Coursework Report – 5COSC019C Object Oriented Programming

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Have you submitted the video with the demonstration of your system? ☑ Yes ☐ No

If the video has been submitted specify where:
☐ Blackboard
☑ On the cloud (file shared from Google drive, or OneDrive or DropBox, etc), or YouTube. **Copy here the link: …….**
…….https://drive.google.com/file/d/1UchxaKaLx6hL1vh68ZQTw5EEog-TdcfK/view?usp=sharing

Phase 1 – Design and class implementation

Task	**Did you attempt the task?**	**Student's comments** (To which extent you implemented the task? Have you encountered any problems or issue?)
Design a UML Use Case Diagram of your system (submitted in a separate file).	☑ Yes ☐ No	I successfully implemented the task of designing a UML Use Case Diagram for the system. The diagram is comprehensive, capturing the main functionalities and interactions within the system. no issues during the process were encounted, and the result accurately represents the intended use cases of the system.
Design a UML Class Diagram of your system (submitted in a separate file).	☑ Yes ☐ No	I successfully implemented the task of designing a UML Class Diagram for the system. This includes the classes, variables, and attributes that belong to each class, as well as the relationships that each class has with the others. The Key classes, such as Product, Electronics, Clothing, User, Shopping Cart, and the WestminsterShoppingManager interface, which were used in the console is included in the class diagram. The validation class which is doing the validation for the user inputs are added, a MainShoppingManager class which includes main method is also added. Additionally, classes for login, signup,

		and GUI classes WestminsterShoppingCenter were included in the class diagram.
Implementation Class Product	☑ Yes ☐ No	The Product class is the super class and it has been implemented with the necessary attributes like productID, name, price, available item count, product category and methods for getters are implemented.
Implementation Class Electronics	☑ Yes ☐ No	The Electronics class is implemented, inheriting from the Product class. It includes specific attributes related to electronics products such as brand , warranty period and specific getters and to String has been generated.
Implementation Class Clothing	☑ Yes ☐ No	The Clothing class is implemented, inheriting from the Product class. It includes attributes specific to clothing products such as size and colour of the product and specific getters and to String has been generated.
Implementation Class User	☑ Yes ☐ No	The User class has been implemented with attributes like username and password. The getter and setter methods have been implemented as well.
Implementation Class Shopping Cart	☑ Yes ☐ No	The Shopping Cart class is implemented to represent a user's shopping cart

Implementation Interface WestminsterShoppingManager	☑ Yes ☐ No	The ShoppingManager interface has been implemented, providing a blueprint for managing shopping-related functionalities in the WestminsterShoppingManager, which implements the ShoppingManager interface. The add,delet,print,save,load products abstract methods are implemented in the interface. In the WestminsterShoppingManager the abstract methods are overridden with the specific method body.

Phase 2 – Console menu implementation

Task	**Did you attempt the task?**	**Student's comments (To which extent you implemented the task? Have you encountered any problems or issue?)**
Add a product in the system with all the relative information (max 50 doctors)	☑ Yes ☐ No	I have successfully implemented the functionality to add a product to the system. Admins will first ask to specify the product category, and then common inputs such as productID, name, price, and available item count were obtained from the user. Subsequently, the system retrieves product category-related information, and each object is created from the specific category class, which is then saved to the ArrayList of Products. In the beginning the maximum number of products was checked using the size() method of the ArrayList.
Delete a product from the system by selecting the product ID. Display a	☑ Yes ☐ No	I have successfully implemented the functionality to delete products where the

message to confirm it has been removed and the total number of products in the system.		Admin was asks to enter the product ID of the specific product he wants to delete. A confirmation message is displayed upon successful removal, along with the updated total number of products in the system.
Print on the screen the list of the products in the system with all the relative information. The list should be ordered alphabetically.	☑ Yes ☐ No	I have successfully implemented the functionality to display the list of products on the screen with all the relevant information. The products are ordered alphabetically by their product IDs for better readability.
Save in a file entered by the user so far. The user should be able to load back the information running a new instance of the application.	☑ Yes ☐ No	Admins can save the entered product information to a text file named products.txt. This ensures that the data is persistently stored and supports loading previously saved product information from the file. The next time the application starts, it reads back all the information saved in the file, and the admin can continue to use the system. When the admin uses the print option to display existing products, the saved products from the last usage will be printed as well.

Phase 3 – GUI Implementation

Task	Did you attempt the task?	Student's comments (To which extent you implemented the task? Have you encountered any problems or issue?)
The user can select the category through the drop down menu	☑ Yes ☐ No	I have successfully implemented a drop-down menu, allowing the user to select the product category. Selecting each category will filter and display the relevant product details in the product details table. All options in the drop-down menu display all the products that exist in the shopping center system.
The GUI is open and a list of products with the information as per specification has been displayed	☑ Yes ☐ No	The GUI is designed to display a list of products in the table with the related information in each column.
Items with low availability are highlighted in red	☑ Yes ☐ No	Products with low availability which means products that have less than 3 items are effectively highlighted in red, drawing the user's attention.
The user can select a product and all the details are displayed as per specification in the below panel	☑ Yes ☐ No	Upon selecting a product, all the details specified in the requirements are appropriately displayed in the bottom panel of the frame.
The user can add products to the shopping cart and all the information are displayed in a separate frame	☑ Yes ☐ No	Users can add products to the shopping cart, using the add to shopping cart buttonand the relevant information is accurately displayed in a separate frame.

The final price is displayed correctly	☑ Yes ☐ No	The final price, including any applicable discounts, is displayed correctly. Getting the total of each product and applying the discounts if there is any will calculate the final price.
The discounts, if applicable, are displayed as per specification and the final price updated accordingly	☑ Yes ☐ No	Discounts, if applicable, are displayed according to the specified rules. A 20% discount is applied when the user buys at least three products of the same category. Additionally, a 10% discount is included for the user's very first purchase. The system checks whether the user is making their first purchase by examining the user's purchase history, where details are retrieved from a text file containing information about the user's purchase count. Checking the quantity of the ArrayList will be done before applying the 20% discount. In the end, the final price will be updated accordingly.

Phase 4 – Testing and system validation.

Task	**Did you attempt the task?**	**Student's comments** (To which extent you implemented the task? Have you encountered any problems or issue?)
Test plan. (Submitted in a separate file).	☑ Yes ☐ No	Test plan submitted with 58 test cases which explains the user input, expected output and actual output.
Implementation of an automated unit test for each scenario in the console menu.	☐ Yes ☑ No	Implementation of an automated unit test for each scenario in the console menu was not completed.

Error Handling across all the code, input validation and code quality.	☑ Yes ☐ No	Admin input in the console is done using a separate validation class where admin's double inputs, number inputs, product ID, String inputs are validated using separate methods. Separated classes are created and methods are used to contain the quality of the code.