

```
CREATE DATABASE evaluation;
```

```
USE evaluation;
```

```
-- 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));
```

-- Insert sample data into the Artists table

```
INSERT INTO Artists (ArtistID, Name, Biography, Nationality) VALUES  
(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');
```

-- Insert sample data into the Categories table

```
INSERT INTO Categories (CategoryID, Name) VALUES  
(1, 'Painting'),
```

```
(2, 'Sculpture'),  
(3, 'Photography');
```

```
-- Insert sample data into the Artworks table
```

```
INSERT INTO Artworks (ArtworkID, Title, ArtistID, CategoryID, Year, Description, ImageURL)  
VALUES
```

```
(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');
```

```
-- Insert sample data into the Exhibitions table
```

```
INSERT INTO Exhibitions (ExhibitionID, Title, StartDate, EndDate, Description) VALUES
```

```
(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.');
```

```
-- Insert artworks into exhibitions
```

```
INSERT INTO ExhibitionArtworks (ExhibitionID, ArtworkID) VALUES
```

```
(1, 1),  
(1, 2),  
(1, 3),  
(2, 2);
```

```
-- QUERIES
```

```
SELECT *FROM Artists;
```

```
SELECT *FROM Categories;

SELECT *FROM Artworks;

SELECT *FROM Exhibitions;

SELECT *FROM ExhibitionArtworks;
```

-- 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 a.Name, COUNT(ar.ArtworkID) AS ArtworkCount
FROM Artists a
LEFT JOIN Artworks ar
ON a.ArtistID = ar.ArtistID
GROUP BY a.ArtistID
ORDER BY ArtworkCount DESC;
```

| Result Grid | | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|-------------------|--------------|--------------|---------|--------------------|
| | Name | ArtworkCount | | | |
| ▶ | Pablo Picasso | 1 | | | |
| | Vincent van Gogh | 1 | | | |
| | Leonardo da Vinci | 1 | | | |

-- 2. List the titles of artworks created by artists from 'Spanish' and 'Dutch' nationalities, and order them by the year in ascending order.

```
SELECT ar.Title,Year FROM Artworks ar
JOIN Artists a ON ar.ArtistID=a.ArtistID
WHERE a.Nationality IN('Spanish','Dutch')
ORDER BY ar.Year ASC;
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|--------------|--------------|---------|--------------------|
| | Title | Year | | |
| ▶ | Starry Night | 1889 | | |
| | Guernica | 1937 | | |

-- 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 a.Name, COUNT(ar.ArtworkID) AS ArtworkCount
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
JOIN Categories c ON ar.CategoryID = c.CategoryID
WHERE c.Name = 'Painting'
GROUP BY a.ArtistID;
```

| | Name | ArtworkCount |
|---|-------------------|--------------|
| ▶ | Pablo Picasso | 1 |
| | Vincent van Gogh | 1 |
| | Leonardo da Vinci | 1 |

-- 4. List the names of artworks from the 'Modern Art Masterpieces' exhibition, along with their artists and categories.

```
SELECT ar.Title, a.Name AS Artist, c.Name AS Category
FROM Artworks ar
JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID
```

JOIN Artists a ON ar.ArtistID = a.ArtistID

JOIN Categories c ON ar.CategoryID = c.CategoryID

WHERE e.Title = 'Modern Art Masterpieces';

| Result Grid | | | |
|--------------|--------------|-------------------|--------------------|
| Filter Rows: | | Export: | Wrap Cell Content: |
| | Title | Artist | Category |
| ▶ | Starry Night | Vincent van Gogh | Painting |
| | Mona Lisa | Leonardo da Vinci | Painting |
| | Guernica | Pablo Picasso | Painting |

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

SELECT a.Name,COUNT(ar.ArtworkID) AS ArtworkCount

FROM Artists a

JOIN Artworks ar ON a.ArtistID = ar.ArtistID

GROUP BY a.ArtistID

HAVING ArtworkCount > 2;

| Result Grid | | | |
|--------------|------|--------------|--------------------|
| Filter Rows: | | Export: | Wrap Cell Content: |
| | Name | ArtworkCount | |
| | | | |

| Result 74 | | | |
|---------------|----------|---|-------------------|
| | | | Read Only |
| Output | | | |
| Action Output | | | |
| # | Time | Action | Message |
| ✓ 150 | 11:52:17 | SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a LEFT JO... | 3 row(s) returned |
| ✓ 151 | 11:54:45 | SELECT ar.Title,Year FROM Artworks ar JOIN Artists a ON ar.ArtistID=a.ArtistID W... | 2 row(s) returned |
| ✓ 152 | 11:55:26 | SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a JOIN Art... | 3 row(s) returned |
| ✓ 153 | 11:56:04 | SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a LEFT JO... | 3 row(s) returned |
| ✓ 154 | 11:56:40 | SELECT ar.Title, a.Name AS Artist, c.Name AS Category FROM Artworks ar JOIN E... | 3 row(s) returned |
| ✓ 155 | 11:57:18 | SELECT a.Name,COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a JOIN Art... | 0 row(s) returned |

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

```
SELECT ar.Title
FROM Artworks ar
JOIN ExhibitionArtworks ea1 ON ar.ArtworkID = ea1.ArtworkID
JOIN Exhibitions e1 ON ea1.ExhibitionID = e1.ExhibitionID
JOIN ExhibitionArtworks ea2 ON ar.ArtworkID = ea2.ArtworkID
JOIN Exhibitions e2 ON ea2.ExhibitionID = e2.ExhibitionID
WHERE e1.Title = 'Modern Art Masterpieces' AND e2.Title = 'Renaissance Art';
```

| | | | | |
|-------------|-----------|-----------------------------------|---------|--------------------|
| Result Grid | | Filter Rows: <input type="text"/> | Export: | Wrap Cell Content: |
| | Title | | | |
| ▶ | Mona Lisa | | | |

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

```
SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks
FROM Categories c
LEFT JOIN Artworks ar ON c.CategoryID = ar.CategoryID
GROUP BY c.CategoryID;
```

| | | | | |
|-------------|-------------|-----------------------------------|---------|--------------------|
| Result Grid | | Filter Rows: <input type="text"/> | Export: | Wrap Cell Content: |
| | Name | TotalArtworks | | |
| ▶ | Painting | 3 | | |
| | Sculpture | 0 | | |
| | Photography | 0 | | |

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

```
SELECT a.Name
```

```
FROM Artists a
```

```
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
```

```
GROUP BY a.ArtistID
```

```
HAVING COUNT(ar.ArtworkID) > 3;
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|------|--------------|---------|--------------------|
| | Name | | | |

| Result 77 x | | | | |
|---------------|----------|---|-------------------|--|
| Output | | | | |
| Action Output | | | | |
| # | Time | Action | Message | |
| ✓ 153 | 11:56:04 | SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a LEFT JO... | 3 row(s) returned | |
| ✓ 154 | 11:56:40 | SELECT ar.Title, a.Name AS Artist, c.Name AS Category FROM Artworks ar JOIN E... | 3 row(s) returned | |
| ✓ 155 | 11:57:18 | SELECT a.Name,COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a JOIN Art... | 0 row(s) returned | |
| ✓ 156 | 11:58:01 | SELECT ar.Title FROM Artworks ar JOIN ExhibitionArtworks ea1 ON ar.ArtworkID =... | 1 row(s) returned | |
| ✓ 157 | 11:58:34 | SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks FROM Categories c LEF... | 3 row(s) returned | |
| ✓ 158 | 11:59:10 | SELECT a.Name FROM Artists a JOIN Artworks ar ON a.ArtistID = ar.ArtistID GRO... | 0 row(s) returned | |

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


```

SELECT ar.Title
FROM Artworks ar
JOIN Artists a ON ar.ArtistID = a.ArtistID
WHERE a.Nationality = 'Spanish';

```

| | | | | | |
|-------------|----------|--------------|--|---------|--------------------|
| Result Grid | | Filter Rows: | | Export: | Wrap Cell Content: |
| | Title | | | | |
| | Guernica | | | | |

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

```

SELECT e.Title
FROM Exhibitions e
JOIN ExhibitionArtworks ea ON e.ExhibitionID = ea.ExhibitionID
JOIN Artworks ar ON ea.ArtworkID = ar.ArtworkID
JOIN Artists a ON ar.ArtistID = a.ArtistID
WHERE a.Name IN ('Vincent van Gogh', 'Leonardo da Vinci')
GROUP BY e.ExhibitionID
HAVING COUNT(DISTINCT a.ArtistID) = 2;

```

| | | | | | |
|-------------|-------------------------|--------------|--|---------|--------------------|
| Result Grid | | Filter Rows: | | Export: | Wrap Cell Content: |
| | Title | | | | |
| | Modern Art Masterpieces | | | | |

-- 11. Find all the artworks that have not been included in any exhibition.(NOT WORKING)

```
SELECT ar.Title
```

```
FROM Artworks ar
```

```
LEFT JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
```

```
WHERE ea.ExhibitionID IS NULL;
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|-------|--------------|---------|--------------------|
| | Title | | | |

Result 81 ×

Output

Action Output

| # | Time | Action | Message |
|-------|----------|---|-------------------|
| ✓ 157 | 11:58:34 | SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks FROM Categories c LEF... | 3 row(s) returned |
| ✓ 158 | 11:59:10 | SELECT a.Name FROM Artists a JOIN Artworks ar ON a.ArtistID = ar.ArtistID GRO... | 0 row(s) returned |
| ✓ 159 | 12:00:00 | SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks FROM Categories c LEF... | 3 row(s) returned |
| ✓ 160 | 12:01:12 | SELECT ar.Title FROM Artworks ar JOIN Artists a ON ar.ArtistID = a.ArtistID WHER... | 1 row(s) returned |
| ✓ 161 | 12:02:16 | SELECT e.Title FROM Exhibitions e JOIN ExhibitionArtworks ea ON e.ExhibitionID ... | 1 row(s) returned |
| ✓ 162 | 12:03:06 | SELECT ar.Title FROM Artworks ar LEFT JOIN ExhibitionArtworks ea ON ar.Artwor... | 0 row(s) returned |

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

```
SELECT a.Name
```

```
FROM Artists a
```

```
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
```

```
JOIN Categories c ON ar.CategoryID = c.CategoryID
```

GROUP BY a.ArtistID

HAVING COUNT(DISTINCT c.CategoryID);

| Result Grid | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|-------------------|---------|--------------------|
| | | | |
| | Name | | |
| ▶ | Pablo Picasso | | |
| | Vincent van Gogh | | |
| | Leonardo da Vinci | | |

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

SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks

FROM Categories c

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

GROUP BY c.CategoryID;

| Result Grid | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|--------------|---------------|--------------------|
| | | | |
| | Name | TotalArtworks | |
| ▶ | Painting | 3 | |
| | Sculpture | 0 | |
| | Photography | 0 | |

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

SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount

FROM Artists a

JOIN Artworks ar ON a.ArtistID = ar.ArtistID

GROUP BY a.ArtistID

HAVING ArtworkCount > 2;

| | | | | | | | | |
|-------------|------|--------------|--------------|----------------------|---------|--|--------------------|--|
| Result Grid | | | Filter Rows: | <input type="text"/> | Export: | | Wrap Cell Content: | |
| | Name | ArtworkCount | | | | | | |

-- 15. List the categories with the average year of artworks they contain, only for categories with more than 1 artwork.

```

SELECT c.Name, AVG(ar.Year) AS AvgYear
FROM Categories c
JOIN Artworks ar ON c.CategoryID = ar.CategoryID
GROUP BY c.CategoryID
HAVING COUNT(ar.ArtworkID) > 1;

```

| | | | | | | | | |
|-------------|----------|-----------|--------------|----------------------|---------|--|--------------------|--|
| Result Grid | | | Filter Rows: | <input type="text"/> | Export: | | Wrap Cell Content: | |
| | Name | AvgYear | | | | | | |
| ▶ | Painting | 1776.3333 | 1776.3333 | | | | | |

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

```

SELECT ar.Title
FROM Artworks ar
JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID
WHERE e.Title = 'Modern Art Masterpieces';

```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|--------------|--------------|---------|--------------------|
| | Title | | | |
| ▶ | Starry Night | | | |
| | Mona Lisa | | | |
| | Guernica | | | |

-- 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 ar ON c.CategoryID = ar.CategoryID
```

```
GROUP BY c.CategoryID
```

```
HAVING AVG(ar.Year) > (SELECT AVG(Year) FROM Artworks);
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Name

Result 87

Read On

Output

Action Output

| # | Time | Action | Message |
|-------|----------|--|-------------------|
| ✓ 163 | 12:03:54 | SELECT a.Name FROM Artists a JOIN Artworks ar ON a.ArtistID = ar.ArtistID JOIN ... | 3 row(s) returned |
| ✓ 164 | 12:04:21 | SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks FROM Categories c LEF... | 3 row(s) returned |
| ✓ 165 | 12:04:51 | SELECT a.Name,COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a JOIN Art... | 0 row(s) returned |
| ✓ 166 | 12:05:30 | SELECT c.Name, AVG(ar.Year) AS AvgYear FROM Categories c JOIN Artworks ar ... | 1 row(s) returned |
| ✓ 167 | 12:06:05 | SELECT ar.Title FROM Artworks ar JOIN ExhibitionArtworks ea ON ar.ArtworkID = ... | 3 row(s) returned |
| ✓ 168 | 12:06:53 | SELECT c.Name FROM Categories c JOIN Artworks ar ON c.CategoryID = ar.Cate... | 0 row(s) returned |

-- 18. List the artworks that were not exhibited in any exhibition. (Same as query 11)

```

SELECT ar.Title
FROM Artworks ar
LEFT JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
WHERE ea.ExhibitionID IS NULL;

```

| | | | | | |
|-------------|--|--|-----------------------------------|---------|--------------------|
| Result Grid | | | Filter Rows: <input type="text"/> | Export: | Wrap Cell Content: |
| Title | | | | | |

Result 88 x

Output

Action Output

| # | Time | Action | Message |
|-------|----------|---|-------------------|
| ▶ 164 | 12:04:21 | SELECT c.Name, COUNT(ar.ArtworkID) AS TotalArtworks FROM Categories c LEF... | 3 row(s) returned |
| ▶ 165 | 12:04:51 | SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount FROM Artists a JOIN Art... | 0 row(s) returned |
| ▶ 166 | 12:05:30 | SELECT c.Name, AVG(ar.Year) AS AvgYear FROM Categories c JOIN Artworks ar ... | 1 row(s) returned |
| ▶ 167 | 12:06:05 | SELECT ar.Title FROM Artworks ar JOIN ExhibitionArtworks ea ON ar.ArtworkID = ... | 3 row(s) returned |
| ▶ 168 | 12:06:53 | SELECT c.Name FROM Categories c JOIN Artworks ar ON c.CategoryID = ar.Cate... | 0 row(s) returned |
| ▶ 169 | 12:07:43 | SELECT ar.Title FROM Artworks ar LEFT JOIN ExhibitionArtworks ea ON ar.Artwor... | 0 row(s) returned |

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

```

SELECT DISTINCT a.Name
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
WHERE ar.CategoryID = (SELECT CategoryID FROM Artworks WHERE Title = 'Mona Lisa');

```

| | | | | | |
|-------------|-------------------|--|-----------------------------------|---------|--------------------|
| Result Grid | | | Filter Rows: <input type="text"/> | Export: | Wrap Cell Content: |
| | Name | | | | |
| ▶ | Pablo Picasso | | | | |
| | Vincent van Gogh | | | | |
| | Leonardo da Vinci | | | | |

-- 20. List the names of artists and the number of artworks they have in the gallery.(same as 1)

```
SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount
```

```
FROM Artists a
```

```
LEFT JOIN Artworks ar
```

```
ON a.ArtistID = ar.ArtistID
```

```
GROUP BY a.ArtistID
```

```
ORDER BY ArtworkCount DESC;
```

| | | | | | |
|-------------|-------------------|--------------|-----------------------------------|---------|--------------------|
| Result Grid | | | Filter Rows: <input type="text"/> | Export: | Wrap Cell Content: |
| | Name | ArtworkCount | | | |
| ▶ | Pablo Picasso | 1 | | | |
| | Vincent van Gogh | 1 | | | |
| | Leonardo da Vinci | 1 | | | |