

SQL Coding Challenge

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GitHub Link : https://github.com/Pranesh1801/SQL_Coding_Challenge/tree/main

Task 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

Code Snippet:

```
SELECT A.Name, COUNT(Ar.ArtworkID) AS ArtworkCount
FROM Artists A
LEFT JOIN Artworks Ar ON A.ArtistID = Ar.ArtistID
GROUP BY A.Name
ORDER BY ArtworkCount DESC;
```

Output:

Name	ArtworkCount
Vincent van Gogh	4
Pablo Picasso	3
Leonardo da Vinci	3

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

Code Snippet:

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

Output :

Title	Year
Sunflowers	1888
Café Terrace at Night	1888
Starry Night	1889
Irises	1889
Les Demoiselles	1907
Guernica	1937
The Weeping Woman	1937

Task 3: Find the names of all artists who have artworks in the 'Painting' category, and the number of artworks they have in this category

Code Snippet:

```
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.Name
ORDER BY ArtworkCount DESC;
```

Output:

Name	ArtworkCount
Leonardo da Vinci	3

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

Code Snippet:

```
SELECT Ar.Title AS Artwork, A.Name AS Artist, C.Name AS Category
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
JOIN Categories C ON Ar.CategoryID = C.CategoryID
WHERE E.Title = 'Modern Art Masterpieces'
ORDER BY Ar.Title ASC;
```

Output:

Artwork	Artist	Category
Café Terrace at Night	Vincent van Gogh	Sculpture
Guernica	Pablo Picasso	Photography
Irises	Vincent van Gogh	Sculpture
Mona Lisa	Leonardo da Vinci	Painting
Starry Night	Vincent van Gogh	Sculpture

Task 5: Find the artists who have more than two artworks in the gallery

Code Snippet:

```
SELECT A.Name AS Artist, COUNT(Ar.ArtworkID) AS Artwork_Count
FROM Artists A
JOIN Artworks Ar ON A.ArtistID = Ar.ArtistID
GROUP BY A.ArtistID, A.Name
HAVING COUNT(Ar.ArtworkID) > 2
ORDER BY Artwork_Count DESC;
```

Output:

Artist	Artwork_Count
Vincent van Gogh	4
Pablo Picasso	3
Leonardo da Vinci	3

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

Code Snippet:

```
SELECT A.Title
FROM Artworks A
JOIN ExhibitionArtworks EA1 ON A.ArtworkID = EA1.ArtworkID
JOIN ExhibitionArtworks EA2 ON A.ArtworkID = EA2.ArtworkID
JOIN Exhibitions E1 ON EA1.ExhibitionID = E1.ExhibitionID
JOIN Exhibitions E2 ON EA2.ExhibitionID = E2.ExhibitionID
WHERE E1.Title = 'Modern Art Masterpieces'
AND E2.Title = 'Renaissance Art';
```

Output:

Title
Starry Night

Task 7: Find the total number of artworks in each category

Code Snippet:

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

Output:

Category	TotalArtworks
Painting	3
Photography	3
Sculpture	4

Task 8: List artists who have more than 3 artworks in the gallery

Code Snippet:

```
SELECT Ar.Name, COUNT(A.ArtworkID) AS TotalArtworks
FROM Artists Ar
JOIN Artworks A ON Ar.ArtistID = A.ArtistID
GROUP BY Ar.ArtistID, Ar.Name
HAVING COUNT(A.ArtworkID) > 3;
```

Output:

Name	TotalArtworks
Vincent van Gogh	4

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

Code Snippet:

```
SELECT A.Title, Ar.Name AS Artist, Ar.Nationality
FROM Artworks A
JOIN Artists Ar ON A.ArtistID = Ar.ArtistID
WHERE Ar.Nationality = 'Spanish';
```

Output:

Title	Artist	Nationality
Guernica	Pablo Picasso	Spanish
The Weeping Woman	Pablo Picasso	Spanish
Les Demoiselles	Pablo Picasso	Spanish

Task 10: List exhibitions that feature artwork by both Vincent van Gogh and Leonardo da Vinci

Code Snippet:

```
SELECT E.Title AS Exhibition
FROM Exhibitions E
JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID
JOIN Artworks A ON EA.ArtworkID = A.ArtworkID
JOIN Artists Ar ON A.ArtistID = Ar.ArtistID
WHERE Ar.Name = 'Vincent van Gogh'
INTERSECT
SELECT E.Title
FROM Exhibitions E
JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID
JOIN Artworks A ON EA.ArtworkID = A.ArtworkID
JOIN Artists Ar ON A.ArtistID = Ar.ArtistID
WHERE Ar.Name = 'Leonardo da Vinci';
```

Output:

Exhibition
Modern Art Masterpieces

Task 11: Find all the artworks that have not been included in any exhibition

Code Snippet:

```
SELECT A.Title
FROM Artworks A
LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID
WHERE EA.ExhibitionID IS NULL;
```

Output:

Title
Sunflowers
The Last Supper
Vitruvian Man

Task 12: List artists who have created artworks in all available categories

Code Snippet:

```
SELECT Ar.Name
FROM Artists Ar
JOIN Artworks A ON Ar.ArtistID = A.ArtistID
JOIN Categories C ON A.CategoryID = C.CategoryID
GROUP BY Ar.ArtistID, Ar.Name
HAVING COUNT(DISTINCT A.CategoryID) = (SELECT COUNT(*) FROM Categories);
```

Output:

SQL query successfully executed. However, the result set is empty.

Task 13: List the total number of artworks in each category

Code Snippet:

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

Output:

Category	TotalArtworks
Painting	3
Sculpture	4
Photography	3

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

Code Snippet:

```
SELECT Ar.Name
FROM Artists Ar
JOIN Artworks A ON Ar.ArtistID = A.ArtistID
GROUP BY Ar.ArtistID, Ar.Name
HAVING COUNT(A.ArtworkID) > 2;
```

Output:

Name
Pablo Picasso
Vincent van Gogh
Leonardo da Vinci

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

Code Snippet:

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

Output:

Category	AvgYear
Painting	1497
Sculpture	1888.5
Photography	1927

Task 16: Find the artworks that were exhibited in the 'Modern Art Masterpieces' exhibition

Code Snippet:

```
SELECT A.Title
FROM Artworks A
JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID
JOIN Exhibitions E ON EA.ExhibitionID = E.ExhibitionID
WHERE E.Title = 'Modern Art Masterpieces';
```

Output:

Title
Guernica
Starry Night
Mona Lisa
Café Terrace at Night
Irises

Task 17: Find the categories where the average year of artworks is greater than the average year of all artworks

Code Snippet:

```
SELECT C.Name AS Category
FROM Categories C
JOIN Artworks A ON C.CategoryID = A.CategoryID
GROUP BY C.CategoryID, C.Name
HAVING AVG(A.Year) > (SELECT AVG(Year) FROM Artworks);
```

Output:

Category
Sculpture
Photography

Task 18: List the artworks that were not exhibited in any exhibition

Code Snippet:

```
SELECT A.Title
FROM Artworks A
LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID
WHERE EA.ExhibitionID IS NULL;
```

Output:

Title
Sunflowers
The Last Supper
Vitruvian Man

Task 19: Show artists who have artworks in the same category as "Mona Lisa"

Code Snippet:

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

Output:

Name
Leonardo da Vinci

Task 20: List the names of artists and the number of artworks they have in the gallery

Code Snippet:

```
SELECT Ar.Name, COUNT(A.ArtworkID) AS ArtworkCount
FROM Artists Ar
LEFT JOIN Artworks A ON Ar.ArtistID = A.ArtistID
GROUP BY Ar.ArtistID, Ar.Name;
```

Output:

Name	ArtworkCount
Pablo Picasso	3
Vincent van Gogh	4
Leonardo da Vinci	3