

TASK#1

Date: 28/07/25.

TITLE: Conceptual design using ER Model
- HOTEL MANAGEMENT SYSTEM.

STEPS involved in creating ER Diagram

Aim: To design using ER model-HOTEL Management system.

Step 1: Problem understanding & Requirements Analysis.

Goal: Manage hotel reservations, customer data, room availability, billing and payments efficiently.

Requirements:

- Customer registration
- Room reservation & availability
- Billing & invoice generation
- Payment tracking.
- Hotel & Room category information.

2. Identify major entities

From the diagram, the main entities are:

- Customer
- Reservation
- Hotel
- Room
- Room - category
- Payment
- Invoice
- Bill
- Today Price.

1(b) 3. Identify attributes for each Entity

- Customer : name, email, country, ssn, card.
- Reservation : Reservation - id, start Date, end Date, Date, Period.
- Hotel : Hotel - id, name, location, grid.
- Room : Room - id, check - out, Date.
- Room - category : Room - id, name, Hotel - id, grid
- Today - Price : date, Price.

1(c) Identification of relationships, cardinality, Type of relationship.

- Customer - Reservation : one-to-many $\Rightarrow (1:N)$
- Reservation - Rooms : one-to-many $\Rightarrow (1:N)$
- Room - Room - category : many-to-one $\Rightarrow (1:N)$
- Room - category - Hotel : many-to-one $\Rightarrow (N:1)$
- Customer - Payment : one-to-many $\Rightarrow (N:1)$
- Customer - invoice : one-to-many $\Rightarrow (1:N)$
- Invoice - Bill : one-to-one $\Rightarrow (1:1)$
- Bill - Rooms : one-to-one $\Rightarrow (1:N \text{ (or) } N:1)$

1(d) Reframing the relations with key and constraints.

- Primary key (pk)
- Attributes
- Constraints

1. CUSTOMER

Primary key (PK)	Attributes	constraints
SSN	Name, Email, country, id	SSN must be unique, email format validation,

2. RESERVATION

PK	Foreignkey (FK)	Attributes	constraints
Reservation - id	SSN → customer	start_date, end_date, period, date	one customer → many reservation (1:N)

3. TODAY - PRICE

PK	FK	Attributes	constraints
Hotel - id + Date	Hotel → Id	price, Available - rooms	one Hotel has one price per day (1:1)

4. ROOMS

PK	FK	Attributes	constraints
Room - id	Reservation → Room - category	check_out date	one room belongs to one category

5. Room - category

PK	FK	Attributes	constraints
category-id	Hotel-id → Hotel	Name, capacity	A hotel can have many categories

6. payment

PK	FK	Attributes	constraints
payment-id	SSN → customer	payment-method, Date, amount	one customer can make multiple payments

7. Invoice

PK	FK	Attributes	constraints
Invoice-id	SSN → customer	Status, Description, amount	one invoice per bill (1:1) customer → many invoices

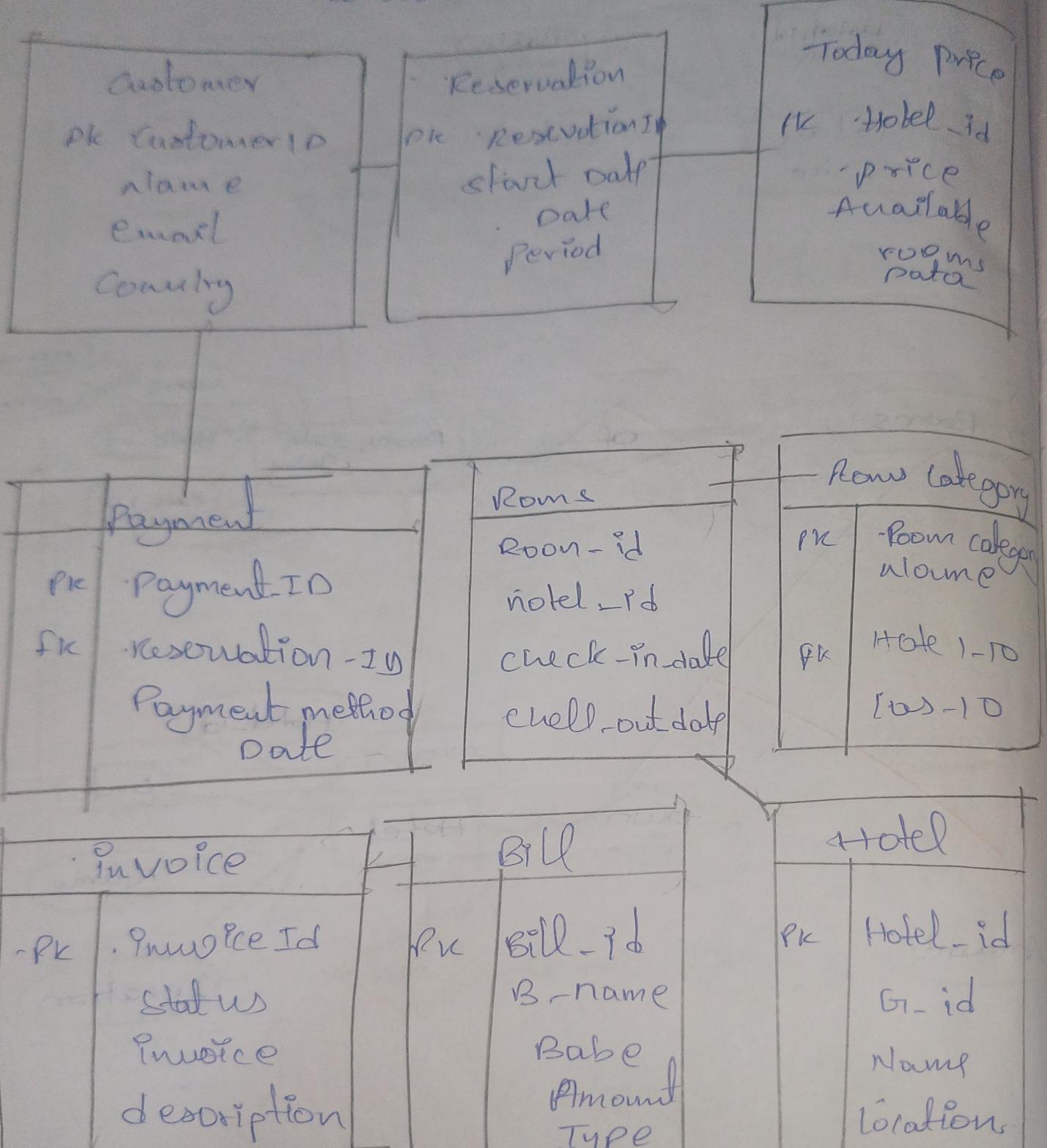
8. Bill

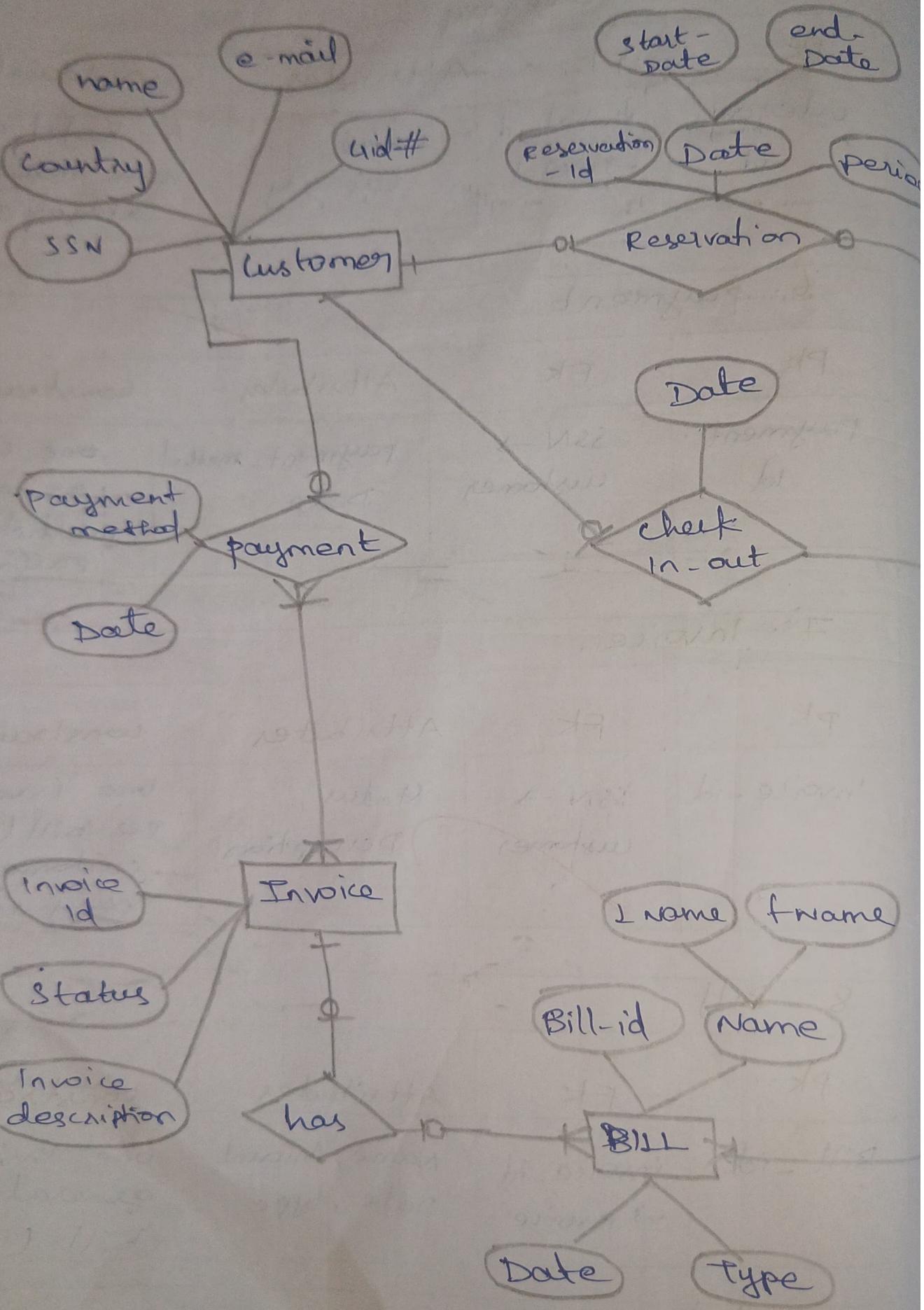
PK	FK	Attributes	constraints
Bill-id	Invoice-id → Invoice	Name, Amount, Date, type	one invoice generates one bill (1:1)

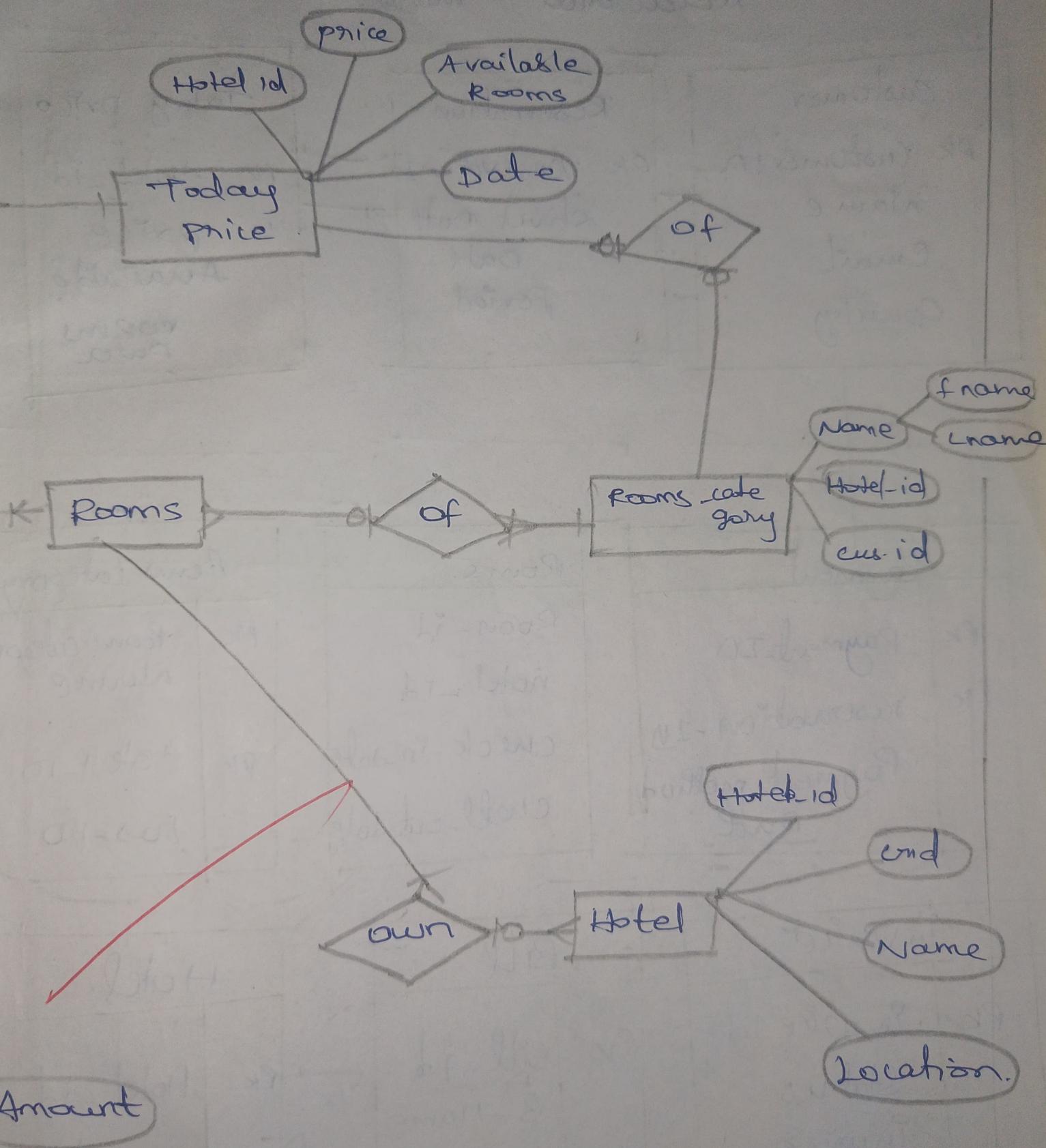
9 Hotel

PK	Attributes	constraints
Hotel-id	Name, Location, uid	Hotel-id unique across all hotels.

Relational model







VEL TECH	
EX No.	156
PERFORMANCE (5)	5
RESULT AND ANALYSIS (10)	10
ORAL VOICE (5)	5
CORD (5)	5
TOTAL (20)	11
SIGN WITH DATE	29/2/15

Result :

To conceptual Design using ER
 model HOTEL management system
 successfully completed.