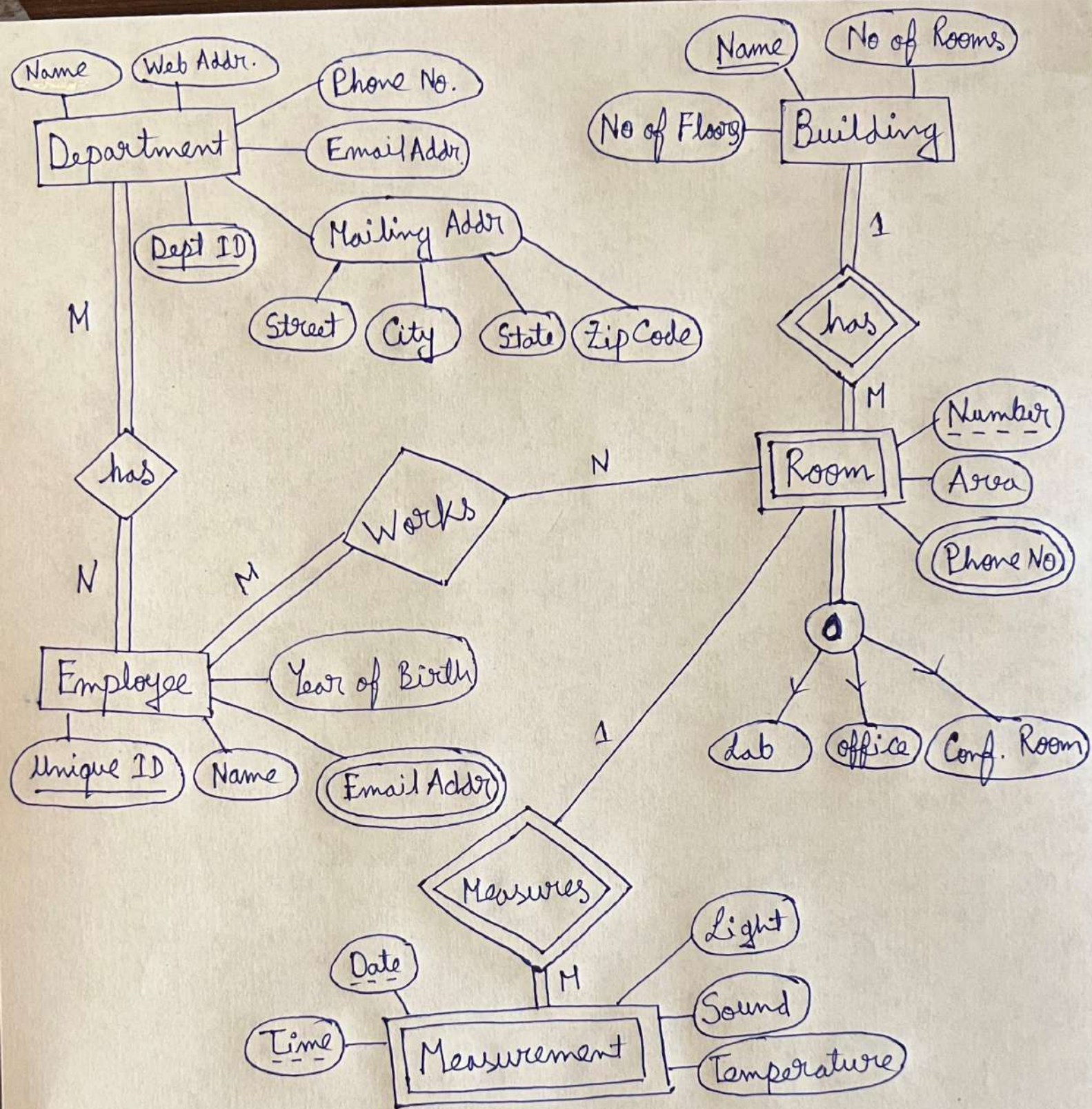


Project 1

CS 504 Spring 2022

Koustav Roy



- Assumption - (i) Each Building must have some rooms
 (ii) Each measurement is for some room but each room must not have a measurement.
 (iii) Will be creating Unique Department ID for each department.

Department

<u>Dept-ID</u>	Dept-Name	Web-Address	Phone-No	Email	Street	City	State	Zip-Code	Mailing-Addr
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Department-has-Employee

<u>Dept-ID</u>	<u>Unique-ID</u>
----------------	------------------

Employee

<u>Unique-ID</u>	Name	Year-of-Birth
------------------	------	---------------

Employee-Email

<u>Unique-ID</u>	Email
------------------	-------

Building

<u>Name</u>	No-of-Room	No-of-Floors
-------------	------------	--------------

Room-Phone-No

<u>Building-Name</u>	<u>Room-Number</u>	<u>Phone-No</u>
----------------------	--------------------	-----------------

Room

<u>Building-Name</u>	<u>Number</u>	Area	L-Flag	O-Flag	C-Flag
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Measurement

<u>Building-Name</u>	<u>Room-Number</u>	<u>Date</u>	<u>Time</u>	Light	Sound	Temp
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Employee-Works-in-Room

<u>Unique-ID</u>	<u>Building-ID</u>	<u>Room-No</u>
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Table Definition and Primary Key, Foreign Key Relationship

Department Table:

Department									
Dept_ID	Dept_Name	Web_Address	Phone_No	Email	Street	City	State	Zip_Code	Mailing_Address
Primary Key									
INT	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)

Employee Table:

Employee		
Unique_ID	Name	Date_of_Birth
Primary Key		
INT	VARCHAR(255)	DATE

Department_has_Employee Table:

Department_Has_Employee	
Dept_ID	Unique_ID
Primary Key	Primary Key
Foreign Key to Department.Dept_ID	Foreign Key to Employee.Unique_ID
INT	INT

Building Table:

Building		
Name	No_of_Rooms	No_of_Floors
Primary Key		
VARCHAR(255)	INT	INT

Room Table:

Room					
Building_Name	Room_Number	Area_in_sq_yards	L_FLAG	O_FLAG	C_FLAG
Primary Key	Primary Key				
Foreign Key to Building.Name					
VARCHAR(255)	VARCHAR(255)	Decimal(4,2)	VARCHAR(1)	VARCHAR(1)	VARCHAR(1)

Measurement Table:

Measurement						
Building_Name	Room_Number	Record_Date	Record_Time	Light_in_LUX	Sound_in_dB	Temp_in_F
Primary Key	Primary Key	Primary Key	Primary Key			
Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number						
VARCHAR(255)	VARCHAR(255)	Date	Varchar(255)	Decimal(6,2)	Decimal(6,2)	Decimal(6,2)

Employee_Worksin_Room Table:

Employee_WorksIn_Room		
Unique_ID	Building_Name	Room_No
Primary Key	Primary Key	Primary Key
Foreign Key to Employee.Unique_ID	Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number	
INT	VARCHAR(255)	VARCHAR(255)

Room_Phone_No Table:

Room_Phone_No		
Building_Name	Room_Number	Phone_No
Primary Key	Primary Key	Primary Key
Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number		
VARCHAR(255)	VARCHAR(255)	VARCHAR(15)

Employee Email Table:

Employee Email	
Unique_ID	Email
Primary Key	Primary Key
Foreign Key to Employee.Unique_ID	
INT	VARCHAR(255)

Dataset

Department Table:

Department									
Dept_ID	Dept_Name	Web_Address	Phone_No	Email	Street	City	State	Zip_Code	Mailing_Address
Primary Key									
INT	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)	VARCHAR(255)
1	Engineering	Engineering.GMU.EDU	1122334455	Engineering@GMU.EDU	1st Street	Fairfax	VA	22030	This will be populated directly in the table concatenating last 4 columns
2	Science	Science.GMU.EDU	1122334456	Science@GMU.EDU	2nd Street	Fairfax	VA	22030	
3	Arts	Arts.GMU.EDU	1122334457	Arts@GMU.EDU	3rd Street	Fairfax	VA	22030	
4	Law	Law.GMU.EDU	1122334458	Law@GMU.EDU	4th Street	Fairfax	VA	22030	
5	Business	Business.GMU.EDU	1122334459	Business@GMU.EDU	5th Street	Fairfax	VA	22030	

Employee Table:

Employee		
Unique_ID	Name	Date_of_Birth
Primary Key		
INT	VARCHAR(255)	DATE
1001	Karen Jennings	12/02/1995
1002	Kim Fuller	22/02/1996
1003	Betsy Moreno	12/06/1997
1004	Caleb Brady	12/02/1998
1005	Dana Cobb	09/02/1999
1006	Emanuel Jimenez	27/02/2000
1007	Leon Becker	25/11/2001
1008	Brett Obrien	12/02/2002
1009	Andrew Hansen	01/02/2003
1010	Glen Stevenson	12/07/2004

Department_Has_Employee Table:

Department_Has_Employee	
Dept_ID	Unique_ID
Primary Key	
Foreign Key to Department.Dept_ID	
Foreign Key to Employee.Unique_ID	
INT	INT
1	1001
2	1002
3	1003
4	1004
5	1005
5	1006
4	1007
3	1008
2	1009
1	1010

Building Table:

Building		
Name	No_of_Rooms	No_of_Floors
Primary Key		
VARCHAR(255)	INT	INT
Horizon Hall	4	4
Arts Science Building	3	3
James Buchanan Hall	2	2
Fenwick Library	5	5


Room Table:

Room					
Building_Name	Room_Number	Area_in_sq_yards	L_FLAG	O_FLAG	C_FLAG
Primary Key	Primary Key				
Foreign Key to Building.Name					
VARCHAR(255)	VARCHAR(255)	Decimal(4,2)	VARCHAR(1)	VARCHAR(1)	VARCHAR(1)
Horizon Hall	100	55	X	X	
Horizon Hall	200	62		X	
Horizon Hall	300	61	X		X
Horizon Hall	400	55		X	
Arts Science Building	100	81	X	X	
Arts Science Building	200	70			X
Arts Science Building	300	96	X		
James Buchanan Hall	100	80		X	X
James Buchanan Hall	200	67	X	X	
Fenwick Library	100	75	X		
Fenwick Library	200	50		X	X
Fenwick Library	300	56			X
Fenwick Library	400	23		X	
Fenwick Library	500	14	X		X

Measurement Table:

Measurement						
Building_Name	Room_Number	Record_Date	Record_Time	Light_in_LUX	Sound_in_dB	Temp_in_F
Primary Key	Primary Key	Primary Key	Primary Key			
Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number						
VARCHAR(255)	VARCHAR(255)	Date	Varchar(255)	Decimal(6,2)	Decimal(6,2)	Decimal(6,2)
Horizon Hall	100	01/03/2023	00:00:00	5	15	56
Horizon Hall	100	01/03/2023	12:00:00	10	45	68
Horizon Hall	200	01/03/2023	00:00:00	15	34	78
Horizon Hall	200	01/03/2023	12:00:00	20	54	64
Horizon Hall	300	01/03/2023	00:00:00	25	34	Null
Horizon Hall	300	01/03/2023	12:00:00	30	33	Null
Horizon Hall	400	01/03/2023	00:00:00	35	76	67
Horizon Hall	400	01/03/2023	12:00:00	40	56	60
Arts Sciences Building	100	01/03/2023	00:00:00	15	78	74
Arts Sciences Building	100	01/03/2023	12:00:00	25	54	54
Arts Sciences Building	200	01/03/2023	00:00:00	35	56	64
Arts Sciences Building	200	01/03/2023	12:00:00	45	44	56
Arts Sciences Building	300	01/03/2023	00:00:00	55	34	57
Arts Sciences Building	300	01/03/2023	12:00:00	65	65	77
James Buchanan Hall	100	01/03/2023	00:00:00	20	44	Null
James Buchanan Hall	100	01/03/2023	12:00:00	30	56	58
James Buchanan Hall	200	01/03/2023	00:00:00	40	54	65
James Buchanan Hall	200	01/03/2023	12:00:00	50	56	51
Fenwick Library	100	01/03/2023	00:00:00	55	76	50
Fenwick Library	100	01/03/2023	12:00:00	65	54	63
Fenwick Library	200	01/03/2023	00:00:00	75	46	Null
Fenwick Library	200	01/03/2023	12:00:00	85	45	Null
Fenwick Library	300	01/03/2023	00:00:00	95	87	51
Fenwick Library	300	01/03/2023	12:00:00	20	65	72
Fenwick Library	400	01/03/2023	00:00:00	26	65	71
Fenwick Library	400	01/03/2023	12:00:00	43	88	66
Fenwick Library	500	01/03/2023	00:00:00	65	65	54
Fenwick Library	500	01/03/2023	12:00:00	43	45	54

Employee_WorksIn_Room

Employee_WorksIn_Room		
Unique_ID	Building_Name	Room_No
Primary Key	Primary Key	Primary Key
Foreign Key to Employee.Unique_ID	Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number	
INT	VARCHAR(255)	VARCHAR(255)
		
	1001 Horizon Hall	100
	1002 Horizon Hall	200
	1003 Horizon Hall	300
	1004 Horizon Hall	400
	1005 Arts Sciences Building	100
	1006 Arts Sciences Building	200
	1007 Arts Sciences Building	300
	1008 James Buchanan Hall	100
	1009 James Buchanan Hall	200
	1010 Fenwick Library	100
	1001 Arts Sciences Building	200
	1002 Arts Sciences Building	300
	1003 James Buchanan Hall	100
	1004 James Buchanan Hall	200
	1005 Fenwick Library	100

Room_Phone_No Table:

Room_Phone_No		
Building_Name	Room_Number	Phone_No
Primary Key	Primary Key	Primary Key
Combination is Foreign Key to Combination of Room.Building_Name and Room.Room_Number		
VARCHAR(255)	VARCHAR(255)	VARCHAR(15)
Horizon Hall	100	3943511324
Horizon Hall	200	9348277345
Horizon Hall	300	1796358550
Horizon Hall	400	7301702070
Arts Sciences Building	100	1914147371
Arts Sciences Building	200	5197138851
Arts Sciences Building	300	6392956308
James Buchanan Hall	100	7828967907
James Buchanan Hall	200	7392332181
Fenwick Library	100	2327390821
Fenwick Library	200	5793589177
Fenwick Library	300	9556418611
Fenwick Library	400	2681565955
Fenwick Library	500	1063987235
Horizon Hall	100	9839691177
Horizon Hall	200	7694018166
Horizon Hall	300	2274993981
Horizon Hall	400	9666653853
Arts Sciences Building	100	2137115169
Arts Sciences Building	200	9909244688
Arts Sciences Building	300	8174944983
James Buchanan Hall	100	5763148542
James Buchanan Hall	200	3316082677
Fenwick Library	100	5481939687
Fenwick Library	200	9858899789
Fenwick Library	300	7037698063
Fenwick Library	400	6758830045
Fenwick Library	500	4314808686
Horizon Hall	100	2662797340
Horizon Hall	200	2497197975
Horizon Hall	300	2203959190
Horizon Hall	400	6680313763
Arts Sciences Building	100	4716289270
Arts Sciences Building	200	9569481897

Employee Email Table:

Employee Email	
Unique_ID	Email
Primary Key	Primary Key
Foreign Key to Employee.Unique_ID	
INT	VARCHAR(255)
1001	Karen.Jennings1@gmail.com
1002	Kim.Fuller1@gmail.com
1003	Betsy.Moreno1@gmail.com
1004	Caleb.Brady1@gmail.com
1005	Dana.Cobb1@gmail.com
1006	Emanuel.Jimenez1@gmail.com
1007	Leon.Becker1@gmail.com
1008	Brett.Obrien1@gmail.com
1009	Andrew.Hansen1@gmail.com
1010	Glen.Stevenson1@gmail.com
1001	Karen.Jennings2@gmail.com
1002	Kim.Fuller2@gmail.com
1003	Betsy.Moreno2@gmail.com
1004	Caleb.Brady2@gmail.com
1005	Dana.Cobb2@gmail.com

SQL Statements

First Creation of the table:

```
/*Creating DEPARTMENT Table*/
```

```
Create table DEPARTMENT(  
Dept_ID INT Primary Key,  
Dept_Name varchar(255),  
Web_Address varchar(255),  
Phone_No VARCHAR(255),  
Email VARCHAR(255),  
Street VARCHAR(255),  
City VARCHAR(255),  
State VARCHAR(255),  
Zip_Code VARCHAR(255),  
Mailing_Address as (Street||','||City||','||State||','||Zip_Code));
```

```
/*Creating EMPLOYEE Table*/
```

```
Create table EMPLOYEE(  
Unique_ID INT Primary Key,  
Name VARCHAR(255),  
Date_of_Birth DATE);
```

```
/*Creating DEPARTMENT_HAS_EMPLOYEE Table*/
```

```
Create Table DEPARTMENT_HAS_EMPLOYEE(  
Dept_ID INT,  
Unique_ID INT,  
PRIMARY KEY (Dept_ID,Unique_ID),  
FOREIGN KEY (Dept_ID) REFERENCES DEPARTMENT(Dept_ID),  
FOREIGN KEY (Unique_ID) REFERENCES EMPLOYEE(Unique_ID));
```

```
Create Table BUILDING(  
Name VARCHAR(255) Primary Key,  
No_of_Rooms INT,  
No_of_Floors INT);
```



```
/*Creating Room Table*/
```

```
Create Table Room(  
Building_Name VARCHAR(255),  
Room_Number VARCHAR(255),  
Area_in_sq_yards Decimal(4,2),  
L_FLAG VARCHAR(1),  
O_FLAG VARCHAR(1),  
C_FLAG VARCHAR(1),  
PRIMARY KEY (Building_Name,Room_Number),  
FOREIGN KEY (Building_Name) REFERENCES BUILDING(Name));
```

```
/*Creating MEASUREMENT Table*/
```

```
Create table MEASUREMENT(  
Building_Name VARCHAR(255),  
Room_Number VARCHAR(255),  
Record_Date DATE,  
Record_Time VARCHAR(255),  
Light_in_LUX Decimal(6,2),  
Sound_in_dB Decimal(6,2),  
Temp_in_F Decimal(6,2),  
PRIMARY KEY (Building_Name,Room_Number,Record_Date,Record_Time),  
FOREIGN KEY (Building_Name,Room_Number) REFERENCES Room(Building_Name,Room_Number));
```

```
/*Creating EMPLOYEE_WORKSIN_ROOM Table*/
```

```
Create table EMPLOYEE_WORKSIN_ROOM(  
Unique_ID INT,  
Building_Name VARCHAR(255),  
Room_No VARCHAR(255),  
PRIMARY KEY (Unique_ID,Building_Name,Room_No),  
FOREIGN KEY (Unique_ID) REFERENCES EMPLOYEE(Unique_ID),  
FOREIGN KEY (Building_Name,Room_No) REFERENCES Room(Building_Name,Room_Number));
```

```
/*Creating Room_Phone_No Table*/
```

```
Create table Room_Phone_No(  
Building_Name VARCHAR(255),  
Room_Number VARCHAR(255),  
Phone_No VARCHAR(15),  
PRIMARY KEY (Building_Name,Room_Number,Phone_No),  
FOREIGN KEY (Building_Name,Room_Number) REFERENCES Room(Building_Name,Room_Number));
```

```
/*Creating EMPLOYEE_EMAIL Table*/
```

```
create table EMPLOYEE_EMAIL(  
Unique_ID INT,  
Email VARCHAR(255),  
PRIMARY KEY (Unique_ID,Email),  
FOREIGN KEY (Unique_ID) REFERENCES Employee(Unique_ID));
```

Insertion of Tuples in Table:

```
/*Inserting Tuples into Table Department*/
```

```
insert into Department (Dept_ID,Dept_Name,Web_Address,Phone_No,Email,Street,City,State,Zip_Code) values  
(1,'Engineering','Engineering.GMU.EDU','1122334455','Engineering@GMU.EDU','1st Street','Fairfax','VA','22030');
```

```
insert into Department (Dept_ID,Dept_Name,Web_Address,Phone_No,Email,Street,City,State,Zip_Code) values  
(2,'Science','Science.GMU.EDU','1122334456','Science@GMU.EDU','2nd Street','Fairfax','VA','22030');
```

```
insert into Department (Dept_ID,Dept_Name,Web_Address,Phone_No,Email,Street,City,State,Zip_Code) values  
(3,'Arts','Arts.GMU.EDU','1122334457','Arts@GMU.EDU','3rd Street','Fairfax','VA','22030');
```

```
insert into Department (Dept_ID,Dept_Name,Web_Address,Phone_No,Email,Street,City,State,Zip_Code) values  
(4,'Law','Law.GMU.EDU','1122334458','Law@GMU.EDU','4th Street','Fairfax','VA','22030');
```

```
insert into Department (Dept_ID,Dept_Name,Web_Address,Phone_No,Email,Street,City,State,Zip_Code) values  
(5,'Business','Business.GMU.EDU','1122334459','Business@GMU.EDU','5th Street','Fairfax','VA','22030');
```

```
/*Inserting Tuples into Table Employee*/
```

```
insert into EMPLOYEE Values(1001,'Karen Jennings',TO_DATE('12/02/1995','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1002,'Kim Fuller',TO_DATE('22/02/1996','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1003,'Betsy Moreno',TO_DATE('12/06/1997','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1004,'Caleb Brady',TO_DATE('12/02/1998','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1005,'Dana Cobb',TO_DATE('09/02/1999','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1006,'Emanuel Jimenez',TO_DATE('27/02/2000','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1007,'Leon Becker',TO_DATE('25/11/2001','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1008,'Brett Obrien',TO_DATE('12/02/2002','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1009,'Andrew Hansen',TO_DATE('01/02/2003','DD/MM,YYYY'));  
insert into EMPLOYEE Values(1010,'Glen Stevenson',TO_DATE('12/07/2004','DD/MM,YYYY'));
```

```
/*Inserting Tuples into Table Department_Has_Employee*/
```

```
insert into Department_Has_Employee Values(1,1001);  
insert into Department_Has_Employee Values(2,1002);  
insert into Department_Has_Employee Values(3,1003);  
insert into Department_Has_Employee Values(4,1004);  
insert into Department_Has_Employee Values(5,1005);  
insert into Department_Has_Employee Values(5,1006);  
insert into Department_Has_Employee Values(4,1007);  
insert into Department_Has_Employee Values(3,1008);  
insert into Department_Has_Employee Values(2,1009);  
insert into Department_Has_Employee Values(1,1010);
```

```
/*Inserting Tuples into Table Building*/
```

```
insert into Building values('Horizon Hall',4,4);
insert into Building values('Arts Sciences Building',3,3);
insert into Building values('James Buchanan Hall',2,2);
insert into Building values('Fenwick Library',5,5);
```

```
/*Inserting Tuples into Table Room*/
```

```
insert into Room Values ('Horizon Hall','100',55,'X','X','');
insert into Room Values ('Horizon Hall','200',62,'','X','');
insert into Room Values ('Horizon Hall','300',61,'X','','X');
insert into Room Values ('Horizon Hall','400',55,'','X','');
insert into Room Values ('Arts Sciences Building','100',81,'X','X','');
insert into Room Values ('Arts Sciences Building','200',70,'','','X');
insert into Room Values ('Arts Sciences Building','300',96,'X','','');
insert into Room Values ('James Buchanan Hall','100',80,'','X','X');
insert into Room Values ('James Buchanan Hall','200',67,'X','X','');
insert into Room Values ('Fenwick Library','100',75,'X','','');
insert into Room Values ('Fenwick Library','200',50,'','X','X');
insert into Room Values ('Fenwick Library','300',56,'','','X');
insert into Room Values ('Fenwick Library','400',23,'','X','');
insert into Room Values ('Fenwick Library','500',14,'X','','X');
```

```
/*Inserting Tuples into Table Measurement*/
```

```
insert into measurement values('Horizon Hall','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',5,15,56);
insert into measurement values('Horizon Hall','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',10,45,68);
insert into measurement values('Horizon Hall','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',15,34,78);
insert into measurement values('Horizon Hall','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',20,54,64);
insert into measurement values('Horizon Hall','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',25,34,Null);
insert into measurement values('Horizon Hall','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',30,33,Null);
insert into measurement values('Horizon Hall','400',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',35,76,67);
insert into measurement values('Horizon Hall','400',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',40,56,60);
insert into measurement values('Arts Sciences Building','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',15,78,74);
insert into measurement values('Arts Sciences Building','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',25,54,54);
insert into measurement values('Arts Sciences Building','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',35,56,64);
insert into measurement values('Arts Sciences Building','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',45,44,56);
insert into measurement values('Arts Sciences Building','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',55,34,57);
insert into measurement values('Arts Sciences Building','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',65,65,77);
insert into measurement values('James Buchanan Hall','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',20,44,Null);
insert into measurement values('James Buchanan Hall','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',30,56,58);
insert into measurement values('James Buchanan Hall','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',40,54,65);
insert into measurement values('James Buchanan Hall','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',50,56,51);
insert into measurement values('Fenwick Library','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',55,76,50);
insert into measurement values('Fenwick Library','100',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',65,54,63);
insert into measurement values('Fenwick Library','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',75,46,Null);
insert into measurement values('Fenwick Library','200',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',85,45,Null);
insert into measurement values('Fenwick Library','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',95,87,51);
```



```

insert into measurement values('Fenwick Library','300',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',20,65,72);
insert into measurement values('Fenwick Library','400',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',26,65,71);
insert into measurement values('Fenwick Library','400',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',43,88,66);
insert into measurement values('Fenwick Library','500',TO_DATE('01/03/2023','DD/MM/YYYY'),'00:00:00',65,65,54);
insert into measurement values('Fenwick Library','500',TO_DATE('01/03/2023','DD/MM/YYYY'),'12:00:00',43,45,54);

```

```

/*Inserting Tuples into Table Employee_Works_in_Room*/

```

```

insert into Employee_Works_in_Room values(1001,'Horizon Hall','100');
insert into Employee_Works_in_Room values(1002,'Horizon Hall','200');
insert into Employee_Works_in_Room values(1003,'Horizon Hall','300');
insert into Employee_Works_in_Room values(1004,'Horizon Hall','400');
insert into Employee_Works_in_Room values(1005,'Arts Sciences Building','100');
insert into Employee_Works_in_Room values(1006,'Arts Sciences Building','200');
insert into Employee_Works_in_Room values(1007,'Arts Sciences Building','300');
insert into Employee_Works_in_Room values(1008,'James Buchanan Hall','100');
insert into Employee_Works_in_Room values(1009,'James Buchanan Hall','200');
insert into Employee_Works_in_Room values(1010,'Fenwick Library','100');
insert into Employee_Works_in_Room values(1001,'Arts Sciences Building','200');
insert into Employee_Works_in_Room values(1002,'Arts Sciences Building','300');
insert into Employee_Works_in_Room values(1003,'James Buchanan Hall','100');
insert into Employee_Works_in_Room values(1004,'James Buchanan Hall','200');
insert into Employee_Works_in_Room values(1005,'Fenwick Library','100');

```

```
/*Inserting Tuples into Table Room_Phone_No*/
```

```
insert into Room_Phone_No values('Horizon Hall','100','3943511324');
insert into Room_Phone_No values('Horizon Hall','200','9348277345');
insert into Room_Phone_No values('Horizon Hall','300','1796358550');
insert into Room_Phone_No values('Horizon Hall','400','7301702070');
insert into Room_Phone_No values('Arts Sciences Building','100','1914147371');
insert into Room_Phone_No values('Arts Sciences Building','200','5197138851');
insert into Room_Phone_No values('Arts Sciences Building','300','6392956308');
insert into Room_Phone_No values('James Buchanan Hall','100','7828967907');
insert into Room_Phone_No values('James Buchanan Hall','200','7392332181');
insert into Room_Phone_No values('Fenwick Library','100','2327390821');
insert into Room_Phone_No values('Fenwick Library','200','5793589177');
insert into Room_Phone_No values('Fenwick Library','300','9556418611');
insert into Room_Phone_No values('Fenwick Library','400','2681565955');
insert into Room_Phone_No values('Fenwick Library','500','1063987235');
insert into Room_Phone_No values('Horizon Hall','100','9839691177');
insert into Room_Phone_No values('Horizon Hall','200','7694018166');
insert into Room_Phone_No values('Horizon Hall','300','2274993981');
insert into Room_Phone_No values('Horizon Hall','400','9666653853');
insert into Room_Phone_No values('Arts Sciences Building','100','2137115169');
insert into Room_Phone_No values('Arts Sciences Building','200','9909244688');
insert into Room_Phone_No values('Arts Sciences Building','300','8174944983');
insert into Room_Phone_No values('James Buchanan Hall','100','5763148542');
insert into Room_Phone_No values('James Buchanan Hall','200','3316082677');

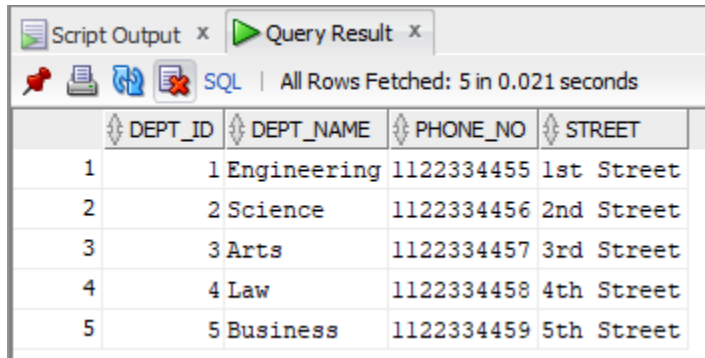
insert into Room_Phone_No values('Fenwick Library','100','5481939687');
insert into Room_Phone_No values('Fenwick Library','200','9858899789');
insert into Room_Phone_No values('Fenwick Library','300','7037698063');
insert into Room_Phone_No values('Fenwick Library','400','6758830045');
insert into Room_Phone_No values('Fenwick Library','500','4314808686');
insert into Room_Phone_No values('Horizon Hall','100','2662797340');
insert into Room_Phone_No values('Horizon Hall','200','2497197975');
insert into Room_Phone_No values('Horizon Hall','300','2203959190');
insert into Room_Phone_No values('Horizon Hall','400','6680313763');
insert into Room_Phone_No values('Arts Sciences Building','100','4716289270');
insert into Room_Phone_No values('Arts Sciences Building','200','9569481897');
```

```
/*Inserting Tuples into Table Employee_Email*/
```

```
insert into Employee_Email values (1001,'Karen.Jennings1@gmail.com');
insert into Employee_Email values (1002,'Kim.Fuller1@gmail.com');
insert into Employee_Email values (1003,'Betsy.Moreno1@gmail.com');
insert into Employee_Email values (1004,'Caleb.Brady1@gmail.com');
insert into Employee_Email values (1005,'Dana.Cobb1@gmail.com');
insert into Employee_Email values (1006,'Emanuel.Jimenez1@gmail.com');
insert into Employee_Email values (1007,'Leon.Becker1@gmail.com');
insert into Employee_Email values (1008,'Brett.Obrien1@gmail.com');
insert into Employee_Email values (1009,'Andrew.Hansen1@gmail.com');
insert into Employee_Email values (1010,'Glen.Stevenson1@gmail.com');
insert into Employee_Email values (1001,'Karen.Jennings2@gmail.com');
insert into Employee_Email values (1002,'Kim.Fuller2@gmail.com');
insert into Employee_Email values (1003,'Betsy.Moreno2@gmail.com');
insert into Employee_Email values (1004,'Caleb.Brady2@gmail.com');
insert into Employee_Email values (1005,'Dana.Cobb2@gmail.com');
```

SQL Queries and Results:

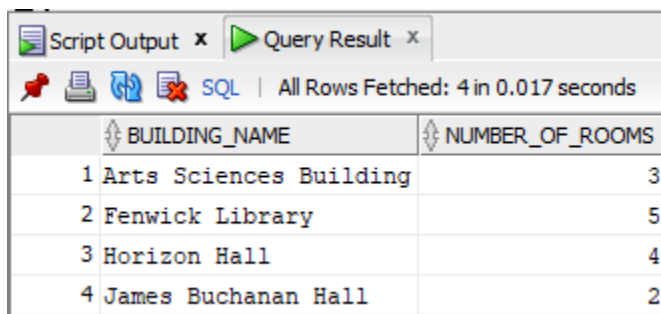
```
/*List the phone number and department name and street address for each department*/  
  
Select Dept_Id,Dept_Name,Phone_no,street from department;
```



The screenshot shows a SQL query result window with two tabs: 'Script Output' and 'Query Result'. The 'Query Result' tab is active, displaying a table with 5 rows and 4 columns: DEPT_ID, DEPT_NAME, PHONE_NO, and STREET. The data is as follows:

DEPT_ID	DEPT_NAME	PHONE_NO	STREET
1	Engineering	1122334455	1st Street
2	Science	1122334456	2nd Street
3	Arts	1122334457	3rd Street
4	Law	1122334458	4th Street
5	Business	1122334459	5th Street

```
/*Count the number of rooms for each building*/  
  
Select Building_Name,Count(*) as Number_Of_Rooms from Room group by Building_Name;
```



The screenshot shows a SQL query result window with two tabs: 'Script Output' and 'Query Result'. The 'Query Result' tab is active, displaying a table with 2 columns: BUILDING_NAME and NUMBER_OF_ROOMS. The data is as follows:

BUILDING_NAME	NUMBER_OF_ROOMS
1 Arts Sciences Building	3
2 Fenwick Library	5
3 Horizon Hall	4
4 James Buchanan Hall	2


```
/* Find the building name and the room number of each lab that is also used as office*/
```





```
Select Building_Name, Room_Number from Room where L_Flag='X' and O_Flag='X';
```

Script Output x Query Result x	
SQL All Rows Fetched: 3 in 0.062 seconds	
BUILDING_NAME	ROOM_NUMBER
1 Horizon Hall	100
2 Arts Sciences Building	100
3 James Buchanan Hall	200

```
/*Find the average temperature for each room*/
```

```
select Building_Name,Room_Number,avg(Temp_in_F) as AVERAGE_TEMP_IN_FARENHEIT from measurement group by Building_Name,Room_Number;
```


Script Output x Query Result x

 SQL | All Rows Fetched: 14 in 0.012 seconds

	BUILDING_NAME	ROOM_NUMBER	AVERAGE_TEMP_IN_FARENHEIT
1	Arts Sciences Building	100	64
2	Arts Sciences Building	200	60
3	Arts Sciences Building	300	67
4	Fenwick Library	100	56.5
5	Fenwick Library	200	(null)
6	Fenwick Library	300	61.5
7	Fenwick Library	400	68.5
8	Fenwick Library	500	54
9	Horizon Hall	100	62
10	Horizon Hall	200	71
11	Horizon Hall	300	(null)
12	Horizon Hall	400	63.5
13	James Buchanan Hall	100	58
14	James Buchanan Hall	200	58

```
/*Find the area of each conference room that hasn't had any temperature recorded yet*/
```

```
select Building_Name,Room_Number,Area_in_sq_Yards from room where C_FLAG='X' and Building_Name||Room_Number not in (  
select distinct Building_Name||Room_Number from Measurement where TEMP_IN_F is not null);
```





Script Output x		Query Result x	
 All Rows Fetched: 2 in 0.016 seconds			
	BUILDING_NAME	ROOM_NUMBER	AREA_IN_SQ_YARDS
1	Fenwick Library	200	50
2	Horizon Hall	300	61

```
/*Find the id of each employee who has exactly two email addresses*/
```

```
Select Unique_Id from employee_email group by unique_id having count(*)=2;
```

Script Output x

Query Result x



SQL | All Rows Fetched: 5 in 0.017 seconds

	UNIQUE_ID
1	1001
2	1002
3	1003
4	1004
5	1005