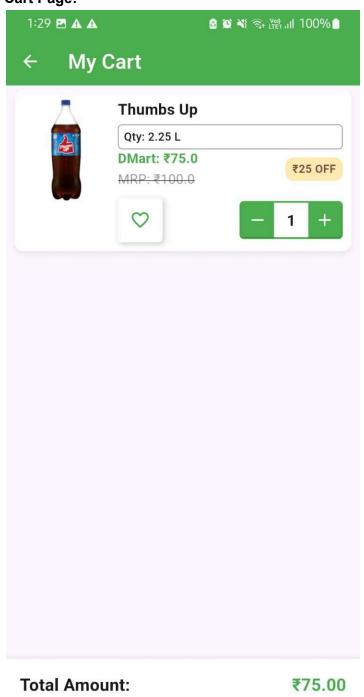
Category Page:



Product List Page:



Cart Page:





Favorite Page:

