



SYSTEM APPROACH PROJECT PRESENTATION

Team Introduction

Team name: Unity

Members:

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OBJECTIVE

The main objective of a Hotel Management System is to provide an efficient and effective way to manage various operations of a hotel. These operations may include managing reservations, room allocation, check-in/check-out, housekeeping, billing, inventory, luggage, management, and staff management.

**Name of the
system**

Hotel Management System

Background

The hospitality industry plays a crucial role in providing accommodation and services to travelers and guests. With the growing demand for seamless guest experiences and efficient hotel operations, the need for effective hotel management systems has become paramount. These systems are designed to streamline various aspects of hotel operations, including guest bookings, room management, staff coordination, service requests, billing, and more.

In today's competitive market, hotels strive to deliver exceptional customer service while optimizing their internal processes. A robust hotel management system serves as the backbone of their operations, enabling them to efficiently handle day-to-day tasks and provide a memorable guest experience.

**Form of the
system**

**Encompasses the structure and
organization of its entities**

Function

Function	Process	Operand
Booking	Collect guest information	Guest details (name, contact info)
	Check room availability	Room type, dates
	Reserve selected room	Room number
Customer Verification	Verify guest identity	ID document
	Authenticate guest credentials	Username, password
Check-in	Welcome guest	Room number, guest ID
	Provide room key/card	Room number
Luggage Loading	Collect guest's luggage	Luggage items, room number
	Store luggage securely	Room number, luggage tag
Service Request	Receive guest's request	Service type, room number
	Assign staff member	Staff member ID
Entertainment	Provide entertainment options	Guest preferences
	Arrange entertainment activity	Activity type, time, location
Food Request	Take food order	Menu items, room number
	Forward order to kitchen	Order details
Unloading	Collect guest's luggage	Luggage items, room number
	Deliver luggage to guest room	Room number
Managing Bills	Calculate bill	Room charges, service charges
	Generate itemized bill	Room number, additional charges
Checkout	Collect room key/card	Room number
	Finalize guest's bill	Room charges, additional charges
Crediting	Process guest's payment	Payment method, amount
	Update guest's account balance	Guest ID, transaction details

Derive the System

Entity	Initial Thinking	After Holistic Thinking	After Focus	After Creating Abstractions	After Defining System Boundary
Staff	Provide customer service	Staff plays a crucial role in ensuring guest satisfaction	Staff training and development programs	Staff roles and responsibilities defined	Staff functions clearly defined within the hotel system
	Handle bookings and check-ins	Collaboration and coordination among staff members	Enhanced guest experience through personalized services	Optimized staffing levels and allocation	
	Assist with luggage and service requests	Efficient management of guest interactions			
Guest	Book hotel rooms, Check-in and check-out	Guest experience from booking to check-out	Enhanced guest satisfaction through personalized services	Integration of services for seamless guest experience	Guest-centric approach throughout the hotel system
	Request services	Importance of personalized services	Streamlined check-in and check-out processes	Efficient guest feedback system	
	Enjoy entertainment	Anticipating and fulfilling guest needs			
	Order food				
	Handle luggage				
Rooms	Accommodate guests	Importance of room quality and cleanliness	Room maintenance and regular inspections	Efficient room allocation and inventory management	Optimal room utilization and seamless room management processes
	Provide comfortable and clean living spaces	Comfort and convenience for guests	Efficient housekeeping and maintenance processes	Integration of smart technologies	
	Furnished with amenities and facilities	Room customization based on guest preferences			
Luggage	Carry personal belongings of guests	Importance of efficient luggage handling	Streamlined luggage handling processes	Integration of technology for efficient luggage tracking	Efficient and secure luggage management within the hotel system
	Transported during check-in and check-out	Guest satisfaction related to luggage services	Improved coordination with staff	Improved security measures for luggage handling	
	Handled by staff for loading/unloading				

Entities

- Staff
- Guest
- Room
- Reservation
- Services
- Payment
- Luggage
- Inventory

Entity	Entity Form	Entity Function
Staff	Human	Customer service, room management,
		housekeeping, maintenance, etc.
Guest	Human	Check-in, check-out, room occupancy,
		requests, feedback, payment, etc.
Room	Physical	Accommodation, availability, cleanliness,
		room service, maintenance, etc.
Reservation	Digital	Booking, cancellations, room allocation,
		check-in coordination, special requests, etc.
Services	Service	Food and beverage, room service,
		housekeeping, maintenance, spa, etc.
Payment	Financial	Billing, invoicing, payment processing,
		transactions, refunds, settlements, etc.
Luggage	Physical/Digital	Baggage handling, storage, delivery,
		tracking, security, tagging, etc.
Inventory	Digital/Physical	Stock management, supply chain coordination,
		purchasing, ordering, tracking, etc.

Relationships

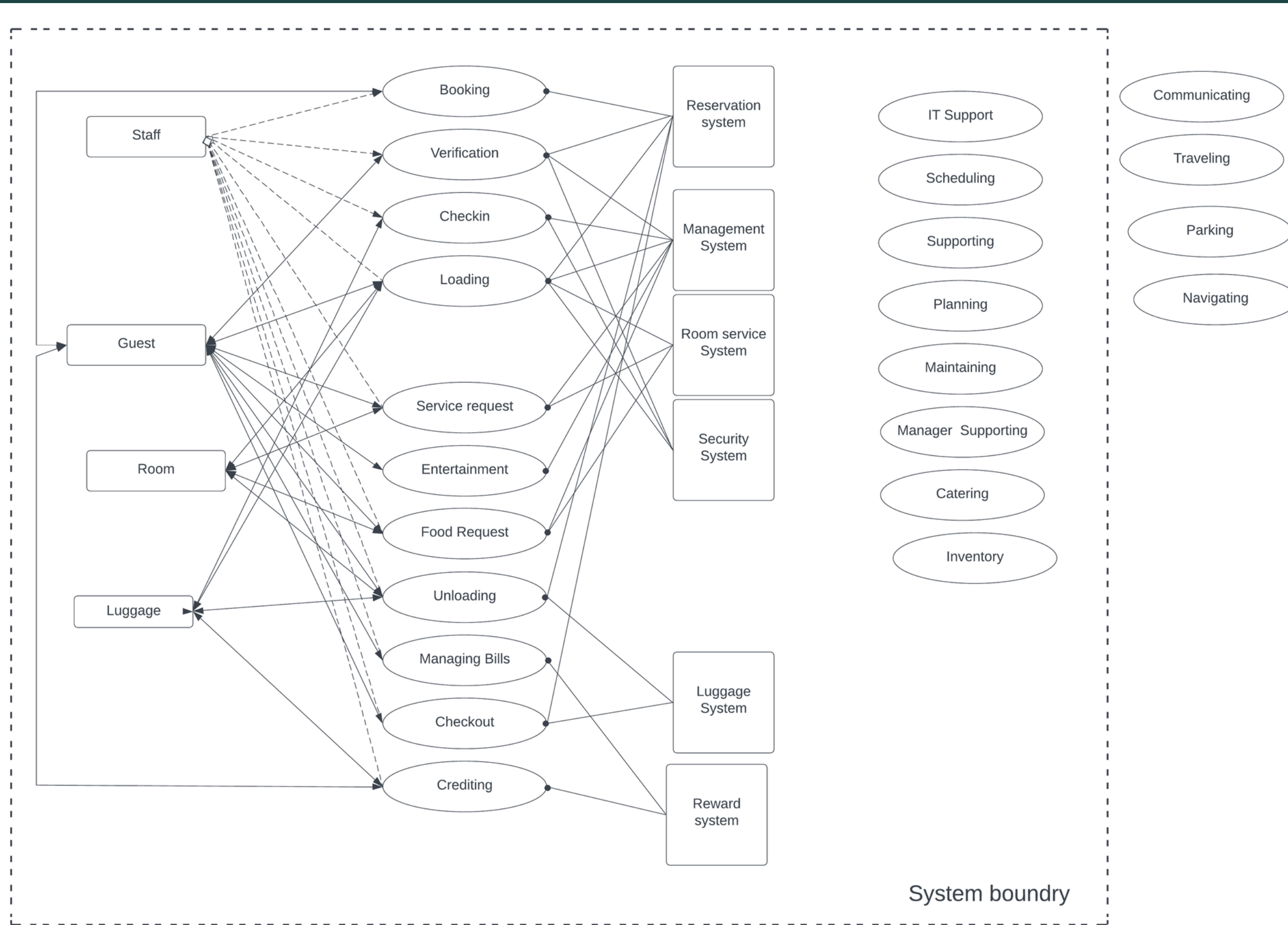
Formal relationships	Staff	Guest	Reservation	Room	Services
Staff		Employed by	Assigned to		
Guest	Employed by		Assigned to	Occupied by	Provides services
Reservation	Assigned to	Assigned to		Reserved by	
Room		Occupied by	Room is reserved		Provides services
Services		Provides services		Provides services	

Functional relationships					
Functional relationships	Staff	Guest	Reservation	Room	Services
Staff		Staff receives the Guest	Staff reserves the room	Reserved room is given to Guest	Hotel staff provides the services
Guest	Staff receives the Guest		Guest is verified, receives details of the room	Guest takes the room	Gets the services provided by hotel
Reservation	Staff reserves the room	Guest is verified, receives details of the room		Room is reserved	
Room	Reserved room is given to Guest	Guest takes the room	Room is reserved		Services are provided according to the type of room
Services	Hotel staff provides the services	Gets the services provided by hotel		Services are provided according to the type of room	

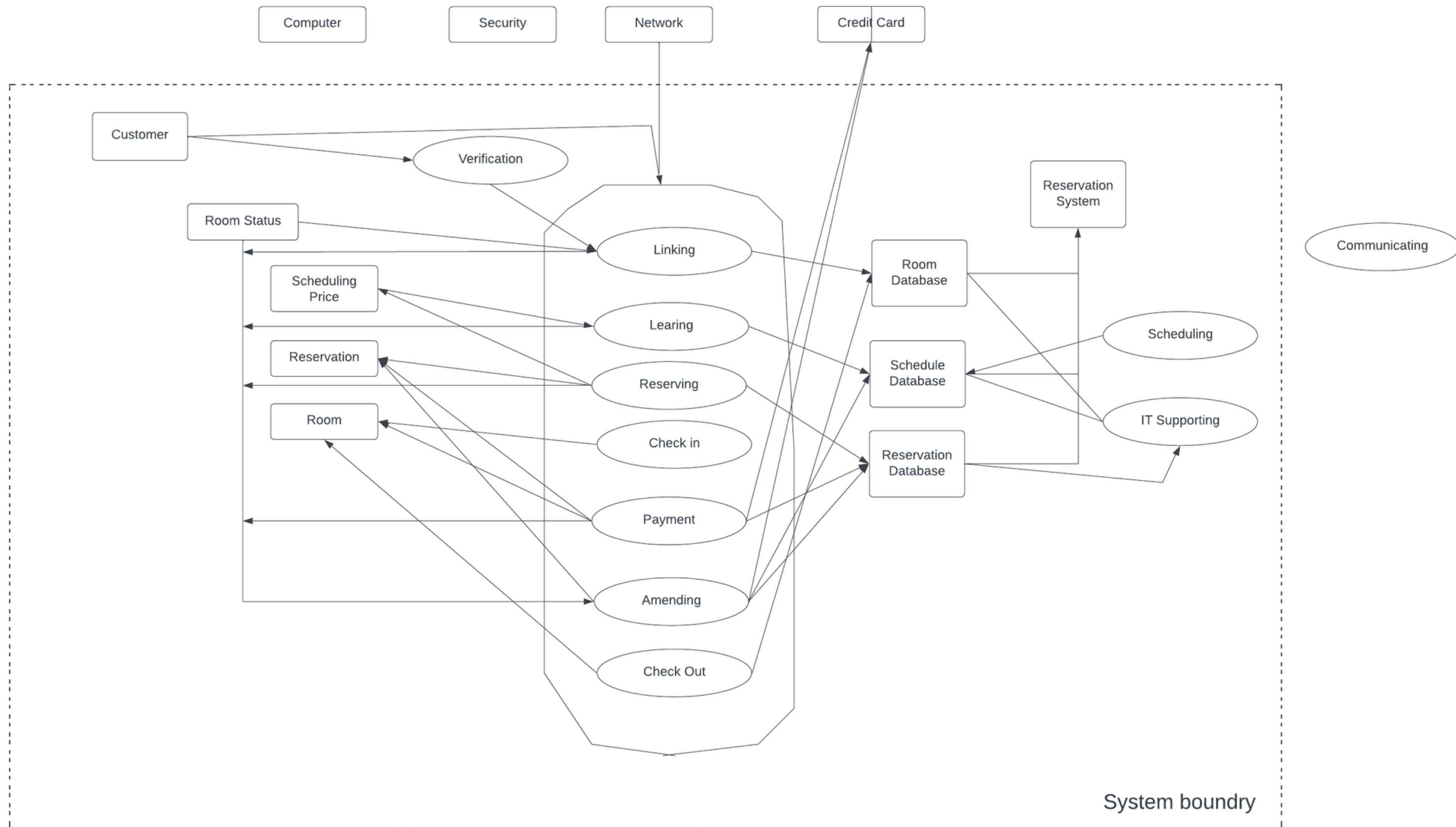
Boundaries of the system

- Communicating
- Travelling
- Parking
- Navigating

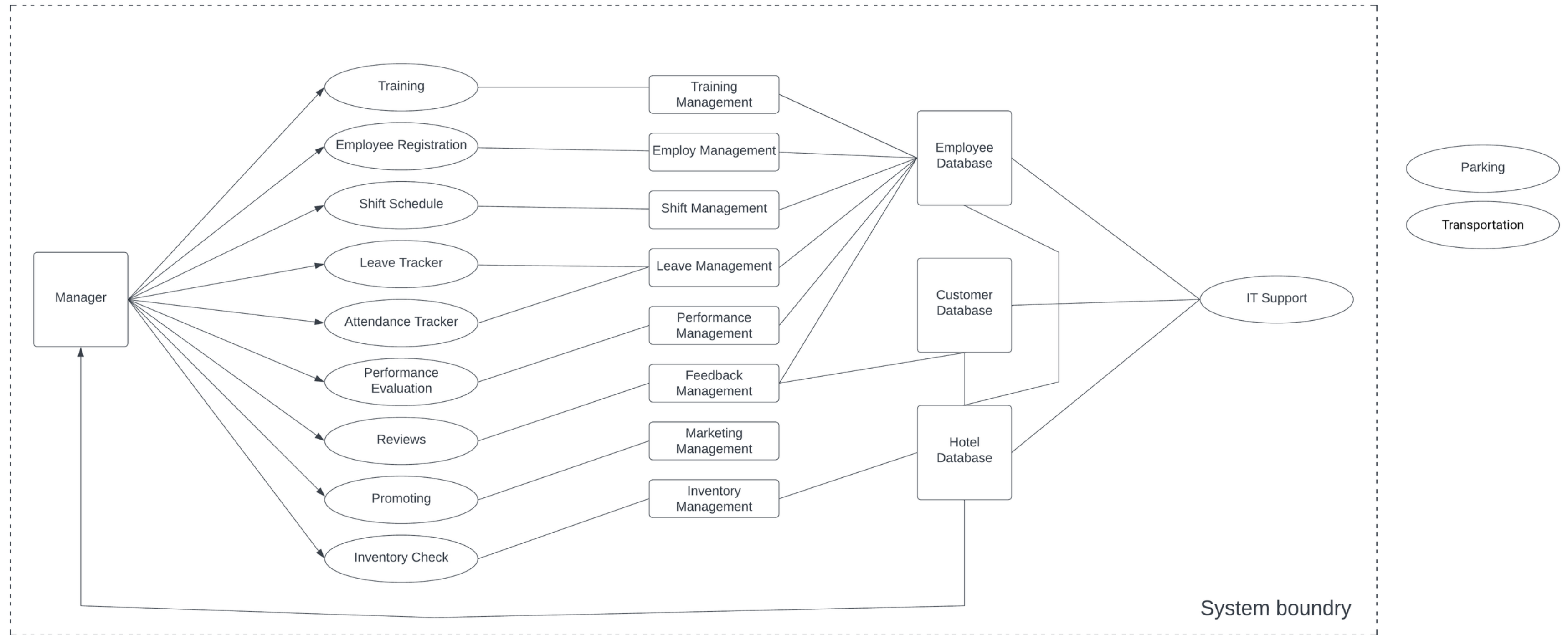
Level 1 Architecture



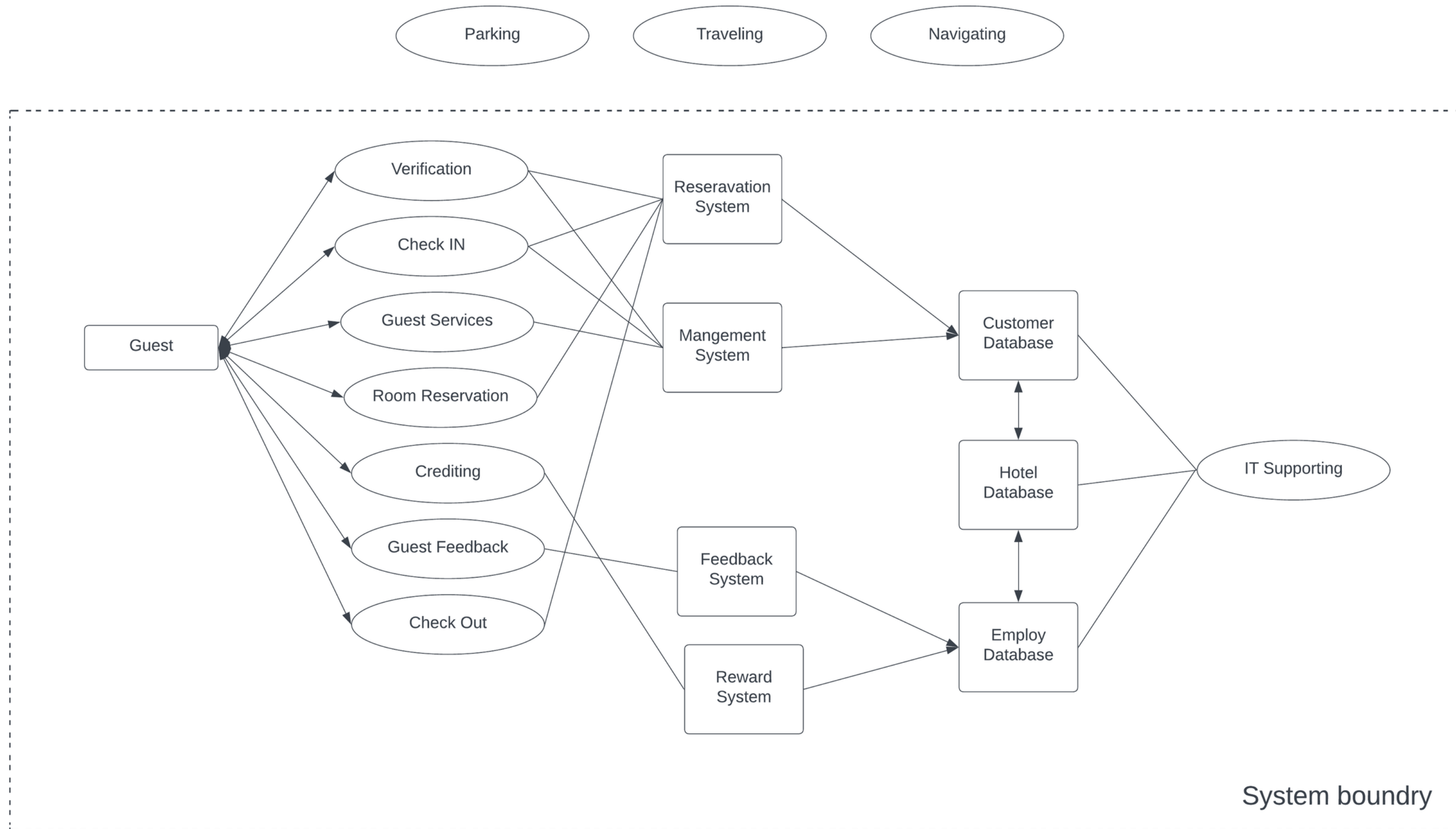
Zooming to Level 2 architecture of Room booking process



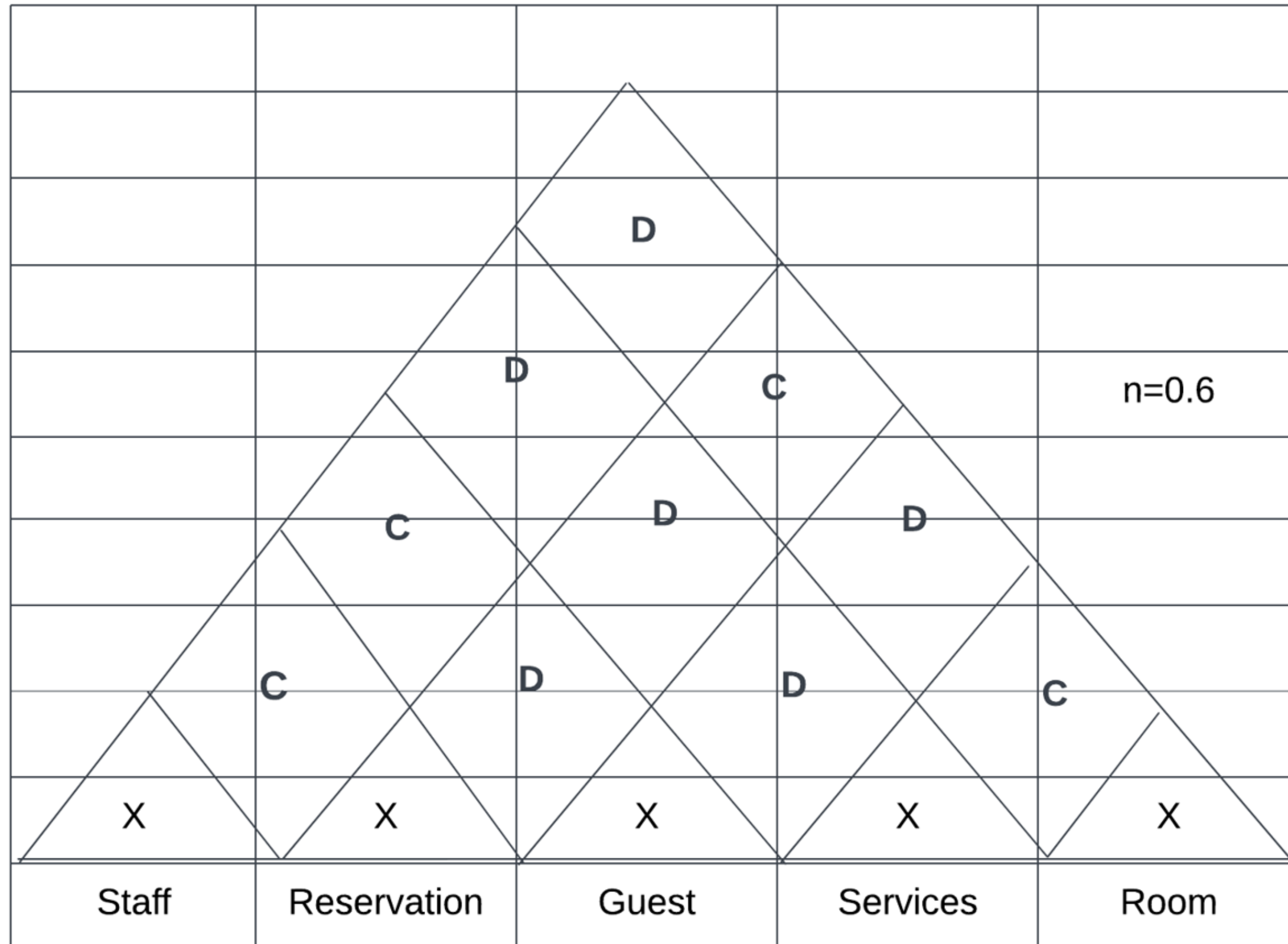
Zooming to Level 2 architecture of staff management




Zooming to Level 2 architecture of guest management




Modularity



IDEAS FOR IMPROVEMENT

1. Streamline Processes: Identify and streamline the key processes within the hotel system, such as booking, check-in/out, and service requests. Eliminate unnecessary steps, automate where possible, and optimize the flow of operations to reduce complexity and increase efficiency.
 2. Simplify Offerings: Assess the range of services, amenities, and options offered to guests. Streamline and simplify offerings to avoid overwhelming guests with too many choices. Focus on delivering a few high-quality options that cater to the majority of guest preferences.
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IDEAS FOR IMPROVEMENT

3. Personalization and Customization: Implement advanced guest profiling and data analytics systems to gather comprehensive guest information. Leverage this data to offer highly personalized experiences, tailor-made recommendations, and customized services based on individual preferences.
 4. Integration of Advanced Technologies: Embrace cutting-edge technologies like artificial intelligence (AI), machine learning (ML), and the Internet of Things (IoT) to enhance various aspects of the hotel system. This could include AI-powered chatbots for personalized guest interactions, smart room controls for automated adjustments, or IoT-enabled sensors for efficient energy management.
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Architectural complexity

Number of Entities: The hotel system involves multiple entities such as guests, staff members, rooms, facilities, reservations, billing, and maintenance. These entities interact with each other to ensure the smooth functioning of the hotel.

Hierarchies and Layers: The hotel system typically has hierarchical structures and layers of authority. It includes executive management, department heads, supervisors, and front-line staff. Additionally, there are layers of infrastructure and systems, such as the physical hotel building, network infrastructure, and software architecture.


Architectural complexity

Function Allocation:

One-to-One: Specific functions are assigned to individual entities. For example, a staff member is responsible for guest check-ins.

One-to-Many: Certain functions are allocated to one entity to perform for multiple others. For instance, housekeeping staff clean and maintain multiple rooms.

Many-to-Many: Functions that involve collaboration and interaction among multiple entities. For example, the reservation system allows guests to book rooms, and the front desk staff manages these reservations.




Architectural complexity

Interfaces:

Formal Interfaces: Structured protocols for communication and data exchange between entities or systems. For example, integration between the reservation system and the billing system.

Functional Interfaces: Focus on functional interaction between entities or systems to perform specific tasks collaboratively. For instance, the interface between the front desk staff and housekeeping staff to manage room status updates and guest requests.



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*Thank
you!*