DBMS Project

Prof. Name : P M Jat
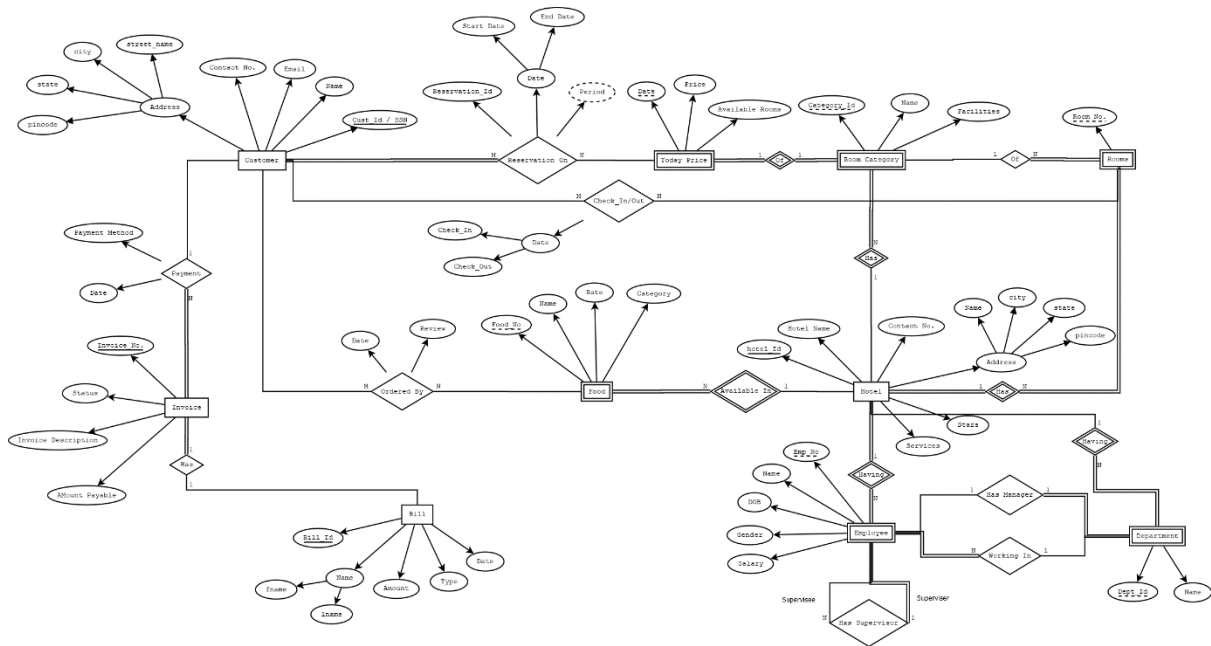*Topic : Hotel Management*
Group No. : G4_3

Submissions :

1) Entity Relationship Diagram
2) Relational Schema Diagram
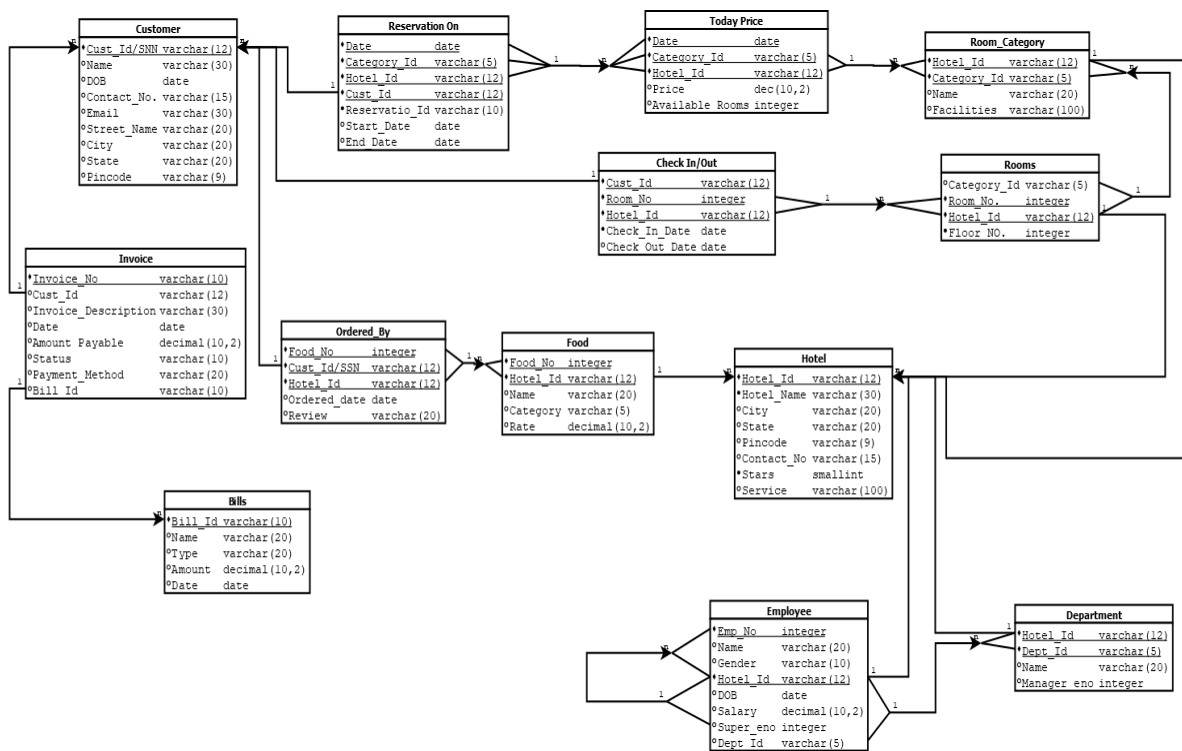3) Minimal FD Set
4) BCNF Decomposing

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1) Entity Relationship Diagram :

2) Relational Schema Diagram :

3) 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}

4) 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.