RMIT University Vietnam

Assignment Cover Page

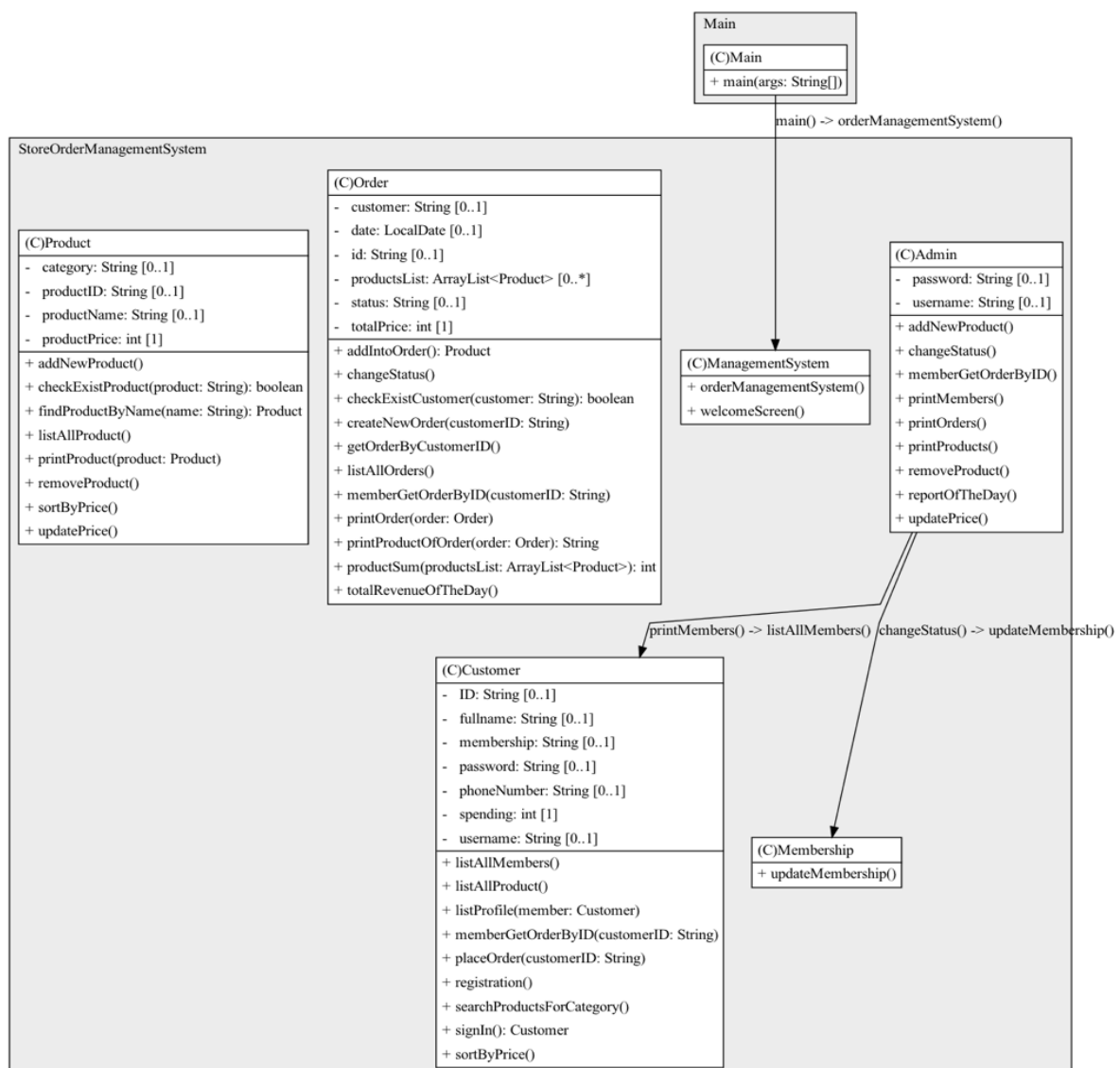|	
Subject Code:	COSC2081
Subject Name:	Programming 1
Location and Campus:	SGS Campus
Title of Assignment:	Group Assignment
Student Name and Number:	Doan Thien Di (S3926977) Kang Junsik (S3916884) Lee Seungmin (S3864235) Nguyen Duong Truong Thinh (S3914412)
Lecturer Name:	Minh Thanh Vu
Group Number:	Group 5
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Number of Pages:	8 pages

We declare that in submitting all work for this assessment we have read, understood and agreed to the content and expectations of the Assessment declaration.

1. Introduction

This report is about the Group Project in the COSC2081 course and is based on Assessment Details that are posted on canvas. Mainly, in this report, users can learn and understand how the program works from the beginning to the results of the program. The group project identified and applied the basic features of object-oriented programming languages using standard Java (Java SE) language constructs and APIs to design and implement computer programs based on requirement analysis and modelling. And all team members devised and applied strategies to develop and test software.

2. Project Description

First of all, the program was built on Object-Oriented Programming which we learned in week 4 and 5, and this is the most basic and important concept in the project. Object-Oriented Programming, OOP for short has many advantages over programming. First, OOP is faster and easier to execute than before and provides a clear structure for the programs. Furthermore, creating full reusable

applications with less code and shorter development time is possible when we use OOP. The UML diagram below shows it.

For the purpose of the application for the store order management system, all data are required to save into files before the program is ended and loaded into the program when it is started. This is the key point of the system because not only the database of the member and product but also records of all the orders have to be constantly modified and stored as the related pieces of information are being changed. To keep this, the File IO concept which we learnt in week 6 is the way.

```java
Scanner file = new Scanner(new File( pathname: "member.db"));
ArrayList<String> memberList = new ArrayList<>();

while(file.hasNext()) {
    List<String> sen = Arrays.asList(file.nextLine().split( regex: "%n"));
    memberList.add(String.valueOf(sen));
}
```

Polymorphism refers to the property of obtaining various results by substituting various objects into the same data type. This can obtain various execution results in one type, and facilitates maintenance by componentizing the object. In other words, various results can be obtained through the interface depending on the role of a member or administrator who has successfully logged in, which means polymorphism. This is a concept we learned in Week 9, which makes it easier to repair things such as changes in information about objects or products called members as purchases occur.

```java
public Order() {

}

4 usages    ± Di +1
public Order(String id, String customer, ArrayList<Product> productsList, String status, int totalPrice, LocalDate date) {
    this.id = id;
    this.customer = customer;
    this.productsList = productsList;
    this.status = status;
    this.totalPrice = totalPrice;
    this.date = date;
}
```

3. Implementation Details

1) Welcome Screen

```
:::::::::::::::::::::::::::::::::::::
COSC2081 GROUP ASSIGNMENT
STORE ORDER MANAGEMENT SYSTEM
Instructor: Mr. Minh Vu
Group 5
s3916884, Kang Junsik
s3926977, Doan Thien Di
s3864235, Lee Seungmin
s3914412, Nguyen Duong Truong Thinh
:::::::::::::::::::::::::::::::::::::
```

Figure 1: Welcome Screen

When the user runs the system, the welcome screen about our course and team information is shown at first.

2) Order Management System for Customers

```
Welcome to the order management system.      --------------------------------------
Enter the number for the wanted function.    1
--------------------------------------       Type your full name:
1. Register                                  name
2. Sign In                                   Type your phone number(without any space):
3. List all the products (no order)          012345678
4. Search product                            Type your username(without any space & only English letter and numbers):
5. List all the products by price            username
0. Terminate system                          Type your password(without any space & special letters are allowed.):
--------------------------------------       username
                                             Congratulation! Registration has been done!
```

Figure 2: Funtions before the customer signed in   /   Figure 3: Register function

Functions as figure 2 are listed below the welcome screen. Customer who does not currently have an account can by choosing fuction 1. If the customer fills the information required to register according to the specified conditions, the message that the account has been created successfully appears. This part is related to basic feature 1. Also, the customer who is not registered or signed in is also available with functions from 3 to 5. This part is related to basic features 3 to 5.

```
--------------------------------------       ------------------------------------------------
3                                            Product ID: 464c8b57-1dc2-4392-bd3e-fbef8e3571f1
Product ID: 2e5d3320-8a78-43ee-90e8-31d749697fab   Product Name: iPhone X
Product Name: Laptop Dell                    Product Price: 2810000 VND
Product Price: 2290000 VND                   Category: Phone
Category: Laptop                             ------------------------------------------------
------------------------------------------------   Product ID: 0a52b471-643f-4cd4-b404-7ac5d823cc92
Product ID: 59c0fea4-1504-4b0f-8ecb-306119ba3b1f   Product Name: iPad Air 5
Product Name: Laptop Asus                    Product Price: 8210000 VND
Product Price: 4580000 VND                   Category: Tablet
Category: Laptop                             ------------------------------------------------
------------------------------------------------   Product ID: 5fb00c1b-9dc1-421f-a4d3-c7869331c192
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870   Product Name: iPad Pro 3
Product Name: iPhone 12                      Product Price: 10000000 VND
Product Price: 2250000 VND                   Category: Tablet
Category: Phone                              ------------------------------------------------
------------------------------------------------
```

Figure 4: Listing all the products

If the customer types 3, the customer can sort all the products and check their details of them.

```
--------------------------------------       -------------------------------------
4                                            4
Please enter product's category:            Please enter product's category:
Keyboard                                     Computer
Product ID: 0252fcc6-811f-4ba4-a95b-7a4c061a3cc8   There is no product of this category!
Product Name: VARMILO MA108M
Product Price: 5970000 VND
Category: Keyboard
```

Figure 5: Search by categories is successful   /   Figure 6: If that category does not exist

If the customer types 4, the customer can search for a specific category that he wants to get information about the products that correspond to that category. If there is no search result, it appears in figure 6.

```
--------------------------------------              ---------------------------------------
5                                                   5
Please enter 1 to sort from low to high and 2 to sort from high to low:   Please enter 1 to sort from low to high and 2 to sort from high to low:
1                                                   2
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870    Product ID: 3a81128b-bb9b-40ec-8ff5-8f14f98a9f48
Product Name: iPhone 12                             Product Name: ipad Pro 4
Product Price: 2250000 VND                          Product Price: 11700000 VND
Category: Phone                                      Category: Tablet
-----------------------------------------           -----------------------------------------------
```

Figure 7: Sorting from low to high / Figure 8: Sorting from high to low

If the customer types 5, the customer can sort all the products by their price in ascending or descending order to find the products they need easier and faster.

3) Order Management System for Member

```
Welcome, Tiana Lee!                               ---------------------------------------
Enter the number for the wanted function.         1
---------------------------------------           Tiana Lee's User Profile
1. Check the user information                     -------------------------
2. List all the products (no order)               ID: C9
3. Search product                                 Name: Tiana Lee
4. List all the products by price                 Phone Number: 0327706451
5. Create a new order                             Membership: regular
6. Get information of an order by using order ID  Total spending: 2250000
0. Logout                                         -------------------------
---------------------------------------           Username: seungm1n
                                                  Password: test1234
```

Figure 9: Funtions after the customer signed in / Figure 10: User Profile

When the customer who has the account types 2 and enters his own ID and password correctly, the customer will successfully be signed in and then link to the system functions for the member as figure 9. If the member types 1, then he can view all of his information as figure 10. This part is related to basic feature 2.

```
                                                  ---------------------------------------
                                                  5
                                                  Please enter y to continue order or n to finish ordering process
--------------------------------------            y
5                                                 Please enter product's name:
Please enter y to continue order or n to finish ordering process   iPhone 12
y                                                 Product added successfully!
Please enter product's name:                      Please enter y to continue order or n to finish ordering process
iPhone                                            n
Product does not exist! Please enter a valid product name.   You have successfully placed your order!
Please enter product's name:                      Your order ID is O10!
                                                  Total cost is 2250000!
```

Figure 11: Fail to add the product / Figure 12: Success to add and order

If the member types 5, the system shows the order function. If the product that the member wants to order does not exist, he has to re-enter as shown in figure 11. If there it is, he will be asked whether to place an additional order with the message that it has been successfully added. If the order is successful, the customer will be informed of the total cost with order number. This part is related to basic feature 6.

```
--------------------------------------
6
Please enter the order's ID:
010
Order ID: O10
Customer ID: C9
Product List:
------------------------
------------------------
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870
Product Name: iPhone 12
Product Price: 2250000 VND
Category: Phone
------------------------
------------------------
Status: UNPAID
Total price: 2250000 VND
Date of order: 2022-09-15
-------------------------------------------------
```

```
--------------------------------------
6
Please enter the order's ID:
012
There is no order with this ID or This order is not yours.
```

Figure 13: Success to get information of an order   /   Figure 14: Fail to get information of an order

Also, if the member types 6 by using the order's ID after he had successfully placed his order, then he can get information about an order as figure 13. It will let the member know not only product information but also the status of the current order, total price, and even the date of order. If there is no such order for that member or the member enters the wrong order ID, he will get the message as figure 14. This part is related to basic feature 7.

4) Order Management System for Admin

```
This page is for an administrator functions.
Enter the number for the wanted function.
--------------------------------------
1. List all the products
2. List all the orders
3. List all the members
4. Add a new product to the store
5. Remove product
6. Update price of product
7. Get information of all orders by Customer ID
8. Change the status of the order
9. Today's report
0. Logout
--------------------------------------
.
```

Figure 15: Administrator functions

If the admin signs in with an admin's account, the admin can use the administrator functions as figure 15.

```
                                                                 --------------------------------------
                                                                 3
                                                                 Alex Ichi's User Profile
                                                                 ------------------------
                                                                 ID: C1
                                                                 Name: Alex Ichi
                                                                 Phone Number: 0132948132
                            --------------------------------------   Membership: silver
                            2                                     Total spending: 5205000
                            Order ID: O1                          ------------------------
--------------------------------------   Customer ID: C2                          Username: fdc1254
1                           Ordered Products: iPad Pro 3, Razer Viper, SENNHEISER MX400   Password: wqegiu1243
Product ID: 2e5d3320-8a78-43ee-90e8-31d749697fab   Status: PAID
Product Name: Laptop Dell   Total Price: 23070000
Product Price: 2290000 VND  Date of Order: 2022-09-09            Nguyen Kim's User Profile
Category: Laptop            --------------------------------------   ------------------------
--------------------------------------   Order ID: O2                         ID: C2
Product ID: 59c0fea4-1504-4b0f-8ecb-306119ba3b1f   Customer ID: C3            Name: Nguyen Kim
Product Name: Laptop Asus   Ordered Products: LEOPOLD FC750, BenQ XL2740   Phone Number: 0135079813
Product Price: 4580000 VND  Status: PAID                         Membership: platinum
Category: Laptop            Total Price: 16124500                Total spending: 25570000
--------------------------------------   Date of Order: 2022-09-10            ------------------------
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870   --------------------------------------   Username: asdfz1344
Product Name: iPhone 12     Order ID: O3                         Password: dfas2341
Product Price: 2250000 VND  Customer ID: C5
Category: Phone             Ordered Products: ipad Pro 4, Logitech G102
--------------------------------------   Status: PAID
                            Total Price: 13311000
                            Date of Order: 2022-09-10
                            --------------------------------------
```

Figure 16: Listing all the products   /   Figure 17: Listing all the orders   /   Figure 18: Listing all the members

From fuction 1 to 3, the system will list all the things that the admin wants as figure 16 to 18. In the user profile window, the password of the user will be shown. This part is related to basic feature 8.

```
--------------------------------------
4
Please enter product's name:
iPhone 14                                                        --------------------------------------
Please enter product's price:                                    6
10000000                                                         Please enter product that you want to update price:
Please enter product's category:     --------------------------------------   iPhone 14
Phone                                5                           Current price is 1000000 VND
New product has been added!          Please enter product's name that you want to remove:   Please enter the price you want to update:
                                     iPhone 14                   20000000
                                     Remove completed!           Update completed!
```

Figure 19: Listing all the products   /   Figure 20: Listing all the orders   /   Figure 21: Listing all the members

From fuction 4 to 6, not only the admin can add a new product but also update the price and remove the product as figure 19 to 21. This part is related to basic features 9 to 10.

```
                                                                 --------------------------------------
                                                                 7
                                                                 Please enter the customer's ID:
                                                                 C10
                                                                 Order ID: O5
                                                                 Customer ID: C10
                                                                 Product List:
                                                                 ------------------------
                                                                 ------------------------
                                                                 Product ID: 9b2b2182-5ba5-4671-898f-15bbc5f1af88
                                                                 Product Name: Maxtill G10 PRO
--------------------------------------   Product Price: 5170000 VND
7                                        Category: Mouse
Please enter the customer's ID:          ------------------------
C1                                       ------------------------
This customer has no order.              Status: PAID
                                         Total price: 4911500 VND
                                         Date of order: 2022-09-11
```

Figure 22: Fail to get information   /   Figure 23: Success to get information

An admin can get information of all orders by customer ID by function 7. This part is related to basic feature 11.

```
8
Please enter orderID that you want to change status:
010
Current status is UNPAID.
Please enter y if you want to update the status to PAID or n to cancel:
```

Figure 24: Change the status of the order

An admin can change the status of the order by function 8. This part is related to basic feature 12.

```
9
Today(2022-09-15)'s report
#########################
Order ID: O10
Customer ID: C9
Product List:
------------------------
------------------------
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870
Product Name: iPhone 12
Product Price: 2250000 VND
Category: Phone
------------------------
------------------------
Status: PAID
Total price: 2250000 VND
Date of order: 2022-09-15
```

```
Order ID: O11
Customer ID: C9
Product List:
------------------------
------------------------
Product ID: abdf5987-c1bf-4d90-bdfe-675f22cbc870
Product Name: iPhone 12
Product Price: 2250000 VND
Category: Phone
------------------------
------------------------
Status: UNPAID
Total price: 2250000 VND
Date of order: 2022-09-15
------------------------------------------------
Today's total ordered revenue(2022-09-15): 4500000 VND
```

Figure 24: Today's report function

And also, an admin can get a report of that date as figure 24. This will help that the admin can view the order status at a glance.

4. Project Planning Report

1) Timeline of the Project

On August 7th, our team held the first meeting. We promised to carefully understand the assessment details which are uploaded on the canvas in advance and participate, and all the team members did it. Then we looked at the overall content of the assignment together at the beginning of the meeting. After considering the classes needed for the system, we divided the roles by taking the parts we were confident in. Also, we made a GitHub repository for the project and decided to make our own branches and work on each part until the next meeting. We parted after promising to finish each part by the 21st, two weeks after that day.

Since then, we have been discussing projects through messenger while working on our own. As the deadline for the assignment was extended in the middle of the semester, we decided to work until August 31, and most of our team members followed it. However, because Thinh had difficulty finalizing the Admin class, Junsik helped him finish the Admin part together. So our system was completed on September 4th, and we fixed the minor bugs by continuing to run the system.

On September 12th, our team held a second meeting for the demo video. We discussed whether to record the video together using the Teams application or to record separately and edit it in one video. Then we decided on the latter one and completed the demo video shooting by the 13th.

2) Final Individual Contribution of the Project

All Team Members	Role and Task Given	Individual Contribution (%)
1. Doan Thien Di	Order, Product, Category Class	27
2. Kang Junsik	Customer, ManagementSystem, Admin Class	27
3. Lee Seungmin	Customer, Membership Class, Final Report	27
4. Nguyen Duong Truong Thinh	Admin Class	19

We declare that Individual contributions is determined under everyone's discussion.

5. Conclusion

This is our first time working with OOP and a Java project, and we encountered some problems while finishing the project.

Inheritance and interface are concepts that are quite complicated to understand so to avoid making mistakes in our project, we decided to minimize the use of those concepts. Input validations and exception handling were also a little trouble to deal with, but we managed to overcome the challenge. This project is a great summarization of what we have learned in this course.

In terms of reflection, we had a lot of difficulties in handling exceptions. Some exceptions had actually not been handled perfectly due to some unfamiliar concepts of Java programming. However, as these difficult parts have improved a lot during this assignment, it is a great start before continuing with more advanced programming. And it will be possible to apply these improvements in the later courses.