VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI 590018

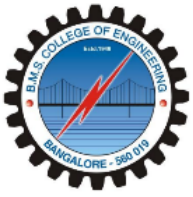
Project Report on

"HOTEL MANAGEMENT SYSTEM"

By

Nikhil M(1BM24CS186)
Nikhil N(1BM24CS187)
Nikhil N Raikar(1BM24CS188)
Pavan G(1BM24CS200)
Mahesh T R (1BM24CS158)

Under the Guidance of
Monisha H M
Assistant Professor, Department of CSE
BMS College of Engineering
Work carried out at



Department of Computer Science and Engineering
BMS College of Engineering
(Autonomous college under VTU)
P.O. Box No.: 1908, Bull Temple Road, Bangalore-560 019

2025-2026

BMS COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the OOPS with JAVA project titled "**Hotel Management System"** has been carried out by Nikhil M(1BM24CS186), Nikhil N (1BM24CS187), Nikhil N Raikar(1BM24CS188), Pavan G(1BM24CS200), Mahesh T R (1BM24CS158) during the academic year 2025-2026.

Signature of the guide
Monisha H M
Assistant Professor,
Department of Computer Science and Engineering
BMS College of Engineering, Bangalore

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DECLARATION

We,Nikhil M(1BM24CS186), Nikhil N (1BM24CS187), Nikhil N Raikar(1BM24CS188), Pavan G(1BM24CS200), Mahesh T R (1BM24CS158) ,students of 3rd Semester, B.E, Department of Computer Science and Engineering, BMS College of Engineering, Bangalore, hereby declare that, this project work entitled "Hotel Management System" has been carried out by us under the guidance of Monisha H M, Assistant Professor, Department of CSE, BMS College of Engineering, Bangalore during the academic semester Sep-Dec 2025. We also declare that to the best of our knowledge and belief, the project reported here is not from part of any other report by any other students.

Signature of the Candidates

Nikhil M (1BM24CS186)

Nikhil N (1BM24CS187)

Nikhil N Raikar(1BM24CS188)

Pavan G(1BM24CS200)

Mahesh T R(1BM24CS158)

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PROJECT TITLE

Hotel Management System using Java (Swing GUI)

INTRODUCTION

Hotel management involves handling multiple activities such as room allocation, customer registration, reservation management, billing, food services, and report generation. When these tasks are carried out manually, they often result in errors, delays, data inconsistency, and increased workload for hotel staff. Managing customer records, tracking room availability, and calculating bills manually is time-consuming and inefficient, especially as the number of customers increases.

To overcome these limitations, a computerized **Hotel Management System** is essential. This project is a **Java Swing-based desktop application** designed to automate and streamline hotel operations. The system provides a user-friendly graphical interface that allows hotel administrators to manage rooms, customers, food orders, and billing in an organized and efficient manner.

The application maintains detailed information about rooms, including room number, type, price per day, and availability status. It allows customers to reserve rooms, check in, and check out while automatically updating room status. The system also supports food ordering for checked-in customers and calculates food bills dynamically.

In addition to operational management, the system generates accurate bills by calculating room charges based on the stay duration, adding food expenses, applying tax, and considering discounts. It also provides invoice generation and report generation features, helping management analyze hotel performance such as total bookings, revenue, and occupancy rate.

Overall, this project demonstrates the practical use of **Object-Oriented Programming concepts in Java**, including classes, objects, encapsulation, enums, collections, exception handling, and GUI programming using Swing. The system improves efficiency, reduces manual errors, and provides a reliable solution for modern hotel management.

OBJECTIVE OF THE PROJECT

The objective of this project is to design and develop a Hotel Management System using Java that automates hotel operations such as room reservation, customer check-in and check-out, food ordering, billing, and report generation. The system aims to reduce manual effort, improve accuracy in billing, and provide a user-friendly graphical interface for hotel administrators.

This project demonstrates the practical application of Object-Oriented Programming System (OOPS) concepts and Java Swing for GUI development.

Modules of the Project:

1. Login & Authentication Module
2. Room Management Module
3. Customer Management Module
4. Food Ordering Module
5. Billing & Invoice Module
6. Report Generation Module
7. GUI & Notification Module

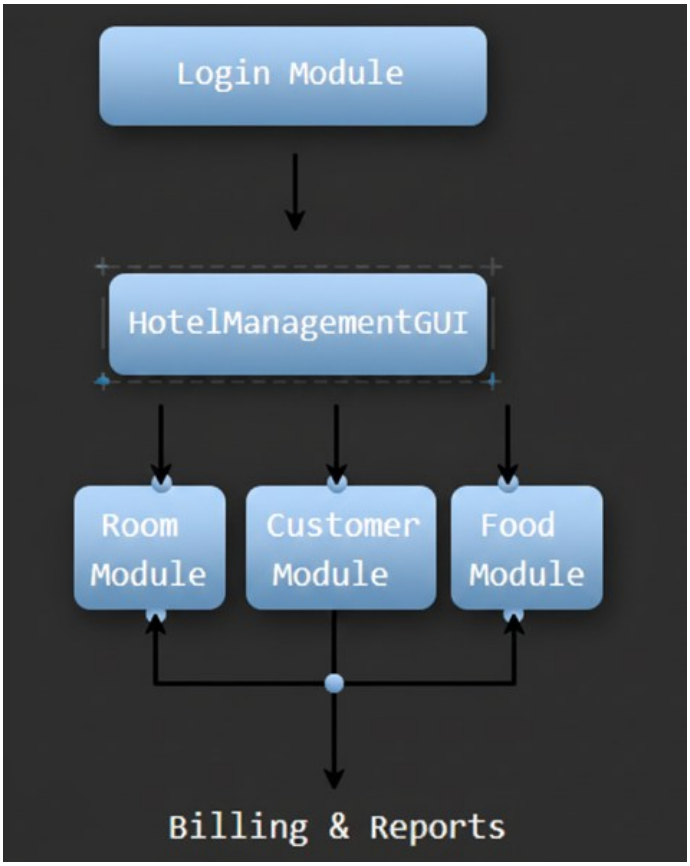
DESIGN MODULES

The application is designed using a modular and object-oriented approach, where each class represents a real-world entity.

Design Modules:

- Hotel Management GUI – Main GUI and controller
- Customer – Customer details and billing logic
- Room – Room details and room status management
- Food – Food menu and pricing (used in food ordering)

Block Diagram:



DETAILED DESCRIPTION OF MODULES

1. Login & Authentication Module

This module ensures that only authorized users can access the system. A login dialog validates username and password before allowing access to the main application.

Java Techniques Used:

- Swing components (JPanel, JTextField, JPasswordField, JOptionPane)
- Conditional statement

2. Room Management Module

This module manages hotel rooms, their types, prices, and availability status. It supports operations such as reserving rooms, checking in, checking out, setting rooms for maintenance, and marking rooms as available or dirty.

Key Features:

- Room number, type, and price per day
- Room status management (AVAILABLE, RESERVED, OCCUPIED, DIRTY, MAINTENANCE)

Java Techniques Used:

- Classes and Objects
- Enum (Status)
- Encapsulation

3. Customer Management Module

This module handles customer details such as name, phone number, email, room number, check-in and check-out dates. It also calculates stay duration and manages customer status.

Key Features:

- Reservation, check-in, and check-out tracking
- Stay duration calculation using dates
- Food order tracking

Java Techniques Used:

- Enum (Status)
- Date and Time API (LocalDate, ChronoUnit)
- Collections (ArrayList)
- Method overriding (toString())

4. Food Ordering Module

This module manages food items available in the hotel along with their categories and prices. Customers can order multiple food items with quantity, and the total food bill is calculated automatically.

Java Techniques Used:

- Classes and Objects
- Enum for food categories
- Collections (ArrayList)

5. Billing & Invoice Module

This module calculates room charges, food charges, tax, discount, and grand total. It also generates a detailed invoice and saves it to a file.

Key Calculations:

- Room Bill = Stay Days × Price per Day
- Food Bill = Sum of food prices
- Tax calculation
- Discount handling

Java Techniques Used:

- File handling (FileWriter)
- Exception handling (try-catch)
- Arithmetic operations

6. Report Generation Module

This module generates hotel reports such as total bookings, room revenue, food revenue, total revenue, and occupancy rate.

Java Techniques Used:

- Java Streams API
- Collections
- Dialog boxes (JOptionPane)

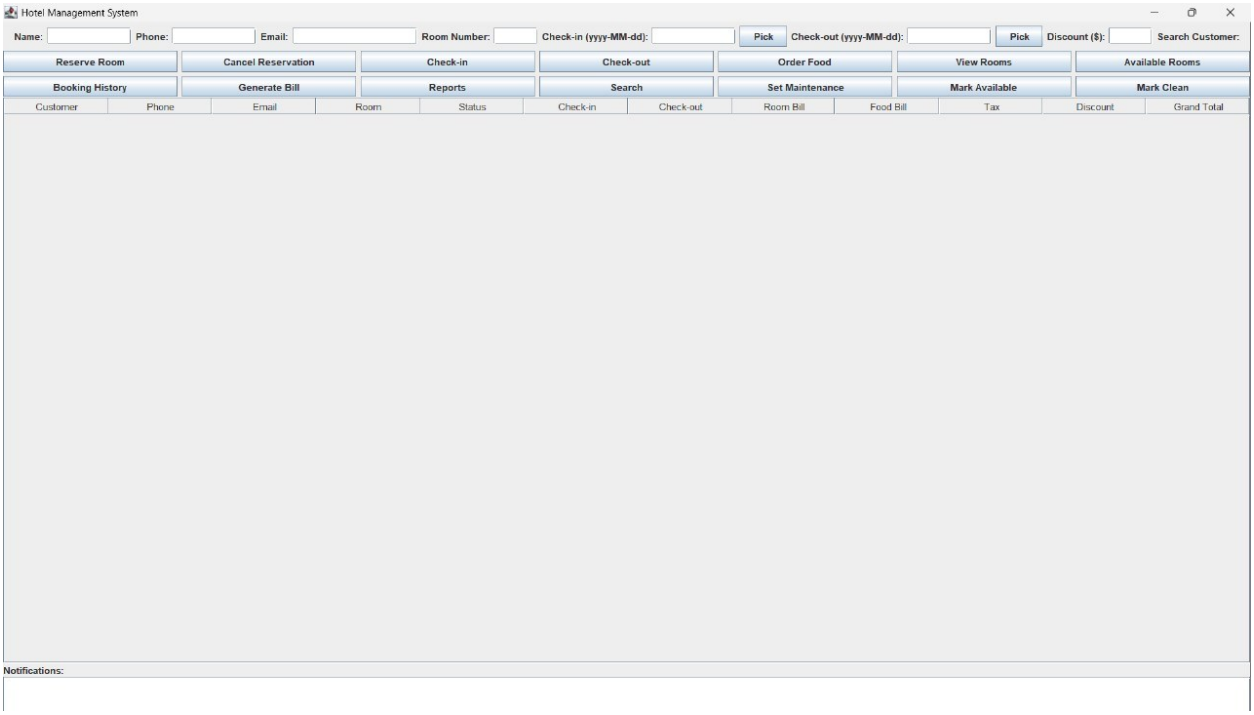
7. GUI & Notification Module

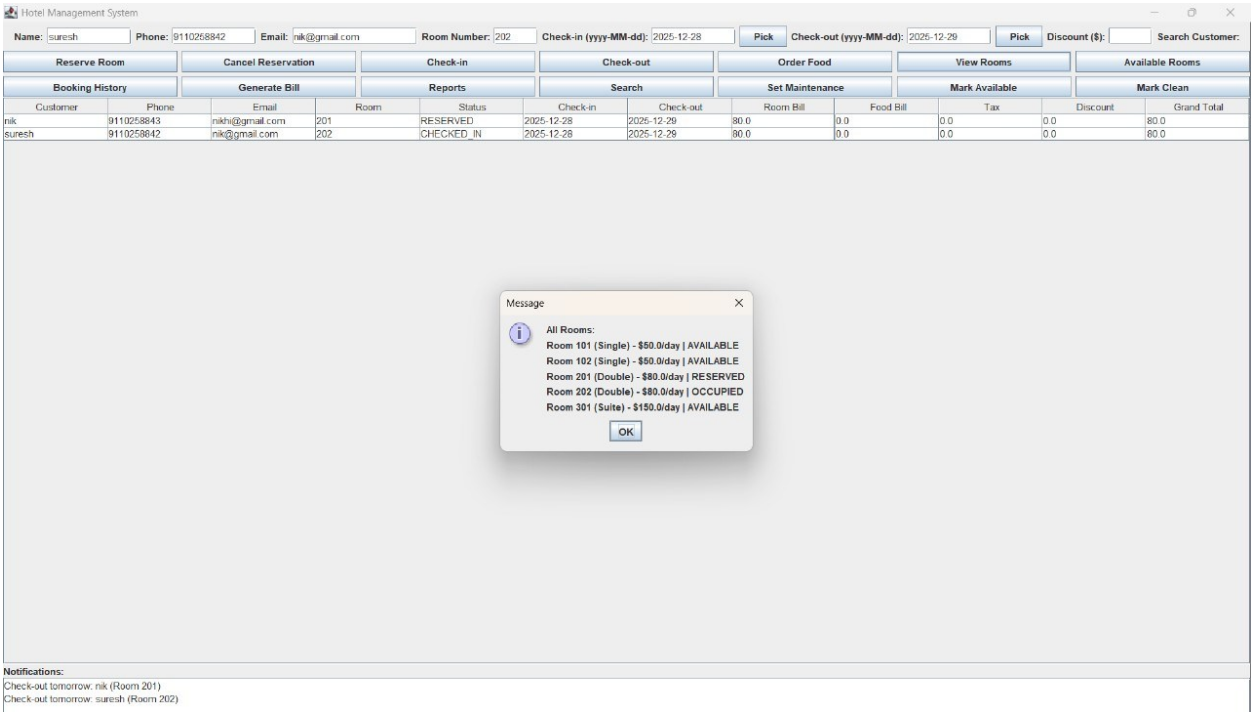
This is the main module that integrates all components and provides a graphical user interface. It displays customer bookings in a table and shows notifications for upcoming check-outs.

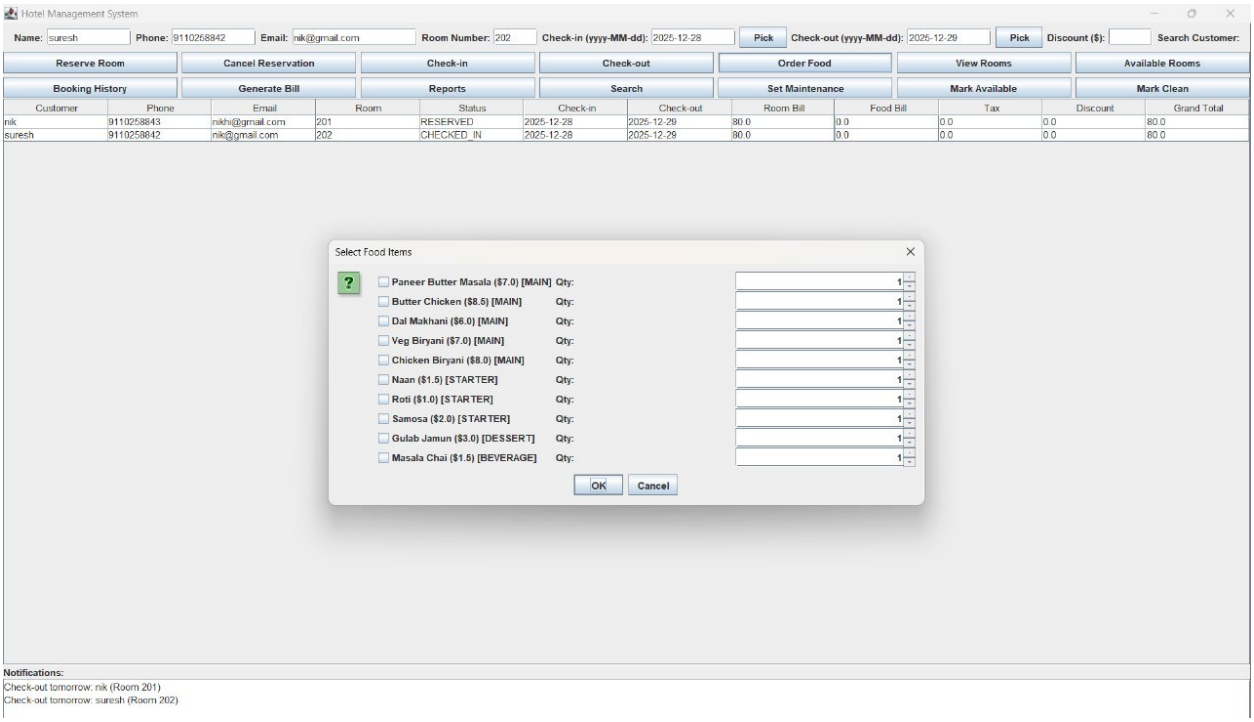
Java Techniques Used:

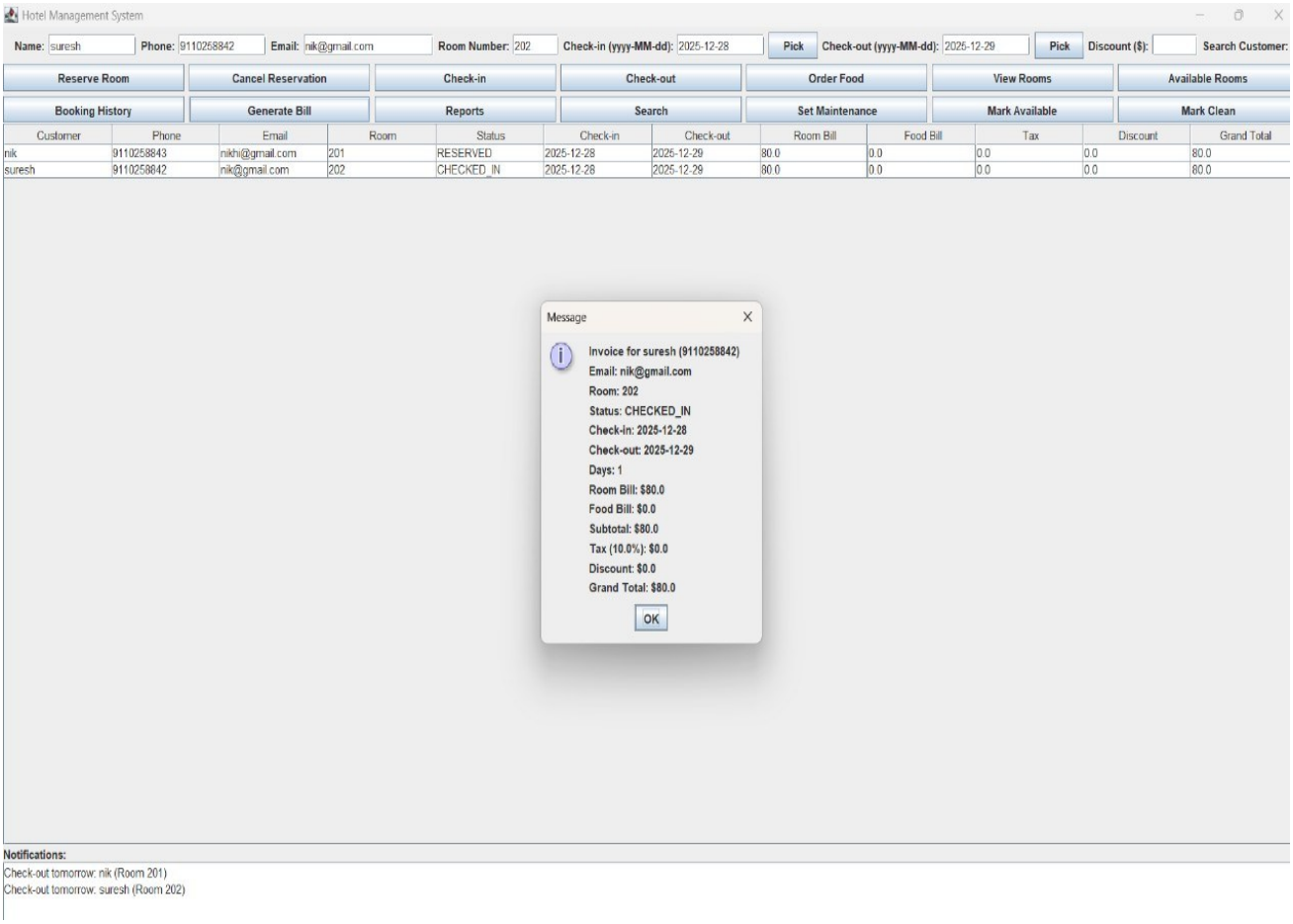
- Java Swing (JFrame, JTable, JButton, JTextField)
- Event handling (ActionListeners)
- MVC-style separation

SCREENSHOTS (RESULT)




Hotel Management System
Name: suresh
Phone: 9110258842
Email: nik@gmail.com
Room Number: 202
Check-in (yyyy-MM-dd): 2025-12-28
Pick
Check-out (yyyy-MM-dd): 2025-12-29
Pick
Discount ($):
Search Customer:
Reserve Room
Cancel Reservation
Check-in
Check-out
Order Food
View Rooms
Available Rooms
Booking History
Generate Bill
Reports
Search
Set Maintenance
Mark Available
Mark Clean
Customer Phone Email Room Status Check-in Check-out Room Bill Food Bill Tax Discount Grand Total
nik 9110258843 nikhi@gmail.com 201 RESERVED 2025-12-28 2025-12-29 80.0 0.0 0.0 0.0 80.0
suresh 9110258842 nik@gmail.com 202 CHECKED_IN 2025-12-28 2025-12-29 80.0 0.0 0.0 0.0 80.0
Message
All Rooms:
Room 101 (Single) - $50.0/day | AVAILABLE
Room 102 (Single) - $50.0/day | AVAILABLE
Room 201 (Double) - $80.0/day | RESERVED
Room 202 (Double) - $80.0/day | OCCUPIED
Room 301 (Suite) - $150.0/day | AVAILABLE
OK
Notifications:
Check-out tomorrow: nik (Room 201)
Check-out tomorrow: suresh (Room 202)


Hotel Management System
Name: suresh
Phone: 9110258842
Email: nik@gmail.com
Room Number: 202
Check-in (yyyy-MM-dd): 2025-12-28
Pick
Check-out (yyyy-MM-dd): 2025-12-29
Pick
Discount ($):
Search Customer:
Reserve Room
Cancel Reservation
Check-in
Check-out
Order Food
View Rooms
Available Rooms
Booking History
Generate Bill
Reports
Search
Set Maintenance
Mark Available
Mark Clean
Customer Phone Email Room Status Check-in Check-out Room Bill Food Bill Tax Discount Grand Total
nik 9110258843 nikhi@gmail.com 201 RESERVED 2025-12-28 2025-12-29 80.0 0.0 0.0 0.0 80.0
suresh 9110258842 nik@gmail.com 202 CHECKED_IN 2025-12-28 2025-12-29 80.0 0.0 0.0 0.0 80.0
Select Food Items
Paneer Butter Masala ($7.0) [MAIN] Qty: 1
Butter Chicken ($8.5) [MAIN] Qty: 1
Dal Makhani ($6.0) [MAIN] Qty: 1
Veg Biryani ($7.0) [MAIN] Qty: 1
Chicken Biryani ($8.0) [MAIN] Qty: 1
Naan ($1.5) [STARTER] Qty: 1
Roti ($1.0) [STARTER] Qty: 1
Samosa ($2.0) [STARTER] Qty: 1
Gulab Jamun ($3.0) [DESSERT] Qty: 1
Masala Chai ($1.5) [BEVERAGE] Qty: 1
OK
Cancel
Notifications:
Check-out tomorrow: nik (Room 201)
Check-out tomorrow: suresh (Room 202)


Hotel Management System
Name: suresh
Phone: 9110258842
Email: nik@gmail.com
Room Number: 202
Check-in (yyyy-MM-dd): 2025-12-28
Pick
Check-out (yyyy-MM-dd): 2026-12-29
Pick
Discount ($):
Search Customer:
Reserve Room
Cancel Reservation
Check-in
Check-out
Order Food
View Rooms
Available Rooms
Booking History
Generate Bill
Reports
Search
Set Maintenance
Mark Available
Mark Clean
Customer
Phone
Email
Room
Status
Check-in
Check-out
Room Bill
Food Bill
Tax
Discount
Grand Total
nik
9110258843
nikhi@gmail.com
201
RESERVED
2025-12-28
2025-12-29
80.0
0.0
0.0
0.0
80.0
suresh
9110258842
nik@gmail.com
202
CHECKED_IN
2025-12-28
2025-12-29
80.0
0.0
0.0
0.0
80.0
Message
Invoice for suresh (9110258842)
Email: nik@gmail.com
Room: 202
Status: CHECKED_IN
Check-in: 2025-12-28
Check-out: 2025-12-29
Days: 1
Room Bill: $80.0
Food Bill: $0.0
Subtotal: $80.0
Tax (10.0%): $0.0
Discount: $0.0
Grand Total: $80.0
OK
Notifications:
Check-out tomorrow: nik (Room 201)
Check-out tomorrow: suresh (Room 202)

NEW LEARNINGS FROM THE PROJECT

- Gained hands-on experience in applying Object-Oriented Programming (OOPS) concepts such as abstraction, encapsulation, inheritance, and polymorphism.
- Learned how to model real-world entities like rooms, customers, and food items using Java classes and objects.
- Understood the use of enums to represent fixed states such as room status and customer status.
- Developed a complete GUI-based desktop application using Java Swing components like JFrame, JTable, JButton, JTextField, and JOptionPane.
- Learned event-driven programming using ActionListeners and DocumentListeners.
- Gained experience in handling date and time operations using Java's LocalDate and ChronoUnit APIs.
- Understood how to use Java Collections (ArrayList) to store and manage dynamic data.
- Implemented file handling using FileWriter to generate and save invoices.
- Learned the importance of exception handling using try-catch blocks to handle invalid inputs and runtime errors.
- Used Java Streams API to filter, search, and process customer and room data efficiently.
- Learned how to design applications using a modular approach for better readability and maintainability.
- Improved debugging and testing skills by identifying and fixing logical and runtime errors.
- Gained experience in table-based data representation using JTable and DefaultTableModel.
- Learned how to implement search and filter functionality in real-time.
- Understood the basics of software design and documentation for academic projects.

FUTURE ENHANCEMENTS

- Database integration using JDBC
- Role-based login (Admin, Receptionist)
- Online booking system
- Payment gateway integration
- Migration to JavaFX or web-based application