**HOTEL MANAGEMENT**

**SYSTEM**

A Comprehensive SQL-Based Project Group 4 – B.Tech 2nd Year

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# Abstract

* This project presents a SQL-based Hotel Management System designed to automate operations such as guest management, room booking, and payments. It integrates advanced SQL features like stored procedures and triggers to ensure data integrity and operational efficiency.

# Introduction

* The system provides a relational database framework for managing core hotel functionalities. It supports operations such as room availability checks, booking updates, revenue tracking, and guest history analysis.

# System Requirements & Objectives

* Requirements:

- MySQL or similar RDBMS

- SQL support for advanced queries and procedures

* Objectives:

- Efficient hotel data schema

- Automate bookings and payments

- Ensure data integrity using constraints and triggers

- Enable analytical SQL queries for insights

# Database Design Overview

* Core Tables:

1. Guests: Stores guest information with unique email constraint

2. Rooms: Details room types, prices, and availability

3. Bookings: Links guests and rooms with check-in/out details

4. Payments: Records transactions per booking

# Implementation Details

* Tables created with constraints and sample data
* Sample queries perform tasks such as:

\* Room availability check

\* Updating room status post-booking

\* Calculating total revenue

* SQL scripts automate these operations

# Advanced SQL Features

* Stored Procedures:

- sp\_BookRoom: Automates booking, payment, and updates room status

- sp\_GetGuestBookings: Fetches guest-specific bookings

- sp\_ListBookingsWithCursor: Demonstrates use of cursors

* Triggers:

- trg\_after\_booking\_insert: Sets room status to "Booked"

- trg\_after\_booking\_delete: Resets room status

to "Available"

# System Functionality

* + Query Demonstrations:
  + Available Rooms filter
  + Guest-specific booking history
  + Revenue calculation using aggregation
  + Analytical queries for room popularity and guest metrics

# Testing & Future Enhancements

* + Testing:

- Validated with edge cases

- Ensured data integrity using keys and triggers

* + Future Enhancements:

- Frontend interface

- Reporting tools

- User authentication

- Mobile support

# Conclusion

* The project demonstrates a scalable, efficient Hotel Management System. It utilizes SQL automation to maintain operational integrity and paves the way for integration with user- friendly interfaces and additional featur