RMIT University
COSC Programming 1 - Semester 2022C
GROUP ASSIGNMENT (30%)

Instructions

Students are asked to work in groups for this assignment and are encouraged to seek help from classmates and teaching staff. Each group needs to create a new GitHub repository and collaborate on that remote repository. All source code and resources must be present on GitHub too. Moreover, all commit messages must be meaningful and consistent.

Assessment details

This assignment provides a chance for students to practice and apply all concepts learned so far. It is also an opportunity to get familiar with the analysis, design, and development of a software application with a practical project idea to get ready for life and work. In this assignment, you are asked to implement a text-based program using Java language and OOP techniques. There are 6 main parts:

- OOP design and implementation: you need to design and implement a class hierarchy to make your program flexible and easy to maintain.
- Problem-solving tasks: you need to apply control statements, algorithms, data structures, etc. to solve particular tasks.
- For simplicity, all interaction with the application will be done via a simple text console interface (no GUI is required). However, it will provide all basic functionalities of a practical application.
- Report:
    - You must write a report from 6-12 pages to describe the project.
        - The page count does not include the page cover, the table of content, reference or images/media in the appendix section.
    - The report template is provided at the end of this document.
- UML Class diagram: you must include the class diagram for your system in your submission in the report.
- Video demonstration: you need to make a short video explaining how you analyze, design, and implement the system and a working demo of your system.
    - The whole length of the demo video is within 12 mins.
    - The video presentation should be two parts as following:
        - The project detail presentation: team members take turns to present about the project, which reflect the required structure of the report. Your team should present with powerpoint slides.
        - The application demo: showing the actual demo of the application to demonstrate all implemented features of the app.
    - The time allocation of two parts is up to you as long as the whole video must be within the time limit while the demo showcases most of the important required features of the system.
    - Each team member is encouraged to present their own respective part of the project during the demo. This is a great opportunity for each team member to showcase the

work they have done and demonstrate their understanding of the project. It is also an excellent opportunity for each team member to improve their presentation skills and gain experience working in a group. I would encourage each team member to review their work and prepare well before the demo to make the best impression.

Problem details

APP FOR STORE ORDER MANAGEMENT SYSTEM

Assume that you are involved in a technology store that wishes to develop an Order Management System, which is the key point of their business growth plan. This may reduce the paper and printing and distribution work which saves a lot of time.

The main objective of the Store Order Management System is to allow customers order products. The system can also manage the store products and registered members, and keep track of all the order information, including customers and their list of bought items. All these tasks can be executed only by the system admin.

The product can be added to or removed from the system only by the admin. Each product must have a unique id. The name of the product should also be unique and cannot be modified after initialization. The default currency price is VND. The price of each product can be modified by the system admin. A product should belong to only one category. A category is used to classify the products, for example a laptop Dell is of category "Laptop". A category can be added or removed by the system admin. When a category is removed, all products in that category will have category "None".

A person can become a customer after completing the customer registration. The registration must capture all the necessary information from the customer, including the personal info (username, password, full name, phone number, email, & address). Customers can log in with his unique username and password. Customers can place the order. Customers can list all the available products for a particular category following an increasing or decreasing price order of the store and can also get all the details about the product so that they can make the right choice before making any purchase. Also, customers can also list all the products for the category in a price range.

Customers can become members based on their total spending. The store offers 3 types of memberships: Silver, Gold and Platinum. The total spending of a customer needs to be greater than 5 millions VND for an upgrade to Silver membership, 10 millions VND for Gold and 25 millions VND for Platinum. Silver, gold and platinum members receive a discount of 5%, 10% and 15%, respectively, for all the products purchased.

Order once placed can pass through many phases till it finally reaches the customer. But to keep it simple, in the scope of this application, an order is considered "delivering" once the customer makes an order. You do not need to implement the process of customer payment; the order status will be changed to "delivered" manually by system admin when approving an order. At any moment, the customer can check the status of the order. At the end of a day, the system admin can calculate the store's total revenue, find out which products are the most popular and check the

information of all the orders executed on that day.

Process & Guide

A. UML Class Diagram:

Identify classes, attributes, methods, and relationships between classes. Sketch a class diagram for the application. Also, please provide a detailed and descriptive explanation for the diagram.

B. Basic Features:

The application should have the following basic features:

For customer

1. A customer can login with the registered username and password, and can view all of their information.
2. A customer can update their information.
3. A customer can check the current membership status.
4. A customer can be rewarded with different discount memberships based on the total spending.
5. A customer can list all products and view the product details.
6. A customer can search for all available products for a particular category and in a price range.
7. A customer can sort all products by product price following an increasing or decreasing order.
8. A customer can create a new order.
    a. Based on their membership, the system should show how much discount the customer receives for that order.
9. A customer can get information about an order by using order ID.
10. A customer can get information of all orders that have been made by him/her.

For admin
1. An admin can login with a predefined username and password, and can view information of all products, orders and members.
2. An admin can add or remove a product to the store.
3. An admin can update the price for a particular product.
4. An admin can get information of all orders by customer ID.
5. An admin can change the status of an order, like approving an order.
6. An admin can remove a customer/member by customer ID.
7. An admin can perform some simple statistics operators:
    a. Calculate the store total revenue.
    b. Calculate the store revenue on that day.
    c. Find out which is the current most popular product or the least popular product.
        i. Popular products means products with the highest number of sales.
    d. Which customer pays the most in the store.
    e. List out the numbers of different types of membership.

8. An admin can check the information of all the orders executed on a particular day.
9. An admin can add or remove a category.

All data must be saved into **text files** before the program is ended, and loaded into the program when it is started. You can see sample database text files provided for this assignment.

Important note:
1. The program should validate user input.
2. All attributes should be private for data encapsulation.
3. Product ID, Order ID and Customer ID should be generated by system, unique and with the type of string.

C. Welcome Screen

When completing your application, it should have a welcome screen with example content structure as below (you are free to adjust its format).

COSC2081 GROUP ASSIGNMENT
STORE ORDER MANAGEMENT SYSTEM
Instructor: Mr. Tom Huynh & Dr. Phong Ngo
Group: Group Name
sXXXXXXX, Student Name
sXXXXXXX, Student Name
sXXXXXXX, Student Name
sXXXXXXX, Student Name

Template for report

1. Introduction

Summary of this project. What is it, who does what, general scope and objective of this project and this document.

2. Project Description

Describe the technical aspects or features of the system. It is important for you guys to demonstrate what you have learned from this project. Mention anything from the specifications (technical details) that is important, useful, and necessary for your team to implement features of the software.

3. Implementation Details

All of the details for UML diagram, implementation, illustrations, explanations, etc. Also, please includes:
- Multiple visual aids (screenshots/GIF/video) to show visually how to use the app and illustrate your explanation.

- The list of features you have completed. Also, including any extra feature if available.
- The list of known bugs/problems your team has not fixed.

4. Project Planning Report

All Team Members	Role and Task Given	Individual Contribution (%)
1.		
2.		
3.		
4.		

Describe how the group work has been organized, any issues, timeline of project etc.

5. Conclusion

Any drawbacks and future work.