King Saud University
College of Computer and Information Sciences
Department of Information Technology

CSC 113 - Project **Second Semester 1444-1445**

Hotel Reservation

Phase 1

Section #	NAME	ID	Division of work a
73033	*Aroub Alsalihi*	*444200560*	*Project idea and introduction Classes and method-headers and description Class(Reservation , Customer, main)*
73033	*Norah Azumaya*	*444200503*	*Classes and method-headers and description Class(hotel)*
73033	*Rama Alomair*	*444200662*	*UML diagram, class (Room, Regular, Suite, Main), introduction, Sample run*

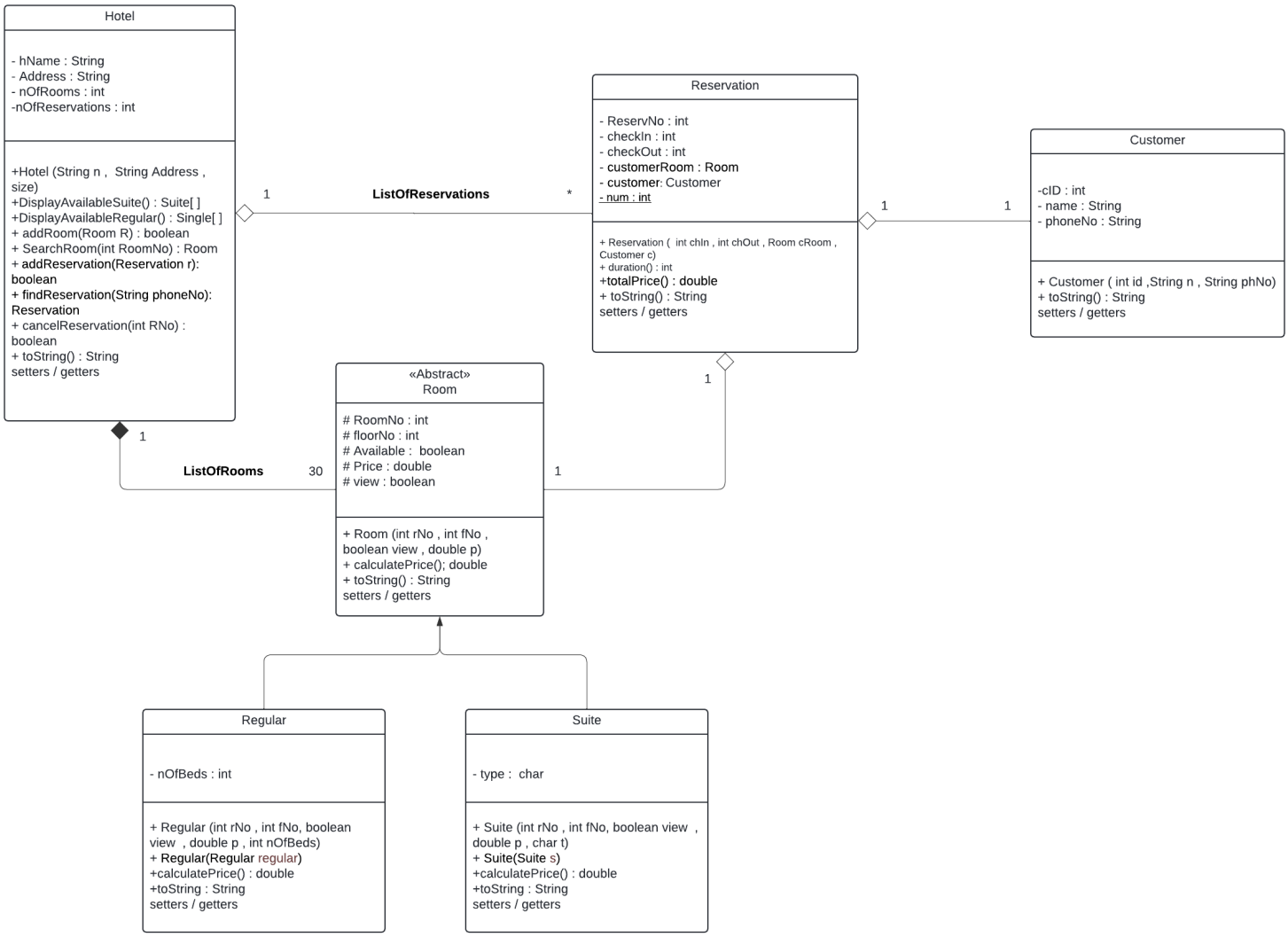
Project Idea:

An online hotel reservations system for booking hotel rooms.

Project introduction:

The online hotel reservations system is a useful system that allows the user to book hotel rooms. It provides the user with a menu from which he can choose options such as viewing the available rooms in the hotel, placing a new reservation, canceling the reservation, and searching for reservations. The room has two types: Regular room or Suite, and each has its own features.

UML diagram:


Hotel
- hName : String
- Address : String
- nOfRooms : int
-nOfReservations : int
+Hotel (String n , String Address , size)
+DisplayAvailableSuite() : Suite[ ]
+DisplayAvailableRegular() : Single[ ]
+ addRoom(Room R) : boolean
+ SearchRoom(int RoomNo) : Room
+ addReservation(Reservation r): boolean
+ findReservation(String phoneNo): Reservation
+ cancelReservation(int RNo) : boolean
+ toString() : String
setters / getters
1
ListOfReservations
*
Reservation
- ReservNo : int
- checkIn : int
- checkOut : int
- customerRoom : Room
- customer: Customer
- num : int
+ Reservation (int chIn , int chOut , Room cRoom , Customer c)
+ duration() : int
+totalPrice() : double
+ toString() : String
setters / getters
1
1
Customer
-cID : int
- name : String
- phoneNo : String
+ Customer (int id ,String n , String phNo)
+ toString() : String
setters / getters
1
1
ListOfRooms
30
1
«Abstract»
Room
RoomNo : int
floorNo : int
Available : boolean
Price : double
view : boolean
+ Room (int rNo , int fNo , boolean view , double p)
+ calculatePrice(); double
+ toString() : String
setters / getters
Regular
- nOfBeds : int
+ Regular (int rNo , int fNo, boolean view , double p , int nOfBeds)
+ Regular(Regular regular)
+calculatePrice() : double
+toString : String
setters / getters
Suite
- type : char
+ Suite (int rNo , int fNo, boolean view , double p , char t)
+ Suite(Suite s)
+calculatePrice() : double
+toString : String
setters / getters

Classes and methods description:

Class Hotel:

- Attributes:
  - **hName:** is a String specifying hotel name.
  - **Address:** is a String specifying hotel's address.
  - **nOfRooms :**is an integer specifying the current number of Rooms.
  - **nOfReservations:** is an integer specifying the current number of Reservations.

- Methods:

  - **Hotel (String hName, String address, int size):** a constructor of class Hotel initializing its attribute and set the size of **LisOfReservations** array to the received size.
  - **DisplayAvailableSuite(): [] Suite:** returns an array containing all Available suites.
  - **DisplayAvailableRegular(): [] Regular:** returns an array containing all Available Regular rooms.
  - **addRoom (R : Room): Boolean:** adds the given Room in the first empty location in the array **LisOfRooms.**
  - **addReservation (r: Reservation): Boolean:** adds the given Reservation the first empty location in the array **LisOfReservations.**
  - **SearchRoom (NRoom : int): Room :** returns an object of **Room** after searching in **LisOfRooms array** based on given Room number.
  - **findReservation (phoneNo : String): Reservation :** returns an object of **Reservation** based on given Phone number.
  - **CancelReservation (RNo : int) : Boolean :** deletes the **Reservation** with the specified number of room (shift left).
  - **toString () : String :** : returns a string containing all Hotel information.

Class Reservation:

- Attributes:
  - **ReservNo**: an integer that represents the Reservation number.
  - **checkIn :** an integer that represents the check in day.
  - **checkOut :** an integer that represents the checkOut day.
  - **customerRoom :** represents a Room object that the customer wants to reserve.
  - **customer:** an object of class customer, who made the reservation.
  - **num:** a static integer that keeps increasing with every new reservation.

- Methods:
  - **Reservation (int chIn , int chOut , Room cRoom , Customer c):** A constructor to initialize the reservation information to the given values and sets the **ReservNo** to **num.**
  - **duration ():** a method that returns the duration by calculating the total number of days by subtracting the **checkOut** day from the **checkIn** day.
  - **totalPrice()**: to calculate the total reservation price, by calling the **calculatePrice() method** from **class Room** multiplied by the duration, according to the following formula:

    totalPrice = customerRoom.calculatePrice() * duration ().
  - **toString():** : returns a string containing all reservation information.

Class Room(abstract):

- Attributes:

  - **RoomNo:** Specifies the room number.
  - **floorNo:** specifies the floor number of the room.
  - **Available:** to indicate if the room is available or reserved.
  - **Price:** price of room.
  - **view:** it indicates whether the room has a view or not.

- Methods:

  - **Room (int rNo , int fNo , boolean view, double p):** a constructor to initialize the room information with the received parameters.
  - **calculatePrice():** an abstract method returns the calculated room price.
  - **toString()**: : returns a string containing all Room information.

Class Regular:

- Attributes:
  - **nOfBeds** : represents number of beds in a room.

- Methods:
  - **Regular (int rNo , int fNo, boolean view, double p, int nOfBeds):** a constructor to initialize the Regular room information with the received parameters.
  - **Regular (Regular regular):** a copy constructor.
  - **calculatePrice():** calculates the price based on number of beds. Each bed costs 50SR, then add it to the room default price:
    price + (50 * **nOfBeds**) , and it will add an extra 150SR if the room has a view.
  - **toString():** returns a string containing all Regular room information.

Class Suite:

- Attributes:
  - **type:** a character represents the type of suite according to the following:
    ‘S’ for superior suite.
    ‘J’ for junior suite.
    ‘D’ for deluxe suite.

- Methods:
  - **Suite (int rNo , int fNo, boolean view, double p, char t):** a constructor to initialize the suite information with the received parameters.
  - **Suite (Suite s):** a copy constructor.
  - **calculatePrice():** calculates the price based on the following:

type	price
‘S’	Price +1000
‘J’	Price + 700
‘D’	Price + 500

    and it will add an extra 150SR if the room has a view.
  - **toString():** returns a string containing all Suite information.

Class Customer:

- Attributes:
  - **cID:** is an integer specifying the customer ID number.
  - **name:** is a String specifying customer name.
  - **phoneNo:** is a String specifying customer number.
- Methods:
  - **Customer (int id , String n , String phNo):** a constructor of class Customer initializing its attribute.
  - **toString () : String :** returns a string containing all Customer information.

Class Test(main class):

We have implemented the Test class with the main method by doing the following:

- creating a hotel object with the following values:

name	address	size
"Hilton"	"Riyadh"	50

- adding the following Room objects to our hotel:
  - Class Suite objects:

RoomNo	floorNo	view	Price	type
1	1	true	600	D
2	1	false	600	S
3	1	false	600	J
4	1	true	600	S
5	1	true	600	J
6	1	false	600	D

  - Class Regular objects:

RoomNo	floorNo	view	Price	nOfBeds
7	2	true	300	2
8	2	true	300	1
9	2	false	300	3
10	2	true	300	2
11	2	true	300	3
12	2	false	300	2

- Showing a menu of the following options until the user choose exit:

- 1) View Available Rooms

It shows all available rooms in the hotel.

- 2) place new reservation

  add a new reservation to hotel for specific customer:

  Prompt the user to enter customer information.

  Ask the user to enter room number to reserve it.

  Prompt from user check-in and check-out day.

  display an appropriate message if the reservation cannot be added.

- 3) Find specific reservation information
  Finds and displays the reservation information by prompting from user his phone number
- 4) Cancel reservation
  by prompting from user room number
- 5) Exit

Sample run:

```
*********** Welcome to  Hilton Hotel ***********
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
1
Available Rooms:

************************
 Available Suites :
************************
Room Number: 1
 Floor Number: 1
 Price is:1400.0
 with view
 Type: Deluxe
======================
Room Number: 2
 Floor Number: 1
 Price is:1600.0
 whithout view
 Type: Superior
======================
Room Number: 3
 Floor Number: 1
 Price is:1300.0
 whithout view
 Type: Junior
======================
Room Number: 4
 Floor Number: 1
 Price is:1900.0
 with view
 Type: Superior
======================
Room Number: 5
 Floor Number: 1
 Price is:1600.0
 with view
 Type: Junior
======================
Room Number: 6
 Floor Number: 1
 Price is:1100.0
```

```
************************
 Available Regular Rooms :
************************
Room Number: 7
 Floor Number: 2
 Price is:550.0
 with view
 nOfBeds: 2
======================
Room Number: 8
 Floor Number: 2
 Price is:500.0
 with view
 nOfBeds: 1
======================
Room Number: 9
 Floor Number: 2
 Price is:450.0
 whithout view
 nOfBeds: 3
======================
Room Number: 10
 Floor Number: 2
 Price is:550.0
 with view
 nOfBeds: 2
======================
Room Number: 11
 Floor Number: 2
 Price is:600.0
 with view
 nOfBeds: 3
======================
Room Number: 12
 Floor Number: 2
 Price is:400.0
 whithout view
 nOfBeds: 2
======================
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
```

```
----------------------
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
2
 Enter your Name:
Dana Ahmed
 Enter your Id:
12345
 Enter your Phone Number:
053406521
 Please choose room number :
1
 Please enter Check in day :
12
 Please enter Check out day :
14
Reservation have been placed successfully
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
3
Enter phone Number
055467321
There is no reservation with this phone Number
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
3
```

```
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
3
Enter phone Number
053406521
Reservation Info:
 Customer Name: Dana Ahmed, ID: 12345, Phone Number: 053406521
Reservation number = 111
 Check in Day: 12 ,   Check out Day: 14
 Number of days: 2
 Room Number: 1
 Floor Number: 1
 Room Price is:1400.0
 with view
 Type: Deluxe
 Reservation Cost:  2800.0
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
4
 Please enter room number to cancel reservation :
1
 Canceled Successfuly
 Please choose an option:
 1- View Available Rooms
 2- place new reservation
 3- Find specific Reservation information
 4- cancel reservation
 5- exit the system
5
 Good Bye
```