

a) Creating database and tables:

```
CREATE DATABASE city;
```

```
\c city
```

```
CREATE TABLE Employee
(
    ID VARCHAR(6) NOT NULL,
    Name VARCHAR(100) NOT NULL,
    Surname VARCHAR(50) NULL,
    Address VARCHAR(500) NULL,
    Salary NUMERIC(10, 2) NOT NULL,
    CONSTRAINT PK_Employee PRIMARY KEY (ID)
);
```

```
CREATE TABLE Furniture
(
    Name VARCHAR(100) NOT NULL,
    Price NUMERIC(10, 2) NOT NULL,
    Condition VARCHAR(500) NULL,
    CONSTRAINT PK_Furniture PRIMARY KEY (Name)
);
```

```
CREATE TABLE Room
(
    Number INT NOT NULL,
    Name VARCHAR(100) NOT NULL,
    EmployeeID VARCHAR(6) NOT NULL,
    FurnitureName VARCHAR(100) NOT NULL,
    Description VARCHAR(500) NULL,
    CONSTRAINT PK_Room PRIMARY KEY (Number, EmployeeID),
    CONSTRAINT FK_Room_Employee FOREIGN KEY (EmployeeID) REFERENCES Employee (ID),
    CONSTRAINT FK_Room_Furniture FOREIGN KEY (FurnitureName) REFERENCES Furniture (Name)
);
```

```
CREATE TABLE Event
(
    RoomNumber INT NOT NULL,
    EmployeeID VARCHAR(6) NOT NULL,
    Date Date NOT NULL,
```

```
Description VARCHAR(500) NULL,  
CONSTRAINT PK_Event PRIMARY KEY (RoomNumber, EmployeeID, Date),  
CONSTRAINT FK_Event_Room FOREIGN KEY (RoomNumber, EmployeeID) REFERENCES Room  
(Number, EmployeeID)  
);
```

b) Insert data:

```
INSERT INTO Employee VALUES ('000001', 'Er Murat', 'Murat', 'Ebru Durağı 67 74770 Burdur', 25000);  
INSERT INTO Employee VALUES ('000002', 'Berk Akal', 'Akal', 'Akışık Caddesi 84 84706 Çorum', 20000);  
INSERT INTO Employee VALUES ('000003', 'Ebru Kavaklıoğlu', 'Kavaklıoğlu', 'İrem Mevkii 6 24583 İzmir',  
2000);  
INSERT INTO Employee VALUES ('000004', 'Ali Tekelioğlu', 'Tekelioğlu', 'Fahri İş Hanı 1 64522 Ordu',  
24000);  
INSERT INTO Employee VALUES ('000005', 'Bora Korol', 'Korol', 'Sarp Kavşağı 65 93217 Yalova', 29000);  
INSERT INTO Employee VALUES ('000006', 'Ebru Egeli', 'Egeli', 'Balci İş Hanı 2 63437 Bartın', 35000);  
INSERT INTO Employee VALUES ('000007', 'Dağhan Tunçeri', 'Tunçeri', 'Yağız Durağı 59 62731 Kayseri',  
15000);  
INSERT INTO Employee VALUES ('000008', 'Ogün Akaydın', 'Akaydın', 'Ada İş Hanı 5 00228 Sakarya',  
28000);  
INSERT INTO Employee VALUES ('000009', 'Ebru Baykam', 'Baykam', 'Polat İş Hanı 50 34184 Kırklareli',  
29000);  
INSERT INTO Employee VALUES ('000010', 'Yiğit Bademci', 'Bademci', 'Burak Sokak 040 94766 Giresun',  
20000);  
INSERT INTO Employee VALUES ('000011', 'Esmâ Kulaksızoğlu', 'Kulaksızoğlu', 'Çağan Caddesi 42 34334  
Bolu', 21000);
```

```
INSERT INTO Furniture VALUES ('Printer', 700);  
INSERT INTO Furniture VALUES ('Chair', 200);  
INSERT INTO Furniture VALUES ('Table', 500);  
INSERT INTO Furniture VALUES ('Scanner', 200);  
INSERT INTO Furniture VALUES ('Computer', 1500);  
INSERT INTO Furniture VALUES ('Drawer', 200);  
INSERT INTO Furniture VALUES ('File Cabinet', 700);  
INSERT INTO Furniture VALUES ('Staple Machin', 50);  
INSERT INTO Furniture VALUES ('Art Paper', 20);  
INSERT INTO Furniture VALUES ('Projector', 700);
```

```
INSERT INTO Room VALUES (1, 'Room-001', '000001', 'Printer', 'Room-001');
INSERT INTO Room VALUES (1, 'Room-001', '000002', 'Scanner', 'Room-001');
INSERT INTO Room VALUES (2, 'Room-002', '000003', 'Printer', 'Room-002');
INSERT INTO Room VALUES (3, 'Room-003', '000004', 'Computer', 'Room-003');
INSERT INTO Room VALUES (4, 'Room-004', '000005', 'Staple Machin', 'Room-004');
INSERT INTO Room VALUES (5, 'Room-005', '000006', 'Printer', 'Room-005');
INSERT INTO Room VALUES (6, 'Room-006', '000007', 'Table', 'Room-006');
INSERT INTO Room VALUES (7, 'Room-007', '000008', 'Printer', 'Room-007');
INSERT INTO Room VALUES (8, 'Room-008', '000009', 'Drawer', 'Room-008');
INSERT INTO Room VALUES (9, 'Room-009', '000010', 'Chair', 'Room-009');
INSERT INTO Room VALUES (10, 'Room-010', '000011', 'Staple Machin', 'Room-010');
INSERT INTO Room VALUES (11, 'Room-011', '000001', 'Art Paper', 'Room-011');
```

```
INSERT INTO Event VALUES (1, '000001', '2019-01-17', 'Room-001 Event at 2019-01-17');
INSERT INTO Event VALUES (1, '000002', '2019-01-27', 'Room-001 Event at 2019-01-27');
INSERT INTO Event VALUES (2, '000003', '2019-01-29', 'Room-002 Event at 2019-01-29');
INSERT INTO Event VALUES (3, '000004', '2019-02-10', 'Room-003 Event at 2019-02-10');
INSERT INTO Event VALUES (4, '000005', '2019-02-11', 'Room-004 Event at 2019-02-11');
INSERT INTO Event VALUES (5, '000006', '2019-02-12', 'Room-005 Event at 2019-02-12');
INSERT INTO Event VALUES (6, '000007', '2019-02-13', 'Room-006 Event at 2019-02-13');
INSERT INTO Event VALUES (7, '000008', '2019-02-14', 'Room-007 Event at 2019-02-14');
INSERT INTO Event VALUES (8, '000009', '2019-01-17', 'Room-008 Event at 2019-01-17');
INSERT INTO Event VALUES (9, '000010', '2019-01-17', 'Room-009 Event at 2019-01-17');
INSERT INTO Event VALUES (10, '000011', '2019-01-18', 'Room-010 Event at 2019-01-18');
INSERT INTO Event VALUES (11, '000001', '2019-01-19', 'Room-011 Event at 2019-01-19');
```

c) Executing queries and output:

```
SELECT AVG(Salary) FROM Employee WHERE ID IN  
(SELECT EmployeeID FROM Room WHERE Number = 9);
```

Output:

```
city=# SELECT AVG(Salary) FROM Employee WHERE ID IN  
city=# (SELECT EmployeeID FROM Room WHERE Number = 9);  
      avg  
-----  
 20000.000000000000  
(1 row)
```

```
SELECT COUNT(EmployeeID) FROM Room WHERE FurnitureName = 'Printer';
```

Output:

```
city=# SELECT COUNT(EmployeeID) FROM Room WHERE FurnitureName = 'Printer';  
      count  
-----  
         4  
(1 row)
```

```
SELECT Number RoomNumber, COUNT(FurnitureName) NumberOfMaxFurniture FROM Room  
WHERE Number IN (SELECT RoomNumber FROM Event WHERE Date = '2019-01-17')  
GROUP BY Number ORDER BY 2 DESC LIMIT 1;
```

Output:

```
city=# SELECT Number RoomNumber, COUNT(FurnitureName) NumberOfMaxFurniture FROM Room  
city=# WHERE Number IN (SELECT RoomNumber FROM Event WHERE Date = '2019-01-17')  
city=# GROUP BY Number ORDER BY 2 DESC LIMIT 1;  
 roomnumber | numberofmaxfurniture  
-----+-----  
         1 |                     2  
(1 row)
```

Two other queries:

--Employees working on multiple rooms

```
SELECT Employee.ID, Employee.Name, Employee.Salary, COUNT(Room.Number)
FROM Employee INNER JOIN Room ON Employee.ID = Room.EmployeeID
GROUP BY Employee.ID, Employee.Name, Employee.Salary
HAVING COUNT(Room.Number) > 1;
```

Output:

```
city=# SELECT Employee.ID, Employee.Name, Employee.Salary, COUNT(Room.Number)
city=# FROM Employee INNER JOIN Room ON Employee.ID = Room.EmployeeID
city=# GROUP BY Employee.ID, Employee.Name, Employee.Salary
city=# HAVING COUNT(Room.Number) > 1;
   id   |  name   | salary | count
-----+-----+-----+-----
 000001 | Er  Murat | 25000.00 |      2
(1 row)
```

--Employees attended multiple events

```
SELECT Employee.ID, Employee.Name, COUNT(Event.Date)
FROM Employee INNER JOIN Room ON Employee.ID = Room.EmployeeID
INNER JOIN Event ON Room.EmployeeID = Event.EmployeeID AND Room.Number = Event.RoomNumber
GROUP BY Employee.ID, Employee.Name
HAVING COUNT(Event.Date) > 1;
```

Output:

```
city=# SELECT Employee.ID, Employee.Name, COUNT(Event.Date)
city=# FROM Employee INNER JOIN Room ON Employee.ID = Room.EmployeeID
city=# INNER JOIN Event ON Room.EmployeeID = Event.EmployeeID AND Room.Number = Event.RoomNumber
city=# GROUP BY Employee.ID, Employee.Name
city=# HAVING COUNT(Event.Date) > 1;
   id   |  name   | count
-----+-----+-----
 000001 | Er  Murat |      2
(1 row)
```