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PROJECT REPORT

***TITLE* : HOTEL RESERVATION SYSTEM**

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Submitted to :	Global Quest Technologies
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ABSTRACT

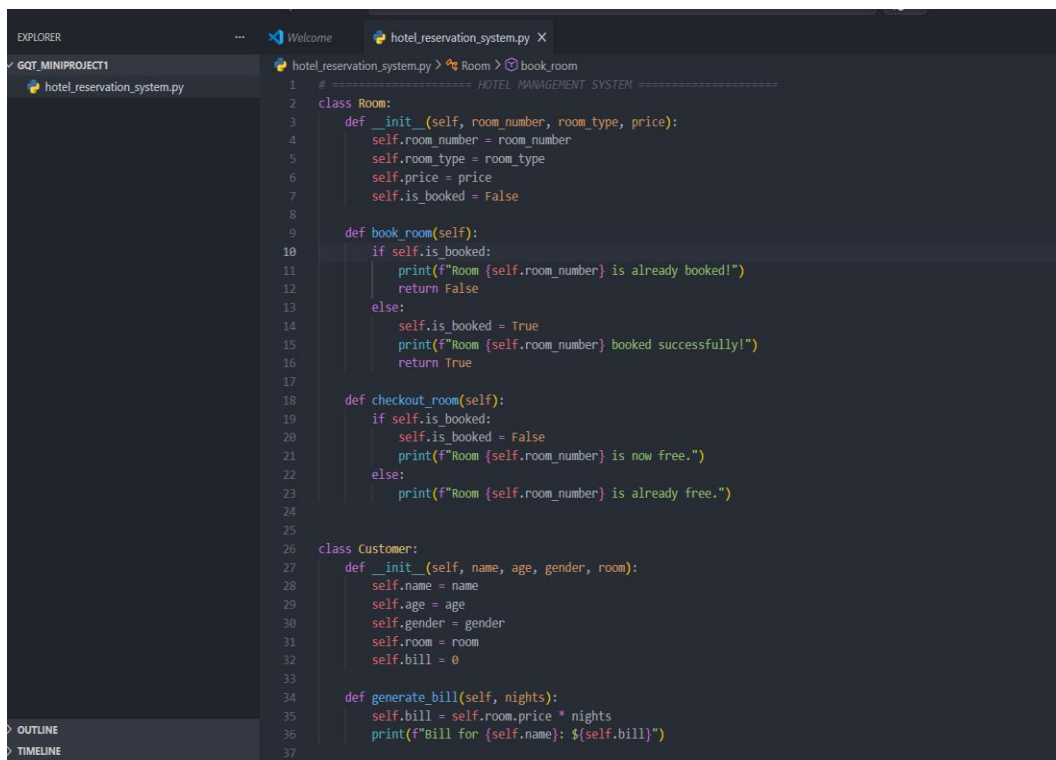
The Hotel Reservation System is a console-based Python application designed to automate and simplify hotel management tasks such as room management, guest management, and reservation scheduling. The system is built using Object-Oriented Programming (OOP) concepts, including classes, objects, inheritance, encapsulation, polymorphism, and composition, to ensure modularity, scalability, and maintainability.

The system allows hotel staff to add and manage rooms with details like room type, price, and availability, register guests with personal information securely stored, and schedule reservations while preventing double-booking.

Guests' and rooms' information can be easily accessed and displayed using well-structured menus.

This system provides an efficient, interactive, and user-friendly console interface to manage multiple guests and rooms simultaneously, demonstrating real-world applications of OOP principles in software development. It serves as a foundation for more advanced hotel management systems with features like billing, online booking, and reports.

Source Code:-



```
1 # ===== HOTEL MANAGEMENT SYSTEM =====
2 class Room:
3     def __init__(self, room_number, room_type, price):
4         self.room_number = room_number
5         self.room_type = room_type
6         self.price = price
7         self.is_booked = False
8
9     def book_room(self):
10        if self.is_booked:
11            print(f"Room {self.room_number} is already booked!")
12            return False
13        else:
14            self.is_booked = True
15            print(f"Room {self.room_number} booked successfully!")
16            return True
17
18    def checkout_room(self):
19        if self.is_booked:
20            self.is_booked = False
21            print(f"Room {self.room_number} is now free.")
22        else:
23            print(f"Room {self.room_number} is already free.")
24
25
26 class Customer:
27     def __init__(self, name, age, gender, room):
28         self.name = name
29         self.age = age
30         self.gender = gender
31         self.room = room
32         self.bill = 0
33
34     def generate_bill(self, nights):
35         self.bill = self.room.price * nights
36         print(f"Bill for {self.name}: ${self.bill}")
37
```

```
EXPLORER
... Welcome hotel_reservation_system.py X
GQT_MINIPROJECT1
hotel_reservation_system.py > Room > book_room
38
39 class Hotel:
40     def __init__(self, name):
41         self.name = name
42         self.rooms = []
43         self.customers = []
44
45     def add_room(self, room):
46         self.rooms.append(room)
47
48     def show_available_rooms(self):
49         print("\nAvailable Rooms:")
50         for room in self.rooms:
51             if not room.is_booked:
52                 print(f"Room {room.room_number} - {room.room_type} - ${room.price}")
53         print()
54
55     def book_room_for_customer(self, customer, room_number, nights):
56         for room in self.rooms:
57             if room.room_number == room_number:
58                 if room.book_room():
59                     customer.room = room
60                     customer.generate_bill(nights)
61                     self.customers.append(customer)
62                 return
63         print(f"Room {room_number} not found!")
64
65     def checkout_customer(self, customer_name):
66         for customer in self.customers:
67             if customer.name.lower() == customer_name.lower():
68                 customer.room.checkout_room()
69                 print(f"{customer.name} has checked out. Total bill: ${customer.bill}")
70                 self.customers.remove(customer)
71                 return
72         print(f"No customer found with name {customer_name}.")
73
74     def show_all_customers(self):
```

```
EXPLORER
... Welcome hotel_reservation_system.py X
GQT_MINIPROJECT1
hotel_reservation_system.py > Room > book_room
39 class Hotel:
74     def show_all_customers(self):
75         if not self.customers:
76             print("No customers currently.")
77             return
78         print("\nCurrent Customers:")
79         for cust in self.customers:
80             print(f"Name: {cust.name}, Age: {cust.age}, Gender: {cust.gender}, Room: {cust.room.room_number}, Bill: ${cust.bill}")
81         print()
82
83
84 # ===== MAIN PROGRAM =====
85 def main():
86     hotel = Hotel("Grand Python Hotel")
87
88     # Add rooms to hotel
89     hotel.add_room(Room(101, "Single", 50))
90     hotel.add_room(Room(102, "Double", 80))
91     hotel.add_room(Room(103, "Suite", 150))
92     hotel.add_room(Room(104, "Single", 50))
93     hotel.add_room(Room(105, "Double", 80))
94
95     while True:
96         print("\n=== HOTEL MANAGEMENT SYSTEM ===")
97         print("1. Show available rooms")
98         print("2. Book a room")
99         print("3. Checkout customer")
100        print("4. Show all customers")
101        print("5. Exit")
102
103        choice = input("Enter your choice: ")
104
105        if choice == "1":
106            hotel.show_available_rooms()
107
108        elif choice == "2":
109            name = input("Enter customer name: ")
```

```
File Edit Selection View Go Run Terminal Help < > QQT_MiniProject1
EXPLORER
GQT_MINIPROJECT1 hotel_reservation_system.py
hotel_reservation_system.py X
hotel_reservation_system.py > Room > book_room
85 def main():
106     hotel.show_available_rooms()
107
108     elif choice == "2":
109         name = input("Enter customer name: ")
110         age = int(input("Enter customer age: "))
111         gender = input("Enter customer gender (M/F): ")
112         hotel.show_available_rooms()
113         room_number = int(input("Enter room number to book: "))
114         nights = int(input("Enter number of nights: "))
115         customer = Customer(name, age, gender, None)
116         hotel.book_room_for_customer(customer, room_number, nights)
117
118     elif choice == "3":
119         customer_name = input("Enter customer name to checkout: ")
120         hotel.checkout_customer(customer_name)
121
122     elif choice == "4":
123         hotel.show_all_customers()
124
125     elif choice == "5":
126         print("Thank you for using Hotel Management System!")
127         break
128
129     else:
130         print("Invalid choice. Try again.")
131
132 if __name__ == "__main__":
133     main()
```

Output:-

```
hotel_reservation_system.py
enable it, run 'Import-Module PSReadLine'.

PS C:\Users\reeth\OneDrive\Desktop\GQT_MiniProject1> & 'c:\Users\reeth\AppData\Local\Programs\Python\Python313\python.exe' 'c:\code\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '53060' '--' 'c:\Users\reeth\OneDrive\Desktop\hotel_reservation_system.py'

• === HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 1

Available Rooms:
Room 101 - Single - $50
Room 102 - Double - $80
Room 103 - Suite - $150
Room 104 - Single - $50
Room 105 - Double - $80

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 2
Enter customer name: Geethika
Enter customer age: 21
Enter customer gender (M/F): F

Available Rooms:
Room 101 - Single - $50
Room 102 - Double - $80
Room 103 - Suite - $150
Room 104 - Single - $50
Room 105 - Double - $80
```

```
GQT_MINIPROJECT1
hotel_reservation_system.py

Enter room number to book: 101
Enter number of nights: 3
Room 101 booked successfully!
Bill for Geethika: $150

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 2
Enter customer name: Reethika
Enter customer age: 22
Enter customer gender (M/F): F

Available Rooms:
Room 102 - Double - $80
Room 103 - Suite - $150
Room 104 - Single - $50
Room 105 - Double - $80

Enter room number to book: 102
Enter number of nights: 5
Room 102 booked successfully!
Bill for Reethika: $400

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 2
Enter customer name: Krishna
Enter customer age: 28
Enter customer gender (M/F): M

Available Rooms:
Room 103 - Suite - $150
```

```
GQT_MINIPROJECT1
hotel_reservation_system.py

Available Rooms:
Room 103 - Suite - $150
Room 104 - Single - $50
Room 105 - Double - $80

Enter room number to book: 103
Enter number of nights: 5
Room 103 booked successfully!
Bill for Krishna: $750

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 4

Current Customers:
Name: Geethika, Age: 21, Gender: F, Room: 101, Bill: $150
Name: Reethika, Age: 22, Gender: F, Room: 102, Bill: $400
Name: Krishna, Age: 28, Gender: M, Room: 103, Bill: $750

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 3
Enter customer name to checkout: Geethika
Room 101 is now free.
Geethika has checked out. Total bill: $150

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
```

main* 0/11 0/0 0/0

Start JASON Server - Ln 10, Col 27 - Spaces: 4 - UTF-8 - CRLF - {} Python - Signed out

```
EXPLORER  ...
GQT_MINIPROJECT1
  hotel_reservation_system.py

PROBLEMS  OUTPUT  DEBUG CONSOLE  Ti :: Ti
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 4

Current Customers:
Name: Reethika, Age: 22, Gender: F, Room: 102, Bill: $400
Name: Krishna, Age: 28, Gender: M, Room: 103, Bill: $750

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 3
Enter customer name to checkout: Reethika
Room 102 is now free.
Reethika has checked out. Total bill: $400

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 3
Enter customer name to checkout: Krishna
Room 103 is now free.
Krishna has checked out. Total bill: $750

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 4
No customers currently.

OUTLINE
TIMELINE
```

```
EXPLORER  ...
GQT_MINIPROJECT1
  hotel_reservation_system.py

PROBLEMS  OUTPUT  DEBUG CONSOLE  Ti :: Ti
=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 3
Enter customer name to checkout: Reethika
Room 102 is now free.
Reethika has checked out. Total bill: $400

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 3
Enter customer name to checkout: Krishna
Room 103 is now free.
Krishna has checked out. Total bill: $750

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 4
No customers currently.

=== HOTEL MANAGEMENT SYSTEM ===
1. Show available rooms
2. Book a room
3. Checkout customer
4. Show all customers
5. Exit
Enter your choice: 5
Thank you for using Hotel Management System!
PS C:\Users\reeth\OneDrive\Desktop\GQT_MiniProject1>
```




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