

CHAPTER 1

INTRODUCTION

In the dynamic landscape of modern agriculture, farmers often face numerous challenges in accessing fair markets for their produce. Traditional methods of selling crops frequently involve intermediaries, leading to reduced profit margins and limited control over pricing. These issues are compounded by a lack of real-time market information, logistical inefficiencies, and the complexities of navigating supply chains. To address these challenges, we propose the development of a mobile application designed to facilitate Direct Market Access (DMA) for farmers. This innovative platform will empower farmers by connecting them directly with consumers, retailers, and other buyers, thereby eliminating intermediaries and optimizing the selling process.

The core objective of this mobile app is to create a transparent, efficient, and equitable marketplace for agricultural products. By leveraging the power of mobile technology, the app will provide farmers with tools to manage their sales, access market information, and improve their overall profitability. The app will enable farmers to list their products, set prices, and negotiate directly with buyers. It will also provide features for managing inventory, tracking sales, and receiving payments securely. Furthermore, the app will integrate features for providing real-time market data, weather updates, and best practices for farming, empowering farmers with the knowledge they need to make informed decisions.

The development of this mobile app is rooted in the belief that technology can play a transformative role in uplifting the agricultural sector. By providing farmers with direct access to markets, the app will contribute to several key benefits. Firstly, it will increase farmers' income by eliminating intermediaries and allowing them to capture a larger share of the market value. Secondly, it will enhance market transparency by providing real-time pricing information and reducing information asymmetry. Thirdly, it will improve efficiency by streamlining the sales process and reducing the time and effort required to sell crops. Finally, it will promote sustainability by reducing food waste and supporting local economy.

The app will be designed with a user-centric approach, ensuring that it is accessible and easy to use for farmers with varying levels of technological literacy. The user interface will be intuitive and multilingual, supporting local languages to cater to a diverse user base. The app will also incorporate features for offline access, enabling farmers to use the app even in areas with limited internet connectivity. Furthermore, the app will be integrated with secure payment gateways and logistics providers to facilitate seamless transactions and deliveries.

The target users of the app will include smallholder farmers, farmer producer organizations (FPOs), and other agricultural stakeholders. The app will be designed to cater to the specific needs of each user group, providing tailored features and functionalities. For example, the app will provide FPOs with tools to manage their members' produce, coordinate sales, and access bulk buyers. For retailers and consumers, the app will provide a platform to source fresh, high-quality produce directly from farmers, supporting local agriculture and reducing carbon emissions.

The development process will involve several key phases, including requirements gathering, app design, development, testing, and deployment. The app will be developed using a cross-platform framework to ensure compatibility with both Android and iOS devices. The development team will consist of experienced software developers, UI/UX designers, and agricultural experts. The project will follow an agile development methodology, allowing for iterative development and continuous feedback.

In conclusion, the mobile app for Direct Market Access for Farmers represents a significant opportunity to transform the agricultural sector. By empowering farmers with direct access to markets, the app will contribute to increased incomes, enhanced market transparency, improved efficiency, and sustainable agriculture practices. This project has the potential to create a more equitable and resilient food system, benefiting farmers, consumers, and the environment.

1.1 PURPOSE

The main goal of this mobile app is to empower farmers by giving them direct access to markets. This helps them sell their produce directly to consumers, retailers, or other buyers. By cutting out the middlemen, farmers can potentially increase their income, get better prices for their crops, and have more control over their sales.

1.2 PROJECT SCOPE

The project will cover the development of a mobile app with these key features:

- **User Registration and Profiles:** Farmers and buyers will be able to create accounts and set up profiles with their information.
- **Product Listings:** Farmers can list their products with details like the type of crop, quantity, price, and pictures.
- **Search and Filtering:** Buyers can search for products based on different criteria like crop type, location, and price.
- **Direct Communication:** The app will allow farmers and buyers to communicate directly to negotiate prices and arrange sales.
- **Order Management:** There will be features for managing orders, including tracking the status of sales and deliveries.
- **Payment Integration:** Secure payment options will be included to handle transactions.
- **Reviews and Ratings:** Buyers and farmers can rate each other to build trust and transparency.
- **Notifications:** The app will send notifications for new listings, messages, order updates, and payment confirmations.

1.3 PRODUCT FEATURES.

For Farmers:

- Easy-to-use interface for listing products: This means a clean, intuitive design with large buttons, clear instructions, and minimal steps to create a listing. The app should guide farmers through the process, perhaps with templates or pre-filled options for common crops.
- Tools for managing inventory and tracking sales: The app should allow farmers to easily update their available stock, mark items as sold, and generate reports on their sales. This could include features like automatic deduction of inventory when a sale is made.
- Real-time price updates and market information: This is crucial. The app needs to pull data from various sources to provide up-to-the-minute price information for different crops in their local markets. This could also include information on demand, weather forecasts, and competitor pricing.
- Direct messaging with buyers: This feature should allow farmers to communicate directly with potential buyers, answer questions, negotiate prices, and arrange for delivery. The messaging system should be reliable and user-friendly, with features like read receipts.
- Payment tracking and transaction history: The app should provide a clear record of all transactions, including payment status, amounts, and dates. Farmers should be able to easily see their earnings, track outstanding payments, and generate reports for their records.

For Buyers:

- Advanced search and filtering options: Buyers should be able to search for specific crops, filter by location, price, quality, and other relevant criteria. The app should provide a range of filtering options to help buyers find exactly what they need.
- Ability to compare prices and products: Buyers should be able to compare prices from different farmers and view details about the products. This could include

features like a side-by-side comparison of prices, quality, and other relevant information.

- **Direct messaging with farmers:** This feature allows buyers to communicate directly with farmers, ask questions, negotiate prices, and arrange for delivery. The messaging system should be reliable and user-friendly.
- **Secure payment options:** The app should offer secure payment options, such as mobile money, bank transfers, or credit card payments. The payment system should be reliable and protect both buyers and farmers from fraud.
- **Reviews and ratings of farmers:** This feature allows buyers to rate and review farmers based on their experience. This helps build trust and allows other buyers to make informed decisions.

Additional Features:

- **Multilingual support:** The app should be available in multiple languages to cater to a wider audience. This includes the user interface, instructions, and customer support.
- **Offline access to basic information:** The app should allow users to access basic information, such as crop listings and market information, even without an internet connection. This is particularly important in areas with limited connectivity.
- **Customer support and FAQs:** The app should provide customer support and a comprehensive FAQ section to help users with any questions or issues they may have. This could include features like in-app chat support or a phone number.

This project aims to create a comprehensive and user-friendly platform that empowers farmers and buyers, fostering economic growth and improving market efficiency.

CHAPTER 2

WORKS DONE IN THE RELATED AREA

1. e-NAM (Electronic National Agriculture Market):

The e-NAM initiative, launched by the Government of India, aims to create a unified national market for agricultural commodities. By integrating existing agricultural markets across states, e-NAM facilitates online trading of farm produce. The platform allows farmers to register and list their products for sale, enabling them to reach a larger audience of buyers, including wholesalers and retailers.

Farmers can view real-time prices for various commodities and make informed decisions about when and where to sell their produce. The app also ensures transparency in pricing, reducing the chances of exploitation by middlemen. Additionally, e-NAM provides logistical support, helping farmers with transportation and storage solutions. Overall, this initiative empowers farmers by giving them more control over their sales and improving their income potential.

2. Kisan Suvidha:

Kisan Suvidha is a comprehensive mobile app developed to assist farmers in various aspects of agriculture. The app provides critical information such as weather forecasts, market prices, and expert advice on crop management. By receiving timely updates on weather conditions, farmers can plan their sowing and harvesting activities more effectively, minimizing losses due to unforeseen weather changes.

The market price feature allows farmers to compare prices of their produce across different markets, helping them choose the most profitable options. Furthermore, the app includes a section for expert advice, where farmers can consult agronomists and agricultural scientists for guidance on best practices.

Kisan Suvidha also promotes government schemes and subsidies available to farmers, ensuring they are aware of all support systems in place.

3. IFFCO Kisan Agriculture App:

The IFFCO Kisan Agriculture App is designed to provide farmers with a wealth of information related to agriculture. It covers various topics, including crop management, soil health, pest control, and market prices. The app aims to educate farmers on sustainable farming practices while also providing them with the tools to enhance productivity.

One of the standout features of the IFFCO Kisan app is its advisory services. Farmers can access expert opinions and recommendations tailored to their specific needs, whether they are dealing with crop diseases or seeking advice on fertilization. The app also includes a marketplace where farmers can connect with buyers directly, reducing their reliance on intermediaries and ensuring they receive a fair price for their produce.

4. Reuters Market Light:

Reuters Market Light is a mobile app that delivers real-time information to farmers, helping them make informed decisions in a rapidly changing market environment. The app provides updates on market prices for various crops, allowing farmers to track price fluctuations and identify the best times to sell.

In addition to market prices, the app offers weather updates, which are crucial for farmers in planning their agricultural activities. Reuters Market Light also features news articles and insights related to agriculture, keeping farmers informed about industry trends and developments. The combination of market data and timely information helps farmers reduce risks and maximize their profits.

5. FarmGhar:

FarmGhar is a unique mobile app that connects farmers directly with consumers and businesses looking to purchase agricultural products. By eliminating intermediaries, FarmGhar enables farmers to sell their produce at competitive prices, ultimately improving their profit margins.

The app provides a user-friendly interface for farmers to list their products, including details such as quantity, price, and quality. Consumers can browse through available products and make purchases directly from farmers. This direct connection fosters a sense of community and trust between farmers and consumers, encouraging sustainable practices and supporting local economies. Additionally, FarmGhar includes features for farmers to manage their sales, track inventory, and receive payments securely.

6. e-Mandi:

e-Mandi is designed to revolutionize the way farmers sell their produce by connecting them directly to buyers, such as wholesalers, retailers, and consumers. This app eliminates the need for intermediaries, which often take a significant cut from the profits. Farmers can register on the platform, list their products, and set prices based on real-time market data. The app features a user-friendly interface that allows farmers to easily navigate through various options, including listing their produce, viewing demand trends, and receiving notifications about buyer inquiries. Additionally, e-Mandi can include features like secure payment options, logistics support for delivery, and a rating system to build trust between farmers and buyers. By providing transparency in pricing and reducing transaction costs, e-Mandi aims to increase farmers' income while ensuring consumers have access to fresh produce.

7. Farm Connect:

Farm Connect focuses on creating a marketplace where farmers can directly sell their products to consumers. This app allows farmers to create profiles, showcase their produce, and manage orders efficiently. Buyers can browse through different categories, filter products based on availability, and place orders directly through the app. The platform can also facilitate bulk purchases for restaurants and retailers, ensuring that farmers can reach larger markets. To enhance user engagement, Farm Connect can incorporate features like customer reviews, recipe suggestions using

the purchased produce, and seasonal promotions. The app may also provide educational content for farmers on best practices for marketing their products effectively. By fostering a direct relationship between farmers and consumers, Farm Connect aims to empower farmers and promote local food systems.

8. Krishi Bazaar:

Krishi Bazaar is a comprehensive platform that not only enables direct sales but also offers valuable insights to farmers. The app can provide market analysis tools that help farmers understand demand trends, pricing fluctuations, and competitor analysis. Farmers can access data on which crops are currently in demand and adjust their planting strategies accordingly. The app can also feature a forum for farmers to share experiences, ask questions, and learn from each other. Additionally, Krishi Bazaar can include educational resources, such as videos and articles on sustainable farming practices, pest management, and crop rotation techniques. By combining direct market access with educational support, Krishi Bazaar aims to enhance the overall productivity and profitability of farmers.

9. Kisan Suvidha:

Kisan Suvidha is designed to be a one-stop solution for farmers, providing them with essential information to make informed decisions. The app can feature weather forecasts tailored to specific regions, helping farmers plan their planting and harvesting schedules effectively. In addition to weather updates, Kisan Suvidha can provide real-time market prices for various crops, enabling farmers to choose the right time to sell their produce. The app can also include expert advice from agricultural specialists, covering topics such as soil health, crop diseases, and irrigation techniques. By integrating these features, Kisan Suvidha empowers farmers with knowledge and tools to enhance their productivity and profitability.

10. AgriTrade:

AgriTrade focuses on creating a seamless trading experience for farmers looking to sell their produce directly to consumers or businesses. The app can facilitate user-friendly transactions, allowing farmers to list their products, negotiate prices, and finalize sales all within the platform. To ensure transparency, AgriTrade can implement a secure payment system that protects both parties. The app may also offer features like inventory management, sales analytics, and customer relationship management tools to help farmers grow their businesses. Additionally, AgriTrade can encourage local sourcing by promoting farm-to-table initiatives and connecting farmers with local restaurants and grocery stores. By simplifying the trading process, AgriTrade aims to enhance farmers' market access and foster a sustainable agricultural ecosystem.

CHAPTER 3

SYSTEM ANALYSIS

By clearly defining these system requirements, we can create a app that not only meets the needs of farmers but also convenient for consumers. This structured approach will facilitate effective development, testing, and deployment, ultimately leading to a successful product that enhances the experience.

3.1 USER REQUIREMENTS

1. User-Friendly Interface:

A user-friendly interface is crucial for ensuring that users can navigate the app easily. The design should be intuitive, with clearly labelled buttons and a straightforward layout. This will help users, including those who may not be tech-savvy, to quickly learn how to use the app. Features such as a tutorial or help section can further assist users in understanding how to utilize the app effectively.

2. Market Information:

Providing real-time market information is essential for users to make informed decisions. The app should display current prices of various crops and products, along with historical data to help users identify trends. Additionally, information about the demand for specific products in different markets can guide farmers in planning their production and sales strategies.

3. Direct Communication:

Enabling direct communication between farmers and buyers is a key feature. The app should include a messaging system or chat feature that allows users to negotiate prices,

discuss product details, and finalize sales without intermediaries. This direct line of communication can help build trust and foster better relationships between farmers and buyers.

4. Transaction Management:

A secure transaction management system is vital for facilitating sales. The app should support various payment methods, including mobile wallets and bank transfers, ensuring that transactions are safe and efficient. Users should also be able to track their orders, view transaction history, and receive confirmations for completed sales.

5. Logistics Support:

To aid in the delivery of products, the app should offer logistics support. This could include partnerships with local transport services or features that allow users to arrange for transportation directly through the app. Providing information on delivery options and costs can help farmers plan their sales more effectively.

6. Multilingual Support:

Given the diversity in language among users, the app should support multiple languages. This feature will make the app accessible to a broader audience, ensuring that language barriers do not hinder farmers from using the app effectively.

7. Offline Access:

Many farmers may not have consistent internet access, so the app should allow users to access essential information offline. This could include downloadable market data or the ability to view previously loaded content without an internet connection.

8. Notifications and Alerts:

Real-time notifications about market updates, price changes, and transaction statuses are important for keeping users informed. The app should allow users to customize their notification preferences to receive alerts that are most relevant to their interests and needs.

9. Data Security:

Ensuring the security and privacy of user data is paramount. The app should implement strong encryption methods and secure login processes to protect sensitive information. Users should also be informed about how their data will be used and have the option to control their privacy settings.

10. Feedback and Support:

A feedback mechanism is essential for continuous improvement. The app should provide users with an easy way to submit feedback or report issues. Additionally, a customer support feature, such as a help desk or FAQ section, can assist users in resolving any problems they encounter while using the app.

11. Profile Management:

Farmers should be able to manage their profiles easily, including updating contact information and banking details for transactions. A straightforward profile management system can help ensure that all information is current and accurate.

3.2 HARDWARE REQUIREMENTS

1. Laptop
 - Processor - AMD Ryzen 5 4600H
 - RAM - 4GB
 - Hard Disk - 100GB
 - Dedicated GPU
2. Android Phone

3.3 SOFTWARE REQUIREMENTS

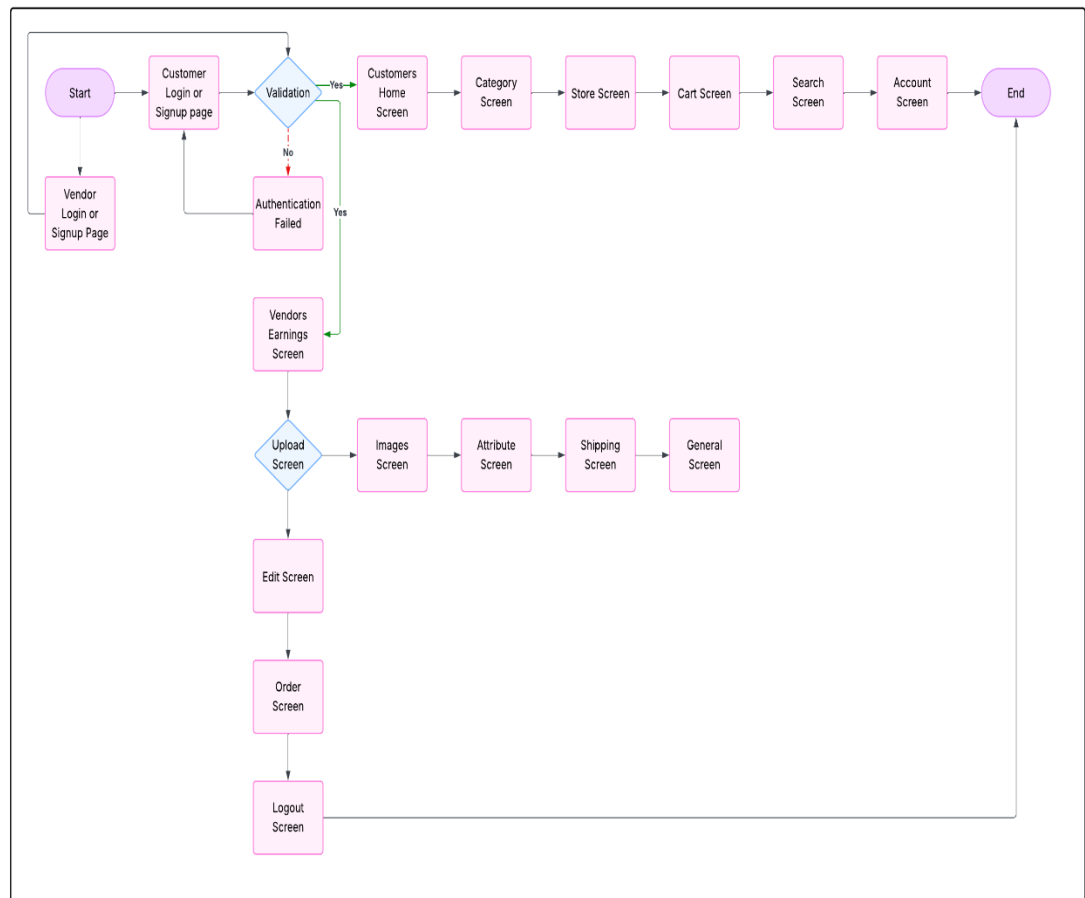
- OS - Windows 11
- IDE - Android Studio
- Frontend – Flutter Framework
- Backend – Dart
- Database – Firebase Realtime Database

CHAPTER 4

SYSTEM DESIGN AND SPECIFICATIONS

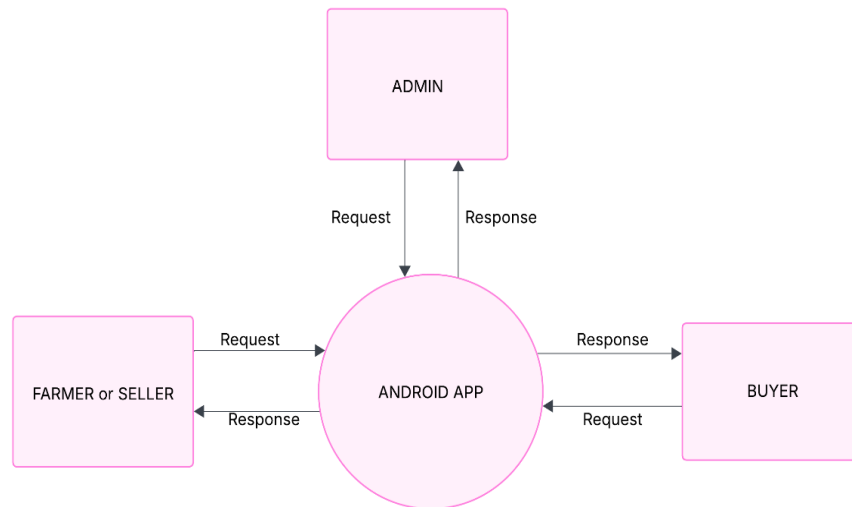
4.1 HIGH LEVEL DESIGN

4.1.1 Project Model



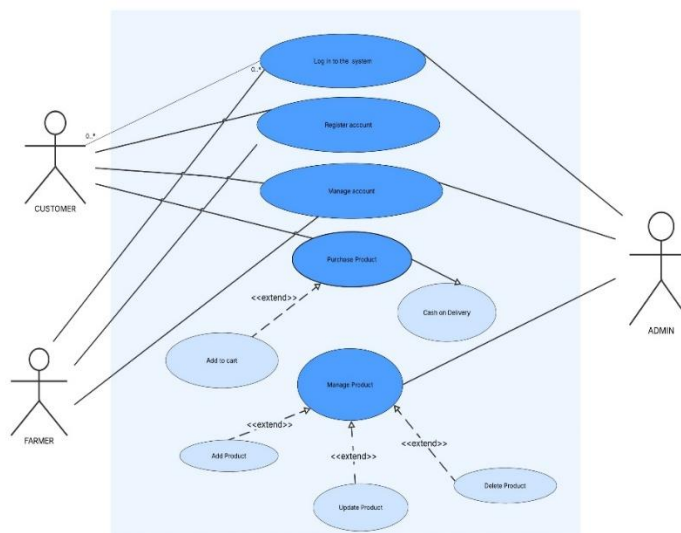
4.1.2 DFD

(Level 0)

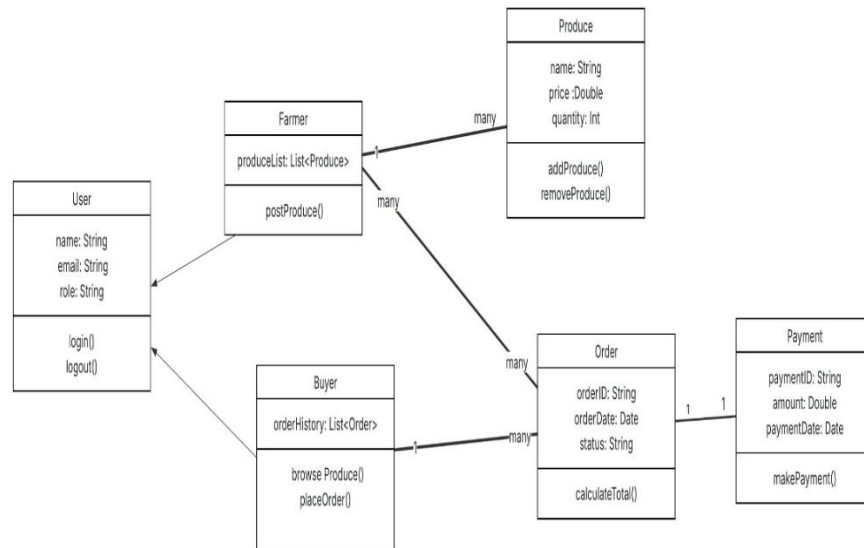


4.1.3 UML Diagram

1. Use Case Diagram



2. Class Diagram



4.2 LOW LEVEL DESIGN

4.2.1 Process Specification

1. User Registration and Authentication:

- Farmers and buyers register with verified details.
- Secure login with password and optional two-factor authentication.

2. Market Information:

- Real-time price updates for various crops.
- Market location and contact details.
- Historical price trends and analysis.

3. Produce Listing and Management:

- Farmers list produce with details (quantity, quality, price).
- Ability to update or remove listings.
- Categorization and search functionality.

4. Buyer Interaction:

- Buyers can search for produce.
- Direct messaging and negotiation features.
- Option to place orders.

5. Order Management:

- Farmers and buyers can track order status.
- Notifications for order updates.

6. Payment Gateway:

- Integration with secure payment gateways.
- Transaction history and reports.

7. Communication:

- In-app messaging for communication.
- Push notifications for updates and alerts.

8. Location Services:

- Geolocation to find nearby markets and buyers.
- Mapping of market locations.

9. User Interface:

- Intuitive and user-friendly design.
- Multilingual support.
- Accessibility features.

10. Data Security:

- Secure data storage and transmission.
- Compliance with privacy regulations.

11. Feedback and Support:

- Feedback mechanisms for users.
- Customer support channels.

4.2.2 Screenshot Diagram

1. Registration and Login Screen of customer:-

The image shows two side-by-side screenshots of a mobile application interface for customer registration and login. Both screens have a light purple background and a green status bar at the top.

Left Screenshot (Registration):

- Title: "Create Customer's Account"
- Icon: A grey silhouette of a person with a small ID card icon.
- Form fields: "Enter Email", "Enter Full Name", "Enter Phone Number", and "Password".
- Buttons: A blue "Register" button and a link "Already Have An Account Login".

Right Screenshot (Login):

- Title: "Login Customer's Account"
- Form fields: "Enter Email Address:" and "Enter Password:".
- Buttons: A blue "Login" button, a link "Don't Have An Account ? Register", and a link "Open A Farmer Account : Login".

2. . Registration and Login Screen of farmer :-

The image shows two side-by-side screenshots of a mobile application interface for farmer registration and login. Both screens have a light purple background and a green status bar at the top.

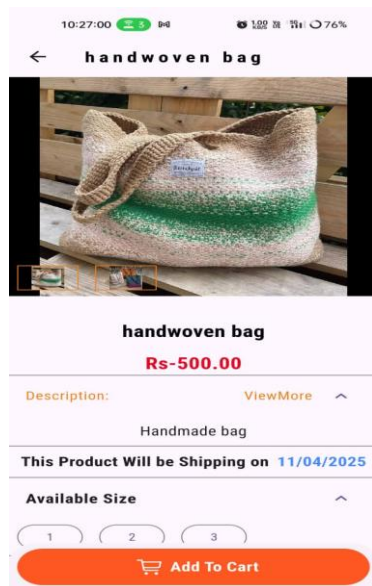
Left Screenshot (Register):

- Title: "Register"
- Text: "Already have an account? Sign in"
- Form fields: "Email", "Password", and "Confirm password".
- Button: A rounded "Register" button.

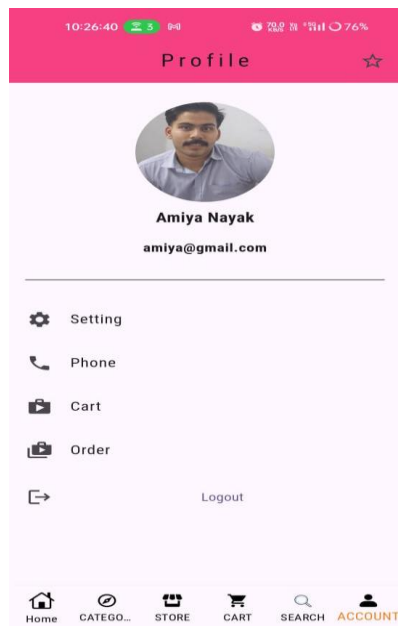
Right Screenshot (Sign in):

- Title: "Sign in"
- Text: "Don't have an account? Register"
- Form fields: "Email" and "Password".
- Text: "Forgotten password?"
- Button: A rounded "Sign in" button.

3. Item Screen :-



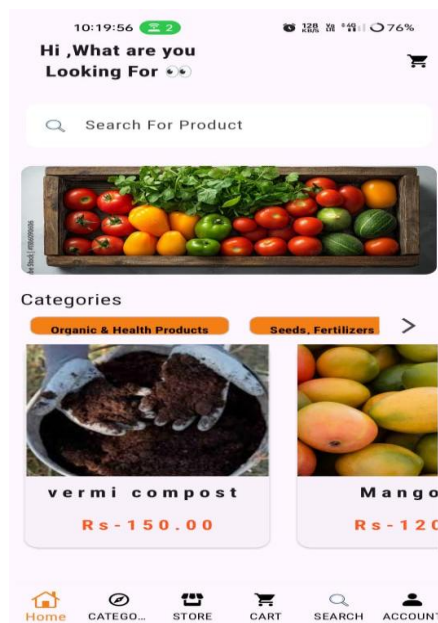
4. Profile Screen:-



5. Cart Screen: -



6. Home Screen: -



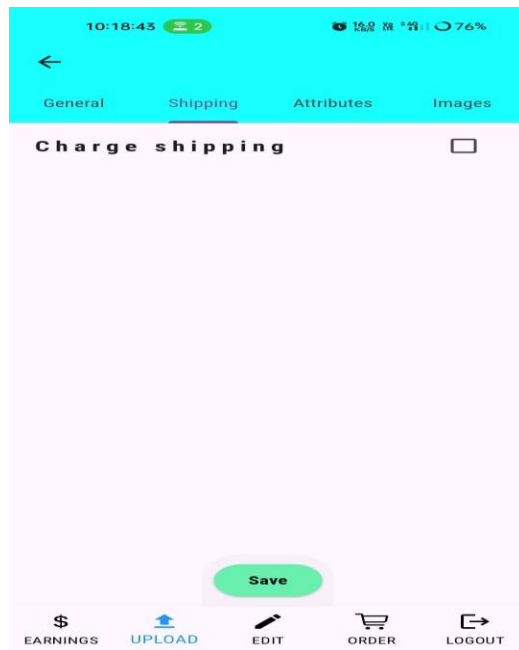
7. Category Screen:-



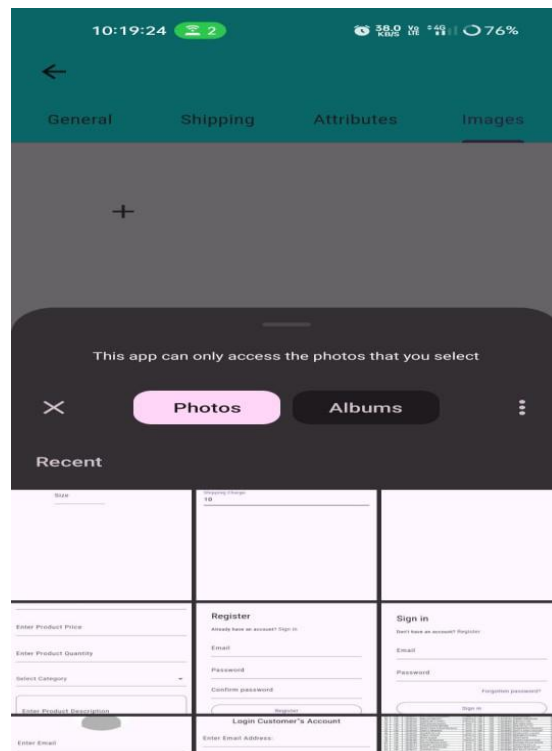
8. Store Screen:-



9. Upload Screen:-



10. Uploading images from gallery:-



CHAPTER 5

CODING

1.Admin Panel Code

```

1 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/categories_screen.dart';
2 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/dashboard_screen.dart';
3 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/order_screen.dart';
4 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/product_screen.dart';
5 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/upload_banner_screen.dart';
6 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/vendors_screen.dart';
7 import 'package:farmer_connect_web_admin/views/screens/side_bar_screens.dart/withdrawl_screen.dart';
8 import 'package:flutter/cupertino.dart';
9 import 'package:flutter/material.dart';
10 import 'package:flutter_admin_scaffold/admin_scaffold.dart';
11
12 class MainScreen extends StatefulWidget {
13   const MainScreen({super.key});
14
15   @override
16   State<MainScreen> createState() => _MainScreenState();
17 }
18
19 class _MainScreenState extends State<MainScreen> {
20   Widget _selectedItem = DashboardScreen();
21
22   screenSelector(item) {
23     switch (item.route) {
24       case DashboardScreen.routeName:
25         setState(() {
26           _selectedItem = DashboardScreen();
27         });
28         break;
29       case VendorsScreen.routeName:
30         setState(() {
31           _selectedItem = VendorsScreen();
32         });
33         break;
34       case WithdrawlScreen.routeName:
35         setState(() {
36           _selectedItem = WithdrawlScreen();
37         });
38         break;
39       case OrderScreen.routeName:
40         setState(() {
41           _selectedItem = OrderScreen();
42         });
43         break;
44       case CategoriesScreen.routeName:
45         setState(() {
46           _selectedItem = CategoriesScreen();
47         });
48         break;
49       case ProductScreen.routeName:
50         setState(() {
51           _selectedItem = ProductScreen();
52         });
53         break;
54       case UploadBannerScreen.routeName:
55         setState(() {
56           _selectedItem = UploadBannerScreen();
57         });
58         break;
59     }
60   }
61
62   @override
63   Widget build(BuildContext context) {
64     return AdminScaffold(
65       appBar: AppBar(
66         title: Text(
67           'Management',
68         ), // Text
69         backgroundColor: Colors.amber,
70       ), // AppBar
71       sideBar: SideBar(
72         items: [
73           AdminMenuItem(
74             title: 'Dashoard',
75             icon: Icons.dashboard,
76             route: DashboardScreen.routeName,
77           ), // AdminMenuItem
78           AdminMenuItem(
79             title: 'Vendors',
80             icon: CupertinoIcons.person_3,
81             route: VendorsScreen.routeName,
82           ), // AdminMenuItem
83         ],
84       ),
85     );
86   }
87 }

```

```

95      icon: CupertinoIcons.shopping_cart,
96      route: OrderScreen.routeName,
97    ), // AdminMenuItem
98    AdminMenuItem(
99      title: 'Categories',
100      icon: Icons.category,
101      route: CategoriesScreen.routeName,
102    ), // AdminMenuItem
103    AdminMenuItem(
104      title: 'Product',
105      icon: Icons.shop,
106      route: ProductScreen.routeName,
107    ), // AdminMenuItem
108    AdminMenuItem(
109      title: 'Upload Banner',
110      icon: CupertinoIcons.add,
111      route: UploadBannerScreen.routeName,
112    ), // AdminMenuItem
113  ],
114  selectedRoute: '/',
115  onSelected: (item) {
116    screenSelector(item);
117  },
118  header: Container(
119    height: 50,
120    width: double.infinity,
121    color: const Color(0xff444444),
122    child: const Center(
123      child: Text(
124        'Farmer-Connect AdminPanel',
125        style: TextStyle(
126          color: Colors.white,
127        ), // TextStyle
128      ), // Text
129    ), // Center
130  ), // Container
131  footer: Container(
132    height: 50,
133    width: double.infinity,
134    color: const Color(0xff444444),
135    child: const Center(
136      child: Text(
137        'footer',
138        style: TextStyle(
139          color: Colors.white,
140        ), // TextStyle
141      ), // Text
142    ), // Center
143  ), // Container
144  ), // SideBar
145  body: _selectedItem
146 ); // AdminScaffold
147 }
148 }
149

```

2. Mobile app Main Screen code: -

```

1  import 'package:farmer_connect/views/buyers/nav_screens/account_screen.dart';
2  import 'package:farmer_connect/views/buyers/nav_screens/cart_screen.dart';
3  import 'package:farmer_connect/views/buyers/nav_screens/category_screen.dart';
4  import 'package:farmer_connect/views/buyers/nav_screens/home_screen.dart';
5  import 'package:farmer_connect/views/buyers/nav_screens/search_screen.dart';
6  import 'package:farmer_connect/views/buyers/nav_screens/store_screen.dart';
7  import 'package:flutter/cupertino.dart';
8  import 'package:flutter/material.dart';
9  import 'package:flutter_svg/flutter_svg.dart';
10
11 class MainScreen extends StatefulWidget {
12   const MainScreen({super.key});
13
14   @override
15   State<MainScreen> createState() => _MainScreenState();
16 }
17
18 class _MainScreenState extends State<MainScreen> {
19   int _pageIndex = 0;
20
21   // ignore: prefer_final_fields
22   List<Widget> _pages = [
23     HomeScreen(),
24     CategoryScreen(),
25     StoreScreen(),
26     CartScreen(),
27     SearchScreen(),
28     AccountScreen(),
29   ];
30
31   @override
32   Widget build(BuildContext context) {
33     return Scaffold(
34       bottomNavigationBar: BottomNavigationBar(
35         type: BottomNavigationBarType.fixed,
36         currentIndex: _pageIndex,
37         onTap: (value) {
38           setState(() {
39             _pageIndex = value;
40           });
41         },
42         unselectedItemColor: Colors.black,
43         selectedItemColor: Colors.yellow.shade900,
44         items: [
45           BottomNavigationBarItem(
46             icon: Icon(CupertinoIcons.home), label: 'Home'), // BottomNavigationBarItem
47           BottomNavigationBarItem(
48             icon: SvgPicture.asset(
49               'assets/icons/explore.svg',
50               width: 20,
51             ), // SvgPicture.asset
52             label: 'CATEGORIES'), // BottomNavigationBarItem
53           BottomNavigationBarItem(
54             icon: SvgPicture.asset(
55               'assets/icons/shop.svg',
56               width: 20,
57             ), // SvgPicture.asset
58             label: 'STORE'), // BottomNavigationBarItem
59           BottomNavigationBarItem(
60             icon: SvgPicture.asset(
61               'assets/icons/cart.svg',
62               width: 20,
63             ), // SvgPicture.asset
64             label: 'CART'), // BottomNavigationBarItem
65           BottomNavigationBarItem(
66             icon: SvgPicture.asset(
67               'assets/icons/search.svg',
68               width: 20,
69             ), // SvgPicture.asset
70             label: 'SEARCH'), // BottomNavigationBarItem
71           BottomNavigationBarItem(
72             icon: SvgPicture.asset(
73               'assets/icons/account.svg',
74               width: 20,
75             ), // SvgPicture.asset
76             label: 'ACCOUNT'), // BottomNavigationBarItem
77         ], // BottomNavigationBar
78       body: _pages[_pageIndex],
79     ); // Scaffold
80   }
81 }
82
83
84

```

3. Product Screen Code:-

```

1  import 'package:farmer_connect/provider/cart_provider.dart';
2  import 'package:flutter/cupertino.dart';
3  import 'package:flutter/material.dart';
4  import 'package:photo_view/photo_view.dart';
5  import 'package:intl/intl.dart';
6  import 'package:provider/provider.dart';
7
8  class ProductDetailScreen extends StatefulWidget {
9    final Map<String, dynamic>? productData;
10
11    const ProductDetailScreen({super.key, this.productData});
12
13    @override
14    State<ProductDetailScreen> createState() => _ProductDetailScreenState();
15  }
16
17  class _ProductDetailScreenState extends State<ProductDetailScreen> {
18    String formattedDate(date) {
19      final outPutDateFormat = DateFormat('dd/MM/yyyy');
20      final outPutDate = outPutDateFormat.format(date);
21      return outPutDate;
22    }
23
24    int _imageIndex = 0;
25    String? _selectedSize;
26
27    @override
28    Widget build(BuildContext context) {
29      final CartProvider _cartProvider = Provider.of<CartProvider>(context);
30      if (widget.productData == null) {
31        return Scaffold(
32          appBar: AppBar(title: Text('Product Detail')),
33          body: Center(child: Text('No product data available.')),
34        );
35      }
36
37      final imageUrls = widget.productData!['imageUrls'] as List<dynamic>? ?? [];
38      final sizeList = widget.productData!['sizeList'] as List<dynamic>? ?? [];
39
40      return Scaffold(
41        appBar: AppBar(
42          title: Text(
43            widget.productData!['productName'] ?? 'Product',
44            style: TextStyle(
45              fontSize: 20,
46              color: Colors.black,
47              fontWeight: FontWeight.bold,
48              letterSpacing: 4,
49            ),
50          ),
51        ),
52        body: SingleChildScrollView(
53          child: Column(
54            children: [
55              Stack(
56                children: [
57                  Container(
58                    height: 300,
59                    width: double.infinity,
60                    child: PhotoView(
61                      imageProvider: NetworkImage(
62                        imageUrls.isNotEmpty && _imageIndex < imageUrls.length
63                          ? imageUrls[_imageIndex]
64                          : '')),
65                ),
66                Positioned(
67                  bottom: 0,
68                  child: Container(
69                    height: 50,
70                    width: double.infinity,
71                    child: Row(
72                      children: [
73                        Container(
74                          width: 10,
75                          height: 10,
76                          decoration: BoxDecoration(
77                            border: Border.all(
78                              color: Colors.yellow.shade900),
79                            borderRadius: BorderRadius.circular(5),
80                          ),
81                        ),
82                        Container(
83                          width: 10,
84                          height: 10,
85                          decoration: BoxDecoration(
86                            border: Border.all(
87                              color: Colors.yellow.shade900),
88                            borderRadius: BorderRadius.circular(5),
89                          ),
90                        ),
91                        Container(
92                          width: 10,
93                          height: 10,
94                          decoration: BoxDecoration(
95                            border: Border.all(
96                              color: Colors.yellow.shade900),
97                            borderRadius: BorderRadius.circular(5),
98                          ),
99                        ),
100                       Container(
101                         width: 10,
102                         height: 10,
103                         decoration: BoxDecoration(
104                           border: Border.all(
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106                           borderRadius: BorderRadius.circular(5),
107                         ),
108                       ),
109                       Container(
110                         width: 10,
111                         height: 10,
112                         decoration: BoxDecoration(
113                           border: Border.all(
114                             color: Colors.yellow.shade900),
115                           borderRadius: BorderRadius.circular(5),
116                         ),
117                       ),
118                       Container(
119                         width: 10,
120                         height: 10,
121                         decoration: BoxDecoration(
122                           border: Border.all(
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124                           borderRadius: BorderRadius.circular(5),
125                         ),
126                       ),
127                       Container(
128                         width: 10,
129                         height: 10,
130                         decoration: BoxDecoration(
131                           border: Border.all(
132                             color: Colors.yellow.shade900),
133                           borderRadius: BorderRadius.circular(5),
134                         ),
135                       ),
136                       Container(
137                         width: 10,
138                         height: 10,
139                         decoration: BoxDecoration(
140                           border: Border.all(
141                             color: Colors.yellow.shade900),
142                           borderRadius: BorderRadius.circular(5),
143                         ),
144                       ),
145                       Container(
146                         width: 10,
147                         height: 10,
148                         decoration: BoxDecoration(
149                           border: Border.all(
150                             color: Colors.yellow.shade900),
151                           borderRadius: BorderRadius.circular(5),
152                         ),
153                       ),
154                       Container(
155                         width: 10,
156                         height: 10,
157                         decoration: BoxDecoration(
158                           border: Border.all(
159                             color: Colors.yellow.shade900),
160                           borderRadius: BorderRadius.circular(5),
161                         ),
162                       ),
163                       Container(
164                         width: 10,
165                         height: 10,
166                         decoration: BoxDecoration(
167                           border: Border.all(
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169                           borderRadius: BorderRadius.circular(5),
170                         ),
171                       ),
172                       Container(
173                         width: 10,
174                         height: 10,
175                         decoration: BoxDecoration(
176                           border: Border.all(
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178                           borderRadius: BorderRadius.circular(5),
179                         ),
180                       ),
181                       Container(
182                         width: 10,
183                         height: 10,
184                         decoration: BoxDecoration(
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187                           borderRadius: BorderRadius.circular(5),
188                         ),
189                       ),
190                       Container(
191                         width: 10,
192                         height: 10,
193                         decoration: BoxDecoration(
194                           border: Border.all(
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196                           borderRadius: BorderRadius.circular(5),
197                         ),
198                       ),
199                       Container(
200                         width: 10,
201                         height: 10,
202                         decoration: BoxDecoration(
203                           border: Border.all(
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205                           borderRadius: BorderRadius.circular(5),
206                         ),
207                       ),
208                       Container(
209                         width: 10,
210                         height: 10,
211                         decoration: BoxDecoration(
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213                             color: Colors.yellow.shade900),
214                           borderRadius: BorderRadius.circular(5),
215                         ),
216                       ),
217                       Container(
218                         width: 10,
219                         height: 10,
220                         decoration: BoxDecoration(
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223                           borderRadius: BorderRadius.circular(5),
224                         ),
225                       ),
226                       Container(
227                         width: 10,
228                         height: 10,
229                         decoration: BoxDecoration(
230                           border: Border.all(
231                             color: Colors.yellow.shade900),
232                           borderRadius: BorderRadius.circular(5),
233                         ),
234                       ),
235                       Container(
236                         width: 10,
237                         height: 10,
238                         decoration: BoxDecoration(
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242                         ),
243                       ),
244                       Container(
245                         width: 10,
246                         height: 10,
247                         decoration: BoxDecoration(
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249                             color: Colors.yellow.shade900),
250                           borderRadius: BorderRadius.circular(5),
251                         ),
252                       ),
253                       Container(
254                         width: 10,
255                         height: 10,
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259                           borderRadius: BorderRadius.circular(5),
260                         ),
261                       ),
262                       Container(
263                         width: 10,
264                         height: 10,
265                         decoration: BoxDecoration(
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268                           borderRadius: BorderRadius.circular(5),
269                         ),
270                       ),
271                       Container(
272                         width: 10,
273                         height: 10,
274                         decoration: BoxDecoration(
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278                         ),
279                       ),
280                       Container(
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282                         height: 10,
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287                         ),
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289                       Container(
290                         width: 10,
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297                       ),
298                       Container(
299                         width: 10,
300                         height: 10,
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304                           borderRadius: BorderRadius.circular(5),
305                         ),
306                       ),
307                       Container(
308                         width: 10,
309                         height: 10,
310                         decoration: BoxDecoration(
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313                           borderRadius: BorderRadius.circular(5),
314                         ),
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316                       Container(
317                         width: 10,
318                         height: 10,
319                         decoration: BoxDecoration(
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322                           borderRadius: BorderRadius.circular(5),
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324                       ),
325                       Container(
326                         width: 10,
327                         height: 10,
328                         decoration: BoxDecoration(
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334                       Container(
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336                         height: 10,
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343                       Container(
344                         width: 10,
345                         height: 10,
346                         decoration: BoxDecoration(
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352                       Container(
353                         width: 10,
354                         height: 10,
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361                       Container(
362                         width: 10,
363                         height: 10,
364                         decoration: BoxDecoration(
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367                           borderRadius: BorderRadius.circular(5),
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370                       Container(
371                         width: 10,
372                         height: 10,
373                         decoration: BoxDecoration(
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379                       Container(
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388                       Container(
389                         width: 10,
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399                         height: 10,
400                         decoration: BoxDecoration(
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406                       Container(
407                         width: 10,
408                         height: 10,
409                         decoration: BoxDecoration(
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412                           borderRadius: BorderRadius.circular(5),
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415                       Container(
416                         width: 10,
417                         height: 10,
418                         decoration: BoxDecoration(
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421                           borderRadius: BorderRadius.circular(5),
422                         ),
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424                       Container(
425                         width: 10,
426                         height: 10,
427                         decoration: BoxDecoration(
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452                         width: 10,
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460                       Container(
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469                       Container(
470                         width: 10,
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472                         decoration: BoxDecoration(
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478                       Container(
479                         width: 10,
480                         height: 10,
481                         decoration: BoxDecoration(
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484                           borderRadius: BorderRadius.circular(5),
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487                       Container(
488                         width: 10,
489                         height: 10,
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496                       Container(
497                         width: 10,
498                         height: 10,
499                         decoration: BoxDecoration(
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502                           borderRadius: BorderRadius.circular(5),
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505                       Container(
506                         width: 10,
507                         height: 10,
508                         decoration: BoxDecoration(
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511                           borderRadius: BorderRadius.circular(5),
512                         ),
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514                       Container(
515                         width: 10,
516                         height: 10,
517                         decoration: BoxDecoration(
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521                         ),
522                       ),
523                       Container(
524                         width: 10,
525                         height: 10,
526                         decoration: BoxDecoration(
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530                         ),
531                       ),
532                       Container(
533                         width: 10,
534                         height: 10,
535                         decoration: BoxDecoration(
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538                           borderRadius: BorderRadius.circular(5),
539                         ),
540                       ),
541                       Container(
542                         width: 10,
543                         height: 10,
544                         decoration: BoxDecoration(
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547                           borderRadius: BorderRadius.circular(5),
548                         ),
549                       ),
550                       Container(
551                         width: 10,
552                         height: 10,
553                         decoration: BoxDecoration(
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557                         ),
558                       ),
559                       Container(
560                         width: 10,
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566                         ),
567                       ),
568                       Container(
569                         width: 10,
570                         height: 10,
571                         decoration: BoxDecoration(
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575                         ),
576                       ),
577                       Container(
578                         width: 10,
579                         height: 10,
580                         decoration: BoxDecoration(
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583                           borderRadius: BorderRadius.circular(5),
584                         ),
585                       ),
586                       Container(
587                         width: 10,
588                         height: 10,
589                         decoration: BoxDecoration(
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593                         ),
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595                       Container(
596                         width: 10,
597                         height: 10,
598                         decoration: BoxDecoration(
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602                         ),
603                       ),
604                       Container(
605                         width: 10,
606                         height: 10,
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611                         ),
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613                       Container(
614                         width: 10,
615                         height: 10,
616                         decoration: BoxDecoration(
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619                           borderRadius: BorderRadius.circular(5),
620                         ),
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622                       Container(
623                         width: 10,
624                         height: 10,
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629                         ),
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631                       Container(
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730                       Container(
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749                         width: 10,
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766                       Container(
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828                       ),
829                       Container(
830                         width: 10,
831                         height: 10,
832                         decoration: BoxDecoration(
833                           border: Border.all(
834                             color: Colors.yellow.shade900),
835                           borderRadius: BorderRadius.circular(5),
836                         ),
837                       ),
838                       Container(
839                         width: 10,
840                         height: 10,
841                         decoration: BoxDecoration(
842                           border: Border.all(
843                             color: Colors.yellow.shade900),
844                           borderRadius: BorderRadius.circular(5),
845                         ),
846                       ),
847                       Container(
848                         width: 10,
849                         height: 10,
850                         decoration: BoxDecoration(
851                           border: Border.all(
852                             color: Colors.yellow.shade900),
853                           borderRadius: BorderRadius.circular(5),
854                         ),
855                       ),
856                       Container(
857                         width: 10,
858                         height: 10,
859                         decoration: BoxDecoration(
860                           border: Border.all(
861                             color: Colors.yellow.shade900),
862                           borderRadius: BorderRadius.circular(5),
863                         ),
864                       ),
865                       Container(
866                         width: 10,
867                         height: 10,
868                         decoration: BoxDecoration(
869                           border: Border.all(
870                             color: Colors.yellow.shade900),
871                           borderRadius: BorderRadius.circular(5),
872                         ),
873                       ),
874                       Container(
875                         width: 10,
876                         height: 10,
877                         decoration: BoxDecoration(
878                           border: Border.all(
879                             color: Colors.yellow.shade900),
880                           borderRadius: BorderRadius.circular(5),
881                         ),
882                       ),
883                       Container(
884                         width: 10,
885                         height: 10,
886                         decoration: BoxDecoration(
887                           border: Border.all(
888                             color: Colors.yellow.shade900),
889                           borderRadius: BorderRadius.circular(5),
890                         ),
891                       ),
892                       Container(
893                         width: 10,
894                         height: 10,
895                         decoration: BoxDecoration(
896                           border: Border.all(
897                             color: Colors.yellow.shade900),
898                           borderRadius: BorderRadius.circular(5),
899                         ),
900                       ),
901                       Container(
902                         width: 10,
903                         height: 10,
904                         decoration: BoxDecoration(
905                           border: Border.all(
906                             color: Colors.yellow.shade900),
907                           borderRadius: BorderRadius.circular(5),
908                         ),
909                       ),
910                       Container(
911                         width: 10,
912                         height: 10,
913                         decoration: BoxDecoration(
914                           border: Border.all(
915                             color: Colors.yellow.shade900),
916                           borderRadius: BorderRadius.circular(5),
917                         ),
918                       ),
919                       Container(
920                         width: 10,
921                         height: 10,
922                         decoration: BoxDecoration(
923                           border: Border.all(
924                             color: Colors.yellow.shade900),
925                           borderRadius: BorderRadius.circular(5),
926                         ),
927                       ),
928                       Container(
929                         width: 10,
930                         height: 10,
931                         decoration: BoxDecoration(
932                           border: Border.all(
933                             color: Colors.yellow.shade900),
934                           borderRadius: BorderRadius.circular(5),
935                         ),
936                       ),
937                       Container(
938                         width: 10,
939                         height: 10,
940                         decoration: BoxDecoration(
941                           border: Border.all(
942                             color: Colors.yellow.shade900),
943                           borderRadius: BorderRadius.circular(5),
944                         ),
945                       ),
946                       Container(
947                         width: 10,
948                         height: 10,
949                         decoration: BoxDecoration(
950                           border: Border.all(
951                             color: Colors.yellow.shade900),
952                           borderRadius: BorderRadius.circular(5),
953                         ),
954                       ),
955                       Container(
956                         width: 10,
957                         height: 10,
958                         decoration: BoxDecoration(
959                           border: Border.all(
960                             color: Colors.yellow.shade900),
961                           borderRadius: BorderRadius.circular(5),
962                         ),
963                       ),
964                       Container(
965                         width: 10,
966                         height: 10,
967                         decoration: BoxDecoration(
968                           border: Border.all(
969                             color: Colors.yellow.shade900),
970                           borderRadius: BorderRadius.circular(5),
971                         ),
972                       ),
973                       Container(
974                         width: 10,
975                         height: 10,
976                         decoration: BoxDecoration(
977                           border: Border.all(
978                             color: Colors.yellow.shade900),
979                           borderRadius: BorderRadius.circular(5),
980                         ),
981                       ),
982                       Container(
983                         width: 10,
984                         height: 10,
985                         decoration: BoxDecoration(
986                           border: Border.all(
987                             color: Colors.yellow.shade900),
988                           borderRadius: BorderRadius.circular(5),
989                         ),
990                       ),
991                       Container(
992                         width: 10,
993                         height: 10,
994                         decoration: BoxDecoration(
995                           border: Border.all(
996                             color: Colors.yellow.shade900),
997                           borderRadius: BorderRadius.circular(5),
998                         ),
999                       ),
1000                      Container(
1001                        width: 10,
1002                        height: 10,
1003                        decoration: BoxDecoration(
1004                          border: Border.all(
1005                            color: Colors.yellow.shade900),
1006                          borderRadius: BorderRadius.circular(5),
1007                        ),
1008                      ),
1009                      Container(
1010                        width: 10,
1011                        height: 10,
1012                        decoration: BoxDecoration(
1013                          border: Border.all(
1014                            color: Colors.yellow.shade900),
1015                          borderRadius: BorderRadius.circular(5),
1016                        ),
1017                      ),
1018                      Container(
1019                        width: 10,
1020                        height: 10,
1021                        decoration: BoxDecoration(
1022                          border: Border.all(
1023                            color: Colors.yellow.shade900),
1024                          borderRadius: BorderRadius.circular(5),
1025                        ),
1026                      ),
1027                      Container(
1028                        width: 10,
1029                        height: 10,
1030                        decoration: BoxDecoration(
1031                          border: Border.all(
1032                            color: Colors.yellow.shade900),
1033                          borderRadius: BorderRadius.circular(5),
1034                        ),
1035                      ),
1036                      Container(
1037                        width: 10,
1038                        height: 10,
1039                        decoration: BoxDecoration(
1040                          border: Border.all(
1041                            color: Colors.yellow.shade900),
1042                          borderRadius: BorderRadius.circular(5),
1043                        ),
1044                      ),
1045                      Container(
1046                        width: 10,
1047                        height: 10,
1048                        decoration: BoxDecoration(
1049                          border: Border.all(
1050                            color: Colors.yellow.shade900),
1051                          borderRadius: BorderRadius.circular(5),
1052                        ),
1053                      ),
1054                      Container(
1055                        width: 10,
1056                        height: 10,
1057                        decoration: BoxDecoration(
1058                          border: Border.all(
1059                            color: Colors.yellow.shade900),
1060                          borderRadius: BorderRadius.circular(5),
1061                        ),
1062                      ),
1063                      Container(
1064                        width: 10,
1065                        height: 10,
1066                        decoration: BoxDecoration(
1067                          border: Border.all(
1068                            color: Colors.yellow.shade900),
1069                          borderRadius: BorderRadius.circular(5),
1070                        ),
1071                      ),
1072                      Container(
1073                        width: 10,
1074                        height: 10,
1075                        decoration: BoxDecoration(
1076                          border: Border.all(
1077                            color: Colors.yellow.shade900),
1078                          borderRadius: BorderRadius.circular(5),
1079                        ),
1080                      ),
1081                      Container(
1082                        width: 10,
1083                        height: 10,
1084                        decoration: BoxDecoration(
1085                          border: Border.all(
1086                            color: Colors.yellow.shade900),
1087                          borderRadius: BorderRadius.circular(5),
1088                        ),
1089                      ),
1090                      Container(
1091                        width: 10,
1092                        height: 10,
1093                        decoration: BoxDecoration(
1094                          border: Border.all(
1095                            color: Colors.yellow.shade900),
1096                          borderRadius: BorderRadius.circular(5),
1097                        ),
1098                      ),
1099                      Container(
1100                        width: 10,
1101                        height: 10,
1102                        decoration: BoxDecoration(
1103                          border: Border.all(
1104                            color: Colors.yellow.shade900),
1105                          borderRadius: BorderRadius.circular(5),
1106                        ),
1107                      ),
1108                      Container(
1109                        width: 10,
1110                        height: 10,
1111                        decoration: BoxDecoration(
1112                          border: Border.all(
1113                            color: Colors.yellow.shade900),
1114                          borderRadius: BorderRadius.circular(5),
1115                        ),
1116                      ),
1117                      Container(
1118                        width: 10,
1119                        height: 10,
1120                        decoration: BoxDecoration(
1121                          border: Border.all(
1122                            color: Colors.yellow.shade900),
1123                          borderRadius: BorderRadius.circular(5),
1124                        ),
1125                      ),
1126                      Container(
1127                        width: 10,
1128                        height: 10,
1129                        decoration: BoxDecoration(
1130                          border: Border.all(
1131                            color: Colors.yellow.shade900),
1132                          borderRadius: BorderRadius.circular(5),
1133                        ),
1134                      ),
1135                      Container(
1136                        width: 10,
1137                        height: 10,
1138                        decoration: BoxDecoration(
1139                          border: Border.all(
1140                            color: Colors.yellow.shade900),
1141                          borderRadius: BorderRadius.circular(5),
1142                        ),
1143                      ),
1144                      Container(
1145                        width: 10,
1146                        height: 10,
1147                        decoration: BoxDecoration(
1148                          border: Border.all(
1149                            color: Colors.yellow.shade900),
1150                          borderRadius: BorderRadius.circular(5),
1151                        ),
1152                      ),
1153                      Container(
1154                        width: 10,
1155                        height: 10,
1156                        decoration: BoxDecoration(
1157                          border: Border.all(
1158                            color: Colors.yellow.shade900),
1159                          borderRadius: BorderRadius.circular(5),
1160                        ),
1161                      ),
1162                      Container(
1163                        width: 10,
1164                        height: 10,
1165                        decoration: BoxDecoration(
1166                          border: Border.all(
1167                            color: Colors.yellow.shade900),
1168                          borderRadius: BorderRadius.circular(5),
1169                        ),
1170                      ),
1171                      Container(
1172                        width: 10,
1173                        height: 10,
1174                        decoration: BoxDecoration(
1175                          border: Border.all(
1176                            color: Colors.yellow.shade900),
1177                          borderRadius: BorderRadius.circular(5),
1178                        ),
1179                      ),
1180                      Container(
1181                        width: 10,
1182                        height: 10,
1183                        decoration: BoxDecoration(
1184                          border: Border.all(
1185                            color: Colors.yellow.shade900),
1186                          borderRadius: BorderRadius.circular(5),
1187                        ),
1188                      ),
1189                      Container(
1190                        width: 10,
1191                        height: 10,
1192                        decoration: BoxDecoration(
1193                          border: Border.all(
1194                            color: Colors.yellow.shade900),
1195                          borderRadius: BorderRadius.circular(5),
1196                        ),
1197                      ),
1198                      Container(
1199                        width: 10,
1200                        height: 10,
1201                        decoration: BoxDecoration(
1202                          border: Border.all(
1203                            color: Colors.yellow.shade900),
1204                          borderRadius: BorderRadius.circular(5),
1205                        ),
1206                      ),
1207                      Container(
1208                        width: 10,
1209                        height: 10,
1210                        decoration: BoxDecoration(
1211                          border: Border.all(
1212                            color: Colors.yellow.shade900),
1213                          borderRadius: BorderRadius.circular(5),
1214                        ),
1215                      ),
1216                      Container(
1217                        width: 10,
1218                        height: 10,
1219                        decoration: BoxDecoration(
1220                          border: Border.all(
1221                            color: Colors.yellow.shade900),
1222                          borderRadius: BorderRadius.circular(5),
1223                        ),
1224                      ),
1225                      Container(
1226                        width: 10,
1227                        height: 10,
1228                        decoration: BoxDecoration(
1229                          border: Border.all(
1230                            color: Colors.yellow.shade900),
1231                          borderRadius: BorderRadius.circular(5),
1232                        ),
1233                      ),
1234                      Container(
1235                        width: 10,
1236                        height: 10,
1237                        decoration: BoxDecoration(
1238                          border: Border.all(
1239                            color: Colors.yellow.shade900),
1240                          borderRadius: BorderRadius.circular(5),
1241                        ),
1242                      ),
1243                      Container(
1244                        width: 10,
1245                        height: 10,
1246                        decoration: BoxDecoration(
1247                          border: Border.all(
1
```

```

92 | | | | | | | | | | : ''),
93 | | | | | | | | | | ),
94 | | | | | | | | | | ),
95 | | | | | | | | | | );
96 | | | | | | | | | | }},
97 | | | | | | | | | | ));
98 | | | | | | | | | | ],
99 | | | | | | | | | | ),
100 | | | | | | | | | | SizedBox(height: 20),
101 | | | | | | | | | | Padding(
102 | | | | | | | | | | padding: const EdgeInsets.all(13.0),
103 | | | | | | | | | | child: Text(
104 | | | | | | | | | | widget.productData!['productName'] ?? 'Product Name',
105 | | | | | | | | | | style: TextStyle(
106 | | | | | | | | | |   fontSize: 22,
107 | | | | | | | | | |   color: const Color.fromARGB(255, 3, 1, 12),
108 | | | | | | | | | |   fontWeight: FontWeight.bold,
109 | | | | | | | | | | ),
110 | | | | | | | | | | ),
111 | | | | | | | | | | ),
112 | | | | | | | | | | Text(
113 | | | | | | | | | |   'Rs-' +
114 | | | | | | | | | |   (widget.productData!['productPrice']?.toStringAsFixed(2) ??
115 | | | | | | | | | |   '0.00'),
116 | | | | | | | | | | style: TextStyle(
117 | | | | | | | | | |   fontSize: 22,
118 | | | | | | | | | |   color: const Color.fromARGB(255, 227, 5, 34),
119 | | | | | | | | | |   fontWeight: FontWeight.bold,
120 | | | | | | | | | | ),
121 | | | | | | | | | | ),
122 | | | | | | | | | | ExpansionTile(
123 | | | | | | | | | |   title: Row(
124 | | | | | | | | | |     mainAxisAlignment: MainAxisAlignment.spaceBetween,
125 | | | | | | | | | |     children: [
126 | | | | | | | | | |       Text(
127 | | | | | | | | | |         'Description:',
128 | | | | | | | | | |         style: TextStyle(color: Colors.yellow.shade900),
129 | | | | | | | | | |       ),
130 | | | | | | | | | |       Text(
131 | | | | | | | | | |         'ViewMore',
132 | | | | | | | | | |         style: TextStyle(color: Colors.yellow.shade900),
133 | | | | | | | | | |       ),
134 | | | | | | | | | |     ],
135 | | | | | | | | | |   ),
136 | | | | | | | | | |   children: [
137 | | | | | | | | | |     Padding(
138 | | | | | | | | | |       padding: const EdgeInsets.all(8.0),
139 | | | | | | | | | |       child: Text(
140 | | | | | | | | | |         widget.productData!['description'] ??
141 | | | | | | | | | |         'No description available.',
142 | | | | | | | | | |         style: TextStyle(fontSize: 17),
143 | | | | | | | | | |         textAlign: TextAlign.center,
144 | | | | | | | | | |       ),
145 | | | | | | | | | |     ),
146 | | | | | | | | | |   ],
147 | | | | | | | | | | ),
148 | | | | | | | | | | Padding(
149 | | | | | | | | | |   padding: const EdgeInsets.all(8.0),
150 | | | | | | | | | |   child: Row(
151 | | | | | | | | | |     mainAxisAlignment: MainAxisAlignment.spaceEvenly,
152 | | | | | | | | | |     children: [
153 | | | | | | | | | |       Text(
154 | | | | | | | | | |         'This Product Will be Shipping on ',
155 | | | | | | | | | |         style: TextStyle(fontWeight: FontWeight.bold, fontSize: 18),
156 | | | | | | | | | |       ),
157 | | | | | | | | | |       Text(
158 | | | | | | | | | |         widget.productData!['scheduleDate'] != null
159 | | | | | | | | | |         ? formattedDate(
160 | | | | | | | | | |           widget.productData!['scheduleDate'].toDate()
161 | | | | | | | | | |           : 'No shipping date available.',
162 | | | | | | | | | |         style: TextStyle(
163 | | | | | | | | | |           fontSize: 18,
164 | | | | | | | | | |           fontWeight: FontWeight.bold,
165 | | | | | | | | | |           color: Colors.blueAccent,
166 | | | | | | | | | |         ),
167 | | | | | | | | | |       ),
168 | | | | | | | | | |     ],
169 | | | | | | | | | |   ),
170 | | | | | | | | | | ),
171 | | | | | | | | | | ExpansionTile(
172 | | | | | | | | | |   title: Text(
173 | | | | | | | | | |     'Available Size',
174 | | | | | | | | | |     style: TextStyle(
175 | | | | | | | | | |       fontSize: 18,
176 | | | | | | | | | |       fontWeight: FontWeight.bold,
177 | | | | | | | | | |     ),

```

```

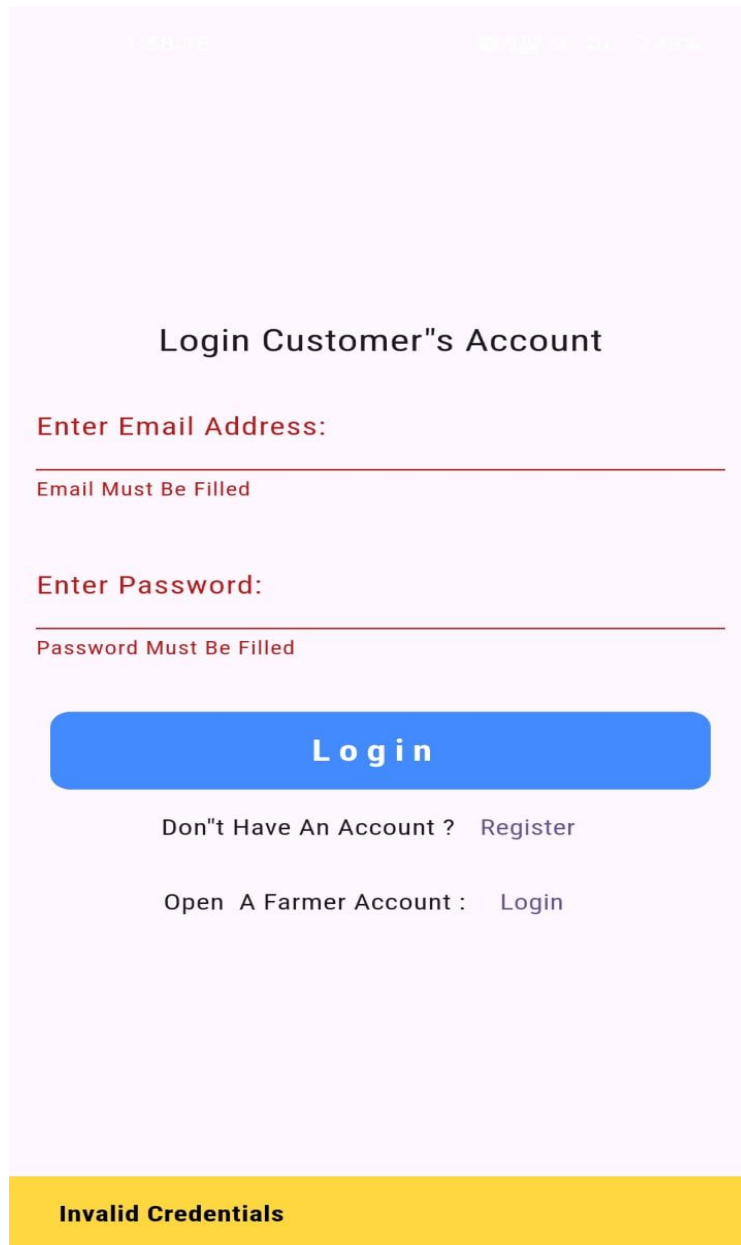
220         widget.productData!['productPrice'],
221         widget.productData!['vendorId'],
222         _selectedSize!,
223         widget.productData!['scheduleDate']]);
224     } else {
225       // Handle case where no size is selected
226       ScaffoldMessenger.of(context).showSnackBar(
227         SnackBar(content: Text('Please select a size.')),
228       );
229     }
230   },
231   child: Container(
232     height: 50,
233     width: MediaQuery.of(context).size.width,
234     decoration: BoxDecoration(
235       color: Colors.deepOrange,
236       borderRadius: BorderRadius.circular(30),
237     ), // BoxDecoration
238     child: Row(
239       mainAxisAlignment: MainAxisAlignment.center,
240       children: [
241         Padding(
242           padding: const EdgeInsets.all(8.0),
243           child: Icon(
244             CupertinoIcons.cart,
245             color: Colors.white,
246             size: 25,
247           ), // Icon
248         ), // Padding
249         Text(
250           'Add To Cart',
251           style: TextStyle(
252             fontSize: 18,
253             color: Colors.white,
254             fontWeight: FontWeight.bold,
255           ), // TextStyle
256         ), // Text
257       ],
258     ), // Row
259   ), // Container
260 ), // InkWell
261 ), // Padding
262 ); // Scaffold
263 }
264 }
265

```


CHAPTER 6

TESTING

1. When the username or password field is empty: -



The screenshot displays a login interface with a light purple background. At the top, there are two links: "Forgot Password" and "Register An Account". The main heading is "Login Customer's Account". Below this, there are two input fields. The first is labeled "Enter Email Address:" and has a red error message "Email Must Be Filled" below it. The second is labeled "Enter Password:" and has a red error message "Password Must Be Filled" below it. A blue "Login" button is positioned below the password field. At the bottom of the form, there are two links: "Don't Have An Account ? Register" and "Open A Farmer Account : Login". A yellow banner at the very bottom of the page contains the text "Invalid Credentials".

[Forgot Password](#) [Register An Account](#)

Login Customer's Account

Enter Email Address:

Email Must Be Filled

Enter Password:

Password Must Be Filled

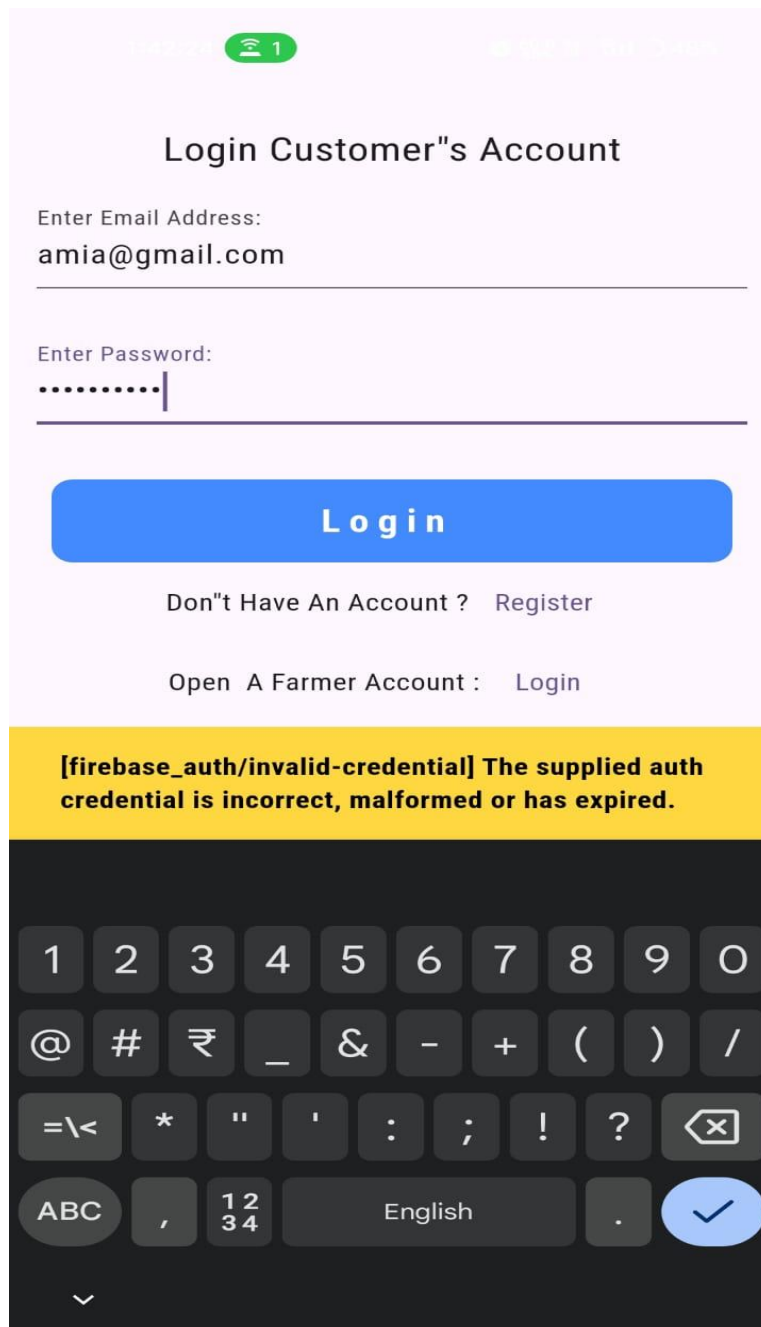
Login

Don't Have An Account ? [Register](#)

Open A Farmer Account : [Login](#)

Invalid Credentials

2. When user gives invalid credentials: -



The screenshot shows a mobile application interface for logging in. At the top, there's a status bar with '9:45 AM', a signal strength indicator, and a battery level of 100%. The app's title bar says 'Farmer's Friend' with a green circular icon containing a white '1'. Below the title bar, the main heading is 'Login Customer"s Account'. There are two input fields: 'Enter Email Address:' with the text 'amia@gmail.com' and 'Enter Password:' with masked characters '.....'. A blue 'Login' button is centered below the fields. Below the button, there are two links: 'Don"t Have An Account ? Register' and 'Open A Farmer Account : Login'. A yellow error banner at the bottom of the login section displays the message: '[firebase_auth/invalid-credential] The supplied auth credential is incorrect, malformed or has expired.' Below the error banner is a virtual keyboard with a numeric keypad, symbols, and a checkmark button.

9:45 AM 100%

Farmer's Friend 1

Login Customer"s Account

Enter Email Address:
amia@gmail.com

Enter Password:
.....

Login

Don"t Have An Account ? Register

Open A Farmer Account : Login

[firebase_auth/invalid-credential] The supplied auth credential is incorrect, malformed or has expired.

1 2 3 4 5 6 7 8 9 0
@ # ₹ _ & - + () /
= \< * " ' : ; ! ? < ×
ABC , 12 34 English . ✓
▽

3. When Farmer gives invalid credentials: -

The screenshot shows a mobile application interface for signing in. At the top, the status bar displays the time 3:49:10, network speed 0.17 KB/S, VoLTE, 4G, and battery level 31%. The main heading is "Sign in". Below it, a link "Don't have an account? Register" is visible. The "Email" field contains "sahil@gmail.com" and the "Password" field is masked with dots. A "Forgotten password?" link is positioned to the right of the password field. A "Sign in" button is centered below the fields. An error message in red text states: "The supplied auth credential is incorrect, malformed or has expired."

3:49:10 0.17 KB/S VoLTE 4G 31%

Sign in

Don't have an account? [Register](#)

Email
sahil@gmail.com

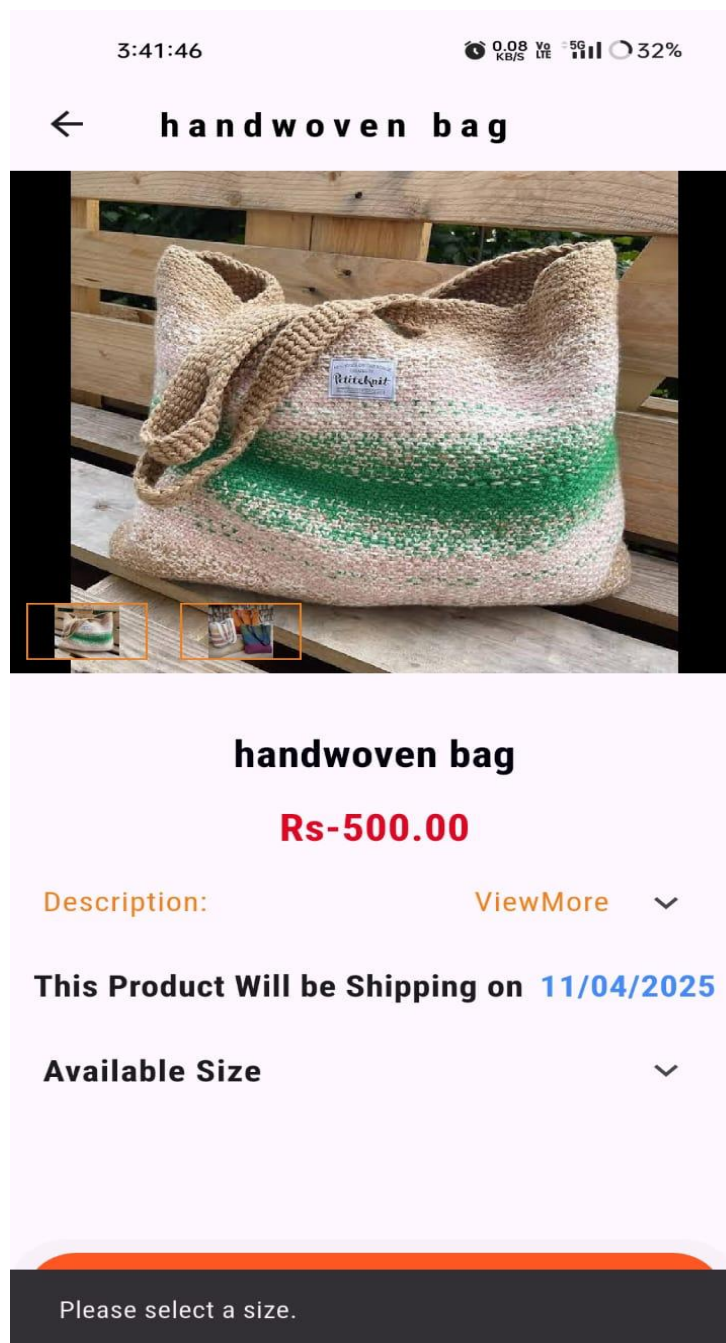
Password
••••••••

[Forgotten password?](#)

Sign in

The supplied auth credential is incorrect, malformed or has expired.

4. When user does not select the correct size:-



CHAPTER 7

CONCLUSIONS AND LIMITATIONS

7.1 LIMITATIONS

While a mobile app for Direct Market Access (DMA) offers numerous benefits to farmers, it's essential to acknowledge its limitations. These can include issues like digital literacy and access to smartphones and reliable internet, which can create a digital divide. Additionally, the app's effectiveness may be hampered by the need for robust data security to protect sensitive information and the potential for price manipulation. Furthermore, the app's success hinges on consistent updates, user-friendly interfaces, and ongoing support to address technical glitches and user queries. Understanding these constraints is crucial for the app's developers, users, and stakeholders to ensure its effective and equitable implementation.

1. Digital Literacy and Infrastructure:

One of the primary limitations of a mobile app for Direct Market Access for farmers revolves around digital literacy and the availability of reliable infrastructure. While smartphones have become increasingly common, especially in rural areas, a significant portion of farmers may lack the necessary digital skills to effectively use the app. This includes basic smartphone operation, understanding app navigation, and the ability to interpret data and information presented on the app. Moreover, the app's usability hinges on the availability of consistent and affordable internet access. Many rural areas, particularly in developing countries, suffer from poor network coverage and unstable internet connectivity. This can lead to delayed updates, difficulty in accessing real-time market information, and problems in completing transactions.

Furthermore, the cost of data and smartphones can be a barrier for some farmers. While the price of smartphones has decreased, they still represent a significant investment for low-income farmers. Similarly, the cost of data plans can be prohibitive, especially if the app requires frequent updates or the transmission of large amounts of data, such as images of produce. Without adequate digital literacy training and affordable access to both devices and internet, the app's potential benefits may not be realized by a large segment of the target audience. Addressing this limitation requires a multi-pronged approach, including providing digital literacy training programs tailored to farmers' needs, partnering with telecom providers to offer affordable data plans, and ensuring the app is designed with a user-friendly interface that minimizes the need for advanced digital skills. Additionally, offline functionality, where farmers can access some information even without an internet connection, can be a crucial feature.

2. Trust, Security, and Payment Systems:

Building trust and ensuring the security of transactions are critical limitations. Farmers may be hesitant to use an app if they do not trust the platform or are concerned about the security of their personal and financial information. This lack of trust can stem from various factors, including past experiences with scams, a general lack of trust in digital platforms, and concerns about data privacy. The app must therefore implement robust security measures to protect user data and prevent fraudulent activities. This includes secure authentication protocols, encryption of sensitive information, and regular security audits.

Another significant challenge is integrating secure and reliable payment systems. Farmers need a convenient and trustworthy way to receive payments for their produce. This requires the app to support various payment options, such as mobile money, bank transfers, and potentially even cash-on-delivery, depending on the local context. However, integrating these payment systems can be complex, involving partnerships with financial institutions and ensuring compliance with relevant regulations. Furthermore, there is a need

to educate farmers about the different payment methods and how to use them securely. Building trust also involves transparency in the app's operations. Farmers need to understand how the app works, how their data is used, and how disputes are resolved. Clear communication, accessible customer support, and a strong reputation are essential for building trust and encouraging adoption of the app. The app should also have mechanisms for dispute resolution, such as a dedicated customer service team or an automated dispute resolution system, to address any issues that may arise during transactions.

3. Market Volatility and Price Discovery:

The dynamic nature of agricultural markets and the challenge of providing accurate and timely price information represent another significant limitation. Agricultural prices are subject to various factors, including seasonality, weather conditions, supply and demand dynamics, and market speculation. Providing farmers with up-to-date and accurate price information is crucial for enabling them to make informed decisions about when and where to sell their produce. However, this is a complex task. Market prices can change rapidly, and the app needs to be able to capture and disseminate this information in real-time. This requires data feeds from various sources, including wholesale markets, commodity exchanges, and other relevant market participants.

The app also needs to address the challenge of price discovery. Farmers may not always be aware of the best prices available for their produce. The app can help by providing price comparisons, market analysis, and information about potential buyers. However, the accuracy and reliability of this information are crucial. If the price information is inaccurate or outdated, farmers may make poor decisions, leading to financial losses. Furthermore, the app should consider the heterogeneity of agricultural products. Different varieties of the same crop may

command different prices, and the app needs to be able to differentiate between them. This may involve providing detailed information about product quality, grading

standards, and other relevant factors. In addition, the app should also consider the logistical challenges of transporting produce to different markets. Transportation costs can significantly impact the profitability of a sale, and the app should provide information about transportation options and costs.

Expanding on the limitations, it's important to consider infrastructure challenges such as the availability of electricity for charging devices and the physical distance to markets, which can impact the app's practicality. Moreover, the app's functionality may be limited by the types of crops and market demands it supports, potentially excluding certain farmers. The app's success also relies on the integration with existing agricultural practices and the willingness of farmers to adopt new technologies. Finally, the app's impact on existing market dynamics, including potential displacement of traditional intermediaries, needs careful consideration to avoid unintended consequences.

7.2 CONCLUSION

The proposed smart mobile application offers a transformative solution to the challenges faced by farmers in accessing markets and optimizing profits. By facilitating direct transactions between farmers, consumers, and retailers, the platform eliminates intermediaries and ensures greater control, transparency, and efficiency within the agricultural supply chain. Using GPS, machine learning, and secure payment systems, the application not only boosts farmers' earnings and reduces wastage but also enhances market accessibility. With promising results from the pilot study, the application holds significant potential for revolutionizing the agricultural marketplace. Future developments, such as blockchain integration and advanced AI-driven demand forecasting, will further enhance the system's effectiveness, making it a powerful tool for sustainable agricultural growth world.

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