# CODING CHALLENGE SQL - VIRTUAL ART GALLERY

# Name - Anish Kumar

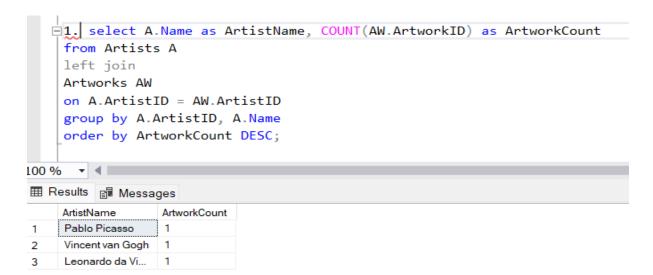
# Python Batch -1

### TABLE CREATION AND INSERTION OF VALUES:

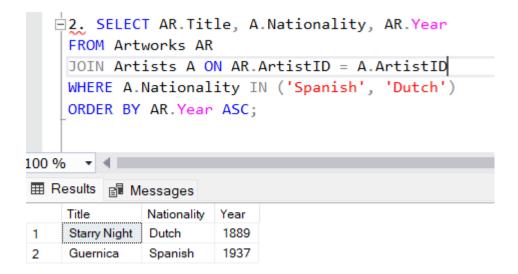
```
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   ☐CREATE TABLE Artists ( ArtistID INT PRIMARY KEY, Name VARCHAR(255) NOT NULL, Biography TEXT,
    Nationality VARCHAR(100)):
   INSERT INTO Artists (ArtistID, Name, Biography, Nationality) VALUES (1, 'Pablo Picasso', 'Renowned Spanish painter and sculptor.', 'Spanish'), (2, 'Vincent van Gogh',
    (3, 'Leonardo da Vinci', 'Italian polymath of the Renaissance.', 'Italian');
   CREATE TABLE Categories ( CategoryID INT PRIMARY KEY,
    Name VARCHAR(100) NOT NULL);
   □INSERT INTO Categories (CategoryID, Name) VALUES (1, 'Painting'), (2, 'Sculpture'),
    (3, 'Photography');
   GREATE TABLE Artworks ( ArtworkID INT PRIMARY KEY, Title VARCHAR(255) NOT NULL, ArtistID INT, CategoryID INT, Year INT, Description TEXT, ImageURL VARCHAR(255), FOREIGN
    FOREIGN KEY (CategoryID) REFERENCES Categories (CategoryID));
   □INSERT INTO Artworks (ArtworkID, Title, ArtistID, CategoryID, Year, Description, ImageURL)
    VALUES
        (1, N'Starry Night', 2, 1, 1889, N'A famous painting by Vincent van Gogh.', N'starry_night.jpg'),
        (2, N'Mona Lisa', 3, 1, 1503, N'The iconic portrait by Leonardo da Vinci.', N'mona_lisa.jpg'),
        (3, N'Guernica', 1, 1, 1937, N'Pablo Picasso''s powerful anti-war mural.', N'guernica.jpg');
   dCREATE TABLE Exhibitions ( ExhibitionID INT PRIMARY KEY, Title VARCHAR(255) NOT NULL, StartDate DATE, EndDate DATE,
   INSERT INTO Exhibitions (ExhibitionID, Title, StartDate, EndDate, Description) VALUES (1, 'Modern Art Masterpieces', '2023-01-01', '2023-03-01', 'A collection of modern
    (2, 'Renaissance Art', '2023-04-01', '2023-06-01', 'A showcase of Renaissance art treasures.');
   ECREATE TABLE ExhibitionArtworks ( ExhibitionID INT, ArtworkID INT, PRIMARY KEY (ExhibitionID, ArtworkID), FOREIGN KEY (ExhibitionID) REFERENCES Exhibitions (Exhibitions
    FOREIGN KEY (ArtworkID) REFERENCES Artworks (ArtworkID));
   □INSERT INTO ExhibitionArtworks (ExhibitionID, ArtworkID) VALUES (1, 1), (1, 2), (1, 3),
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   Commands completed successfully.
```

#### Solution of the below queries with output:

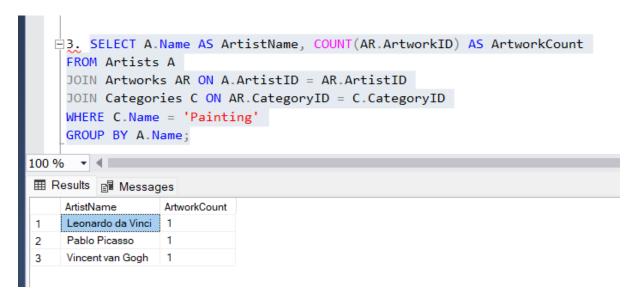
1. Retrieve the names of all artists along with the number of artworks they have in the gallery, and list them in descending order of the number of artworks.



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



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



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

```
### A. SELECT AR. Title AS ArtworkTitle, A. Name AS ArtistName, C. Name AS CategoryName

FROM ExhibitionArtworks EA

JOIN Artworks AR ON EA. ArtworkID = AR. ArtworkID

JOIN Artists A ON AR. ArtistID = A. ArtistID

JOIN Categories C ON AR. CategoryID = C. CategoryID

JOIN Exhibitions E ON EA. ExhibitionID = E. ExhibitionID

WHERE E. Title = 'Modern Art Masterpieces';

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### Results ** Messages**

ArtworkTitle ArtistName CategoryName

1 **Starry Night** Vincent van Gogh Painting
2 **Mona Lisa Leonardo da Vinci Painting
3 **Guernica Pablo Picasso Painting
```

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

```
| S.SELECT A.Name AS ArtistName, COUNT(AR.ArtworkID) AS ArtworkCount FROM Artists A JOIN Artworks AR ON A.ArtistID = AR.ArtistID | GROUP BY A.Name | HAVING COUNT(AR.ArtworkID) > 2;
```

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

```
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';

100 % 

Results Messages

ArtworkTitle

1 Mona Lisa
```

7. Find the total number of artworks in each category

```
☐7. SELECT C.Name AS CategoryName, COUNT(AR.ArtworkID) AS ArtworkCount
FROM Categories C
JOIN Artworks AR ON C.CategoryID = AR.CategoryID
GROUP BY C.Name;

100 % ▼ ■
Results  Messages

CategoryName  ArtworkCount
1  Painting  3
```

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

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

100 % 
Results Messages

ArtistName ArtworkCount
```

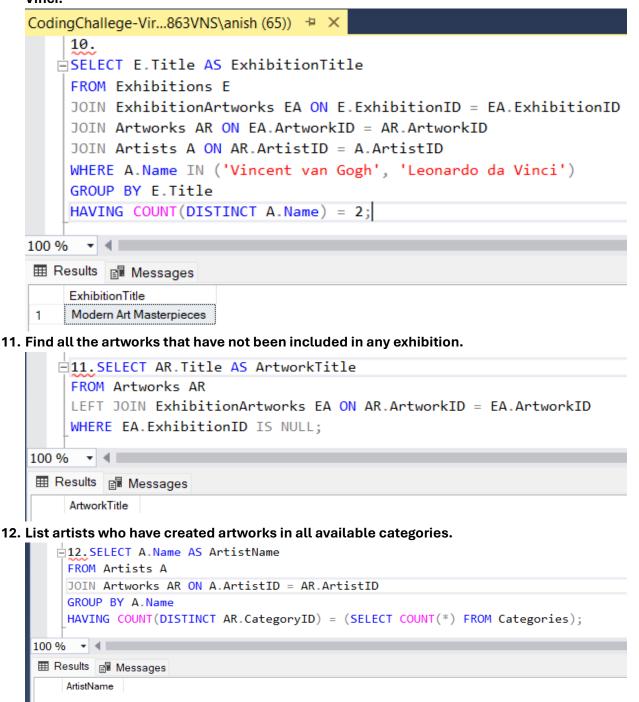
9. Find the artworks created by artists from a specific nationality (e.g., Spanish).

```
9. SELECT AR.Title AS ArtworkTitle, A.Name AS ArtistName, A.Nationality
FROM Artworks AR
JOIN Artists A ON AR.ArtistID = A.ArtistID
WHERE A.Nationality = 'Spanish';

100 % 
Results Messages

ArtworkTitle ArtistName Nationality
1 Guernica Pablo Picasso Spanish
```

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



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

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

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

```
☐ 15. SELECT C.Name AS CategoryName, AVG(AR.Year) AS AverageYear
FROM Categories C
JOIN Artworks AR ON C.CategoryID = AR.CategoryID
GROUP BY C.Name
HAVING COUNT(AR.ArtworkID) > 1;

☐ Results ☐ Messages

☐ CategoryName AverageYear
1 Painting 1776
```

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

```
☐ 16. SELECT AR.Title AS ArtworkTitle

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';

1 Starry Night

2 Mona Lisa

3 Guernica
```

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

```
☐ 17. SELECT C.Name AS CategoryName, AVG(AR.Year) AS CategoryAverageYear
FROM Categories C
JOIN Artworks AR ON C.CategoryID = AR.CategoryID
GROUP BY C.Name
HAVING AVG(AR.Year) > (SELECT AVG(Year) FROM Artworks);

100 % ▼ ■ Results ■ Messages

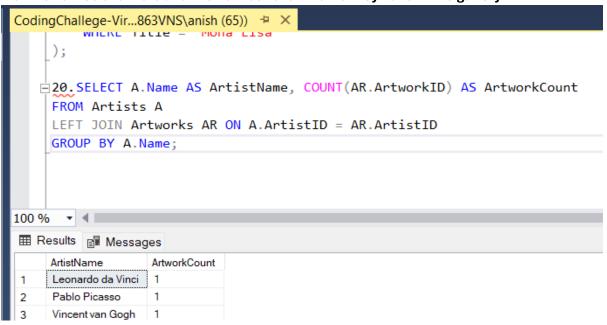
CategoryName CategoryAverageYear
```

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

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

```
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   □19.SELECT DISTINCT A.Name AS ArtistName
    FROM Artists A
     JOIN Artworks AR ON A.ArtistID = AR.ArtistID
    WHERE AR.CategoryID = (
         SELECT CategoryID
         FROM Artworks
         WHERE Title = 'Mona Lisa'
     );
100 % ▼ ◀ ■
ArtistName
    Leonardo da Vinci
2
     Pablo Picasso
3
    Vincent van Gogh
```

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



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