```sql
-- Ishaan Gupta
-- Create the Artists table
CREATE TABLE Artists (
  ArtistID INT PRIMARY KEY,
  Name VARCHAR(255) NOT NULL,
  Biography TEXT,
  Nationality VARCHAR(100));

-- Create the Categories table
CREATE TABLE Categories (
  CategoryID INT PRIMARY KEY,
  Name VARCHAR(100) NOT NULL);

-- Create the Artworks table
CREATE TABLE Artworks (
  ArtworkID INT PRIMARY KEY,
  Title VARCHAR(255) NOT NULL,
  ArtistID INT,
  CategoryID INT,
  Year INT,
  Description TEXT,
  ImageURL VARCHAR(255),
  FOREIGN KEY (ArtistID) REFERENCES Artists (ArtistID),
  FOREIGN KEY (CategoryID) REFERENCES Categories (CategoryID));

-- Create the Exhibitions table
CREATE TABLE Exhibitions (
  ExhibitionID INT PRIMARY KEY,
  Title VARCHAR(255) NOT NULL,
  StartDate DATE,
  EndDate DATE,
  Description TEXT);

-- Create a table to associate artworks with exhibitions
CREATE TABLE ExhibitionArtworks (
  ExhibitionID INT,
  ArtworkID INT,
  PRIMARY KEY (ExhibitionID, ArtworkID),
  FOREIGN KEY (ExhibitionID) REFERENCES Exhibitions (ExhibitionID),
  FOREIGN KEY (ArtworkID) REFERENCES Artworks (ArtworkID));
```

50 %

Messages

Commands completed successfully.

Completion time: 2024-09-27T09:31:10.1806422+05:30

50 %

✅ Query executed successfully.

```sql
-- Insert sample data into the Artists table
INSERT INTO Artists (ArtistID, Name, Biography, Nationality) VALUES
  (1, 'Pablo Picasso', 'Renowned Spanish painter and sculptor.', 'Spanish'),
  (2, 'Vincent van Gogh', 'Dutch post-impressionist painter.', 'Dutch'),
  (3, 'Leonardo da Vinci', 'Italian polymath of the Renaissance.', 'Italian');

-- Insert sample data into the Categories table
INSERT INTO Categories (CategoryID, Name) VALUES
  (1, 'Painting'),
  (2, 'Sculpture'),
  (3, 'Photography');

-- Insert sample data into the Artworks table
INSERT INTO Artworks (ArtworkID, Title, ArtistID, CategoryID, Year, Description, ImageURL) VALUES
  (1, 'Starry Night', 2, 1, 1889, 'A famous painting by Vincent van Gogh.', 'starry_night.jpg'),
  (2, 'Mona Lisa', 3, 1, 1503, 'The iconic portrait by Leonardo da Vinci.', 'mona_lisa.jpg'),
  (3, 'Guernica', 1, 1, 1937, 'Pablo Picasso''s powerful anti-war mural.', 'guernica.jpg');

-- Insert sample data into the Exhibitions table
INSERT INTO Exhibitions (ExhibitionID, Title, StartDate, EndDate, Description) VALUES
  (1, 'Modern Art Masterpieces', '2023-01-01', '2023-03-01', 'A collection of modern art masterpieces.'),
  (2, 'Renaissance Art', '2023-04-01', '2023-06-01', 'A showcase of Renaissance art treasures.');

-- Insert artworks into exhibitions
INSERT INTO ExhibitionArtworks (ExhibitionID, ArtworkID) VALUES
  (1, 1),
  (1, 2),
  (1, 3),
  (2, 2);
```

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Messages

Commands completed successfully.

Completion time: 2024-09-27T09:31:10.1806422+05:30

70 % ▾ ◀

✔ Query executed successfully.

```sql
select * from Artists;
select * from Categories;
select * from Artists;
select * from Exhibitions;
select * from ExhibitionArtworks;
```

100 %

Results | **Messages**

	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

	CategoryID	Name
1	1	Painting
2	2	Sculpture
3	3	Photography

	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

	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.

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

Query executed successfully.

```sql
-- Ishaan Gupta


-- Q1) 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(aw.ArtworkID) AS ArtworkCount
FROM Artists a
LEFT JOIN Artworks aw ON a.ArtistID = aw.ArtistID
GROUP BY a.Name
ORDER BY ArtworkCount DESC;
```

100 %

Results | **Messages**

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

✓ Query executed successfully.

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```sql
-- Ishaan Gupta


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

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

	Title
1	Starry Night
2	Guernica

Query executed successfully.

Object Explorer ▾ ⇄ ✕

Connect ▾ ♥ ✕♥ ■

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queries.sql - DESKTO...ArtGallery (sa (52)) ⇄ ✕

```sql
-- Ishaan Gupta


-- Q3) 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(aw.ArtworkID) AS PaintingCount
FROM Artists a
JOIN Artworks aw ON a.ArtistID = aw.ArtistID
JOIN Categories c ON aw.CategoryID = c.CategoryID
WHERE c.Name = 'Painting'
GROUP BY a.Name;
```

100 % ▾ ◄

⊞ Results 🔲 Messages

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

queries.sql - DESKTO...ArtGallery (sa (52))* ⊷ ✕

```sql
-- Ishaan Gupta


--Q4) List the names of artworks from the 'Modern Art Masterpieces' exhibition, along with their
--artists and categories.


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

100 %   ▼ ◀

⊞ Results ⊠ Messages

	Title	ArtistName	CategoryName
1	Starry Night	Vincent van Gogh	Painting
2	Mona Lisa	Leonardo da Vinci	Painting
3	Guernica	Pablo Picasso	Painting

✓ Query executed successfully.

```sql
-- Ishaan Gupta


--Q5) Find the artists who have more than two artworks in the gallery.

SELECT a.Name
FROM Artists a
JOIN Artworks aw ON a.ArtistID = aw.ArtistID
GROUP BY a.Name
HAVING COUNT(aw.ArtworkID) > 2;
```

Results | Messages

Name

✅ Query executed successfully.

```sql
-- Ishaan Gupta


-- Q6) Find the titles of artworks that were exhibited in both 'Modern Art Masterpieces' and 'Renaissance Art' exhibitions


SELECT aw.Title
FROM Artworks aw
JOIN ExhibitionArtworks ea ON aw.ArtworkID = ea.ArtworkID
JOIN Exhibitions e ON ea.ExhibitionID = e.ExhibitionID
WHERE e.Title IN ('Modern Art Masterpieces', 'Renaissance Art')
GROUP BY aw.ArtworkID, aw.Title
HAVING COUNT(DISTINCT e.ExhibitionID) = 2;
```

100 %

Results | **Messages**

	Title
1	Mona Lisa

✅ Query executed successfully.

```sql
-- Ishaan Gupta


-- Q7) Find the total number of artworks in each category

SELECT c.Name AS CategoryName, COUNT(aw.ArtworkID) AS ArtworkCount
FROM Categories c
LEFT JOIN Artworks aw ON c.CategoryID = aw.CategoryID
GROUP BY c.CategoryID, c.Name;
```

Results

	CategoryName	ArtworkCount
1	Painting	3
2	Sculpture	0
3	Photography	0

Query executed successfully.

```sql
-- Ishaan Gupta


-- Q8) List artists who have more than 3 artworks in the gallery


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

Results

Name

Query executed successfully.

-- Ishaan Gupta

-- Q9) Find the artworks created by artists from a specific nationality (e.g., Spanish)


```sql
SELECT aw.Title
FROM Artworks aw
JOIN Artists a ON aw.ArtistID = a.ArtistID
WHERE a.Nationality = 'Spanish';
```

	Title
1	Guernica

```sql
-- Ishaan Gupta


-- q10) List exhibitions that feature artwork by both Vincent van Gogh and Leonardo da Vinci.


SELECT DISTINCT e.Title
FROM Exhibitions e
JOIN ExhibitionArtworks ea ON e.ExhibitionID = ea.ExhibitionID
JOIN Artworks aw ON ea.ArtworkID = aw.ArtworkID
JOIN Artists a ON aw.ArtistID = a.ArtistID
WHERE a.Name IN ('Vincent van Gogh', 'Leonardo da Vinci')
GROUP BY e.ExhibitionID, e.Title
HAVING COUNT(DISTINCT a.ArtistID) = 2;
```

Results

	Title
1	Modern Art Masterpieces

Query executed successfully.

```sql
-- Ishaan Gupta


-- q11) Find all the artworks that have not been included in any exhibition


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

```

Results | Messages

Title

Query executed successfully.

```sql
-- Ishaan Gupta


-- q12) List artists who have created artworks in all available categories.



SELECT a.Name
FROM Artists a
WHERE NOT EXISTS (
    SELECT c.CategoryID
    FROM Categories c
    WHERE NOT EXISTS (
        SELECT 1
        FROM Artworks aw
        WHERE aw.ArtistID = a.ArtistID AND aw.CategoryID = c.CategoryID
    )
);
```

Results | Messages

Name

Query executed successfully.

queries.sql - DESKTO...ArtGallery (sa (52))*

```sql
-- Ishaan Gupta


-- q13) List the total number of artworks in each category.

SELECT c.Name AS CategoryName, COUNT(aw.ArtworkID) AS ArtworkCount
FROM Categories c
LEFT JOIN Artworks aw ON c.CategoryID = aw.CategoryID
GROUP BY c.CategoryID, c.Name;
```

100 %

Results | Messages

	CategoryName	ArtworkCount
1	Painting	3
2	Sculpture	0
3	Photography	0

Query executed successfully.

-- Ishaan Gupta

-- q14) Find the artists who have more than 2 artworks in the gallery.

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

Results | Messages

Name

Query executed successfully.

-- Ishaan Gupta

-- q15) 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(aw.Year) AS AvgYear
FROM Categories c
JOIN Artworks aw ON c.CategoryID = aw.CategoryID
GROUP BY c.Name
HAVING COUNT(aw.ArtworkID) > 1;
```

	CategoryName	AvgYear
1	Painting	1776

Query executed successfully.

```sql
-- Ishaan Gupta

-- q16) Find the artworks that were exhibited in the 'Modern Art Masterpieces' exhibition.


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

	Title
1	Starry Night
2	Mona Lisa
3	Guernica

Query executed successfully.

```sql
-- Ishaan Gupta


-- q17) Find the categories where the average year of artworks is greater than the average year of all artworks.

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

CategoryName	AvgYear

Query executed successfully.

```sql
-- Ishaan Gupta

-- q18)  List the artworks that were not exhibited in any exhibition.

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

Results | Messages

Title

Query executed successfully.

```sql
-- Ishaan Gupta

-- q19) Show artists who have artworks in the same category as "Mona Lisa."

SELECT a.Name
FROM Artists a
JOIN Artworks AR1 ON a.ArtistID = AR1.ArtistID
JOIN Categories C1 ON AR1.CategoryID = C1.CategoryID
WHERE C1.CategoryID = (
    SELECT AR.CategoryID
    FROM Artworks AR
    WHERE AR.Title = 'Mona Lisa'
);
```

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

✔ Query executed successfully.

```sql
-- Ishaan Gupta


-- q20) List the names of artists and the number of artworks they have in the gallery

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

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

Query executed successfully.