 **DBMS Project**

*Prof. Name : P M Jat*

*Topic : Hotel Management*

*Group No. : G4\_3*

Submissions :

1. Relational Schema Diagram
2. Minimal FD Set
3. BCNF Decomposing
4. DDL Script

Team Member details :

Name Student Id

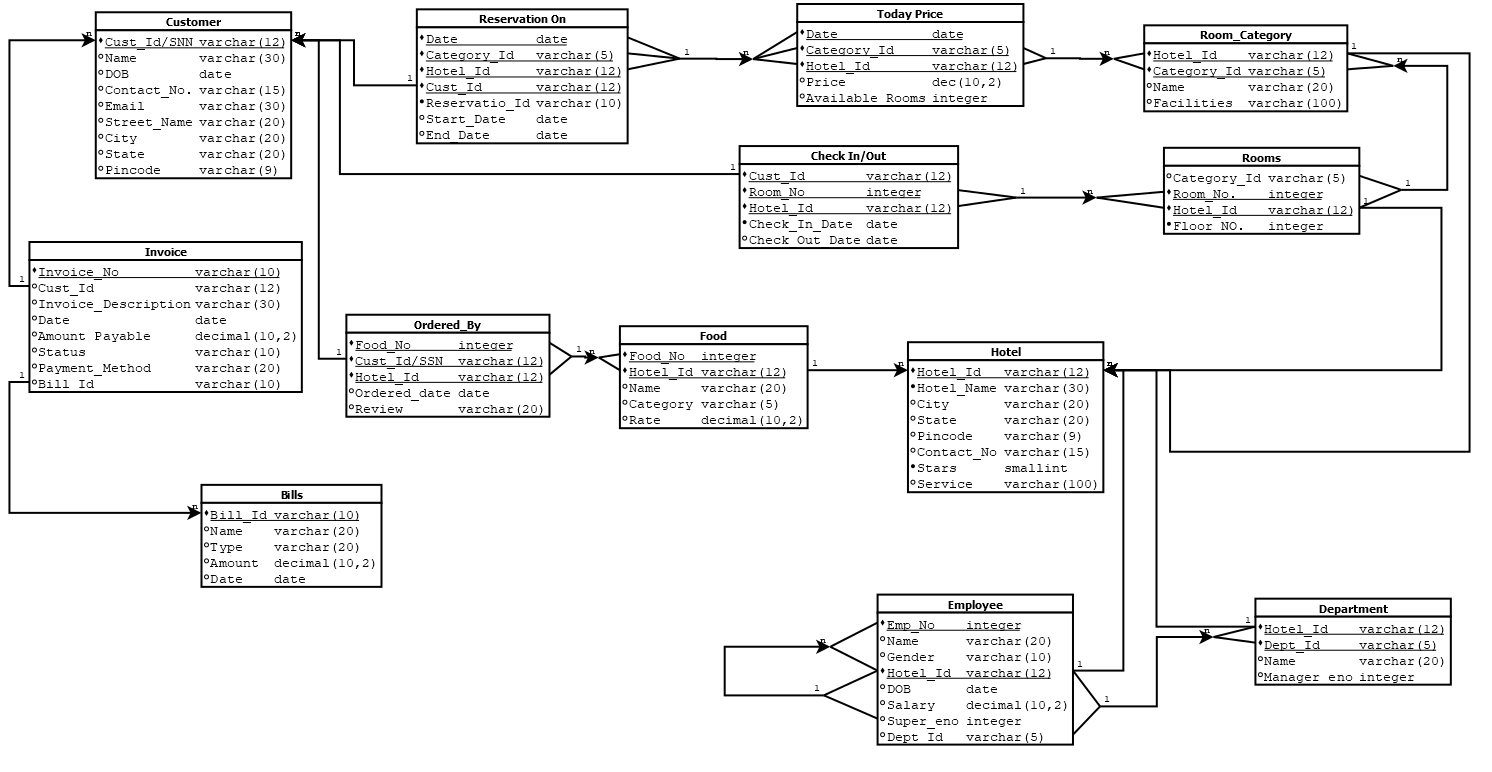
Bhavesh Baraiya 202101241

Smeet Agrawal 202101237

Dhruvin Chaudhary 202101239

Rushang Parmar 202101240

1. Relational Schema Diagram :



1. Minimal FD Set :

**Cust\_Id/SNN 🡪 {Name ,DOB ,Contact\_No ,Email ,City ,State ,Pin code}**

**{Date ,Category\_Id ,Hotel\_Id ,Cust\_Id} 🡪 {Reservaion\_Id ,Start\_Date , End\_Date}**

**{Reservation\_Id ,Hotel\_Id} 🡪 {Start\_Date ,End\_Date, Date ,Category\_Id ,Cust\_Id }**

**Invoice\_No 🡪 {Customer\_Id ,Invoice\_Description ,Date ,Amount Payable ,Status , Payment\_Method ,Bill\_id}**

**Bill\_Id 🡪 {Name ,Type ,Amount ,Date }**

**{Food\_No ,Cust\_Id ,Hotel\_Id} 🡪 {Ordered\_date ,Cust\_Review}**

**{Food\_No ,Hotel\_id} 🡪 {Food\_name ,Category ,Rate}**

**{ Food\_name,Hotel\_id} 🡪 { Food\_No,Category ,Rate}**

**{Room\_No , Hotel\_Id} 🡪 {Category\_id ,Floor No}**

**{Cust\_Id ,Room\_no ,Hotel\_Id} 🡪 {Check\_In\_date ,Check\_Out\_date}**

**{Date ,Category\_Id ,Hotel\_id} 🡪 {Price ,Available Rooms}**

**{Hotel\_Id ,Category\_id} 🡪 {Category\_Name ,Facilities}**

**Hotel\_Id 🡪 {Hotel\_Name , City , State , Pin code , Contact\_No , Stars , Service}**

**{Hotel\_id , Emp\_No} 🡪 { Name , Gender , DOB , Salary , Super\_eno , Dept\_Id}**

**{Hotel\_id , Dept\_No } 🡪 { Name , Manager eno}**

1. Checking For BCNF(for every relation) :

*Customer :*

Cust\_Id/SNN 🡪 {Name ,DOB ,Contact\_No ,Email ,City ,State ,Pin code}

Key = { Cust\_Id/SNN }

* Here every FDs have Key in left side so this relation is in BCNF.

*Reservation On :*

{Date ,Category\_Id ,Hotel\_Id ,Cust\_Id} 🡪 {Reservaion\_Id ,Start\_Date , End\_Date}

{Reservation\_Id ,Hotel\_Id} 🡪 {Start\_Date ,End\_Date , Date ,Category\_Id ,Cust\_Id }

Key ={Date ,Category\_Id ,Hotel\_Id ,Cust\_Id} , {Reservation\_Id ,Hotel\_Id}.

* Here every FDs has one of the Key in left side so this relation is in BCNF.

*Invoice :*

Invoice\_No 🡪 {Customer\_Id ,Invoice\_Description ,Date ,Amount Payable , Status , Payment\_Method ,Bill\_id}

Key = Invoice\_No

* Here every FDs have Key in left side so this relation is in BCNF.

*Bill :*

Bill\_Id 🡪 {Name ,Type ,Amount ,Date }

Key = Bill\_Id

* Here every FDs have Key in left side so this relation is in BCNF.

*Ordered\_By :*

{Food\_No ,Cust\_Id ,Hotel\_Id} 🡪 {Ordered\_date ,Cust\_Review}

Key ={Food\_No ,Cust\_Id ,Hotel\_Id}

* Here every FDs have Key in left side so this relation is in BCNF.

*Food :*

{Food\_No ,Hotel\_id} 🡪 {Food\_name ,Category ,Rate}

**{ Food\_name,Hotel\_id} 🡪 { Food\_No, Category ,Rate}**

Key = {{Food\_No ,Hotel\_id},**{ Food\_name,Hotel\_id}}**

* Here every FDs have Key in left side so this relation is in BCNF.

*Room :*

{Room\_No , Hotel\_Id} 🡪 {Category\_id ,Floor No}

Key = {Room\_No , Hotel\_Id}

* Here every FDs have Key in left side so this relation is in BCNF.

*Check In/Out :*

{Cust\_Id ,Room\_no ,Hotel\_Id} 🡪 {Check\_In\_date ,Check\_Out\_date}

Key ={Cust\_Id ,Room\_no ,Hotel\_Id}

* Here every FDs have Key in left side so this relation is in BCNF.

*Today Price :*

{Date ,Category\_Id ,Hotel\_id} 🡪 {Price ,Available Rooms}

Key = {Date ,Category\_Id ,Hotel\_id}

* Here every FDs have Key in left side so this relation is in BCNF.

*Room Category :*

{Hotel\_Id ,Category\_id} 🡪 {Category\_Name ,Facilities}

Key = {Hotel\_Id ,Category\_id}

* Here every FDs have Key in left side so this relation is in BCNF.

*Hotel :*

Hotel\_Id 🡪 {Hotel\_Name , City , State , Pin code , Contact\_No , Stars , Service}

Key = Hotel\_Id

* Here every FDs have Key in left side so this relation is in BCNF.

*Employee :*

{Hotel\_id , Emp\_No} 🡪 { Name , Gender , DOB , Salary , Super\_eno , Dept\_Id}

Key = {Hotel\_id , Emp\_No}

* Here every FDs have Key in left side so this relation is in BCNF.

*Department :*

{Hotel\_id , Dept\_No } 🡪 { Name , Manager eno}

Key = {Hotel\_id , Dept\_No }

* Here every FDs have Key in left side so this relation is in BCNF.

Q-4 DDL Script :

create schema Hotel\_Management;

set search\_path to Hotel\_Management;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Hotel \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Hotel(

Hotel\_ID varchar(12) primary key,

Hotel\_Name varchar(30),

City varchar(20),

State varchar(12),

Pincode varchar(9),

Contact\_No varchar(15),

Stars smallint not null,

Service varchar(100)

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Room Category \*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Room\_Category(

Hotel\_ID varchar(12),

Category\_ID varchar(5),

Name varchar(20),

Facilities varchar(100),

Primary key(Hotel\_ID,Category\_ID),

Foreign key (Hotel\_ID) references Hotel(Hotel\_ID) on delete cascade on update cascade

);

--\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Room \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Rooms(

Category\_ID varchar(5),

Room\_No integer,

Hotel\_ID varchar(12),

Floor\_No integer not null,

Primary key(Room\_No,Hotel\_ID),

Foreign key (Hotel\_ID) references Hotel(Hotel\_ID) on delete cascade on update cascade,

Foreign key (Category\_ID,Hotel\_ID) references Room\_Category(Category\_ID,Hotel\_ID) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Today Price \*\*\*\*\*\*\*\*\*\*\*\*\*\*

create table Today\_Price(

Date date,

Category\_ID varchar(5),

Hotel\_ID varchar(12),

Price decimal(10,2),

Available\_Rooms integer,

Primary key(Date,Category\_Id,Hotel\_ID),

Foreign key(Category\_ID,Hotel\_ID) references Room\_Category(Hotel\_ID,Category\_ID) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\* Customer \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

create table Customer(

Cust\_id varchar(12) primary key,

"Name" varchar(30),

DOB date,

Contact\_No varchar(15),

Email varchar(30),

Street\_Name varchar(20),

City varchar(20),

"State" varchar(20),

Pincode varchar(9)

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* reservation On \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Reservation\_On(

"Date" date,

Category\_ID varchar(5),

Hotel\_ID varchar(12),

Cust\_ID varchar(12),

Reservation\_ID varchar(10) not null,

Start\_Date date,

End\_date date,

Primary key("Date",Category\_ID,Hotel\_ID,Cust\_ID),

Foreign key("Date",Category\_ID,Hotel\_ID) references Today\_Price(Date,Category\_ID,Hotel\_ID) on delete cascade on update cascade,

Foreign key (Cust\_id) references Customer(Cust\_id) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* Check In/Out \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table check\_in\_out(

Cust\_ID varchar(12),

Room\_No integer,

Hotel\_ID varchar(12),

Check\_In\_Date date,

Check\_Out\_Date date,

Primary key(Cust\_id,Room\_No,Hotel\_ID),

Foreign key(Room\_No,Hotel\_ID) references Rooms(Room\_No,Hotel\_ID) on delete cascade on update cascade,

Foreign key (Cust\_id) references Customer(Cust\_id) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* Department \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Department(

Hotel\_ID varchar(12),

Dept\_ID varchar(5),

Name varchar(20),

Manager\_eno integer,

Primary key(Hotel\_ID,Dept\_ID),

Foreign key (Hotel\_ID) references Hotel(Hotel\_ID) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Employee \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Employee(

Hotel\_ID varchar(12),

Emp\_No integer,

"Name" varchar(20),

Gender varchar(10),

DOB date,

Salary decimal(10,2),

Super\_eno integer,

Dept\_ID varchar(5),

Primary key(Hotel\_ID,Emp\_NO),

Foreign key(Dept\_ID,Hotel\_ID) references Department(Dept\_ID,Hotel\_ID) on delete cascade on update cascade,

Foreign key(Super\_eno,Hotel\_ID) references Employee(Emp\_No,Hotel\_ID) on delete cascade on update cascade,

Foreign key(Hotel\_ID) references Hotel(Hotel\_ID) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* Food \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Food(

Food\_No integer,

"Name" Varchar(20),

Hotel\_ID varchar(12),

Category Varchar(5),

Rate decimal(10,2),

Primary key (Food\_No,Hotel\_ID),

Foreign key(Hotel\_ID) references Hotel(Hotel\_ID) on delete cascade on update cascade

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* Ordered By \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Ordered\_By(

Food\_NO integer,

Cust\_ID varchar(12),

Hotel\_ID varchar(12),

Ordered\_date date,

Review varchar(20),

primary key(Food\_NO,Cust\_ID,Hotel\_ID),

Foreign key (Cust\_ID) references Customer(Cust\_ID) on delete cascade on update cascade,

Foreign key(Food\_No,Hotel\_ID) references Food(Food\_No,Hotel\_ID)

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\* Bills \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Bills(

Bill\_ID varchar(10) primary key,

"Name" varchar(20),

Type varchar(20),

Amount decimal(10,2),

Date date

);

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Invoice \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Create table Invoice(

Invoice\_No Varchar(10) Primary key,

Cust\_id Varchar(12),

Invoice\_Description Varchar(30),

"Date" date,

Amount\_Payable decimal(10,2),

Status Varchar(10),

Payment\_Method Varchar(20),

Bill\_ID Varchar(10),

Foreign key (Cust\_id) references Customer(Cust\_id) on delete cascade on update cascade,

Foreign key (Bill\_ID) references Bills(Bill\_ID) on delete cascade on update cascade);