# Coding Challenge SQL

## Virtual Art Gallery Shema DDL and DML

-- Create the Artists table

CREATE TABLE Artists (

 ArtistID INT PRIMARY KEY,

 Name VARCHAR(255) NOT NULL,

 Biography TEXT,

 Nationality VARCHAR(100));


-- Create the Categories table

CREATE TABLE Categories (

 CategoryID INT PRIMARY KEY,

 Name VARCHAR(100) NOT NULL);


-- Create the Artworks table

CREATE TABLE Artworks (

 ArtworkID INT PRIMARY KEY,

 Title VARCHAR(255) NOT NULL,

 ArtistID INT,

 CategoryID INT,

 Year INT,

 Description TEXT,

 ImageURL VARCHAR(255),

 FOREIGN KEY (ArtistID) REFERENCES Artists (ArtistID),

 FOREIGN KEY (CategoryID) REFERENCES Categories (CategoryID));


-- Create the Exhibitions table

CREATE TABLE Exhibitions (

 ExhibitionID INT PRIMARY KEY,

 Title VARCHAR(255) NOT NULL,

 StartDate DATE,

EndDate DATE,

Description TEXT);


-- Create a table to associate artworks with exhibitions

CREATE TABLE ExhibitionArtworks (

ExhibitionID INT,

ArtworkID INT,

PRIMARY KEY (ExhibitionID, ArtworkID),

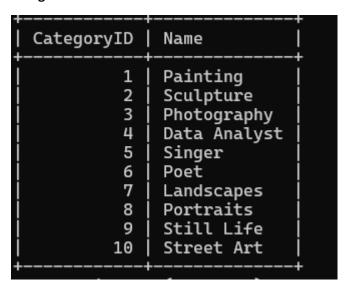FOREIGN KEY (ExhibitionID) REFERENCES Exhibitions (ExhibitionID),

FOREIGN KEY (ArtworkID) REFERENCES Artworks (ArtworkID));


**Database with each tables:**

**Artists table**

```
+----------+------------------+----------------------------------------+-------------+
| ArtistID | Name             | Biography                              | Nationality |
+----------+------------------+----------------------------------------+-------------+
|        1 | Pablo Picasso    | Renowned Spanish painter and sculptor. | Spanish     |
|        2 | Vincent van Gogh | Dutch post-impressionist painter.      | Dutch       |
|        3 | Leonardo da Vinci| Italian polymath of the Renaissance.   | Italian     |
|        4 | Elamathi         | Spanish experted Data Analyst          | Spanish     |
|        5 | Narmadhasri      | Dutch post-impressionist singer        | Dutch       |
|        6 | Santhiya         | Italian polymath of the Renaissance.   | Italian     |
|        7 | Frida Kahlo      | Iconic Mexican painter                 | Mexican     |
|        8 | Georgia O'Keeffe | Renowned American artist               | American    |
|        9 | Salvador Dalí    | Spanish surrealist                     | Spanish     |
|       10 | Claude Monet     | French Impressionist                   | French      |
+----------+------------------+----------------------------------------+-------------+
```

**Categories table**

```
+------------+--------------+
| CategoryID | Name         |
+------------+--------------+
|          1 | Painting     |
|          2 | Sculpture    |
|          3 | Photography  |
|          4 | Data Analyst |
|          5 | Singer       |
|          6 | Poet         |
|          7 | Landscapes   |
|          8 | Portraits    |
|          9 | Still Life   |
|         10 | Street Art   |
+------------+--------------+
```

**Artworks table**

```
mysql> select * from artworks;
+----------+---------------------------+----------+------------+------+---------------------------------------------------------------+--------------------------+
| ArtworkID | Title                     | ArtistID | CategoryID | Year | Description                                                   | ImageURL                 |
+----------+---------------------------+----------+------------+------+---------------------------------------------------------------+--------------------------+
|        1 | Starry Night              |        2 |          1 | 1889 | A famous painting by Vincent van Gogh.                        | starry_night.jpg         |
|        2 | Mona Lisa                 |        3 |          1 | 1503 | The iconic portrait by Leonardo da Vinci.                     | mona_lisa.jpg            |
|        3 | Guernica                  |        1 |          1 | 1937 | Pablo Picasso's powerful anti-war mural.                      | guernica.jpg             |
|        4 | Star                      |        6 |          1 | 1899 | A famous data analyzer.                                       | star.jpg                 |
|        5 | Night                     |        5 |          1 | 1990 | A well-known singer.                                          | Night.jpg                |
|        6 | Bright                    |        4 |          1 | 2000 | An experienced poet.                                          | Bright.jpg               |
|        7 | The Persistence of Memory |        9 |          1 | 1931 | Famous surrealist painting by Salvador Dalí depicting melting clocks. | persistence_of_memory.jpg |
|        8 | Water Lilies              |       10 |          1 | 1916 | Series of approximately 250 oil paintings by Claude Monet.    | water_lilies.jpg         |
|        9 | The Two Fridas            |        7 |          1 | 1939 | Iconic painting by Frida Kahlo representing her dual heritage. | two_fridas.jpg           |
|       10 | Black Iris III            |        8 |          1 | 1926 | Famous flower painting by Georgia O'Keeffe.                   | black_iris.jpg           |
+----------+---------------------------+----------+------------+------+---------------------------------------------------------------+--------------------------+
```

Exhibitions table:

```
mysql> select * from exhibitions;
+--------------+------------------------------+------------+------------+---------------------------------------------------------------+
| ExhibitionID | Title                        | StartDate  | EndDate    | Description                                                   |
+--------------+------------------------------+------------+------------+---------------------------------------------------------------+
|            1 | Modern Art Masterpieces      | 2023-01-01 | 2023-03-01 | A collection of modern art masterpieces.                     |
|            2 | Renaissance Art              | 2023-04-01 | 2023-06-01 | A showcase of Renaissance art treasures.                     |
|            3 | Poet                         | 2023-05-01 | 2023-06-01 | A showcase of Renaissance poet.                              |
|            4 | Singing                      | 2023-05-01 | 2023-07-01 | Experiencing the best of music.                              |
|            5 | Photography Journey          | 2024-09-01 | 2024-10-01 | A journey through the world of photography.                  |
|            6 | Impressionist Masterpieces   | 2024-11-01 | 2024-12-01 | A collection of Impressionist artworks.                      |
|            7 | Street Art Festival          | 2025-01-01 | 2025-02-01 | Celebrating street art culture and creativity.               |
|            8 | Ancient Artifacts Exhibition | 2025-03-01 | 2025-04-01 | An exhibition showcasing ancient artifacts from around the world. |
|            9 | Contemporary Art Showcase    | 2025-05-01 | 2025-06-01 | Showcasing cutting-edge contemporary artworks.               |
|           10 | Nature-Inspired Creations    | 2025-07-01 | 2025-08-01 | Exploring art inspired by the natural world.                 |
+--------------+------------------------------+------------+------------+---------------------------------------------------------------+
```

TABLE ExhibitionArtworks

```
mysql> select * from ExhibitionArtworks;
+--------------+-----------+
| ExhibitionID | ArtworkID |
+--------------+-----------+
|            1 |         1 |
|            3 |         1 |
|            1 |         2 |
|            2 |         2 |
|            3 |         2 |
|            4 |         2 |
|            1 |         3 |
|            4 |         3 |
|            1 |         4 |
|            3 |         4 |
|            4 |         4 |
+--------------+-----------+
```

# Solve the below queries:

**1. Retrieve the names of all artists along with the number of artworks they have in the gallery, and**

**list them in descending order of the number of artworks.**

SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount

FROM Artists

LEFT JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID

GROUP BY Artists.Name

ORDER BY ArtworkCount DESC;

```
mysql> SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount
    -> FROM Artists
    -> LEFT JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
    -> GROUP BY Artists.Name
    -> ORDER BY ArtworkCount DESC;
+-------------------+--------------+
| Name              | ArtworkCount |
+-------------------+--------------+
| Pablo Picasso     |            1 |
| Vincent van Gogh  |            1 |
| Leonardo da Vinci |            1 |
| Elamathi          |            1 |
| Narmadhasri       |            1 |
| Santhiya          |            1 |
| Frida Kahlo       |            1 |
| Georgia O'Keeffe  |            1 |
| Salvador Dalí     |            1 |
| Claude Monet      |            1 |
+-------------------+--------------+
10 rows in set (0.01 sec)
```

**2. List the titles of artworks created by artists from 'Spanish' and 'Dutch' nationalities, and order**

**them by the year in ascending order.**

SELECT Artworks.Title

FROM Artworks

JOIN Artists ON Artworks.ArtistID = Artists.ArtistID

WHERE Artists.Nationality IN ('Spanish', 'Dutch')

ORDER BY Artworks.Year ASC;

```
mysql> SELECT Artworks.Title
    -> FROM Artworks
    -> JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
    -> WHERE Artists.Nationality IN ('Spanish', 'Dutch')
    -> ORDER BY Artworks.Year ASC;
+---------------------------+
| Title                     |
+---------------------------+
| Starry Night              |
| The Persistence of Memory |
| Guernica                  |
| Night                     |
| Bright                    |
+---------------------------+
5 rows in set (0.00 sec)
```

**3. Find the names of all artists who have artworks in the 'Painting' category, and the number of**

**artworks they have in this category.**

SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount

FROM Artists

JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID

JOIN Categories ON Artworks.CategoryID = Categories.CategoryID

WHERE Categories.Name = 'Painting'

GROUP BY Artists.Name;

```
mysql> SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount
    -> FROM Artists
    -> JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
    -> JOIN Categories ON Artworks.CategoryID = Categories.CategoryID
    -> WHERE Categories.Name = 'Painting'
    -> GROUP BY Artists.Name;
+-------------------+--------------+
| Name              | ArtworkCount |
+-------------------+--------------+
| Vincent van Gogh  |            1 |
| Leonardo da Vinci |            1 |
| Pablo Picasso     |            1 |
| Santhiya          |            1 |
| Narmadhasri       |            1 |
| Elamathi          |            1 |
| Salvador Dalí     |            1 |
| Claude Monet      |            1 |
| Frida Kahlo       |            1 |
| Georgia O'Keeffe  |            1 |
+-------------------+--------------+
10 rows in set (0.01 sec)
```

**4. List the names of artworks from the 'Modern Art Masterpieces' exhibition, along with their**

**artists and categories.**

SELECT Artworks.Title, Artists.Name, Categories.Name AS Category

FROM Artworks

JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID

JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID

JOIN Artists ON Artworks.ArtistID = Artists.ArtistID

JOIN Categories ON Artworks.CategoryID = Categories.CategoryID

WHERE Exhibitions.Title = 'Modern Art Masterpieces';

```
mysql> SELECT Artworks.Title, Artists.Name, Categories.Name AS Category
    -> FROM Artworks
    -> JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
    -> JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID
    -> JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
    -> JOIN Categories ON Artworks.CategoryID = Categories.CategoryID
    -> WHERE Exhibitions.Title = 'Modern Art Masterpieces';
+--------------+-------------------+----------+
| Title        | Name              | Category |
+--------------+-------------------+----------+
| Starry Night | Vincent van Gogh  | Painting |
| Mona Lisa    | Leonardo da Vinci | Painting |
| Guernica     | Pablo Picasso     | Painting |
| Star         | Santhiya          | Painting |
+--------------+-------------------+----------+
4 rows in set (0.00 sec)
```

**5. Find the artists who have more than two artworks in the gallery.**

SELECT Artists.Name

FROM Artists

JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID

GROUP BY Artists.Name

HAVING COUNT(Artworks.ArtworkID) > 2;

```
mysql> SELECT Artists.Name
    -> FROM Artists
    -> JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
    -> GROUP BY Artists.Name
    -> HAVING COUNT(Artworks.ArtworkID) > 2;
Empty set (0.00 sec)
```

**6. Find the titles of artworks that were exhibited in both 'Modern Art Masterpieces' and 'Renaissance Art' exhibitions**

SELECT Artworks.Title

FROM Artworks

JOIN ExhibitionArtworks AS e1 ON Artworks.ArtworkID = e1.ArtworkID

JOIN ExhibitionArtworks AS e2 ON e1.ArtworkID = e2.ArtworkID

JOIN Exhibitions AS ex1 ON e1.ExhibitionID = ex1.ExhibitionID

JOIN Exhibitions AS ex2 ON e2.ExhibitionID = ex2.ExhibitionID

WHERE ex1.Title = 'Modern Art Masterpieces' AND ex2.Title = 'Renaissance Art';

```
mysql> SELECT Artworks.Title
    -> FROM Artworks
    -> JOIN ExhibitionArtworks AS e1 ON Artworks.ArtworkID = e1.ArtworkID
    -> JOIN ExhibitionArtworks AS e2 ON e1.ArtworkID = e2.ArtworkID
    -> JOIN Exhibitions AS ex1 ON e1.ExhibitionID = ex1.ExhibitionID
    -> JOIN Exhibitions AS ex2 ON e2.ExhibitionID = ex2.ExhibitionID
    -> WHERE ex1.Title = 'Modern Art Masterpieces' AND ex2.Title = 'Renaissance Art';
+-----------+
| Title     |
+-----------+
| Mona Lisa |
+-----------+
1 row in set (0.00 sec)
```

**7. Find the total number of artworks in each category**

SELECT Categories.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount

FROM Categories

LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID

GROUP BY Categories.Name;

```
mysql> SELECT Categories.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount
    -> FROM Categories
    -> LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
    -> GROUP BY Categories.Name;
+--------------+--------------+
| Name         | ArtworkCount |
+--------------+--------------+
| Painting     |           10 |
| Sculpture    |            0 |
| Photography  |            0 |
| Data Analyst |            0 |
| Singer       |            0 |
| Poet         |            0 |
| Landscapes   |            0 |
| Portraits    |            0 |
| Still Life   |            0 |
| Street Art   |            0 |
+--------------+--------------+
10 rows in set (0.00 sec)
```

**8. List artists who have more than 3 artworks in the gallery.**

SELECT Artists.Name

FROM Artists

JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID

GROUP BY Artists.Name

HAVING COUNT(Artworks.ArtworkID) > 3;

```
mysql> SELECT Artists.Name
    -> FROM Artists
    -> JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
    -> GROUP BY Artists.Name
    -> HAVING COUNT(Artworks.ArtworkID) > 3;
Empty set (0.00 sec)
```

**9. Find the artworks created by artists from a specific nationality (e.g., Spanish).**

SELECT Artworks.Title, Artists.Name

FROM Artworks

JOIN Artists ON Artworks.ArtistID = Artists.ArtistID

WHERE Artists.Nationality = 'Spanish';

```
mysql> SELECT Artworks.Title, Artists.Name
    -> FROM Artworks
    -> JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
    -> WHERE Artists.Nationality = 'Spanish';
+-------------------------+---------------+
| Title                   | Name          |
+-------------------------+---------------+
| Guernica                | Pablo Picasso |
| Bright                  | Elamathi      |
| The Persistence of Memory | Salvador Dalí |
+-------------------------+---------------+
3 rows in set (0.00 sec)
```

**10. List exhibitions that feature artwork by both Vincent van Gogh and Leonardo da Vinci.**

SELECT ex.Title

FROM Exhibitions ex

JOIN ExhibitionArtworks ea ON ex.ExhibitionID = ea.ExhibitionID

JOIN Artworks a ON ea.ArtworkID = a.ArtworkID

JOIN Artists art ON a.ArtistID = art.ArtistID

WHERE art.Name IN ('Vincent van Gogh', 'Leonardo da Vinci')

GROUP BY ex.Title

HAVING COUNT(DISTINCT art.Name) = 2;

```
mysql> SELECT ex.Title
    -> FROM Exhibitions ex
    -> JOIN ExhibitionArtworks ea ON ex.ExhibitionID = ea.ExhibitionID
    -> JOIN Artworks a ON ea.ArtworkID = a.ArtworkID
    -> JOIN Artists art ON a.ArtistID = art.ArtistID
    -> WHERE art.Name IN ('Vincent van Gogh', 'Leonardo da Vinci')
    -> GROUP BY ex.Title
    -> HAVING COUNT(DISTINCT art.Name) = 2;
+-------------------------+
| Title                   |
+-------------------------+
| Modern Art Masterpieces |
| Poet                    |
+-------------------------+
2 rows in set (0.01 sec)
```

**11. Find all the artworks that have not been included in any exhibition.**

SELECT Artworks.Title

FROM Artworks

LEFT JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID

WHERE ExhibitionArtworks.ArtworkID IS NULL;

```
mysql> SELECT Artworks.Title
    -> FROM Artworks
    -> LEFT JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
    -> WHERE ExhibitionArtworks.ArtworkID IS NULL;
+-------------------------+
| Title                   |
+-------------------------+
| Night                   |
| Bright                  |
| The Persistence of Memory |
| Water Lilies            |
| The Two Fridas          |
| Black Iris III          |
+-------------------------+
6 rows in set (0.00 sec)
```

**12. List artists who have created artworks in all available categories.**

SELECT a.Name

FROM Artists a

JOIN Artworks aw ON a.ArtistID = aw.ArtistID

JOIN Categories c ON aw.CategoryID = c.CategoryID

GROUP BY a.ArtistID

HAVING COUNT(DISTINCT c.CategoryID) = (SELECT COUNT(*) FROM Categories);

```
mysql> SELECT a.Name
    -> FROM Artists a
    -> JOIN Artworks aw ON a.ArtistID = aw.ArtistID
    -> JOIN Categories c ON aw.CategoryID = c.CategoryID
    -> GROUP BY a.ArtistID
    -> HAVING COUNT(DISTINCT c.CategoryID) = (SELECT COUNT(*) FROM Categories);
Empty set (0.03 sec)
```

**13. List the total number of artworks in each category.**

SELECT c.Name, COUNT(aw.ArtworkID) AS ArtworkCount

FROM Categories c

LEFT JOIN Artworks aw ON c.CategoryID = aw.CategoryID

GROUP BY c.CategoryID;

```
mysql> SELECT c.Name, COUNT(aw.ArtworkID) AS ArtworkCount
    -> FROM Categories c
    -> LEFT JOIN Artworks aw ON c.CategoryID = aw.CategoryID
    -> GROUP BY c.CategoryID;
+--------------+--------------+
| Name         | ArtworkCount |
+--------------+--------------+
| Painting     |           10 |
| Sculpture    |            0 |
| Photography  |            0 |
| Data Analyst |            0 |
| Singer       |            0 |
| Poet         |            0 |
| Landscapes   |            0 |
| Portraits    |            0 |
| Still Life   |            0 |
| Street Art   |            0 |
+--------------+--------------+
10 rows in set (0.00 sec)
```

**14. Find the artists who have more than 2 artworks in the gallery.**

SELECT a.Name

FROM Artists a

JOIN Artworks aw ON a.ArtistID = aw.ArtistID

GROUP BY a.ArtistID

HAVING COUNT(aw.ArtworkID) > 2;

```
mysql> SELECT a.Name
    -> FROM Artists a
    -> JOIN Artworks aw ON a.ArtistID = aw.ArtistID
    -> GROUP BY a.ArtistID
    -> HAVING COUNT(aw.ArtworkID) > 2;
Empty set (0.00 sec)
```

**15. List the categories with the average year of artworks they contain, only for categories with more**

**than 1 artwork.**

SELECT c.Name

FROM Categories c

JOIN Artworks aw ON c.CategoryID = aw.CategoryID

GROUP BY c.CategoryID

HAVING AVG(aw.Year) > (SELECT AVG(Year) FROM Artworks);

```
mysql> SELECT c.Name
    -> FROM Categories c
    -> JOIN Artworks aw ON c.CategoryID = aw.CategoryID
    -> GROUP BY c.CategoryID
    -> HAVING AVG(aw.Year) > (SELECT AVG(Year) FROM Artworks);
Empty set (0.00 sec)
```

**16. Find the artworks that were exhibited in the 'Modern Art Masterpieces' exhibition.**

SELECT Artworks.Title

FROM Artworks

JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID

JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID

WHERE Exhibitions.Title = 'Modern Art Masterpieces';

```
mysql> SELECT Artworks.Title
    -> FROM Artworks
    -> JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
    -> JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID
    -> WHERE Exhibitions.Title = 'Modern Art Masterpieces';
+--------------+
| Title        |
+--------------+
| Starry Night |
| Mona Lisa    |
| Guernica     |
| Star         |
+--------------+
4 rows in set (0.00 sec)
```

**17. Find the categories where the average year of artworks is greater than the average year of all**

**artworks.**

SELECT c.Name

FROM Categories c

JOIN Artworks aw ON c.CategoryID = aw.CategoryID

GROUP BY c.CategoryID

HAVING AVG(aw.Year) > (SELECT AVG(Year) FROM Artworks);

```
mysql> SELECT c.Name
    -> FROM Categories c
    -> JOIN Artworks aw ON c.CategoryID = aw.CategoryID
    -> GROUP BY c.CategoryID
    -> HAVING AVG(aw.Year) > (SELECT AVG(Year) FROM Artworks);
Empty set (0.00 sec)
```

**18. List the artworks that were not exhibited in any exhibition.**

SELECT a.Title

FROM Artworks a

LEFT JOIN ExhibitionArtworks ea ON a.ArtworkID = ea.ArtworkID

WHERE ea.ArtworkID IS NULL;

```
mysql> SELECT a.Title
    -> FROM Artworks a
    -> LEFT JOIN ExhibitionArtworks ea ON a.ArtworkID = ea.ArtworkID
    -> WHERE ea.ArtworkID IS NULL;
+--------------------------+
| Title                    |
+--------------------------+
| Night                    |
| Bright                   |
| The Persistence of Memory |
| Water Lilies             |
| The Two Fridas           |
| Black Iris III           |
+--------------------------+
6 rows in set (0.00 sec)
```

**19. Show artists who have artworks in the same category as "Mona Lisa."**

SELECT a.Name

FROM Artists a

JOIN Artworks aw ON a.ArtistID = aw.ArtistID

JOIN Categories c ON aw.CategoryID = c.CategoryID

WHERE aw.ArtworkID IN (

   SELECT aw2.ArtworkID

   FROM Artworks aw2

   JOIN Categories c2 ON aw2.CategoryID = c2.CategoryID

   WHERE aw2.Title = 'Mona Lisa'

) AND aw.ArtworkID != (

   SELECT aw3.ArtworkID

   FROM Artworks aw3

   JOIN Categories c3 ON aw3.CategoryID = c3.CategoryID

   WHERE aw3.Title = 'Mona Lisa');

```
mysql> SELECT a.Name
    -> FROM Artists a
    -> JOIN Artworks aw ON a.ArtistID = aw.ArtistID
    -> JOIN Categories c ON aw.CategoryID = c.CategoryID
    -> WHERE aw.ArtworkID IN (
    ->      SELECT aw2.ArtworkID
    ->      FROM Artworks aw2
    ->      JOIN Categories c2 ON aw2.CategoryID = c2.CategoryID
    ->      WHERE aw2.Title = 'Mona Lisa'
    -> ) AND aw.ArtworkID != (
    ->      SELECT aw3.ArtworkID
    ->      FROM Artworks aw3
    ->      JOIN Categories c3 ON aw3.CategoryID = c3.CategoryID
    ->      WHERE aw3.Title = 'Mona Lisa'
    -> );
Empty set (0.01 sec)
```

**20. List the names of artists and the number of artworks they have in the gallery**

SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount

FROM Artists

LEFT JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID

GROUP BY Artists.Name;

```
mysql> SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount
    -> FROM Artists
    -> LEFT JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
    -> GROUP BY Artists.Name;
+-------------------+--------------+
| Name              | ArtworkCount |
+-------------------+--------------+
| Pablo Picasso     |            1 |
| Vincent van Gogh  |            1 |
| Leonardo da Vinci |            1 |
| Elamathi          |            1 |
| Narmadhasri       |            1 |
| Santhiya          |            1 |
| Frida Kahlo       |            1 |
| Georgia O'Keeffe  |            1 |
| Salvador Dalí     |            1 |
| Claude Monet      |            1 |
+-------------------+--------------+
10 rows in set (0.00 sec)
```