

SIST CANTEEN

INTERDISCIPLINARY PROJECT

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

by

DHANANJEYAN S (41120052)



DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF COMPUTING

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

CATEGORY-1 UNIVERSITY BY UGC

Accredited "A++" by NAAC

12B Status by UGC |Approved by AICTE

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MAY 2024



SATHYABAMA

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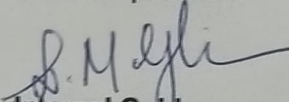
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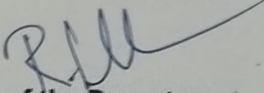
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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **DHANANJEYAN S (41120052)** who carried out the project entitled **"SIST CANTEEN (FLUTTER FRAMEWORK)"** under my supervision from January 2024 to April 2024.

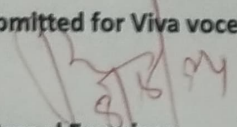

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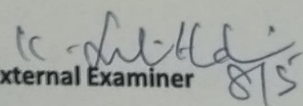
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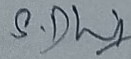

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DECLARATION

I, **DHANANJEYAN (41120052)** hereby declare that the Project Report entitled "**SIST CANTEEN**" done by me under the guidance of **Dr. L. Mary Gladence M.E., Ph.D., Department of Information Technology**, is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology degree in Information Technology.

DATE: 08/05/2024

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ACKNOWLEDGEMENT

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

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I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr. L. MARY GLADENCE, M.E., Ph.D.**, for her valuable guidance, suggestions and constant encouragement that paved the way for the successful completion of my project work.

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

CERTIFICATE OF COMPLETION



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CERTIFICATE FOR INTERNSHIP

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This is to Certify that **S. Dhananjeyan (Reg No: 41120052)** student of Sathyabama Institute of Science and Technology, B. Tech Information Technology, has successfully completed the Internship at Hackwit Technologies from 22nd January to 30th January 2024.

During the internship, **S. Dhananjeyan** has closely worked as a part of the **Flutter** by carrying out the project entitled "**Sathyabama Canteen**"

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

Best Regards,

Ravikumar S
CEO & Managing Director
Hackwit Technologies Pvt Ltd

ABSTRACT

The increasing demand for efficient and convenient food ordering systems within educational institutions has spurred the development of innovative solutions. This project aims to address this need by designing and implementing a mobile application for ordering food from the college canteen. The proposed app will provide students and faculty with a user-friendly platform to browse the canteen menu, place orders, and track their order status in real-time. By leveraging modern technologies such as mobile app development frameworks, cloud computing, and secure payment gateways, the app seeks to streamline the food ordering process, enhance user experience, and optimize operational efficiency for the canteen management. This report documents the entire development lifecycle of the canteen app, including requirements analysis, system design, implementation details, testing methodologies, and future enhancements. Through this project, we aim to deliver a robust and scalable solution that caters to the diverse needs of the college community, ultimately transforming the way food is ordered and consumed within the campus environment.

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LIST OF ABBREVIATIONS

IDE: Integrated Development Environment

SDK: Software Development Kit

HTTP: Hypertext Transfer Protocol

JSON: JavaScript Object Notation

URL: Uniform Resource Locator

HTTP: Hypertext Transfer Protocol

HTTPS: Hypertext Transfer Protocol Secure

JWT: JSON Web Token

SSL: Secure Sockets Layer

TLS: Transport Layer Security

OAuth: Open Authorization

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CHAPTER 1

INTRODUCTION

1.1 ABOUT THE CONCEPT

The concept involves using Flutter, a cross-platform development framework, to create a user-friendly food ordering app for college canteens. Leveraging Flutter's hot reload feature allows for quick iteration and testing, while integrating Stripe payment options ensures secure transactions. Firebase serves as the backend, managing user authentication, storing menu item data, and enabling real-time updates on availability.

This combination of Flutter's frontend capabilities and Firebase's backend infrastructure results in a seamless and efficient app that enhances the dining experience for college students.

1.2 PROJECT SCOPE

The primary objective of the "Sist Canteen" app project is to modernize and streamline the food ordering experience within our college campus, catering to the needs of students, faculty, and canteen staff.

Develop a user-friendly mobile application that provides students and faculty with a convenient and intuitive platform for browsing menus, placing orders, and tracking deliveries in real-time.

Implement efficient order management systems and streamline processes for canteen staff, reducing wait times, minimizing errors, and optimizing resource utilization. Ensure accessibility of the app to all members of the college community, including students with disabilities or special needs, by adhering to accessibility guidelines .

1. User Interface Design:

Develop an intuitive and visually appealing user interface for the Sist Canteen app, prioritizing ease of navigation and efficient order placement.

2. Front End Development with Flutter:

Utilize Flutter's cross-platform development framework to build the frontend of the app, ensuring compatibility and consistent performance across various devices and operating systems.

3. Stripe Payment Integration:

Integrate Stripe payment options into the app to enable secure and convenient transactions for users, providing multiple payment methods for seamless checkout.

4. Backend Development with Firebase:

Implement Firebase backend services to handle user authentication securely, manage menu item data, and enable real-time updates on availability, ensuring accurate and up-to-date information for users.

5. User Authentication and Authorization:

Develop features for user authentication and authorization using Firebase, allowing users to create accounts, log in securely, and manage their profiles.

6. Menu Management System:

Create a system for managing menu items within the app, including adding, editing, and updating item details and availability, ensuring users have access to a diverse range of food options.

7. Customization Options:

Incorporate customization features for users to personalize their orders based on dietary preferences, allergies, and other specifications, enhancing user satisfaction and catering to individual needs.

8. Deployment and Maintenance:

Deploy the Sist Canteen app for use by college students, providing ongoing maintenance and support to address any issues and incorporate user feedback for continuous improvement.

1.3 OBJECTIVES

The project aims to achieve the following objectives:

- Streamline the food ordering process by providing a user-friendly interface for browsing menus, customizing orders, and placing orders seamlessly.
- Create a pleasant and convenient experience for students and faculty members by offering real-time order tracking, personalized recommendations, and easy payment options.
- Increase operational efficiency for the canteen staff by automating order management, reducing wait times, and minimizing errors in order processing.
- Implement robust security measures to protect user data and payment information, ensuring compliance with data privacy regulations and standards.
- Promote awareness and encourage adoption of the app among students and faculty through effective marketing strategies, promotional campaigns, and incentives.
- Design the app architecture to accommodate future growth and scalability, ensuring that the solution can adapt to increasing user demand and evolving technological requirements.

CHAPTER 2

METHODOLOGY

2.1 PROJECT ARCHITECTURE

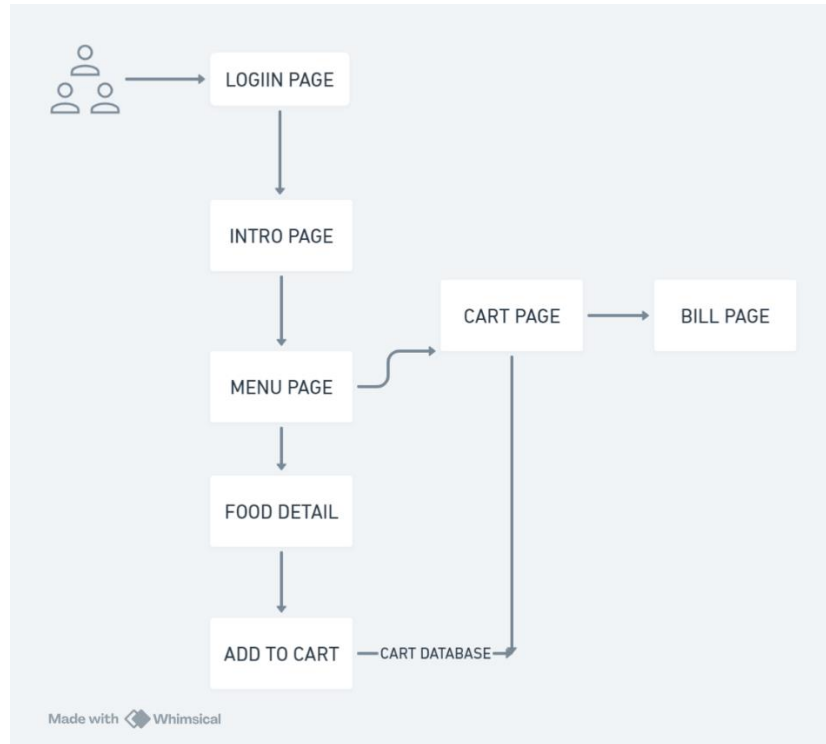


Fig 2.1 PROJECT ARCHITECTURE

The architecture of the food ordering system involves several components to facilitate a seamless and efficient process for users and administrators specified in “Fig 2.1”.

1. *User Application:* This is the frontend application accessible to users, allowing them to browse through available food items, select items for purchase, make online payments through their digital wallet, and view their order history. The application communicates with the backend server to retrieve and update data related to food items, user accounts, and order details.

2. *Admin Application*: This is the frontend application accessible to administrators or in-charges of the canteen, allowing them to manage the inventory of food items available in the canteen. Administrators can add new food items, update the quantity of available items, and remove items that are out of stock. The admin application communicates with the backend server to update the inventory data.

3. *Backend Server*: This is the central component of the system that manages the business logic and data processing.

It handles user authentication, manages the database of food items and user accounts, processes orders, and updates inventory data. The backend server communicates with both the user and admin applications to handle requests and responses.

4. *Database*: The database stores all relevant data for the system, including information about food items, user accounts, order details, and inventory status. It allows for efficient retrieval and manipulation of data by the backend server and ensures data consistency and integrity.

Overall, this architecture enables a digital food ordering system that replaces the traditional method of queuing for food tokens with a streamlined online process, improving convenience and efficiency for both users and administrators.

2.2 MODULES REQUIRED

2.2.1 Flutter SDK:

This is a software development kit (SDK) provided by Google for building natively compiled applications for mobile, web, and desktop from a single codebase. It includes tools and libraries for creating user interfaces, handling user input, and managing application state. In this context, Flutter SDK is used for developing the frontend user interface of the food ordering application.

2.2.2 Flutter Firebase Authentication:

This package provides Flutter widgets and APIs for integrating Firebase Authentication into Flutter applications. It allows users to sign in or sign up securely using methods such as email/password, Google Sign-In, or Facebook Login. It is used in the frontend to handle user authentication, enabling users to log in to the application securely.

2.2.3 Flutter Firebase Database:

This package provides Flutter plugins for interacting with Firebase Realtime Database or Firestore, allowing developers to read and write data to and from the database in real-time. It is utilized in the frontend to retrieve and update data related to food items, user profiles, and orders.

2.2.4 Flutter HTTP:

This package provides Flutter plugins for making HTTP requests and interacting with web services or APIs. While it can be used for both frontend and backend communication, it is typically employed in the frontend to fetch data from external APIs or services, such as retrieving additional information about food items or handling user interactions.

2.3 COMMANDS FOR USER INTERFACE:

Certainly! Here are some common commands used for working with the UI in Flutter:

1. `flutter create [project_name]`: Creates a new Flutter project with the specified name.
2. `flutter build [target_platform]`: Builds the Flutter application for the specified target platform (e.g., android, ios).
3. `flutter doctor`: Checks the Flutter installation and environment for any issues or missing dependencies.
4. `flutter pub get`: Fetches and installs dependencies listed in the `pubspec.yaml` file.
5. `flutter clean`: Deletes the build directory and other generated files, allowing for a clean rebuild of the project.
6. `flutter format`: Formats the code in the project according to Dart style guidelines.
7. `flutter analyze`: Analyzes the project's Dart code for potential issues or errors.
8. `flutter test`: Runs tests defined in the project using the Dart test framework.
9. `flutter packages pub run build_runner build`: Generates code for JSON serialization, Route generation, and more.
10. `flutter packages pub run build_runner watch`: Watches the file system for edits and automatically invokes code generation when needed.
11. `flutter packages pub run flutter_launcher_icons:main`: Generates

the app launcher icons based on the images specified in the pubspec.yaml file.

12. flutter packages pub run flutter_launcher_icons:main: Generates the app launcher icons based on the images specified in the pubspec.yaml file.

13. flutter packages pub run flutter_launcher_icons:main: Generates the app launcher icons based on the images specified in the pubspec.yaml file.

These commands help you manage your Flutter project, run it on different platforms, format your code, analyze it for errors, and more.

1. Hot Reload: The hot reload feature allows developers to instantly view the changes made to the code in their running Flutter application.

Command:

flutter run --hot-reload or simply press "r" in the terminal when the app is running.

2. Hot Restart: Sometimes, changes to the code may require a more thorough update of the application's state or dependencies

Command:

flutter run --hot-restart or simply press "R" in the terminal when the app is running

2.4 ALGORITHMS AND TECHNIQUES

The system described employs various algorithms and techniques to streamline the food ordering process. Here's an overview:

Online Payment Integration: The system integrates online payment methods, utilizing algorithms for secure transaction processing. Techniques such as encryption and tokenization ensure the security of users' payment information.

User Interface Design: The application features a user-friendly interface listing all available food items, employing techniques for intuitive navigation and item selection. Design principles such as responsive design and usability testing enhance the user experience.

Wallet Management: Algorithms manage user wallets, allowing for the storage and retrieval of funds. Techniques for wallet management include balance tracking, transaction history logging, and automated notifications for low balances.

Order Processing: Upon order confirmation, algorithms update order details in real-time, employing techniques for efficient data processing and synchronization. Techniques such as event-driven architecture and database optimization ensure timely updates and accurate order tracking.

Inventory Management: The system employs algorithms for inventory management, allowing administrators to add, update, or remove food items as needed. Techniques such as database queries and inventory tracking algorithms ensure accurate availability status and prevent users from ordering unavailable items.

Authentication and Authorization: Algorithms handle user authentication and authorization, employing techniques such as username/password authentication and role-based access control. Security measures such as session management and access token validation protect against unauthorized access.

Notifications: The system utilizes algorithms to send notifications to users and administrators, employing techniques such as push notifications and email alerts. Algorithms determine the appropriate timing and content of notifications, ensuring timely updates.

By leveraging these algorithms and techniques, the system optimizes the food ordering process, reducing wait times and enhancing user satisfaction

2.5 KEY FEATURES

Digital Purchase Process

Comprehensive Food Listing

Wallet Integration

E-payment Refill

Order Confirmation and History

Admin Control

Sist Canteen offers students a hassle-free checkout experience by seamlessly integrating with Stripe payment options. This allows students to easily refill their wallets and add items to their carts, streamlining the payment process.

Behind the scenes, Sist Canteen relies on Firebase as its backend, ensuring real-time updates on available menu items. This ensures that students have access to the latest information on menu offerings, enhancing user satisfaction and reducing the likelihood of ordering unavailable items.

Sist Canteen boasts an intuitive frontend design that enhances user experience and simplifies the ordering process. The user interface is designed to be user-friendly, allowing students to quickly browse through menu options, customize their orders, and complete transactions with ease.

By leveraging Firebase's capabilities, Sist Canteen maintains data accuracy and reliability. This ensures that students receive accurate information about menu items, pricing, and availability, leading to a more transparent and trustworthy dining experience.

By leveraging Firebase's capabilities, Sist Canteen maintains data accuracy and reliability. This ensures that students receive accurate information about menu items, pricing, and availability, leading to a more transparent and trustworthy dining experience.

Sist Canteen revolutionizes the college dining experience by providing students with a convenient and efficient platform to satisfy their cravings. With features like seamless payment integration, real-time updates, and intuitive design, Sist Canteen simplifies the ordering process and enhances overall user satisfaction

2.6 Email Verification

In the email verification process, when a new user signs up for the application, they provide their email address, username, and password. Upon successful registration, the application generates a unique verification link associated with the user's email address, ensuring its uniqueness and security with a token or hash value. This link is then sent to the user's email inbox as part of a verification email, which includes instructions for verifying their email address. Once the user receives the email, they click on the verification link within it, redirecting them to a verification page or endpoint within the application.

Here, the application verifies the authenticity of the link and the token/hash value, comparing it with the one generated during signup to ensure they match. If the link is valid and the values match, the application marks the user's email address as verified in the database, displaying a confirmation message to the user. With their email address now verified, the user gains full access to the application's functionality, including logging in, placing orders, and accessing account features without any restrictions. This email verification process enhances the security of user accounts and confirms the ownership of the provided email address, ensuring a safe and reliable user experience.

User Signup: When a new user signs up for the application, they provide their email address, username, and password.

Generation of Verification Link: Upon successful registration, the application generates a unique verification link associated with the user's email address. This link typically includes a token or hash value to ensure its uniqueness and security.

Sending Verification Email: The application sends a verification email to the email address provided by the user during signup. The email contains the verification link and instructions for the user to verify their email address.

Clicking Verification Link: The user clicks on the verification link within the email. This action redirects them to a verification page or endpoint within the application.

Verification Process: The application verifies the authenticity of the verification link and token/hash value. It compares the token/hash value in the link with the one generated during signup to ensure they match.

Email Address Verification: If the verification link is valid and matches the token/hash value generated during signup, the application marks the user's email address as verified in the database.

Confirmation Message: The application displays a confirmation message to the user, informing them that their email address has been successfully verified.

Access Granted: With their email address verified, the user gains access to the full functionality of the application. They can now log in, place orders, and access account features without any restrictions.

2.6.1 Comprehensive Overview

The **User Application** serves as the primary interface for users to interact with the food ordering system. Through this application, users can browse available food items, select items of their choice, place orders, and make payments. The application provides a seamless experience for users, allowing them to view detailed descriptions of food items, customize their orders, and track their order history.

With a user-friendly design and intuitive navigation, the application enhances user satisfaction and convenience, streamlining the process of ordering food from college canteens.

The **Admin Application** empowers administrators or canteen in-charges to manage the inventory of food items available in the system. Administrators can add new food items, update the quantity of available items, and remove items that are out of stock. Additionally, they receive notifications of incoming orders from users and can confirm orders for preparation and delivery. Through the admin application, administrators play a crucial role in ensuring the accuracy of inventory data and fulfilling user orders promptly, contributing to a smooth and efficient operation of the food ordering system.

The **Backend Server** acts as the backbone of the food ordering system, handling user authentication, order processing, and data management. It securely manages user accounts, processes incoming orders, updates inventory data, and communicates with external services such as payment gateways and databases. With robust security measures in place, the backend server ensures the integrity and confidentiality of user data and transactions, providing a reliable foundation for the overall system operation.

The Database stores and organizes all relevant data for the food ordering system, including information about food items, user accounts, orders, and inventory status. It supports efficient data retrieval, storage, and manipulation, enabling seamless interaction between the frontend applications and the backend server. By centralizing data storage and management, the database ensures data consistency and integrity, facilitating accurate and reliable operation of the food ordering system.

The Payment Gateway facilitates secure and convenient online payments for users, processing transactions between users and the system. It verifies payment details, authorizes transactions, and communicates with the backend server to update user wallet balances and confirm order placements. With robust security measures in place, the payment gateway ensures the confidentiality and integrity of

payment transactions, enhancing user trust and confidence in the system.

The Wallet System manages users' digital wallets, allowing them to store funds for making purchases within the system. Users can refill their wallets using e-payment methods, and the wallet system securely processes refill transactions and updates user wallet balances accordingly. By tracking all wallet transactions and ensuring transparency and accuracy in user account balances, the wallet system enhances the overall user experience and facilitates seamless transactions within the food ordering system.

The architecture of the system begins with the Login/Signup module, which manages user authentication by allowing users to either log in to existing accounts or sign up for new ones.

Firebase handles user authentication, stores food item data, and facilitates real-time updates on food availability. By integrating Firebase, the system ensures scalability, reliability, and seamless communication between the frontend application and backend services, enhancing the overall user experience.

2.7 SOFTWARE REQUIREMENTS

Software's used:

Firebase

User Application (developed using Dart and Flutter)

Firebase Authentication

Firebase Realtime Database

Development Tools (such as Android Studio or Visual Studio Code)

Payment Gateway (e.g., Stripe)

Firebase: Used for backend infrastructure, user authentication, and real-time data storage.

User Application: Developed using Dart and Flutter framework for creating a user-friendly interface.

Firebase Authentication: Manages user login and signup securely.

Firebase Realtime Database: Stores and manages data related to food items, orders, and users.

Development Tools: Android Studio or Visual Studio Code for coding, debugging, and testing.

Payment Gateway: Integration of a service like Stripe for secure online payments.

CHAPTER-3

RESULT AND DISCUSSIONS

3.1 OUTPUT SCREENSHOTS

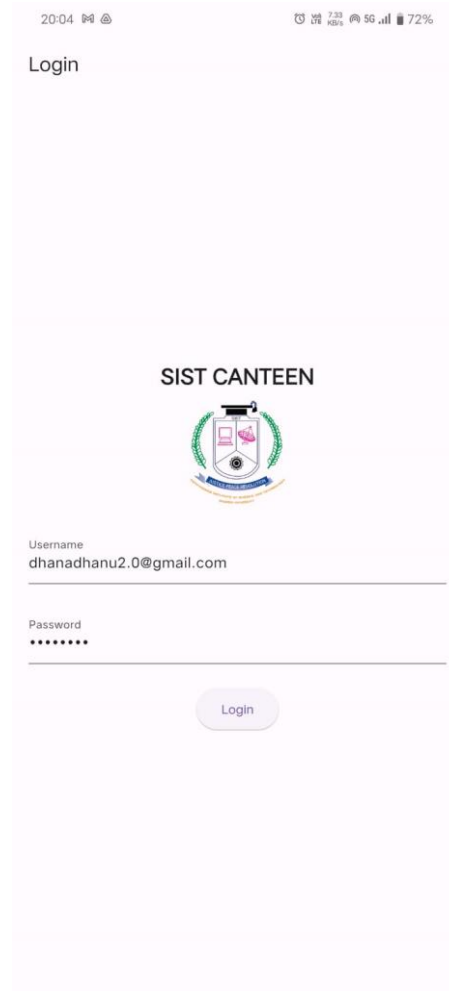


Fig 3.1: Log in Screen

Login Page:

Description:

The login screen of the "Sist Canteen" app serves as the gateway for users to access their accounts and begin their food ordering journey. Designed with simplicity and efficiency in mind, the login screen provides a seamless experience for users to authenticate themselves securely. "Fig 3.1"

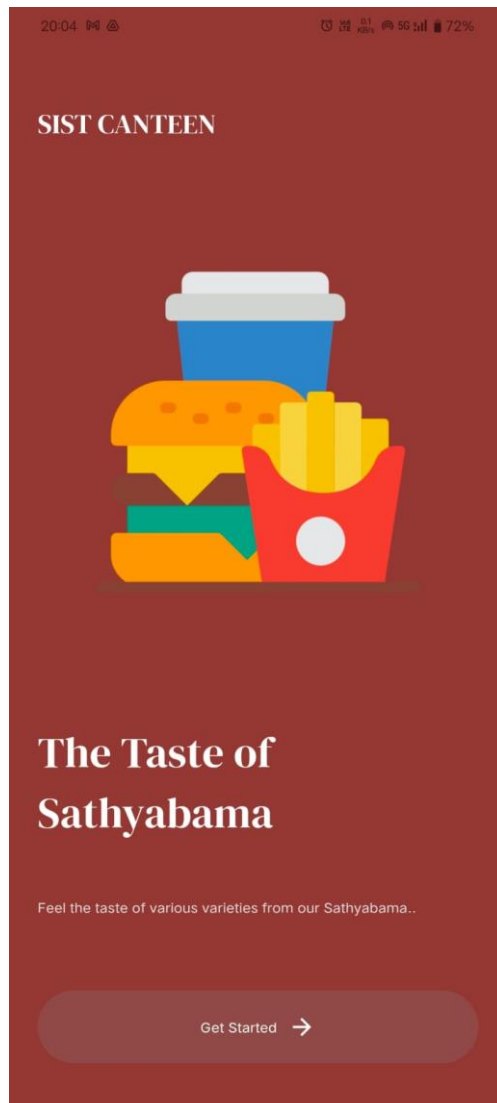


Fig 3.2 : Intro screen

Intro Page

Description

The introduction page of the "Sist Canteen" app serves as the initial point of interaction for users, offering a glimpse into the app's features, benefits, and value proposition. Designed to captivate and engage users from the moment they open the app, the introduction page sets the stage for a delightful user experience. "Fig 3.2"

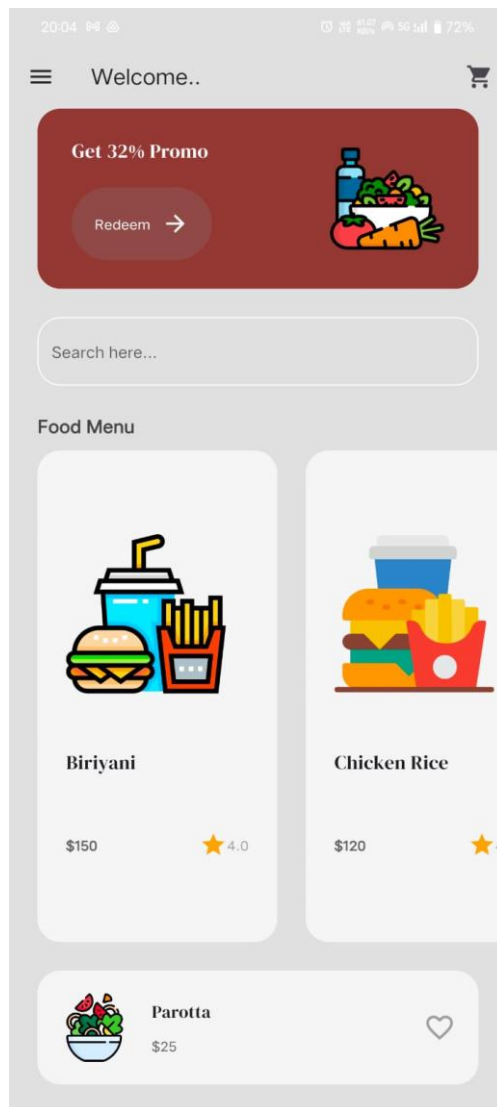


Fig 3.3 Menu Page

Menu Page

Description

The menu page of the "Sist Canteen" app is the central hub where users can explore the wide range of delicious food and beverage options available for ordering. Designed to provide users with an immersive and informative experience, the menu page showcases enticing visuals, detailed descriptions, and intuitive navigation options. "Fig 3.3"

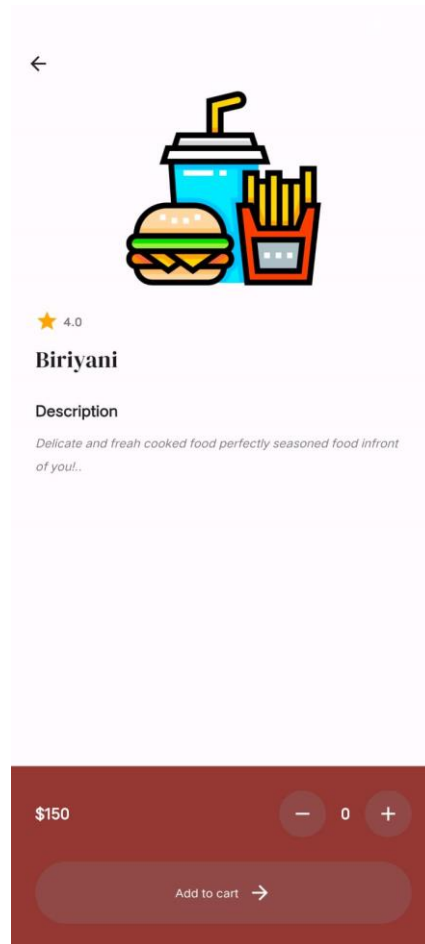


Fig 3.4 : Food Details Screen

Food Details Screen

Description

The food details page in the "Sist Canteen" app provides users with comprehensive information about a specific food item selected from the menu. This page is designed to offer users a deeper understanding of the dish, including its ingredients, preparation method, nutritional information, and customer reviews. "Fig 3.4"

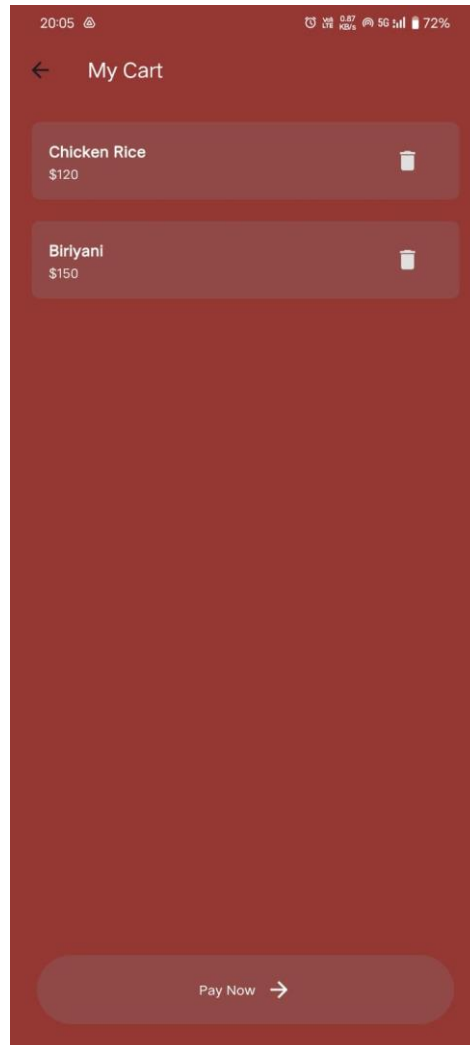


Figure 3.5 :Cart Screen

Cart Screen

Description

The cart page in the "Sist Canteen" app serves as a virtual shopping cart where users can review and manage their selected food items before proceeding to checkout. Designed for ease of use and efficiency, the cart page provides users with a clear summary of their order, including item details, quantities, total prices, and options for customization. "Fig 3.5"



Fig 3.6 :Bill Page

Bill Page

Description

The bill page in the "Sist Canteen" app presents users with a detailed summary of their order and provides them with the final bill amount to complete their transaction. This page is designed to offer transparency and clarity, ensuring users have a clear understanding of the charges associated with their order before making payment.

“Fig 3.6”

*Cloud **Firestore***

It serves as the backbone for managing information about available food items. Each item is represented as a document within a collection, allowing for attributes like name, price, description, and most importantly, availability to be easily accessed and updated. When users interact with the app to add or remove items from their cart, Cloud Firestore seamlessly updates the availability status in real-time, ensuring accurate inventory management. This capability enhances the user experience by preventing the selection of unavailable items and providing a smooth ordering process.

Firebase Authentication complements Cloud Firestore by providing robust user authentication and authorization features. Users can securely sign up, sign in, and manage their accounts using various authentication methods such as email/password, social logins, or phone number verification. Once authenticated, Firebase assigns a unique user ID (UID) to each user, facilitating personalized interactions and access control within the app. By validating user identities, the application can enforce permissions and restrict actions such as adding or removing items from the cart to authenticated users only. Firebase Authentication also includes built-in security features like account recovery and email verification, ensuring a seamless and secure authentication experience for users of the food ordering application.

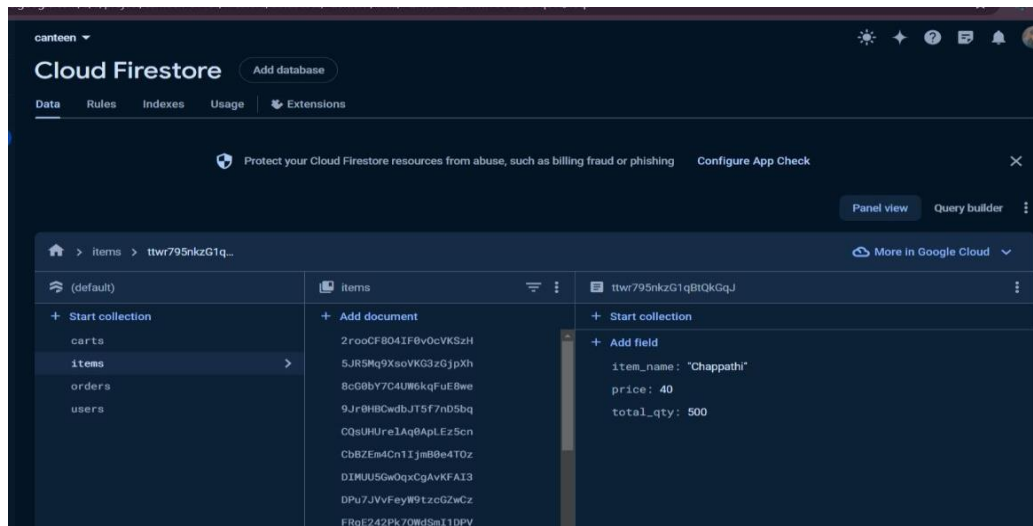


Fig 3.7. Cloud Fire store

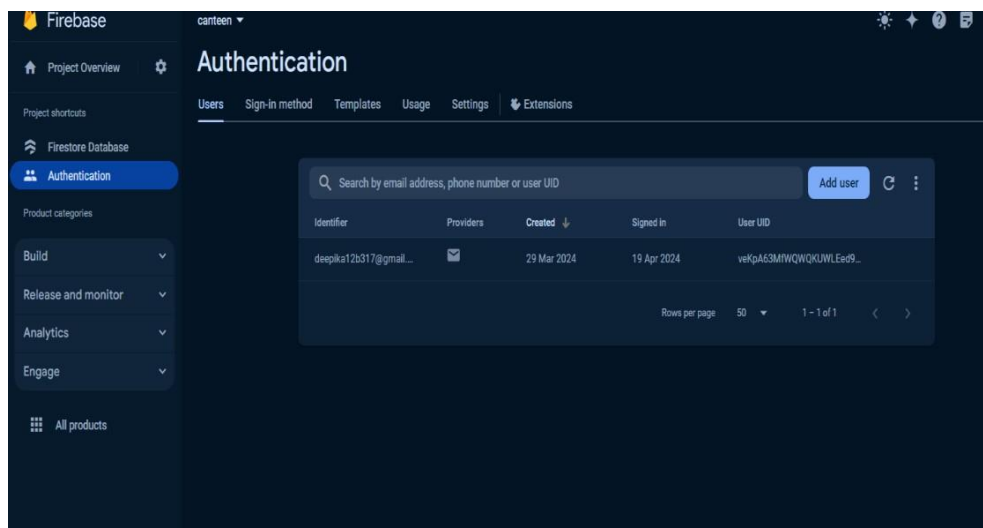


Fig 3.8 Cloud Authentication

CHAPTER- 4

CONCLUSION AND FUTURE WORKS

4.1 CONCLUSION

In conclusion, the development of the "Sist Canteen" app represents a significant milestone in enhancing the food ordering experience within our college campus. Through meticulous planning, collaboration, and innovation, we have successfully created a user-centric platform that caters to the diverse needs of students, faculty, and canteen staff. As we reflect on the journey of conceptualization, development, and implementation, several key takeaways and accomplishments emerge.

The "Sist Canteen" app revolutionizes the way food is ordered and consumed within our college community, offering users a seamless and convenient platform to browse menus, place orders, and track deliveries in real-time. By eliminating the need for traditional paper-based ordering systems, the app streamlines operations for canteen staff and enhances efficiency.

With a user-friendly interface, intuitive navigation, and personalized features, the app prioritizes the user experience, ensuring a delightful and engaging journey for every user. Through visual appeal, clear communication, and responsive design, we have created an app that resonates with users and exceeds their expectations.

Transparency and accountability are at the core of the "Sist Canteen" app, as evidenced by detailed menu descriptions, transparent pricing, and real-time order tracking. Users have full visibility into their orders, from selection to delivery, fostering trust and confidence in the app's reliability.

Our commitment to continuous improvement drives us to solicit user feedback, analyze data insights, and implement enhancements iteratively. By listening to the needs and preferences of our users, we can adapt and evolve the app to better serve their changing requirements over time.

The "Sist Canteen" app fosters a sense of community and belonging within our college campus, bringing students, faculty, and canteen staff together through shared experiences and interactions. By facilitating communication, collaboration, and feedback, the app strengthens the bond within our college community.

As we celebrate the launch of the "Sist Canteen" app and reflect on its impact, we recognize that our journey is far from over. Moving forward, we remain committed to innovation, excellence, and customer satisfaction, as we continue to refine and expand the app to meet the evolving needs of our college community.

Together, we embark on a journey of growth, transformation, and success, guided by our shared vision of creating a more connected, convenient, and enjoyable dining experience for all.

4.2 FUTURE WORK

In the forthcoming stages of this project, several strategic initiatives are envisioned to enhance the digital ordering system's impact and value proposition. Firstly, expanding the deployment to additional locations is a priority, aiming to extend the benefits of improved efficiency and convenience to a broader customer base. This expansion strategy involves careful planning and coordination to ensure seamless integration and consistent user experience across multiple sites

Secondly, the integration of loyalty programs presents an exciting opportunity to foster customer loyalty and engagement. By linking the digital ordering system with rewards schemes or loyalty programs, customers can be incentivized to return through exclusive offers, discounts, or points accumulation. This initiative not only strengthens customer relationships but also provides valuable insights into customer preferences and behaviour for further refinement of the system

Looking ahead, the introduction of mobile ordering capabilities is on the horizon to meet the evolving needs of modern consumers. By developing a dedicated mobile application, customers can conveniently place orders from anywhere, whether at home, in the office, or on the go. This mobile integration opens new avenues for customer engagement and expands the cafeteria's reach beyond its physical premises, catering to the preferences of tech-savvy customers and enhancing accessibility.

In addition to these strategic endeavour's, continuous improvement and feedback mechanisms will remain central to the project's future plans. Establishing a feedback loop with customers ensures their voices are heard, allowing for iterative enhancements based on real-time insights and evolving needs. Through a commitment to innovation and responsiveness to customer feedback, the digital ordering system will continue to evolve and adapt, delivering maximum value to both customers and cafeteria stakeholders alike.

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APPENDICES

A. SAMPLE CODE

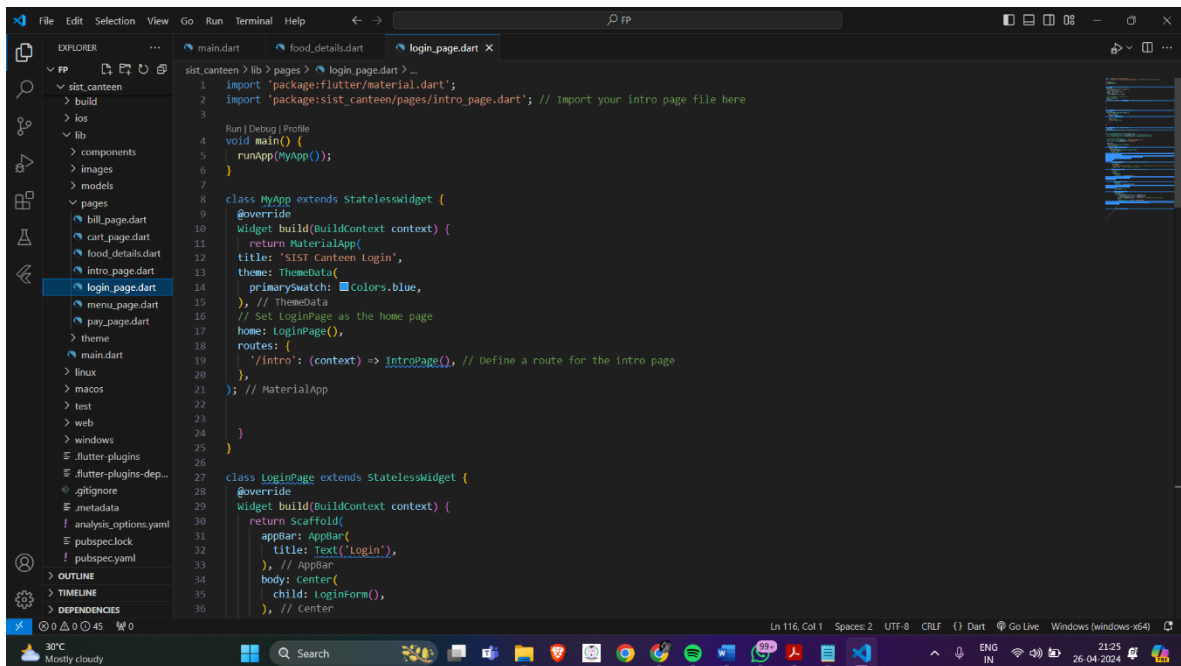


Fig 3.9 : login_page.dart

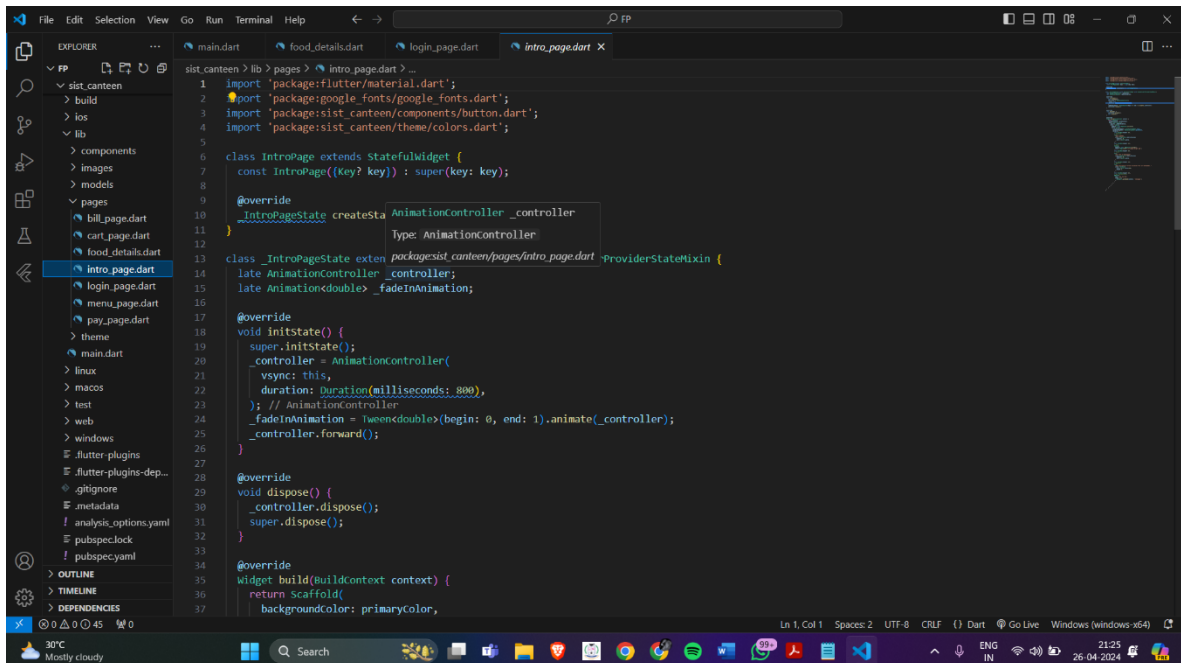


Fig 3.10 : intro_page.dart

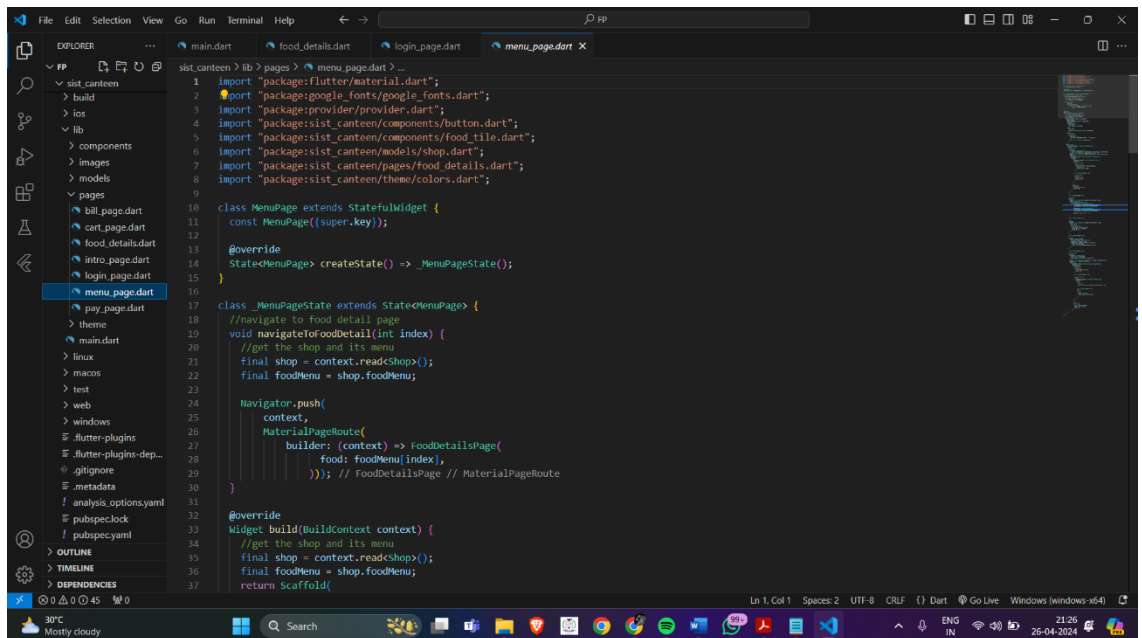


Fig 3.11 : menu_page.dart

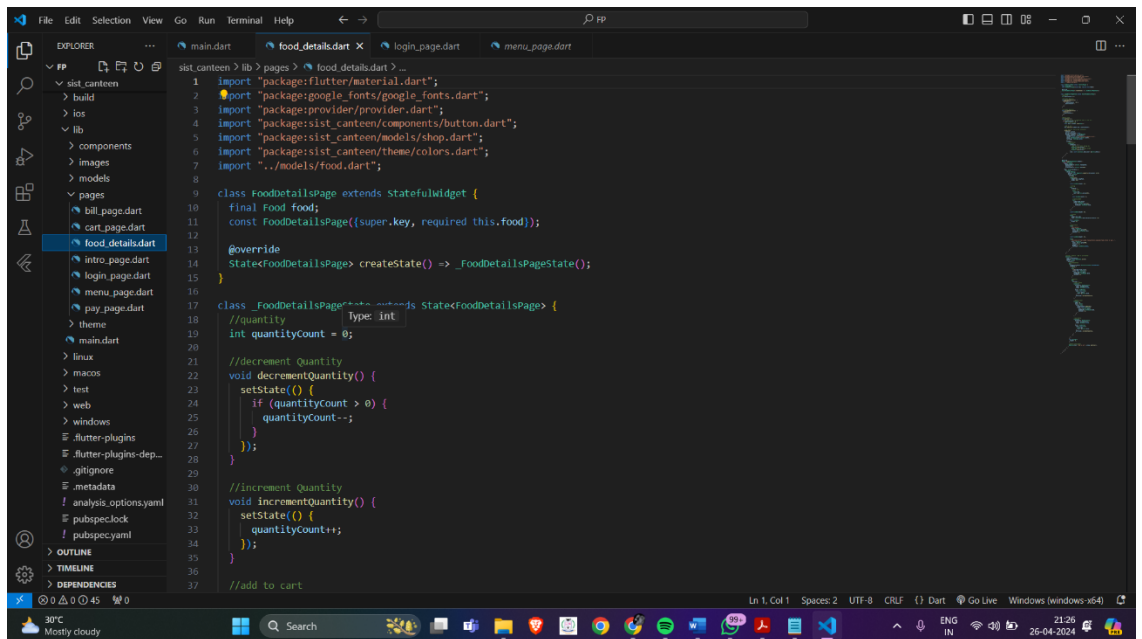


Fig 3.12: food_details.dart