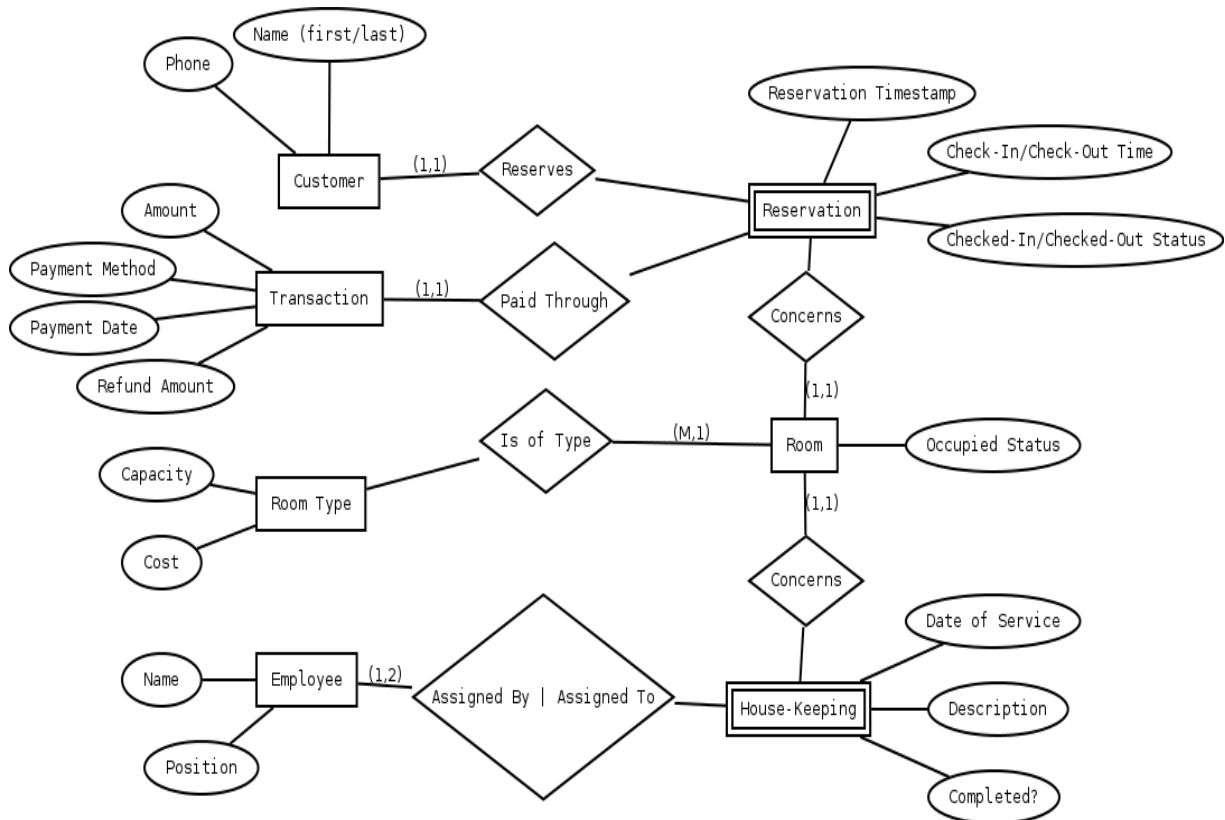


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Group #2
Homework #6
CS:4400 Database Systems

Hotel Management System

1. ER Diagram:



2. Relational Model:

Customer			
<u>customer_id</u>	first_name	last_name	phone

Transaction				
<u>transaction_id</u>	amount	payment_method	payment_date	refund_amount

Room		
<u>room_id</u>	<u>room_type</u>	occupied_status

Room_Type		
<u>room_type</u>	no_people	cost

Employee			
<u>employee_id</u>	first_name	last_name	position

Housekeeping					
<u>room_id</u>	<u>date_of_service</u>	<u>assigned_by_id</u>	<u>assigned_to_id</u>	description	completion_status

Reservation							
<u>customer_id</u>	<u>room_id</u>	check_in_date	check_out_date	checked_in_status	checkout_out_status	<u>transaction_id</u>	<u>reservation_date</u>

List all anomalies

An insert anomaly assumes that every customer has a phone number. Even if they don't we require a number to be entered to contact.

An employee quits (is deleted from the employee table) after they have been assigned to service a room, leaving an anomaly in the Housekeeping table.

List all functional dependencies for each relation

customer_id \rightarrow first_name, last_name, phone

room_id \rightarrow room_type, no_people, cost

room_id, checked_in_date, checked_out_date \rightarrow occupied_status

reservation_date, room_id \rightarrow customer_id

3. Test Plan

Situations needed to cover:

- People checking out of a room the same day as people checking into the same room
- People checking out earlier than planned and generating a refund
- A person upgrading their room upon arrival

Errors that could occur

- Two people reserve the same room at the same time
- Someone reserves a room that another customer has just cancelled the reservation on before related tables get updated
- Two managers try to create a housekeeping assignment on the same room at the same time