Hotel Management System

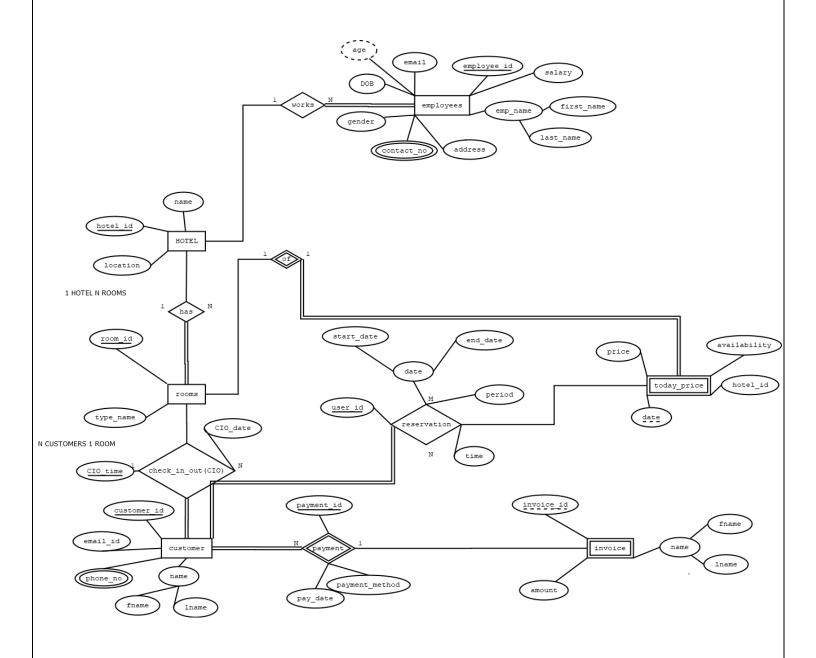
DBMS LAB Mini Project

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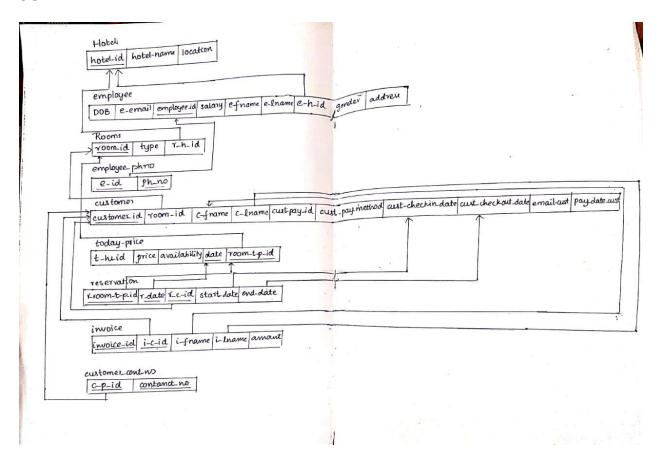
PROBLEM STATEMENT:

A hotel system manages information about, rooms, reservations, customers, customer payment, and hotel employees. A customer can book rooms on spot or make reservations through the hotel website. When a customer makes reservations, check-in-out time is noted along with the given id to the customer. The rooms are of two types AC and non-AC. The availability of rooms and prices varies daily. When the customer checks out, the payment is made, the customer receives an invoice and the database keeps its track. This database also manages its employee by keeping track of their Name, salary, contacts info, and the id they are assigned to.

ER Diagram:



SCHEMA:



DB creation and population:

SQL Commands to Create Table and the Output of Schema and Data:

```
(
name varchar(50) NOT NULL,
location varchar(50) NOT NULL,
hotel_id int primary key
);
```

```
hotel=# SELECT * from hotel;
                      location
                                 | hotel_id
 RCB Hotel
                      Bangalore
                                          1
 Star Hotel
                      Mumbai
                                          2
Noa Goa
                      Goa
                                          3
PES Hotel
                      Chennai
                                          4
                                          5
Rajdhani Hotel
                      Rajasthan
Rising Pune Hotel
                     Pune
 Capital Hotel
                      Delhi
(7 rows)
```

CREATE TABLE Employee

```
employee_id int primary key,
email varchar(50) NOT NULL,
DOB date NOT NULL,
Fname varchar(20) NOT NULL,
LName varchar(20) NOT NULL,
address varchar(50) NOT NULL,
salary numeric(10,2),
gender char NOT NULL,
```

```
e_h_id int,
foreign key(e_h_id) references Hotel(hotel_id)
);
```

```
hotel=# \d employee
                       Table "public.employee"
  Column
                                     | Collation | Nullable | Default
 employee_id |
                                                    not null
               character varying(50)
 email
                                                    not null
dob
                                                   not null
               date
 fname
               character varying(20)
                                                    not null
 lname
               character varying(20)
                                                    not null
               character varying(50)
 address
                                                    not null
               numeric(10,2)
 salary
 gender
               character(1)
                                                    not null
 e_h_id
               integer
Indexes:
    "employee_pkey" PRIMARY KEY, btree (employee_id)
Foreign-key constraints:
    "employee_e_h_id_fkey" FOREIGN KEY (e_h_id) REFERENCES hotel(hotel_id)
Referenced by:
    TABLE "employee_phno" CONSTRAINT "employee_phno_e_id_fkey" FOREIGN KEY (e_id) REFERENCES employee(employee_id)
```

employee_id	* from employee; email	dob	fname	lname	address	salary	gender	e_h_id
1	John@gmail.com	1979-12-31	John	A	Bangalore 560097	25000.00	M	 1
2	Navya@yahoo.com	1980-11-29	Navya	P	Bangalore 560085	30000.00	F	1
3	abc@gmail.com	1975-10-25	AB	C	Mumbai 40026	30000.00	М	2
4	ramesh@gmail.com	1970-05-21	Ramesh	В	Mumbai 40082	30000.00	M	2
5	suresh@gmail.com	1970-05-15	Suresh	A	Goa 40301	30000.00	M	3
6	kohli@gmail.com	1979-06-16	Virat	Kohli	Goa 40368	45000.00	M	3
7	akshay@gmail.com	1978-05-22	Akshay	K	Chennai 60001	45000.00	M	4
8	netra@gmail.com	1977-03-13	Netra	S	Chennai 60039	35000.00	F	4
9	anvita@gmail.com	1976-07-12	Anvita	V	Rajasthan 754133	37000.00	F	5
10	abcdef@gmail.com	1980-09-10	ABC	DEF	Rajasthan 754132	38000.00	M	5
11	ramya@gmail.com	1981-02-08	Ramya	S	Pune 11045	50000.00	F	6
12	mark@gmail.com	1985-03-07	Mark	М	Pune 11047	45000.00	M	6
13	zuckerberg@gmail.com	1978-04-21	Mark	Zuckerberg	Delhi 110001	47000.00	M	7
14	elon@gmail.com	1979-07-01	Elon	Musk	Delhi 110010	60000.00	M	7
(14 rows)								

```
CREATE TABLE Rooms(
```

```
room_id int primary key,
room_type char(10),
r_h_id int,
foreign key(r_h_id) references Hotel(hotel_id)
);
```

```
Table "public.rooms"

Column | Type | Collation | Nullable | Default

room_id | integer | | not null |
room_type | character(10) | | |
r_h_id | integer | | |
Indexes:
    "rooms_pkey" PRIMARY KEY, btree (room_id)

Foreign-key constraints:
    "rooms_r_h_id_fkey" FOREIGN KEY (r_h_id) REFERENCES hotel(hotel_id)

Referenced by:
    TABLE "customer" CONSTRAINT "customer_customer_room_id_fkey" FOREIGN KEY (room_t_p_id) REFERENCES rooms(room_id)

TABLE "today_price" CONSTRAINT "today_price_room_t_p_id_fkey" FOREIGN KEY (room_t_p_id) REFERENCES rooms(room_id)
```

hotal_# \$1	ELECT * from	Pooms:
room_1a	room_type	1 ⁻ _11_10
1101	AC	1
1102	AC	1
1103	Non AC	1
1104	Non AC	1
2101	AC	2
2102	AC	2
2103	Non AC	2
2104	Non AC	2
3101	AC	3
3102	AC	3
3103	Non AC	3
3104	Non AC	3
4101	AC	4
4102	AC	4
4103	Non AC	4
4104	Non AC	4
5101	AC	5
5102	AC	5
5103	Non AC	5
	Non AC	5
6101	AC	6
6102	AC	6
6103	Non AC	6
	Non AC	6
	AC	7
	AC	7
7103	Non AC	7
	Non AC	7
(28 rows)		

```
CREATE TABLE Employee_PhNo(
e_id int,
foreign key(e_id) references Employee(employee_id),
```

```
phone_num bigint,
primary key(e_id,phone_num)
);
```

```
hotel=# SELECT * from Employee PhNo;
e_id | phone_num
       9986156448
   2
       9986736100
   3
       9986736200
   4
      9986736300
   5
      9986125448
   6
      9986733248
   7
      9786732148
   8
      9086736448
   9
     8086736448
  10
      8095736448
  11 9901736448
  12
      6813736448
  13 | 8086736448
  14 | 8586736448
(14 rows)
```

CREATE TABLE Customer(customer_id varchar(10) primary key, email_customer varchar(30) NOT NULL, customer Fname varchar(30) NOT NULL,

```
customer Lname varchar(30) NOT NULL,
customer payment id varchar(15) NOT NULL,
customer payment method char(10) NOT NULL,
customer_pay_date date NOT NULL,
customer checkin date date NOT NULL,
customer checkout date date NOT NULL,
customer room id int,
foreign key(customer room id) references Rooms(room id)
);
ALTER TABLE Customer ADD CONSTRAINT unique_fname UNIQUE
(customer Fname);
ALTER TABLE Customer ADD CONSTRAINT unique Iname UNIQUE
(customer Lname);
ALTER TABLE Customer ADD CONSTRAINT unique checkin UNIQUE
(customer checkin date);
ALTER TABLE Customer ADD CONSTRAINT unique checkout UNIQUE
(customer checkout date);
```

```
otel=# \d customer
                              Table "public.customer'
        Column
                                                     | Collation | Nullable | Default
                                     Type
customer id
                            character varying(10)
                                                                    not null
email_customer
                            character varying(30)
                                                                    not null
customer_fname
                            character varying(30)
                                                                    not null
customer lname
                            character varying(30)
                                                                    not null
                            character varying(15)
customer_payment_id
                                                                    not null
customer_payment_method
                            character(10)
                                                                    not null
customer_pay_date
                            date
                                                                    not null
customer_checkin_date
                                                                    not null
                            date
customer_checkout_date
                            date
                                                                    not null
customer_room_id
                            integer
Indexes:
   "customer_pkey" PRIMARY KEY, btree (customer_id)
   "unique_checkin" UNIQUE CONSTRAINT, btree (customer_checkin_date)
   "unique_checkout" UNIQUE CONSTRAINT, btree (customer_checkout_date)
   "unique_fname" UNIQUE CONSTRAINT, btree (customer_fname)
   "unique_lname" UNIQUE CONSTRAINT, btree (customer_lname)
oreign-key constraints:
   customer_customer_room_id_fkey" FOREIGN KEY (customer_room_id) REFERENCES rooms(room_id"
eferenced by:
   TABLE "customer_contact" CONSTRAINT "customer_contact_customer_contact_id_fkey" FOREIGN KEY (customer_contact_id) RE
ERENCES customer(customer id)
   TABLE "invoice" CONSTRAINT "fk_ifname" FOREIGN KEY (i_fname) REFERENCES customer(customer_fname) TABLE "invoice" CONSTRAINT "fk_ilname" FOREIGN KEY (i_lname) REFERENCES customer(customer_lname)
   TABLE "invoice" CONSTRAINT "invoice_i_c_id_fkey" FOREIGN KEY (i_c_id) REFERENCES customer(customer_id)
```

	CT * from Customer; email_customer	customer_fname	customer_lname	customer_payment_id	customer_payment_method	customer_pay_date	customer_checkin_date	customer_checkout_date	customer_room_id
B001	xyzabc@gmail.com	XYZ	ABC	SBIN12345678	NEFT	- 2021-07-06	2021-07-08	2021-07-10	1101
B002	ABCXYZ@gmail.com	ABC	XYZ	Rx123Zye	Google Pay	2021-07-08	2021-08-10	2021-08-12	1102
B003	msd@gmail.com	MS	Dhoni	Rx1256Ze	Google Pay	2021-08-11	2021-08-13	2021-08-16	1102
P001	rj45@gmail.com	Rohit	Sharma	SBIN5555333322	NEFT	2021-08-10	2021-08-15	2021-08-17	2102
(4 rows)									

```
t_h_id int,

foreign key(t_h_id) references Hotel(hotel_id),

room_t_p_id int,

foreign key(room_t_p_id) references Rooms(room_id),

price decimal(10,2) NOT NULL,

availability char NOT NULL,

today date date NOT NULL,
```

CREATE TABLE Today Price(

```
primary key(today_date,room_t_p_id)
);
```

```
hotel=# \d Today_Price
                  Table "public.today_price"
   Column
                              | Collation | Nullable | Default
 t_h_id
                integer
room_t_p_id
                integer
                                            not null
               numeric(10,2)
                                            not null
price
 availability
               character(1)
                                            not null
 today_date
               date
                                            not null
Indexes:
    "today_price_pkey" PRIMARY KEY, btree (today_date, room_t_p_id)
Foreign-key constraints:
    "today_price_room_t_p_id_fkey" FOREIGN KEY (room_t_p_id) REFERENCES rooms(room_id)
    "today_price_t_h_id_fkey" FOREIGN KEY (t_h_id) REFERENCES hotel(hotel_id)
```

IOCET-# 3	SELECT * from T	Today price	e;	
t_h_id	room_t_p_id	price	availability	today_date
+	4404	+	+	+
1	1101	1500.00	Y	2021-09-10
1	1102	1500.00	Y	2021-09-10
1	1103	750.00	Υ	2021-09-10
1	1104	750.00	Υ	2021-09-10
2	2101	1500.00	Υ	2021-09-10
2	2102	1500.00	Υ	2021-09-10
2	2103	750.00	Υ	2021-09-10
2	2104	750.00	Υ	2021-09-10
3	3101	1500.00	Υ	2021-09-10
3	3102	1500.00	Υ	2021-09-10
3	3103	750.00	Υ	2021-09-10
3	3104	750.00	Υ	2021-09-10
4	4101	1500.00	Υ	2021-09-10
4	4102	1500.00	Υ	2021-09-10
4	4103	750.00	Υ	2021-09-10
4	4104	750.00	Υ	2021-09-10
5	5101	1500.00	Υ	2021-09-10
5	5102	1500.00	Υ	2021-09-10
5	5103	750.00	Υ	2021-09-10
5	5104	750.00	Υ	2021-09-10
6	6101	1500.00	Υ	2021-09-10
6	6102	1500.00	Υ	2021-09-10
6	6103	750.00	Υ	2021-09-10
6	6104	750.00	Υ	2021-09-10
7	7101	1500.00	Y	2021-09-10
7	7102	1500.00	Y	2021-09-10
7	7103	750.00	Y	2021-09-10
	7104	750.00	Ιγ	2021-09-10

CREATE TABLE Reservation(

```
r_room_t_p_id int,
r_date date,
r_c_id varchar(10),
```

```
primary key(r_room_t_p_id,r_date,r_c_id),
start_date date NOT NULL,
end_date date NOT NULL
);
```

```
hotel=# \d Reservation
                       Table "public.reservation"
    Column
                                        | Collation | Nullable | Default
                 integer
r_room_t_p_id
                                                      not null
 r date
                 date
                                                      not null
                 character varying(10)
r_c_id
                                                      not null
start_date
                 date
                                                      not null
end date
                 date
                                                      not null
Indexes:
    "reservation_pkey" PRIMARY KEY, btree (r_room_t_p_id, r_date, r_c_id)
```

```
hotel=# SELECT * from Reservation;
                                                     end date
 r_room_t_p_id
                  r date
                            | r_c_id | start_date |
         1101 | 2021-07-06 |
                             B001
                                       2021-07-08
                                                    2021-07-10
         1102
                2021-07-08
                             B002
                                       2021-08-10
                                                    2021-08-12
         1102
                2021-08-11
                             B003
                                       2021-08-13
                                                    2021-08-16
                2021-08-10 | P001
                                      2021-08-15
         1101
                                                    2021-08-17
(4 rows)
```

```
CREATE Table Invoice(
invoice_id varchar(10),

i_c_id varchar(10),

primary key(invoice_id,i_c_id),

foreign key(i_c_id) references Customer(customer_id),

i_fname varchar(30),

i_lname varchar(30),
```

```
amount decimal(10,2)
);

ALTER Table Invoice

ADD CONSTRAINT fk_ifname

FOREIGN KEY(i_fname)

References Customer(customer_Fname);

ALTER Table Invoice

ADD CONSTRAINT fk_ilname

FOREIGN KEY(i_lname)

References Customer(customer_Lname);
```

```
hotel=# \d Invoice
                       Table "public.invoice"
  Column
                      Type
                                    | Collation | Nullable | Default
invoice_id | character varying(10)
                                                  not null
i c id
             character varying(10)
                                                  not null
i_fname
             character varying(30)
             character varying(30)
i lname
amount
             numeric(10,2)
Indexes:
    "invoice_pkey" PRIMARY KEY, btree (invoice_id, i_c_id)
Foreign-key constraints:
    "fk_ifname" FOREIGN KEY (i_fname) REFERENCES customer(customer_fname)
    "fk_ilname" FOREIGN KEY (i_lname) REFERENCES customer(customer_lname)
    "invoice_i_c_id_fkey" FOREIGN KEY (i_c_id) REFERENCES customer(customer_id)
```

```
hotel=# SELECT * from Invoice;
 invoice id | i_c id | i_fname | i_lname |
 blr 001
              B001
                                  ABC
                       XYZ
                                            1500.00
blr_002
                        ABC
              B002
                                  XYZ
                                            1500.00
blr 003
                        MS
                                  Dhoni
              B003
                                              750.00
 pun_001
              P001
                       Rohit
                                  Sharma
                                            1500.00
(4 rows)
```

```
CREATE TABLE Customer_Contact(
customer_contact_id varchar(10),
contact_number bigint,
primary key(customer_contact_id,contact_number),
foreign key(customer_contact_id) references Customer(customer_id)
);
```

Queries:

1) Query to display employee names whose salary >45000;

2) SELECT contact_number from Customer_Contact AS C INNER JOIN Reservation ON Reservation.r_c_id=C.customer_contact_id WHERE c.customer_contact_id IN (SELECT r_c_id from Reservation WHERE Reservation.r room t p id='1102');

This query displays contact number of all customers who have reserved a room in hotel whose id is 1102.

3) Query to display names of all employees who are located in bangalore.

4) Query to display average salary of the employees who are located in Rajasthan.

```
hotel=# SELECT Avg(Salary) from Employee where address LIKE 'Rajasthan%_' ;
avg
------37500.000000000000
(1 row)
```

5) Query to display name of employees who work in a hotel named Noa Goa.

```
hotel=# SELECT FName,Lname from Employee as E INNER JOIN Hotel as H ON H.hotel_id=E.e_h_id WHERE H.name='Noa Goa';
fname | lname
------
Suresh | A
Virat | Kohli
(2 rows)
```

This query displays names of all customers who has reserved an AC Room.

7) This query displays the contact number of the customer along with the amount they have paid

8) Display names of all employees whose salary is in the range of 30000 and 40000.

9) Query to display the employee table with the salaries sorted in descending order.

hotel=# SELECT	* from employee ORDER	BY Salary DE	5C:					
employee_id	email	dob dob	fname	lname	address	salary	gender	e_h_id
		 		+	+	+		+
14	elon@gmail.com	1979-07-01	Elon	Musk	Delhi 110010	60000.00	М	7
11	ramya@gmail.com	1981-02-08	Ramya	S	Pune 11045	50000.00	F	6
13	zuckerberg@gmail.com	1978-04-21	Mark	Zuckerberg	Delhi 110001	47000.00	М	7
7	akshay@gmail.com	1978-05-22	Akshay	K	Chennai 60001	45000.00	M	4
12	mark@gmail.com	1985-03-07	Mark	M	Pune 11047	45000.00	M	6
6	kohli@gmail.com	1979-06-16	Virat	Kohli	Goa 40368	45000.00	М	3
10	abcdef@gmail.com	1980-09-10	ABC	DEF	Rajasthan 754132	38000.00	М	5
9	anvita@gmail.com	1976-07-12	Anvita	V	Rajasthan 754133	37000.00	F	5
8	netra@gmail.com	1977-03-13	Netra	S	Chennai 60039	35000.00	F	4
5	suresh@gmail.com	1970-05-15	Suresh	Α	Goa 40301	30000.00	М	3
4	ramesh@gmail.com	1970-05-21	Ramesh	В	Mumbai 40082	30000.00	М	2
3	abc@gmail.com	1975-10-25	AB	C	Mumbai 40026	30000.00	М	2
2	Navya@yahoo.com	1980-11-29	Navya	Р	Bangalore 560085	30000.00	F	1
1	John@gmail.com	1979-12-31	John	Α	Bangalore 560097	25000.00	М	1
(14 rows)								

10) Query returns the number of AC and Non AC Rooms available from the list of all hotels.

```
hotel=# SELECT room_type,Count(Room_type) FROM Rooms GROUP BY Room_type;
room_type | count
------
Non AC | 14
AC | 14
(2 rows)
```

11) Query using Limit and Offset