

FASHION E-COMMERCE

INTERDISCIPLINARY PROJECT

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Technology degree in Information Technology
by

D NIVENTHAN(41120133)



DEPARTMENT OF INFORMATION TECHNOLOGY
SCHOOL OF COMPUTING

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Category-1 University by UGC

Accredited with Grade “A++” by NAAC

12B Status by UGC |Approved by AICTE

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119

MAY 2024



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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **Niventhan D (41120133)** who carried out the project entitled "**Fashion E-commerce**" under my supervision from **January 2024** to **May 2024**.


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I Niventhan D (41120133) hereby declare that the Project Report entitled "Fashion E-Commerce" done by me under the guidance of **Dr.A.SATHIYARAJ, M.E., Ph.D.**, is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology degree in Information Technology.

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ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management of SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T.Sasikala M.E., Ph.D., Dean**, School of Computing **Dr.R.Subhashini M.E.,Ph.D.**, Head of the Department of Information Technology for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project

Guide **Dr. A Sathiyaraj, M.E , PhD.**, for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Information Technology** who were helpful in many ways for the completion of the project.

CERTIFICATE OF COMPLETION



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CERTIFICATE FOR INTERNSHIP

TO WHOMSOEVER IT MAY CONCERN

This is to Certify that **Niventhan D (Reg No: 41120133)** student of Sathyabama Institute of Science and Technology, B. Tech Information Technology, has successfully completed the Internship at Hackwit Technologies from 22nd January to 30th January 2024.

During the internship, **Niventhan D** has closely worked as a part of the **Flutter** by carrying out the project entitled "**Fashion (E-Commerce App)**"

He demonstrated good developing and learning skill with self-motivated attitude to learn new things. His contribution to implement the Flutter was good. We wish him all the best for his future endeavors.

Best Regards,

Ravikumar S
CEO & Managing Director
Hackwit Technologies Pvt Ltd



CERTIFICATE OF COMPLETION



ABSTRACT

The Fashion E-Commerce App developed using Flutter and Dart offers a modern solution for users to efficiently manage their Fashion needs . With a user-friendly interface, the app allows customers to browse through a wide range of products, add them to their cart, and proceed to checkout seamlessly. Incorporating advanced features like real-time inventory updates, personalized recommendations, and multiple payment options, the app enhances the shopping experience. Additionally, users can create and manage shopping lists, set reminders, and track their expenses, ensuring a convenient and organized shopping process. Leveraging Flutter's cross-platform capabilities, the app ensures compatibility across various devices, including smartphones and tablets. Overall, this innovative application revolutionizes the Fashion shopping experience, providing convenience, efficiency, and flexibility to users' fingertips. In the ever-evolving landscape of digital commerce, the Fashion E-Commerce App crafted with Flutter and Dart emerges as a beacon of innovation and convenience. This project delves into the realm of mobile technology to create a dynamic platform where fashion enthusiasts can indulge their passion for style with ease. By harnessing the versatility of Flutter, a cross-platform development framework, and the efficiency of Dart programming language, the app promises a seamless user experience across Android and iOS devices. Through meticulous design and intuitive navigation, users are immersed in a virtual marketplace brimming with the latest trends and timeless classics. From haute couture to everyday essentials, the app curates an extensive catalog of apparel, accessories, and footwear, catering to diverse tastes and preferences. Leveraging advanced algorithms, personalized recommendations are tailored to each user, fostering a bespoke shopping journey.

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LIST OF ABBREVIATIONS

ABBREVIATION	EXPANSION
UI	- User Interface
UX	- User Experience
iOS	- iPhone Operating System
UAT	- User Acceptance Testing
IDE	- Integrated Development Environment

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CHAPTER 1

INTRODUCTION

The concept behind the Fashion E-Commerce App revolves around simplifying the traditional E-Commerce shopping experience by leveraging the power of Flutter and Dart technologies. By digitizing the process, the app aims to eliminate the hassles associated with physical shopping, such as long queues, inventory discrepancies, and time-consuming searches. Through a sleek and intuitive interface, users can effortlessly navigate through a comprehensive selection of Clothing, organized into categories for easy access. Moreover, the app enhances user engagement by offering personalized recommendations based on past purchases and preferences, thereby streamlining the decision-making process.

Furthermore, the app emphasizes convenience and flexibility by enabling users to create and manage shopping lists tailored to their specific needs. This feature not only saves time but also ensures that users never forget essential items during their Fashion product runs. Additionally, integration with real-time inventory systems ensures that users are always presented with accurate product availability, reducing instances of out-of-stock items. By embracing Flutter's cross-platform capabilities, the app caters to a diverse user base, allowing seamless access across different devices. Ultimately, the concept aims to redefine the Fashion shopping experience, making it more efficient, convenient, and enjoyable for users worldwide.

1.1. FLUTTER

Flutter, a robust cross-platform UI toolkit developed by Google, is at the heart of Fashion E-commerce, shaping the application's foundation and user interface. The utilization of Flutter brings a paradigm shift to the traditional app development approach, offering a single codebase that transcends platform-specific limitations. This innovation allows Fashion E-commerce to deliver a visually captivating and responsive user interface, adeptly adjusting to both iOS and Android environments.

The efficiency of Flutter lies in its ability to streamline the development process, significantly reducing the complexities associated with managing separate codebases for different platforms. Developers benefit from a cohesive workflow, resulting in accelerated development cycles and enhanced productivity. Moreover, Flutter's hot reload feature enables real-time code changes and instant visual feedback, facilitating quick iterations and adjustments.

One of the key advantages of Flutter is its capability to ensure a consistent and high-quality user experience across diverse devices. By leveraging Flutter's rich set of customizable widgets, Fashion E-commerce achieves a cohesive design language and smooth interactions, irrespective of the underlying operating system. Users can seamlessly transition between devices without compromising on the application's performance or aesthetics.

1.2. DART

i) Unified Codebase:

Fashion E-commerce relies on Dart, a client-optimized programming language, for implementing backend logic and server-side operations. Dart's versatility enables developers to maintain a unified codebase for both the frontend (Flutter) and backend, fostering consistency and ease of collaboration.

ii) Asynchronous Programming:

Dart's support for asynchronous programming is crucial for handling concurrent operations efficiently. This feature ensures that Fashion E-commerce can seamlessly manage multiple tasks, such as handling user requests, database operations, and external API calls, without causing delays or disruptions in the application's responsiveness.

iii) Scalability:

Dart's scalability is instrumental in accommodating the potential growth of Fashion E-commerce. As the user base expands and the demand for mentorship increases, Dart's ability to scale allows the platform to handle higher traffic, ensuring a smooth and responsive experience for all users.

iv) Strong Typing System:

Dart's strong typing system enhances code reliability and maintainability in Fashion E-commerce. By catching potential errors during the development phase, Dart enables developers to write robust and error-resistant code, reducing the likelihood of runtime issues and enhancing the overall stability of the application.

1.3. FIREBASE

i)Real -time Data Synchronization:

Firebase Cloud Firestore supports real-time data synchronization, allowing seamless updates across multiple devices. This feature is crucial for Fashion E- commerce, enabling suppliers customers to experience instant changes in discussions, order requests, and collaborative interactions about delivery with our team.

ii)Firebase Authentication for User Security:

Firebase Authentication provides a secure and straightforward user authentication process. Fashion E- commerce leverages this feature to ensure that only authorized users, both suppliers and customers, can access the platform. Multi-factor authentication and identity verification contribute to a robust security layer.

iii) Serverless Cloud Functions:

Firebase offers serverless cloud functions that enable the execution of backend logic without managing servers. Fashion E- commerce utilizes these functions for various tasks, such as sending notifications, updating user data, and handling asynchronous operations. This serverless architecture enhances scalability and efficiency.

iv)Firebase Cloud Storage for Media Assets:

Storing media assets, such as profile pictures and discussion attachments, is streamlined with Firebase Cloud Storage. Fashion E- commerce utilizes this feature to efficiently manage and serve multimedia content, ensuring a smooth and responsive user experience for both suppliers and customers.

1.4. PROBLEM STATEMENT

In today's fast-paced world, traditional fashion e-commerce shopping experiences often come with inherent challenges that hinder user satisfaction and convenience. Issues such as long queues, inventory discrepancies, and time-consuming searches plague physical shopping endeavors, leading to frustration and inefficiency for consumers. Additionally, the lack of personalized recommendations and efficient shopping list management further compounds these challenges, leaving users feeling overwhelmed and dissatisfied with their shopping experiences. Existing e-commerce platforms often fail to address these pain points adequately, relying on outdated technologies and cumbersome interfaces that detract from the user experience. As a result, there is a pressing need for a modernized solution that leverages cutting-edge technologies to streamline the fashion e-commerce shopping process and enhance user engagement. The Fashion E-Commerce App seeks to address these challenges by harnessing the power of Flutter and Dart technologies to digitize the shopping experience. By offering a sleek and intuitive interface, personalized recommendations, and efficient shopping list management features, the app aims to revolutionize the way users shop for fashion products online. Through real-time inventory updates and cross-platform compatibility, it promises to eliminate the hassles associated with traditional shopping methods and provide users with a seamless and enjoyable fashion shopping experience. In essence, the problem lies in the lack of innovation and efficiency in current fashion e-commerce platforms, which fail to meet the evolving needs and expectations of modern consumers. The Fashion E-Commerce App endeavors to fill this gap by offering a comprehensive solution that prioritizes convenience, flexibility, and user satisfaction, thereby redefining the fashion shopping experience for users worldwide.

1.5 OBJECTIVES

The objectives of the Fashion E-Commerce project are to streamline the Fashion product shopping experience, enhance user convenience, and improve efficiency. It aims to provide users with a digital platform for easy browsing, purchasing, and managing clothing. Additionally, the project seeks to incorporate personalized recommendations to cater to individual preferences and optimize the shopping process. Security measures will be implemented to ensure the safety of user data and transactions.

Scalability and cross-platform compatibility are key objectives to accommodate a growing user base and ensure accessibility across different devices. The app will also focus on providing a responsive and intuitive user interface to enhance user experience.

Key Challenges:

i) Integration of Diverse Features:

Harmonizing online shopping experience and ordering and on time delivery functionalities within a single application. Ensuring a seamless and intuitive user experience while navigating through varied features.

ii) Inclusive Platform Design:

Designing a user interface that accommodates a broad user base, considering users with varying levels of technological proficiency. Balancing inclusivity without compromising simplicity and clarity in the app's design.

iii) Community Engagement:

Encouraging active participation from both suppliers and customers in discussions, answering queries, and contributing to the community. Implementing effective community-building features to foster a sense of belonging and collaborative online purchasing.

iv) Security and Privacy:

Ensuring robust security measures to protect user data, particularly in the context of customer's online payment.

Adhering to privacy regulations and standards to build trust among users regarding the confidentiality of their information.

v) Scalability and Performance:

Designing the app architecture to accommodate potential growth in user base and content without compromising performance. Optimizing the performance of Fashion E-commerce to deliver a responsive and efficient experience, especially as the user community expands.

vi) Flutter Codebase Maintenance:

Managing the complexity of a Flutter-based codebase to ensure code readability, maintainability, and scalability. Keeping the codebase up-to-date with the latest Flutter releases and best practices to leverage new features and improvements

CHAPTER 2

METHODOLOGY

2.1.PROPOSED APPLICATION ARCHITECTURE

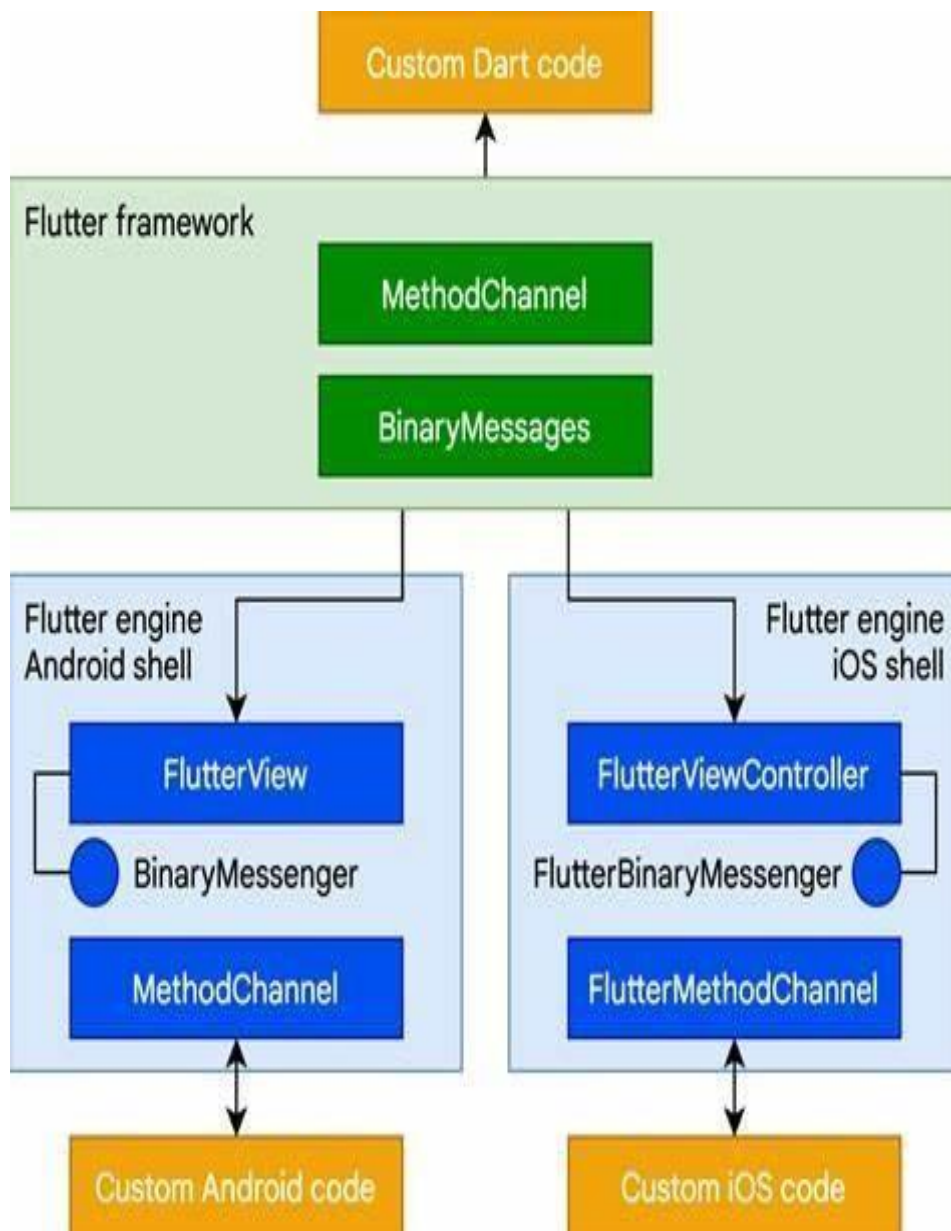


Fig:2.1: Proposed Application Architecture

2.2 INITIAL PROJECT REQUIREMENTS

The initial project requirements for Fashion E-Commerce App encompass various aspects such as functionalities, technologies, and packages.

i)Project Scope:

- 1) Develop a mobile application named " Fashion E- commerce".
- 2) Create a platform that connects customers seeking new and elegant Shopping collections with experienced professionals.
- 3) Address both order and delivery-related queries within the platform.

ii)Technologies:

- 1) Flutter: Utilize Flutter for cross-platform mobile app development, ensuring a consistent user experience on both iOS and Android.
- 2) Dart: Employ the Dart programming language as the primary language for Flutter app development.
- 3) Firebase: Integrate Firebase for backend services, including authentication, real-time database (Firestore), and cloud storage.

iii) Functionalities:

- 1) User Authentication: Implement a secure user authentication system for both suppliers and customers
- 2) User Registration/Login: Enable users to create accounts or log in using existing credentials to access personalized features and store their preferences.
- 3) Browse and Search: Provide a user-friendly interface for browsing and searching through a wide selection of products, including filters by brand, size, price range, and release date.
- 4) Shopping Cart: Enable users to add their shopping carts, review items, adjust quantities, and proceed to checkout seamlessly with secure payment options.
- 5) Real-time Chat: Include a real-time chat feature for direct communication between suppliers and customers.

iv) Packages Used:

i) get:

Version: 4.6.6

Purpose: State management and navigation framework.

ii) firebase_core:

Version: 2.25.3

Purpose: Firebase initialization and core functionality.

iii) firebase_auth:

Version: 4.17.3

Purpose: User authentication with Firebase.

iv) cloud_firestore_web:

Version: 3.10.3

Purpose: Web implementation of Cloud Firestore.

v) firebase_auth_web:

Version: 5.9.3

Purpose: Web implementation of Firebase Authentication.

vi) firebase_core_web:

Version: 2.11.3

Purpose: Web implementation of Firebase Core.

vii) google_sign_in:

Version: 5.2.1

Purpose: Google Sign-In authentication.

viii) toast:

Version: 0.3.0

Purpose: Displaying simple toast notifications.

ix) fluttertoast:

Version: 8.0.7

Purpose: Displaying customizable toast messages.

1.Custom Dart Code:

This represents any custom code you write in Dart specifically for your Flutter app. It could be business logic, UI components, or any other functionality unique to your application. The custom Dart code interacts with the Flutter framework to achieve various tasks.

2.Flutter Framework:

The Flutter framework is the heart of your app. It provides a rich set of widgets, tools, and APIs for building cross-platform mobile applications.

3.MethodChannel:

The MethodChannel allows communication between Dart code and native platform code (Android or iOS). When we invoke a method on the MethodChannel from Dart, it triggers a corresponding method call on the native side.

4.BinaryMessages:

BinaryMessages is another channel for communication between Dart and native code. It enables the exchange of binary data (such as images, files, or serialized objects) between the two sides.

5.Flutter Engine Android Shell:

On the Android side, the Flutter engine runs within an Android shell.

- i) FlutterView: This is the Android view that displays your Flutter UI.
- ii) BinaryMessenger: It handles communication between the Flutter engine and the Android platform.

6.Flutter Engine iOS Shell:

On iOS, the Flutter engine runs within an iOS shell.

- i) FlutterViewController: The iOS view controller responsible for displaying your Flutter UI.
- ii) FlutterBinaryMessenger: Handles communication between theFlutter engine and the iOS platform.

7.Custom Android Code and Custom iOS Code:

These represent platform-specific code written in Java/Kotlin (for Android) and Objective-C/Swift (for iOS).You'll write custom code here to interact with native features or APIs that aren't directly accessible from Flutter.

8.Firebase:

Firebase

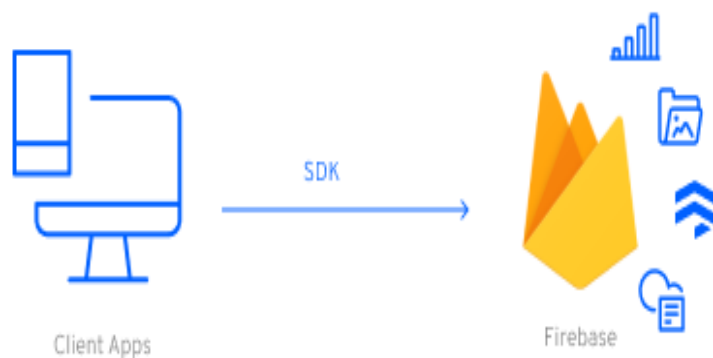


Fig:2.2: Firebase Architecture

i)Firebase Authentication:

Firebase Authentication offers ready-to-use authentication services. It integrates seamlessly with Flutter, allowing users to sign up, sign in, and manage their accounts. MFA (Multi-factor Authentication) can be enabled to enhance security by requiring additional verification steps (e.g., SMS codes, email, or biometrics).

ii)Firestore (Realtime Database):

Firestore is a NoSQL database provided by Firebase. It stores structured data in collections and documents. You can use Firestore to store user profiles, chat messages, app settings, and more.

iii)Firebase Storage:

Firebase Storage provides secure cloud storage for files (e.g., images, videos, documents). You can upload and download files directly from your Flutter app. Data-at-rest encryption ensures sensitive files are protected.

iv)Firebase Analytics:

Firebase Analytics tracks user behavior, app usage, and events. You can gain insights into user engagement, retention, and conversion rates. Use analytics data to make informed decisions about app improvements.

9.To integrate Firebase with your Flutter app:

Add the necessary Firebase plugins (e.g., `firebase_core`, `firebase_auth`, `cloud_firestore`, etc.) to your `pubspec.yaml`. Initialize Firebase in your app (usually in the main function). Use Flutter widgets to build UI that interact with Firebase services.

2.3 FLOW DIAGRAM

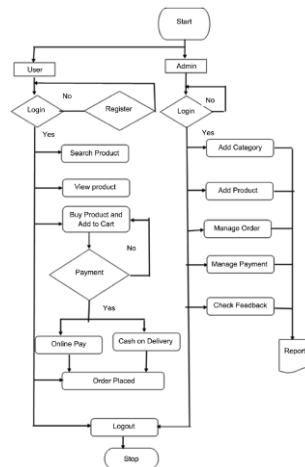


Fig:2.3: Flow Diagram

The following steps are used to describe the above flow diagram:

- i) The user opens the mobile app.
- ii) The app prompts the user to log in or sign up if they don't have an account yet.
- iii) If the user chooses to sign up, they will be taken to the sign-up page.
- iv) If the user is already registered, they can log in directly.
- v) Once the user is logged in, they will be taken to the home page.
- vi) From the home page, the user can access various features of the app such as their profile page, cart page, about page, Shopping page, and payment page.
- vii) The shopping page allows the user to choose a desired item they need.
- viii) The cart page displays the list of they selected for purchasing.
- ix) The user can also reduce the count of the product in the cart page.
- x) The user can also delete the product they don't want to purchase from the cart

2.4MODULES

2.4.1 USER MANAGEMENT:

Provides a comprehensive registration form(signup) with fields for personal information, contact details, and their email id, enhancing user profile completeness.

Algorithm:

Display Registration Form: The signup process begins by displaying a user-friendly registration(Signup) form on the Fashion E- commerce App platform. The form includes fields for personal information, contact details, and their email id, ensuring a comprehensive profile setup.

Collect User Information: When a user accesses the registration form, they are prompted to fill in essential information such as theirfull name, email address, password, date of birth, and their email Id. These details are crucial for creating a personalized and relevant user profile.

Validate Input Data: As users enter their information, the system performs validation checks to ensure the accuracy and completeness of the data. For example, it verifies that the email format is correct and that the password meets security requirements (e.g., minimum length, inclusion of special characters).

Create User Account: After successful validation, the system creates a new user account using the provided information. A unique user ID or username is generated to distinguish each user within the platform,

2.4.2 AUTHENTICATION:

Implements secure login functionality with email/password or social login options, providing users with seamless access to the platform.

Algorithm:

i) Display Login Interface: Upon accessing the platform, users are presented with a login interface that allows them to enter their credentials for authentication.

ii) Verify User Credentials: When users attempt to log in, the system verifies their credentials, such as their email address and password, against the stored data in the database. For sociallogin, the system validates the authentication tokens provided by the respective platforms.

iii) Grant Access: If the entered credentials or authentication tokens are valid, the system grants the user access to the platform, allowing them to explore Fashion E- commerce Shopping App's collections and functionalities.

iv) Session Management: Upon successful authentication, the system creates a session or issues a token to maintain the user's logged-in state. This session/token management ensures secure and seamless user interactions throughout their session on the platform.

2.4.3 PROFILE MANAGEMENT:

Enables users to update profiles, upload pictures, set availability, and manage notifications, enhancing personalization and user control.

Algorithm:

i) Access Profile Settings: Users can access their profile settings through a dedicated interface within Fashion E-commerce, providing them with centralized control over their profile information and preferences.

ii) Update Profile Information: The profile management functionality allows users to update their profile details, such as their name, contact information, email Id, and any additional information relevant to their mentorship experience.

iii) Upload Profile Picture: Users have the option to upload profile pictures or avatars, adding a personal touch to their profiles. The system securely stores these images and associates them with the respective user profiles.

iv) Manage Availability: Users can set their availability status (e.g., online/offline) to indicate up-to date they are open for mentorship session

2.4.4 SELECTION:

Implements collaborative filtering algorithms considering user preferences gathering, personalized recommendations, display product details, Historical data analysis and real time notifications.

Algorithm:

i) User Preferences Gathering: Prompt users to input their preferences, including brand preferences, style preferences (e.g., Bike, Shoes, Lifestyle), size, color, and budget constraints.

ii) Personalized Recommendations: Utilize machine learning algorithms to generate personalized recommendations based on the user's preferences, browsing history, purchase behavior, and similarities with other users with similar preferences.

iii) Display Product Details: Provide detailed information about each product, including high-quality images, product descriptions, materials, features, sizing information, availability status, and customer reviews.

iv) Historical Data Analysis: Analyze historical data on user interactions, purchases, and preferences to identify trends and patterns, helping to improve recommendation accuracy and enhance the selection process.

v) Real-Time Notifications: Send real-time notifications to users about new releases, restocks, price drops, and promotions relevant to their preferences and interests to keep them informed .

2.4.5 CART AND DELIVERY :

The cart page in the Fashion E- commerce can efficiently handle user interactions, display cart contents, and facilitate the checkout process, enhancing the overall shopping experience for users.

Algorithm:

- i) Update Cart Quantity: Provide options for users to adjust the quantity of each item in their cart. When the user changes the quantity, update the subtotal and total order amount accordingly.
- ii) Remove Items from Cart: Mentors or mentees compose and send messages through the messaging interface. Messages are formatted, timestamped, and sent to the recipient(s) within the messaging channel.
- iii) Proceed to Checkout: Include a button or option for users to proceed to checkout. Upon clicking the checkout button, redirect the user to the checkout page to complete the purchase process.
- iv) Empty Cart Handling: If the user's cart is empty, display a message indicating that the cart is empty and encourage the user to continue shopping. Provide a link or button to redirect the user to the main shopping page to explore products.
- v) Save Cart State: Ensure that changes made to the cart (quantity adjustments, item removals) are saved in real-time or upon user interaction

2.5 DEVELOPMENT AND DEPLOYMENT SETUP

1. Development Environment:

Flutter and Dart need to be installed on the developer's machine.
IDEs like Visual Studio Code or Android Studio for coding.

2. Create Project:

>>flutter create project_name

```
Creating project demo...
Resolving dependencies in demo... (1.4s)
Got dependencies in demo.
Wrote 129 files.

All done!
You can find general documentation for Flutter at: https://docs.flutter.dev/
Detailed API documentation is available at: https://api.flutter.dev/
If you prefer video documentation, consider: https://www.youtube.com/c/flutterdev

In order to run your application, type:

$ cd demo
$ flutter run

Your application code is in demo\lib\main.dart.

C:\Users\Kamilath Rifka S>
```

Fig:2.4: Project Creation

Dependency Management:

Project dependencies specified in the pubspec.yaml file. Key packages include:

- firebase_core for Firebase integration.
- firebase_auth for user authentication

Firestore Configuration:

Firestore project created and configured for the application.

Firestore Hosting used for deploying the Flutter web application.

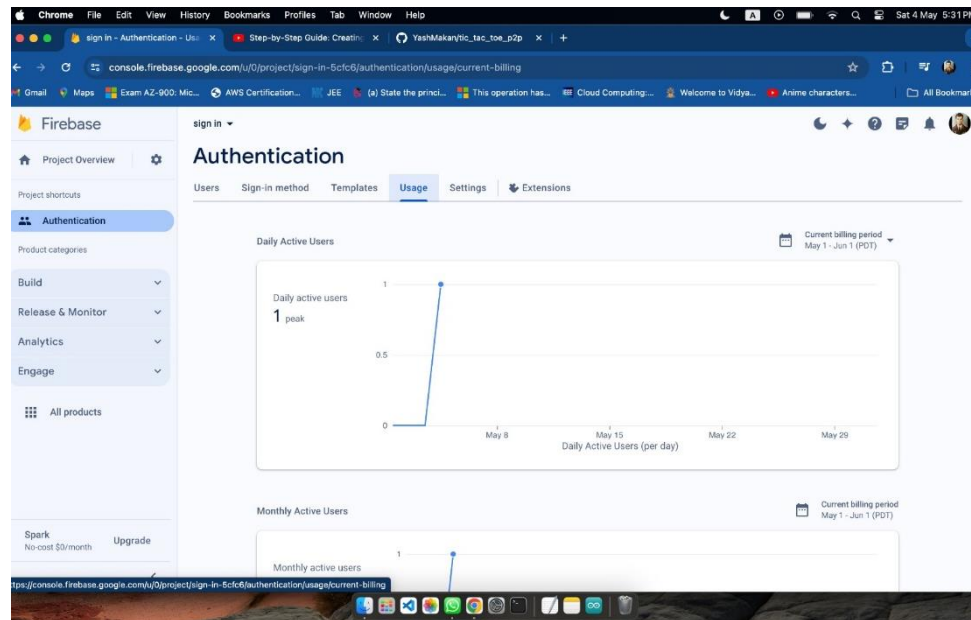


Fig:2.5: Firebase Connection

3. Firebase Authentication:

Firebase Authentication set up for secure user login and identity verification.

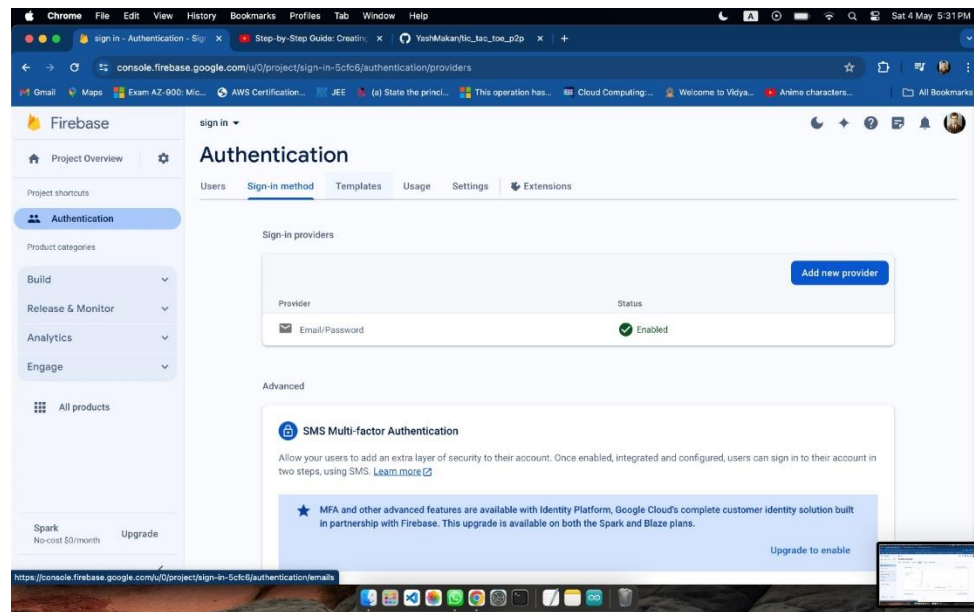


Fig:2.6: Firebase Authentication

4. Development Tools:

Flutter commands used for testing and building the application. Real-time testing on Android and iOS devices.

5. Deployment Process:

Firebase used for hosting the web version of the application.
Seamless deployment using Flutter and Firebase commands.

6. Supported Platforms:

Cross-platform support for Android, iOS, and web.

7. Integrated Development Environment (IDE):

Developers can choose between Visual Studio Code or Android Studio for coding.

8. User Authentication:

Firebase Authentication ensures secure user login.

CHAPTER 3

RESULTS AND DISCUSSION

DART CODES:

i) main.dart: This file is typically the entry point of a Flutter application. It initializes the app, sets up necessary configurations, and runs the main application widget.

ii)

iii) HomePage.dart: This file likely contains the UI and logic for user login. It includes form fields for entering credentials and a mechanism to authenticate users.

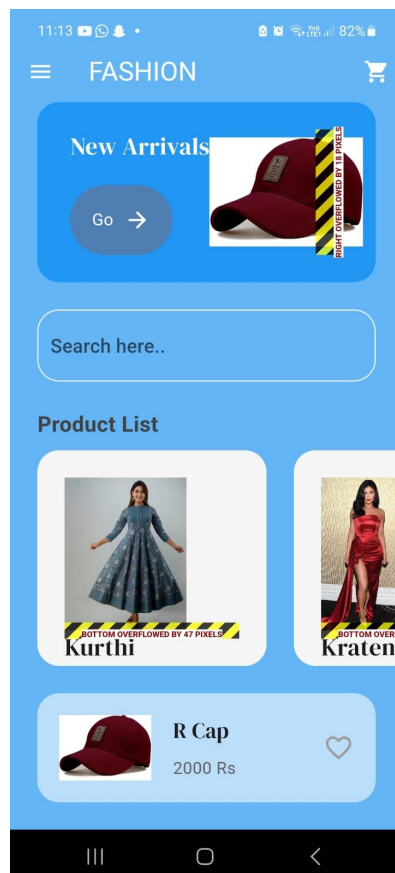


Fig:3.1: Home Page Interface

iv) signupPage.dart: Similar to the login file, signupPage.dart is likely responsible for handling user registration. It includes form fields for users to create accounts.

v) homePage.dart: This file represents the main content of your app after a successful login or signup. It contains collections of products, about part and cart page with various features.

vi) shoppingPage.dart: The file is likely responsible for collection of varieties, and adding items to our cart. This page includes the description of the product which is in the page.

vii) cartPage.dart: This page contains the items which are selected for purchasing

viii) cartPage.dart: In the cart page we can add or remove items as we need.

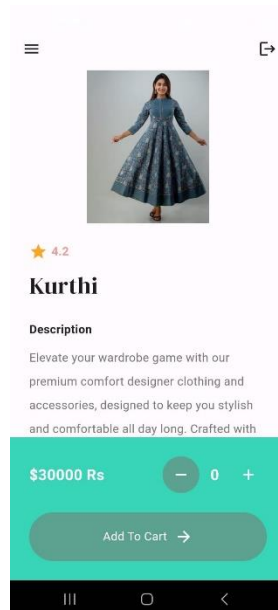


Fig:3.3: Categories Selection Interface

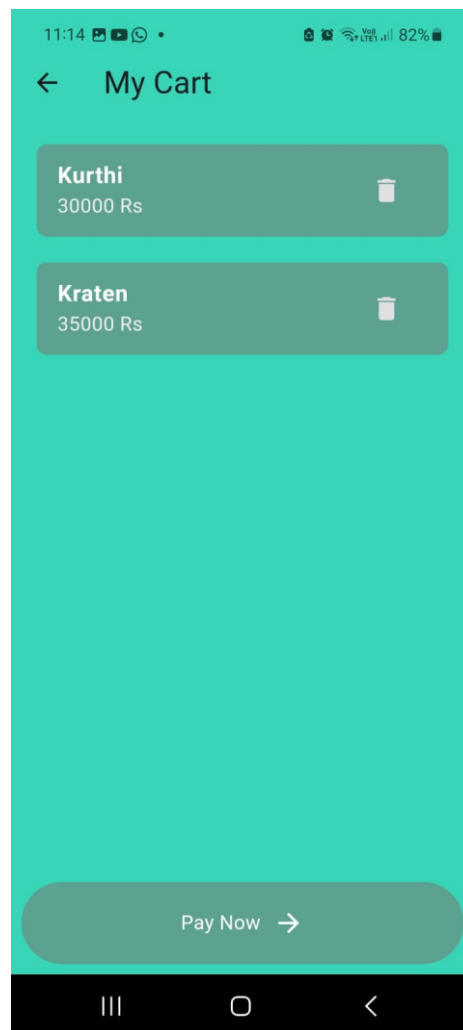


Fig:3.4: Added to Cart Screen

FIREBASE:

i) Create a Firebase Project:

1. Go to the Firebase Console.
2. Click on "Add Project" and follow the setup instructions.

ii) Configure Flutter Project:

1. Add the Firebase configuration files to your Flutter project.
2. Follow the instructions provided in the Firebase Console to add google-services.json for Android and GoogleService-Info.plist for iOS.
3. These files contain configuration details needed for your app to connect to Firebase services.

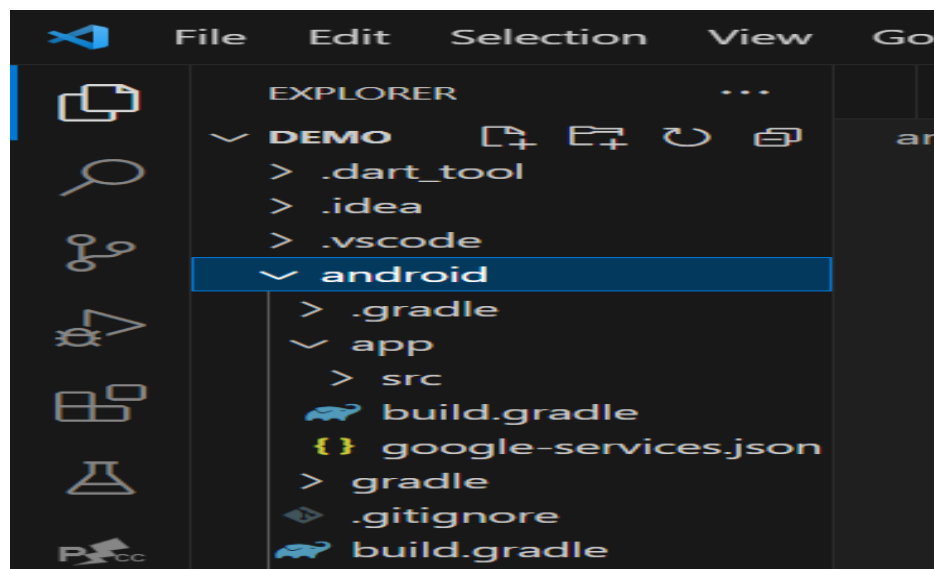


Fig:3.5: Firebase Configurations

iii) Add Firebase Dependencies:

Open the pubspec.yaml file and add the following dependencies:

yaml code:

Dependencies:

firebase_core: ^2.25.3

firebase_auth: ^4.17.5

iv) Initialize Firebase:

In your main.dart or wherever you initialize your Flutter app, make sure to initialize Firebase. If you want to implement user authentication, Firebase provides the firebase_auth package. You can use it to sign in users using various methods like email/password, Google Sign-In, etc.

Dart code:

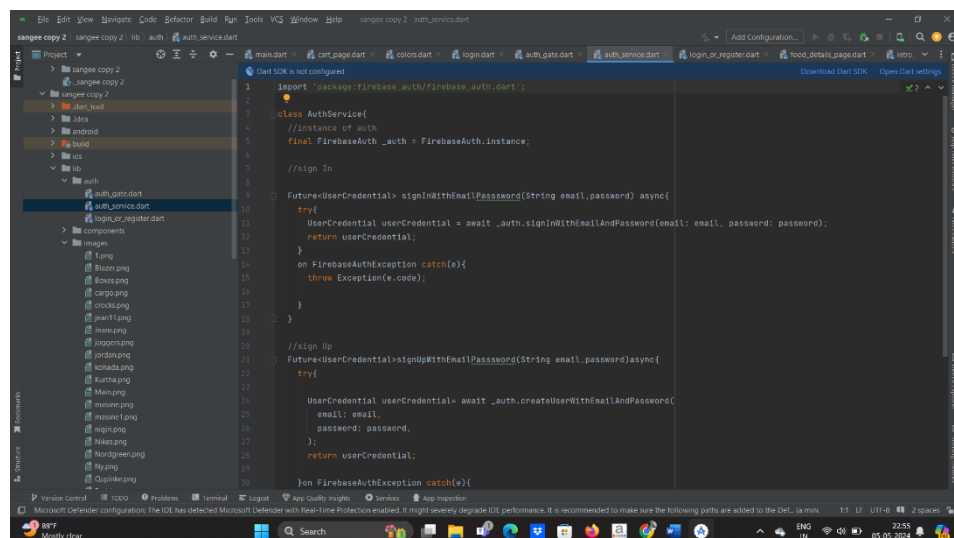


Fig:3.6: Initializing Firebase

CHAPTER 4

CONCLUSION AND FUTURE WORK

4.1. CONCLUSION

In conclusion, our Fashion E-Commerce app developed with Flutter is not just a digital storefront but a comprehensive solution aimed at redefining the online shopping experience. Its success lies in its ability to seamlessly blend innovation, efficiency, and security, providing users with a reliable and enjoyable platform for their shopping needs. As we move forward, our commitment to continuous improvement, adaptation to emerging technologies, and dedication to customer satisfaction will remain at the forefront. The Fashion E-Commerce app stands as a testament to our vision of creating a future-ready, user-centric, and secure online retail environment, contributing to the evolution of the E-commerce landscape.

A user-centric approach, characterized by intuitive navigation, personalized recommendations, and a streamlined checkout process, is essential for engaging and retaining users. Responsive design principles ensure that the application is accessible and functional across a variety of devices and screen sizes, catering to the diverse needs of modern consumers.

Equally important is the implementation of robust security measures to safeguard user data and prevent fraud. Encryption protocols, secure authentication mechanisms, and compliance with regulatory standards ensure the confidentiality and integrity of user information, mitigating the risk of data breaches and financial losses. Additionally, advanced fraud detection technologies, coupled with user education initiatives, empower users to protect themselves against evolving threats, enhancing overall confidence in the platform.

4.2. FUTURE WORK

Integrate social media features directly into the app to facilitate social shopping experiences, allowing users to share their favorites, outfit combinations, and purchases with friends, as well as collaborate on group purchases and wish list sharing. Continuously improve and expand the augmented reality (AR) features to provide more realistic virtual try-on experiences, including better accuracy in shoe sizing, integration with wearable AR devices, and support for advanced interactions such as walking and moving in virtual environments. Develop AI-driven styling recommendations that go beyond just products, incorporating complementary clothing, accessories, and styling tips based on individual preferences, body type, and fashion trends, creating a holistic shopping experience. Introduce sustainability initiatives within the app, such as highlighting eco-friendly brands, promoting circular fashion practices like item recycling and resale. Offer customization options that allow users to personalize their items with unique colors, materials, and design elements, as well as incorporating AI-driven algorithms.

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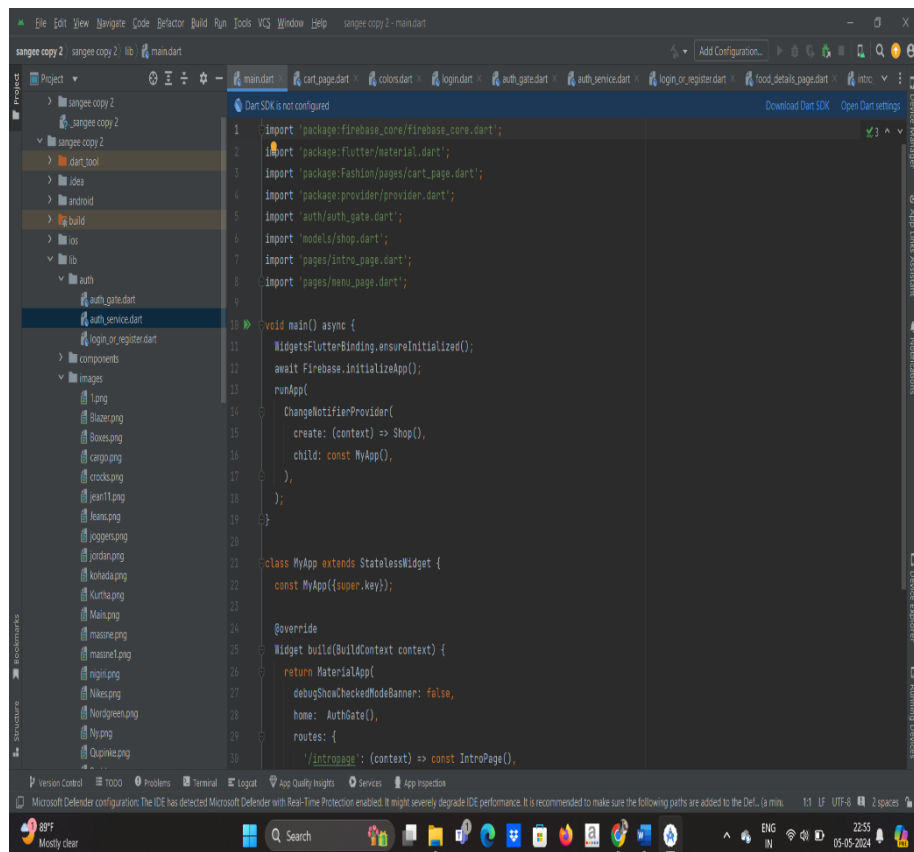
[1] Camp, D. (2024). Best flutter blog articles from around the web. Flutter articles, <https://www.devglan.com/programming/flutter-article-feeds>.

[2] Wilson, W. (2014). The ultimate list of flutter resources(over 200!).Flutter Resources, <https://wilsonwilson.dev/articles/flutter-resources>.

APPENDICES

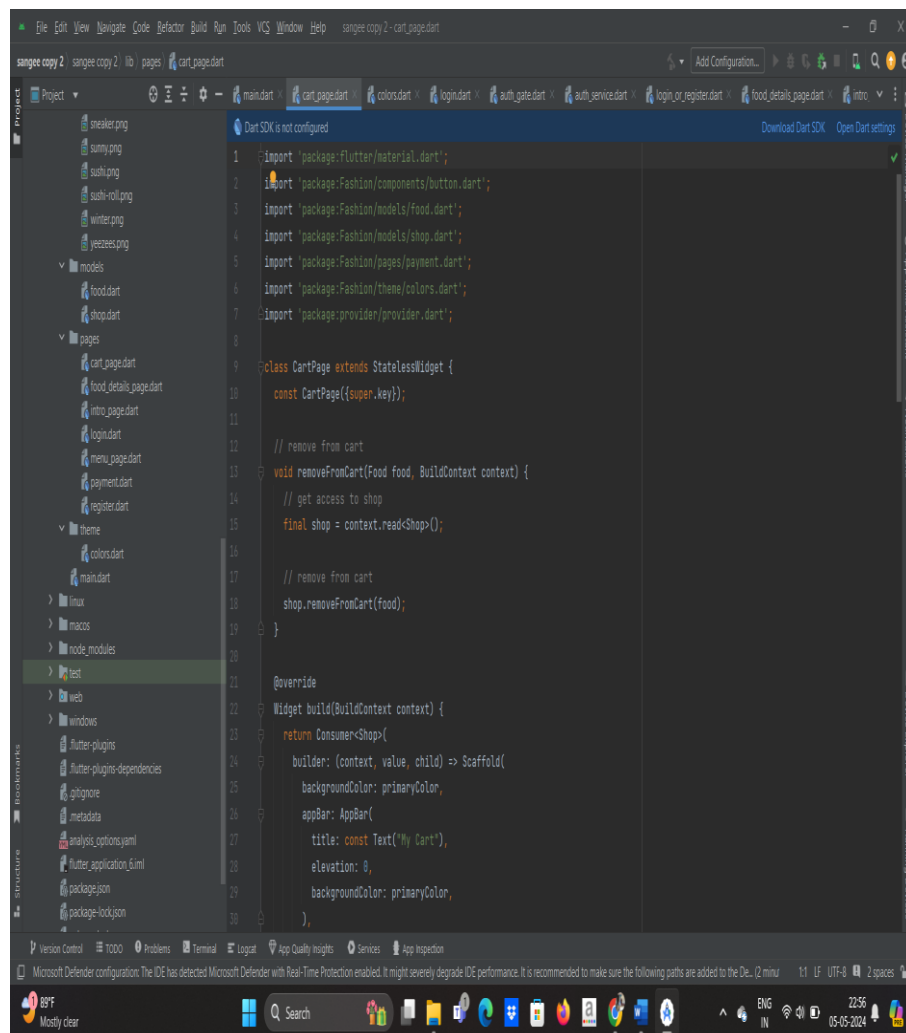
A.SAMPLE CODE

i)Main Code:



```
1 import 'package:firebase_core/firebase_core.dart';
2 import 'package:flutter/material.dart';
3 import 'package:fashion/pages/cart_page.dart';
4 import 'package:provider/provider.dart';
5 import 'auth/auth_gate.dart';
6 import 'models/shop.dart';
7 import 'pages/intro_page.dart';
8 import 'pages/menu_page.dart';
9
10 void main() async {
11   WidgetsFlutterBinding.ensureInitialized();
12   await Firebase.initializeApp();
13   runApp(
14     ChangeNotifierProvider(
15       create: (context) => Shop(),
16       child: const MyApp(),
17     ),
18   );
19 }
20
21 class MyApp extends StatelessWidget {
22   const MyApp({super.key});
23
24   @override
25   Widget build(BuildContext context) {
26     return MaterialApp(
27       debugShowCheckedBanner: false,
28       home: AuthGate(),
29       routes: {
30         '/intropage': (context) => const IntroPage(),
```

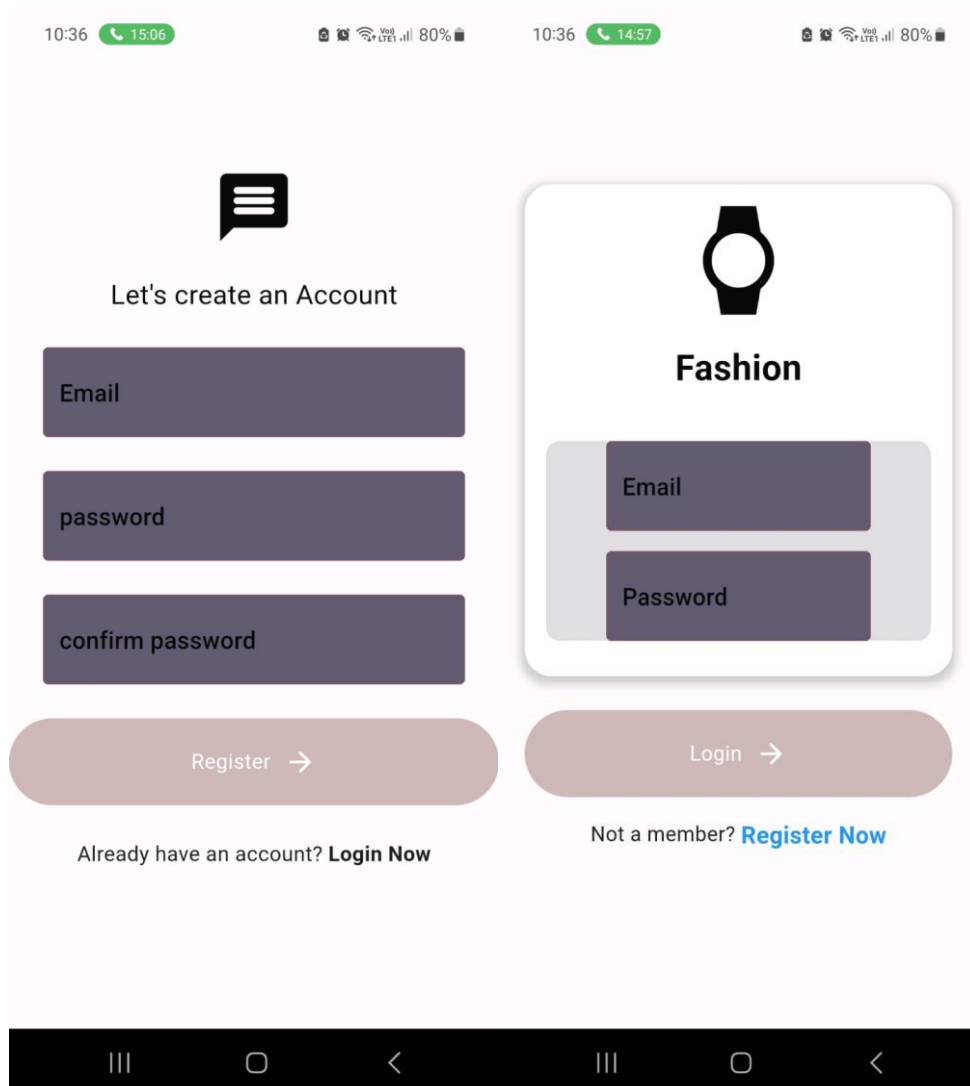
ii) intro_page.dart:



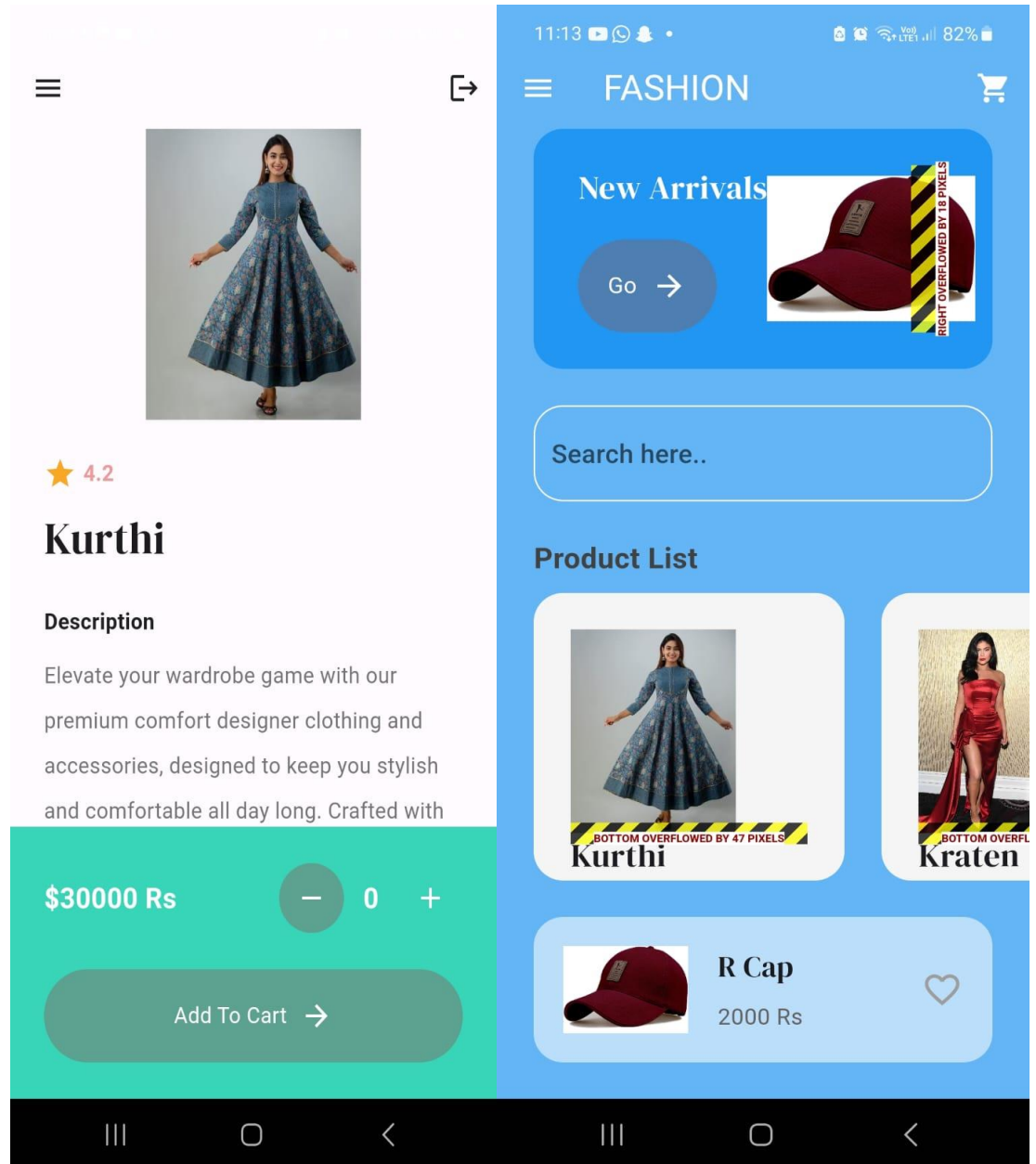
```
1 import 'package:flutter/material.dart';
2 import 'package:Fashion/components/button.dart';
3 import 'package:Fashion/models/food.dart';
4 import 'package:Fashion/models/shop.dart';
5 import 'package:Fashion/pages/payment.dart';
6 import 'package:Fashion/theme/colors.dart';
7 import 'package:provider/provider.dart';
8
9 class CartPage extends StatelessWidget {
10   const CartPage({super.key});
11
12   // remove from cart
13   void removeFromCart(Food food, BuildContext context) {
14     // get access to shop
15     final shop = context.read<Shop>();
16
17     // remove from cart
18     shop.removeFromCart(food);
19   }
20
21   @override
22   Widget build(BuildContext context) {
23     return Consumer<Shop>{
24       builder: (context, value, child) => Scaffold(
25         backgroundColor: primaryColor,
26         appBar: AppBar(
27           title: const Text('My Cart'),
28           elevation: 8,
29           backgroundColor: primaryColor,
30         ),
31       ),
32     };
33   }
34 }
```

B.SCREEN SHOTS

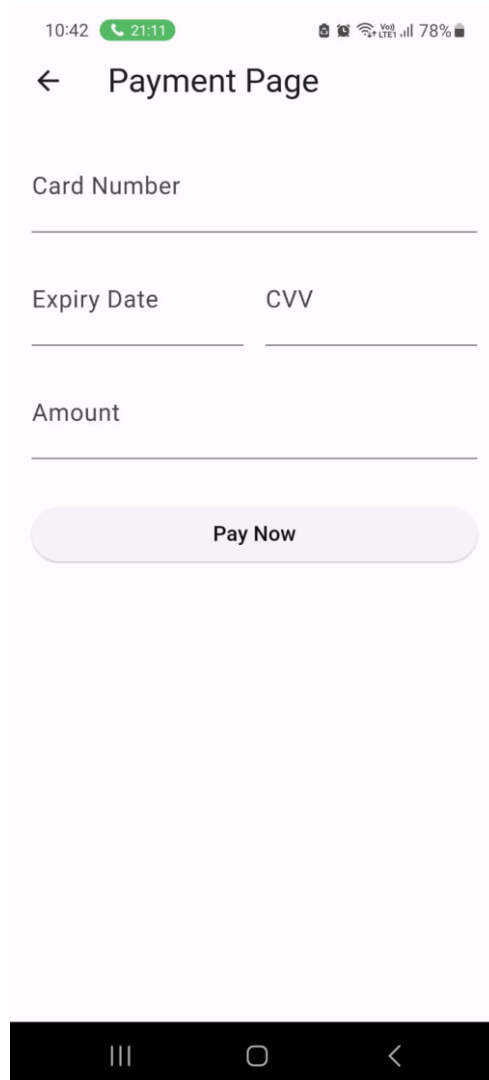
i) Login page And Signup Page



ii) Homepage & Navigation bar



iii) Payment Page



A mobile application payment page with a light pink background. At the top, a status bar shows the time 10:42, a green call button with '21:11', and various system icons including signal strength, VoLTE, and 78% battery. Below the status bar is a header with a back arrow and the text 'Payment Page'. The form contains three input fields: 'Card Number' (a single line), 'Expiry Date' and 'CVV' (two separate lines), and 'Amount' (a single line). A rounded rectangular button labeled 'Pay Now' is positioned below the input fields. At the bottom of the screen is a black navigation bar with three white icons: a hamburger menu, a home button, and a back arrow.

10:42 21:11

← Payment Page

Card Number

Expiry Date CVV

Amount

Pay Now