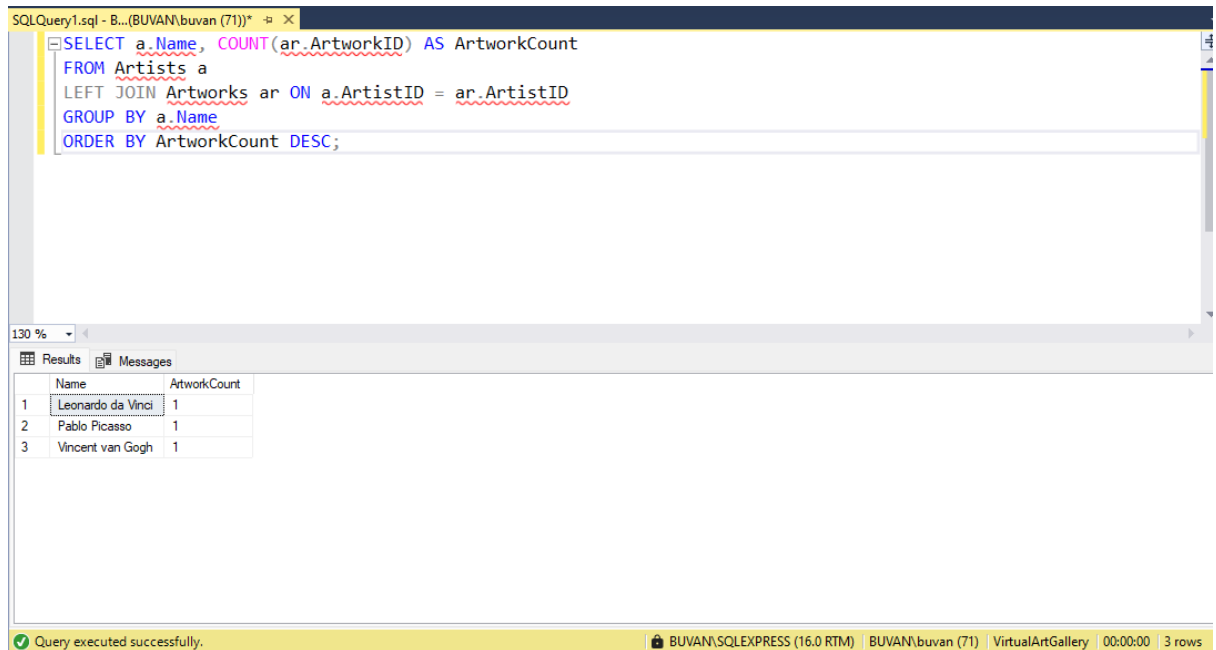


Coding Challenge

5_RDBMS_VirtualArtGallery

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.



The screenshot shows a SQL query window with the following text:

```
SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount
FROM Artists a
LEFT JOIN Artworks ar ON a.ArtistID = ar.ArtistID
GROUP BY a.Name
ORDER BY ArtworkCount DESC;
```

Below the query window, the 'Results' tab is active, displaying a table with 3 rows and 2 columns: Name and ArtworkCount.

| | Name | ArtworkCount |
|---|-------------------|--------------|
| 1 | Leonardo da Vinci | 1 |
| 2 | Pablo Picasso | 1 |
| 3 | Vincent van Gogh | 1 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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 query window with the following text:

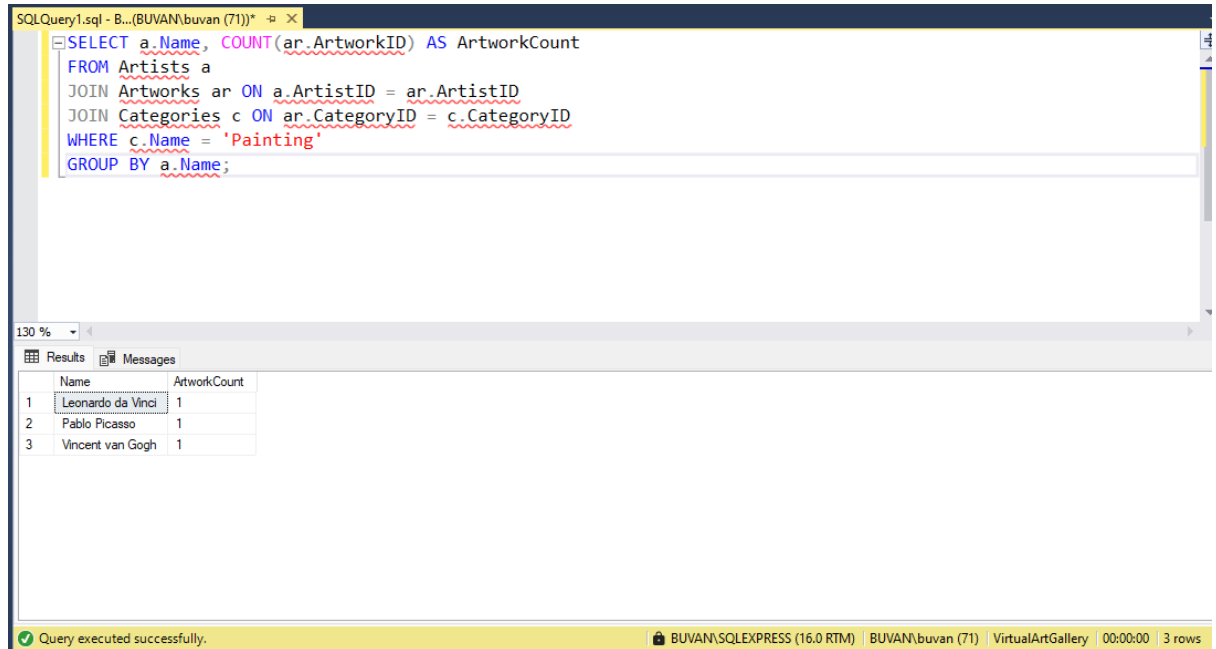
```
SELECT ar.Title, ar.Year
FROM Artworks ar
JOIN Artists a ON ar.ArtistID = a.ArtistID
WHERE a.Nationality IN ('Spanish', 'Dutch')
ORDER BY ar.Year ASC;
```

Below the query window, the 'Results' tab is active, displaying a table with 2 rows and 2 columns: Title and Year.

| | Title | Year |
|---|--------------|------|
| 1 | Starry Night | 1889 |
| 2 | Guernica | 1937 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 2 rows

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 query window with the following query:

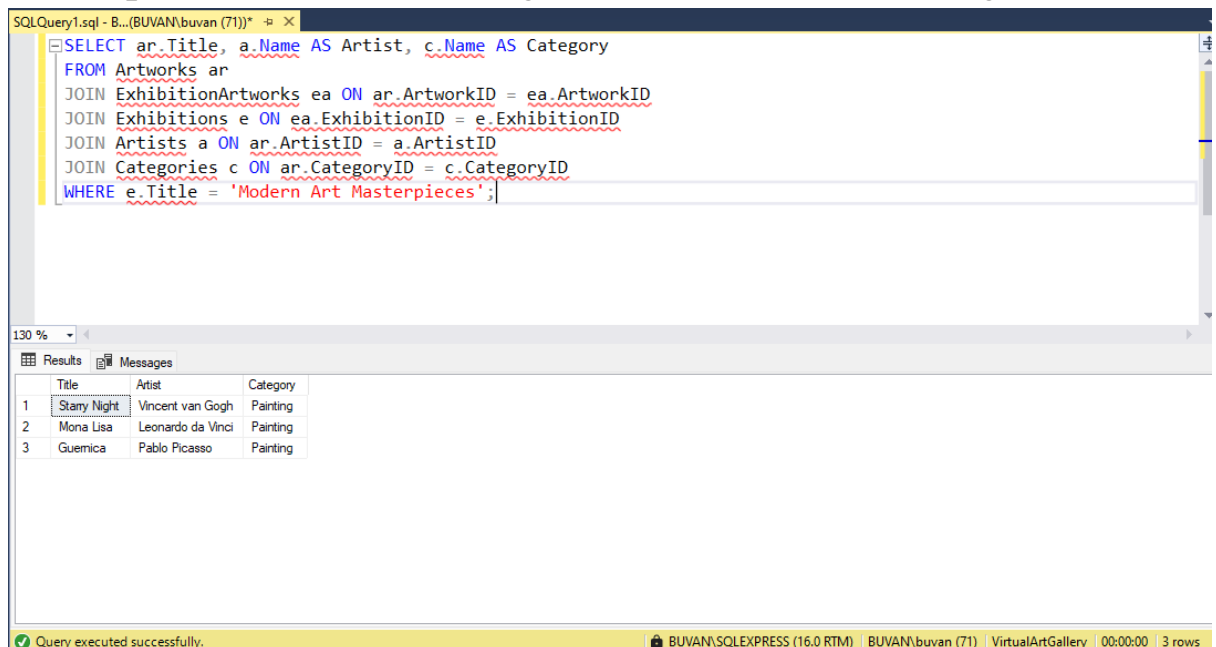
```
SELECT a.Name, COUNT(ar.ArtworkID) AS ArtworkCount
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
JOIN Categories c ON ar.CategoryID = c.CategoryID
WHERE c.Name = 'Painting'
GROUP BY a.Name;
```

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

| | Name | ArtworkCount |
|---|-------------------|--------------|
| 1 | Leonardo da Vinci | 1 |
| 2 | Pablo Picasso | 1 |
| 3 | Vincent van Gogh | 1 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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



The screenshot shows a SQL query window with the following query:

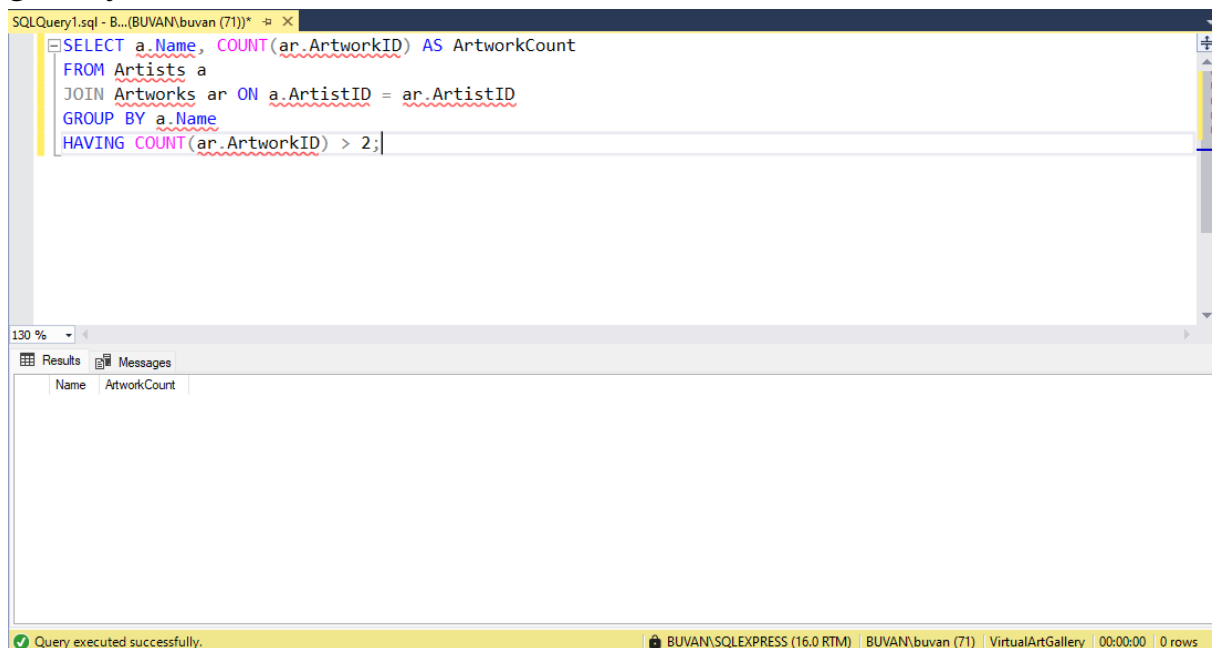
```
SELECT ar.Title, a.Name AS Artist, c.Name AS Category
FROM Artworks ar
JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID
JOIN Artists a ON ar.ArtistID = a.ArtistID
JOIN Categories c ON ar.CategoryID = c.CategoryID
WHERE e.Title = 'Modern Art Masterpieces';
```

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

| | Title | Artist | Category |
|---|--------------|-------------------|----------|
| 1 | Starry Night | Vincent van Gogh | Painting |
| 2 | Mona Lisa | Leonardo da Vinci | Painting |
| 3 | Guernica | Pablo Picasso | Painting |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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



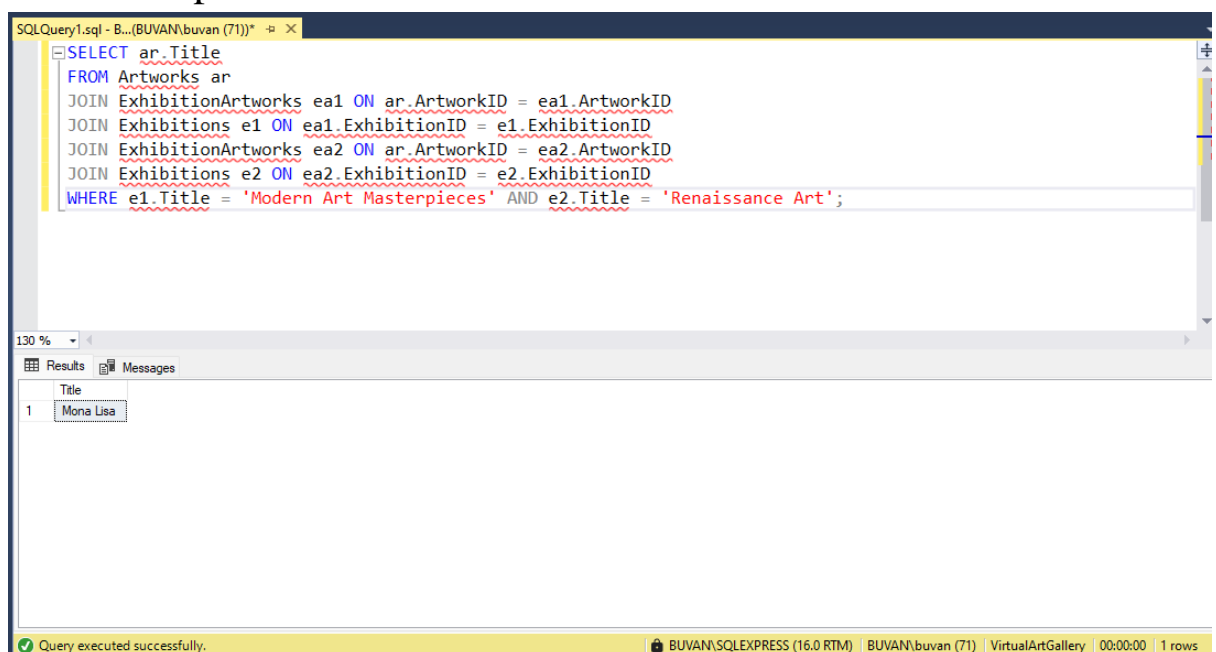
The screenshot shows a SQL query window with the following text:

```
SELECT a.Name, 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;
```

Below the query window, the 'Results' tab is active, showing a table with two columns: 'Name' and 'ArtworkCount'. The table is currently empty.

The status bar at the bottom indicates: 'Query executed successfully. BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 0 rows'.

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



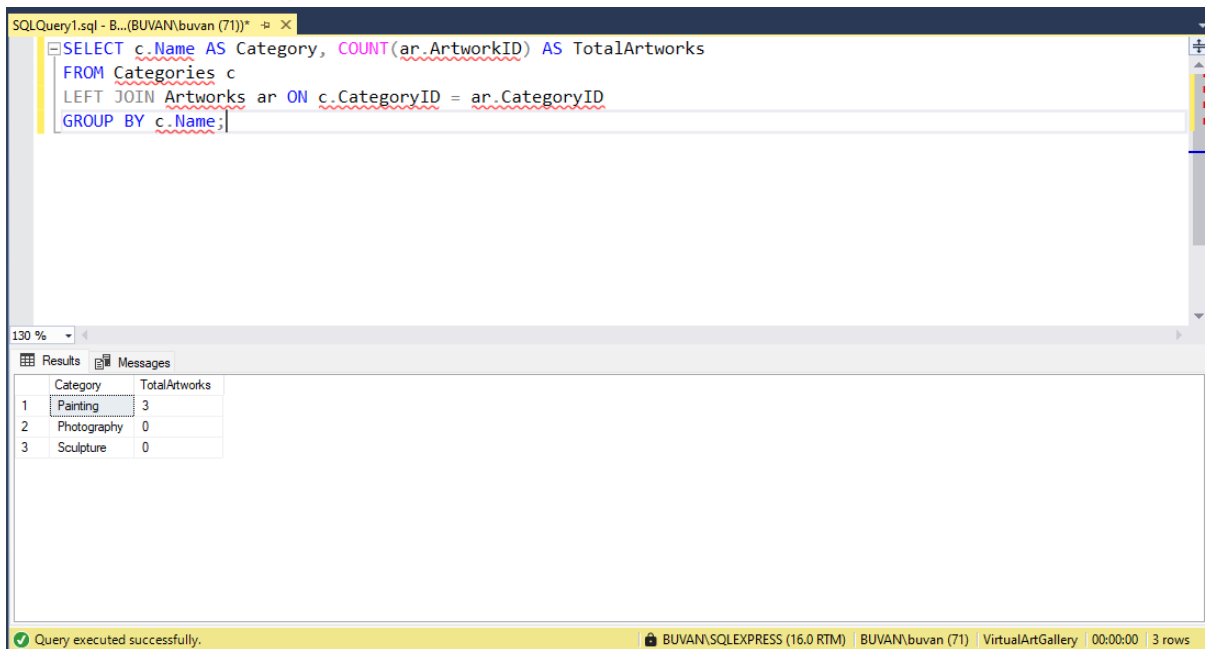
The screenshot shows a SQL query window with the following text:

```
SELECT ar.Title
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';
```

Below the query window, the 'Results' tab is active, showing a table with one column: 'Title'. The table contains one row with the value 'Mona Lisa'.

The status bar at the bottom indicates: 'Query executed successfully. BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 1 rows'.

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



The screenshot shows a SQL query window with the following query:

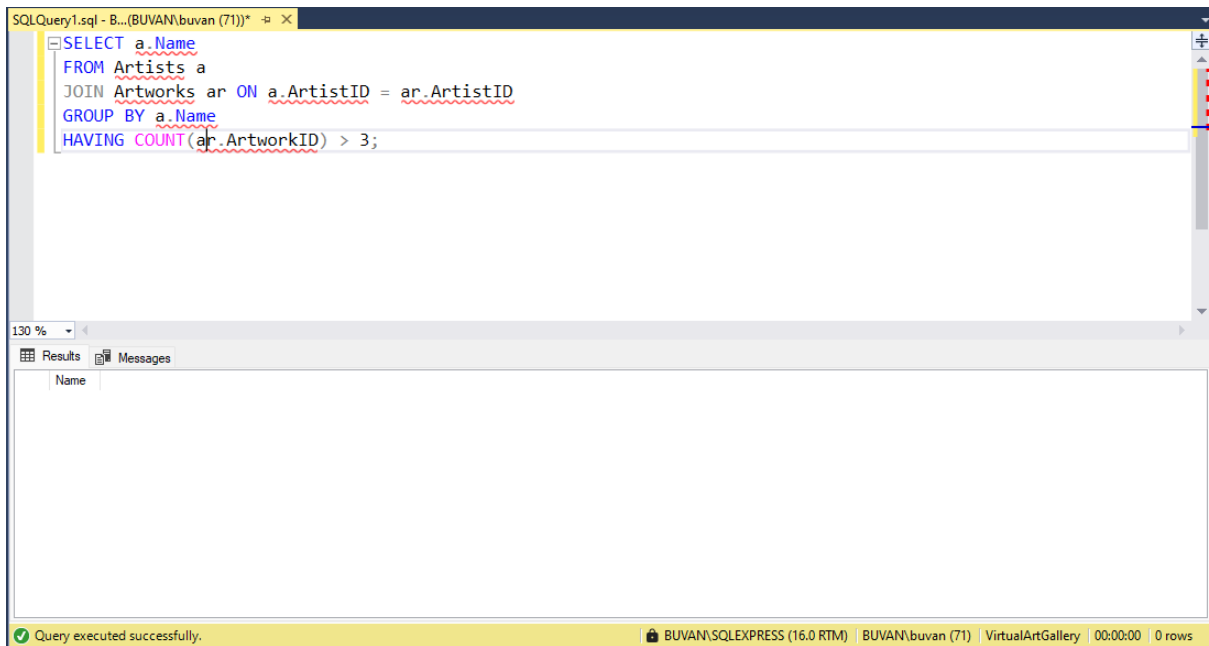
```
SELECT c.Name AS Category, COUNT(ar.ArtworkID) AS TotalArtworks
FROM Categories c
LEFT JOIN Artworks ar ON c.CategoryID = ar.CategoryID
GROUP BY c.Name;
```

The query results are displayed in a table with two columns: Category and TotalArtworks. The results are as follows:

| | Category | TotalArtworks |
|---|-------------|---------------|
| 1 | Painting | 3 |
| 2 | Photography | 0 |
| 3 | Sculpture | 0 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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



The screenshot shows a SQL query window with the following query:

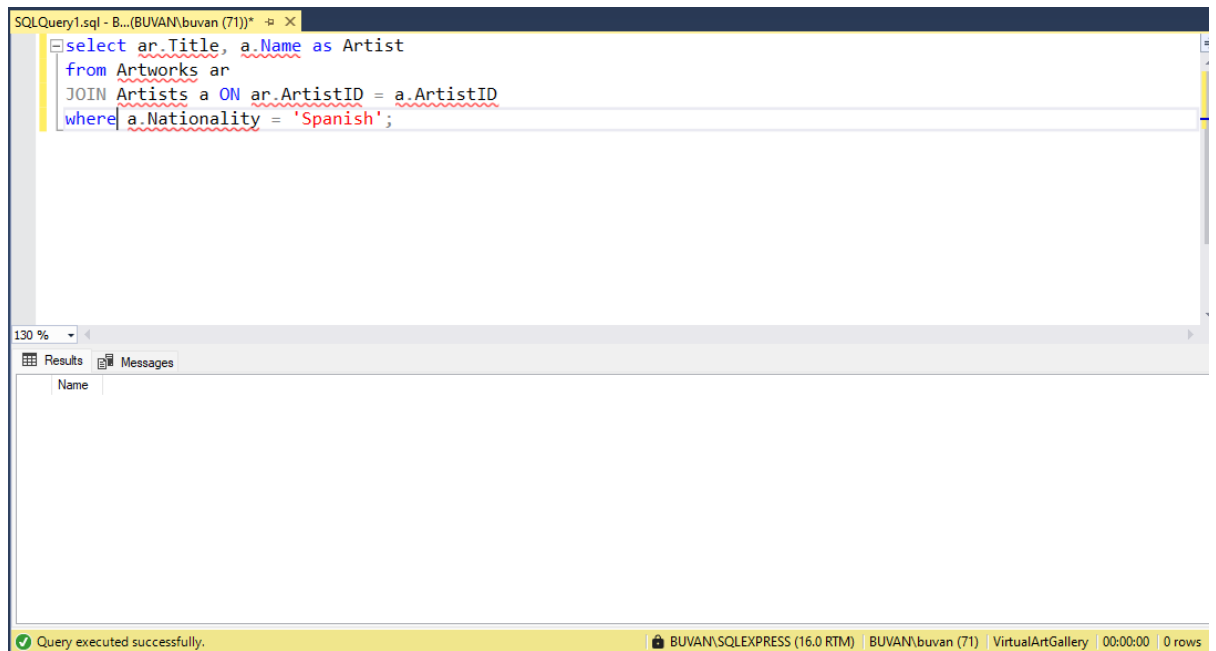
```
SELECT a.Name
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
GROUP BY a.Name
HAVING COUNT(ar.ArtworkID) > 3;
```

The query results are displayed in a table with one column: Name. The results are as follows:

| Name |
|------|
|------|

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 0 rows

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

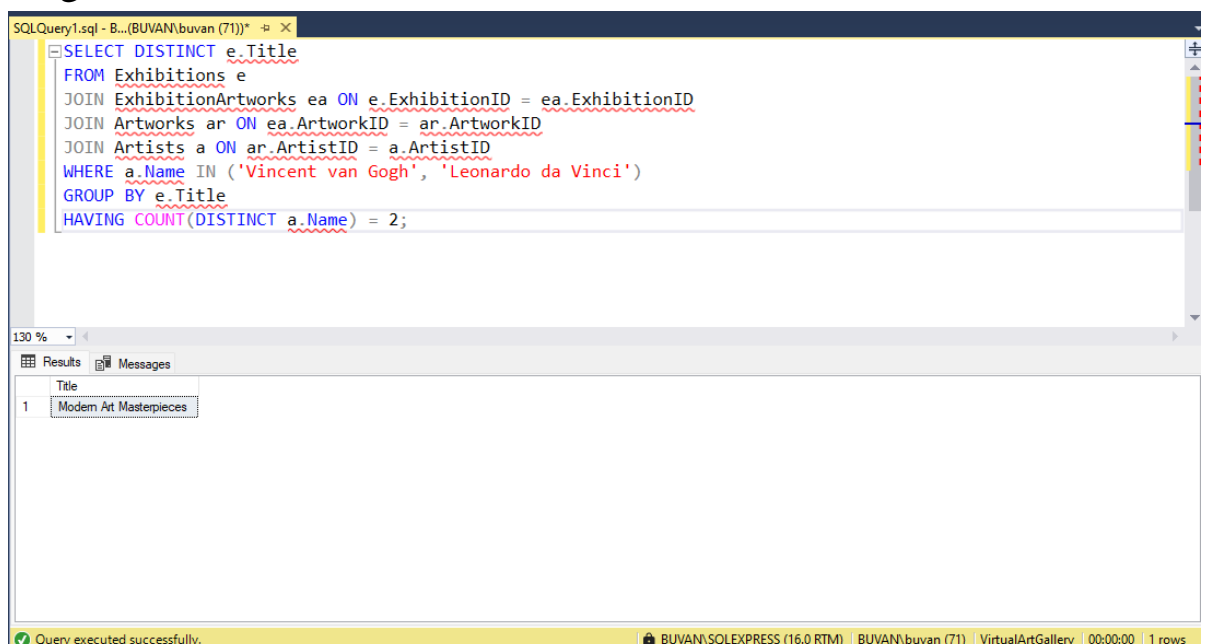


The screenshot shows a SQL query window with the following text:

```
select ar.Title, a.Name as Artist
from Artworks ar
JOIN Artists a ON ar.ArtistID = a.ArtistID
where a.Nationality = 'Spanish';
```

Below the query window, the 'Results' tab is active, showing a table with one column, 'Name'. The status bar at the bottom indicates 'Query executed successfully.' and '0 rows'.

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



The screenshot shows a SQL query window with the following text:

```
SELECT DISTINCT e.Title
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(DISTINCT a.Name) = 2;
```

Below the query window, the 'Results' tab is active, showing a table with one column, 'Title'. The first row contains the value 'Modern Art Masterpieces'. The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

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

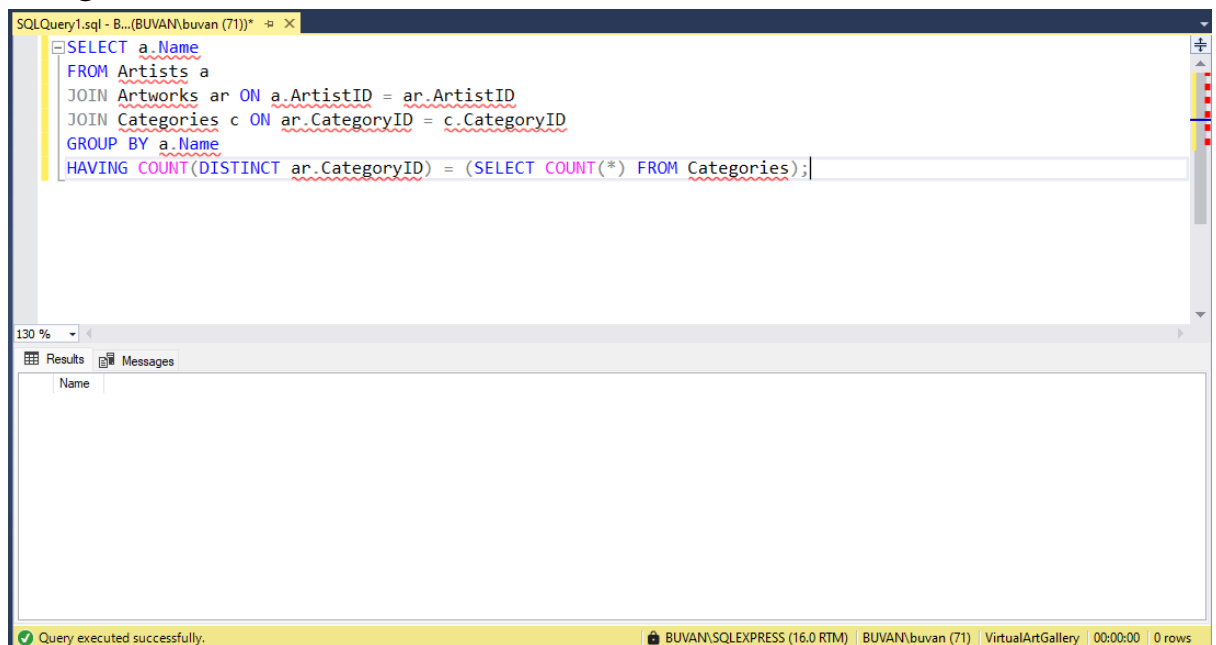


The screenshot shows a SQL query window with the following text:

```
SELECT ar.Title
FROM Artworks ar
LEFT JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
WHERE ea.ArtworkID IS NULL;
```

Below the query window, the 'Results' tab is active, showing a table with one column, 'Title'. The status bar at the bottom indicates 'Query executed successfully.' and '0 rows'.

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

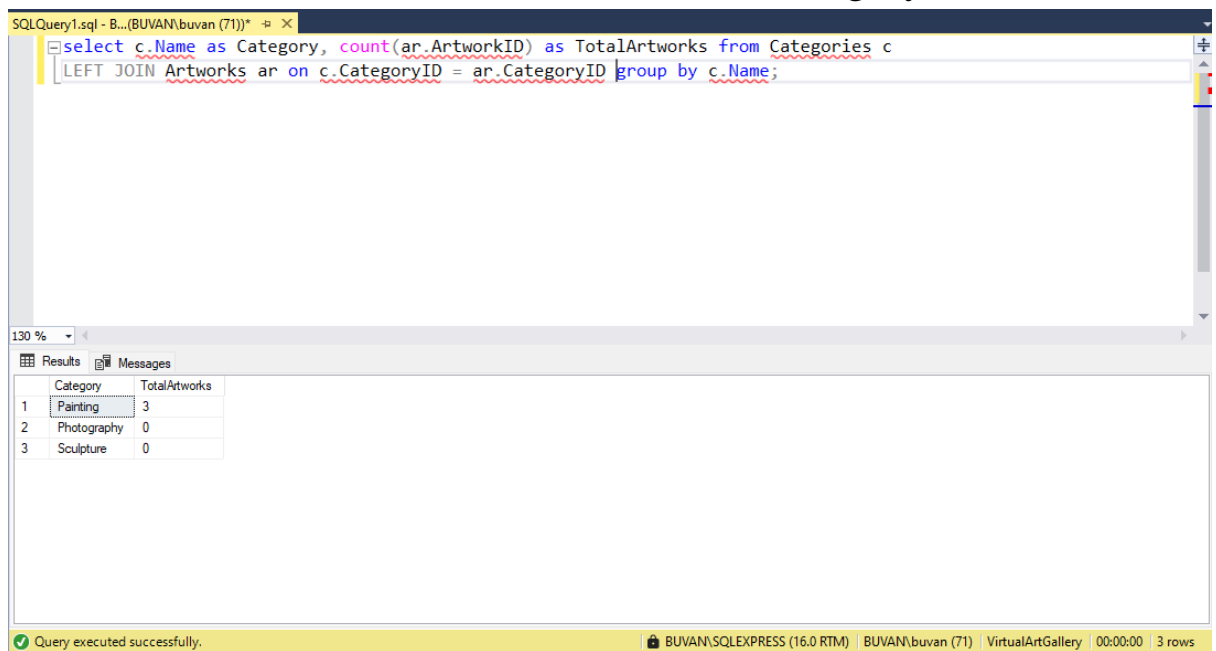


The screenshot shows a SQL query window with the following text:

```
SELECT a.Name
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
JOIN Categories c ON ar.CategoryID = c.CategoryID
GROUP BY a.Name
HAVING COUNT(DISTINCT ar.CategoryID) = (SELECT COUNT(*) FROM Categories);
```

Below the query window, the 'Results' tab is active, showing a table with one column, 'Name'. The status bar at the bottom indicates 'Query executed successfully.' and '0 rows'.

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



The screenshot shows a SQL query window with the following query:

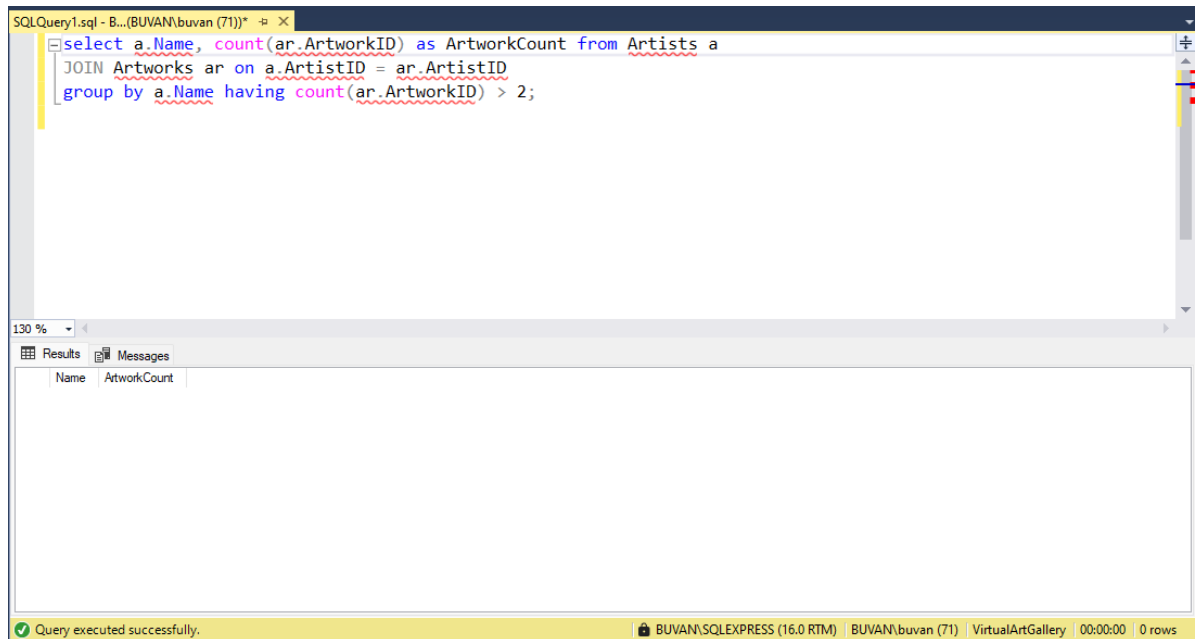
```
select c.Name as Category, count(ar.ArtworkID) as TotalArtworks from Categories c
LEFT JOIN Artworks ar on c.CategoryID = ar.CategoryID group by c.Name;
```

The query results are displayed in a table with two columns: Category and TotalArtworks.

| Category | TotalArtworks |
|---------------|---------------|
| 1 Painting | 3 |
| 2 Photography | 0 |
| 3 Sculpture | 0 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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



The screenshot shows a SQL query window with the following query:

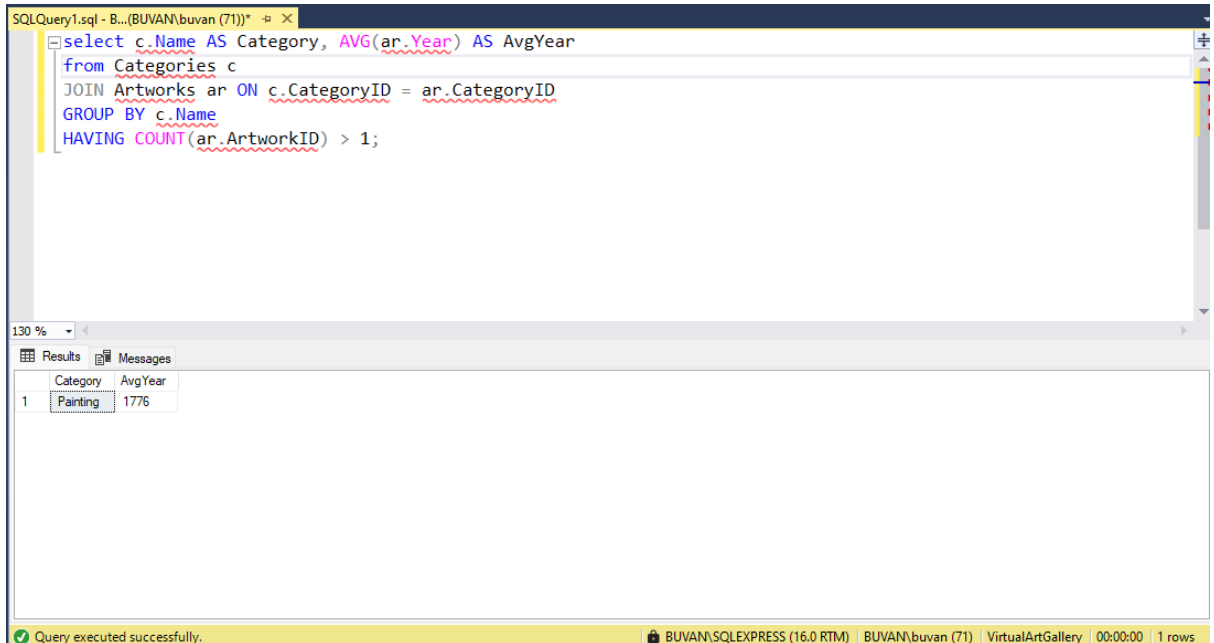
```
select a.Name, count(ar.ArtworkID) as ArtworkCount from Artists a
JOIN Artworks ar on a.ArtistID = ar.ArtistID
group by a.Name having count(ar.ArtworkID) > 2;
```

The query results are displayed in a table with two columns: Name and ArtworkCount.

| Name | ArtworkCount |
|------|--------------|
|------|--------------|

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 0 rows

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 query window with the following text:

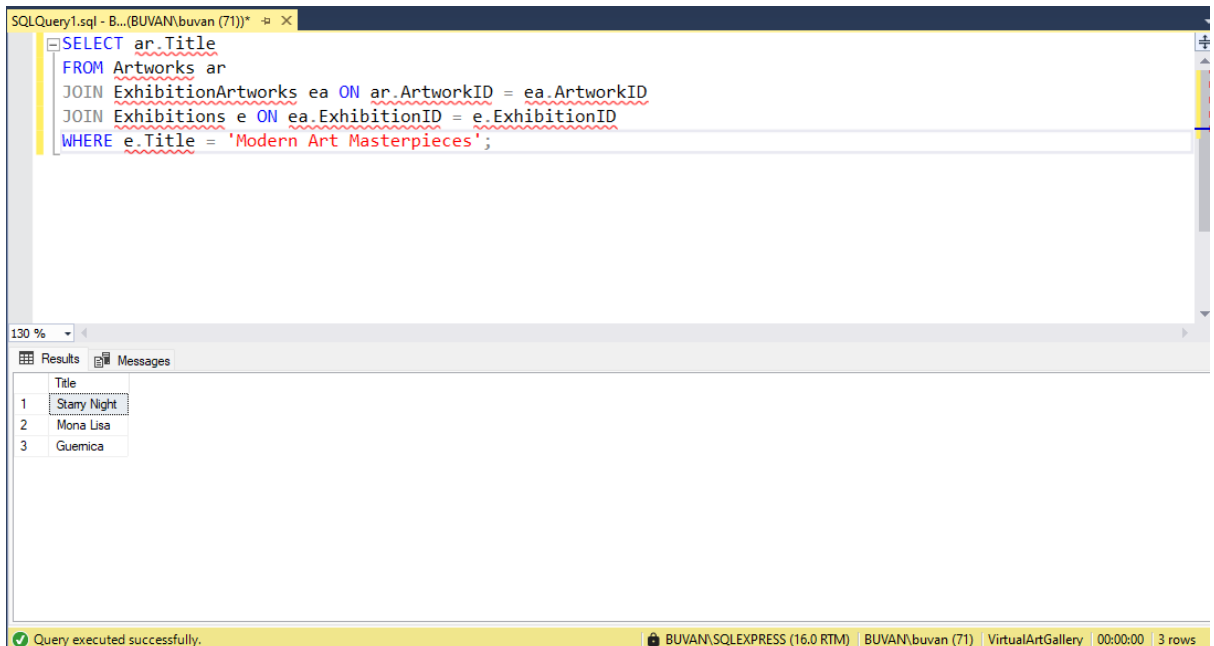
```
select c.Name AS Category, AVG(ar.Year) AS AvgYear
from Categories c
JOIN Artworks ar ON c.CategoryID = ar.CategoryID
GROUP BY c.Name
HAVING COUNT(ar.ArtworkID) > 1;
```

Below the query window, the 'Results' tab is active, displaying a table with two columns: 'Category' and 'AvgYear'. The table contains one row with the value 'Painting' under 'Category' and '1776' under 'AvgYear'.

| | Category | AvgYear |
|---|----------|---------|
| 1 | Painting | 1776 |

The status bar at the bottom indicates 'Query executed successfully.' and 'BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 1 rows'.

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



The screenshot shows a SQL query window with the following text:

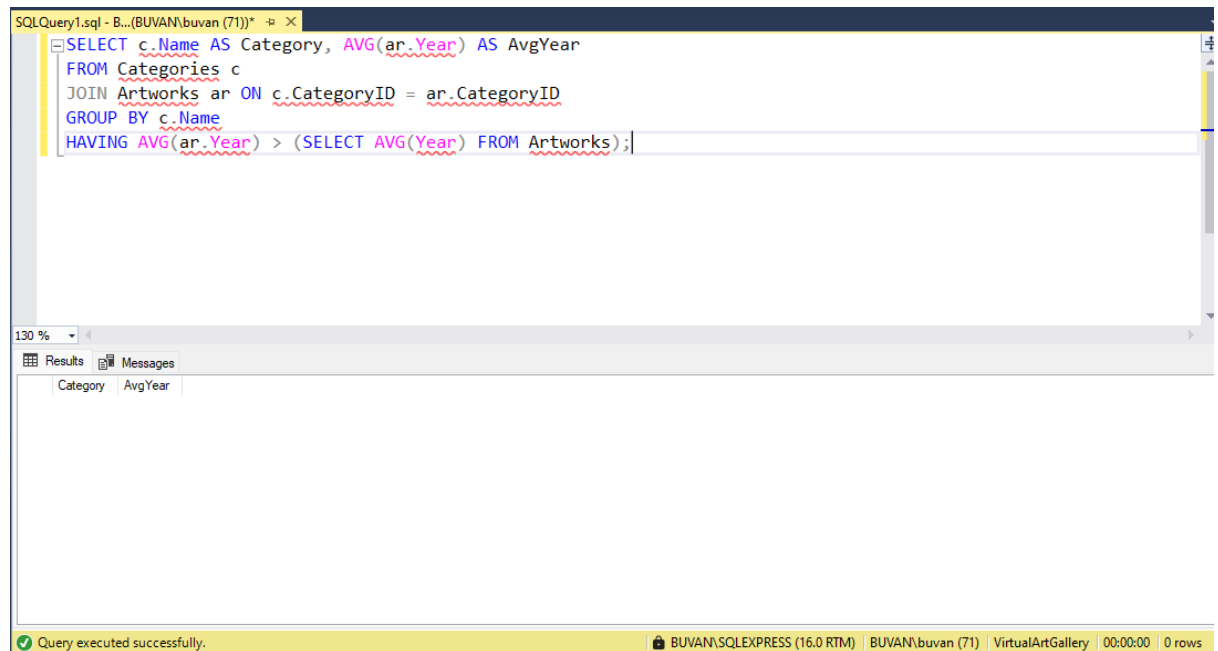
```
SELECT ar.Title
FROM Artworks ar
JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID
WHERE e.Title = 'Modern Art Masterpieces';
```

Below the query window, the 'Results' tab is active, displaying a table with one column: 'Title'. The table contains three rows with the values 'Starry Night', 'Mona Lisa', and 'Guernica'.

| | Title |
|---|--------------|
| 1 | Starry Night |
| 2 | Mona Lisa |
| 3 | Guernica |

The status bar at the bottom indicates 'Query executed successfully.' and 'BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows'.

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



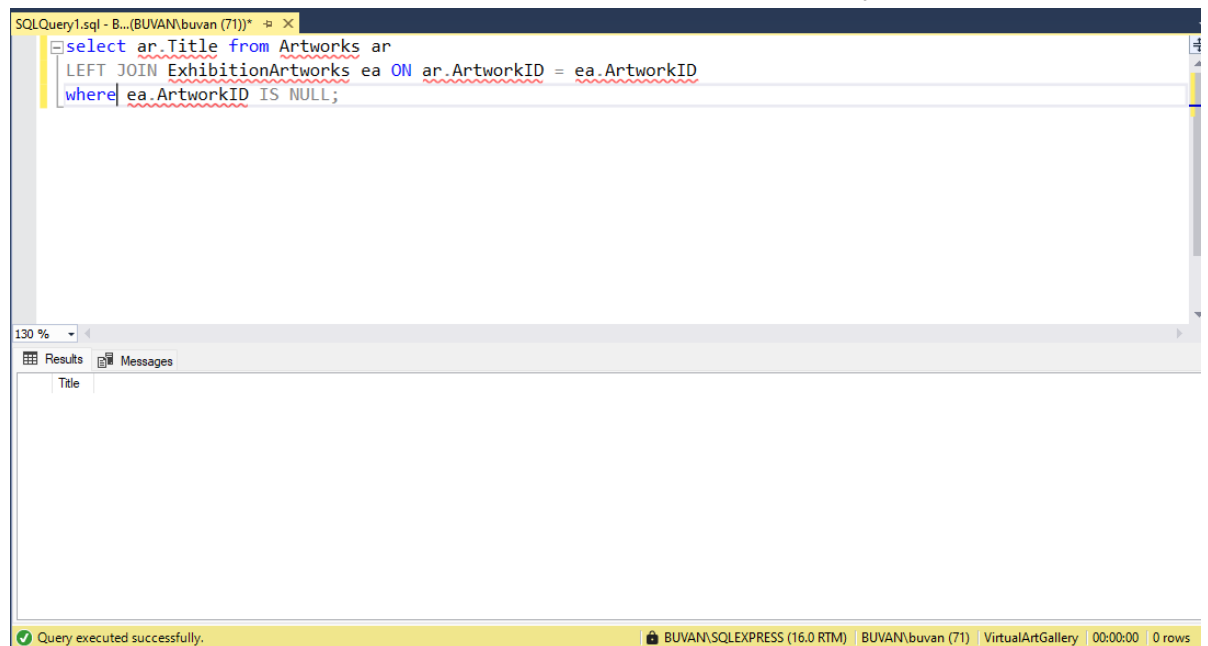
The screenshot shows a SQL query window with the following text:

```
SELECT c.Name AS Category, AVG(ar.Year) AS AvgYear
FROM Categories c
JOIN Artworks ar ON c.CategoryID = ar.CategoryID
GROUP BY c.Name
HAVING AVG(ar.Year) > (SELECT AVG(Year) FROM Artworks);
```

Below the query window, the 'Results' tab is active, displaying a table with two columns: 'Category' and 'AvgYear'. The table is currently empty.

The status bar at the bottom indicates: 'Query executed successfully. BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 0 rows'.

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



The screenshot shows a SQL query window with the following text:

```
select ar.Title from Artworks ar
LEFT JOIN ExhibitionArtworks ea ON ar.ArtworkID = ea.ArtworkID
where ea.ArtworkID IS NULL;
```

Below the query window, the 'Results' tab is active, displaying a table with one column: 'Title'. The table is currently empty.

The status bar at the bottom indicates: 'Query executed successfully. BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 0 rows'.

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

The screenshot shows a SQL query window with the following query:

```
SELECT DISTINCT a.Name
FROM Artists a
JOIN Artworks ar ON a.ArtistID = ar.ArtistID
WHERE ar.CategoryID = (SELECT CategoryID FROM Artworks WHERE Title = 'Mona Lisa');
```

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

| | Name |
|---|-------------------|
| 1 | Leonardo da Vinci |
| 2 | Pablo Picasso |
| 3 | Vincent van Gogh |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows

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

The screenshot shows a SQL query window with the following query:

```
select a.Name, count(ar.ArtworkID) as ArtworkCount from Artists a
LEFT JOIN Artworks ar on a.ArtistID = ar.ArtistID
group by a.Name order by ArtworkCount desc;
```

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

| | Name | ArtworkCount |
|---|-------------------|--------------|
| 1 | Leonardo da Vinci | 1 |
| 2 | Pablo Picasso | 1 |
| 3 | Vincent van Gogh | 1 |

The status bar at the bottom indicates: Query executed successfully. | BUVAN\SQLEXPRESS (16.0 RTM) | BUVAN\buvan (71) | VirtualArtGallery | 00:00:00 | 3 rows