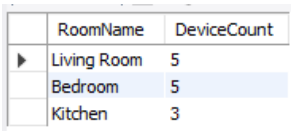
DB Task 3 - Smart Home Management System

Query and Output

1. List all the rooms which have at least 3 devices connected in all houses

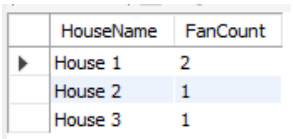
```
SELECT R.RoomName, COUNT(DISTINCT DRM.DeviceID) AS DeviceCount
FROM Rooms R
JOIN RoomHouseMappings RHM ON R.RoomID = RHM.RoomID
JOIN DeviceRoomAttributeGroupMappings DRM ON RHM.RoomHouseID = DRM.RoomHouseID
GROUP BY R.RoomID, R.RoomName
HAVING COUNT( DRM.DeviceID) >= 3;
```



RoomName	DeviceCount
Living Room	5
Bedroom	5
Kitchen	3

2. List the number of fans in each house that are connected to the system

```
SELECT H.HouseName, COUNT(DISTINCT DRM.DeviceID) AS FanCount
FROM Houses H
JOIN HouseUserMappings HUM ON H.HouseID = HUM.HouseID
JOIN RoomHouseMappings RHM ON HUM.HouseUserID = RHM.HouseUserID
JOIN DeviceRoomAttributeGroupMappings DRM ON RHM.RoomHouseID = DRM.RoomHouseID
JOIN Devices D ON DRM.DeviceID = D.DeviceID
WHERE D.DeviceType = 'Fan'
GROUP BY H.HouseID, H.HouseName;
```



HouseName	FanCount
House 1	2
House 2	1
House 3	1

Dummy data insertion query

```
-- Insert values into the User table
INSERT INTO User (UserID, Email, Password) VALUES
(1, 'user1@example.com', 'password1'),
(2, 'user2@example.com', 'password2'),
(3, 'user3@example.com', 'password3');

-- Insert values into the UserDetail table
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INSERT INTO UserDetail (UserDetailID, FirstName, LastName) VALUES
(1, 'John', 'Doe'),
(2, 'Jane', 'Smith'),
(3, 'Bob', 'Johnson');

-- Insert values into the UserUserDetailMappings table
INSERT INTO UserUserDetailMappings (MappingID, UserID, UserDetailID) VALUES
(1, 1, 1),
(2, 2, 2),
(3, 3, 3);

-- Insert values into the UserRoles table
INSERT INTO UserRoles (RoleID, RoleName, Description) VALUES
(1, 'Admin', 'Administrator role'),
(2, 'User', 'Regular user role');

-- Insert values into the UserRoleMappings table
INSERT INTO UserRoleMappings (MappingID, UserID, RoleID) VALUES
(1, 1, 1),
(2, 2, 2),
(3, 3, 2);

-- Insert values into the Houses table
INSERT INTO Houses (HouseID, HouseName, Address) VALUES
(1, 'House 1', '123 Main St'),
(2, 'House 2', '456 Oak Ave'),
(3, 'House 3', '789 Pine Ln');

-- Insert values into the HouseUserMappings table
INSERT INTO HouseUserMappings (HouseUserID, UserID, HouseID) VALUES
(1, 1, 1),
(2, 2, 2),
(3, 3, 3);

-- Insert values into the Rooms table
INSERT INTO Rooms (RoomID, RoomName, Description) VALUES
(1, 'Living Room', 'Main living area'),
(2, 'Bedroom', 'Sleeping area'),
(3, 'Kitchen', 'Cooking area');

-- Insert values into the RoomHouseMappings table
INSERT INTO RoomHouseMappings (RoomHouseID, HouseUserID, RoomID) VALUES
(1, 1, 1),
(2, 2, 2),
(3, 3, 3);

-- Insert values into the Devices table
INSERT INTO Devices (DeviceID, DeviceName, DeviceType) VALUES
(1, 'Smart TV', 'Television'),
(2, 'Smart Thermostat', 'Thermostat'),
(3, 'Smart Light', 'Light'),
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(4, 'Fan', 'Fan'),
(5, 'Security Camera', 'Camera'),
(6, 'Smart Speaker', 'Audio'),
(7, 'Smart Thermostat 2', 'Thermostat'),
(8, 'Smart Light 2', 'Light'),
(9, 'Smart Door Lock', 'Lock'),
(10, 'Smart Plug', 'Plug'),
(11, 'Ceiling Fan', 'Fan'),
(12, 'Desk Fan', 'Fan'),
(13, 'Smart Fan', 'Fan');

-- Insert values into the Attributes table
INSERT INTO Attributes (AttributeID, AttributeType, AttributeValue) VALUES
(1, 'Temperature', '22°C'),
(2, 'Brightness', '80%'),
(3, 'Power', 'On'),
(4, 'Speed', 'High'),
(5, 'Status', 'Active');

-- Insert values into the DeviceGroups table
INSERT INTO DeviceGroups (GroupID, GroupName, Description) VALUES
(1, 'Living Room Devices', 'Devices in the living room'),
(2, 'Bedroom Devices', 'Devices in the bedroom'),
(3, 'Kitchen Devices', 'Devices in the kitchen');

-- Insert values into the DeviceRoomAttributeGroupMappings table
INSERT INTO DeviceRoomAttributeGroupMappings (DeviceMappingID, DeviceID,
RoomHouseID, AttributeID, GroupID) VALUES
(1, 1, 1, 1, 1),
(2, 2, 2, 2, 2),
(3, 3, 3, 3, 3),
(4, 4, 1, 4, 2),
(5, 5, 2, 5, 3),
(6, 6, 1, 1, 1),
(7, 7, 2, 2, 2),
(8, 8, 3, 3, 3),
(9, 9, 1, 4, 2),
(10, 10, 2, 5, 3),
(11, 11, 1, 4, 2),
(12, 12, 2, 4, 2),
(13, 13, 3, 4, 2);

-- Insert values into the Monitor table
INSERT INTO Monitor (MonitorID, DeviceMappingID, Status) VALUES
(1, 1, 'Active'),
(2, 2, 'Inactive'),
(3, 3, 'Active');
```