

# CS205 C/ C++ Program Design

## Project 2

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### Part 1. Source Code

Since the code length is a bit long so I have upload it on BB with report.

File name: main.cpp

### Part 2. Result & Verification

- **Problem Description**

Hotel Renaissance is one of the newest hotels in Phnom Penh, Cambodia. The hotel is equipped with all the general amenities and facilities, set amidst beautiful landscaped gardens and fresh water lake it proves to be an ideal dream destination for a perceptive traveler.

The hotel has well furnished rooms with inclusive meals and lip smacking dishes. Customers can requests to book a room for reservation by providing the necessary details; a unique ID will be assigned to them. The room will be allocated to the customer depending upon the availability of vacant rooms .If the customer is unhappy with the room conditions he can contact the room service .The details of all the customers will be stored which can be viewed by the manager. The customers can order food from the provided appetizing menu. Before the customer checks out, he will be asked for a feedback.

- **Objects Identified:**

Customer

Room Customer

Employee

Dish

Restaurant Customer

Restaurant

Hotel

Room

Room Service

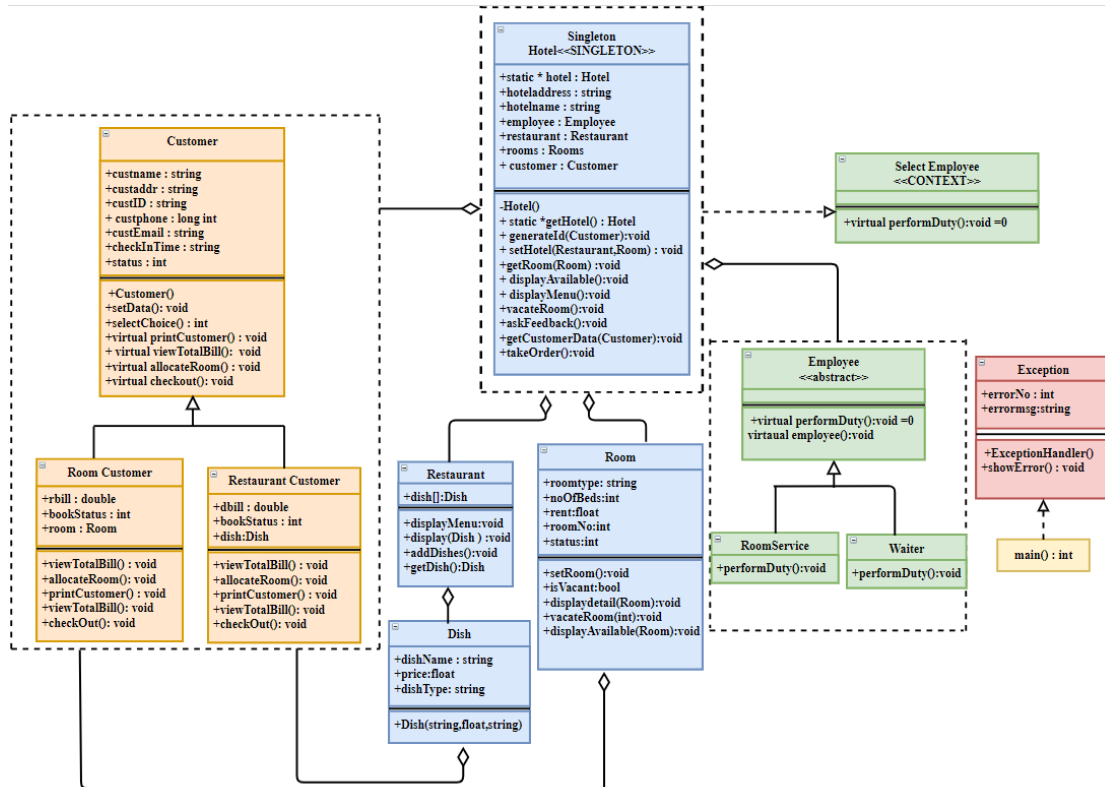
- Design Patterns used:

Singleton

Strategy

Factory

- Class Diagram:



- Implementation Details:

In this section we provided the detail of the meaning of each class and also the function that using in each classes.

- Class: Hotel



Hotel is the main class which follows singleton design pattern. It consists of static \*hotel to create an instance of the class. The other attributes include the name and the address of the hotel.

- **Functions:**

generateID() which generates a unique ID for every customer.

displayAvailable(): displays all the available rooms in the hotel.

displayMenu(): displays the menu available in the restaurant.

guestSummary(): It gives the whole summary of the details of the customer.

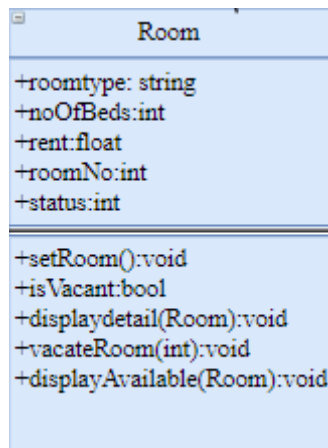
askFeedback() : It asks the feedback of the customer about the hotel service.

vacateRoom(): to vacant the room that has been allotted.

getCustomerData() : to get the data from customer.

takeOrder() : to take the order from the customer.

- Class : Room



It has five attributes where roomType describes the type of room i.e., Deluxe, AC, Non-AC, General, Suite. The attribute status tells whether the room is occupied or no.

- Functions:

setRoom() : to book a room.

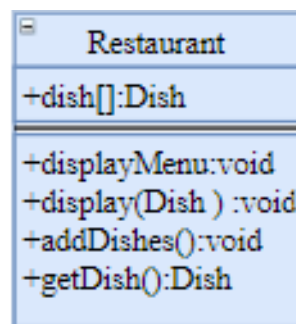
isVacant() : to know the status whether the room is booked or no.

displayDetail(): to display the details of all rooms

vacateRoom(): to vacate the room.

displayAvailable() : to display the details of the rooms which are available.

- Class : Restaurant



It consists of array all the dishes that are available.

- Functions:

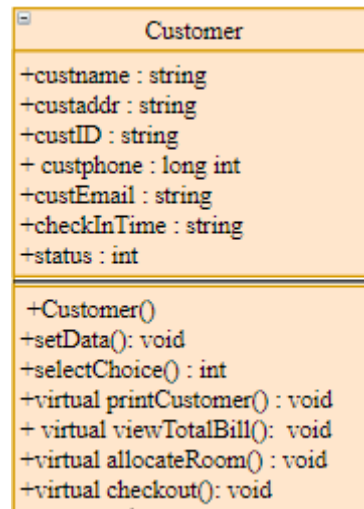
displayMenu() : to display the menu for all dishes available.

display() : To display the details of a particular dish

addDish(): to add a dish into the menu.

getDish() : to get the dish.

- **Class: Customer**



The class Customer has two inherited classes restaurantCustomer and roomCustomer. It follows factory design pattern.

- **Functions:**

+ Setdata() : to enter all the customer details.

+ selectChoice() : To select the choice between booking a room and placing an order for a dish.

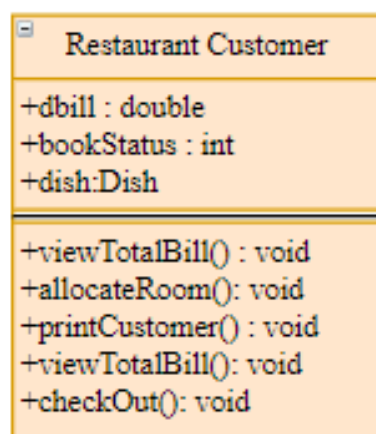
+ callRoomService(): To call the room service.

+ viewTotalBill() : to view the bill of the service provided to him.

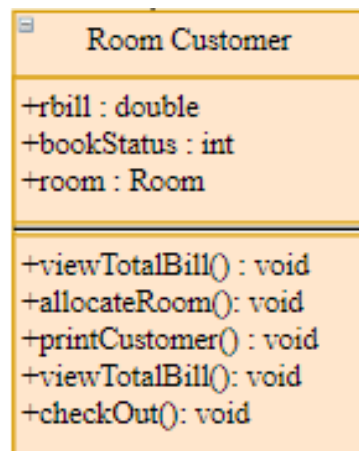
+ Checkout() : to checkout from the hotel.

+ printCustomer() : to print the customer details who is in the room.

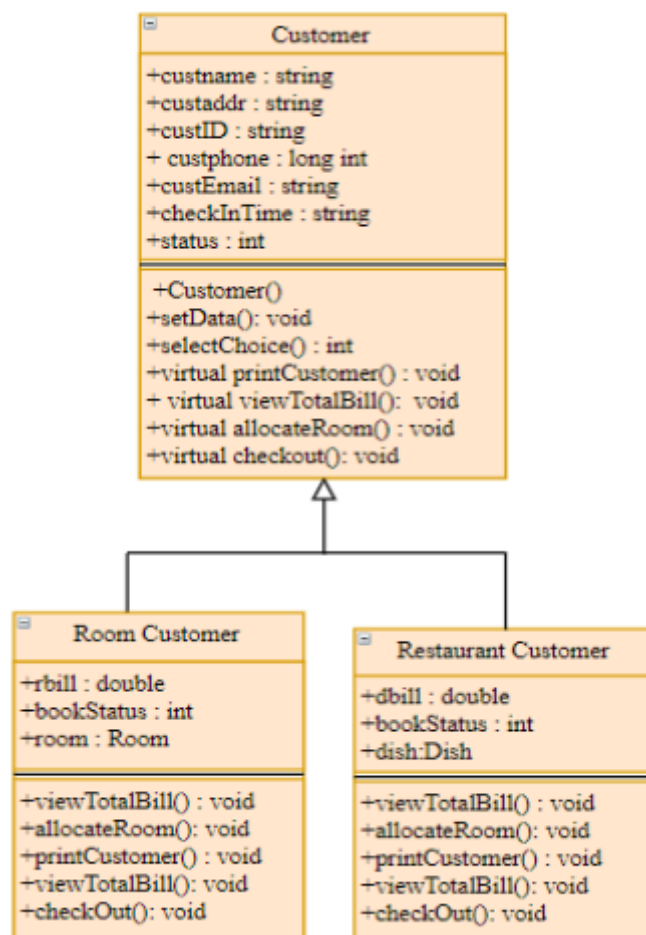
**Class RestaurantCustomer:**



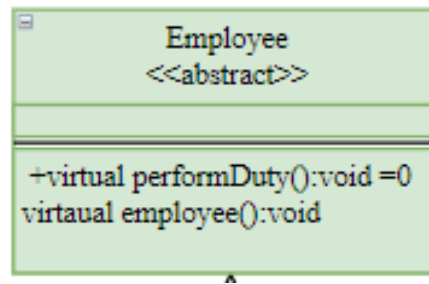
Class RoomCustomer:



The customer class follows a factory design pattern.



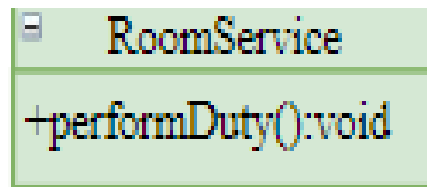
- Class : Employee



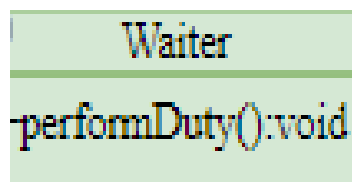
- Functions:

performDuty() : To display all the employees working in the hotel

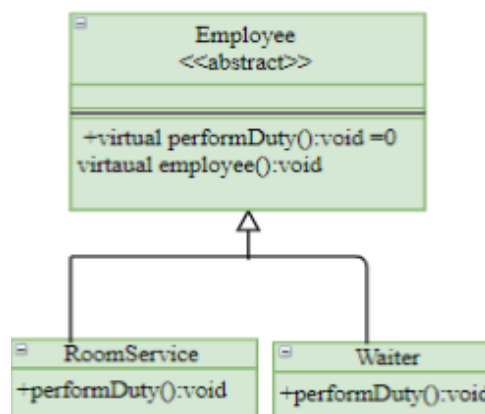
Class: Roomservice



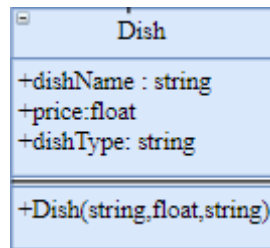
Class: Waiter



The class employee inherits two classes namely RoomService and Waiter who perform their respective duties on customer demand. It follows strategy design pattern.



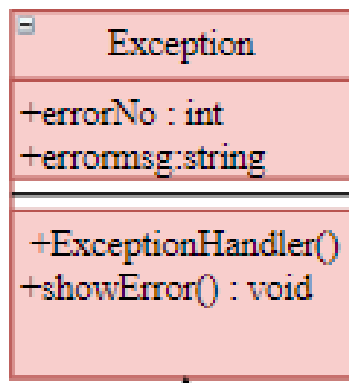
### Class: Dish



This class has attributes such as dishName, price and dish type. The dishType specifies the type to which the given dish belongs i.e., main course, starters, desserts, beverages etc.

The parameterized constructor creates new dishes.

### Class: Exception



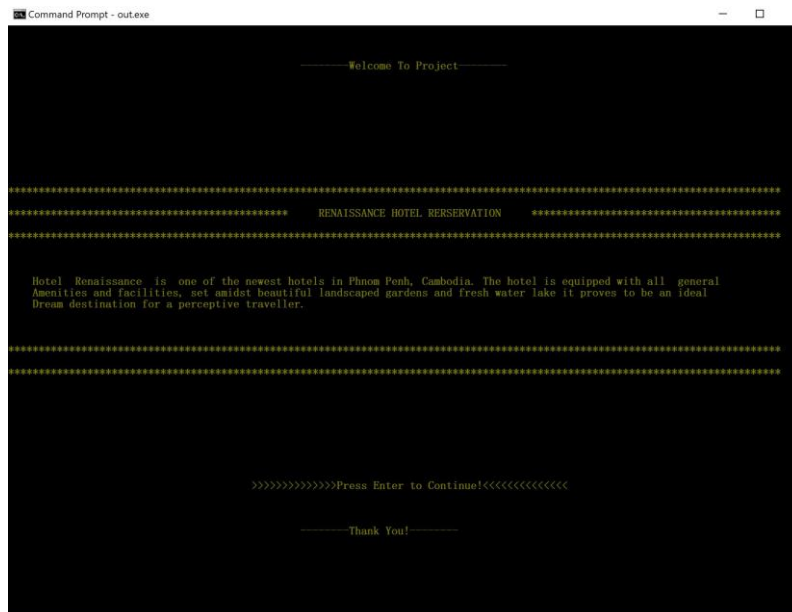
The following exception class comes into picture if

- 1) Any customer asks for a room which is already occupied.
  - 2) Any customer orders for a dish which is not available at that instance of time.
- In the above cases Exception Handler will throw an appropriate error.

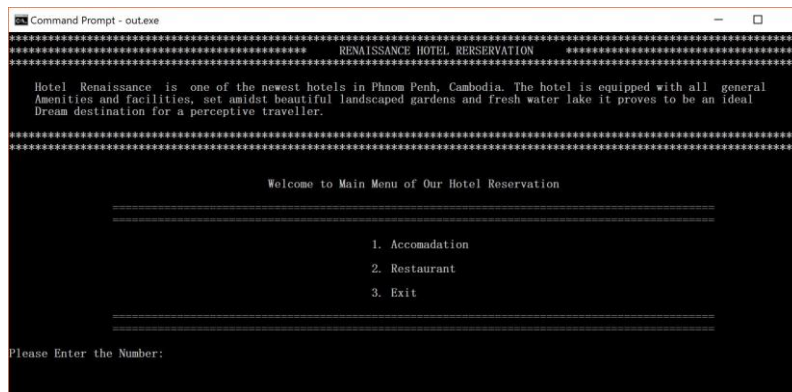
- **Result:**

Test case #1: This is main page of the system. If we press enter then it will continue to the menu page.

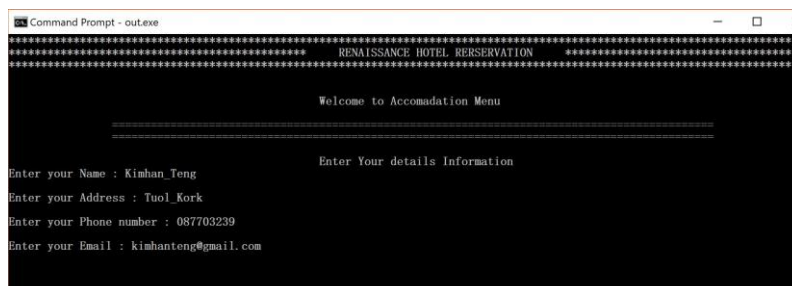




### Test case #2: Main Menu page of Hotel Reservation



Test case #3: If we select 1. To take accommodation reservation then it will ask to input some personal information.



Test case #4: Then we can display room that available.

```
*****
***** RENAISSANCE HOTEL RESERVATION *****
*****

Welcome to Accomadation Menu

=====
=====
1. Display Rooms
2. Book a Room
3. Vacate Room
4. Get Invoice
5. Not Satisfied?
6. Cancel Booking
7. Give Feedback
8. Back
=====
=====

Please Enter Number:1

Room Details
=====
Room Type      Number of Beds      Rent      Room Number
Deluxe         2                   3500      1
AC             1                   5500      2
Non AC        2                   2500      3
AC             2                   3500      4
Deluxe        2                   3500      5
Deluxe        3                   4500      6

Press Enter to Continue....
```

Test case #5: Select number 2. To book a room for accommodation reservation and we can select room number that available.

```
*****
***** RENAISSANCE HOTEL RESERVATION *****
*****

Welcome to Accomadation Menu

=====
=====
1. Display Rooms
2. Book a Room
3. Vacate Room
4. Get Invoice
5. Not Satisfied?
6. Cancel Booking
7. Give Feedback
8. Back
=====
=====

Please Enter Number:2

Room Details
=====
Room Type      Number of Beds      Rent      Room Number
Deluxe         2                   3500      1
AC             1                   5500      2
Non AC        2                   2500      3
AC             2                   3500      4
Deluxe        2                   3500      5
Deluxe        3                   4500      6

Press Enter to Continue....
Enter Room Number: 1
```

Test case #6: Select number 3 if we want to vacate a room and then just enter room number that we have book.

```
*****
***** RENAISSANCE HOTEL RESERVATION *****
*****

Welcome to Accomadation Menu

=====
=====
1. Display Rooms
2. Book a Room
3. Vacate Room
4. Get Invoice
5. Not Satisfied?
6. Cancel Booking
7. Give Feedback
8. Back
=====
=====

Please Enter Number:3
Enter Room No
1
Thank You! Visit Again.
Room vacated
```

Test case #7: If we have selected a room that we satisfy then we can get the invoice

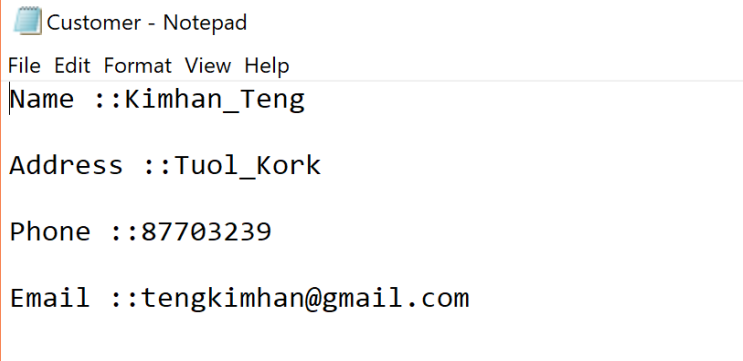
and it will save customer information in txt file.

```
*****
***** REMAISSANCE HOTEL RESERVATION *****
*****
Welcome to Accomadation Menu

=====
1. Display Rooms
2. Book a Room
3. Vacate Room
4. Get Invoice
5. Not Satisfied?
6. Cancel Booking
7. Give Feedback
8. Back
=====

Please Enter Number:4

=====
Name :: Kimahan_Teng
Address :: Tuol_Kork
ID :: lfdxfi
Phone Number :: 12800849
Email :: adas
Check-In Time ::Tue Jan 05 22:48:17 2021
Bill :: 3500
=====
```



Test case #8: If we not satisfy we can select option number 5 then the employee at hotel will know.

```
*****
***** REMAISSANCE HOTEL RESERVATION *****
*****
Welcome to Accomadation Menu

=====
1. Display Rooms
2. Book a Room
3. Vacate Room
4. Get Invoice
5. Not Satisfied?
6. Cancel Booking
7. Give Feedback
8. Back
=====

Please Enter Number:5
Employee XYZ arriving at your doorstep...
```

Test case #9: We can cancel booking by choose option number 6 and if we want to give feedback then it will note your name and ask you to give scale that you like. The feedback will save as txt file.



```
***** RENAISSANCE HOTEL RESERVATION *****
*****
Welcome to Restaurant Main Menu
=====
1. Display Menu
2. Order a Dish
3. Get Invoice
4. Cancel Order
5. Give FeedBack
6. Go Back
=====
Please Enter Number:1

=====
Menu
=====
Dish Name      Price      Dish Type
Chocolate Fondue 140        Desert
Manchow_Soup    110        Soup
Shahi_Paneer    220        Main Course
Arizona_Tea     100        Beverage
Grilled_Romaine_Salad 180        Salad
Mushroom_Manchurian 170        Starter
Pina_Colada     210        Cocktail
Raspberry_Ripple 120        Ice Cream
```

```
***** RENAISSANCE HOTEL RESERVATION *****
*****
Welcome to Restaurant Main Menu
=====
1. Display Menu
2. Order a Dish
3. Get Invoice
4. Cancel Order
5. Give FeedBack
6. Go Back
=====
Please Enter Number:2

=====
Menu
=====
Dish Name      Price      Dish Type
Chocolate Fondue 140        Desert
Manchow_Soup    110        Soup
Shahi_Paneer    220        Main Course
Arizona_Tea     100        Beverage
Grilled_Romaine_Salad 180        Salad
Mushroom_Manchurian 170        Starter
Pina_Colada     210        Cocktail
Raspberry_Ripple 120        Ice Cream

Employee ABC arriving at your table to take your Order
Enter Dish Name you want to Order(Make sure you enter the exact same name.)
Chocolate Fondue
Order Successful
```

```
***** RENAISSANCE HOTEL RESERVATION *****
*****
Welcome to Restaurant Main Menu
=====
1. Display Menu
2. Order a Dish
3. Get Invoice
4. Cancel Order
5. Give FeedBack
6. Go Back
=====
Please Enter Number:3

=====
Name :: Kimhan_Teng
Address :: Tuoi_Kork
ID :: egdwkf
Phone Number :: 87703239
Email :: kimhanteng@gmail.com
Check-In Time :: Tue Jan 05 22:53:54 2021
Bill :: 140
```

```
*****
***** RENAISSANCE HOTEL RESEVATION *****
*****

Welcome to Restaurant Main Menu

=====
1. Display Menu
2. Order a Dish
3. Get Invoice
4. Cancel Order
5. Give FeedBack
6. Go Back
=====

Please Enter Number:5
Enter your Name
kimhan teng
Thanks for your time!
How likely are you to recommend Hotel Renaissance to a Friend or Colleague?
Rate on a scale of 1-10
9
Thanks for your valuable feedback!
```

```
*****
***** RENAISSANCE HOTEL RESEVATION *****
*****

Welcome to Restaurant Main Menu

=====
1. Display Menu
2. Order a Dish
3. Get Invoice
4. Cancel Order
5. Give FeedBack
6. Go Back
=====

Please Enter Number:4
Cancelation Successful!
```

## Part 3. Difficulties & Solutions, or others

In conclusion, I have learnt a lot in this project since I gain the experiences of building a small system program for hotel reservation and there are some difficulties also since it need some times to make idea and develop class diagram and also implement in C++ code. However, with some useful information from internet I can create this simple system.