

# Hotel Reservation System – Project Report

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## Project Details

Project Title: Hotel Reservation System

Technologies: Java, OOP Concepts, CLI (Terminal)

Developer: Aryan Sengar

Date: June 2025

GitHub Repository:

[https://github.com/aryansengar007/CodeAlpha\\_HotelReservationSystem](https://github.com/aryansengar007/CodeAlpha_HotelReservationSystem)

## Introduction

The Hotel Reservation System is a command-line Java application built using core Java principles and OOP. It allows users to book, cancel, and view hotel room reservations, categorized by room type. This project was developed as part of my Java internship to demonstrate core programming, data persistence, and logical design skills without relying on external libraries or frameworks.

## Problem Statement

Design a system that:

- Allows searching and booking of hotel rooms
- Supports room categorization (Standard, Deluxe, Suite)
- Enables cancellation of reservations
- Simulates payment
- Stores and retrieves data using file I/O
- Is built using clean object-oriented design

## Key Observations

- Room availability needed to be efficiently tracked and updated
- Booking records must persist between runs using a text file
- Cancellation logic must remove both booking status and record
- Payment logic, while simulated, should feel real in flow
- Project should be runnable with minimal setup (no external libs)

## Challenges / Doubts

- Handling synchronization between room booking status and bookings list
- Ensuring data integrity when multiple bookings or cancellations are performed
- Designing file formats (rooms.txt, bookings.txt) to be easy to parse and update
- Preventing duplication and accidental booking of already booked rooms

## Libraries Used

Core Java (java.util, java.io)

No third-party libraries or frameworks used

## Functions Explained

viewAvailableRooms(): Lists all unbooked rooms grouped by category

bookRoom(): Takes user input, finds available room, processes payment, and saves booking

cancelBooking(): Cancels booking by room number and updates both files

viewBookings(): Displays all current bookings from bookings.txt

loadRooms() / saveRooms(): Reads and writes to rooms.txt

saveBooking() / removeBookingByRoomNumber(): Writes or deletes from bookings.txt

processPayment(): Simulates a payment action in the CLI

## Main Components

Room.java — Represents a hotel room with number, type, and status

Guest.java — Stores guest name and contact

Booking.java — Combines guest and room info for each reservation

HotelSystem.java — Main interface and logic controller

DataManager.java — Handles file reading/writing for rooms and bookings

PaymentSimulator.java — CLI-based fake payment handler

## Future Improvements

- Add a GUI version using JavaFX or Swing
- Integrate with a database (MySQL or SQLite) for better scalability
- Add login/authentication for admin and users
- Include date and time for booking duration and availability tracking
- Implement price customization and dynamic pricing
- Add PDF report generation for bookings

## Conclusion

The Hotel Reservation System is a lightweight, CLI-based hotel management tool that fulfills core features such as room booking, cancellation, search, and record maintenance using OOP and file handling in Java. It serves as a strong base for larger projects and shows how real-world problems can be handled in a modular and logical way using only Java standard libraries.