



**CHRIST**  
(DEEMED TO BE UNIVERSITY)  
BANGALORE · INDIA

**THAWIN  
HOTEL MANAGEMENT**

by

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Under the guidance of

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**A project report submitted in partial fulfilment  
of the requirements of VI semester BCA, CHRIST (Deemed To Be University)**

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**CHRIST**  
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## **CERTIFICATE**

This is to certify that the report titled THAWIN (a hotel management system) is a bona fide record of work done by Sarit Nontaraj (2241053) and Thanathip Singpee (2241061) of CHRIST (Deemed to be University), Bangalore, in partial fulfilment of the requirements of VI Semester BCA during the year 2024-25.

**Head of the Department**

**Project Guide**

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# **1. INTRODUCTION:**

## **1.1 PROJECT DESCRIPTION**

The THAWIN ERP system is designed to enhance hotel management by integrating key operational processes into a unified platform. By streamlining reservations, payments, housekeeping, and customer relationship management (CRM), the system significantly reduces manual workload and improves overall efficiency. Its modular architecture ensures scalability, allowing small and medium-sized hotels to adapt to evolving business needs.

With built-in analytics and reporting tools, hotel management can make data-driven decisions to optimize occupancy rates, financial performance, and customer satisfaction. The system's emphasis on security, usability, and availability further ensures reliable operation and data protection. By leveraging Odoo 16 and PostgreSQL, the ERP solution provides a robust and flexible framework to support seamless hotel operations.

## **1.2 EXISTING SYSTEMS**

### **1. Odoo:**

A Odoo is an open-source ERP platform known for its modularity and flexibility. It offers a wide range of applications covering sales, CRM, inventory management, accounting, manufacturing, and more. Businesses can customize their ERP setup by selecting and integrating only the modules they need.

### **2. SAP Business One:**

SAP Business One is a comprehensive ERP solution designed specifically for small and medium-sized enterprises (SMEs). It provides robust functionalities in financial management, sales, customer relationships, inventory, and operations, enabling businesses to streamline their processes and gain real-time insights.



### **3. Microsoft Dynamics 365:**

Microsoft Dynamics 365 is a cloud-based ERP and CRM solution that seamlessly integrates with other Microsoft products. It offers a broad spectrum of applications for sales, customer service, finance, operations, and more, catering to businesses of various sizes.

## **1.3 OBJECTIVES**

RealVista aims to:

1. **Streamline Hotel Operations:** Automate reservation management, check-ins, and housekeeping to ensure smooth day-to-day operations.
2. **Enhance Guest Experience** Offer personalized services, loyalty programs, and seamless in-stay experiences.**Foster Connectivity:** Provide tools for direct communication between buyers and sellers.
3. **Optimize Financial Management:** Ensure secure and easy payment processing with automated invoicing.

## **1.4 AGENDA**

The agenda of THAWIN Service is to revolutionize hotel management by providing a seamless, efficient, and technology-driven solution for hospitality operations. Our primary focus is to enhance guest experiences, streamline hotel workflows, and optimize financial management through an intuitive and scalable ERP system. By integrating reservation management, housekeeping coordination, CRM, and financial reporting, THAWIN aims to minimize manual efforts, improve operational efficiency, and drive revenue growth.

Furthermore, we prioritize security, compliance, and data-driven decision-making, ensuring that hotel businesses operate with the highest standards of reliability and performance. With a user-friendly interface and automation at its core, THAWIN Service is committed to empowering hotels with smarter management tools, improving customer satisfaction, and enabling long-term business success. Our goal is to make hotel management effortless, so hotels can focus on delivering exceptional hospitality.

## **2. SYSTEM ANALYSIS AND REQUIREMENTS**

### **2.1 PROBLEM DEFINITION**

The hospitality industry faces significant challenges in managing daily operations efficiently while delivering exceptional guest experiences. Many hotels, especially small and medium-sized establishments, struggle with manual booking systems, disorganized housekeeping schedules, inefficient financial management, and a lack of centralized data **access**. These inefficiencies lead to operational bottlenecks, increased labor costs, poor customer satisfaction, and revenue losses.

Traditional hotel management methods often rely on separate, disconnected systems for reservations, payments, customer relationship management (CRM), and housekeeping, resulting in data silos and delays in decision-making. Moreover, security concerns related to guest data protection, financial transactions, and compliance with hospitality regulations further add to the complexity of hotel operations.

To address these issues, there is a growing need for a comprehensive, automated, and scalable ERP solution that integrates all hotel management functions into a single platform. THAWIN Service aims to bridge this gap by providing a user-friendly, secure, and data-driven system that enhances hotel operations, improves staff efficiency, and elevates guest satisfaction, ultimately driving business growth and profitability.

## **2.2 REQUIREMENT SPECIFICATIONS**

### **2.2.1 FUNCTIONAL REQUIREMENTS**

#### **1. Reservation Management:**

- Real-time room availability.
- Reservation ID generation.

#### **2. Payment Processing:**

- Secure payment gateways.
- Automated invoice generation.

#### **3. Room Management:**

- Status tracking (e.g., clean, occupied, maintenance).
- Housekeeping notifications.

#### **4. CRM(customer relationship management):**

- Guest profile management.
- Loyalty program integration.

#### **5. POS(point-of-sale) Integration:**

- Real-time updates to customer accounts.
- Inventory tracking for consumed items.

#### **6. Analytics & Reporting:**

- Occupancy rates.
- Revenue breakdown.

### **2.2.2 TECHNICAL REQUIREMENTS**

1. **Frontend Development:** Built using HTML, CSS, and JavaScript for a responsive and interactive user interface.
2. **Backend Development:** Python for server-side logic and PostgreSQL for database management.
3. **Database Structure:** Properly normalized tables for customers ,room services ,payment, employee and etc.
4. **Server & Hosting:** Using Local host through Odoo framework.
5. **User Authentication:** Secure login and session management with password encryption.
6. **Performance:** Handle 100 concurrent users & Response time < 2 seconds for most operations.
7. **Scalability:** Modular design to accommodate additional features.
8. **Security:** Role-based access control & Data encryption for sensitive information.
9. **Usability:** Intuitive interface & Multi-language support.
10. **Availability:** 99.9% uptime & Automated backups.

### **2.2.3 SYSTEM REQUIREMENTS**

#### **Hardware Requirements:**

- OS: Windows 10 and above, Mac
- Processor: 4 Cores
- Memory: 4 GB Ram
- Storage: 50 GB available space minimum

#### **Software Requirements:**

- Operating System: Windows 7 and above
- Front End: CSS/HTML/JavaScript

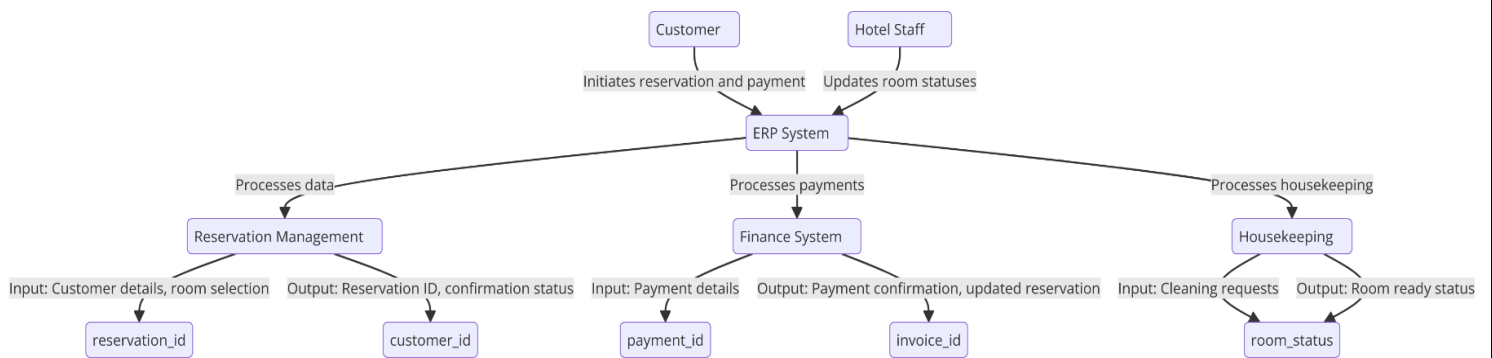
- Back End: PostgreSQL, Python
- Software Requirement: Odoo framework

### Network Requirements:

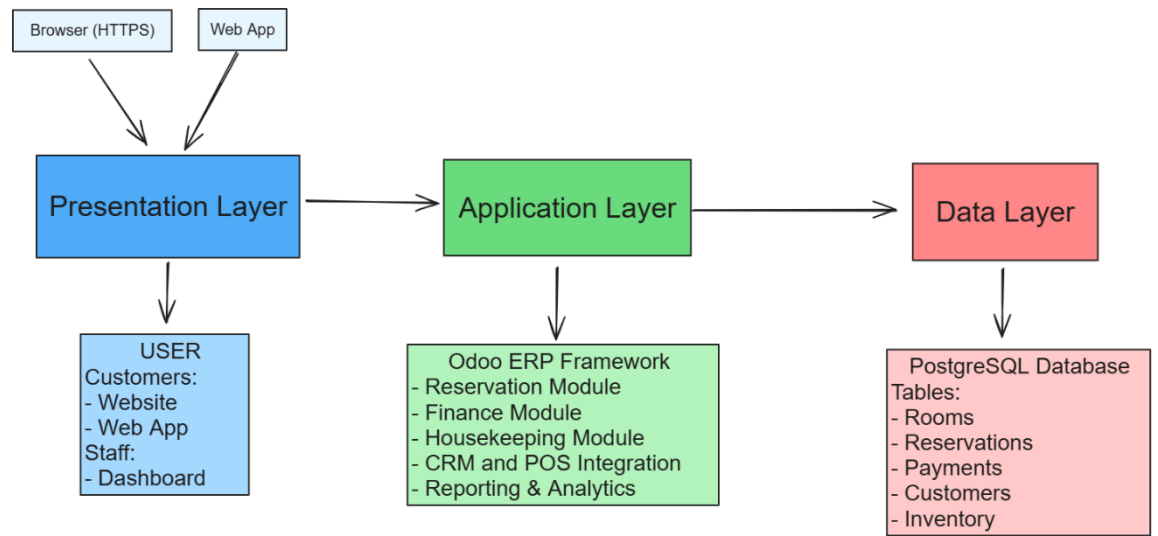
- Network: Google Chrome/Mozilla or equivalent
- WIFI: Internet required

## 2.3 CONCEPTUAL MODELS

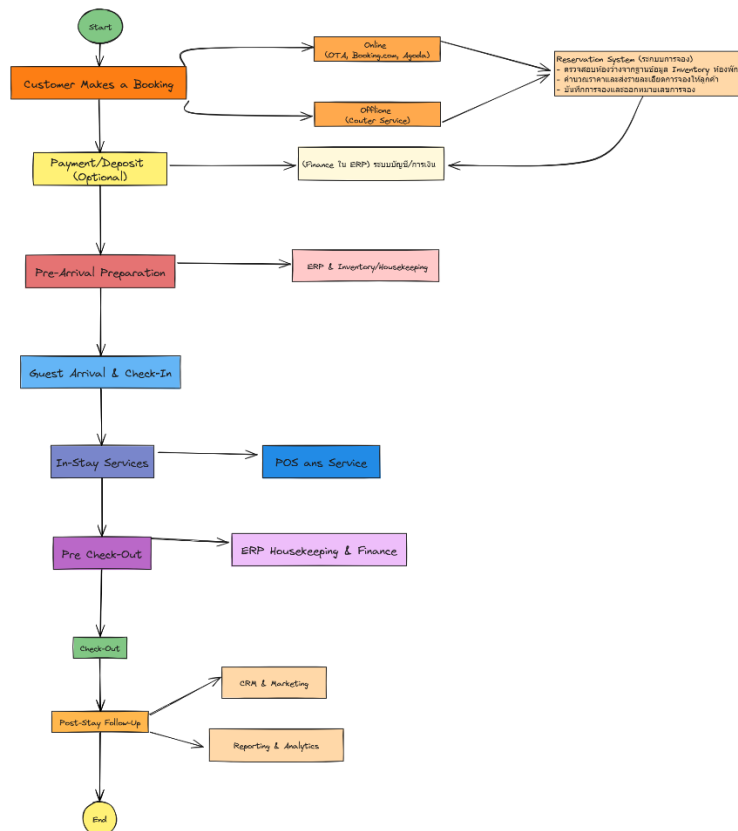
### 2.3.1 DATA FLOW DIAGRAMS



### 2.3.2 Architecture Diagram



### 2.3.3 Business flow diagram



## **2.4 PROPOSED TOOLS AND PLATFORMS**

### **Windows 11**

used for development and deployment is Windows 11, which provides a stable, user-friendly, and compatible environment for managing the ERP system. Windows supports essential development tools, database management, and hosting services while allowing easy integration with third-party applications.

### **Python**

is used as the core backend programming language to handle business logic, automate hotel workflows, and integrate various system modules. Its versatility and seamless compatibility with Odoo 16 make it an excellent choice for developing the reservation system, payment processing, CRM, and analytics.

### **HTML**

HTML stands for Hypertext Mark-up Language which is the standard mark-up language for documents designed to be displayed in a web browser. The basic web pages design will be implemented using HTML.

### **CSS**

CSS or Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a mark-up language such as HTML. It will be used for adding more design and improving the look and feel of the website.

### **JavaScript**

JavaScript, often abbreviated as JS, is a programming language that conforms to the ECMAScript specification. It is high-level, often just-in-time compiled, and multi-paradigm. It will be used to make the website responsive and dynamic.



## **PostgreSQL**

is used as the database management system (DBMS). It securely stores guest records, room bookings, financial transactions, and employee data, ensuring fast and reliable access to critical information. PostgreSQL also supports complex queries, high availability, and data security, making it ideal for enterprise applications.

## **Odoo 16 Framework**

is utilized as the Enterprise Resource Planning (ERP) system to integrate and automate hotel management processes. Odoo provides ready-made and customizable modules for reservations, housekeeping, billing, CRM, and reporting, ensuring a centralized and efficient approach to managing hotel operations.

## **VISUAL STUDIO CODE**

Visual Studio Code is a source-code editor that can be used with a variety of programming languages, including C#, Java, JavaScript, Go, Node.js, Python, C++, C, Rust and Fortran.