HOTEL RESERVTION SYSTEM

C++ PROJECT

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Description:

The Hotel Contains:

- 10 Rooms : 5 singles / 5 doubles
- 20 Customer database slots

Classes:

```
24  class room{
25      public:
26      string guest="EMPTY";
27      double price;
28      int id;
29      bool booked=false;
30      string book_date="NONE";string due_date="None";
31  };
```

```
32  class single_room:public room{
33      public:
34      string type="Single";
35      };
```

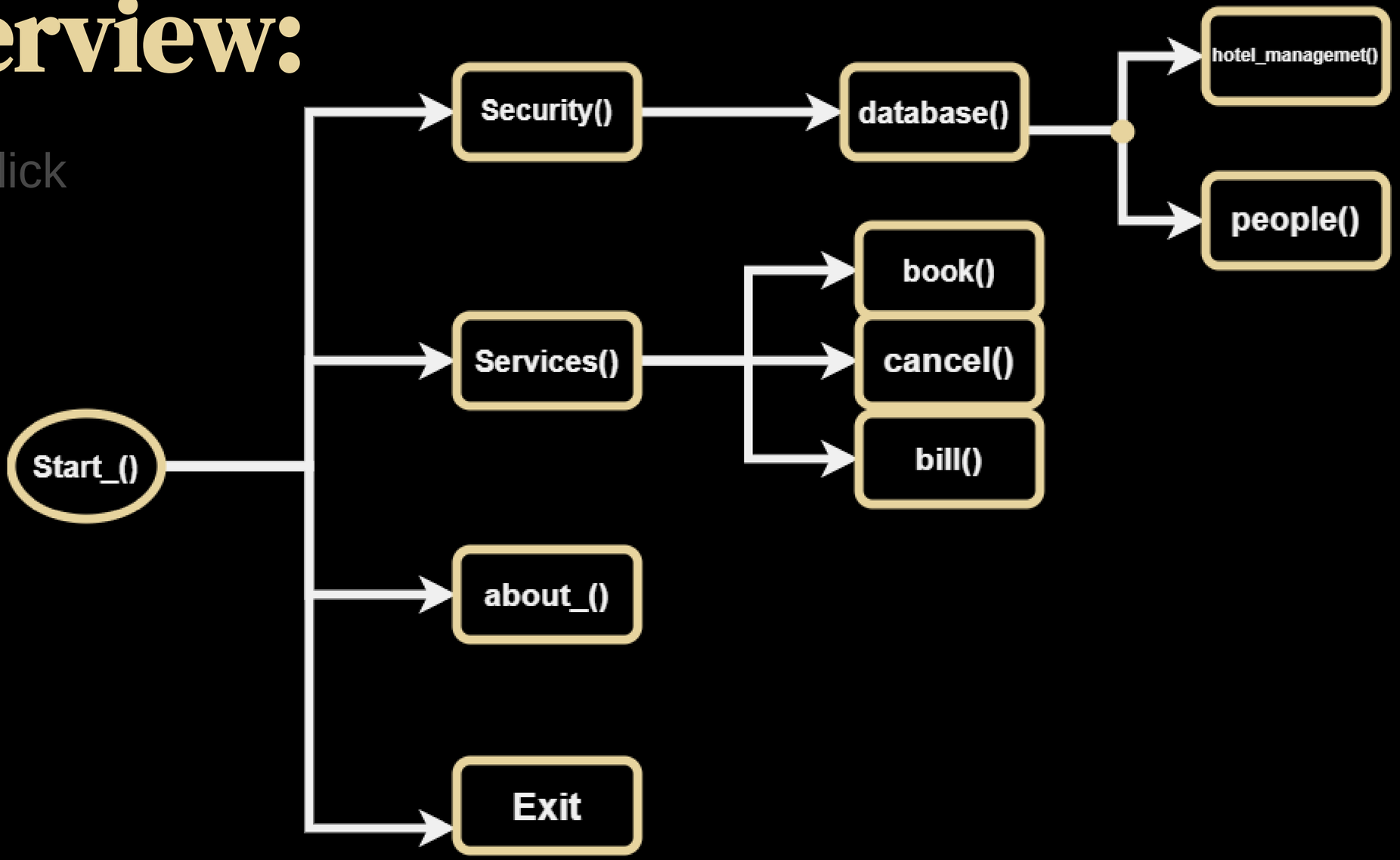
```
36  class double_room:public room{
37      public:
38      string type="Double";
39  };
```

```
60  class Hotel{
61      public:
62      bool admin=false;
63      int n=0;
64      single_room s_rooms[5];
65      double_room d_rooms[5];
66      customer customers[20];
67
68      Hotel(){
69      s_rooms[0].id=1;d_rooms[0].id=6;
70      s_rooms[1].id=2;d_rooms[1].id=7;
71      s_rooms[2].id=3;d_rooms[2].id=8;
72      s_rooms[3].id=4;d_rooms[3].id=9;
73      s_rooms[4].id=5;d_rooms[4].id=10;
74      }
```

```
40  class customer{
41      public:
42      string name="NONE",nat,pn;
43      int room=-1,freq=0,age,prefs,prefd,t;
44      string record[5];
45
46  };
```

Overview:

click



Start_():

The main menu

This is the first interface that the user will encounter.
Using a switch statement, the user can pick a command by entering a value between 1 and 4.

```
Welcome to our Hotel
****************************
1 : Hotel Database
2 : Services
3 : About
4 : EXIT
****************************
Select a Command:
```

```
356   void start_(){
357       while (true){
358       int c;
359       cout<<"Welcome to our Hotel"<<'\n'<<"**************************"<<'\n'
360       <<"1 : Hotel Database"<<'\n'<<"2 : Services"<<'\n'<<"3 : About"<<'\n'<<"4 : EXIT"<<'\n'
361       <<"**************************"<<'\n';
362       cout<<"Select a Command: ";
363       while (!(cin>>c) || c<1 || c>4 ){
364           cin.clear();
365           cin.ignore();
366           cout<<"invalid input : ";};
367       switch (c){
368           case 1 :security();break;
369           case 2 :services();break;
370           case 3 :about_();break;
371           case 4 : exit(0);break;
372       }}
373   };
```

```
402   int main(){
403       Hotel my_hotel;
404       my_hotel.start_();
405   }
```

security():

Authorized access

-The access to the hotel's database is secured with a password ("mse"). The user has 3 attempts to enter the right password before blocking the access to the user.

-After entering the right password, the user will be directed to the database(database()).

Note: The right password will be entered only once, therefore any later access request will be approved automatically without any security checkpoint

```
Select a Command: 1
Enter the password :
```

```
84  void security(){
85      string pass;
86      if (admin==true){
87          database();
88          return;}
89      if (n==3){cout<<"This access has been blocked";continue_();return;}
90      cout<<"Enter the password : ";
91      do{
92          cin>>pass;
93          n++;
94          if (pass=="mse"){admin=true;database();return;}
95          else if(n<3) cout<<"Incorrect password ! try again : ";
96      }while (n<3);
97      cout<<"This access has been blocked";continue_();return;
98  }
```

```
Enter the password : hotel
Incorrect password ! try again : hotel
Incorrect password ! try again : hotel
This access has been blocked
Enter any key to continue :
```

Blocked access after 3 failed attempts

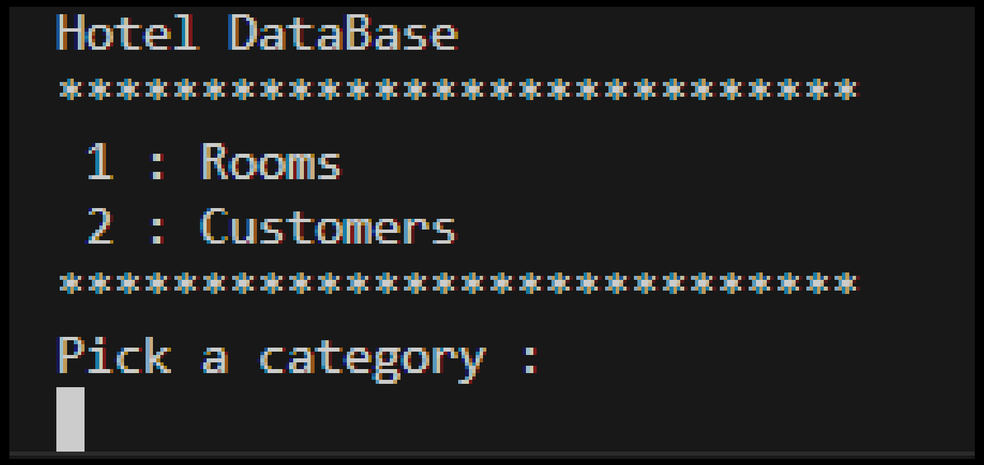
database():

List of customers or rooms

-The user can choose between customers or rooms database

input “1” to access rooms database

Input “2” to access customers database




```
141  void database(){
142      int c;
143      cout<<"Hotel DataBase"<<'\n'<<"**************************"<<'\n'
144      <<" 1 : Rooms"<<'\n'<<" 2 : Customers"<<'\n'<<"**************************"<<'\n';
145      cout<<"Pick a category : ";
146      while (!(cin>>c) ){
147          cin.clear();
148          cin.ignore();
149          cout<<"Invalid Input, try again: ";
150          }
151      switch (c){
152          case 1 : hotel_management();break;
153          case 2 : people();
154      }
155  }
```

hotel_management():

Rooms Database:

-The user can pick room number between 1 and 10 to check its availability and other details

```
*****************************
Hotel Database
*****************************
   1   |   6
   2   |   7
   3   |   8
   4   |   9
   5   |   10
Pick a room (0 to exit) :
```

```
*****************************
---The Room is not Booked !---

*****************************
0 : Back
1 : Return to Main Menu
```

```
*****************************
Room Number   : 1
Booked by     : Majd
Type          : Single
Booking Date  : 29/11/2024  21:41
Checking Out  : In 3 Months and 2 Days
Bill          : $340
*****************************
0 : Back
1 : Return to Main Menu
```

```
375  void hotel_management(){
376      int c;
377      cout<<"*************************"<<'\n'<<"Hotel Database"<<'\n'<<"*************************"<<'\n';
378      for(int i=0;i<5;i++){
379          cout<<"   "<<s_rooms[i].id<<"   |   "<<d_rooms[i].id<<'\n';
380      }
381      cout<<"Pick a room (0 to exit) : ";
382      while (!(cin>>c)|| c>10 || c<0){
383          cin.clear();
384          cin.ignore();
385          cout<<"There are 10 rooms, try again : ";
386      }
387      if (c==0) start_();
388      cout<<"*************************"<<'\n';
389      if (s_rooms[c-1].booked==false) cout<<"---The Room is not Booked !---"<<'\n';
390      else {if (c>=1 && c<=5) display(s_rooms,c-1);
391      else {if( c>=6 && c<=10) display(d_rooms,c-6);
392      else cout<<"Invalid Input !"<<'\n';}};
393      c=-1;
394      while (c!=1 || c!=0){
395      cout<<'\n'<<"*************************"<<'\n'<<"0 : Back"<<'\n'<<"1 : Return to Main Menu"<<'\n';
396      cin>>c;
397      if (c==0) hotel_management();
398      else if (c!=0) start_();}
399  }
400 };
```

people():

Customers Database:

-The user can pick a customer to display their information.

-Particular Information(click to learn):

- Loyalty Points
- Room Preference
- Records

```
**************************
Empty List
**************************

Enter any key to continue :
```

```
Customers :
******************************
1 - Roua Remadi
2 - Rihem Amiche
3 - Majd Laarif
Pick a customer :
```

```
Pick a customer : 1
**************************
Name :            Roua Remadi
Age :             20
Country :         Tunisia
Phone Number :    00000000
Status :          Currently Booked in Room 1
Loyalty Points:   1
Room Preference: Not enough data!
**************************
 r : Records
----------------------------
 0 : Back
 1 :Return to Main Menu
```

```
99  void people(){
100     if(customers[0].name=="NONE"){cout<<"**************************"<<'\n'<<"Empty List"<<'\n'<<"**************************"<<'\n';continue_();return;}
101     int c,i=0;
102     bool exist=false;
103     cout<<'\n'<<"Customers :"<<'\n'<<"******************************"<<'\n';
104     for(;i<20;i++){
105         if (customers[i].name!="NONE") cout<<i+1<<" - "<<customers[i].name<<'\n';
106         else break;
107     }
108     cout<<"Pick a customer : ";
109     c=condition(c,0,i);
110     cout<<"******************************"<<'\n'
111     <<"Name :           "<<customers[c-1].name<<'\n'<<"Age :            "<<customers[c-1].age<<'\n'<<"Country :        "<<customers[c-1].nat
112     <<'\n'<<"Phone Number :   "<<customers[c-1].pn<<'\n'
113     <<"Status :         ";if (customers[c-1].room==-1) cout<<"Currently Not Booked "; else cout<<"Currently Booked in Room "<<customers[c-1].room;
114     cout<<'\n'<<"Loyalty Points:  "<<customers[c-1].freq<<'\n'<<"Room Preference: ";
115     if(customers[c-1].t<3) cout<<"Not enough data!";else if(customers[c-1].prefd<customers[c-1].prefs) cout<<"Single Room"; else cout<<"Double Room";
116     cout<<'\n'<<"******************************"<<'\n';
117     cout<<" r : Records"<<'\n'<<"----------------------------"<<'\n'<<" 0 : Back"<<'\n'<<" 1 :Return to Main Menu ";
118     char c1;
119     cin>>c1;
120     switch (c1){
121         case '1':start_();break;
122         case 'r':{
123             cout<<'\n'<<customers[c-1].name<<"'s Records :"<<'\n'<<"**************************"<<'\n';
124             for (int k=4;k>=0;k--){
125                 if (customers[c-1].record[k]!="") cout<<k+1<<" - "<<customers[c-1].record[k]<<'\n';}
126                 cout<<"**************************"<<'\n';
127                 continue_();
128                 break;
129                 }
130     }
```

Room Preference:

-The system interprets customer's room preference by the type of rooms they booked. The interpretations will be noted after 3 bookings from the same booking.

```
******************************
Name :              Majd
Age :               20
Country :           Tunisia
Phone Number :      0000000
Status :            Currently Not Booked
Loyalty Points:     1
Room Preference: Not enough data!
******************************
```

```
******************************
Name :              Majd
Age :               20
Country :           Tunisia
Phone Number :      0000000
Status :            Currently Booked in Room 2
Loyalty Points:     3
Room Preference: Single Room
******************************
```

```
******************************
Name :              Majd
Age :               20
Country :           Tunisia
Phone Number :      0000000
Status :            Currently Booked in Room 6
Loyalty Points:     7
Room Preference: Double Room
******************************
```

Records: Every Booking Customer's activity is documented.

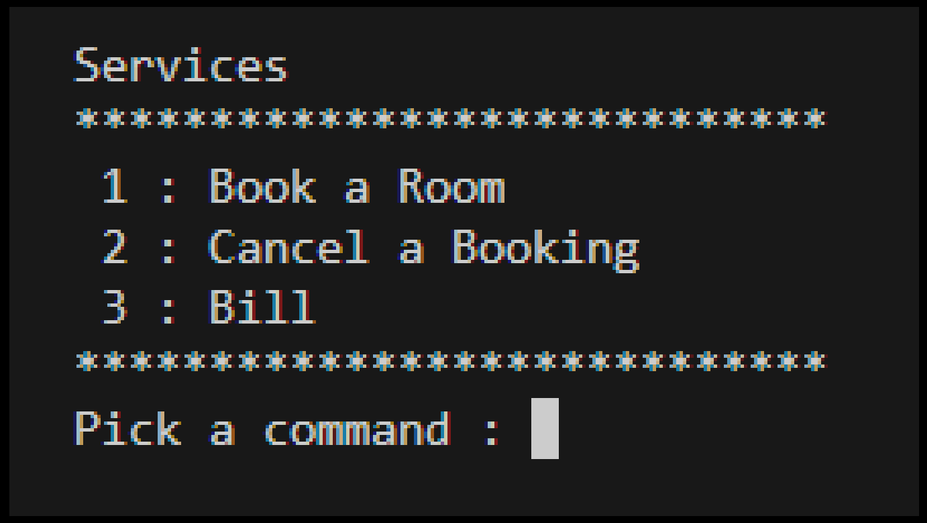
```
Majd's Records :
******************************
4 - Room 2  30/11/2024  13:31
3 - Room 8  30/11/2024  13:31
2 - Room 6  30/11/2024  13:30
1 - Room 1  30/11/2024  13:27
******************************

Enter any key to continue :
```

services():

Customer's services:

-The Customer can Book a room or Cancel it. Additionally, they can check the bill of their booking.




```
156  void services(){
157      cout<<'\n'<<"Services"<<'\n'<<"**************************"<<'\n'
158      <<" 1 : Book a Room"<<'\n'<<" 2 : Cancel a Booking"<<'\n'<<" 3 : Bill"
159      <<'\n'<<"**************************"<<'\n';
160      int c;
161      cout<<"Pick a command : ";
162      while (!(cin>>c)){
163          cin.clear();
164          cin.ignore();
165          cout<<"Invalid Input, try again: ";
166      }
167      switch(c){
168          case 1:book();break;
169          case 2:cancel();break;
170          case 3:bill();break;
171      }
172  }
```

book():

Booking:

-The customer can book a room or cancel a booking.

-The user must input essential information:

Name / Room Type / Duration

-New customers will have to add additional information such as : age(<=18) / Phone Number / Nationality.

-After giving the necessary inputs, the system will find for available room with the appropriate type (1-5 rooms are single ,6-10 are double) otherwise the booking will fail.

Hotel's Policy:

-The customer cannot be booked in more than 1 room at once

-Maximum duration is 5 Months and 14 days and the minimum is 1 day(if 0 months)

-For single rooms : 1 day = $20 ; 1 month = $100

-For double rooms : 1 day =$60 ; 1 month =$140

```
Enter your name majd
Thanks for choosing our hotel, since this is your first booking we need you to add vital informations
Enter you age : 20
Enter you phone number : 0000000
Enter your country : Tunisia
Single or Double Room ? ( S / D )? d
for how long ? (months)2
how many days ? : 3
----------------------------
You have been booked in Room : 6
----------------------------

Enter any key to continue :
```

```
Sorry there are no available single rooms for the moment.
Enter any key to continue :
```

```
Sir, you are already booked in Room 1
Enter any key to continue :
```

```
for how long ? (months)6
the maximum is 5 months, try again :
```

```
how many days ? : 15
the maximum is 2 weeks and minimum is 0, try again :
```

book():

Loyalty Points:

-For every booking, the customer receives a loyalty point.

-Customers with 3 loyal points or higher, receive a 20% off discount for any booking.

```
*****************************
Room Number   : 1
Booked by     : Rihem
Type          : Single
Booking Date  : 30/11/2024  10:21
Checking Out  : In 1 Month
Bill          : $80
*****************************
0 : Back
1 : Return to Main Menu
```

```
Enter your name Rihem
---------------------------
You are a loyal customer! A 20% discount has been applied, Thanks for choosing our hotel!
---------------------------
Single or Double Room ? ( S / D )?
```

cancel():

Cancel a booking:

-The user can cancel their booking by entering his name, then the system will check the room associated with their name and unbook and update its availability

```
Enter your name: Rihem
******************************
Booking Canceled Successfully!
******************************

Enter any key to continue :
```

```
Enter your name: Rihem
------------------------------
Name not Found !
------------------------------

Enter any key to continue :
```

```
319     void cancel(){
320     string guest;
321     cout<<"Enter your name: ";
322     cin>>guest;
323     for (int i=0;i<5;i++){
324         if (s_rooms[i].guest==guest){
325             s_rooms[i].guest="EMPTY";
326             s_rooms[i].price=0;
327             s_rooms[i].book_date="EMPTY";
328             s_rooms[i].due_date="EMPTY";
329             s_rooms[i].booked=false;
330             for(int j=0;j<20;j++){
331                 if (customers[j].name==guest) customers[j].room=-1;
332             }
333             cout<<"**************************"<<'\n'<<"Booking Canceled Successfully!"
334             <<'\n'<<"**************************"<<'\n';
335             continue_();
336             return;}}
337     for (int i=0;i<5;i++){
338         if (d_rooms[i].guest==guest){
339             d_rooms[i].guest="EMPTY";
340             d_rooms[i].price=0;
341             d_rooms[i].book_date="EMPTY";
342             d_rooms[i].due_date="EMPTY";
343             d_rooms[i].booked=false;
344             for(int j=0;j<20;j++){
345                 if (customers[j].name==guest) customers[j].room=-1;
346             }
347             cout<<"**************************"<<'\n'<<"Booking Canceled Successfully!"
348             <<'\n'<<"**************************"<<'\n';
349             continue_();
350             return;
351
352         }
```

Bill():

Details about the booking:

-The customer can check their booked room and billing by entering their name.

```
Enter your name : Roua
You are booked in room 3 and your Bill is $260
Enter any key to continue :
```

```
Enter your name : Rihem
You are not booked in any room!
Enter any key to continue :
```

Extras:

date_():

-It prints the current date and time using “ctime” library

Source: C++ Date and Time

```
string date_(){
    time_t timestamp = time(&timestamp);
    struct tm datetime = *localtime(&timestamp);
    return (to_string(datetime.tm_mday)+"/"+to_string(datetime.tm_mon+1)+"/"+
    to_string(datetime.tm_year+1900)+"  "+to_string(datetime.tm_hour)+':'+to_string(datetime.tm_min));
}
```

condition():

-It used to ensure that the user inputs value within the valid range or type to refrain the program from doing unpredictable behavior

```
int condition(int c,int c1,int c2){
        while (!(cin>>c) || c<c1 || c>c2 ){
        cin.clear();
        cin.ignore();
        cout<<"Invalid Input, try again: ";}
        return c;
}
```

Continue_():

-After every message returned by the system, the user can take their time to grasp the content of the message And continue whenever they like.

```
void continue_(){
    string e;
    cout<<'\n'<<"Enter any key to continue : ";
    cin>>e;
    cout<<"----------------------------"<<'\n';
}
```

```
**************************
Empty List
**************************

Enter any key to continue :
```

```
Sir, you are already booked in Room 1
Enter any key to continue :
```

THANK YOU