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)

from artists as a

join artworks as b on

a.artistID = b.artistID

group by

a.artistID , a.name

order by count(b.artworkID) desc;

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

Select a.title, b.nationality, a.year

from artworks as a

join artists as b on b.artistID = a.artistID

where nationality = 'spanish' or nationality = 'dutch'

order by a.year asc;

**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(c.artworkID)

from artists as a

join artworks as c on a.artistID = c.artistID

join categories as b on b.categoryID= c.categoryID

where b.name = 'painting'

group by a.artistID , a.name

order by count(c.artworkid) desc;

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

Select a.title as nameofartwork, b.name as artistname, c.name as categoryname

From artworks as a

join ExhibitionArtworks as ea on a.artworkID = ea.artworkID

Join exhibitions as e on ea.exhibitionID = e.exhibitionID

Join artists as b on b.artistid = a.artistID

Join categories c on a.categoryid = c.categoryID

where e.title = 'modern art masterpieces';

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

select a.artistid, a.name, count(b.artworkID) as Numberofartworks

from artists as a

join artworks as b on a.artistID = b.artistid

group by a.artistid

having Numberofartworks > 2;

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

Select aw.title

From exhibitionartworks as ea

Join artworks as aw on ea.artworkID = aw.artworkID

Join exhibitions as e on ea.exhibitionID = e.exhibitionID

Where e.title = 'modern art masterpieces' OR e.title = 'renaissance art';

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

select c.name as categoryname, count(aw.artworkid) as numberofartwork

from artworks as aw

join categories as c on aw.categoryid = c.categoryid

group by categoryname;

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

Select a.artistID, a.name, count(aw.artworkID) as numberofArtworks

From artists as a

Join artworks as aw on a.artistid = aw.artistid

group by a.artistID, a.name

having numberofArtworks > 3;

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

Select aw.artworkid, aw.title, a.name, a.nationality

From artworks as aw

Join artists as a on aw.artistID = a.artistID

where nationality = 'Spanish'; -- specify nationality here

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

Select e.exhibitionID, e.title

from exhibitionartworks as ea

Join artworks as aw on ea.artworkID = aw.artworkID

Join artists as a on aw.artistid = a.artistid

Join exhibitions as e on ea.exhibitionID = e.exhibitionID

Where a.name = 'Vincent van Gogh' and 'Leonardo da Vinci';

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

Select aw.artworkID, aw.title

From artworks as aw

left Join exhibitionartworks as ea on ea.artworkid = aw.artworkid

Where ea.exhibitionID is null;

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

Select a.name

From artists as a

Join artworks as aw on a.artistID = aw.artistID

Group by a.name

Having count(distinct aw.categoryid ) = (select count(distinct categoryID) from categories);

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

Select c.name, count(aw.artworkID) as totalArtworks

From categories c

Join artworks as aw on c.categoryID = aw.categoryID

Group by c.name

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

Select a.name as artistName, count(aw.artworkID) as NumberofArtworks

From artists as a

Join artworks as aw on a.artistID = aw.artistID

Group by artistName

Having NumberofArtworks > 2;

**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 avgrageYear

From categories as c

Join artworks as 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 as aw

join exhibitionArtworks as ea on aw.artworkid = ea.artworkID

join exhibitions as e on ea.exhibitionID = e.exhibitionID

where e.title = 'Modern Art Masterpieces';

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

Select c.categoryID, c.name, avg(aw.year) as AvgYear

From categories as c

Join artworks as aw on c.categoryID = aw.categoryID

Group by c.categoryID, c.name

Having AvgYear > (select avg(Year) from artworks);

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

Select aw.artworkID

From artworks as aw

Join exhibitionartworks as ea on aw.artworkID = ea.artworkID

Where ea.exhibitionID is null;

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

Select a.artistID

From artists as a

Join artworks as aw on a.artistID = aw.artistID

Where aw.categoryID = (select categoryID from artworks where title = 'mona lisa');

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

Select a.name, count(aw.artworkID) as numberofArtworks

From artists as a

Join artworks as aw on a.artistID = aw.artistID

Group by a.name;