



ONLINE SHOPPING CART

USING CONCEPTS OF OBJECT-ORIENTED PROGRAMMING

TOPIC:

COMPLEX ENGINEERING PROBLEM (CEP)

DEPARTMENT:

COMPUTER AND INFORMATION SYSTEMS ENGINEERING

SUBMITTED BY:

Rimsha Ishtiaq

CS-20039

Habiba Asif

CS-20045

Alaina

CS-20056

SUBMITTED TO:

Ms. Fauzia Yasir

Dr. Maria Waqas

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Complex Engineering Problem
FE Batch 2020, Spring Semester 2021
Grading Rubric
Term Project

Group Members:

Student No.	Name	Roll No.
S1	Rimsha Ishtiaq	CS-20039
S2	Habiba Asif	CS-20045
S3	Alaina	CS-20056

CRITERIA AND SCALES				Marks Obtained		
				S1	S2	S3
Criterion 1: Does the application meet the desired specifications and produce the desired outputs? (CPA-1, CPA-3)						
1	2	3	4			
The application does not meet the desired specifications and is producing incorrect outputs.	The application partially meets the desired specifications and is producing incorrect or partially correct outputs.	The application meets the desired specifications but is producing incorrect or partially correct outputs.	The application meets all the desired specifications and is producing correct outputs.			
Criterion 2: How well is the code organization?						
1	2	3	4			
The code is poorly organized and very difficult to read.	The code is readable only to someone who knows what it is supposed to be doing.	Some part of the code is well organized, while some part is difficult to follow.	The code is well organized and very easy to follow.			
Criterion 3: How friendly is the application interface? (CPA-1, CPA-3)						
1	2	3	4			
The application interface is difficult to understand and use.	The application interface is easy to understand and but not that comfortable to use.	The application interface is very easy to understand and use.	The application interface is very interesting/ innovative and easy to understand and use.			
Criterion 4: How does the student performed individually and as a team member? (CPA-2, CPA-3)						
1	2	3	4			
The student did not work on the assigned task.	The student worked on the assigned task, and accomplished goals partially.	The student worked on the assigned task, and accomplished goals satisfactorily.	The student worked on the assigned task, and accomplished goals beyond expectations.			
Criterion 5: Does the report adhere to the given format and requirements?						
1	2	3	4			
The report does not contain the required information and is formatted poorly.	The report contains the required information only partially but is formatted well.	The report contains all the required information but is formatted poorly.	The report contains all the required information and completely adheres to the given format.			
Total Marks:						

Problem Description:

This project is an Object-Oriented Programming based **shopping cart**. The objective of this project is to provide a user-friendly shopping cart application by using the fundamentals elements of OOP.

This is basically a virtual shopping trolley where a customer can sign-in and sign-up to their account to buy his or her desired products, remove the product when they want, and many more. It also permits admin to create their accounts, add or remove products and manage the cart.

Features of Project:

This Online Shopping Cart project is completely based on Object-Oriented Programming. This project consists of the following distinguish features:

- Inheritance
- Abstraction
- Association
- Exception Handling
- Method Overriding
- File Handling (using excel file)
- Pandas libraries
- Openpyxl libraries

Study of the Application

1. Classes

The application after careful analysis has been identified to be presented with the following classes:

- User
- Admin
- Customer
- Menu
- Customer Menu
- Admin Menu
- Shopping Cart
- Bill

2. User

User is an abstract class which is inherited by customer and admin class. It has the following methods:

Method Name	Brief Description
signin	An abstract method. Customer and admin class used this method according to their need.
signup	An abstract method. Customer and admin class used this method according to their need.

3. Admin

Admin is-a user who manages the application. It inherits from class User. It has the following methods:

Method Name	Brief Description
read_admin_account	It is a static method. It reads the excel file 'Admin.xlsx' which contains information about admins and returns this information as a dictionary for further use.
account_check	It is a static method. This method is used to check that whether the user have already an admin account or not.
sign_up	An instance method for sign-up as an admin.
sign_in	An instance method for sign-up as an admin.
get_user	If current user is admin, then this method returns a dictionary of that admin's information which is further used in other methods as needed.
add_product	Admin can add new products into the existing system with all its details.
remove_product	Admin also has the authority to remove any product from the existing system.
change_privacy_policy	This method allows the admin to change, add or read the privacy policy related to the online shopping cart.
user_menu	It displays the user a menu which asks the user whether he/she wants to continue as an admin or customer and sign-in or sign-up.

4. Customer

Customer is-a user of the application. It inherits from class User. It has the following methods:

Method Name	Brief Description
read_customer_account	It is a static method. It reads the excel file 'Customer.xlsx' which contains information about all the customers and returns this information as a dictionary for further use.
account_check	It is a static method. This method is used to check that whether the user have already a customer account or not.

signup	An instance method for sign-up as customer.
signin	An instance method for sign-up as customer.

5. Menu

Menu class is an abstract class which has the following methods:

Method Name	Brief Description
logout	Abstract method with no implementation.
editAccountDetails	Abstract method with no implementation.
deleteAccount	Abstract method with no implementation.
display	Abstract method with no implementation.
show_all_products	An instance method which reads the product's excel file and prints all the product.

6. Customer Menu

Customer menu class provides several methods which helps in displaying a menu for customer.

Method Name	Brief Description
__init__	It is a constructor which initializes the object of customer menu class.
DisplayMenu	It displays a well interfaced menu for customers.
read_products_file	It is a static method which reads the excel file for product and returns it.
logout	A method for the customer to logout from his/her account.
editAccountDetails	This method allows the customer to edit his/her account's information.
display	It displays the account details of the customer.
about	It displays the content of text file "About.txt". This file has a fascinating introduction of the application for customer.
FAQS	This method displays the content of a text file "FAQS.txt". This file has the most frequently asked questions.
LipLab	Lip Lab is a service that our brand provides to the customers in stores. This method prints the contents of "LipLab.txt" file.

privacy_policy	It allows the customer to read the privacy policy of the application
add_to_cart	This method allows the user to add items, which he/she wants to buy, in the cart and also saves it into the excel file.
shopping_history	This method is used to show the customer his/her shopping history.
deleteAccount	This permits the customer to permanently delete his/her account.

7. Admin Menu

Admin menu class provides several methods which helps in displaying a useful menu for admin.

Method Name	Brief Description
__init__	It is a constructor which initializes the object of admin menu class.
Display Menu	It displays a well interfaced menu for admin.
logout	A method for the admin to logout from his/her account.
editAccountDetails	This method permits the admin to edit his/her account's information.
display	It displays the account details of the admin.
about	"About.txt" is a file that has a fascinating introduction of the application for customer. This about method display this file for the admin.
FAQS	This method displays the content of a text file "FAQS.txt". This file is consisting of the most frequently asked questions.
deleteAccount	This permits the admin to permanently delete his/her account.
show_all_customers	This method reads the excel file "customer.xlsx". This method is helpful for the admin so that he/she can keep record of the customer accounts.
show_all_admins	This is also a useful method for admin for management purpose. This method reads the excel file "Admin.xlsx".

8. Shopping Cart

As name suggested, Shopping cart class is used to manage and handle all the activities related to the shopping cart.

Method Name	Brief Description
__init__	It is a constructor which initializes the object of Shopping cart class.
read_cart_file	This method reads the cart from an excel file "Shopping Cart.xlsx" and returns the same.

cart_menu_display	Cart menu display method gives the customer many options such as display or edit the cart or place an order. This is basically a menu related to cart.
show_cart	As mentioned in the name, it displays all the items that are present in the cart. This is done by reading the excel file related to cart i.e "Shopping cart".
delete_product	This method removes the product from the cart which the customer does not want.
delete_cart	This method deletes all the products present in the cart and display an appropriate message.
remove_quantity	Remove quantity method allows to decrease the quantity of product.
add_quantity	As name suggested, it permits to add or increase the quantity of product in the cart within the range of available stock.

9. Bill

Bill class confirms the order, provides a receipt of shopping and many other related activities.

Method Name	Brief Description
__init__	It is a constructor which initializes the object of Bill class.
bill_reciept	This method does all the calculation related to money and provides a proper bill receipt for the customer.
delete_sheet	This method deletes the cart after the customer has placed his/her order by deleting the respective sheet of his cart in "Shopping.xlsx".
update_quantity	After completion of shopping process, the quantity of the product, which the customer has bought, this update quantity method subtracts that sold quantity from the stock of respective product
update_history	After the customer has checked out, this method adds his shopping details to the "Shopping History.xlsx" file.

Most Challenging Part

The Online Shopping cart has proved to be the multiple skill learning project for us. It enhanced our programming and problem-solving skills. On the other hand, we also faced bit of difficulties. The following two can be considered as the most challenging part for us:

- Working with new libraries such as pandas and openpyxl. As we were not much familiar with these libraries.
- It was challenging to maintain the flow of program by establishing meaningful relations between different classes.

New Thing Learnt in Python

This project enhanced our programming skills to a much greater extent. While working with this project, we get the concept of more perfect programming.

Following libraries are the two new things which we learnt in python while working on this project:

1. Pandas
2. Openpyxl

As we are not much familiar with these two libraries, we had to search them and learn the proper usage and concept of theses libraries. In this way, we got a chance to polish our programming skills.

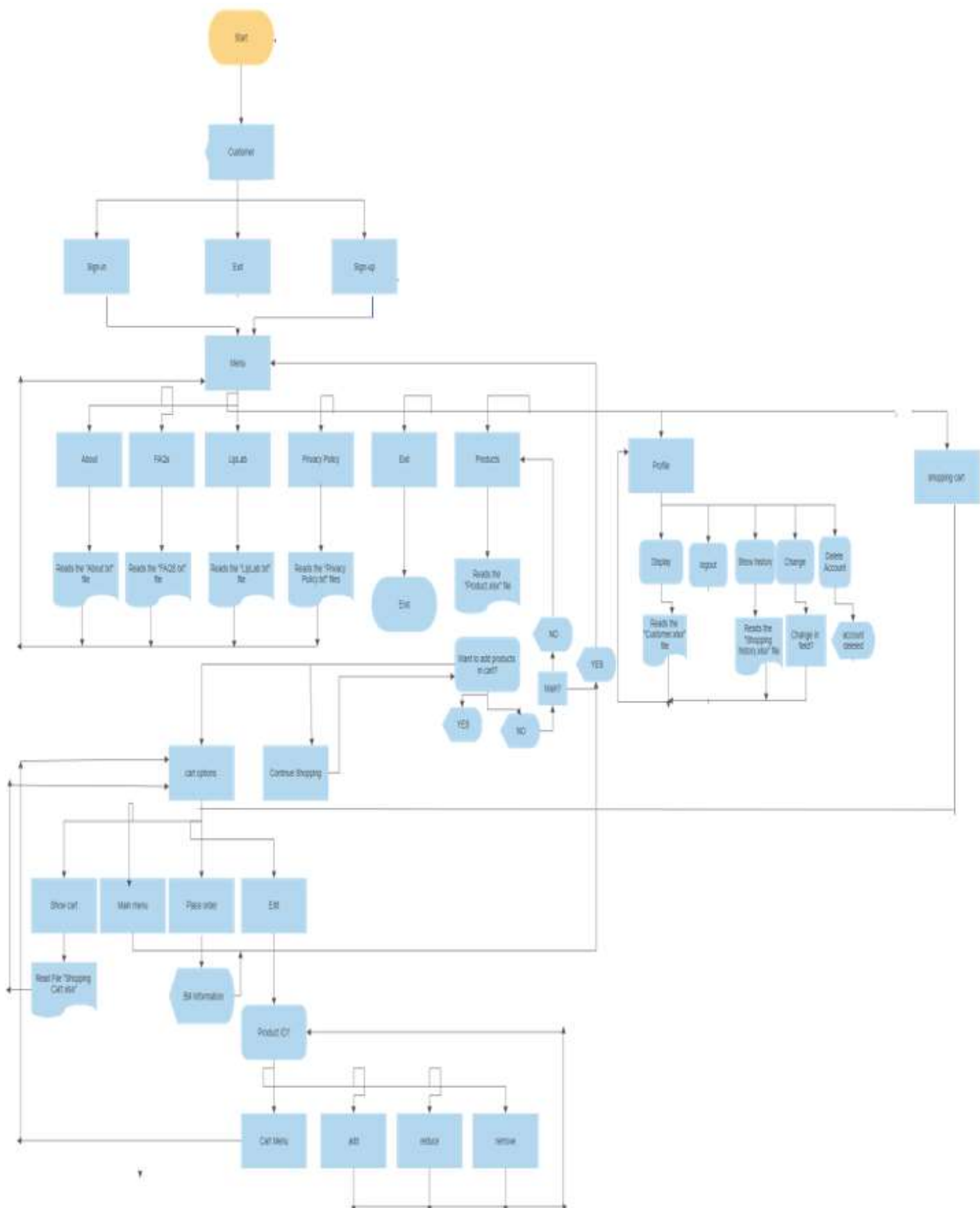
Future Expansions

In future, we want to extend our project. Following are the ideas we want to implement in our project:

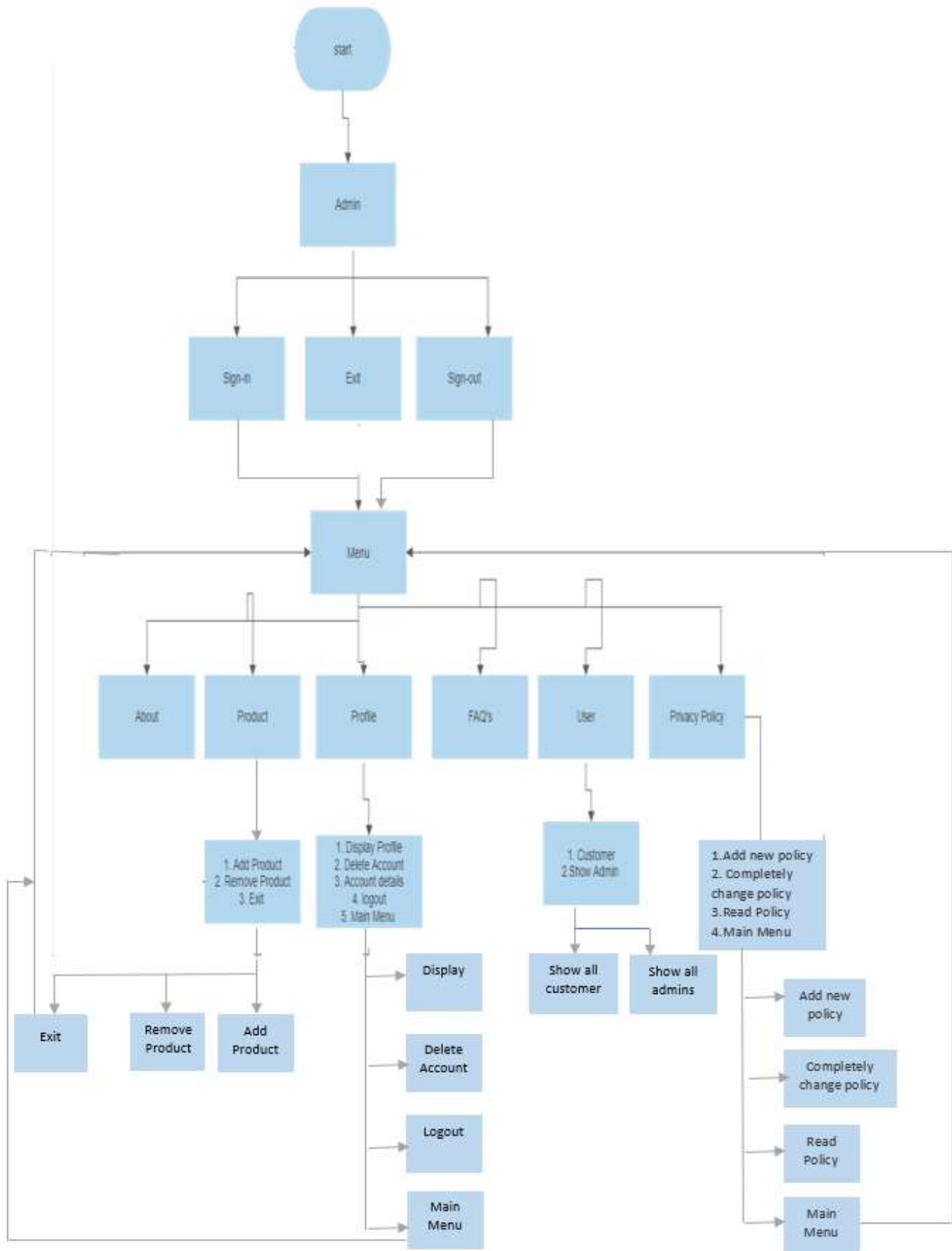
- A web application: which can provide the online shopping service.
- Android application: for customer to access the web service from his Smartphone.

Flow Of Program

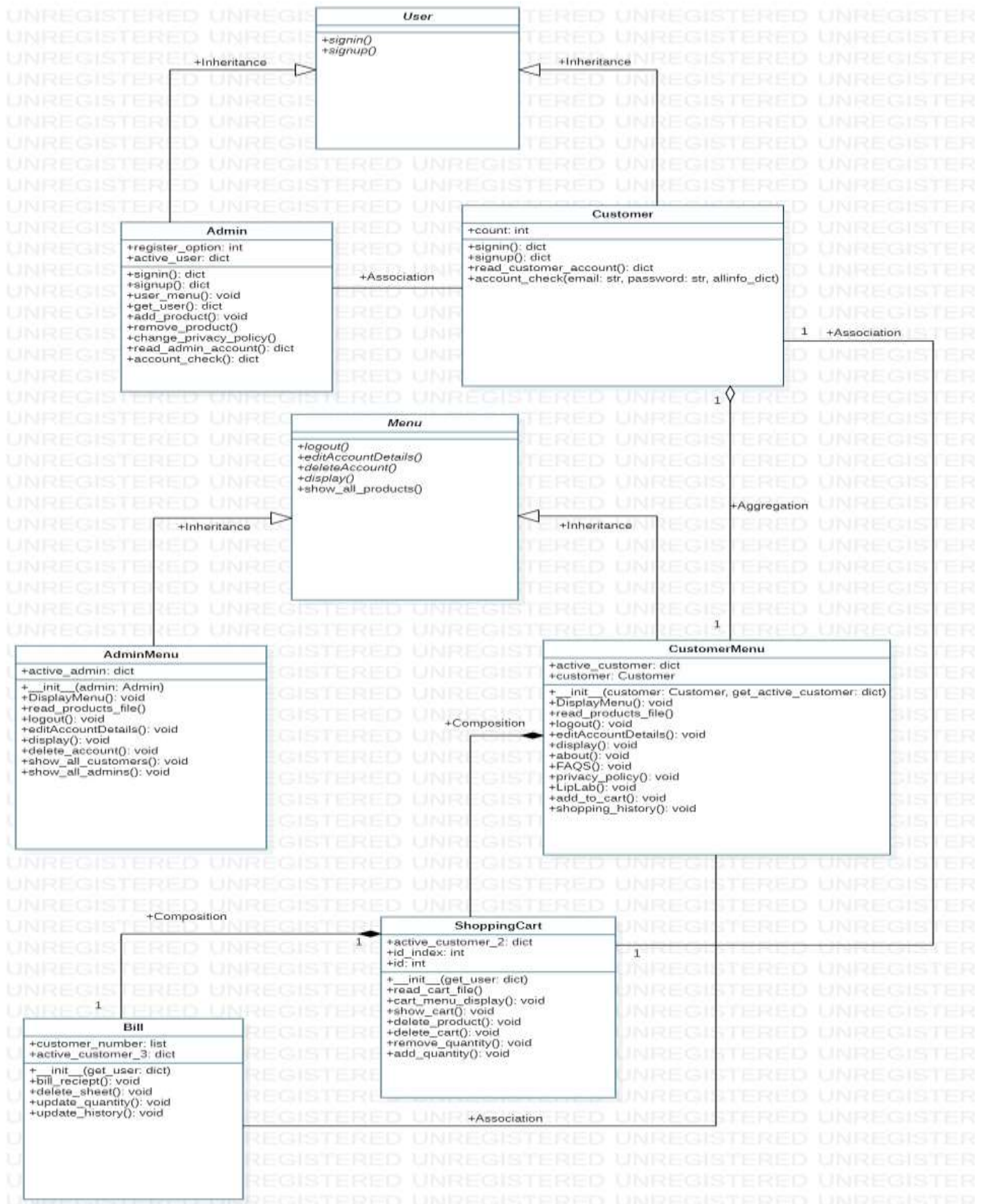
- When the User is a customer then the flow of program will be as follows:



- When the User is admin then the flow of program will be as follows:



Class Diagram



Screenshots

```
C:\Users\dell\AppData\Local\Programs\Python\Python39\python.exe "C:/Users/dell/Documents/CP/0
Welcome! visit the application
1.As Customer
2.As Admin

Enter an option: 1

1.Sign In
2.Sign Up
3.Exit
Enter an option to continue: 1

SIGN IN

Enter your Email Address: Gina@gmail.com
Enter your Password: gina123

Logged in Successfully!
Welcome Back Gina !

MAIN MENU
1.About Us
2.Products
3.Profile
4.My Shopping Cart
5.Lip Lab
6.FAQ'S
7.Privacy Policy
8.Exit

Enter an option: 2
```

PRODUCTS MENU

Product_ID	Name	Price	Quantity Available
20101	Color Riche Le Rouge Lipstick	26	49
20102	Mega Last-Lipstick	35	25
20103	Luscious Lipstick	45	3
20104	Lip Attraction- Lipstick	65	92
20105	Intense Matte-Liquid Lipstick	56	95
20106	Iconic Matte-Lipstick	32	20
20107	Nude-Lipstick	21	49
20108	Matte-Liquid Lip Colour	25	38
20109	Glossy Lipstick	12	19
20110	Sensational-Lip Crayon	15	68
20111	Velvety Lip Crayon	24	36
20112	Super Stay-Lip Crayon	20	12
20113	Revolution-Lip Crayon	30	199
20114	Freedom-Lip Liner	19	25
20115	Cherry Boom-Lip Liner	18	56
20116	Twist-Lip Liner	29	34
20117	Pucker Up-Lip Liner	28	58

Do you want to add a product to your cart? [Y/y or N/n] y

Enter product ID to add to cart: 20108

Quantity : 7

Product has been added to your shopping cart successfully!

Would you like to:

1.Go to Shopping Cart options

2.Continue Shopping

1

SHOPPING CART MENU

- 1.Show My Cart
- 2.Edit Shopping Cart
- 3.Place Order
- 4.Go To Main Menu

Enter an option number: 1

Product_ID	Name	Price	Quantity
20106	Iconic Matte-Lipstick	32	16
20109	Glossy Lipstick	12	6
20104	Lip Attraction- Lipstick	65	8
20108	Matte-Liquid Lip Colour	25	7

SHOPPING CART MENU

- 1.Show My Cart
- 2.Edit Shopping Cart
- 3.Place Order
- 4.Go To Main Menu

Enter an option number: 2

MY SHOPPING CART

Product_ID	Name	Price	Quantity
20106	Iconic Matte-Lipstick	32	16
20109	Glossy Lipstick	12	6
20104	Lip Attraction- Lipstick	65	8
20108	Matte-Liquid Lip Colour	25	7

Enter a Product ID: 20109

EDIT SHOPPING CART

- 1.Remove Product
- 2.Add Quantity
- 3.Reduce Quantity
- 4.Go to Shopping Cart Menu

Enter an option number to edit your cart: 3

Enter quantity: 1

Quantity of product has been reduced

MY SHOPPING CART

Product_ID	Name	Price	Quantity
20106	Iconic Matte-Lipstick	32	16
20109	Glossy Lipstick	12	5
20104	Lip Attraction- Lipstick	65	8
20108	Matte-Liquid Lip Colour	25	7

Enter a Product ID: 20106

EDIT SHOPPING CART

- 1.Remove Product
- 2.Add Quantity
- 3.Reduce Quantity
- 4.Go to Shopping Cart Menu

Enter an option number to edit your cart: 4

SHOPPING CART MENU

- 1.Show My Cart
- 2.Edit Shopping Cart
- 3.Place Order
- 4.Go To Main Menu

Enter an option number: 3

Your order

Product_ID	Name	Price	Quantity
20106	Iconic Matte-Lipstick	32	16
20109	Glossy Lipstick	12	5
20104	Lip Attraction- Lipstick	65	8
20108	Matte-Liquid Lip Colour	25	7

Is confirmed at 14:13:17 On Friday 08/13/21

Your Total bill is = \$ 134

Your Payment has been deducted from your MasterCard of no. 352900000

THANK YOU FOR SHOPPING WITH US

MAIN MENU

- 1.About Us
- 2.Products
- 3.Profile
- 4.My Shopping Cart
- 5.Lip Lab
- 6.FAQ'S
- 7.Privacy Policy
- 8.Exit

Enter an option: 8

Thank you for visting!!

Have a nice day!

```

IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
= RESTART: F:\Second Semester\Object Oriented Programming\Assignments\CEP_Group_Assignment\FINAL .py
Welcome! visit the application
1.As Customer
2.As Admin

Enter an option: 2

1.Sign In
2.Sign Up
3.Exit
Enter an option to continue: 1

SIGN IN

Enter your Email Address: asra33@outlook.com
Enter your Password: asral2341

Logged in Successfully!
Welcome Back Asra!

{'S.No.': 3, 'First Name': 'Asra', 'Last Name': 'Sajid', 'E-mail': 'asra33@outlook.com', 'Password': 'asral2341'}

MENU
1.About Us
2.Products
3.Profile
4.FAQ'S
5.Users
6.Privacy policy
7.Go to Main Menu

Enter an option: 2



| Product_ID | Name                          | Price | Quantity Available |
|------------|-------------------------------|-------|--------------------|
| 20101      | Color Riche Le Rouge Lipstick | 26    | 45                 |
| 20102      | Mega Last-Lipstick            | 35    | 22                 |
| 20103      | Luscious Lipstick             | 45    | 13                 |
| 20104      | Lip Attraction- Lipstick      | 65    | 92                 |
| 20105      | Intense Matte-Liquid Lipstick | 56    | 98                 |
| 20106      | Iconic Matte-Lipstick         | 32    | 24                 |
| 20107      | Nude-Lipstick                 | 21    | 55                 |
| 20108      | Matte-Liquid Lip Colour       | 25    | 44                 |
| 20109      | Glossy Lipstick               | 12    | 26                 |
| 20110      | Sensational-Lip Crayon        | 15    | 68                 |
| 20111      | Velvety Lip Crayon            | 24    | 33                 |
| 20112      | Super Stay-Lip Crayon         | 20    | 12                 |
| 20113      | Revolution-Lip Crayon         | 30    | 199                |
| 20114      | Freedom-Lip Liner             | 19    | 25                 |
| 20115      | Cherry Boom-Lip Liner         | 18    | 56                 |
| 20116      | Twist-Lip Liner               | 29    | 34                 |
| 20117      | Pucker Up-Lip Liner           | 28    | 58                 |



Make changes in the stocked products? [Y/y or N/n] __Y

1.Add new product to stock
2.Remove product from the stock
3.Exit
Select option number = 1
Set the ID of new product = 301
Set name of product = Black Sand lip balm
Set price of product = 300
Add quantity to stock = 50
To exit, press n/N
To continue adding press y/Y = n

Make changes in the stocked products? [Y/y or N/n] __y

1.Add new product to stock
2.Remove product from the stock
3.Exit
Select option number = 2
Enter ID of a product to be removed = 20101
To exit, press n/N
To continue removing press y/Y = n

```

To continue removing press y/Y = n

Product_ID	Name	Price	Quantity Available
20102	Mega Last-Lipstick	35	22
20103	Luscious Lipstick	45	13
20104	Lip Attraction- Lipstick	65	92
20105	Intense Matte-Liquid Lipstick	56	98
20106	Iconic Matte-Lipstick	32	24
20107	Nude-Lipstick	21	55
20108	Matte-Liquid Lip Colour	25	44
20109	Glossy Lipstick	12	26
20110	Sensational-Lip Crayon	15	68
20111	Velvety Lip Crayon	24	33
20112	Super Stay-Lip Crayon	20	12
20113	Revolution-Lip Crayon	30	199
20114	Freedom-Lip Liner	19	25
20115	Cherry Boom-Lip Liner	18	56
20116	Twist-Lip Liner	29	34
20117	Pucker Up-Lip Liner	28	58
301	Black Sand lip balm	300	50

ITEM REMOVED SUCCESSFULLY

Product_ID	Name	Price	Quantity Available
20102	Mega Last-Lipstick	35	22
20103	Luscious Lipstick	45	13
20104	Lip Attraction- Lipstick	65	92
20105	Intense Matte-Liquid Lipstick	56	98
20106	Iconic Matte-Lipstick	32	24
20107	Nude-Lipstick	21	55
20108	Matte-Liquid Lip Colour	25	44
20109	Glossy Lipstick	12	26
20110	Sensational-Lip Crayon	15	68
20111	Velvety Lip Crayon	24	33
20112	Super Stay-Lip Crayon	20	12
20113	Revolution-Lip Crayon	30	199
20114	Freedom-Lip Liner	19	25
20115	Cherry Boom-Lip Liner	18	56
20116	Twist-Lip Liner	29	34
20117	Pucker Up-Lip Liner	28	58
301	Black Sand lip balm	300	50

Make changes in the stocked products? [Y/y or N/n] __n

```

MENU
1.About Us
2.Products
3.Profile
4.FAQ'S
5.Users
6.Privacy policy
7.Go to Main Menu

Enter an option: 5

1.Show all customers
2.Show all admins
3.Exit
Select option number = 1
S.No. First Name Last Name E-mail
0 1 Jake Peralta jake.j11@gmail.com
1 2 Gina Linneti Gina@gmail.com
2 3 Boyle B Charles Charles@hotmail.com
3 4 Rosa Diaz diaz@outlook.com
4 5 Habiba Asif abc@xy
5 6 Missy Lake Lab

1.Show all customers
2.Show all admins
3.Exit
Select option number = 2
S.No. First Name Last Name E-mail
0 1 Tina Shahid tina@gmail.com
1 2 Lupin Selvin lupin98@outlook.com
2 3 Asra Sajid asra93@outlook.com
3 4 Farhana Ghous farhana4@outlook.com
4 5 Talha Khan talha5@outlook.com
5 7 habibi asif hb@xy

1.Show all customers
2.Show all admins
3.Exit
Select option number = 3

MENU
1.About Us
2.Products
3.Profile
4.FAQ'S
5.Users
6.Privacy policy
7.Go to Main Menu

Enter an option: 6

1.Add new policy
2.Completely change the policy
3.Read Policy
4.Go to Main Menu
Select option number = 1
Write here
_4)WHY YOU SHOULD PROVIDE YOUR PERSONAL INFORMATION\nThe personal information we take from our customers is essential to be provided
before logging in our application because we use your information to make your account and connect you to our widely used application

POLICY CHANGED SUCCESSFULLY

1.Add new policy
2.Completely change the policy
3.Read Policy
4.Go to Main Menu
Select option number = 6

1.Add new policy
2.Completely change the policy
3.Read Policy
4.Go to Main Menu
Select option number = 4

MENU
1.About Us
2.Products
3.Profile
4.FAQ'S
5.Users
6.Privacy policy
7.Go to Main Menu

Enter an option: 7
Thank you for visiting!!
Have a nice day!
>>> |

```

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