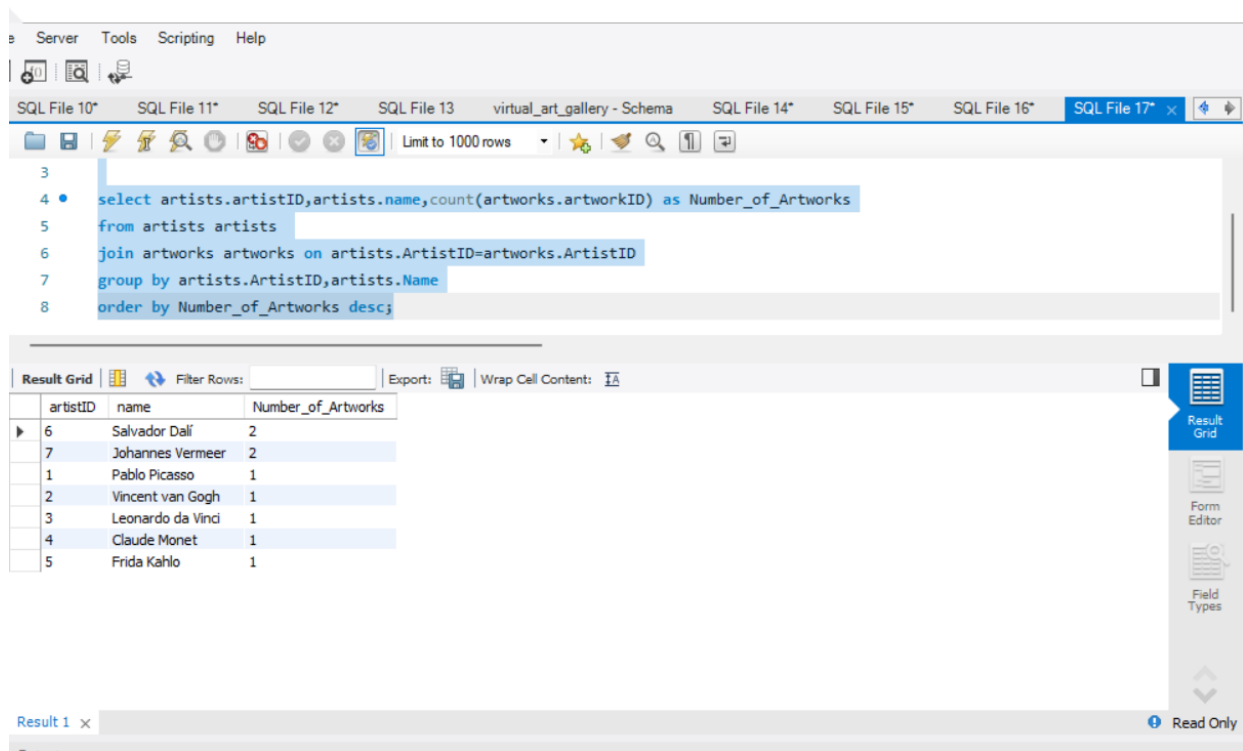


SQL CODING CHALLENGE OUTPUTS

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

OUTPUT



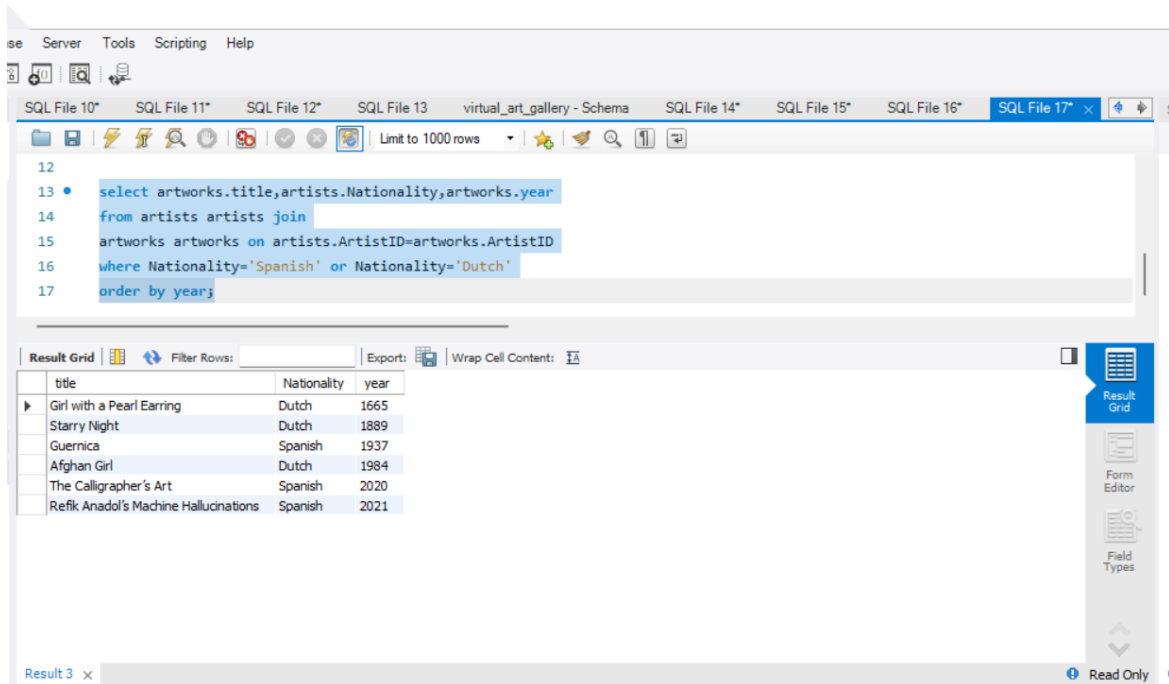
The screenshot shows a SQL IDE interface with a query editor and a results grid. The query is as follows:

```
select artists.artistID,artists.name,count(artworks.artworkID) as Number_of_Artworks
from artists artists
join artworks artworks on artists.ArtistID=artworks.ArtistID
group by artists.ArtistID,artists.Name
order by Number_of_Artworks desc;
```

The results grid displays the following data:

artistID	name	Number_of_Artworks
6	Salvador Dalí	2
7	Johannes Vermeer	2
1	Pablo Picasso	1
2	Vincent van Gogh	1
3	Leonardo da Vinci	1
4	Claude Monet	1
5	Frida Kahlo	1

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



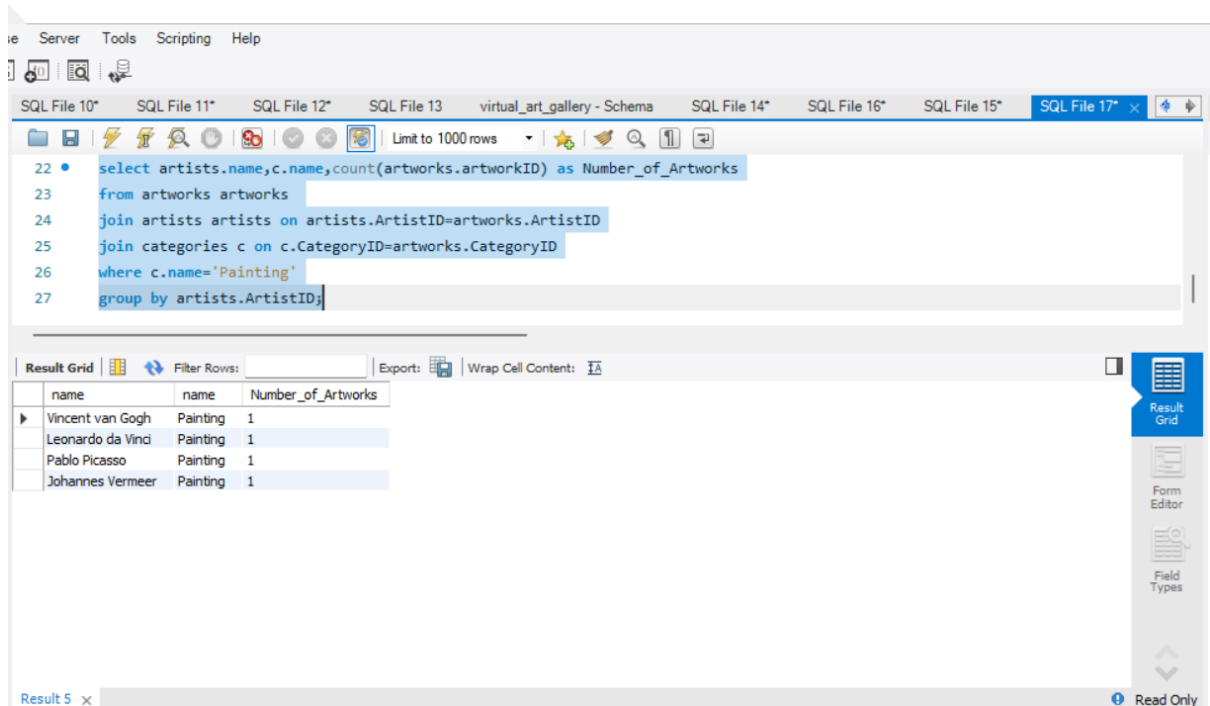
The screenshot shows a SQL Studio interface with a query editor and a result grid. The query is as follows:

```
12
13 • select artworks.title,artists.Nationality,artworks.year
14 from artists artists join
15 artworks artworks on artists.ArtistID=artworks.ArtistID
16 where Nationality='Spanish' or Nationality='Dutch'
17 order by year;
```

The result grid displays the following data:

title	Nationality	year
Girl with a Pearl Earring	Dutch	1665
Starry Night	Dutch	1889
Guernica	Spanish	1937
Afghan Girl	Dutch	1984
The Calligrapher's Art	Spanish	2020
Refik Anadol's Machine Hallucinations	Spanish	2021

3. Find the names of all artists who have artworks in the 'Painting' category, and the number of artworks they have in this category.



The screenshot shows a SQL Studio interface with a query editor and a result grid. The query is as follows:

```
22 • select artists.name,c.name,count(artworks.artworkID) as Number_of_Artworks
23 from artworks artworks
24 join artists artists on artists.ArtistID=artworks.ArtistID
25 join categories c on c.CategoryID=artworks.CategoryID
26 where c.name='Painting'
27 group by artists.ArtistID;
```

The result grid displays the following data:

name	name	Number_of_Artworks
Vincent van Gogh	Painting	1
Leonardo da Vinci	Painting	1
Pablo Picasso	Painting	1
Johannes Vermeer	Painting	1

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

The screenshot shows a SQL query in a text editor window. The query is as follows:

```
32 select a.Title as Artwork_Name, ar.Name AS Artist_Name, c.Name AS Category_Name
33 from ExhibitionArtworks ea
34 join Artworks a on ea.ArtworkID = a.ArtworkID
35 join Artists ar on a.ArtistID = ar.ArtistID
36 join Categories c on a.CategoryID = c.CategoryID
37 join Exhibitions e on ea.ExhibitionID = e.ExhibitionID
38 where e.Title = 'Modern Art Masterpieces';
```

Below the query editor, the 'Result Grid' is displayed, showing the following data:

Artwork_Name	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.

The screenshot shows a SQL query in a text editor window. The query is as follows:

```
41
42 select ar.name as Artist_Name, Count(aw.artistID) as Number_of_Artworks
43 from artworks aw
44 join artists ar on ar.ArtistID=aw.ArtistID
45 group by ar.name
46 having Number_of_Artworks>2;
```

Below the query editor, the 'Result Grid' is displayed, showing the following data:

Artist_Name	Number_of_Artworks
Leonardo da Vinci	3
Salvador Dalí	4

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

The screenshot shows a SQL query in a text editor window. The query is as follows:

```
50
51 • select aw.title as Artwork_Title,e.Title as Exhibition_Title
52 from artworks aw
53 join exhibitionartworks ea on ea.ArtworkID=aw.ArtworkID
54 join exhibitions e on e.ExhibitionID=ea.ExhibitionID
55 where e.title in ('Modern Art Masterpieces', 'Renaissance Art');
56
```

Below the query editor, the 'Result Grid' is displayed, showing the results of the query:

Artwork_Title	Exhibition_Title
Starry Night	Modern Art Masterpieces
Mona Lisa	Modern Art Masterpieces
Guernica	Modern Art Masterpieces
Mona Lisa	Renaissance Art

The interface includes a menu bar (File, Server, Tools, Scripting, Help), a toolbar, and a status bar at the bottom indicating 'Result 10' and 'Read Only'.

7. Find the total number of artworks in each category

The screenshot shows a SQL query in a text editor window. The query is as follows:

```
56
57 -- 7. Find the total number of artworks in each category
58 • select count(aw.categoryID) as Number_of_Artworks,c.name
59 from artworks aw
60 join categories c on c.CategoryID=aw.CategoryID
61 group by aw.CategoryID;
62
```

Below the query editor, the 'Result Grid' is displayed, showing the results of the query:

Number_of_Artworks	name
7	Painting
3	Sculpture
1	Photography
1	Digital Art
1	Calligraphy

The interface includes a menu bar (File, Server, Tools, Scripting, Help), a toolbar, and a status bar at the bottom indicating 'Result 10' and 'Read Only'.

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

The screenshot shows a SQL IDE window with a query editor and a result grid. The query is as follows:

```
64 select ar.name as Artist_name, count(aw.artistID) as Number_of_Artworks
65 from artworks aw
66 join artists ar on ar.ArtistID=aw.ArtistID
67 group by aw.artistID
68 having count(aw.artistID)>3;
69
```

The result grid shows the following data:

Artist_name	Number_of_Artworks
Salvador Dalí	4

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

The screenshot shows a SQL IDE window with a query editor and a result grid. The query is as follows:

```
69
70 -- 9. Find the artworks created by artists from a specific nationality (e.g., Spanish).
71 select ar.artistID, ar.name as Artist_name, aw.title as Artwork_name, ar.nationality
72 from artists ar join
73 artworks aw on aw.ArtistID=ar.artistID
74 where Nationality='Spanish';
```

The result grid shows the following data:

artistID	Artist_name	Artwork_name	nationality
1	Pablo Picasso	Guernica	Spanish
6	Salvador Dalí	The Calligrapher's Art	Spanish
6	Salvador Dalí	Refik Anadol's Machine Hallucinations	Spanish
6	Salvador Dalí	The Starry Night Over the Rhône	Spanish
6	Salvador Dalí	The Day	Spanish

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

The screenshot shows a SQL IDE with a query window and a result grid. The query is as follows:

```
77 • select e.title as Exhibition, ar.name as Artist_name
78 from exhibitions e
79 join exhibitionartworks ea on ea.ExhibitionID=e.ExhibitionID
80 join artworks aw on aw.artworkID=ea.ArtworkID
81 join artists ar on ar.ArtistID=aw.ArtistID
82 where ar.name in ('Vincent van Gogh', 'Leonardo da Vinci');
```

The result grid displays the following data:

Exhibition	Artist_name
Modern Art Masterpieces	Vincent van Gogh
Modern Art Masterpieces	Leonardo da Vinci
Renaissance Art	Leonardo da Vinci

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

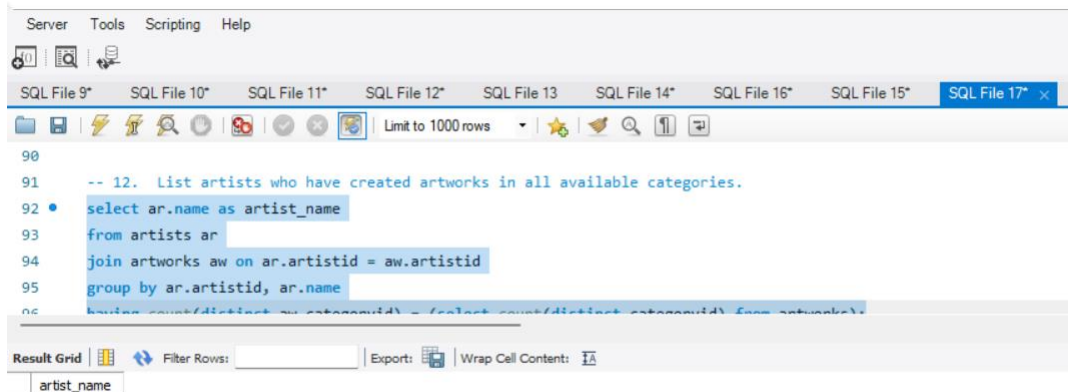
The screenshot shows a SQL IDE with a query window and a result grid. The query is as follows:

```
84 -- 11. Find all the artworks that have not been included in any exhibition.
85 • select aw.Title as Artwork_Title
86 from artworks aw
87 join artists ar on ar.ArtistID = aw.ArtistID
88 left join exhibitionartworks ea on aw.ArtworkID = ea.ArtworkID
89 where ea.ExhibitionID IS NULL;
```

The result grid displays the following data:

Artwork_Title
Balloon Dog
The Birth of Venus
The Starry Night Over the Rhône
The Day
Afghan Girl
Girl with a Pearl Earring

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

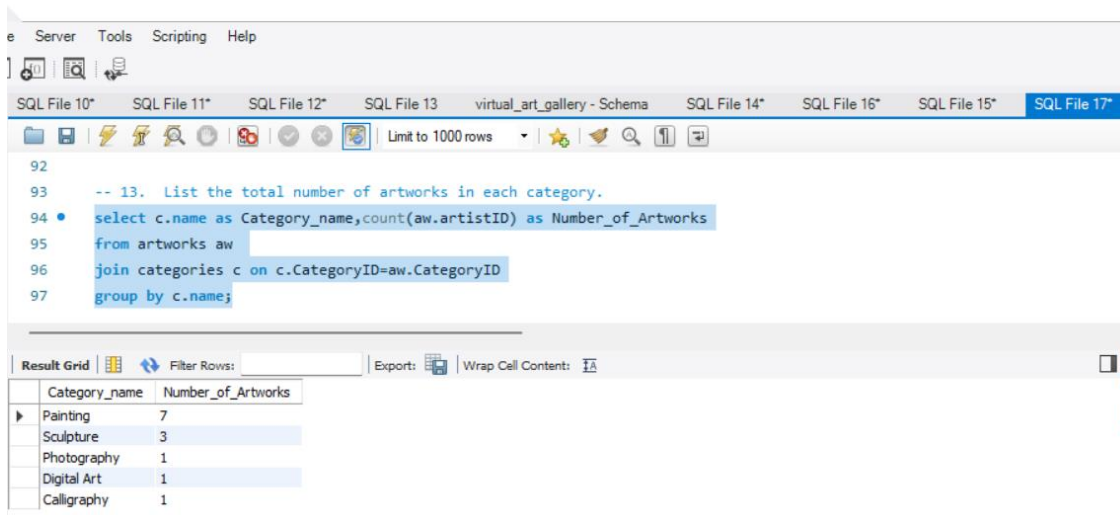


The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```
-- 12. List artists who have created artworks in all available categories.
select ar.name as artist_name
from artists ar
join artworks aw on ar.artistid = aw.artistid
group by ar.artistid, ar.name
having count(distinct aw.categoryid) = (select count(distinct categoryid) from artworks);
```

The result grid shows a single column labeled 'artist_name'.

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



The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```
-- 13. List the total number of artworks in each category.
select c.name as Category_name, count(aw.artistID) as Number_of_Artworks
from artworks aw
join categories c on c.CategoryID=aw.CategoryID
group by c.name;
```

The result grid shows the following data:

Category_name	Number_of_Artworks
Painting	7
Sculpture	3
Photography	1
Digital Art	1
Calligraphy	1

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



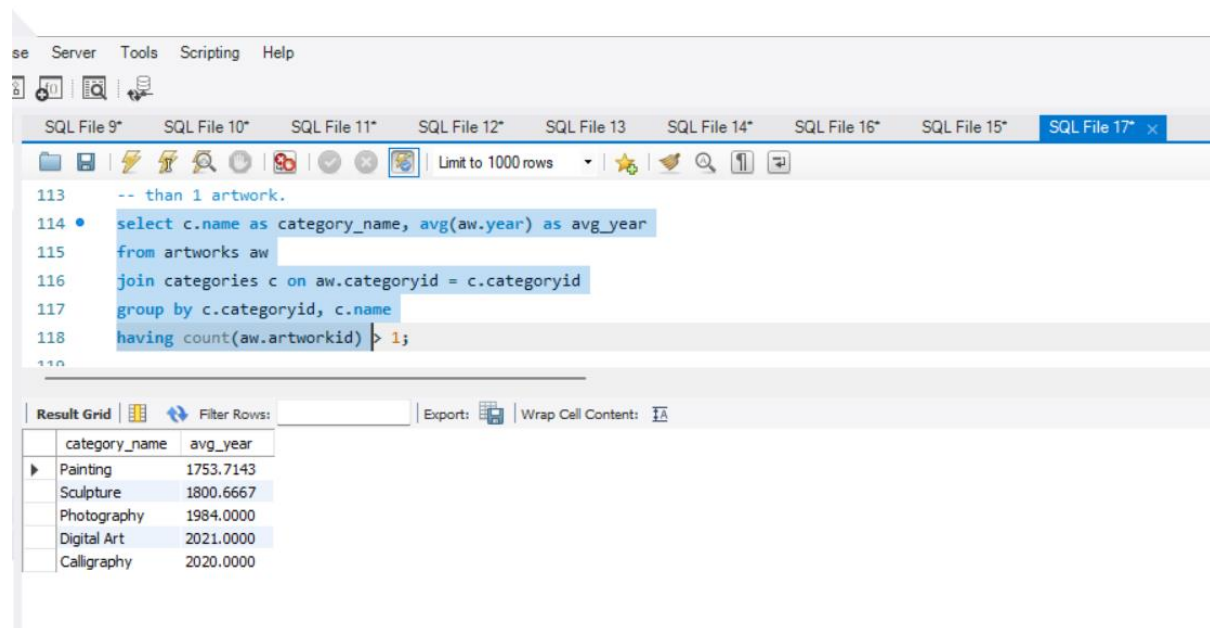
The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```
-- 14. Find the artists who have more than 2 artworks in the gallery.
select ar.name as Artist_Name, Count(aw.ArtistID) as Number_of_Artworks
from artworks aw
join artists ar on ar.ArtistID=aw.ArtistID
group by ar.name
having Number_of_Artworks > 2;
```

The result grid shows the following data:

Artist_Name	Number_of_Artworks
Leonardo da Vinci	3
Salvador Dali	4

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



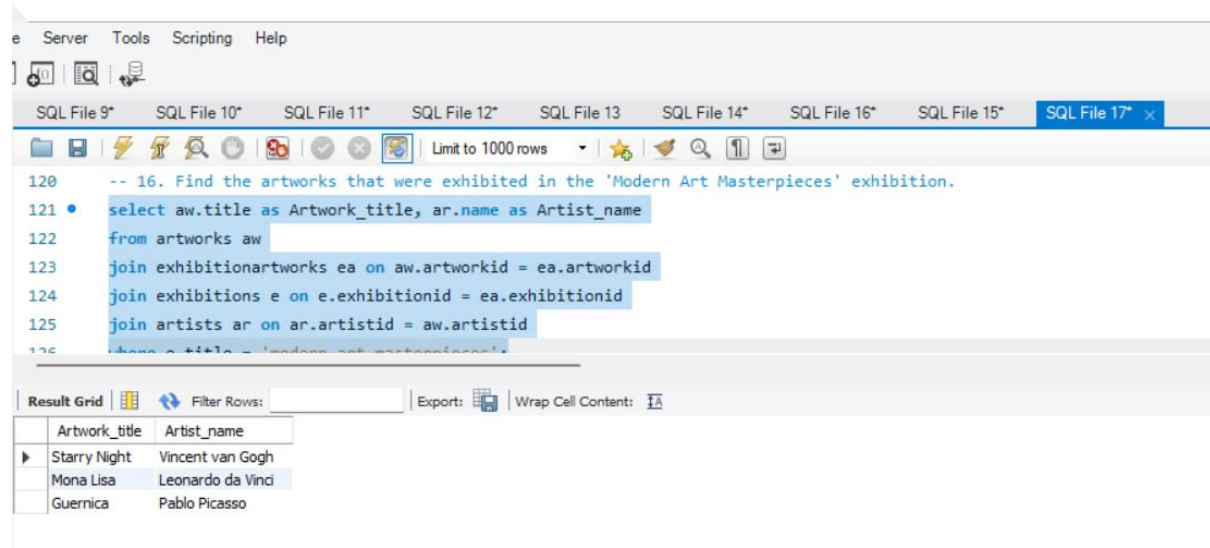
The screenshot shows a SQL IDE with a query editor and a results grid. The query is as follows:

```
113 -- than 1 artwork.
114 • select c.name as category_name, avg(aw.year) as avg_year
115 from artworks aw
116 join categories c on aw.categoryid = c.categoryid
117 group by c.categoryid, c.name
118 having count(aw.artworkid) > 1;
```

The results grid displays the following data:

category_name	avg_year
Painting	1753.7143
Sculpture	1800.6667
Photography	1984.0000
Digital Art	2021.0000
Calligraphy	2020.0000

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



The screenshot shows a SQL IDE with a query editor and a results grid. The query is as follows:

```
120 -- 16. Find the artworks that were exhibited in the 'Modern Art Masterpieces' exhibition.
121 • select aw.title as Artwork_title, ar.name as Artist_name
122 from artworks aw
123 join exhibitionartworks ea on aw.artworkid = ea.artworkid
124 join exhibitions e on e.exhibitionid = ea.exhibitionid
125 join artists ar on ar.artistid = aw.artistid
126 where e.title = 'Modern Art Masterpieces';
```

The results grid displays the following data:

Artwork_title	Artist_name
Starry Night	Vincent van Gogh
Mona Lisa	Leonardo da Vinci
Guernica	Pablo Picasso

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

The screenshot shows a SQL query editor with the following code:

```
-- 17. Find the categories where the average year of artworks is greater than the average year of all artworks.
select c.name as category_name, avg(aw.year) as avg_year
from artworks aw
join categories c on aw.categoryid = c.categoryid
group by c.categoryid, c.name
having avg(aw.year) > (select avg(year) from artworks);
```

The results are displayed in a table with the following data:

category_name	avg_year
Photography	1984.0000
Digital Art	2021.0000
Calligraphy	2020.0000

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

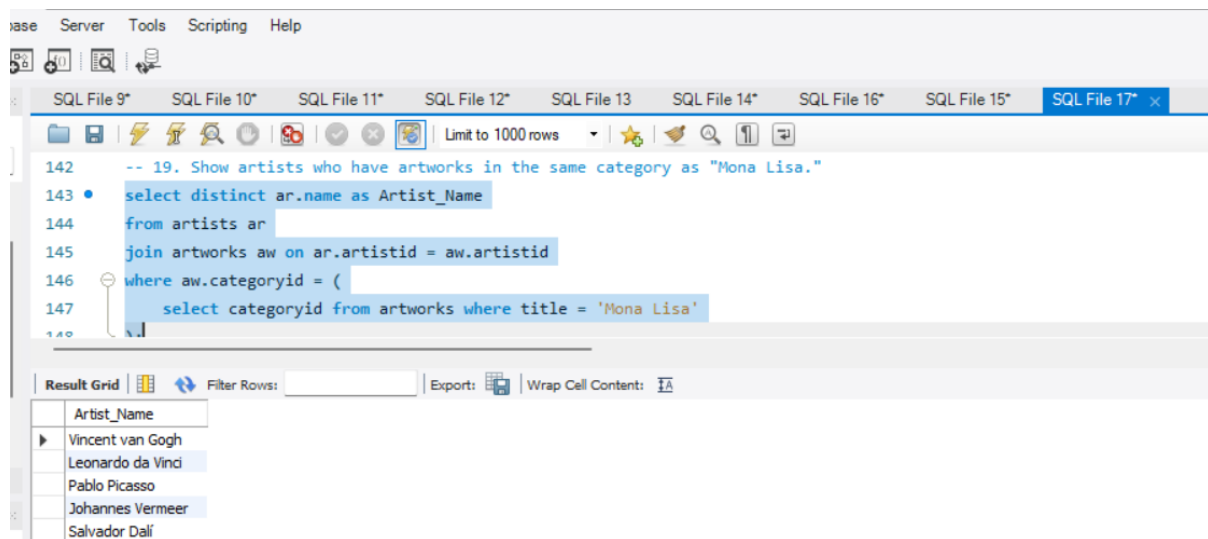
The screenshot shows a SQL query editor with the following code:

```
-- 18. List the artworks that were not exhibited in any exhibition.
select aw.title as Artwork_title
from artworks aw
left join exhibitionartworks ea on aw.artworkid = ea.artworkid
left join artists ar on ar.artistid = aw.artistid
where ea.exhibitionid is null;
```

The results are displayed in a table with the following data:

Artwork_title
Afghan Girl
Girl with a Pearl Earring
The Starry Night Over the Rhône
The Day
Balloon Dog
The Birth of Venus

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



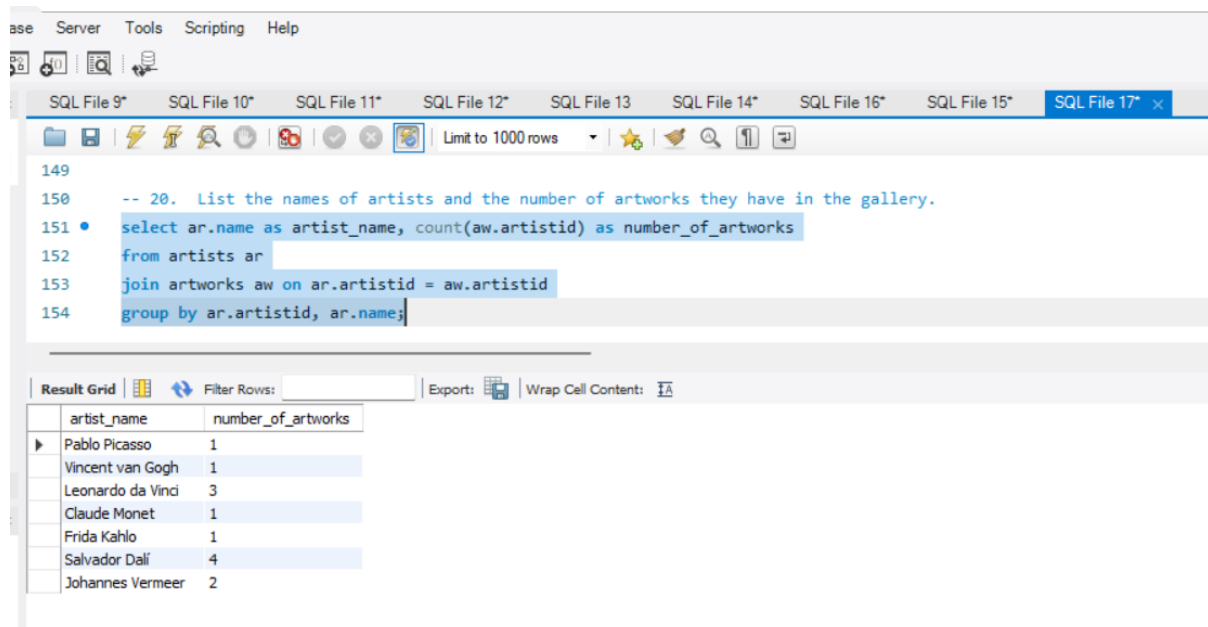
The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```
-- 19. Show artists who have artworks in the same category as "Mona Lisa."
select distinct ar.name as Artist_Name
from artists ar
join artworks aw on ar.artistid = aw.artistid
where aw.categoryid = (
    select categoryid from artworks where title = 'Mona Lisa'
```

The result grid displays the following data:

Artist_Name
Vincent van Gogh
Leonardo da Vinci
Pablo Picasso
Johannes Vermeer
Salvador Dali

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



The screenshot shows a SQL IDE with a query editor and a result grid. The query is as follows:

```
-- 20. List the names of artists and the number of artworks they have in the gallery.
select ar.name as artist_name, count(aw.artistid) as number_of_artworks
from artists ar
join artworks aw on ar.artistid = aw.artistid
group by ar.artistid, ar.name;
```

The result grid displays the following data:

artist_name	number_of_artworks
Pablo Picasso	1
Vincent van Gogh	1
Leonardo da Vinci	3
Claude Monet	1
Frida Kahlo	1
Salvador Dali	4
Johannes Vermeer	2