

BYTE ME

Code Functionality

Main Functionality:

Upon starting the application, the Main Menu will provide two options:

1. Enter the Application
2. Exit the Application

If you choose to enter, you'll see the following options:

- Log In: For returning users with an existing account.
- Sign Up: For new users creating an account.

Once you've logged in or signed up, you must choose your user type:

- Customer
- Administrator

Customer

- **Method():** this method used to access different functionality of customer user
- **Login():** Login method login and create new user while checking necessary error handling

Browse Menu

- **Display Menu():** This method uses menu food item Tree Map and print the item according to tree map input
- **Display by Price():** This sort the tree using custom comparator on using comparator type price of food item class
- **Display by Category():** This sort the tree using custom comparator on using comparator type category of food item class
- **Display specific item():** Search the tree map for specific in in tree map

Cart

- This stores the Hashmap cart to store create for each user and store food items with their quantity in it

Cart Operation

- This class create cart using customer data and store item to that cart
- **Add to cart():** This method store an item to cart while checking it is available or not
- **Remove cart():** This method remove items from cart
- **View cart():** This method shows items added to cart
- **Checkout():** This method add all cart items to order queue

Customer data

- It is a custom data structure to store customer data with its id and vip status

Customer Info

- It stores customer login information for login and creating customer id and password

Order Review

- Give Review(): A customer can review order from history if the name of customer order matches the current customer
- View Review(): Customer can view the review of specific order they placed by other customers from history

Order Track

- View Order Status(): A customer can view their order from order queue
- Cancelled Order(): A customer set the order status to cancelled so that admin can set refund of item
- Order History(): A customer can view their order history form history list which stores order

Food item

- This class is a custom data structure that create food time name category and availability

Generate Report

- This class generate report from order history before a specific date given by user giving net revenue and most popular item sold

Menu Management

- Add New items(): this class add new to freeitems tree map it contain food item name with its value food item object
- Update existing item()
- Remove item()

Concepts Used

Abstraction:

- Created an abstract class Login in Login.java.
- The abstract class contains two methods: login() and method().
- These methods are inherited by the Customer and Administrator classes.
- This allows for defining general behaviours in Login while each subclass implements its own specific details.

Encapsulation:

- Both Customer and Administrator classes have two private string variables.
- These private fields can only be accessed through getter and setter methods.
- To avoid redundancy (since both classes use similar fields), an **interface** is used to declare these getter and setter method body.
- The interface ensures controlled access to the private data of both classes.

Polymorphism:

- The same **interface** is implemented by both the Customer and Administrator, allowing them to provide their own implementation for the getter and setter methods.
- This enables different behaviors while sharing a common interface structure.

Inheritance:

- Multiple classes in the project depend on each other for shared functionality.
- For example, the "**Custom Exception Classes**" feature inherit global exception class
- This demonstrates **inheritance** by sharing common functionality across classes without duplicating code.

Assumption

There are a few assumptions in my code.

Cart store item for one instance of log in: Cart item store item will save for only instance after re-login user need to store item again

Vip Customer: Vip customer is placed above in order queue to show priority however everyone admin choose id to add vip customer

Seperate section for Handle special request : I have implemented special request in different section as there is no specific mention of handling while updating status to delivered