Fall 2018 CS151 Group Project
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HOTEL RESERVATION SYSTEM

Note: You are not allowed to use the drag and drop function of NetBeans to place GUI components.

In this project, you will design and implement a reservation system for a small hotel. The application must be a GUI program without taking any input from the console.

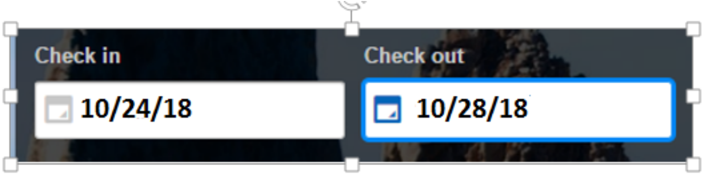
Let's assume there are total 20 rooms in this hotel. 10 of them are luxurious rooms and their rate is $300. The rest are economic rooms and their rate is $100. We are going to consider two different types of users: Guest and Manager. The system maintains user accounts, reservation records, and room information. A user account information includes user id, password, username, and all reservations this user made excluding canceled ones. Each reservation record knows who made this reservation, which room is assigned, and the period of the reservation. A room holds the room number and its rate.

The initial screen of the application shows two options to determine the type of user: Manager vs. Guest. When a type of user is entered, the system presents the GUI interface for the specific user. When the current user is done, the system should be able to take the type of the next user and the GUI interface should be changed according to the user.

Guest: A guest gets two options: Sign up (for a first timer) and Sign in (for an existing user). With the sign-up option selected, the system asks the user to enter information to create a user account and create it. With the sign in option, the user asks for the user id and password. Handle the error for wrong id and password. Once a guest signed in the account, the system presents two options: Make a reservation and View/Cancel a Reservation as shown below.

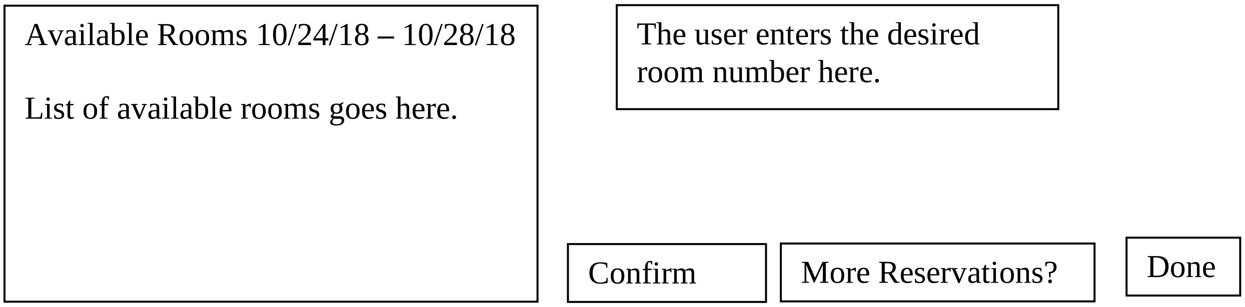
Make a Reservation   View/Cancel a Reservation

With "Make a Reservation" option, the guest should be able to select the check-in date, check-out date, and the type of room. The start or end date/time should not be prior to the current date. The length of stay cannot be longer than 60 nights. Your system enforces these constraints and generates an error for any violation and asks for a correct input.


Check in: 10/24/18
Check out: 10/28/18

Room type: $300 $100   Show Me Available Rooms

When the user presses the show-me-available-rooms button, the system presents the room-availability-view which shows all available rooms for the given request from the user. To simplify the project, a room is considered to be available only if it is available for the entire stay. For example, with the above input, the room availability list shows rooms available from 10/24/18 through 10/28/18. Then, the user enters the (only one) desired room number.


Available Rooms 10/24/18 – 10/28/18
List of available rooms goes here.
The user enters the desired room number here.
Confirm
More Reservations?
Done

The guest can change the selection (i.e. check-in and check-out dates, the room type, and/or the room number) before confirming it. If the guest changes the selection, the room availability view should be changed accordingly in real time. You are required to design this part of the project based on the MVC pattern. Each reservation will be confirmed when the user clicks on the Confirm button. That is, the system saves the user account and room information according to the reservation just confirmed. Confirmed reservations will be in the data structures as well as in a file called reservation.txt. (If you are serializing data, the file extension can be different.)

If the guest wants to make more reservations by clicking on the More Reservations button, then, the "Make a Reservation" steps will be repeated until the guest indicates to finish this transaction by pressing the Done button. Once the transaction is done, the system displays a confirmation receipt for the guest to print. There should be two different formats of receipt which the guest can choose from: Simple and Comprehensive. With a simple format, the receipt shows the reservations and the total due made by the current transaction with the corresponding total amount due. With a comprehensive formation, the receipt shows all valid reservations made by this user with the corresponding total amount due. For example, it is 10/11/28 and a user made 3 reservations on 10/11/18 for the period of 10/24/18-10/28/18. The user also made 2 reservations on 10/1/18 for the period of 12/25/18-12/30/18. A simple receipt shows the 3 reservations made through the current transaction on 10/11/18 while a comprehensive receipt shows all 5 reservations made by this user.

You are required to use the Strategy pattern to design two different formats of the receipt. Make sure to identify the context program, strategy, and concrete strategies.

If a guest is not signed in, the guest should sign in to “View/Cancel a reservation” With this option, the guest is allowed to view and cancel reservations.

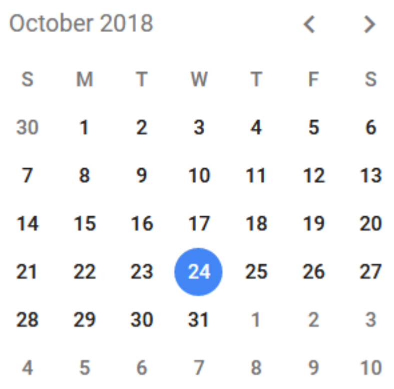
Manager: The hotel manager can load existing reservations, view information, save reservations, and quit the system.

When the load function is chosen, the system loads existing reservations from the file, reservations.txt. With view option, the manager can take a look at room information by the day and by room number. With view option selected, the system displays two controllers and two views.

On the controller "room-info-by day", days are clickable. When a manager clicks on a day, the corresponding view will show both available and reserved room for this day. For each reserved room, the system also shows the guest who reserved this room. The manager is allowed to choose one day at a time to see the room availability of this particular day. When the manager selects a different day, the view will change accordingly in real time. The calendar can move back and forth as far as GregorianCalendar goes. It can be advanced by year and by month. The look of the calendar does not have to be exactly like the example shown below. On the controller, "room-info-by-room number", all room numbers are displayed and they are all clickable. When a room number is clicked, the corresponding view shows information of the selected room. You are required to design this part of the project based on the MVC pattern.

Controller to view room info by day

View that displays room information for the selected day



October 2018 < >

S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Room information

Available rooms:

Reserved Rooms:

Controller to view room info by room number

View that displays room information for the selected room number

Room View

Clickable room numbers go here…

Information of the selected room goes here.

With Save option, the user account and room reservation information currently stored in data structures will be saved in the file reservations.txt. (You can use serialization for this purpose.) With the Quit option, the system saves and quits.

NOTE: I presented GUI components in the description as an example. You are free to design the graphics interface of your application as long as it includes all the specified components.