

# Coding Challenge SQL

## Virtual Art Gallery Shema DDL and DML

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 a1.name, count(a2.artistid) as number_of_artworks from artists a1
left join artworks a2
on a1.artistid=a2.artistid
group by a1.name
order by number_of_artworks desc;
```

	name	number_of_artworks
▶	Pablo Picasso	1
	Vincent van Gogh	1
	Leonardo da Vinci	1
	Hellen	1

	name	number_of_artworks
▶	Pablo Picasso	1
	Vincent van Gogh	1
	Leonardo da Vinci	1
	Hellen	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 a1.title from artworks a1
join artists a2
on a1.artistid=a2.artistid
where a2.Nationality in('Spanish','Dutch')
order by a1.year asc;
```

	title
▶	Starry Night
	Guernica

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 as Artist_Name, COUNT(*) AS Artwork_Count
from Artists a
join Artworks aw on a.ArtistID = aw.ArtistID
join Categories c on aw.CategoryID = c.CategoryID
where c.Name = 'Painting'
group by a.ArtistID, a.Name;

```

	Artist_Name	Artwork_Count
▶	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 a1.Title as Artwork_Title, a.Name as Artist_Name, c.Name as Category_Name
from Artworks a1
join ExhibitionArtworks ea on a1.ArtworkID = ea.ArtworkID
join Exhibitions e on ea.ExhibitionID = e.ExhibitionID and e.Title = 'Modern Art Masterpieces'
join Artists a on a1.ArtistID = a.ArtistID
join Categories c on a1.CategoryID = c.CategoryID;

```

	Artwork_Title	Artist_Name	Category_Name
▶	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 a1.name as artist_name ,count(*) as artwork_count
from artists a1
join artworks a
on a1.artistid=a.artistid
group by a1.artistid
having count(*)>2 ;

```

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

	Title
►	Mona Lisa

```
select a.Title
from Artworks a
join ExhibitionArtworks e1 on a.ArtworkID = e1.ArtworkID
join Exhibitions e ON e1.ExhibitionID = e.ExhibitionID
Where e.Title IN ('Modern Art Masterpieces', 'Renaissance Art')
Group by a.Title
having count(distinct e.ExhibitionID) = 2;
```

7.Find the total number of artworks in each category

```
select c.name,count(artworkID) as artwork_ID from artworks a
join categories c
on a.categoryID= c.categoryID
group by c.name;
```

	Category_Name	Total_Artworks
►	Painting	3
	Sculpture	1

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

```

select a.Name as Artist_Name, COUNT(artworkID) as Artwork_Count
from Artists a
join Artworks aw on a.ArtistID = aw.ArtistID
group by a.ArtistID
having COUNT(ArtworkID) > 3;

```

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

```

select a1.title from Artworks a1
join Artists a2
on a1.ArtistID= a2.ArtistID
where a2.Nationality='Spanish';

```

	title
▶	Guernica

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

```

select e.Title AS Exhibition_Title
from Exhibitions e
join ExhibitionArtworks e1 on e.ExhibitionID = e1.ExhibitionID
join Artworks a1 on e1.ArtworkID = a1.ArtworkID
join Artists a on a1.ArtistID = a.ArtistID
where a.Name in ('Vincent van Gogh', 'Leonardo da Vinci')
group by e.ExhibitionID, e.Title
HAVING COUNT(DISTINCT a.ArtistID) = 2;

```

	Exhibition_Title
▶	Modern Art Masterpieces

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

```

select aw.Title as Artwork_Title
from Artworks aw
LEFT JOIN ExhibitionArtworks e1 ON a1.ArtworkID = e1.ArtworkID
where

```

	Artwork_Title
▶	The Story of My life

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

```
select a.Name AS Artist_Name
from Artists a
join Artworks aw ON a.ArtistID = aw.ArtistID
group by a.ArtistID, a.Name
having count(distinct aw.CategoryID) = (select count(*) FROM Categories);
```

Artist_Name
-------------

13. List the total number of artworks in each category

```
select c.Name AS Category_Name, count(DISTINCT a.ArtistID) AS Total_Artists
from Categories c
join Artworks aw ON c.CategoryID = aw.CategoryID
join Artists a ON aw.ArtistID = a.ArtistID
group by c.Name;
```

	Category_Name	Total_Artists
►	Painting	3
	Sculpture	1

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

```
SELECT a.Name AS Artist_Name, COUNT(*) AS Artwork_Count
FROM Artists a
JOIN Artworks aw ON a.ArtistID = aw.ArtistID
GROUP BY a.ArtistID, a.Name
HAVING COUNT(*) > 2;
```

	Artist_Name	Artwork_Count
--	-------------	---------------

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

```
select c.Name AS Category_Name, AVG(a.Year) AS Average_Year
from Categories c
join Artworks a ON c.CategoryID = a.CategoryID
group by c.CategoryID, c.Name
having COUNT(*) > 1;
```

	Category_Name	Average_Year
►	Painting	1776.3333

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

```
select a.Title as Artwork_Title
from Artworks a
join ExhibitionArtworks e1 on a.ArtworkID = e1.ArtworkID
join Exhibitions e on e.ExhibitionID = e1.ExhibitionID
where e.Title = 'Modern Art Masterpieces';
```

	Artwork_Title
►	Starry Night
	Mona Lisa
	Mona Lisa
	Guernica

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

```
select * from categories where categoryId
in (select categoryId from artworks
where year >(select avg(year) from artworks));
```

	CategoryID	Name
▶	1	Painting
	2	Sculpture
*	NULL	NULL

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

```
select artworks.artworkid, artworks.title from artworks
left join exhibitionartworks on artworks.artworkid = exhibitionartworks.artworkid
where exhibitionartworks.artworkid is null;
```

	artworkid	title
▶	4	The Story of My life

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

```
select * from artists where artistId
in (select artistId from artworks where title = "Mona Lisa");
```

	ArtistID	Name	Biography	Nationality
▶	3	Leonardo da Vinci	Italian polymath of the Renaissance.	Italian
*	NULL	NULL	NULL	NULL

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

```
select a1.artistId,a1.name,count(a2.artworkId) as totalArtwork from artists a1
left join artworks a2 on a1.artistId = a2.artistId group by a1.artistId;
```

	artistId	name	totalArtwork
▶	1	Pablo Picasso	1
	2	Vincent van Gogh	1
	3	Leonardo da Vinci	1
	4	Hellen	1