Coding Challenge

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Coding Challenge- Virtual Art Gallery

Artists

	ArtistID	Name	Biography	Nationality
1	1	Pablo Picasso	Renowned Spanish painter and sculptor.	Spanish
2	2	Vincent van Gogh	Dutch post-impressionist painter.	Dutch
3	3	Leonardo da Vinci	Italian polymath of the Renaissance.	Italian

Categories

	CategoryID	Name
1	1	Painting
2	2	Sculpture
3	3	Photography

Artworks

	ArtworkID	Title	ArtistID	CategoryID	Year	Description	ImageURL
1	1	Starry Night	2	1	1889	A famous painting by Vincent van Gogh.	starry_night.jpg
2	2	Mona Lisa	3	1	1503	The iconic portrait by Leonardo da Vinci.	mona_lisa.jpg
3	3	Guernica	1	1	1937	Pablo Picasso's powerful anti-war mural.	guernica.jpg

Exhibitions

	ExhibitionID	Title	StartDate	EndDate	Description
1	1	Modern Art Masterpieces	2023-01-01	2023-03-01	A collection of modern art masterpieces.
2	2	Renaissance Art	2023-04-01	2023-06-01	A showcase of Renaissance art treasures.

ExhibitionArtworks

	ExhibitionID	ArtworkID
1	1	1
2	1	2
3	1	3
4	2	2

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.

```sql
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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	artistname	artworkcount
1	Pablo Picasso	1
2	Vincent van Gogh	1
3	Leonardo da Vinci	1

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

```sql
select artworks.title, artists.nationality, artworks.year
from artworks
join artists on artworks.artistid = artists.artistid
where artists.nationality in ('spanish', 'dutch')
        order by artworks.year asc;
```

	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.

```
select
        a.name as artistname,
        count(ar.artworkid) as artworkcount
from
        artists as a
join
        artworks as ar
on
        a.artistid = ar.artistid
join
        categories as c
on
        ar.categoryid = c.categoryid
where c.name = 'painting'
group by a.name;
```


	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.

```
select
        ar.title as artworktitle,
        a.name as artistname,
        c.name as categoryname
from
        exhibitionartworks as 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.

```
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

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

```
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

```sql
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;
```

	categoryname	artworkcount
1	Painting	3

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

```sql
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;
```

	artistname	artworkcount

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

```sql
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';
```

	artworktitle	artistname	nationality
1	Guernica	Pablo Picasso	Spanish

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

```sql
select distinct 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( 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.

```
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.

```
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.

```
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;
```

	categoryname	artworkcount
1	Painting	3

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

```sql
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;
```


	artistname	artworkcount

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

```sql
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;
```


	categoryname	averageyear
1	Painting	1776

16. Find the artworks that were exhibited in the 'Modern Art Masterpieces' exhibition.
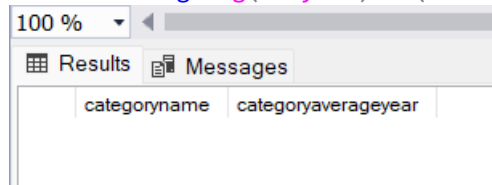
```sql
select ar.title as artworktitle
from artworks ar
join
       exhibitionartworks ea on ar.artworkid = ea.artworkid
join
       exhibitions e on ea.exhibitionid = e.exhibitionid
       where e.title = 'modern art masterpieces';
```


	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.
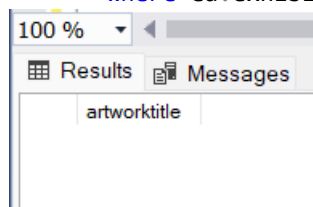
```sql
select c.name as categoryname,
       avg(ar.year) as categoryaverageyear
from categories c
join
       artworks ar on c.categoryid = ar.categoryid
group by c.name
       having avg(ar.year) > (select avg(year) from artworks);
```

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⊞ Results ⊟ Messages

categoryname	categoryaverageyear

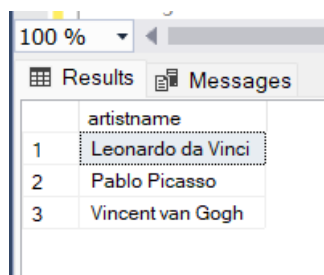18. List the artworks that were not exhibited in any exhibition.

```sql
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."

```sql
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 %   ▾ ◀ ▮

⊞ 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.

```sql
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;
```

	artistname	artworkcount
1	Leonardo da Vinci	1
2	Pablo Picasso	1
3	Vincent van Gogh	1