CODING CHALLENGE

Name: Chandana Priya Reddy Veeramreddy

Coding Challenge: Virtual Art Gallery

```
create database Virtual_art_gallery;
use Virtual_art_gallery;
-- 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 Picassos 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:

/* 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.*/

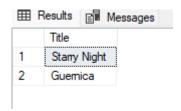
```
select a.Name , count(aw.ArtworkID) as Num_of_Artworks from Artists a
JOIN Artworks aw ON
a.ArtistID=aw.ArtistID group by
a.Name order by Num_of_Artworks desc;
```

Output:

⊞ Results 🖼 Messages			
	Name	Num_of_Artworks	
1	Leonardo da Vinci	1	
2	Pablo Picasso	1	
3	Vincent van Gogh	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 aw.Title From Artworks aw Join Artists a
ON a.ArtistID=aw.ArtistID
where a.Nationality='Spanish' or a.Nationality='Dutch'
ORDER by aw.year;
```



/*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(aw.ArtworkId) as Num_of_Paintings from Artworks aw
JOIN Artists a on a.ArtistID= aw.ArtistID
Join Categories c on aw.CategoryID=c.CategoryID
where c.name='Painting' Group by a.Name ;
Output:
```

Results Messages Name Num_of_Paintings Leonardo da Vinci 1 Pablo Picasso 1 Vincent van Gogh 1

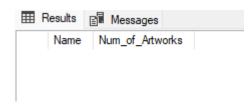
/*4. List the names of artworks from the 'Modern Art Masterpieces' exhibition, along with their artists and categories.*/

```
select aw.title as Artwork_name ,a.Name as Artist_name,
c.Name as Category_name from Artworks aw
JOIN Artists a on a.ArtistID=aw.ArtistID
Join categories c on c.CategoryID=aw.CategoryID
Join ExhibitionArtworks ea on ea.ArtworkID=aw.ArtworkID
Join Exhibitions e on e.ExhibitionID=ea.ExhibitionID
where e.Title='Modern Art Masterpieces';
```

Output:



```
/*5. Find the artists who have more than two artworks in the gallery*/
select a.Name , count(aw.ArtworkID) as Num_of_Artworks
from Artists a
JOIN Artworks aw ON a.ArtistID=aw.ArtistID
```



group by a.Name Having count(aw.ArtworkID) >2;

/*Question6 Find the titles of artworks that were exhibited in both 'Modern Art Masterpieces' and 'Renaissance Art' exhibitions*/

SELECT

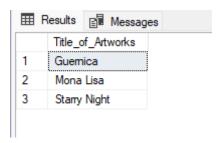
```
aw.title as Title_of_Artworks
FROM artworks aw

JOIN ExhibitionArtworks ea ON ea.ArtworkID=aw.ArtworkID

JOIN exhibitions e ON ea.ExhibitionID = e.ExhibitionID

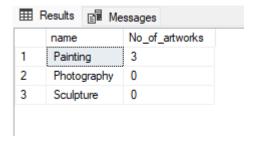
WHERE e.Title IN ('Modern Art Masterpieces', 'Renaissance Art')
GROUP BY aw.Title;
```

Output:



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

```
select c.name, count(aw.ArtworkID) as No_of_artworks
from Categories c
left Join Artworks aw
on c.CategoryID=aw.CategoryID group by c.name;
```



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

```
Select a.Name FROM Artists a
JOIN Artworks Aw ON A.ArtistID = Aw.ArtistID
GROUP BY A.Name
HAVING COUNT(Aw.ArtworkID) >3;
```

Output:



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

```
SELECT aw.title AS Artwork_title, a.Name, aw.year
FROM artworks aw
JOIN artists a ON aw.ArtistID = a.ArtistID
WHERE a.nationality = 'Spanish';
```

Output:



/*Question10 List exhibitions that feature artwork by both Vincent van Gogh and Leonardo da Vinci.*/

```
SELECT e.Title
FROM Exhibitions e

JOIN ExhibitionArtworks ea1 ON e.ExhibitionID = ea1.ExhibitionID
```

```
JOIN Artworks aw1 ON ea1.ArtworkID = aw1.ArtworkID

JOIN Artists a1 ON aw1.ArtistID = a1.ArtistID

JOIN ExhibitionArtworks ea2 ON e.ExhibitionID = ea2.ExhibitionID

JOIN Artworks aw2 ON ea2.ArtworkID = aw2.ArtworkID

JOIN Artists a2 ON aw2.ArtistID = a2.ArtistID

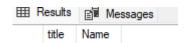
WHERE a1.Name = 'Vincent van Gogh' AND a2.Name = 'Leonardo da Vinci';
```



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

```
select aw.title, a.Name From Artworks aw
Join Artists a on aw.ArtistID=a.ArtistID
Left join ExhibitionArtworks ea on aw.ArtworkID=ea.ArtworkID
where ea.ExhibitionID IS null;
```

Output:



```
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.Name
```

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

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

Output:

```
Results Messages
Name
```

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

```
select c.name, count(aw.ArtworkID)
as No_of_artworks from Categories c left Join Artworks aw
on c.CategoryID=aw.CategoryID group by c.name;
```

■ Results			
	name	No_of_artworks	
1	Painting	3	
2	Photography	0	
3	Sculpture	0	

/*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.Name
HAVING COUNT(Aw.ArtworkID) >2;
```

Output:



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

```
Select c.Name, AVG(Aw.Year) AS Average_Year FROM Categories c
JOIN Artworks Aw ON c.CategoryID = Aw.CategoryID
GROUP BY C.Name
HAVING COUNT(Aw.ArtworkID) > 1;
```



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

```
SELECT Aw.Title

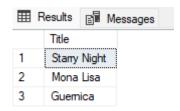
FROM Artworks Aw

JOIN ExhibitionArtworks ea ON Aw.ArtworkID = ea.ArtworkID

JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID

WHERE e.Title = 'Modern Art Masterpieces';
```

Output:



/*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.Name
HAVING AVG(Aw.Year) > (SELECT AVG(Year) FROM Artworks);
```

Output:



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

SELECT aw. Title FROM Artworks aw

```
LEFT JOIN ExhibitionArtworks ea ON aw.ArtworkID = ea.ArtworkID WHERE ea.ArtworkID IS NULL;
```



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

```
SELECT DISTINCT a.Name FROM Artists a

JOIN Artworks aw ON a.ArtistID = aw.ArtistID

WHERE aw.CategoryID = (SELECT CategoryID FROM Artworks WHERE Title = 'Mona Lisa');
```

Output:



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

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

Output:

