

CODING CHALLENGE 5
EXECUTED BY
RAHUL S

```
CREATE DATABASE VirtualArtGallery;  
USE VirtualArtGallery ;
```

```
CREATE TABLE Artists (  
ArtistID INT PRIMARY KEY,  
Name VARCHAR(255) NOT NULL,  
Biography TEXT,  
Nationality VARCHAR(100));
```

```
CREATE TABLE Categories (  
CategoryID INT PRIMARY KEY,  
Name VARCHAR(100) NOT NULL);
```

```
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 TABLE Exhibitions (  
ExhibitionID INT PRIMARY KEY,  
Title VARCHAR(255) NOT NULL,  
StartDate DATE,  
EndDate DATE,  
Description TEXT);
```

```
CREATE TABLE ExhibitionArtworks (  
ExhibitionID INT,  
ArtworkID INT,  
PRIMARY KEY (ExhibitionID, ArtworkID),  
FOREIGN KEY (ExhibitionID) REFERENCES Exhibitions (ExhibitionID),  
FOREIGN KEY (ArtworkID) REFERENCES Artworks (ArtworkID));
```

```
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 INTO Categories (CategoryID, Name) VALUES
```

```
(1, 'Painting'),  
(2, 'Sculpture'),  
(3, 'Photography');
```

```
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 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 INTO ExhibitionArtworks (ExhibitionID, ArtworkID) VALUES  
(1, 1),  
(1, 2),  
(1, 3),  
(2, 2);
```

```
-- Q1  
SELECT Name, COUNT(*) AS ArtworkCount  
FROM Artists  
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID  
GROUP BY Name  
ORDER BY ArtworkCount DESC;
```

```
-- Q2  
SELECT Title  
FROM Artworks  
JOIN Artists ON Artworks.ArtistID = Artists.ArtistID  
WHERE Nationality IN ('Spanish', 'Dutch')  
ORDER BY Year ASC;
```

```
-- Q3  
SELECT Artists.Name, COUNT(*) AS PaintingCount  
FROM Artists  
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID  
JOIN Categories ON Artworks.CategoryID = Categories.CategoryID  
WHERE Categories.Name = 'Painting'  
GROUP BY Artists.Name;
```

-- Q4

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

-- Q5

```
SELECT Artists.Name, COUNT(*) AS ArtworkCount  
FROM Artists  
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID  
GROUP BY Artists.Name  
HAVING COUNT(*) > 2;
```

-- Q6

```
SELECT A.Title  
FROM Artworks A  
JOIN ExhibitionArtworks EA1 ON A.ArtworkID = EA1.ArtworkID  
JOIN Exhibitions E1 ON EA1.ExhibitionID = E1.ExhibitionID  
JOIN ExhibitionArtworks EA2 ON A.ArtworkID = EA2.ArtworkID  
JOIN Exhibitions E2 ON EA2.ExhibitionID = E2.ExhibitionID  
WHERE E1.Title = 'Modern Art Masterpieces'  
AND E2.Title = 'Renaissance Art';
```

-- Q7

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

-- Q8

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

-- Q9

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

```
-- Q10
SELECT E.Title
FROM Exhibitions E
JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID
JOIN Artworks A ON EA.ArtworkID = A.ArtworkID
WHERE A.ArtistID IN (
    SELECT ArtistID FROM Artists WHERE Name IN ('Vincent van Gogh', 'Leonardo da Vinci')
)
GROUP BY E.Title
HAVING COUNT(DISTINCT A.ArtistID) = 2;
```

```
-- Q11
SELECT A.Title
FROM Artworks A
LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID
WHERE EA.ExhibitionID IS NULL;
```

```
-- Q12
SELECT A.Name
FROM Artists A
JOIN Artworks AW ON A.ArtistID = AW.ArtistID
GROUP BY A.ArtistID, A.Name
HAVING COUNT(DISTINCT AW.CategoryID) = (SELECT COUNT(*) FROM Categories);
```

```
-- Q13
SELECT Categories.Name AS Category, COUNT(Artworks.ArtworkID) AS TotalArtworks
FROM Categories
LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
GROUP BY Categories.CategoryID, Categories.Name;
```

```
-- Q14
SELECT Artists.Name
FROM Artists
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
GROUP BY Artists.ArtistID, Artists.Name
HAVING COUNT(Artworks.ArtworkID) > 2;
```

```
-- Q15
SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear
FROM Categories
JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
GROUP BY Categories.CategoryID, Categories.Name
HAVING COUNT(Artworks.ArtworkID) > 1;
```

```
-- Q16
SELECT Artworks.Title
FROM Artworks
JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID
WHERE Exhibitions.Title = 'Modern Art Masterpieces';
```

```
-- Q17
SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear
FROM Categories
JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
GROUP BY Categories.CategoryID, Categories.Name
HAVING AVG(Artworks.Year) > (
    SELECT AVG(Year) FROM Artworks
);
```

```
-- Q18
SELECT Artworks.Title
FROM Artworks
LEFT JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
WHERE ExhibitionArtworks.ExhibitionID IS NULL;
```

```
-- Q19
SELECT DISTINCT Artists.Name
FROM Artists
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
WHERE Artworks.CategoryID = (
    SELECT CategoryID
    FROM Artworks
    WHERE Title = 'Mona Lisa'
);
```

```
-- Q20
SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS NumberOfArtworks
FROM Artists
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
GROUP BY Artists.Name;
```

OUTPUTS

Q1

The screenshot shows the MySQL Workbench interface with the following details:

- Query Editor:** Contains the SQL query:

```
-- Q1
SELECT Name, COUNT(*) AS ArtworkCount
FROM Artists
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
GROUP BY Name
ORDER BY ArtworkCount DESC;
```
- Result Grid:** Displays the results of the query:

Name	ArtworkCount
Pablo Picasso	1
Vincent van Gogh	1
Leonardo da Vinci	1
- Output:** Shows the action log with the following entries:

#	Time	Action	Message	Duration / Fetch
1	09:42:35	CREATE DATABASE VirtualArtGallery	1 row(s) affected	0.000 sec
2	09:42:47	USE VirtualArtGallery	0 row(s) affected	0.000 sec
3	09:43:19	CREATE TABLE Artists (ArtistID INT PRIMARY KEY, Name VARCHAR(255) NO...)	0 row(s) affected	0.015 sec
4	09:43:22	CREATE TABLE Artworks (ArtworkID INT PRIMARY KEY, Title VARCHAR(255) NO...)	0 row(s) affected	0.000 sec

Q2

The screenshot shows the MySQL Workbench interface with the following details:

- Query Editor:** Contains the SQL query:

```
-- Q2
SELECT Title
FROM Artworks
JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
WHERE Nationality IN ('Spanish', 'Dutch')
ORDER BY Year ASC;
```
- Result Grid:** Displays the results of the query:

Title
Starry Night
Guernica
- Output:** Shows the action log with the following entries:

#	Time	Action	Message	Duration / Fetch
60	12:05:53	SELECT Name, COUNT(*) AS ArtworkCount FROM Artists JOIN Artworks ON Artist...	3 row(s) returned	0.000 sec / 0
61	12:46:04	SELECT Name, COUNT(*) AS ArtworkCount FROM Artists JOIN Artworks ON Artist...	3 row(s) returned	0.000 sec / 0
62	12:49:39	SELECT Title FROM Artworks JOIN Artists ON Artworks.ArtistID = Artists.ArtistID W...	2 row(s) returned	0.000 sec / 0

Q3

The screenshot shows the MySQL Workbench interface with a query editor window. The query is:

```
-- Q3
SELECT Artists.Name, COUNT(*) AS PaintingCount
FROM Artists
JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
JOIN Categories ON Artworks.CategoryID = Categories.CategoryID
WHERE Categories.Name = 'Painting'
GROUP BY Artists.Name;
```

The result grid shows:

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

The status bar at the bottom right indicates "Query Completed" and the date "15-04-2025".

Q4

The screenshot shows the MySQL Workbench interface with a query editor window. The query is:

```
-- Q4
SELECT Artworks.Title AS ArtworkTitle, Artists.Name AS ArtistName, Categories.Name AS CategoryName
FROM ExhibitionArtworks
JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID
JOIN Artworks ON ExhibitionArtworks.ArtworkID = Artworks.ArtworkID
JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
JOIN Categories ON Artworks.CategoryID = Categories.CategoryID
WHERE Exhibitions.Title = 'Modern Art Masterpieces';
```

The result grid shows:

ArtworkTitle	ArtistName	CategoryName
Starry Night	Vincent van Gogh	Painting
Mona Lisa	Leonardo da Vinci	Painting
Guernica	Pablo Picasso	Painting

The status bar at the bottom right indicates "Query Completed" and the date "15-04-2025".

Q5

MySQL Workbench - Local instance MySQL80 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas: demo, filtertransfer, techshop, test, ticketbookingsystem

Query Editor:

```
94
95 •  Q5
96   SELECT Artists.Name, COUNT(*) AS ArtworkCount
97   FROM Artists
98   JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
99   GROUP BY Artists.Name
100  HAVING COUNT(*) > 2;
101
```

Result Grid:

Name	ArtworkCount
John Smith	3
Jane Doe	2
Bob Johnson	1

Output:

#	Time	Action	Message	Duration / Fetch
65	12:50:49	SELECT Artworks.Title AS ArtworkTitle, Artists.Name AS ArtistName, Categories.Na...	3 row(s) returned	0.000 sec / 0.000 sec
66	12:51:14	SELECT Artworks.Title AS ArtworkTitle, Artists.Name AS ArtistName, Categories.Na...	3 row(s) returned	0.000 sec / 0.000 sec
67	12:51:34	SELECT Artists.Name, COUNT(*) AS ArtworkCount FROM Artists JOIN Artworks O...	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

12:51 15-04-2025

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Q6

MySQL Workbench - Local instance MySQL80 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas: demo, filtertransfer, techshop, test, ticketbookingsystem

Query Editor:

```
103 •  SELECT A.Title
104   FROM Artworks A
105   JOIN ExhibitionArtworks EA1 ON A.ArtworkID = EA1.ArtworkID
106   JOIN Exhibitions E1 ON EA1.ExhibitionID = E1.ExhibitionID
107   JOIN ExhibitionArtworks EA2 ON A.ArtworkID = EA2.ArtworkID
108   JOIN Exhibitions E2 ON EA2.ExhibitionID = E2.ExhibitionID
109   WHERE E1.Title = 'Modern Art Masterpieces'
110     AND E2.Title = 'Renaissance Art';
```

Result Grid:

Title
Mona Lisa

Output:

#	Time	Action	Message	Duration / Fetch
66	12:51:14	SELECT Artworks.Title AS ArtworkTitle, Artists.Name AS ArtistName, Categories.Na...	3 row(s) returned	0.000 sec / 0.000 sec
67	12:51:34	SELECT Artists.Name, COUNT(*) AS ArtworkCount FROM Artists JOIN Artworks O...	0 row(s) returned	0.000 sec / 0.000 sec
68	12:56:49	SELECT A.Title FROM Artworks A JOIN ExhibitionArtworks EA1 ON A.ArtworkID = ...	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

12:56 15-04-2025

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Q7

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the schema **demo** selected.
- SQL Editor:** Contains the following SQL code:

```
111
112 -- Q7
113 • SELECT Categories.Name AS CategoryName, COUNT(Artworks.ArtworkID) AS TotalArtworks
114 FROM Categories
115 LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
116 GROUP BY Categories.Name;
117
118 -- Q8
```
- Result Grid:** Displays the results of the query:

CategoryName	TotalArtworks
Painting	3
Photography	0
Sculpture	0
- Output:** Shows the execution log:

#	Time	Action	Message	Duration / Fetch
67	12:51:34	SELECT Artists.Name, COUNT(*) AS ArtworkCount FROM Artists JOIN Artworks O...	0 row(s) returned	0.000 sec / 0.000 sec
68	12:56:49	SELECT A.Title FROM Artworks A JOIN Exhibitions EA1 ON A.ArtworkID = EA1.Exhibit...	1 row(s) returned	0.000 sec / 0.000 sec
69	12:57:05	SELECT Categories.Name AS CategoryName, COUNT(Artworks.ArtworkID) AS TotalArtw...	3 row(s) returned	0.000 sec / 0.000 sec
- Object Info:** Shows the status "Query Completed".
- System Bar:** Shows the date and time as 15-04-2025 and 12:57.

Q8

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the schema **demo** selected.
- SQL Editor:** Contains the following SQL code:

```
117
118 -- Q8
119 • SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount
120 FROM Artists
121 JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
122 GROUP BY Artists.Name
123 HAVING COUNT(Artworks.ArtworkID) > 3;
```
- Result Grid:** Displays the results of the query:

Name	ArtworkCount
------	--------------
- Output:** Shows the execution log:

#	Time	Action	Message	Duration / Fetch
71	12:57:51	SELECT E.Title FROM Exhibitions E JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID	1 row(s) returned	0.000 sec / 0.000 sec
72	12:58:11	SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount FROM Artists ...	0 row(s) returned	0.015 sec / 0.000 sec
73	13:01:26	SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount FROM Artists ...	0 row(s) returned	0.000 sec / 0.000 sec
- Object Info:** Shows the status "Query Completed".
- System Bar:** Shows the date and time as 15-04-2025 and 13:01.

Q9

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Schemas: demo, student, student, employees, uploads, uploads, SQL File 33*, SQL File 31*, SQL File 36*. The current schema is demo.
- SQL Editor:** Contains the following SQL code:

```
124
125  -- Execute the selected portion of the script or everything, if there is no selection
126 •  SELECT Artworks.title
127  FROM Artworks
128  JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
129  WHERE Artists.Nationality = 'Spanish';
130
131  -- Q10
```
- Result Grid:** Shows the result of the query: "Title" and "Guernica".
- Action Output:** Displays the execution log:

#	Time	Action	Message	Duration / Fetch
68	12:56:49	SELECT A.Title FROM Artworks A JOIN ExhibitionArtworks EA1 ON A.ArtworkID = EA1.ExhibitionID AS E JOIN Exhibitions E ON EA1.ExhibitionID = E.ExhibitionID WHERE A.Nationality = 'Spanish'	1 row(s) returned	0.000 sec / 0.000 sec
69	12:57:05	SELECT Categories.Name AS CategoryName, COUNT(Artworks.ArtworkID) AS TotalCount FROM Artworks GROUP BY Categories.Name	3 row(s) returned	0.000 sec / 0.000 sec
70	12:57:32	SELECT Artworks.Title FROM Artworks JOIN Artists ON Artworks.ArtistID = Artists.ArtistID WHERE Artists.Nationality = 'Spanish'	1 row(s) returned	0.000 sec / 0.000 sec
- Output:** Shows the output of the query.
- Object Info:** Session
- System Bar:** Shows the taskbar with various icons and the date/time: 15-04-2025, 12:57.

Q10

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Schemas: demo, student, student, employees, uploads, uploads, SQL File 33*, SQL File 31*, SQL File 36*. The current schema is demo.
- SQL Editor:** Contains the following SQL code:

```
128  JOIN Artists ON Artworks.ArtistID = Artists.ArtistID
129  W Execute the selected portion of the script or everything, if there is no selection
130
131  -- Q10
132 •  SELECT E.Title
133  FROM Exhibitions E
134  JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID
135  JOIN Artworks A ON EA.ArtworkID = A.ArtworkID
```
- Result Grid:** Shows the result of the query: "Title" and "Modern Art Masterpieces".
- Action Output:** Displays the execution log:

#	Time	Action	Message	Duration / Fetch
69	12:57:05	SELECT Categories.Name AS CategoryName, COUNT(Artworks.ArtworkID) AS TotalCount FROM Artworks GROUP BY Categories.Name	3 row(s) returned	0.000 sec / 0.000 sec
70	12:57:32	SELECT Artworks.Title FROM Artworks JOIN Artists ON Artworks.ArtistID = Artists.ArtistID WHERE Artists.Nationality = 'Spanish'	1 row(s) returned	0.000 sec / 0.000 sec
71	12:57:51	SELECT E.Title FROM Exhibitions E JOIN ExhibitionArtworks EA ON E.ExhibitionID = EA.ExhibitionID	1 row(s) returned	0.000 sec / 0.000 sec
- Output:** Shows the output of the query.
- Object Info:** Session
- System Bar:** Shows the taskbar with various icons and the date/time: 15-04-2025, 12:57.

Q11

MySQL Workbench - Local instance MySQL80 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas: demo, filtertransfer, techshop, test, ticketbookingsystem

Query Editor:

```
141
142 -- Q11
143 • SELECT A.Title
144 FROM Artworks A
145 LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID
146 WHERE EA.ExhibitionID IS NULL;
147
148 -- Q12
```

Result Grid: Title

Output:

#	Time	Action	Message	Duration / Fetch
72	12:58:11	SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount FROM Artists...	0 row(s) returned	0.015 sec / 0.000 sec
73	13:01:26	SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount FROM Artists...	0 row(s) returned	0.000 sec / 0.000 sec
74	13:03:32	SELECT A.Title FROM Artworks A LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ExhibitionID WHERE EA.ExhibitionID IS NULL;	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

13:03 15-04-2025

Q12

MySQL Workbench - Local instance MySQL80 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas: demo, filtertransfer, techshop, test, ticketbookingsystem

Query Editor:

```
147
148 -- Q12
149 • SELECT A.Name
150 FROM Artists A
151 JOIN Artworks AW ON A.ArtistID = AW.ArtistID
152 GROUP BY A.ArtistID, A.Name
153 HAVING COUNT(DISTINCT AW.CategoryID) = (SELECT COUNT(*) FROM Categories);
154
```

Result Grid: Name

Output:

#	Time	Action	Message	Duration / Fetch
73	13:01:26	SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS ArtworkCount FROM Artists...	0 row(s) returned	0.000 sec / 0.000 sec
74	13:03:32	SELECT A.Title FROM Artworks A LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ExhibitionID WHERE EA.ExhibitionID IS NULL;	0 row(s) returned	0.000 sec / 0.000 sec
75	13:03:48	SELECT A.Name FROM Artists A JOIN Artworks AW ON A.ArtistID = AW.ArtistID GROUP BY A.ArtistID HAVING COUNT(DISTINCT AW.CategoryID) = (SELECT COUNT(*) FROM Categories);	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

13:03 15-04-2025

Q13

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the schema **demo** selected.
- SQL Editor:** Contains the following SQL code:

```
153 HAVING COUNT(DISTINCT AW.CategoryID) = (SELECT COUNT(*) FROM Categories);
154
155 -- Q13
156 • SELECT Categories.Name AS Category, COUNT(Artworks.ArtworkID) AS TotalArtworks
157 FROM Categories
158 LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
159 GROUP BY Categories.CategoryID, Categories.Name;
```
- Result Grid:** Displays the results of the query:

Category	TotalArtworks
Painting	3
Sculpture	0
Photography	0
- Output:** Shows the execution log:

#	Time	Action	Message	Duration / Fetch
74	13:03:32	SELECT A.Title FROM Artworks A LEFT JOIN ExhibitionArtworks EA ON A.ArtworkID = EA.ArtworkID WHERE EA.ExhibitionID = 1	0 row(s) returned	0.000 sec / 0.000 sec
75	13:03:48	SELECT A.Name FROM Artists A JOIN Artworks AW ON A.ArtistID = AW.ArtistID GROUP BY A.ArtistID, A.Name	0 row(s) returned	0.000 sec / 0.000 sec
76	13:04:04	SELECT Categories.Name AS Category, COUNT(Artworks.ArtworkID) AS TotalArtworks FROM Categories LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID GROUP BY Categories.CategoryID, Categories.Name	3 row(s) returned	0.016 sec / 0.000 sec
- System Bar:** Shows the taskbar with various application icons and the date/time: 15-04-2025 13:04.

Q14

The screenshot shows the MySQL Workbench interface with the following details:

- Navigator:** Shows the schema **demo** selected.
- SQL Editor:** Contains the following SQL code:

```
160
161 -- Q14
162 • SELECT Artists.Name
163 FROM Artists
164 JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
165 GROUP BY Artists.ArtistID, Artists.Name
166 HAVING COUNT(Artworks.ArtworkID) > 2;
167
```
- Result Grid:** Displays the results of the query:

Name
- Output:** Shows the execution log:

#	Time	Action	Message	Duration / Fetch
75	13:03:48	SELECT A.Name FROM Artists A JOIN Artworks AW ON A.ArtistID = AW.ArtistID GROUP BY A.ArtistID, A.Name	0 row(s) returned	0.000 sec / 0.000 sec
76	13:04:04	SELECT Categories.Name AS Category, COUNT(Artworks.ArtworkID) AS TotalArtworks FROM Categories LEFT JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID GROUP BY Categories.CategoryID, Categories.Name	3 row(s) returned	0.016 sec / 0.000 sec
77	13:04:22	SELECT Artists.Name FROM Artists JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID GROUP BY Artists.ArtistID, Artists.Name HAVING COUNT(Artworks.ArtworkID) > 2;	0 row(s) returned	0.000 sec / 0.000 sec
- System Bar:** Shows the taskbar with various application icons and the date/time: 15-04-2025 13:04.

Q15

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, filetransfer, techshop, test, ticketbookingsystem), Administration, Schemas.
- SQL Editor:** SQL File 36*, containing the following query:

```
-- Q15
SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear
FROM Categories
JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
GROUP BY Categories.CategoryID, Categories.Name
HAVING COUNT(Artworks.ArtworkID) > 1;
```
- Result Grid:** Shows the output of the query:

Category	AverageYear
Painting	1776.3333
- Output:** Action Output table showing the execution log:

#	Time	Action	Message	Duration / Fetch
76	13:04:04	SELECT Categories.Name AS Category, COUNT(Artworks.ArtworkID) AS TotalArtw...	3 row(s) returned	0.016 sec / 0.000 sec
77	13:04:22	SELECT Artists.Name FROM Artists JOIN Artworks ON Artists.ArtistID = Artworks.Ar...	0 row(s) returned	0.000 sec / 0.000 sec
78	13:04:43	SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear FRO...	1 row(s) returned	0.000 sec / 0.000 sec
- System Bar:** Shows the taskbar with various icons and the system status bar indicating ENG IN, 13:04, and 15-04-2025.

Q16

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, filetransfer, techshop, test, ticketbookingsystem), Administration, Schemas.
- SQL Editor:** SQL File 36*, containing the following query:

```
174
175 Execute the selected portion of the script or everything, if there is no selection
176 • SELECT Artworks.title
177   FROM Artworks
178   JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
179   JOIN Exhibitions ON ExhibitionArtworks.ExhibitionID = Exhibitions.ExhibitionID
180   WHERE Exhibitions.Title = 'Modern Art Masterpieces';
```
- Result Grid:** Shows the output of the query:

Title
Starry Night
Mona Lisa
Guernica
- Output:** Action Output table showing the execution log:

#	Time	Action	Message	Duration / Fetch
77	13:04:22	SELECT Artists.Name FROM Artists JOIN Artworks ON Artists.ArtistID = Artworks.Ar...	0 row(s) returned	0.000 sec / 0.000 sec
78	13:04:43	SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear FRO...	1 row(s) returned	0.000 sec / 0.000 sec
79	13:09:01	SELECT Artworks.Title FROM Artworks JOIN ExhibitionArtworks ON Artworks.Artw...	3 row(s) returned	0.000 sec / 0.000 sec
- System Bar:** Shows the taskbar with various icons and the system status bar indicating ENG IN, 13:09, and 15-04-2025.

Q17

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, filtertransfer, techshop, test, ticketbookingsystem). The demo schema is selected.
- SQL Editor:** Contains the following SQL code:

```
-- Q17
SELECT Categories.Name AS Category, AVG(Artworks.Year) AS AverageYear
FROM Categories
JOIN Artworks ON Categories.CategoryID = Artworks.CategoryID
GROUP BY Categories.CategoryID, Categories.Name
HAVING AVG(Artworks.Year) > (
    SELECT AVG(Year) FROM Artworks
)
```
- Result Grid:** Shows a single row with columns "Category" and "AverageYear".
- Output:** Action Output table showing three rows of activity log.
- System Tray:** Shows various icons including a battery icon with "9+", system status, and a date/time stamp: 13:09 IN 15-04-2025.

Q18

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, filtertransfer, techshop, test, ticketbookingsystem). The demo schema is selected.
- SQL Editor:** Contains the following SQL code:

```
-- Q18
SELECT Artworks.Title
FROM Artworks
LEFT JOIN ExhibitionArtworks ON Artworks.ArtworkID = ExhibitionArtworks.ArtworkID
WHERE ExhibitionArtworks.ExhibitionID IS NULL;
```
- Result Grid:** Shows a single column titled "Title".
- Output:** Action Output table showing three rows of activity log.
- System Tray:** Shows various icons including a battery icon with "9+", system status, and a date/time stamp: 13:09 IN 15-04-2025.

Q19

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, sys_config, student, student, employees, uploads, uploads, SQL File 33*, SQL File 31*, SQL File 36*).
- SQL Editor:** Contains the following SQL code:

```
198 •  SELECT DISTINCT Artists.Name
199   FROM Artists
200  JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
201  WHERE Artworks.CategoryID = (
202    SELECT CategoryID
203      FROM Artworks
204     WHERE Title = 'Mona Lisa'
205  )j
```
- Result Grid:** Shows the result of the query, listing three artists: Vincent van Gogh, Leonardo da Vinci, and Pablo Picasso.
- Output:** Action Output pane showing the execution history of the session.
- System Bar:** Displays the date and time (15-04-2025, 13:10), system icons, and language (ENG IN).

A tooltip message is visible on the right side: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."

Q20

The screenshot shows the MySQL Workbench interface with the following details:

- File Bar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (demo, sys_config, student, student, employees, uploads, uploads, SQL File 33*, SQL File 31*, SQL File 36*).
- SQL Editor:** Contains the following SQL code:

```
207 -- Q20
208 •  SELECT Artists.Name, COUNT(Artworks.ArtworkID) AS NumberOfArtworks
209   FROM Artists
210  JOIN Artworks ON Artists.ArtistID = Artworks.ArtistID
211  GROUP BY Artists.Name;
```
- Result Grid:** Shows the result of the query, listing three artists with their respective counts of artworks: Leonardo da Vinci (1), Pablo Picasso (1), and Vincent van Gogh (1).
- Output:** Action Output pane showing the execution history of the session.
- System Bar:** Displays the date and time (15-04-2025, 13:10), system icons, and language (ENG IN).

A tooltip message is visible on the right side: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help."