OBJECT ORIENTED PROGRAMMING:

CEP TERM PROJECT

ONLINE SHOPPING SYSTEM

GROUP MEMBERS:

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COURSE NAME: OBJECT ORIENTED PROGRAMMING

COURSE CODE: CS-116

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TERM PROJECT

TITLE:

ONLINE SHOPPING CART

PROJECT DESCRIPTION:

Online shopping cart is a virtual shopping trolley, where shoppers can put all of their want-to-buy products in, review to make adjustments in quantity, product attributes, price, and remove it before checking out. It also allows the managers to adjust, remove and update the products of their choice.

DISTINGUISHING FEATURES OF OUR PROJECT:

The distinguishing feature of our project is the functionality provided to the managers of the shopping system. We've provided them with options to EDIT ACCOUNTS and EDIT PRODUCTS as per their wish. EDIT ACCOUNTS allows them to add another manager account, remove it, change its details and view their own as well as other manager's accounts. EDIT PRODUCTS allows them to adjust stock, remove stock, view stock and update stock. Another distinguishing feature of our project is that we've made the products and their quantity variable enabling the manger to adjust them. One other prominent feature of our project is the display of date and time with the shopping history making it easier for the user to see at what date and time they had made previous orders.

MOST CHALLENGING PART FOR US:

The most challenging part for us while working on this project was deciding the relations between the classes. As the project was way more complex than anything we've done so far, managing it and keeping track of all the classes was troublesome and we had to spend quite a lot of time figuring out how to link the classes during the design part.

NEW THING LEARNT IN PYTHON:

We learnt how to use the 'datetime' module to print order time and date in our shopping history. Besides that we used the format function in python a lot more than we used to previously do and hence became much more familiar with it. We also learnt how to handle complex projects in python and our OOP concepts became much clearer through this project.

FUTURE EXPANSIONS:

In the future when we're more equipped with python, we would like to further expand this project to give it a web or GUI interface so that it looks more presentable.

FLOW OF OUR PROGRAM:

- 1. Our program starts from class 'Interface' in file (A1_CS19020_26_1.py). The purpose of this class is to link all of the menu classes together and access them as per the user's wish. In the first few lines we have imported all of our .py files so we can access their classes.
- 2. As soon as we instantiate an object of the 'Interface' class, its default constructor prints a menu asking the user whether they're a <u>user</u> or an <u>admin</u> or they want to exit.
- 3. If the user selects user:
 - 3.1. We call the method UserMenu () of class Interface which then instantiates an object of class 'Usermenu' from file (A1_CS19020_26_2.py).
 - 3.1.1. *Class Usermenu*: The purpose of this class is to give user the choice to either sign in or sign up.
 - 3.1.2. As soon as an object of this class is instantiated, the default constructor of this class instantiates an object of class 'AccountWork' in the same file. As soon as the object of this class is instantiated, a list containing all the account records from file (A1 CS19020 26 7.txt) is loaded by the constructor.
 - 3.1.3. Then, through the methods of this object, the user either signs in or signs up depending upon their choice. After signing in or signing up, the program asks the user if they want to view their account details (YES or NO). If the user enters yes, the program prints their account details through the methods of class AccountWork's object otherwise it simply returns. After doing all of this, the program returns to UserMenu ().
 - 3.2. An object of class 'userInterfaceProduct' from file (A1_CS19020_26_4.py) is then instantiated in UserMenu ().
 - 3.2.1. *Class userInterfaceProduct*: This class provides an interface for the entire order process.
 - 3.2.2. As soon an object of this class is instantiated, it instantiates an object of class 'Order' in the same file. The default constructor of class 'Order' initializes a cart list for the user in which their order will be placed. After that, it instantiates an object of class

- 'ProductManagement' from file (A1_CS19020_26_5.py). The default constructor of this class loads the product list from file (A1_CS19020_26_9.txt). Through the object of this class, a product menu is printed on the output by the default constructor of class 'Order'.
- 3.2.3. The program then asks the user to input product names and their quantities to be included in their order cart. The user can either continue to buy by this process or exit to a menu which gives them more functionality for their cart. If they want, they can either add more items to their cart, remove an item from the cart, view their cart or simply proceed to checkout. If they wish to exit, they are also eligible to do that.
- 3.2.4. Once, the user chooses checkout, their finalized cart is saved in a text file (A1_CS19020_26_10.txt) and printed and then the program returns to UserMenu ().
- 3.3. An object of class ShoppingHistory from file (A1_CS19020_26_6.py) is then instantiated in UserMenu ().
 - 3.3.1. Class ShoppingHistory: This class deals with all the functionality related to a user's shopping history. When an object of this class is instantiated, the default constructor creates a list in which the user's cart is loaded from file (A1_CS19020_26_10.txt). Another list is created by the constructor in which every user's shopping history is loaded from file (A1_CS19020_26_11.txt).
- 3.4. The program then asks the user if they want to see their shopping history (YES or NO). If the user enters yes, the program then checks whether the user's shopping history exists in file (A1 CS19020 26 11.txt).
- 3.5. If it exists, prints the user's shopping history through class ShoppingHistory's instantiated object. If the shopping history does not exist, the program writes a new shopping history list in (A1_CS19020_26_11.txt) then prints that list.
- 3.6. If the user enters no it simply exits and the Interface once again asks the user if they're a user or admin.

4. If the user selects admin:

4.1. We then call ManagerMenu () of class Interface. The method then instantiates an object of class 'AdminMenu' from file (A1_CS19020_26_3.py).

- 4.1.1. *Class AdminMenu*: The purpose of this class is to allow the admin to sign in and then providing the admin some functionality.
- 4.1.2. As soon as an object of this class is instantiated, the default constructor instantiates an object of ManageAccount (inherits from AccountWork). The default constructor of this class then creates a list containing every admin's record file (A1 CS19020 26 8.txt).
- 4.1.3. Through the methods of ManageAccount's object, the admin is allowed to sign in.
- 4.2. ManagerMenu() then calls ManagerEditMenu() of class Interface, which prints a menu of options asking admin whether they'd like to Edit Accounts, Edit Products or view Shopping History or exit.

4.3. If admin selects Edit Accounts:

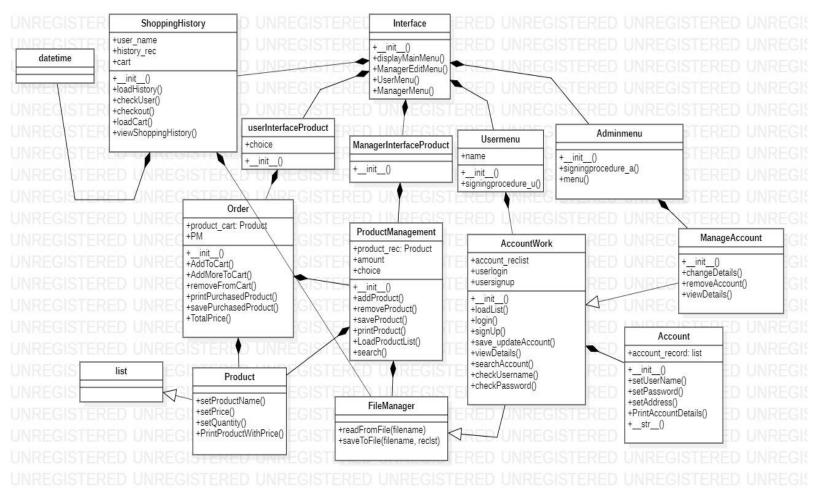
- 4.3.1. menu() of class 'AdminMenu' from file (A1_CS19020_26_3.py) is called which further prints a menu of options for the admin whether they'd like to Add an Account, Change Details of an Account, Remove an Account, View Account Details or exit. If the admin selects any of the four options, the relevant methods will be called from the object of class 'ManageAccount' in the same file.
- 4.3.2. If the admin selects exit, then the program returns to ManagerEditMenu ().

4.4. If admin selects Edit Products:

- 4.4.1. ManagerInterfaceProduct class from file (A1_CS19020_26_5.py) is called. As soon as this class is called its constructor instantiates an object of class 'ProductManagement' in the same file. A menu of options is then printed asking the admin if they want to Add a Product, Remove a Product, Show Available Stock, Update Stock or exit. If the admin selects any of the first 4 options, the relevant methods will be called from the object instantiated of class 'ProductManagement'.
- 4.4.2. If the admin selects exit, the program returns to ManagerEditMenu ().
- 4.5. If the admin selects View Shopping History:
 - 4.5.1. An object of class ShoppingHistory from file (A1_CS19020_26_6.py) is instantiated (refer to point 3.3.1).
 - 4.5.2. Through the methods of this class's object, the shopping history of every account is printed and then the program returns to ManagerMenu ().

- 4.6. If the admin selects exit the program returns and the Interface once again asks the user if they're a <u>user</u> or <u>admin</u>.
- 5. If the user selects exit, the program prints a goodbye message and ends.

CLASS DIAGRAM:



OUTPUT:

TEST RUN 1: User selects 'User Section'.

File Edit Shell Debug Options Window Help WELCOME TO ONLINE SHOP MAIN MENU: 1. UserSection 2. AdminSection Press anyother key to exit Enter option number:1 WELCOME USER! Before continuing please select from the following options: Press '1' to SIGN IN or '2' to SIGN UP:1 ENTER USERNAME:izma ENTER PASSWORD:d Incorrect Password!
Would you like to try again(Enter YES or No): yes TRY AGAIN: ENTER PASSWORD:izma123 Login Successfull!
WOULD YOU LIKE TO VIEW YOUR ACCOUNT DETAILS?yes USERNAME: Izma PASSWORD: izma123 ADDRESS: ABC STREET -----PRODUCT IN ONLINE SHOP-----PRODUCTNAME OUANTITY PRICE(for 1 product) 34.0Rs/= 50.0Rs/= 75.0Rs/= Soap Sanitizer Hand wash Juice Chips 56.0Rs/= 23.0Rs/= 41 40 11 53 29 39 20 11 54 62 Tooth brush Tooth paste 39.0Rs/= 70.0Rs/= Watches 90.0Rs/= 100.0Rs/= Crockery 45.0Rs/= 19.0Rs/= 12.0Rs/= Chocolate Shoes 70.0Rs/= 3400.0Rs/= Shirt Scarf pins 39 50.0Rs/= 10.0Rs/= Bread Flavored milk 50.0Rs/= -----PLACE YOUR ORDER-----PLACE YOUR ORDER-----YOUR CART IS READY!
Press 'e' to exit or ANY KEY to continue: d
Enter PRODUCT NAME to be added in the Cart: Bread
Enter quantity of product: 1
Press 'e' to exit or ANY KEY to continue: d
Enter PRODUCT NAME to be added in the Cart: s
Invalid product entered!!
Frater product name again!Sirt Enter product name again!Sirt Invalid product entered!! 1: Add more items to Cart 2: Remove items from the cart3: Show Items in cart4: CheckOut Press ANY key to Exit Enter an option: 1
Enter PRODUCT NAME to be added in the Cart:Chocolate Enter quantity of product: 1 MENU 1: Add more items to Cart

```
IZMA AZIZ
2: Remove items from the cart
3: Show Items in cart
4: CheckOut
Press ANY key to Exit
MENU
1: Add more items to Cart
2: Remove items from the cart
3: Show Items in cart
4: CheckOut
Press ANY key to Exit
Enter an option: 3
----ITEMS IN CART-----
PRODUCTNAME QUANTITY
Bread 1
Chocolate 1
                                        PRICE(for 1 product)
                                    10.0Rs/=
19.0Rs/=
Total price of your products is: 29.0 Rs/=
MENU
1: Add more items to Cart
2: Remove items from the cart
3: Show Items in cart
4: CheckOut
Press ANY key to Exit
Enter an option: 4
Order placed successfully
----ORDERED ITEMS-
PRODUCTNAME QUANTITY
Bread 1
Chocolate 1
                                        PRICE(for 1 product)
                                       10.0Rs/=
19.0Rs/=
Total price of your products is: 29.0 Rs/= Do you want to see the history details?yes
UserName : Izma
PRODUCTNAME QUANTITY
                                         PRICE(for 1 product)
DATE AND TIME: 12/09/2020 14:38:51
                                         90.0Rs\=
Watches
DATE AND TIME: 13/09/2020 14:43:50
                                         12.0Rs\=
DATE AND TIME: 13/09/2020 14:46:21
                                         12.0Rs\=
Shoes
DATE AND TIME: 13/09/2020 16:45:09
Shirt
Bread
                                         3400.0Rs\=
DATE AND TIME: 13/09/2020 18:49:34
                                         70.0Rs\=
DATE AND TIME: 14/09/2020 12:19:12
                                         10.0Rs\=
Bread 1
Chocolate 1
                                         19.0Rs\=
```

TEST RUN 2: User selects 'AdminSection'.

Python 3.7.0 Shell File Edit Shell Debug Options Window Help WELCOME TO ONLINE SHOP MAIN MENU: 1. UserSection 2. AdminSection
Press anyother key to exit Enter option number:2 ---- Admin Department--WELCOME ADMIN! PLEASE SIGN IN BEFORE CONTINUING: ENTER USERNAME:ayesha ENTER PASSWORD:1234 ADMIN EDIT MENU: 1. Edit Accounts
2. Edit Products
3. Display Shopping History
Press any key to exit -----ADMIN ACCOUNT MANAGEMENT-----MENU: 1.ADD AN ACCOUNT 2.CHANGE ACCOUNT INFORMATION 3.VIEW ACCOUNT INFORMATION 4.REMOVE ACCOUNT 'e' to exist: SELECT AN OPTION: 1 ENTER USERNAME:xyz ENTER PASSWORD:123 ENTER ADDRESS:ABC STREET ACCOUNT SUCCESSFULLY ADDED 1.ADD AN ACCOUNT 2.CHANGE ACCOUNT INFORMATION
3.VIEW ACCOUNT INFORMATION
4.REMOVE ACCOUNT 'e' to exist: SELECT AN OPTION: 3 Press '1' to view your own account OR '2' to view all accounts:1 ACCOUNT INFORMATION: USERNAME: Ayesha PASSWORD: 1234 SELECT AN OPTION: 3 Press '1' to view your own account OR '2' to view all accounts:2 ACCOUNT 1: USERNAME: Ayesha PASSWORD: 1234 ADDRESS: hh street ACCOUNT 2: USERNAME: Hina PASSWORD: 123 ADDRESS: hh street

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ACCOUNT 3:
USERNAME: Izma
PASSWORD: izma123
ADDRESS: HH STREET
ACCOUNT 4:
USERNAME: Bisma imran
PASSWORD: 123
ADDRESS: JAHAUR
ACCOUNT 5:
USERNAME: Xyz
PASSWORD: 123
ADDRESS: ABC STREET
MENU:
1.ADD AN ACCOUNT
2.CHANGE ACCOUNT INFORMATION
3.VIEW ACCOUNT INFORMATION
4.REMOVE ACCOUNT
'e' to exist:
SELECT AN OPTION: 2
ENTER USERNAME OF THE ACCOUNT YOU WANT TO CHANGE:xyz
 WOULD YOU LIKE TO MAKE CHANGES TO:
WOULD YOU LIKE TO MAKE
1.USERNAME
2.PASSWORD
3.ADDRESS:
ENTER AN OPTION: 1
ENTER NEW USERNAME:abc
 NEW DETAILS:
USERNAME: Abc
PASSWORD: 123
ADDRESS: ABC STREET
 *******
1.ADD AN ACCOUNT
2.CHANGE ACCOUNT INFORMATION
3.VIEW ACCOUNT INFORMATION
4.REMOVE ACCOUNT
'e' to exist:
TRY AGAIN:
ENTER USERNAME OF THE ACCOUNT YOU WANT TO REMOVE:abc
ACCOUNT SUCCESSFULLY REMOVED!
MENU:
1.ADD AN ACCOUNT
2.CHANGE ACCOUNT INFORMATION
3.VIEW ACCOUNT INFORMATION
 4.REMOVE ACCOUNT
 'e' to exist:
SELECT AN OPTION: 3
Press '1' to view your own account OR '2' to view all accounts:2
ACCOUNT 1:
USERNAME: Ayesha
PASSWORD: 1234
ADDRESS: hh street
USERNAME: Hina
PASSWORD: 123
ADDRESS: hh street
 ACCOUNT 3:
USERNAME: Izma
PASSWORD: izma123
ADDRESS: HH STREET
```

```
ACCOUNT 4:
USERNAME: Bisma imran
PASSWORD: 123
1.ADD AN ACCOUNT
2.CHANGE ACCOUNT INFORMATION
3.VIEW ACCOUNT INFORMATION
4.REMOVE ACCOUNT
'e' to exist:
SELECT AN OPTION: e
Closing Admin Account Management.....
ADMIN EDIT MENU:
1. Edit Accounts
2. Edit Products
3. Display Shopping History
Press any key to exit
-----ADMIN PRODUCT MANAGEMENT-----
MENU:
1: Add products to stock
2:Remove items from stock
3:Show stock available
3:Sinow Stock available
4:UpdateStock
Press ANY key to Exit
1: Add products to stock
2:Remove items from stock
3:Show stock available
4:UpdateStock
Press ANY key to Exit
Enter an option: 3
        -----PRODUCT DETAILS-----
QUAN
17
76
15
33
60
41
40
Tooth brush
Tooth paste
                                         70.0Rs/=
Tooth paste
                     11
Watches
                                        90.0Rs/=
Clock
                     29
                                        100.0Rs/=
                                        45.0Rs/=
19.0Rs/=
12.0Rs/=
Crockery
                     39
                     19
Chocolate
Shoes
Shoel
Cream
Shirt
Scarf pins
                    54
                                        70.0Rs/=
                     61
                                         3400.0Rs/=
                     39
                                         50.0Rs/=
                   44
40
                                         10.0Rs/=
                                         50.0Rs/=
Flour
                     40
                                         50.0Rs/=
*********
MENU:
1: Add products to stock
2:Remove items from stock
3:Show stock available
4:UpdateStock
Press ANY key to Exit
Enter an option: 2
Enter product name of product to be removed: Shirt
You want to remove whole product or some quantity of it?
Press 1 for removing whole product and 2 for changing the quantity only2
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MENU:
1: Add products to stock
2:Remove items from stock
3:Show stock available
4:UpdateStock
Enter an option: 4
STOCK UPDATED SUCCESSFULLY!----
MENU:
1: Add products to stock
2:Remove items from stock
3:Show stock available
4:UpdateStock
Press ANY key to Exit
Enter an option: 3
Enter an option: 5
------PRODUCT DETAILS------

PRODUCTNAME QUANTITY PRICE(for 1 product)
17
34.0Rs/=
34.0Rs/=
50.0Rs/=
                                    75.0Rs/=
56.0Rs/=
                                    23.0Rs/=
37.0Rs/=
                                     39.0Rs/=
                                     70.0Rs/=
                                     90.0Rs/=
Clock
                                     100.0Rs/=
Crockery
                   39
                                    45.0Rs/=
                                    19.0Rs/=
12.0Rs/=
Chocolate
                  19
Shoes
                   11
Cream
Shirt
Scarf pins
                   59
                                     3400.0Rs/=
                 39
44
40
40
                                     50.0Rs/=
                                     10.0Rs/=
                                     50.0Rs/=
Flour
                                    50.0Rs/=
MENU:
1: Add products to stock
2:Remove items from stock
3:Show stock available
4:UpdateStock
Press ANY key to Exit
Enter an option: e
Closing Admin Product Management.....
ADMIN EDIT MENU:
1. Edit Accounts
2. Edit Products
3. Display Shopping History
Press any key to exit
3
        -----HISTORY DETAILS-----
UserName : Ayesha
PRODUCTNAME
                  QUANTITY
                                      PRICE(for 1 product)
DATE AND TIME: 13/09/2020 02:11:22
                                     56.0Rs\=
Juice 1
Shirt 2
                                     3400.0Rs\=
DATE AND TIME: 13/09/2020 02:11:50
Shoes 1
Cream 1
                                     12.0Rs\=
                                     70.0Rs\=
DATE AND TIME: 13/09/2020 12:57:27
Chips 2
Shoes 1
                                     23.0Rs\=
                                     12.0Rs\=
DATE AND TIME: 13/09/2020 13:25:05
Tooth paste
                                     70.0Rs\=
```

```
DATE AND TIME: 14/09/2020 00:00:57
                              12.0Rs\=
Shoes 1
Scarf pins 1
                               50.0Rs\=
DATE AND TIME: 14/09/2020 12:12:00
                               37.0Rs\=
 UserName : Taha
PRODUCTNAME QUANTITY
                             PRICE(for 1 product)
DATE AND TIME: 13/09/2020 12:58:28
Cream 1
Shirt 1
                              70.0Rs\=
                              3400.0Rs\=
 UserName : Minhal
PRODUCTNAME QUANTITY
                              PRICE(for 1 product)
DATE AND TIME: 13/09/2020 13:35:31
Milk 1
Sanitizer 1
Hand wash 1
                              37.0Rs\=
                              50.0Rs\=
75.0Rs\=
DATE AND TIME: 13/09/2020 13:36:22
                              90.0Rs\=
UserName : Izma
PRODUCTNAME QUANTITY
                               PRICE(for 1 product)
DATE AND TIME: 12/09/2020 14:38:51
Watches 1
                                  90.0Rs\=
DATE AND TIME: 13/09/2020 14:43:50
                                   12.0Rs\=
DATE AND TIME: 13/09/2020 14:46:21
                                   12.0Rs\=
Shoes
DATE AND TIME: 13/09/2020 16:45:09
                                   3400.0Rs\=
                                   10.0Rs\=
DATE AND TIME: 13/09/2020 18:49:34
                                   70.0Rs\=
Cream 1
Shoes 2
                                  12.0Rs\=
DATE AND TIME: 14/09/2020 12:19:12
Bread 1
Chocolate 1
Bread
                                   10.0Rs\=
                                   19.0Rs\=
  UserName : Bisma
                          PRICE(for 1 product)
PRODUCTNAME QUANTITY
DATE AND TIME: 13/09/2020 18:16:21
Shoes 2
Cream 1
                                   12.0Rs\=
Cream
                                   70.0Rs\=
  UserName : Ali
PRODUCTNAME QUANTITY PRICE(for 1 product)
```

TEST RUN 3: Random Choices in 'UserSection'.

```
File Edit Shell Debug Options Window Help
 Python 3.7.0 (v3.7.0:lbf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32 Type "copyright", "credits" or "license()" for more information.
  ----- RESTART: C:\Users\ayesh\Downloads\Interface.py ------
                                     WELCOME TO ONLINE SHOP
  MAIN MENU:
  1. UserSection
2. AdminSection
  Press anyother key to exit
  Enter option number:1
  WELCOME HISER!
  Before continuing please select from the following options:
  Press '1' to SIGN IN or '2' to SIGN UP:d
 Press '1' to SIGN IN or '2' to SIGN UP:2
ENTER USERNAME:abc
ENTER PASSWORD:123
ENTER ADDRESS:abc street
Account Successfully Created!!
WOULD YOU LIKE TO VIEW YOUR ACCOUNT DETAILS?d
INVALID ENTRY
WOULD YOU LIKE TO VIEW YOUR ACCOUNT DETAILS?no
------PRODUCT IN ONLINE SHOP------
PRODUCTNAME QUANT Soap 17 Sanitizer 76 Hand wash 15 Juice 33 Chips 60 Milk 41 Tooth brush 40 Tooth paste 11 Watches 53 Clock 29 Chockery 39 Chocolate 19 Shoes 11 Cream 54
  PRODUCTNAME
                               OUANTITY
                                                                        PRICE(for 1 product)
                                                             PRICE (10
34.0Rs/=
50.0Rs/=
75.0Rs/=
56.0Rs/=
23.0Rs/=
37.0Rs/=
                                                                 70.0Rs/=
90.0Rs/=
100.0Rs/=
45.0Rs/=
19.0Rs/=
12.0Rs/=
  Cream
                                                                      70.0Rs/=
  Shirt
Scarf pins
Bread
                                                                      3400.0Rs/=
50.0Rs/=
10.0Rs/=
  Flavored milk
                                                                      50.0Rs/=
                                                                    50.0Rs/=
                             --PLACE YOUR ORDER-----
 YOUR CART IS READY! ANY KEY to continue: d
Enter PRODUCT NAME to be added in the Cart; shoes
Enter quantity of product: 1
Press 'e' to exit or ANY KEY to continue: e
 MENU
1: Add more items to Cart
2: Remove items from the cart
3: Show Items in cart
4: CheckOut
Press ANY key to Exit
 Enter an option: 4
Order placed successfully
----ORDERED ITEMS-----
PRODUCTNAME QUANTITY
Shoes 1
                                                                       PRICE(for 1 product)
                                                                PRIOL:
12.0Rs/=
 Total price of your products is: 12.0 Rs/=
Do you want to see the history details?no
Have a nice day
 MAIN MENU:
  1. UserSection
  2. AdminSection
  Press anyother key to exit
  Enter option number:e
  Enter option number.e
Closing ONLINE SHOP......
THANK YOU FOR SHOPPING :) -----
```