

**Old Dominion University**  
**Department of Computer Science**  
**Semester Project: Hotel Booking System**  
**CS250**

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## **Introduction:**

Many, if not all of you have stayed in a hotel before, and you most likely used an online interface or called the hotel manager to book a room. Regardless of the hotel, in order to book your room, you had to provide certain information about yourself as well as the kind of room you needed. Thereafter, the booking interface or the manager provides confirmation information about your booking. In this project, you will develop a program to manage bookings for such a hotel.

## The System:

- Consider a user friendly booking system that manages bookings for a hotel, as shown in Figure 1.
- The hotel contains 3 floors and each of the floors contains 3 types of rooms,
  - Single bed rooms (base rate: \$50.00) + TAX,
  - Double bed rooms (base rate: \$60.00) + TAX and,
  - Special rooms (base rate: 120.00) + TAX.
- (The Tax will be 14% of the base rate, e.g.  $\$50.00 + \text{TAX} = \$57.00$ ).
- Floor – 1 and Floor – 3 contain rooms which permit customers to smoke (smoking rooms), but the Floor – 2 has all the non-smoking rooms.
- The special room, which can also be used for events, has different guest capacities on each floor. Floor 1, 2 and 3 can accommodate 100, 75 and 50 guests respectively.
- The list of rooms for each floor is:
  - Floor – 1 contains 3 single bed rooms, 3 double bed rooms and 1 special room
  - Floor – 2 contains 4 single bed rooms, 3 double bed rooms and 1 special room
  - Floor – 3 contains 4 single bed rooms, 4 double bed rooms and 1 special room
- The hotel booking system should reflect the complete map of the hotel as shown in **Figure 1** to give the customer a better idea about room locations of the hotel.
- The system shows room number for each room ranging from 101 to 107 for Floor – 1, 201 to 208 for Floor – 2, 301 to 309 for Floor – 3. All the rooms in the system are represented by an acronym based on the room type as given below (see **Figure 1**),
  - SNSK - Single bed Non-Smoking room
  - DNSK - Double bed Non-Smoking room
  - SSMK - Single bed Smoking room
  - DSMK - Double bed Smoking room
- Also the system shows the status of each room for the current date. If the room is occupied or booked for a given day, it should read “ocpy”, and if the room is not occupied for a given day, it should read “vcnt” (see **Figure 1**).

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- The hotel booking system has functionalities that can help customers to book rooms and managers to manage all the bookings. Detailed functionalities are discussed in [Detailed Operations](#).

```
=====
Welcome to Hotel Booking System
=====
Hotel Status
=====
#####
# SSMK # SSMK # SSMK # SSMK # DSMK # DSMK # DSMK # DSMK # SPC3 #
# # # # # # # # # # # # # # #
# 301 # 302 # 303 # 304 # 305 # 306 # 307 # 308 # 309 #
# # # # # # # # # # # # # # #
# vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt #
# # # # # # # # # # # # # # #
#####
# SNSK # SNSK # SNSK # SNSK # DNSK # DNSK # DNSK # DNSK # SPC2 #
# # # # # # # # # # # # # # #
# 201 # 202 # 203 # 204 # 205 # 206 # 207 # 208 #
# # # # # # # # # # # # # # #
# vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt #
# # # # # # # # # # # # # # #
#####
# SSMK # SSMK # SSMK # DSMK # DSMK # DSMK # DSMK # SPC1 #
# # # # # # # # # # # # # # #
# 101 # 102 # 103 # 104 # 105 # 106 # 107 #
# # # # # # # # # # # # # # #
# vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt # vcnt #
# # # # # # # # # # # # # # #
#####
Symbol information:
SNSK - Single bed Non-smoking room      | Room # 309 - Special room (Capacity 50)
DNSK - Double bed Non-smoking room      | Room # 208 - Special room (Capacity 75)
SSMK - single bed smoking room          | Room # 107 - Special room (Capacity 100)
DSMK - Double bed smoking room
vcnt - Vacant Rooms
ocpy = Occupied rooms
```

Figure 1: A sample view of the system.

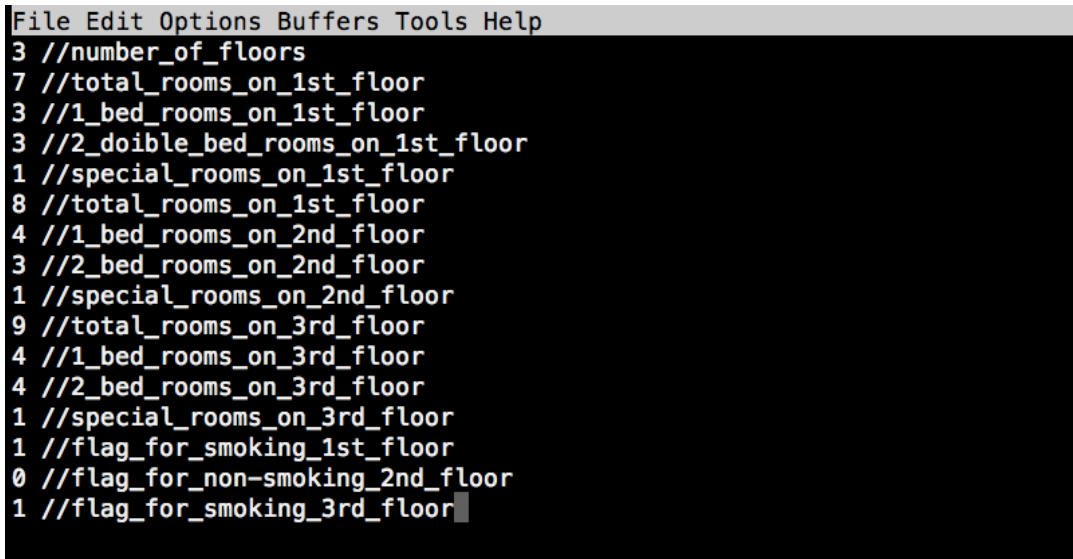
## Managing the System:

The system has two sessions - current session and previous session. Customers can book rooms using this system's current session and the system saves all the information about the customer as well as their respective bookings in a text file. Each time you start your system, the system reads all the information from the text file regarding bookings made in previous sessions and presents the current session. The entire program must implement 3 distinct phases:

- The Start Phase
- The System Phase
- End phase

## The Start Phase:

In the start phase of the system, the program reads the information about the hotel from a text file “hotelinput.txt”, builds a hotel and prints the hotel map for the user as shown in [Figure 1](#). The text file contains information as shown in [Figure 2](#). Each line contains a number followed by a space and description of the number.

A screenshot of a text editor window with a menu bar (File, Edit, Options, Buffers, Tools, Help) and a dark background. The text is white and consists of 17 lines of configuration data for a hotel booking system. Each line starts with a number followed by a double slash and a description. The descriptions include room counts for different floors and flags for smoking policies.

```
File Edit Options Buffers Tools Help
3 //number_of_floors
7 //total_rooms_on_1st_floor
3 //1_bed_rooms_on_1st_floor
3 //2_double_bed_rooms_on_1st_floor
1 //special_rooms_on_1st_floor
8 //total_rooms_on_2nd_floor
4 //1_bed_rooms_on_2nd_floor
3 //2_double_bed_rooms_on_2nd_floor
1 //special_rooms_on_2nd_floor
9 //total_rooms_on_3rd_floor
4 //1_bed_rooms_on_3rd_floor
4 //2_double_bed_rooms_on_3rd_floor
1 //special_rooms_on_3rd_floor
1 //flag_for_smoking_1st_floor
0 //flag_for_non-smoking_2nd_floor
1 //flag_for_smoking_3rd_floor
```

Figure 2: Information in “hotelinput.txt” file

The system reads from a text file “bookings.txt” to get all the bookings made in the previous sessions and updates the status of the rooms according to the booking date. The “booking.txt” file contains information as shown in [Figure 3 \(file provided to you\)](#).

```
File Edit Options Buffers Tools Help
101
Priyank Patel
2015
2
28
2015
3
1
1
45
-----
305
Priyank Patel
2015
2
28
2015
3
1
1
54
```

Figure 3: Information in “booking.txt” file

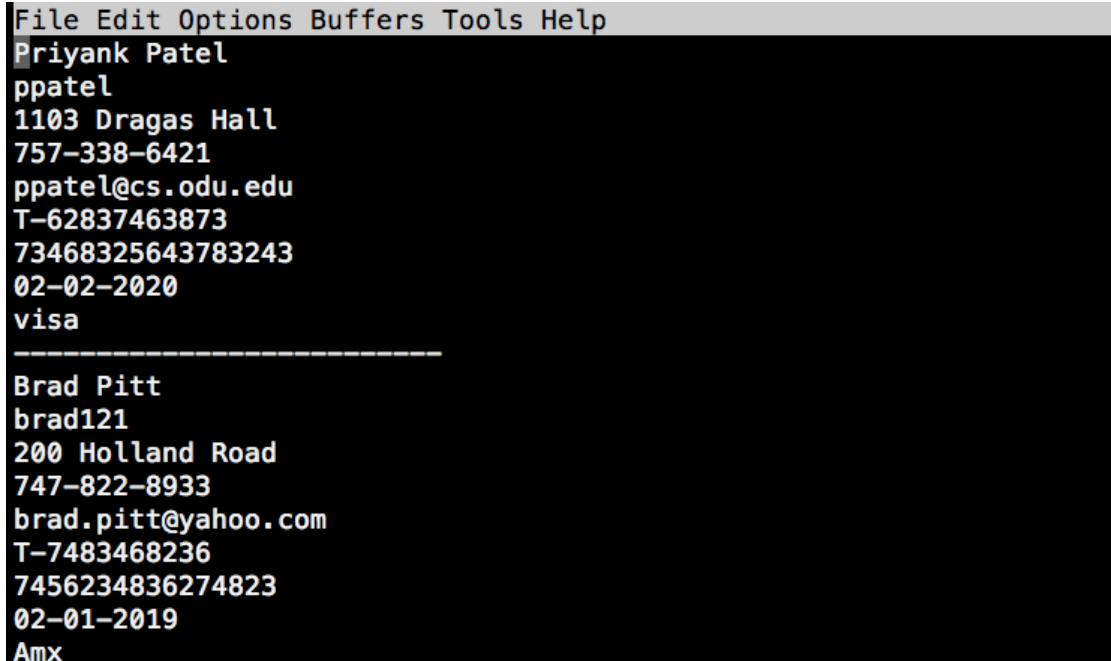
- Line 1: Room number
- Line 2: Name of the customer
- Line 3 – 5: Check-in date
  - Line 3: Year
  - Line 4: Month
  - Line 5: Day
- Line 6 – 8: Check-out date
  - Line 6: Year
  - Line 7: Month
  - Line 8: Day
- Line 9: Length of stay (In terms of days)
- Line 10: Rate of the room.
- Line 11: separator between two bookings (for readability)

Also, the system reads all the information about previous customers from the text file “customer.txt” and associates this information with current bookings or uses this information to help the manager or customer to manage new bookings. The “customer.txt” has information contained in **Figure 4**.

- Line 1: Name of the customer
- Line 2: Username of the customer
- Line 3: Address of the customer
- Line 4: Phone number of the customer

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- Line 5: Email id of the customer
- Line 6: Photo id of the customer (it can be any unique photo ID number, e.g. Drivers License)
- Line 7: Credit/debit card number (15 or 16 digit number)
- Line 8: Credit/debit card expiration date (DD-MM-YYYY)
- Line 9: Type of the card

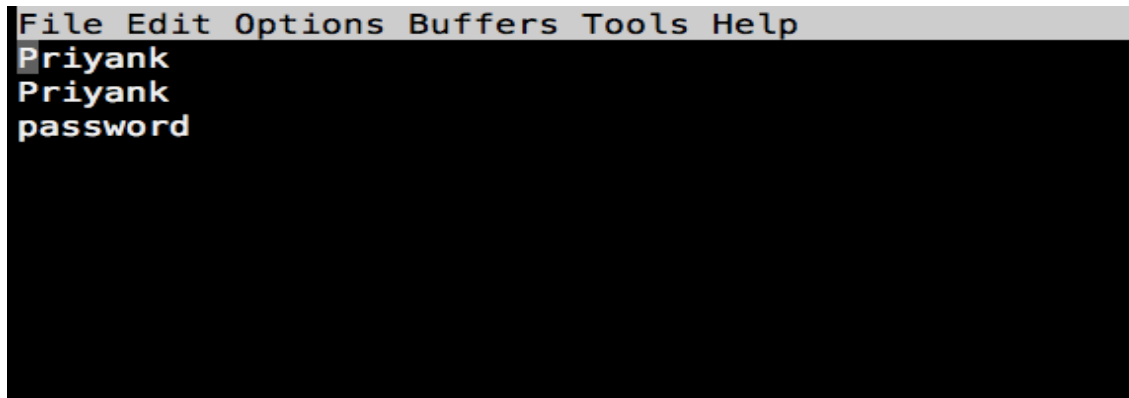


```
File Edit Options Buffers Tools Help
Priyank Patel
ppatel
1103 Dragas Hall
757-338-6421
ppatel@cs.odu.edu
T-62837463873
73468325643783243
02-02-2020
visa
-----
Brad Pitt
brad121
200 Holland Road
747-822-8933
brad.pitt@yahoo.com
T-7483468236
7456234836274823
02-01-2019
Amx
```

Figure 4: Information in “customer.txt” file

Fourthly, the system reads credentials of a manager from “manager.txt” file. This file has information as shown in [Figure 5](#).

- Line 1: Name of the manager
- Line 2: user name of the manager
- Line 3: password of the manager account



```
File Edit Options Buffers Tools Help
Priyank
Priyank
password
```

Figure 5: Information in “manager.txt” file



## The System Phase:

In this phase, the system is ready for use by a customer or a manager. There are three menus to handle. They are as follows:

- **Main Menu**

This menu (as shown in [Figure 6](#)), will identify whether the user is a customer or a manager and direct them to their respective sub-menus.

```
Main menu

Press 1 to login as a customer (Only for registered customers)
Press 2 to register as a customer
Press 3 to login as a manager
Press 4 to close the program

-----

Enter your choice: █
```

Figure 6: Main menu

- **Customer Menu**

The customer menu ([Figure 7](#)) will allow customers with the ability to check the status of the hotel rooms for the current date, as well as for future dates. Also, it will allow customer to book rooms for any dates. The detailed operation of all the menus will be discussed in detail in [Detailed Operations](#).

```
Customer menu

Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu

-----

Enter your choice: █
```

Figure 7: Customer menu

- **Manager Menu**

The Manager menu ([Figure 8](#)) will allow the manager to view all the vacant and occupied rooms for the current date, as well as for future dates. The manager will also be able to check the hotel's financial earnings for the day. Manager can also add or remove booking for any registered customers. All the information about customers will be accessible to

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the manager using this menu. The detailed operation of all the menus will be discussed in detail in [Detailed Operations](#).

```
Hello manager Priyank !!
-----
Manager menu

Press 1 to list occupied rooms Today
Press 2 to list free rooms today
Press 3 to view todays bookings
Press 4 to view todays departures
Press 5 to view todays financial earnings
Press 6 to Add a booking
Press 7 to Remove a booking
Press 8 to view any days booking
Press 9 to view all customers usernames
Press 10 to view a customer's details
Press 11 to go back to main menu

-----
Enter your choice: █
```

Figure 8: Manager Menu

All the information entered by user of the system during “The System” phase will be kept as a record in text files as stated above for use in other sessions.

### **End Phase:**

The End phase denotes a phase after completion of customer and/or manager operations. During this phase, the program saves all the information entered by any user and prints the hotel's updated status with all the added or removed bookings information as shown in **Figure 1**.

## Detailed Operations:

This section fills in the detail for a number of operations mentioned in **Managing the System**.

### **Managing the Main Menu:**

- This menu will always identify whether the user is a customer or a manager.
- If the user is a customer, he/she must be registered with the hotel before login into the system. If the customer is not registered he/she has to register first and provide all the information required by the system as shown in **Figure 9** and the system would store this information into “customer.txt”.
- After completion of the registration process, the system will notify the user that their registration is complete and allow the customer to login into the system to use the customer menu.
- If the user is a manager, he/she can directly login into the system using his/her manager name and password, which was already been read by the system from “manager.txt” during the **Start phase**.
- The Main menu will also have an option to exit if the guest wants to terminate the system completely.

```
Enter your choice: 2
Enter Your Name: Priyank Patel
Enter Your UserName: ppatel
Enter Your Address: 1103 Dragas Hall
Enter Your Phone: 757-338-6421
Enter Your Email: ppatel@cs.odu.edu
Enter Your Photo ID: T-62837463873
Enter Your Credit Card Number: 73468325643783243
Enter Your Credit Cards Expiration Date (DD-MM-YYYY): 02-02-2020
Enter your Credit Card Name: visa

Thank you for the information Priyank Patel !!

Your account has been created..
You may now login and book rooms..
```

Figure 9: Customer registration information

### Managing Customer Menu:

- If the customer credentials are correct he/she will be directed to the customer menu and system will print a greeting with customer name (Figure 10) (This is same as Figure 7), else it will print an error message saying the “Invalid name or ID” and ask for the credentials again.

```
Hello Priyank Patel !!

Customer menu

Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu

-----

Enter your choice: █
```

Figure 10: Customer menu

- The Customer menu will allow customers to view a room’s status for today (already occupied rooms for today), and view room’s status on a particular date in the future to facilitate booking.
- The menu will also allow customers to book a room or multiple rooms together according to the customer’s choice.
- As soon as the customer chooses to book a room, the system will display “todays deal”, which offers a 10% discounts on each room’s price if the customer is willing to organize an event and wants to book 2 or more regular rooms (single or double beds) with 1 special room.
- If a customer wants to go with the deal, the system will book the number rooms as per the customer’s choice. If the customer is not willing to take the deal, then he/she can book the original rooms already booked.
- For booking, the customer will be asked to provide his/her choice of room types as well as check in/check out dates. Also, the customer will be given a choice of floors if the rooms are available on each floor but the customer will not have any choice of room numbers, all the room allotments will be done by the system itself. If customer requests a

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room type or floor that occupied, the system will ask customer to choose another room type or floor number respectively.

- After completion of each booking, if the customer does not take the deal, customer will be asked whether he/she wants to book another room or return to the main menu until he/she is done with all of his/her bookings.
- After each booking, the booking information will be stored in the “booking.txt” file and the hotel status will be updated accordingly.

### Managing Manager Menu:

- If the manager’s credentials are correct manager, the manager will be directed to the manager menu and system will print a greeting with the manager name (Figure 11) (This is same as Figure 8.), else it will print an error message saying “Invalid name or password” and ask for the credentials again.

```
Hello manager Priyank !!
-----
Manager menu

Press 1 to list occupied rooms Today
Press 2 to list free rooms today
Press 3 to view todays bookings
Press 4 to view todays departures
Press 5 to view todays financial earnings
Press 6 to Add a booking
Press 7 to Remove a booking
Press 8 to view any days booking
Press 9 to view all customers usernames
Press 10 to view a customer's details
Press 11 to go back to main menu

-----

Enter your choice: █
```

Figure 11: Manager Menu

- Using this menu, the manager will be able to view all the occupied and vacant rooms for the current date as well as future dates.
- The Manager will also be able to get a list of all the departures for the current date.
- The Manager menu will allow managers to keep track of the total financial earning of the day based on day’s bookings.

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- In the case when a customer wants to cancel his/her booking, this must be done via the manager using the manager menu.
- Manager can also book rooms for registered customers using their usernames. The Manager can obtain the user name for all the registered customers with an option given in the main menu.
- Also, the manager can view all the detailed information about the customer (stored in “customer.txt”) using customers user name.





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```
Main menu

Press 1 to login as a customer (Only for registered customers)
Press 2 to register as a customer
Press 3 to login as a manager
Press 4 to close the program

-----

Enter your choice: █
```

3. He found out that it is necessary to get registered with the hotel to book a room or get any system benefits. He chooses **option 2**. The System requests for details to register him with the system, as below.

```
Enter your choice: 2
Enter Your Name: Priyank Patel
Enter Your UserName: ppatel
Enter Your Address: 1103 Dragas Hall
Enter Your Phone: 757-338-6421
Enter Your Email: ppatel@cs.odu.edu
Enter Your Photo ID: T-62837463873
Enter Your Credit Card Number: 73468325643783243
Enter Your Credit Cards Expiration Date (DD-MM-YYYY): 02-02-2020
Enter your Credit Card Name: visa

Thank you for the information Priyank Patel !!

Your account has been created..
You may now login and book rooms..
```

4. As soon as the registration completes, the system updates “customer.txt” and redirect the customer to the Main menu.

```
File Edit Options Buffers Tools Help
Priyank Patel
ppatel
1103 Dragas Hall
757-338-6421
ppatel@cs.odu.edu
T-62837463873
73468325643783243
02-02-2020
```

5. On the Main menu now he chooses the **option 1** to login into the system. He will be asked for the name he provided for registration and his username. The system compares it to the customer information in “customer.txt”. If the information matches correctly, the system prints a greeting for the customer and print the customer menu.

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```
Main menu
Press 1 to login as a customer (Only for registered customers)
Press 2 to register as a customer
Press 3 to login as a manager
Press 4 to close the program
```

```
Enter your choice: 1
Enter your name: Priyank Patel
Enter you username to confirm login: ppatel
```

```
Hello Priyank Patel !!
```

```
Customer menu
```

```
Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu
```

```
Enter your choice: █
```

6. He checks the availability for day 02/25/2015 using **option 2**

```
Enter your choice: 2
Enter the Day (DD): 25
Enter the Month (MM): 02
Enter the year (YYYY): 2015
Booking information:
No bookings for 2-25-2015..
```

The system replies him with a message saying “No booking for 2-5-2015”, so he may continue his booking.

7. He chooses the option 3 to go ahead and book rooms for the event for that day.

```
Hello Priyank Patel !!
```

```
Customer menu
```

```
Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu
```

```
Enter your choice: 3
```

```
Today's special deal:
Buy 2 or more regular rooms (Single or double beds) with 1 special room
and get 10 % discount on each !!
```

```
If you want to take the deal enter 'y' or enter 'n': █
```

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8. The system prints day's special deal and asks the customer whether he wants to take a deal or he wants to choose rooms on his own. Since the customer wants an event with a capacity of 75 and 2 regular rooms, he chooses the deal with option 'y'.
9. The system asks him for the number of rooms he wants to book and book that many rooms for him one by one. This is done by requesting for information about the type of each room he wants.

```
-----
Enter your choice: 3

Today's special deal:
Buy 2 or more regular rooms (Single or double beds) with 1 special room
and get 10 % discount on each !!

If you want to take the deal enter 'y' or enter 'n': y
Enter the number of rooms you want to book: 3

booking room 1 of 3 for you..

Press 1 for single room, 2 for double room and 3 for special suite
Enter your choice: 1
what floor do you want the room on? 1,2 or 3 - Floor 2 is non-smoking
Enter your choice: 1
Enter check-in date
Enter date (DD): 28
Enter Month (MM): 02
Enter Year (YYYY): 2015
Enter check-out date
Enter date (DD): 01
Enter Month (MM): 03
Enter Year (YYYY): 2015
Enter the number of days of your stay (according to check-out date)
Enter here: 1

Booked room 1 of 3 for you !!

-----

booking room 2 of 3 for you..

Press 1 for single room, 2 for double room and 3 for special suite
Enter your choice: 2
what floor do you want the room on? 1,2 or 3 - Floor 2 is non-smoking
Enter your choice: 3
Enter check-in date
```

10. After completion of his booking, he checks the status of the hotel for the day using option 1 in customer menu.

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```
-----
Hello Priyank Patel !!

Customer menu

Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu

-----

Enter your choice: 1

Today's Booking information

Room Number : 101 - Booked Today Booked By - Priyank Patel
Room Number : 305 - Booked Today Booked By - Priyank Patel
Room Number : 208 - Booked Today Booked By - Priyank Patel
```

11. When some other customer checks the booking status using **option 2** he sees the booked rooms with the date on which the booking was made.

```
Customer menu

Press 1 to view Rooms status for today
Press 2 to view rooms status on a date you enter
Press 3 to Book a Room
Press 4 to logout and go to main menu

-----

Enter your choice: 2
Enter the Date: 28
Enter the Month: 02
Enter the year e.g 2010: 2015

Booking information:
Room Number : 101 - Booked on 28-2-2015 Booked By - Priyank Patel
Room Number : 305 - Booked on 28-2-2015 Booked By - Priyank Patel
Room Number : 208 - Booked on 28-2-2015 Booked By - Priyank Patel
```

See the difference from  
Point 8

12. The Customer chooses **option 4** to exit the menu, and see the hotel map updated with the occupancy status of those 3 rooms the customer booked.

Enter your choice: 4

Hotel Status											
#####											
#	#	#	#	#	#	#	#	#	#	#	#
#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	SSMK
#	301	#	302	#	303	#	304	#	305	#	306
#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt
#		#		#		#		#		#	
#####											
#	SNSK	#	SNSK	#	SNSK	#	SNSK	#	SNSK	#	SNSK
#	201	#	202	#	203	#	204	#	205	#	206
#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt
#		#		#		#		#		#	
#####											
#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	SSMK
#	101	#	102	#	103	#	104	#	105	#	106
#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt
#		#		#		#		#		#	
#####											

Symbol information:

SNSK - Single bed Non-smoking room	Room # 309 - Special room (Capacity 50)
DNSK - Double bed Non-smoking room	Room # 208 - Special room (Capacity 75)
SSMK - single bed smoking room	Room # 107 - Special room (Capacity 100)
DSMK - Double bed smoking room	

vcnt - Vacant Rooms

See the difference from  
Figure 1

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### Example – 2:

The manager of hotel wants to do his work, so he wants to use our system too. The Manager starts the system and system redirects him to the main menu with the hotel map which contains occupancy status.

He sees some bookings, and wants to check the information about the bookings, so he chooses **option 3** on main menu and attempts to log in into the system.

Hotel Status												
#	#	#	#	#	#	#	#	#	#	#	#	#
#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	DSMK	#	DSMK	#
#	301	#	302	#	303	#	304	#	305	#	306	#
#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#
#	#	#	#	#	#	#	#	#	#	#	#	#
#	SNSK	#	SNSK	#	SNSK	#	SNSK	#	DNSK	#	DNSK	#
#	201	#	202	#	203	#	204	#	205	#	206	#
#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#	vcnt	#
#	#	#	#	#	#	#	#	#	#	#	#	#
#	SSMK	#	SSMK	#	SSMK	#	SSMK	#	DSMK	#	DSMK	#
#	101	#	102	#	103	#	104	#	105	#	106	#
#	ocpy	#	vcnt	#	vcnt	#	ocpy	#	vcnt	#	vcnt	#
#	#	#	#	#	#	#	#	#	#	#	#	#
Symbol information:												
SNSK – Single bed Non-smoking room						Room # 309 – Special room (Capacity 50)						
DNSK – Double bed Non-smoking room						Room # 208 – Special room (Capacity 75)						
SSMK – single bed smoking room						Room # 107 – Special room (Capacity 100)						
DSMK – Double bed smoking room												
vcnt – Vacant Rooms												
ocpy = Occupied rooms												

1. The system asks him for his name and password. It will be matched with the information in “manager.txt” file. If it is correct he will be redirected to the manager’s menu.

```
Hello manager Priyank !!
-----
Manager menu

Press 1 to list occupied rooms Today
Press 2 to list free rooms today
Press 3 to view todays bookings
Press 4 to view todays departures
Press 5 to view todays financial earnings
Press 6 to Add a booking
Press 7 to Remove a booking
Press 8 to view any days booking
Press 9 to view all customers usernames
Press 10 to view a customer's details
Press 11 to go back to main menu
-----
Enter your choice: █
```

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2. He wants to see the status of all occupied rooms using **option 1**.

```
Enter your choice: 1

List of occupied rooms

Room Number : 101 - Occupied Today Booked By - Priyank Patel
Room Number : 305 - Occupied Today Booked By - Priyank Patel
Room Number : 208 - Occupied Today Booked By - Priyank Patel
Room Number : 104 - Occupied Today Booked By - Priyank Patel
-----
Manager menu

Press 1 to list occupied rooms Today
Press 2 to list free rooms today
Press 3 to view todays bookings
Press 4 to view todays departures
Press 5 to view todays financial earnings
Press 6 to Add a booking
Press 7 to Remove a booking
Press 8 to view any days booking
Press 9 to view all customers usernames
Press 10 to view a customer's details
Press 11 to go back to main menu
-----

Enter your choice: █
```

3. Also the list of all the free rooms using **option 2**.

```
List of vacant rooms

Room 102 : is Vacant
Room 103 : is Vacant
Room 105 : is Vacant
Room 106 : is Vacant
Room 107 : is Vacant
Room 201 : is Vacant
Room 202 : is Vacant
Room 203 : is Vacant
Room 204 : is Vacant
Room 205 : is Vacant
Room 206 : is Vacant
Room 207 : is Vacant
Room 301 : is Vacant
Room 302 : is Vacant
Room 303 : is Vacant
Room 304 : is Vacant
Room 306 : is Vacant
Room 307 : is Vacant
Room 308 : is Vacant
Room 309 : is Vacant
```

## Hotel Booking System

4. He checks the financial earnings of the hotel using option 5.

```
-----
Enter your choice: 5

Todays financial earnings

Room 101 booked - Cost without tax : 45 with tax : 51.3
Room 305 booked - Cost without tax : 54 with tax : 61.56
Room 208 booked - Cost without tax : 108 with tax : 123.12
Room 104 booked - Cost without tax : 54 with tax : 61.56

Total Earned today without tax : 261

Total tax : 36.54

Total Earned today with tax : 297.54
```

Note the discounted rates



## Design & Structure:

I do not want to limit the creativity of any student by providing the exact **ADTs** for you; however I also need to make sure that students are following the appropriate techniques to design, refine and test their code. As a result, please follow the following the instructions when designing your code:

- Please split your code into modules. The number of modules should be appropriate for the provided application.
- Each module should implement the appropriate ADTs, and each module should be implemented with two files (.h “header” and .cpp “implementation”).
- When needed use data sequences to control the number of modules.
- You will also need to provide one more module for the main application and name it **HotelBookingSystem.cpp** file.
- Keep the main application module as simple as you can.
  - No function implementation should be provided inside the body of the main function.
  - The main() function should only call other functions and/or create objects of class(es) and declaring necessary variables.
  - If you have to provide function implementation inside the main application (not inside the main function), then you will need to provide a very good reason for doing so. For example these functions should be highly related to the main application. Also, the number of these functions should not exceed **two functions**. The implementation of these functions should also be short and simple.
- **Never** #include .cpp file(s). If you do, this will result in a big penalty even if your program compiles and provides the expected output.
- You must use **Encapsulation** to hide your data.
- Avoid using standalone functions. Your functions should always be member function of a class or struct
- Use inline when needed
- Use function templates when needed
- Dynamically create your arrays on the Heap, and watch for memory leak and dangling pointers.

## Deliverables:

You must submit all the following

- **Implementation:**
  - Zip the folder containing the .cpp, .h, .cbp, input/output files together and name it **FinalProject\_cslogin**
  - The due date for submitting this file is **Friday, April 24<sup>th</sup> at 11.00 pm.**
  - Also, submit a Readme.txt which specifies the reason for providing function implementation (if any) in main function. Also, keep the main function as simple as possible.