Coding challenge –mysql

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(b.artworkid) as no_of_artwork from artists a join artworks b on a.artistid=b.artistid group by a.name order by no_of_artwork desc;

```
mysql> select a.name,count(b.artworkid) as no_of_artwork from artists a join artworks b on a.artistid=b.artistid group by a.name order by no_of_artw
ork desc;
+-------------------+---------------+
| name              | no_of_artwork |
+-------------------+---------------+
| Pablo Picasso     |             1 |
| Vincent van Gogh  |             1 |
| Leonardo da Vinci |             1 |
+-------------------+---------------+
3 rows in set (0.03 sec)
```

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

SELECT b.title, a.name,b.year

FROM artworks b

JOIN artists a ON b.artistid = a.artistid

WHERE a.nationality = 'Spanish' OR a.nationality = 'Dutch'

ORDER BY b.year asc;

```
mysql> SELECT b.title, a.name,b.year
    -> FROM artworks b
    -> JOIN artists a ON b.artistid = a.artistid
    -> WHERE a.nationality = 'Spanish' OR a.nationality = 'Dutch'
    -> ORDER BY b.year asc;
+--------------+------------------+------+
| title        | name             | year |
+--------------+------------------+------+
| Starry Night | Vincent van Gogh | 1889 |
| Guernica     | Pablo Picasso    | 1937 |
+--------------+------------------+------+
2 rows in set (0.00 sec)
```

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(b.artworkid) as artwork_count

from artists a

join artworks b ON a.artistid = b.artistid

where b.categoryid in (

   select c.categoryid

   from categories c

   WHERE c.name = 'painting'

)

group by a.name;

```
mysql> select a.name, COUNT(b.artworkid) as artwork_count
    -> from artists a
    -> join artworks b ON a.artistid = b.artistid
    -> where b.categoryid in (
    ->     select c.categoryid
    ->     from categories c
    ->     WHERE c.name = 'painting'
    -> )
    -> group by a.name;
+-------------------+---------------+
| name              | artwork_count |
+-------------------+---------------+
| Vincent van Gogh  |             1 |
| Leonardo da Vinci |             1 |
| Pablo Picasso     |             1 |
+-------------------+---------------+
3 rows in set (0.00 sec)
```

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

select b.Title as Artworkname, a.Name as ArtistName, c.Name as Category

FROM artworks b

JOIN artists a ON b.ArtistID = a.ArtistID

JOIN categories c ON b.CategoryID = c.CategoryID

JOIN exhibitionartworks ea ON b.ArtworkID = ea.ArtworkID

JOIN exhibitions e ON ea.ExhibitionID = e.ExhibitionID

WHERE e.Title = 'Modern Art Masterpieces';

```
+-----------------+-------------------+------------+
| Artworkname     | ArtistName        | Category   |
+-----------------+-------------------+------------+
| Starry Night    | Vincent van Gogh  | Painting   |
| Mona Lisa       | Leonardo da Vinci | Painting   |
| Guernica        | Pablo Picasso     | Painting   |
+-----------------+-------------------+------------+
3 rows in set (0.01 sec)
```

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

select a.name,count(b.artworkid) as artworkcount from artists a join artworks b on a.artistid=b.artistid group by a.name having artworkcount>2;

```
    -> 2;
+-----------------+---------------+
| name            | artworkcount  |
+-----------------+---------------+
| Pablo Picasso   |            3  |
+-----------------+---------------+
1 row in set (0.00 sec)
```

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

select a.title from artworks a where a.artworkid in (select b.artworkid from exhibitionartworks b where b.exhibitionid in

```
   -> (select c.exhibitionid

   -> from exhibitions c where c.title="modern art masterpieces" or
c.title='renaissance art'));
```

```
mysql>  select a.title from artworks a where a.artworkid in (select b.artworkid from exhibitionartworks b where b.
    -> (select c.exhibitionid
    -> from exhibitions c where c.title="modern art masterpieces" or c.title='renaissance art'));
+--------------+
| title        |
+--------------+
| Starry Night |
| Mona Lisa    |
| Guernica     |
+--------------+
```

7. Find the total number of artworks in each category

SELECT c.Name AS Category_, COUNT(a.ArtworkID) AS totalartworks

FROM categories c

LEFT JOIN artworks a ON c.CategoryID = a.CategoryID

GROUP BY c.Name;

```
+--------------+--------------+
| Category_    | totalartworks |
+--------------+--------------+
| Painting     |            3 |
| Sculpture    |            0 |
| Photography  |            0 |
+--------------+--------------+
3 rows in set (0.01 sec)
```

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

select a.name,count(b.artworkid) as artworkcount from artists a join artworks b on
a.artistid=b.artistid group by a.name having artworkcount>3;

```
mysql> select a.name,count(b.artworkid) as artworkcount from artists a join artworks b on a.artistid=b.artistid group by a.name ha
3;
Empty set (0.01 sec)
```

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

select b.title from artworks b join artists a on b.artistid=a.artistid where a.nationality='spanish';

```
mysql> select b.title from artworks b join artists a on b.artistid=a.artistid where a.nationality='spanish';
+----------+
| title    |
+----------+
| Guernica |
+----------+
1 row in set (0.00 sec)

mysql>
```

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

SELECT e.Title AS ExhibitionTitle

FROM exhibitions e

WHERE e.ExhibitionID IN (

   SELECT x.ExhibitionID

   FROM exhibitionartworks x

   JOIN artworks a ON x.ArtworkID = a.ArtworkID

   WHERE a.ArtistID = (SELECT ArtistID FROM artists WHERE Name = 'Vincent van Gogh')

)

AND e.ExhibitionID IN (

   SELECT x.ExhibitionID

   FROM exhibitionartworks x

   JOIN artworks a ON x.ArtworkID = a.ArtworkID

   WHERE a.ArtistID = (SELECT ArtistID FROM artists WHERE Name = 'Leonardo da Vinci')

);

```
+---------------------------+
| ExhibitionTitle           |
+---------------------------+
| Modern Art Masterpieces   |
+---------------------------+
1 row in set (0.00 sec)
```

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

SELECT a.Title AS ArtworkTitle

FROM artworks a

WHERE a.ArtworkID NOT IN (

   SELECT b.ArtworkID

   FROM exhibitionartworks b

);

```
mysql> SELECT a.Title AS ArtworkTitle
    -> FROM artworks a
    -> WHERE a.ArtworkID NOT IN (
    ->      SELECT b.ArtworkID
    ->      FROM exhibitionartworks b
    -> );
Empty set (0.00 sec)
```

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

SELECT a.Name AS Artist_Name

FROM artists a

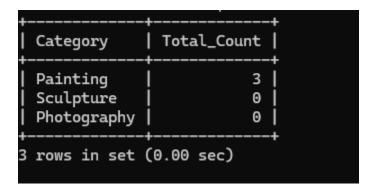JOIN artworks b ON a.ArtistID = b.ArtistID

GROUP BY a.ArtistID, a.Name

HAVING COUNT(DISTINCT b.CategoryID) = (SELECT COUNT(*) FROM categories);

```
mysql> SELECT a.Name AS Artist_Name
    -> FROM artists a
    -> JOIN artworks b ON a.ArtistID = b.ArtistID
    -> GROUP BY a.ArtistID, a.Name
    -> HAVING COUNT(DISTINCT b.CategoryID) = (SELECT COUNT(*) FROM categories);
+---------------+
| Artist_Name   |
+---------------+
| Pablo Picasso |
+---------------+
1 row in set (0.06 sec)
```

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

SELECT c.Name AS Category, COUNT(b.ArtworkID) AS Total_Count

FROM categories c

LEFT JOIN artworks b ON c.CategoryID = b.CategoryID

GROUP BY c.Name;

```
+---------------+---------------+
| Category      | Total_Count   |
+---------------+---------------+
| Painting      |            3  |
| Sculpture     |            0  |
| Photography   |            0  |
+---------------+---------------+
3 rows in set (0.00 sec)
```

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

select a.name,count(b.artworkid) as artworkcount from artists a join artworks b on a.artistid=b.artistid group by a.name having artworkcount>2;

```
    -> 2;
+---------------+--------------+
| name          | artworkcount |
+---------------+--------------+
| Pablo Picasso |            3 |
+---------------+--------------+
1 row in set (0.00 sec)
```

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, avg(a.year) as year

from categories c

join artworks a on c.categoryid = a.categoryid

group by c.name

having count(a.artworkid) > 1;

```
mysql> select c.name as category, avg(a.year) as year
    -> from categories c
    -> join artworks a on c.categoryid = a.categoryid
    -> group by c.name
    -> having count(a.artworkid) > 1;
+----------+-----------+
| category | year      |
+----------+-----------+
| Painting | 1776.3333 |
+----------+-----------+
1 row in set (0.01 sec)
```

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

select a.title from artworks a where a.artworkid in

   -> (select b.artworkid from exhibitionartworks b where b.exhibitionid in

   -> (select c.exhibitionid from exhibitions c where c.title= 'Modern Art Masterpieces'));

```
mysql> select a.title from artworks a where a.artworkid in
    -> (select b.artworkid from exhibitionartworks b where b.exhibitionid in
    -> (select c.exhibitionid from exhibitions c where c.title= 'Modern Art Masterpieces'));
+--------------+
| title        |
+--------------+
| Starry Night |
| Mona Lisa    |
| Guernica     |
+--------------+
3 rows in set (0.01 sec)
```

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

select c.name as category

from categories c

join artworks a on c.categoryid = a.categoryid

group by c.name

having avg(a.year) > (select avg(year) from artworks);

```
mysql> select c.name as category
    -> from categories c
    -> join artworks a on c.categoryid = a.categoryid
    -> group by c.name
    -> having avg(a.year) > (select avg(year) from artworks);
+-----------+
| category  |
+-----------+
| Sculpture |
+-----------+
1 row in set (0.00 sec)
```

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

SELECT a.Title AS ArtworkTitle

FROM artworks a

WHERE a.ArtworkID NOT IN (

```
    SELECT b.ArtworkID

    FROM exhibitionartworks b

);
```

```
mysql> SELECT a.Title AS ArtworkTitle
    -> FROM artworks a
    -> WHERE a.ArtworkID NOT IN (
    ->      SELECT b.ArtworkID
    ->      FROM exhibitionartworks b
    -> );
Empty set (0.00 sec)
```

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

select a.name as artist_name

from artists a

join artworks b on a.artistid = b.artistid

where b.categoryid = (

    select categoryid

    from artworks

    where title = 'Mona Lisa'

);

```
mysql> select   a.name as artist_name
    -> from artists a
    -> join artworks b on a.artistid = b.artistid
    -> where b.categoryid = (
    ->       select categoryid
    ->       from artworks
    ->       where title = 'Mona Lisa'
    -> );
+-------------------+
| artist_name       |
+-------------------+
| Pablo Picasso     |
| Vincent van Gogh  |
| Leonardo da Vinci |
+-------------------+
3 rows in set (0.00 sec)
```

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

select a.name as artistname, count(b.artworkid) as artworkcount

from artists a

join artworks b on a.artistid = b.artistid

group by a.name;

```
mysql> select a.name as artistname, count(b.artworkid) as artworkcount
    -> from artists a
    -> join artworks b on a.artistid = b.artistid
    -> group by a.name;
+-------------------+--------------+
| artistname        | artworkcount |
+-------------------+--------------+
| Pablo Picasso     |            1 |
| Vincent van Gogh  |            1 |
| Leonardo da Vinci |            1 |
+-------------------+--------------+
3 rows in set (0.00 sec)
```