



IIIT LUCKNOW

Project Synopsis (SEMESTER-II)

Object Oriented Methodology



Shopping Management System



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This project is made to simplify shopping management at local shops that deal with multiple products. It extensively uses the concepts of Object-Oriented Methodology and file-handling.

Behavioral Overview:

The program begins with a welcome screen showing a set of different options like Customer Login, Customer Signup, Admin Login and Exit.

1. **Customer Login:** Credentials are matched with the information in the database and if matched the customer is made to access the further system facilities else back to the welcome screen.
2. **Customer Signup:** We take input, the username and password from the user and if the username is unique, we create an account for the user and update our database and direct him to further options. Else retrieve back to the Welcome screen.
3. **Admin Login:** Similar to customer login except the admin database is used.
4. **Exit:** simply quits the program.

For Customer:

Once the customer is logged in or registered, we show him the catalogue. Currently we have three products in the catalogue namely:

1. Clothes
2. Books
3. Watches

The customer is made to choose from these items. He can choose multiple items before he finally proceeds to pay and he can see his cart-cum-bill at multiple stages. Finally, when he chooses to pay, we show him multiple options to pay and show him payment details. After this we take feedback from the user (anonymous feedback) and log him out of the system.

For Admin:

Once the admin is logged in, we show him the following privileges:

1. See total income earned till now.
2. See total income earned on each product.
3. See the feedback from the customers.

Structural Aspects:

We have used multiple classes to implement the Behavioral aspects of the system.

List of all the classes:-

1. **Welcome** : a separate class to show main menu depends on customer class and admin
2. **User** : The most basic or generalized abstract class
3. **Customer** : Derived from user
4. **Admin** : Derived from user
5. **Catalogue** : A separate class to show the products in the shop
6. **Product**: abstract class
7. **Clothes**: Derived from product
8. **Books**: Derived from product

9. **Watches:** Derived from product
10. **Bill :** A separate class to show bill of customer
11. **Payment :** A class to handle payment and show payment details

List of all the files used in the program:-

1. database.txt : It stores the username and password of all the registered customers and also the username and password of new customers when they sign up.
2. contact.txt : It stores the username, phone number and email of registered customers.
3. current_user.txt : It stores the cart details and billing information of the currently active customer and gets overwritten on each new login or sign up.
4. clothes.txt : It stores the list of all the available clothes along with their size, material and price.
5. books.txt : It stores the list of all the books available along with their language and price.
6. watches.txt : It stores the list of all the watches available along with their material and price.
7. admin.txt : It stores the username and password of the admin.
8. total_income.txt: It stores the total income earned by the owner till date.

Key features of Object Oriented Methodology used in the project:-

1. **INHERITANCE:**

This project uses inheritance at multiple stages like from user to customer and admin and from products to clothes, books and watches.

2. **POLYMORPHISM:**

It has been used in the form of function overriding. The two pure virtual functions login (in user) and add_to_cart (in product) are redefined in further derived classes as per requirements.

3. **ASSOCIATION:**

Two specific forms of association used among different classes in the project are :-

A. **Aggregation :**

Object of customer class as a field in product class.

Object of payment class as a field in bill class.

B. **Composition:**

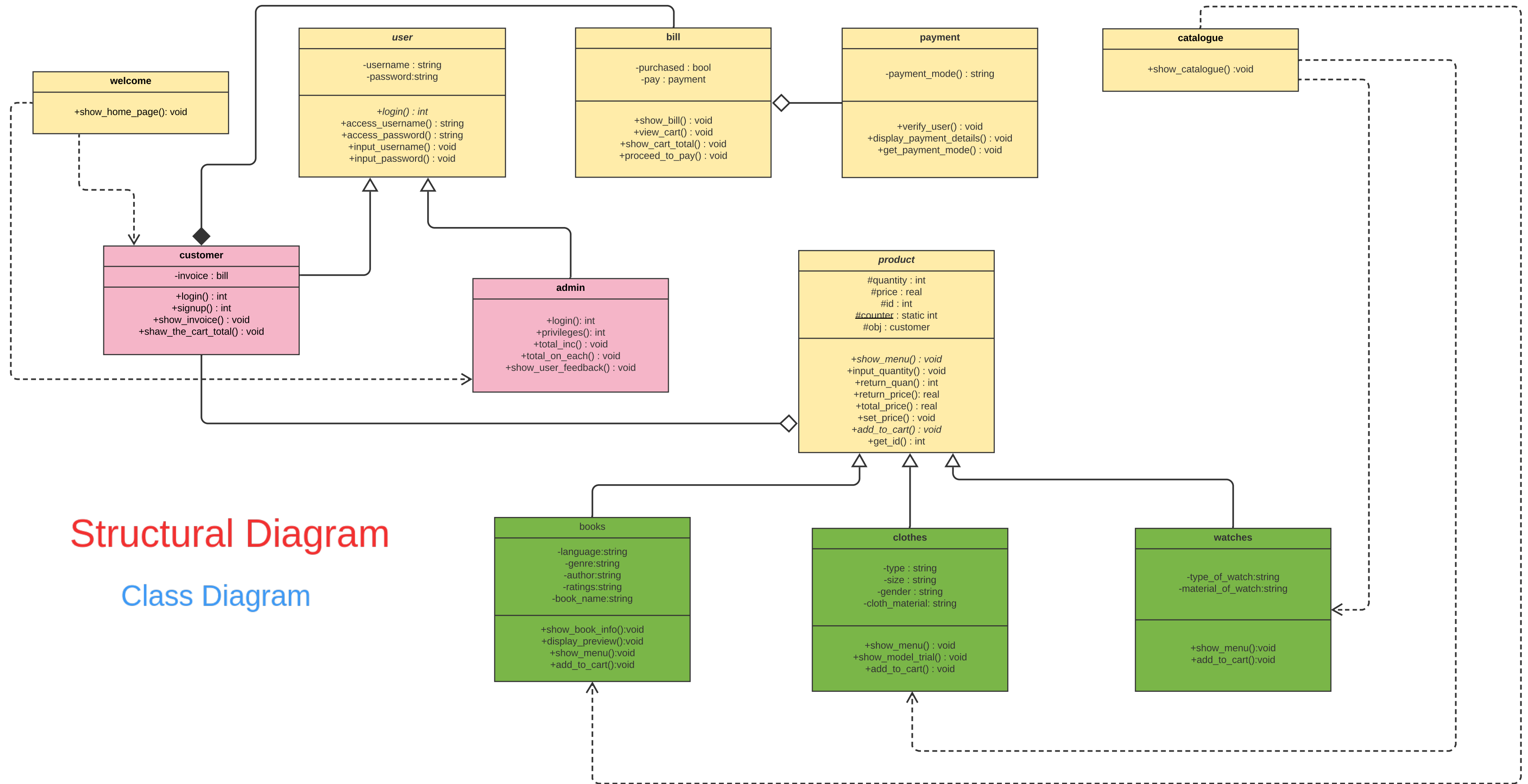
Object of bill class as a field in customer class.

4. **DEPENDENCY:**

Various classes are dependent on other classes to accomplish their tasks.

Scope of extension:-

1. **Addition of payment system:** A real payment system can be added to this system which can be linked to the bank accounts of the customers.
2. **Stock Management System:** A stock management system can be implemented which keeps track of available stock of each product and allows admin to update the stock info.
3. **Total income on each product:** A new file can be added which keeps track of total income earned on each product so that the owner can keep the stock of the extensively bought product.
4. **Implementation of GUI**



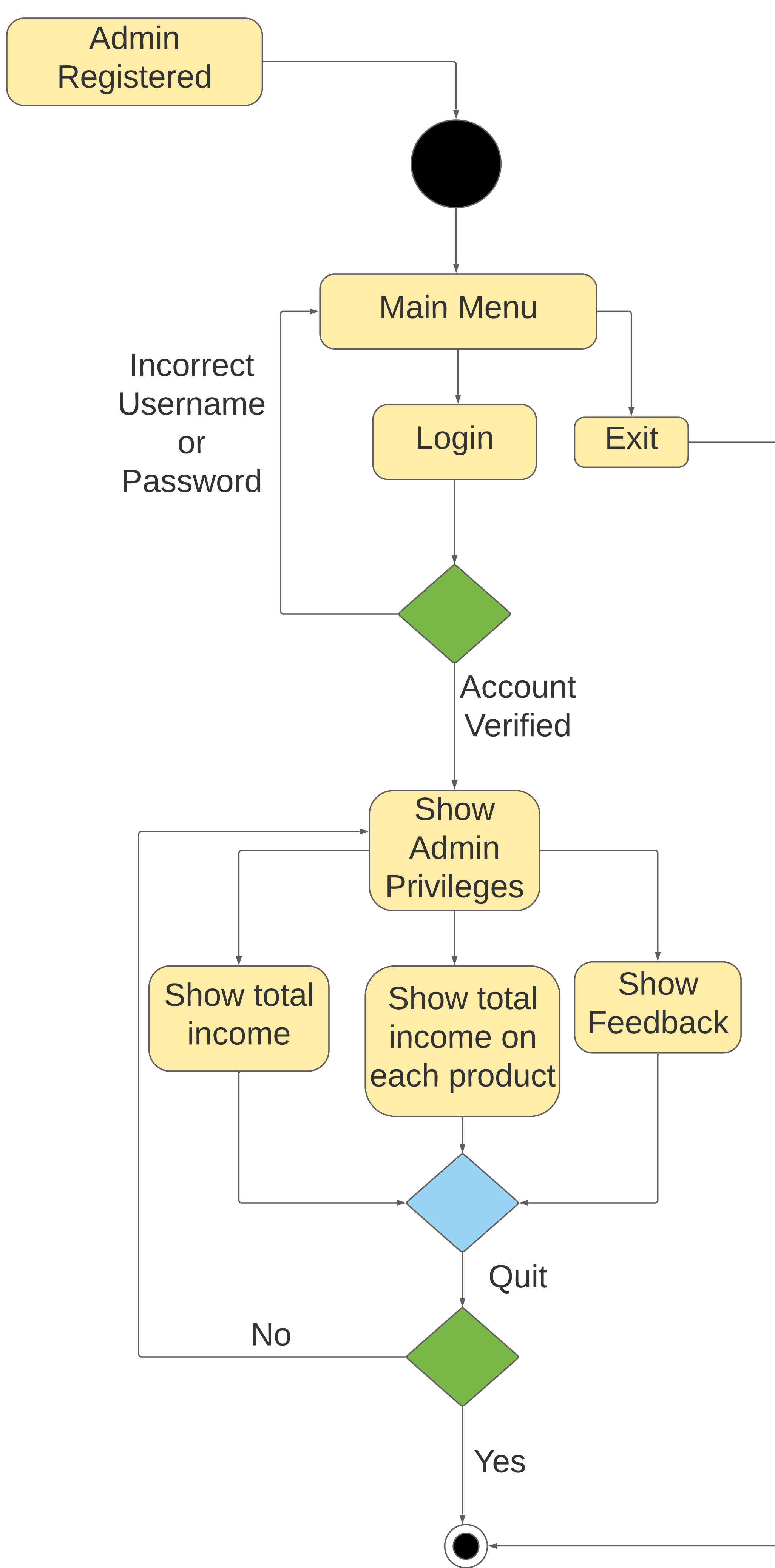
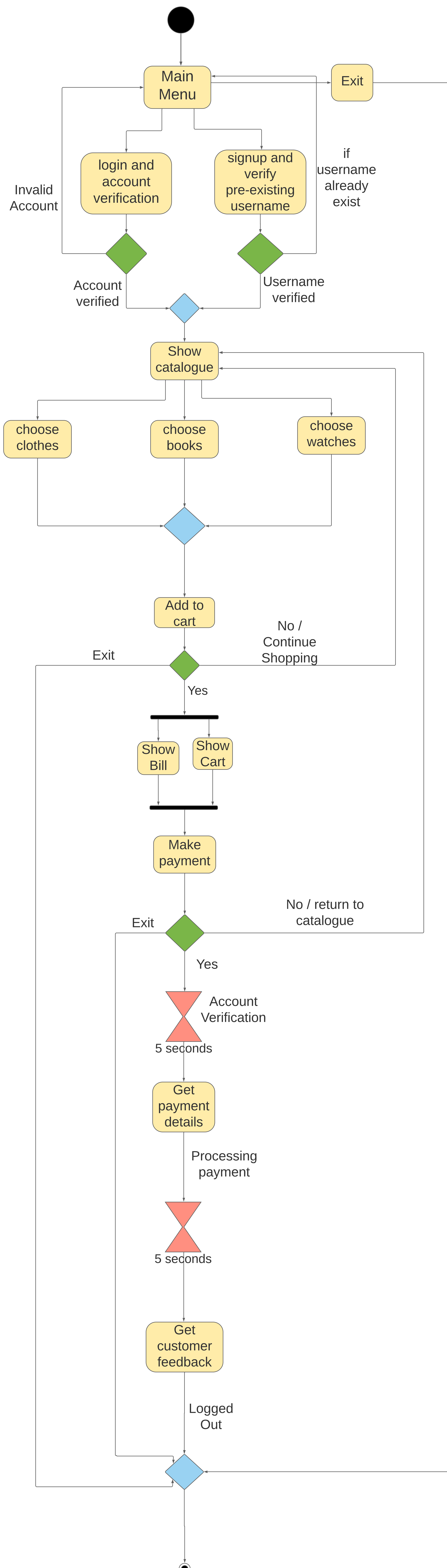
Structural Diagram

Class Diagram

Behavioural Diagrams

Activity Diagram

Customer



Use Case Diagram

