

APPENDIX B:

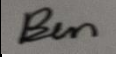



Attached a scanned copy with the report with the filled details and signatures.

Declaration of Original Work for CE/CZ2002 Assignment

We hereby declare that the attached group assignment has been researched, undertaken, completed and submitted as a collective effort by the group members listed below.

We have honored the principles of academic integrity and have upheld Student Code of Academic Conduct in the completion of this work.

We understand that if plagiarism is found in the assignment, then lower marks or no marks will be awarded for the assessed work. In addition, disciplinary actions may be taken.

Name	Course (CE2002 or CZ2002)	Lab Group	Signature /Date
Benedict Ee Jun Wei	CE2002	SE3 G3	 13/11/21
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Important notes:

1. Name must **EXACTLY MATCH** the one printed on your Matriculation Card.

Design Considerations

- **Principles used:**

- a. Data encapsulation for all the classes
- b. Single responsibility principle for the control classes
 - i. Each control class interacts with its respective object class
 - ii. Main controller interacts with the other interface classes which interacts with its respective control class
- c. Interface segregation principle for the interface classes
 - i. Each control class has its own interface
 - ii. Main interface interacts with main controller to interact with other interfaces
- d. Loose coupling among interfaces
- e. High cohesion between interfaces and respective control classes
- f. Polymorphism in MenuControl for returning the price of items.

- **Approach taken:**

- a. Main structure used: Entity-Control-boundary
 - i. Main Boundary/Interface used to interact with user and contains:
 - 1. Main menu
 - 2. Login feature to determine staff information
 - 3. Main Controller object
 - ii. Main Control used to Execute commands from Main Boundary and contains:
 - 1. Customer object list and size for information passing within classes
 - 2. CallInterface method that calls respective classes' interfaces (e.g., Accessing food menu from main menu requires the menu interface to be called)
- b. Classes used:

Main Classes

- 1. Main Interface (Boundary Class): Handles input from user using the main menu and sends commands to (2)-main controller

2. Main Controller (Control Class): Receives command from (1)-Main Interface class and calls respectively interfaces based on command (e.g., Selecting Food Menu calls (6)-Menu Interface).

Boundary Classes

3. Boundary classes for respective menus (Reservation Interface, Order Interface, Menu Interface, and Staff Interface) that sends commands to respective Control classes.
4. DateIO (Boundary Class): Handles date-time input from user and converts it into a format recognizable for all control classes used in the program.

5. Sales Report (Boundary Class): prints out daily/monthly sales report

Control Classes

6. DailyReset (Control Class): handles the daily reset of reservations.
7. Login (Control Class): contains method to verify staff ID inputted and returns staff information (e.g., Staff name, Staff position, etc.).
8. Menu Control (Control Class): contains methods to add, remove and update individual menu items and promotion set items and print the menu.
9. Order Control (Control Class): contains methods to view, add, remove food items from order list, and print invoice
10. Order List (Control Class): emulates a linked list structure that contains methods to add, remove, print, and get order node information. Also contains instances of order nodes as part of its linked list.
11. Reservation (Control Class): contains various methods to create new reservation, remove reservation, view current reservations, view table availability, and check in and check out of customers.
12. Reservation Scheduler (Control Class): handles the scheduling of reservations and allocates available tables based on the reservation time and used to signal the timeout automatic removal.
13. Reservation Timeout (Control Class): handles the automatic removal of reservation after timeout timer is reached and customer has not checked into the restaurant.
14. Staff Control (Control Class): contains methods to add, remove, and view staff information

Entity Classes:

15. Customer (Entity Class): stores customer ID, name, reservation ID, reservation time, name and ID of staff member who attended to them.
16. Food (Entity Class): stores price, description, name, and type of food.
17. Node (Entity Class): emulates a node in a linked list and stores food item, quantity of the food item, and pointer to the next node.
18. Reservation Details (Entity Class): stores reservation's table ID, name, reservation ID, number of customers, contact number, customer membership, and reservation date time.
19. Staff (Entity Class): stores name, ID, gender, and job title of staff
20. Table (Entity Class): stores information of table size, isOccupied, customerID that occupied table, number of available tables.

c. Text files used to store information:

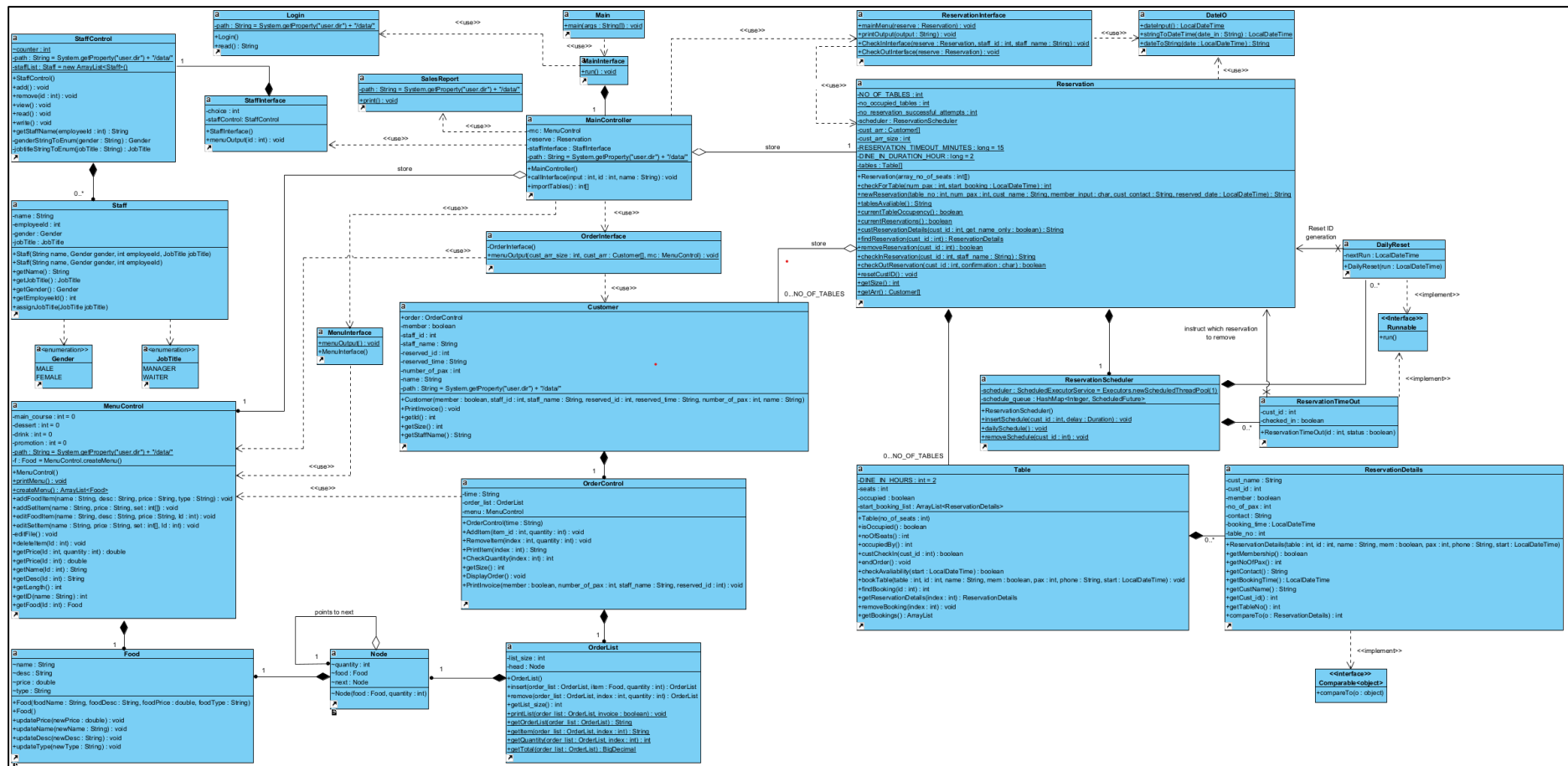
- i. For menu: "foodname.txt", "type.txt", "desc.txt", and "price.txt" is used to store each food item's attributes that is in the current menu.
- ii. For staff list: "stafflist.txt" stores attributes of staff such as, staff name, staff id, staff position, and staff gender.
- iii. For sales report: information such as date, time, number of items ordered, prices of items, subtotal, service charge, GST charge, membership's discount, and grand total, is written to "sales.txt" upon checking out of a customer. The Sales Report Control class then reads the input from the file and calculates the total sales to be printed in the report.

d. IDE and compiler used for development: IntelliJ IDEA JDK v17.0.1

Video Link

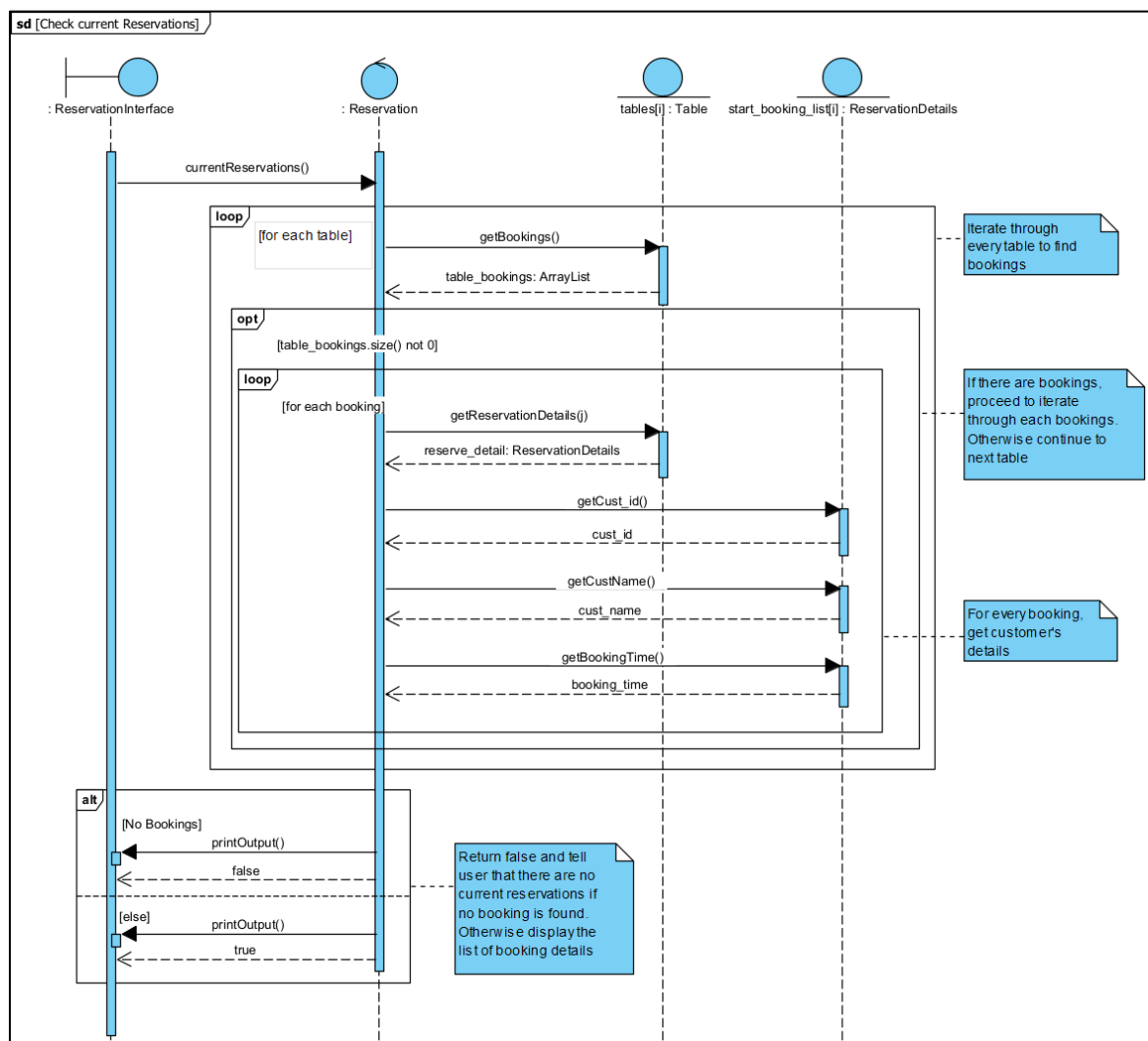
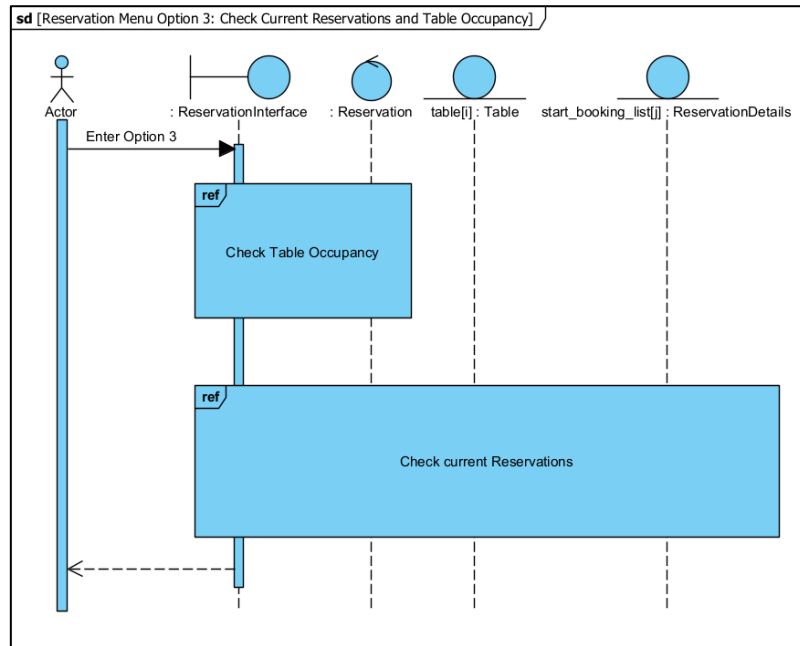
- Channel: JustABadGamer
- Group member names can be found in the description for verification
- <https://youtu.be/MJn5L6W-8IQ>

UML Class Diagram

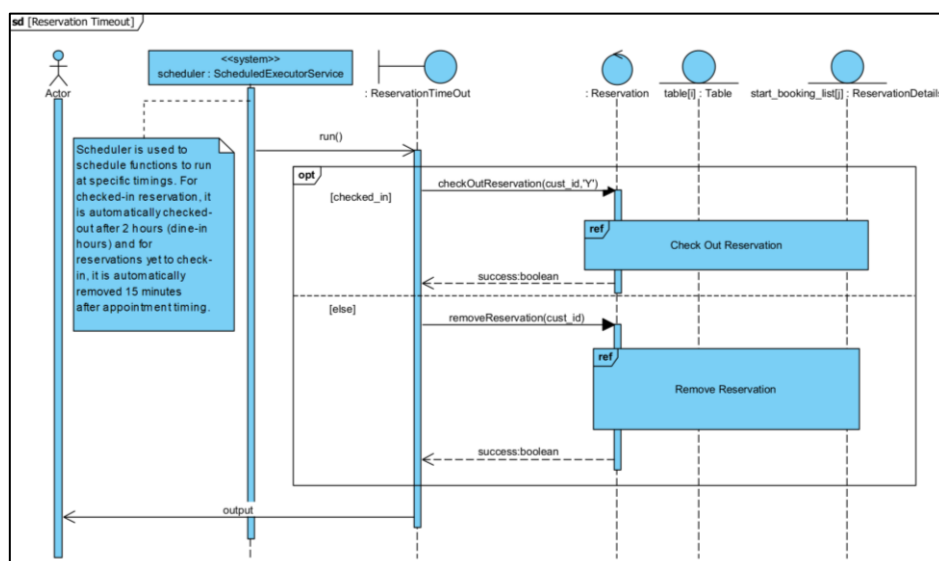
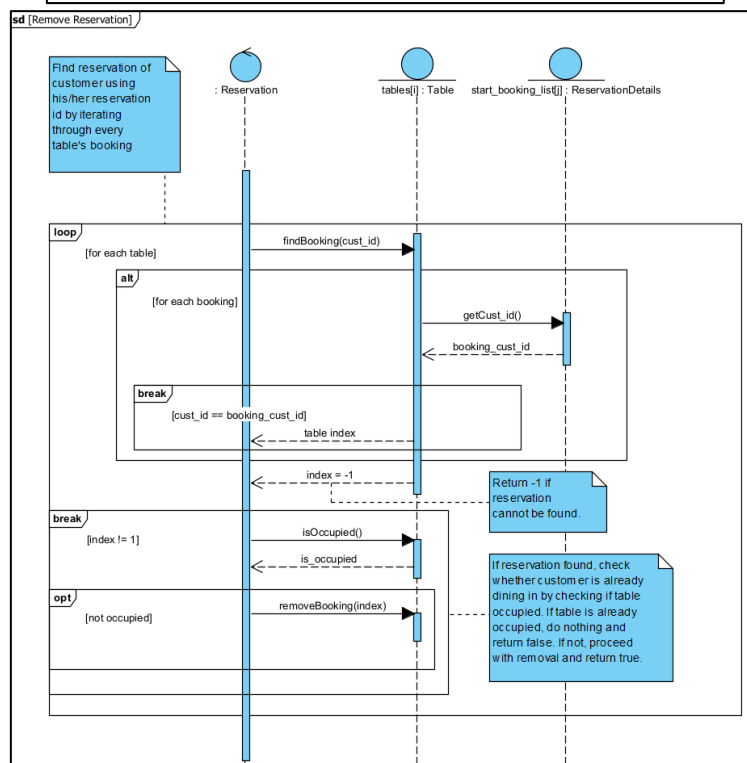
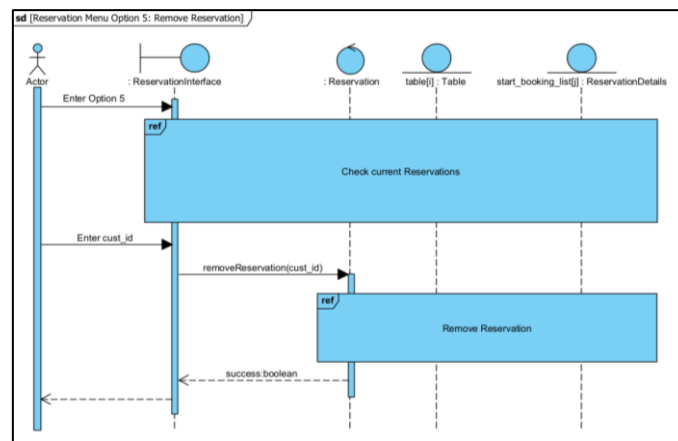


UML Sequence Diagram

Case 1: Checking Reservations



Case 2: Removing Reservations



Test cases and Outputs and Screenshots

Main Interface:

Main Menu:	Valid Login ID:	Invalid Login ID:	Random Char Input:	Input out of range:
<pre>===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice:</pre>	<pre>===== Enter your staff ID: 1 Login Successful! Welcome Jerry ===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice: 1</pre>	<pre>===== Enter your staff ID: 10 ID not found! ===== Enter your staff ID:</pre>	<pre>===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice: ! Please input only integers!</pre>	<pre>===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice: 9 Please input values between 1 to 8 only!</pre>

Reservation Classes:

Reservation Menu:	Check Tables (No reservations made):	Check Reservation (No reservations made):	Find Reservation Info (No reservations made):
<pre>===== Reservation Menu ===== (1) - New Reservation (2) - Check Table Availability (3) - Check Current Reservations and Table Occupancy (4) - Find Customer's Reservation (5) - Remove a Reservation (6) - Back to Main Menu</pre>	<pre>===== Enter your choice: 1 Tables available to reserve for dining hours as for now: Table 0 with 2 seats Table 1 with 2 seats Table 2 with 2 seats Table 3 with 2 seats Table 4 with 2 seats Table 5 with 4 seats Table 6 with 4 seats Table 7 with 4 seats Table 8 with 4 seats Table 9 with 4 seats Table 10 with 6 seats Table 11 with 6 seats Table 12 with 8 seats Table 13 with 8 seats Table 14 with 10 seats Enter any key to continue...</pre>	<pre>===== Enter your choice: 1 No tables currently occupied. Current Reservations: No current reservations available! Enter any key to continue...</pre>	<pre>===== Enter your choice: 1 Current Reservations: No current reservations available!</pre>
Adding reservation:	Adding reservation with invalid time:	Adding reservation (More than 1 year in advanced):	Adding reservation (No tables available):
<pre>===== Enter your choice: 1 Enter number of pax: 3 Enter date of reservation (in dd/MM/yy): 14/11/21 Enter 24-hour format time of reservation (in hh:mm) 12:50 Your date-time input: 14/11/21 12:50 am Enter Y to confirm: Y Enter customer's name: Max Is the customer a member? (Y/N) N Enter contact number: 90823671 Reservation id #2401 at 14/11/21 12:50 am for Table 5 of 3 pax created. Time now is 14/11/21 12:40 am</pre>	<pre>===== Enter your choice: 1 Enter number of pax: 3 Enter date of reservation (in dd/MM/yy): 14/11/21 Enter 24-hour format time of reservation (in hh:mm) 12:50 Your date-time input: 14/11/21 12:50 am Enter Y to confirm: Y Enter customer's name: Max Is the customer a member? (Y/N) N Enter contact number: 90823671 Reservation id #2401 at 14/11/21 12:50 am for Table 5 of 3 pax created. Time now is 14/11/21 12:40 am</pre>	<pre>===== Enter your choice: 1 Enter number of pax: 3 Enter date of reservation (in dd/MM/yy): 14/12/25 Enter 24-hour format time of reservation (in hh:mm) 01:00 Booking can only be made up to 1 year in advanced! Enter date of reservation (in dd/MM/yy): 1 </pre>	<pre>===== Enter your choice: 1 Enter number of pax: 3 Enter date of reservation (in dd/MM/yy): 14/11/21 Enter 24-hour format time of reservation (in hh:mm) 01:00 Your date-time input: 14/11/21 01:00 am Enter Y to confirm: Y Sorry, there are no available tables for pax of 10</pre>

Check reservation:

```
=====
Enter your choice:
3
No tables currently occupied.
Current Reservations:
Table 5
#2401 Max's booking at 14/11/21 12:50 am
#2403 John's booking at 14/11/21 12:45 pm
```

Find Reservation Info:

```
=====
Enter your choice:
4
Current Reservations:
Table 5
#2401 Max's booking at 14/11/21 12:50 am
#2403 John's booking at 14/11/21 12:45 pm

Enter customer's reservation id:
2401

Reservation Details:
Customer's Name: Max
Number of Pax: 3
Customer's Contact: 90823671
Membership: true
Reserved Timeslot: 14/11/21 12:50 am
```


Order Classes:

Accessing order menu without checked in customers:	Accessing order menu with checked in customers:	Order Menu:	Adding new item to order list:
<pre> ===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice: ===== Error! No customer in reservation list. </pre>	<pre> ===== Welcome to RRPSS! ===== (1) - Customers Check-in (2) - Customers Check-out (3) - Reservation Menu (4) - Customer Menu (5) - Food Menu (6) - Staff Menu (7) - Sales Report (8) - Exit Enter your choice: ===== Welcome to the Order Menu: ===== Current customer(s) list: (1): Minah, 10 pax. (2): Max, 4 pax. (3): Peter, 4 pax. (4): Exit to main menu Please Select the customer to edit order: </pre>	<pre> Please Select the customer to edit order ===== Current Customer: Minah Order Created by: Jerry (1) - Display current order (2) - Add item to current order (3) - Remove item from current order (4) - Return to main menu (5) - Return to customer selection menu Please Input your choice: ===== Empty Order: Please Input your choice: ===== No items in order list! Removing items from empty order: Please Input your choice: ===== No items in order list! </pre>	<pre> Please Input your choice: ===== Main course ===== (1) - Egg fried rice --- \$4.00 Fried rice with eggs ===== Dessert ===== (2) - Chocolate ice cream --- \$1.50 Chocolate flavoured ice cream ===== Drink ===== (3) - Coffee --- \$2.00 Cup of freshly brewed coffee Input the item id of the item to be added to order: Input the number of the items to be added to order: Adding item... Item added to order! Current Customer: Minah Order Created by: Jerry (1) - Display current order (2) - Add item to current order (3) - Remove item from current order (4) - Return to main menu (5) - Return to customer selection menu Please Input your choice: ===== The current order is: 1. 2 Egg fried rice(s) </pre>

Remove item from order list(partial):

```

Please Input your choice:
=====
The current order is:
1. 2 Egg fried rice(s)
Input the index number from current order list to remove from:
Input the number of (Egg fried rice) in the order list to remove:
Item removed from order!
Current Customer: Minah

Order Created by: Jerry

(1) - Display current order
(2) - Add item to current order
(3) - Remove item from current order
(4) - Return to main menu
(5) - Return to customer selection menu

Please Input your choice:
=====
The current order is:
1. 1 Egg fried rice(s)

```

Remove item from order list(full):

```

Please Input your choice:
=====
The current order is:
1. 1 Egg fried rice(s)
Input the index number from current order list to remove from:
Input the number of (Egg fried rice) in the order list to remove:
Item removed from order!
Current Customer: Minah

Order Created by: Jerry

(1) - Display current order
(2) - Add item to current order
(3) - Remove item from current order
(4) - Return to main menu
(5) - Return to customer selection menu

Please Input your choice:
=====
No items in order list!

```

Menu Classes:

Food Menu:	Display Menu:	Add item to menu:	Remove item from menu:	Edit item in menu:
<pre> ===== Food Menu ===== (1) - Print menu (2) - Add ala carte item (3) - Delete ala carte item (4) - Edit ala carte item (5) - Add set item (6) - Delete set item (7) - Edit set item (8) - Return to main menu </pre>	<pre> Enter your choice: ===== Main course ===== (1) - Egg fried rice --- \$4.00 Fried rice with eggs ===== Dessert ===== (2) - Chocolate ice cream --- \$1.50 Chocolate flavoured ice cream ===== Drink ===== (3) - Coffee --- \$2.00 Cup of freshly brewed coffee </pre>	<pre> Enter your choice: Enter name of food: Nasi Lemak Enter price of food: 10 (1) - Main course (2) - Dessert (3) - Drink Enter type of food (1/2/3): 1 Enter description of food: Nasi Lemak to the menu with ID 2 ===== Main course ===== (1) - Egg fried rice --- \$4.00 Fried rice with eggs ===== Dessert ===== (2) - Nasi Lemak --- \$3.50 Coconut Rice with Sambal Chilli ===== Dessert ===== (3) - Chocolate ice cream --- \$1.50 Chocolate flavoured ice cream ===== Drink ===== (4) - Coffee --- \$2.00 Cup of freshly brewed coffee </pre>	<pre> Enter your choice: Enter ID of item to delete: 2 Item removed ===== Main course ===== (1) - Egg fried rice --- \$4.00 Fried rice with eggs ===== Dessert ===== (2) - Chocolate ice cream --- \$1.50 Chocolate flavoured ice cream ===== Drink ===== (3) - Coffee --- \$2.00 Cup of freshly brewed coffee </pre>	<pre> Enter your choice: Enter id of food: 1 Enter new name of food (leave blank if no change): tea Enter new price of food (leave blank if no change): Enter new description of food (leave blank if no change): Cup of freshly brewed tea Description changed to Cup of freshly brewed tea Name changed to Tea Enter your choice: ===== Main course ===== (1) - Egg fried rice --- \$4.00 Fried rice with eggs ===== Dessert ===== (2) - Chocolate ice cream --- \$1.50 Chocolate flavoured ice cream ===== Drink ===== (3) - Tea --- \$2.00 Cup of freshly brewed tea </pre>

Add set items to menu:

```

Enter your choice: 1
Enter name of set: new set 1
Enter price of set: 5.00
Enter number of items in set: 2
Enter ID of item 1 of new set: 1
Enter ID of item 2 of new set: 2
Added Promo set 1 to the menu with ID 4
=====
Main course
=====
(1) - Egg fried rice --- $4.00
Fried rice with eggs
=====
Dessert
=====
(2) - Chocolate ice cream --- $1.50
Chocolate flavoured ice cream
=====
Drink
=====
(3) - Tea --- $2.00
Cup of freshly brewed tea
=====
Promotion set
=====
(4) - Promo set 1 --- $5.00
Egg fried rice,Tea
Fried rice with eggs
Cup of freshly brewed tea

```

Remove set items from menu:

```

Enter your choice: 1
Enter ID of item to delete: 1
Item removed
=====
Main course
=====
(1) - Egg fried rice --- $4.00
Fried rice with eggs
=====
Dessert
=====
(2) - Chocolate ice cream --- $1.50
Chocolate flavoured ice cream
=====
Drink
=====
(3) - Coffee --- $2.00
Cup of freshly brewed coffee

```

Edit set items in menu:

```

Enter your choice: 1
Enter id of set: 1
Enter new name of set (leave blank if no change) :
Enter new price of set (leave blank if no change) : 10
Enter new number of items in set (leave blank if no change) :
Enter ID of item 1 of set (leave blank if no change) : 1
Enter ID of item 2 of set (leave blank if no change) : 2
Price changed to 5.5
Description changed to Egg fried rice,Chocolate ice cream
=====
Main course
=====
(1) - Egg fried rice --- $4.00
Fried rice with eggs
=====
Dessert
=====
(2) - Chocolate ice cream --- $1.50
Chocolate flavoured ice cream
=====
Drink
=====
(3) - Tea --- $2.00
Cup of freshly brewed tea
=====
Promotion set
=====
(4) - Promo set 1 --- $5.50
Egg fried rice,Chocolate ice cream
Fried rice with eggs
Chocolate flavoured ice cream

```

Staff Classes:

View Staff List:

```

=====
Staff Menu
=====
(1) - Add a staff
(2) - Remove a staff
(3) - View staff list
(4) - Return to main menu

```

Name	Gender	Employee ID	Job Title
Jerry	MALE	1	MANAGER
Jasmine	FEMALE	2	WAITER
Jimmy	MALE	6	WAITER

Add Staff:

```

Enter staff name: Temporary
Enter staff gender (Male (0)/Female (1)): 1
Enter staff position (Manager (0)/Waiter (1)): 1
Temporary has been added!

```

Name	Gender	Employee ID	Job Title
Jerry	MALE	1	MANAGER
Jasmine	FEMALE	2	WAITER
Jimmy	MALE	6	WAITER
Temporary	FEMALE	7	WAITER

Remove Staff (Valid Input):

```

Enter staff ID to remove: 7
Temporary has been removed!

```

Name	Gender	Employee ID	Job Title
Jerry	MALE	1	MANAGER
Jasmine	FEMALE	2	WAITER
Jimmy	MALE	6	WAITER

Remove Staff (Invalid Input):

```

Enter your staff ID: 1
Login Successful! Welcome Jerry
=====
Welcome to RRPSS!
=====
(1) - Customers Check-in
(2) - Customers Check-out
(3) - Reservation Menu
(4) - Customer Menu
(5) - Food Menu
(6) - Staff Menu
(7) - Sales Report
(8) - Exit

Enter your choice: 6
=====
Staff Menu
=====
(1) - Add a staff
(2) - Remove a staff
(3) - View staff list
(4) - Return to main menu
Enter staff ID to remove: 1
Cannot remove yourself!

```

Sales Report:

Sales Report(Monthly):

```

Enter your choice:
7
Input the day (1-31) you wish to generate the sales report:
(Input 0 if you wish to generate monthly report)
0
Input the month (1-12) you wish to generate the sales report:
11
Period: November
Quantity    Food Item                Respective Sales
2           Cookies n cream ice cream  5.00
6           Chicken fried rice        30.00
4           Tea                       20.00
8           Promo set 2               55.00
6           Milo                     40.00
4           Durian ice cream          25.00
2           Promo set 1               10.00
6           Coffee                   12.00
4           Chocolate ice cream       8.00
4           Egg fried rice            7.00

Subtotal: 164.80
Service Charge: 16.48
GST: 12.70
Membership: -6.35
Revenue: 187.64
  
```

Sales Report (Daily):

```

Enter your choice:
7
Input the day (1-31) you wish to generate the sales report:
(Input 0 if you wish to generate monthly report)
22
Input the month (1-12) you wish to generate the sales report:
11
Period: November
Quantity    Food Item                Respective Sales
6           Promo set 2               45.00
4           Chicken fried rice        30.00
2           Milo                     15.00
4           Durian ice cream          20.00
2           Promo set 1               10.00

Subtotal: 86.80
Service Charge: 8.68
GST: 6.68
Membership: -4.58
Revenue: 97.60
  
```

Invoices:

Invoice with member's discount:

```

-----
---Restaurant App---
123 St Jurong Road
Singapore, S640912

Server: jas Date/Time: 12/11/21 03:45 pm
Reservation ID: 2201 Client(s): 1
-----
1. 20      Egg fried rice(s) 80.00
2. 20      Milo(s) 40.00
-----
SUBTOTAL..... 120.00
10% SERVICE CHARGE 12.00
132.00 7% GST 9.24
141.24 10% MEMBER'S DISCOUNT -14.13
TOTAL DUE. 127.12
Thank you for dining with us!!!
-----
  
```

Invoice without member's discount:

```

-----
---Restaurant App---
123 St Jurong Road
Singapore, S640912

Server: Jerry Date/Time: 14/11/21 03:00 am
Reservation ID: 2401 Client(s): 2
-----
1. 2      Egg fried rice(s) 8.00
2. 2      Chocolate ice cream(s) 3.00
3. 2      Tea(s) 4.00
-----
SUBTOTAL..... 15.00
10% SERVICE CHARGE 1.50
16.50 7% GST 1.16
TOTAL DUE. 17.66
Thank you for dining with us!!!
-----
  
```