

**Tunku Abdul Rahman University College**

**AACS2204**

**Object-Oriented Programming Techniques**

**Assignment**

**2022/2023**

Programme : DFT2  
Tutorial Group : 6  
Date Submitted to Tutor : 23/9/2022

**Team Members:**




No	Student Name	Student ID
1.	Balendra Diaz Gobin	2103943
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3.	Lee Weng Yi	2103820
4.	Pua Jia Qian	2104127

No.	Team Member	Task(s) Allocated
1.	Balendra Diaz Gobin	CRUD in furniture item module
2.	Choo Shi Yi	CRUD in Member module
3.	Lee Weng Yi	CRUD in Order module and payment
4.	Pua Jia Qian	Staff login and CRUD in Staff module

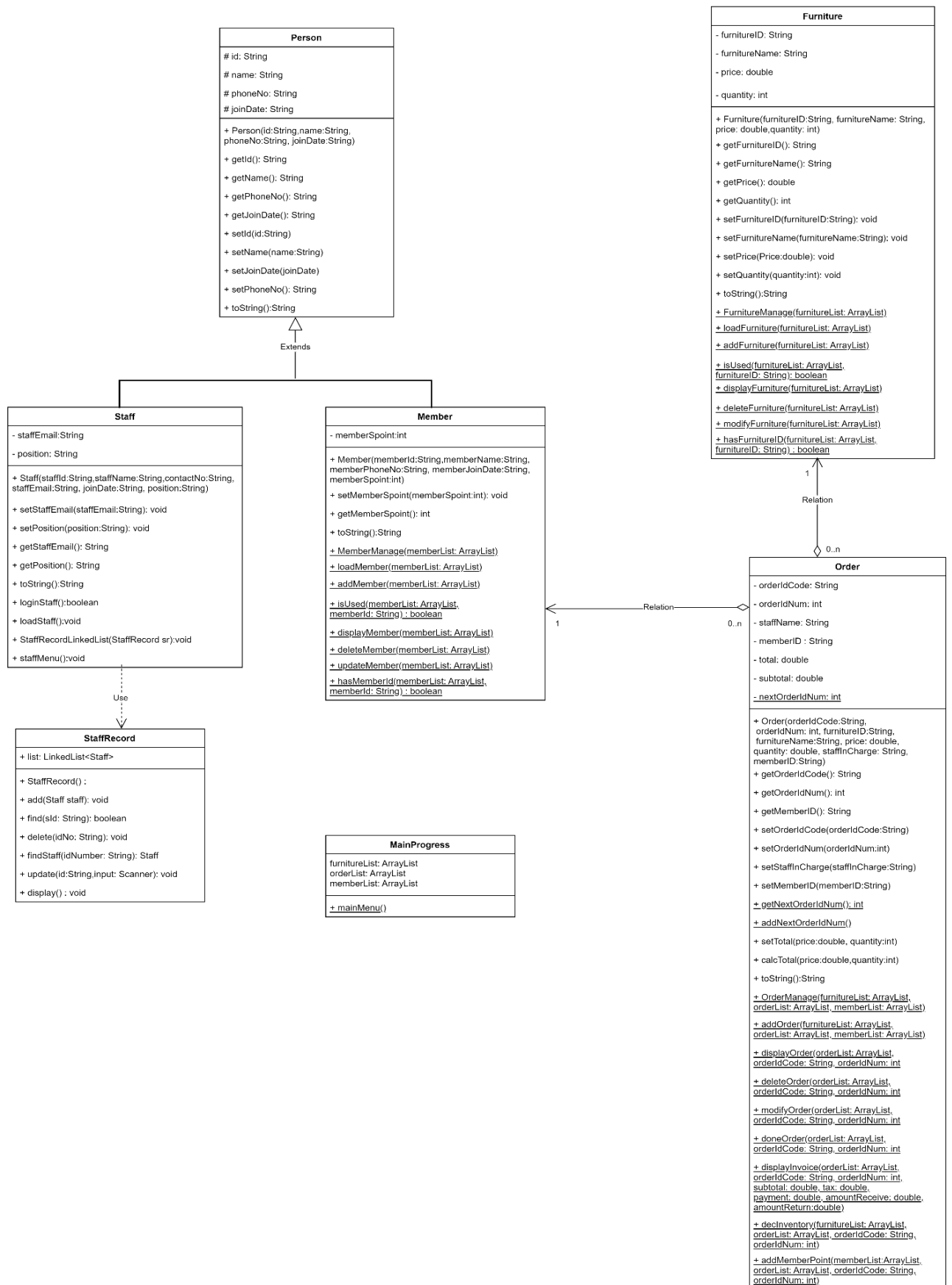
### **Coursework Declaration**

We confirm that we have read and shall comply with all the terms and conditions of TAR University College's plagiarism policy.

We declare that this assignment is free from all forms of plagiarism and for all intents and purposes is our own properly derived work.

Signature :				
Name :	Balendra Diaz Gobin	Choo Shi Yi	Lee Weng Yi	Pua Jia Qian
Date :	23/9/2022	23/9/2022	23/9/2022	23/9/2022

## UML Class Diagram



## **Assignment Description**

Our POS system is an offline POS system that is used by staff to manage the system of a furniture shop. This system is functional for making customer orders, managing furniture items, managing member records and managing staff records. Before entering the system, staff are needed to log in by typing the correct username and password. In making the order process, staff are required to enter a staff ID who is in charge of this system and the member name of the customer and order by select furniture ID and enter quantity that customer require. If don't want to display order or modify order or delete order, it will go to complete order which is the payment section. In payment section, staff can ask customers to choose payment methods including cash and debit/credit card. After successfully done payment, it will display an invoice of the order. If it doesn't have the next customer, it is able to choose to continue to make orders or directly log out from the system.

The system consists of 4 modules that are staff, member, furniture item and order. Each module will have 4 functions including add, modify or update, delete and display.

## Outputs

PUA JIA QIAN

### loginStaff()

If the staff login system by entering the wrong username and correct password , it will print out an 'Invalid Username' message.

```
=====

Welcome To HamFam Furniture Shop

=====

      -----
      |          LOG IN          |
      -----

Enter Username : sajb
Enter Password : abc123
Invalid Username!
```

If the staff login system by entering the correct username but wrong password, it will print out an 'Invalid Password' message.

```
=====
```

```
    Welcome To HamFam Furniture Shop
```

```
=====
```

```
-----  
|           LOG IN           |  
-----
```

```
Enter Username : test
```

```
Enter Password : djfd21
```

```
Invalid Password!
```

### mainMenu()

If the staff login system by entering the correct username and password, it will print out a 'Access Granted!Welcome!' message.Then,it will display a main menu that consists of 4 options to let staff choose.

```

Welcome To HamFam Furniture Shop

=====

-----
|          LOG IN          |
-----

Enter Username : test
Enter Password : abc123
Access Granted! Welcome!
-----Main Menu-----
1. Manage Order
2. Manage Furniture
3. Manage Member
4. Manage Staff
0. Log Out
Enter your option: 4
```

### staffMenu()

Staff Menu consists of 4 main functions which are add staff, delete staff,update staff and display staff to allow staff to choose after entering the main menu.It also has a selection that can go back to main menu.

### add()

By adding a new staff record,it is required to enter staff ID,staff name,staff contact number, staff email,staff join date and staff working position.Then,it will display a 'a staff record is successfully added' message.

```

--- STAFF MENU ---
1. Add Staff
2. Delete Staff
3. Update Staff
4. Display Staff
5. Back to Main Menu
Enter your selection: 1
Enter Staff ID: 1004
Enter Staff name: Alex Chan
Enter Staff contact no: 0121313131
Enter Staff email: alex@gmail.com
Enter Staff join date(dd//mm/yyyy): 24/09/2014
Enter Staff working position: IT supporter
Staff record is successfully added

```

### delete()

In the delete function, it allows staff to delete the specific staff record by entering the staff ID .If the staff record is successfully deleted, it will show a ‘Successfully removed staff record from the list’ message.If the staff want to double check the staff record whether is deleted or not, can choose display function to display all staff information.

```

--- STAFF MENU ---
1. Add Staff
2. Delete Staff
3. Update Staff
4. Display Staff
5. Back to Main Menu
Enter your selection: 2

Enter Staff ID: 1003
Successfully removed staff record from the list

--- STAFF MENU ---
1. Add Staff
2. Delete Staff
3. Update Staff
4. Display Staff
5. Back to Main Menu
Enter your selection: 4

```

Staff List

ID	Name	Contact No	Email	Joined Date	Working Position
1001	Coco Lee	0123456789	coco@gmail.com	12/12/2013	accountant
1002	Lily Tan	0123123123	lily@gmail.com	03/05/2014	HR manager



## update()

By updating or modifying the staff record, it will let staff enter the staff ID that they want to update and it will display the selected staff record. Next,they can enter the new staff ID,new staff name,new staff contact number,new staff email,new staff join date and new staff working position. If the staff want to check the staff information updated or not, can choose the display function to have a check and it will show the latest staff record that has been updated.

```
--- STAFF MENU ---
1. Add Staff
2. Delete Staff
3. Update Staff
4. Display Staff
5. Back to Main Menu
Enter your selection: 3

Enter Staff ID: 1003
|1003 | Lim Jia Yi      | 012315553 | ljyi@gmail.com |10/07/2014 | cashier      |
Enter new Staff ID: 1003
Enter new Staff Name: Lim Jia Yi
Enter new Staff Contact No: 0123155533
Enter new Staff Email: ljyi@gmail.com
Enter new Staff join date: 10/07/2014
Enter new Staff working position: Cashier

--- STAFF MENU ---
1. Add Staff
2. Delete Staff
3. Update Staff
4. Display Staff
5. Back to Main Menu
Enter your selection: 4

                        Staff List
=====
| ID | Name           | Contact No | Email           |Joined Date| Working Position|
=====
|1001 | Coco Lee       | 0123456789 | coco@gmail.com  |12/12/2013 | accountant      |
|1002 | Lily Tan       | 0123123123 | lily@gmail.com  |03/05/2014 | HR manager      |
|1003 | Lim Jia Yi     | 0123155533 | ljyi@gmail.com  |10/07/2014 | Cashier         |
=====
```

## display()

In the display function, it will display all the staff records' information including staff ID, staff name,staff contact number, staff email, staff join date and staff working position in a form of table.



CHOO SHI YI

### memberMenu()

Users can assign the function which is to view all members,add members,modify members and delete members after entering the member menu from the main menu .

```
-----  
                Welcome to the Member Management System  
-----  
1. View All Member  
2. Add Member  
3. Modify Member  
4. Delete Member  
0. Exit  
Please enter your choice: .
```

### view()

By entering 1 as a choice ,the user can view all the record member's information in a form of table.

```
-----  
                Welcome to the Member Management System  
-----  
1. View All Member  
2. Add Member  
3. Modify Member  
4. Delete Member  
0. Exit  
Please enter your choice:1  
  
                Member List  
=====
```

Member ID	Member name	Member Phone No	Member Join Date	Membership Point
M001	LEE WENG YI	012-3456789	21/05/18	20
M002	PUA JIA QIAN	013-4567890	27/08/20	30
M003	GOBIN	014-5677890	14/06/21	40

```
=====
```

## add()

In the add function, the user can add members by entering the Member Id, Member Name, Member phone number, member's join date and also the member's membership point. The user is unable to add the member if the member id is already existing in the member record. It will display 'The number id you entered has been occupied, Please re-enter!' and the user is required to re-enter a new member id to continue adding members. 'Add member successfully' will be displayed after adding a member and the new added member will display in the member list.

```
-----  
Welcome to the Member Management System  
-----  
1. View All Member  
2. Add Member  
3. Modify Member  
4. Delete Member  
0. Exit  
Please enter your choice:2  
Please enter the Member id:m003  
The member id you entered has been occupied , Please re-enter!  
Please enter the Member id:M004  
Please enter the member's name :Choo Shi Yi  
Please enter the phone number of the member :018-9003136  
Please enter the member's join date :19/03/21  
Please enter the member's membership point :20  
Add member successfully
```

```
-----  
Welcome to the Member Management System  
-----  
1. View All Member  
2. Add Member  
3. Modify Member  
4. Delete Member  
0. Exit  
Please enter your choice:1  
Member List  
=====
```

Member ID	Member name	Member Phone No	Member Join Date	Membership Point
M001	LEE WENG YI	012-3456789	21/05/18	20
M002	PUA JIA QIAN	013-4567890	27/08/20	30
M003	GOBIN	014-5677890	14/06/21	40
M004	CHOO SHI YI	018-9003136	19/03/21	20

```
=====
```

## modify()

By entering 3 to go in the modify function, the user needs to enter an existing member ID to modify the member's information. Then the user can only enter the new member name, new member's phone number, member's join date and also member's membership point. It will display 'Successful Member Information Modification!' after successfully modifying the member information. Then, the newest member information can be checked in the view member function.

```
-----
Welcome to the Member Management System
-----
1. View All Member
2. Add Member
3. Modify Member
4. Delete Member
0. Exit
Please enter your choice:3
Please enter the member ID to modify the information:m004
Enter the member's new name :choo shi yi
Enter the new phone number of the member :012-3455678
Enter the student's new join date :18/03/21
Please enter the membership point :20
    Successful Member Information Modification!
-----
Welcome to the Member Management System
-----
1. View All Member
2. Add Member
3. Modify Member
4. Delete Member
0. Exit
Please enter your choice:1

Member List
=====
|Member ID | Member name      | Member Phone No | Member Join Date | Membership Point|
=====
|M001      | LEE WENG YI      | 012-3456789    | 21/05/18         | 20              |
|M002      | PUA JIA QIAN     | 013-4567890    | 27/08/20         | 30              |
|M003      | GOBIN            | 014-5677890    | 14/06/21         | 40              |
|M004      | CHOO SHI YI      | 012-3455678    | 18/03/21         | 20              |
=====
```

## delete()

In the delete function, the user needs to enter an existing member ID that the user would like to delete. Then, it will display 'Delete member success!' after deleting the chosen member. The deleted member will also be deleted from the view member as well.

```
-----
Welcome to the Member Management System
-----

1. View All Member
2. Add Member
3. Modify Member
4. Delete Member
0. Exit
Please enter your choice:4
Please enter the Member ID to delete :m004
Delete member success !
-----

Welcome to the Member Management System
-----

1. View All Member
2. Add Member
3. Modify Member
4. Delete Member
0. Exit
Please enter your choice:1

Member List
=====
|Member ID | Member name      | Member Phone No | Member Join Date | Membership Point|
=====
|M001      | LEE WENG YI       | 012-3456789    | 21/05/18         | 20              |
|M002      | PUA JIA QIAN      | 013-4567890    | 27/08/20         | 30              |
|M003      | GOBIN             | 014-5677890    | 14/06/21         | 40              |
=====
```

## exit()

Users can enter 0 when they would like to exit from the member menu.It will bring users from the member menu to the main menu.

```
-----
Welcome to the Member Management System
-----

1. View All Member
2. Add Member
3. Modify Member
4. Delete Member
0. Exit
Please enter your choice:0
Exiting...
-----Main Menu-----
1. Manage Order
2. Manage Furniture
3. Manage Member
4. Manage Staff
0. Log Out
Enter your option:
```

```
-----Main Menu-----  
1. Manage Order  
2. Manage Furniture  
3. Manage Member  
4. Manage Staff  
0. Log Out  
Enter your option: 2  
  
----Manage Furniture Menu----  
1. Add Furniture  
2. Delete Furniture  
3. Modify Furniture  
4. Display Furniture  
0. Exit  
Enter option:
```

After selecting option 2 a furniture menu will pop out and showcase things you can do for example adding a furniture, deleting a furniture, modifying the furniture details and displaying the available furniture.

```
----Manage Furniture Menu----  
1. Add Furniture  
2. Delete Furniture  
3. Modify Furniture  
4. Display Furniture  
0. Exit  
Enter option: 1  
Enter Furniture ID: F011  
Enter Furniture Name: Chair  
Enter Price: 75  
Enter Quantity: 90  
F011added successfully.
```

### AddFurniture()

After selecting option 1 the staff would be able to Enter the furniture ID then the staff will also need to enter the furniture name, price and also the quantity after filling all the information needed it will then say the furniture's id has been added successfully.

```
-----Manage Furniture Menu-----  
1. Add Furniture  
2. Delete Furniture  
3. Modify Furniture  
4. Display Furniture  
0. Exit  
Enter option: 2  
Enter delete Furniture ID: F011  
F011 delete success !
```

```
-----Manage Furniture Menu-----  
1. Add Furniture  
2. Delete Furniture  
3. Modify Furniture  
4. Display Furniture  
0. Exit  
Enter option: 2  
Enter delete Furniture ID: F099  
F099 does not exist.
```

### **DeleteFurniture()**

After selecting option 2 you will need to put in the furniture's ID after putting in the Furniture's ID it will show that the furniture has been deleted successfully. If the user key in an ID that does not exist it will display that the furniture does not exist.



----Manage Furniture Menu----

1. Add Furniture
2. Delete Furniture
3. Modify Furniture
4. Display Furniture
0. Exit

Enter option: 3

Enter modify Furniture ID: F011

Enter modify furniture name: Table

Enter modify price: 100

Enter modify quantity: 90

F011 modified success !

----Manage Furniture Menu----

1. Add Furniture
2. Delete Furniture
3. Modify Furniture
4. Display Furniture
0. Exit

Enter option: 4

Furniture List

=====			
ID	Furniture Name	Price(RM)	Quantity
=====			
F001	Sofa	500.00	70
F002	Folding Chair	100.00	30
F003	Wooden Chair	250.00	50
F004	Marble Chair	750.00	110
F005	Marble Table	1050.00	100
F006	Office Table	450.00	75
F007	Coffea Table	200.00	150
F008	Wooden Table	150.00	200
F009	Kitchen Cabinet	850.00	50
F010	Floor Lamp	110.00	350
F011	Table	100.00	90
=====			

-  
Enter modify Furniture ID: F0999

F0999 does not exist.

### ModifyFurniture()

Upon selecting option 3 you will be able to modify the furniture's detail. It will first ask the user to modify the furniture ID after that it will ask the user to fill in the furniture name, price and quantity. Then the user can double check if the modified furniture is update by going to the display furniture. If the user entered an ID that does not match then it will display that the ID does not exist

```
----Manage Furniture Menu----
1. Add Furniture
2. Delete Furniture
3. Modify Furniture
4. Display Furniture
0. Exit
Enter option: 4

                        Furniture List
=====
| ID      | Furniture Name      | Price (RM) | Quantity |
=====
| F001    | Sofa                | 500.00    | 70       |
| F002    | Folding Chair       | 100.00    | 30       |
| F003    | Wooden Chair        | 250.00    | 50       |
| F004    | Marble Chair        | 750.00    | 110      |
| F005    | Marble Table        | 1050.00   | 100      |
| F006    | Office Table        | 450.00    | 75       |
| F007    | Coffea Table        | 200.00    | 150      |
| F008    | Wooden Table        | 150.00    | 200      |
| F009    | Kitchen Cabinet     | 850.00    | 50       |
| F010    | Floor Lamp          | 110.00    | 350      |
| F011    | Table               | 100.00    | 90       |
=====
```

### DisplayFurniture()

Upon selecting the 4th option which is Display Furniture, a furniture list will be printed out showing all the furniture's ID, name, price and the available quantity.

----Manage Furniture Menu----

1. Add Furniture
2. Delete Furniture
3. Modify Furniture
4. Display Furniture
0. Exit

Enter option: 0

Exiting...

-----Main Menu-----

1. Manage Order
2. Manage Furniture
3. Manage Member
4. Manage Staff
0. Log Out

Enter your option:

LEE WENG YI

## Order Menu

```
-----Order Menu-----  
1. Make Order  
0. Exit  
Enter option: 1
```

### AddOrder()

After the user selected [1. make order], the system will ask the user to enter the staff who are in charge of this certain order and the member id of the customer. After that, it will display all the furniture from the inventory list.

If a user enters an invalid Furniture ID, the system will display “ID not found”.

```
Enter Staff Name: Coco Lim  
Enter Member ID: M001  
  
Furniture List  
=====
```

ID	Furniture Name	Price(RM)	Quantity
F001	Sofa	500.00	70
F002	Folding Chair	100.00	30
F003	Wooden Chair	250.00	50
F004	Marble Chair	750.00	110
F005	Marble Table	1050.00	100
F006	Office Table	450.00	75
F007	Coffea Table	200.00	150
F008	Wooden Table	150.00	200
F009	Kitchen Cabinet	850.00	50
F010	Floor Lamp	110.00	350

```
=====
```

```
Enter Order Furniture ID: F000  
F000 not found.  
Continue add order? (Y/N): y
```

Otherwise, if a user enters a valid Furniture ID, the system will display the selected Furniture Name and ask the user to enter the quantity.

```
Enter Order Furniture ID: F001
Enter Order(Sofa) Quantity: 2
F001 added successfully.
Continue add order? (Y/N): y
```

If the quantity that the user enters is more than the available quantity in store or it is a negative value, the system will display “Quantity not available” and loop until the user enters the correct quantity.

```
| F009 | Kitchen Cabinet | 850.00 | 50 |
| F010 | Floor Lamp | 110.00 | 350 |
=====
Enter Order Furniture ID: F009
Enter Order(Kitchen Cabinet) Quantity: 51
Quantity not available.
Enter Order(Kitchen Cabinet) Quantity: -1
Quantity not available.
Enter Order(Kitchen Cabinet) Quantity: 2
F009 added successfully.
```

If the user chooses ‘N’ to stop the order, it will display all the ordered details of the customer with the total amount of each item, and ask the user for next action.

```
Continue add order? (Y/N): n
----- Order No. ORD1001 -----
Furniture          Price(RM)   Qty   Amount(RM)
Sofa                500.00     2    1000.00
Kitchen Cabinet     850.00     2    1700.00
-----
1. Display Selected Order
2. Modify Selected Order
3. Delete Selected Order
4. Done Order -> Payment
Select option:
```

### ModifyOrder()

if user select [2. Modify Selected Order], it will ask the user to enter Furniture ID and enter the modified quantity. After that, it will display the modified order.

```
1. Display Selected Order
2. Modify Selected Order
3. Delete Selected Order
4. Done Order -> Payment
Select option: 2
Enter modify Furniture ID: F009
Enter modify quantity: 1
ORD1001 modified success !
----- Order No. ORD1001 -----
Furniture           Price (RM)   Qty   Amount (RM)
Sofa                 500.00     2     1000.00
Kitchen Cabinet      850.00     1       850.00
-----
```

### DeleteOrder()

if the user selects [3. Delete Selected Order], it will ask the user to enter Furniture ID to delete. If success is deleted, the certain Furniture ID will not exist in the order.

```
1. Display Selected Order
2. Modify Selected Order
3. Delete Selected Order
4. Done Order -> Payment
Select option: 3
Enter delete Furniture ID: F009
F009 delete success !
----- Order No. ORD1001 -----
Furniture           Price (RM)   Qty   Amount (RM)
Sofa                 500.00     2     1000.00
-----
```

## DoneOrder()

if the user selects [4. Done Order -> Payment], it will calculate and display the total payment of the order. Next, it will ask the user to select which payment method that customer chooses to pay for the order.

```
1. Display Selected Order
2. Modify Selected Order
3. Delete Selected Order
4. Done Order -> Payment
Select option: 4
----- Order No. ORD1001 -----
Furniture          Price (RM)   Qty   Amount (RM)
Sofa                500.00     2     1000.00
-----
Subtotal            1000.00
TAX (5%)             50.00
Total               1050.00

-----Payment Method-----
1. Cash
2. Credit/Debit Card
Select payment method:
```

## DisplayInvoice()

If a customer is paid by Cash, it will ask the user to enter the cash that they received from the customer and the system will calculate the change of the payment amount.

Otherwise, if the customer is paid by Credit/Debit Card, it will ask the customer to provide the card number. After that the system will display the invoice and do not have any cash change involved.

<pre>-----Payment Method----- 1. Cash 2. Credit/Debit Card Select payment method: 1 Enter cash receive: 1100                                  HamFam Furniture                                 Invoice Date: 2022/09/23 22:18:05  ----- Order No. ORD1001 ----- Furniture      Price (RM)  Qty   Amount (RM) Sofa            500.00    2     1000.00 -----                                 Subtotal  1000.00                                 Tax (5%)   50.00                                 Total     1050.00 -----                                 Cash      1100.00                                 Change     50.00                                  Thank You, Have a Nice Day  Next Customer? (Y/N):</pre>	<pre>-----Payment Method----- 1. Cash 2. Credit/Debit Card Select payment method: 2 Enter Card Number: 0205210517                                  HamFam Furniture                                 Invoice Date: 2022/09/23 22:19:54  ----- Order No. ORD1002 ----- Furniture      Price (RM)  Qty   Amount (RM) Sofa            500.00    2     1000.00 -----                                 Subtotal  1000.00                                 Tax (5%)   50.00                                 Total     1050.00 -----                                 Cash      1050.00                                 Change     0.00                                  Thank You, Have a Nice Day  Next Customer? (Y/N):</pre>
---	---

## Exit()

if the user selects 'N' to stop making an order, it will return to the Order Menu. After that, if the user enters [0. Exit], user will be exiting the system from order.

<pre>Next Customer? (Y/N): n  -----Order Menu----- 1. Make Order 0. Exit Enter option: 0 Exiting...</pre>
---



### DecreaseInventory()

After the customer makes the payment, the quantity in the store will be decreased by the customer ordered quantity.

#### Quantity before order

Furniture List			
=====			
ID	Furniture Name	Price(RM)	Quantity
=====			
F001	Sofa	500.00	70

#### Quantity after order

Furniture List			
=====			
ID	Furniture Name	Price(RM)	Quantity
=====			
F001	Sofa	500.00	68

### IncreaseMembershipPoint()

After the customer makes the payment, the membership point will be increased.

#### Membership Point before order

Member List				
=====				
Member ID	Member name	Member Phone No	Member Join Date	Membership Point
=====				
M001	LEE WENG YI	012-3456789	21/05/18	20

#### Membership Point after order

Member List				
=====				
Member ID	Member name	Member Phone No	Member Join Date	Membership Point
=====				
M001	LEE WENG YI	012-3456789	21/05/18	25