

CODING CHALLENGE SQL - VIRTUAL ART GALLERY

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Python Batch -1

TABLE CREATION AND INSERTION OF VALUES:

```
CodingChallenge-Vir...863VNS\anish (65) X
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');

CREATE 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');

CREATE TABLE Exhibitions ( ExhibitionID INT PRIMARY KEY, Title VARCHAR(255) NOT NULL, StartDate DATE, EndDate DATE,
Description TEXT);

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. ');

CREATE TABLE ExhibitionArtworks ( ExhibitionID INT, ArtworkID INT, PRIMARY KEY (ExhibitionID, ArtworkID), FOREIGN KEY (ExhibitionID) REFERENCES Exhibitions (Exhibition
FOREIGN KEY (ArtworkID) REFERENCES Artworks (ArtworkID));

INSERT INTO ExhibitionArtworks (ExhibitionID, ArtworkID) VALUES (1, 1), (1, 2), (1, 3),

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Messages
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.

```
1 select A.Name as ArtistName, COUNT(AW.ArtworkID) as ArtworkCount
from Artists A
left join
Artworks AW
on A.ArtistID = AW.ArtistID
group by A.ArtistID, A.Name
order by ArtworkCount DESC;
```

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Results Messages

	ArtistName	ArtworkCount
1	Pablo Picasso	1
2	Vincent van Gogh	1
3	Leonardo da Vi...	1

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

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

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Results Messages

	Title	Nationality	Year
1	Starry Night	Dutch	1889
2	Guernica	Spanish	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.

```
3. SELECT A.Name AS ArtistName, 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;
```

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Results Messages

	ArtistName	ArtworkCount
1	Leonardo da Vinci	1
2	Pablo Picasso	1
3	Vincent van Gogh	1

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

```
4. 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.

```
5. 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;
```

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Results Messages

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

```
6. SELECT AR.Title AS ArtworkTitle
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';
```

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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;
```

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Results Messages

	CategoryName	ArtworkCount
1	Painting	3

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

```
8. 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;
```

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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';
```

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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.

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```
10.
SELECT E.Title AS ExhibitionTitle
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.Title
HAVING COUNT(DISTINCT A.Name) = 2;
```

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Results Messages

	ExhibitionTitle
1	Modern Art Masterpieces

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

```
11. SELECT AR.Title AS ArtworkTitle
FROM Artworks AR
LEFT JOIN ExhibitionArtworks EA ON AR.ArtworkID = EA.ArtworkID
WHERE EA.ExhibitionID IS NULL;
```

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Results Messages

	ArtworkTitle
--	--------------

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

```
12. SELECT A.Name AS ArtistName
FROM Artists A
JOIN Artworks AR ON A.ArtistID = AR.ArtistID
GROUP BY A.Name
HAVING COUNT(DISTINCT AR.CategoryID) = (SELECT COUNT(*) FROM Categories);
```

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Results Messages

	ArtistName
--	------------

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

```
13. 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;
```

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Results Messages

	CategoryName	ArtworkCount
1	Painting	3

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

```
14. 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;
```

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Results Messages

	ArtistName	ArtworkCount
--	------------	--------------

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;
```

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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';
```

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Results Messages

	ArtworkTitle
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);
```

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Results Messages

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

```
18. SELECT AR.Title AS ArtworkTitle
FROM Artworks AR
LEFT JOIN ExhibitionArtworks EA ON AR.ArtworkID = EA.ArtworkID
WHERE EA.ExhibitionID IS NULL;
```

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Results Messages

ArtworkTitle

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'
);
```

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Results Messages

	ArtistName
1	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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```
);
```

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

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Results Messages

	ArtistName	ArtworkCount
1	Leonardo da Vinci	1
2	Pablo Picasso	1
3	Vincent van Gogh	1

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