

SQL TASK PRACTICE - 5

```
mysql> show databases;
```

```
+-----+
| Database      |
+-----+
| employees     |
| information_schema |
| mysql         |
| performance_schema |
| sakila        |
| samp         |
| stu_mark      |
| stud1         |
| sys          |
| world        |
+-----+
```

```
10 rows in set (0.00 sec)
```

```
mysql> -- Create Orders Table
```

```
mysql> CREATE TABLE Orders (
```

```
->  order_id INT,
->  customer_id INT,
->  country VARCHAR(100),
->  amount DECIMAL(10, 2),
->  status VARCHAR(50),
->  order_date DATE
-> );
```

```
Query OK, 0 rows affected (0.02 sec)
```

```
mysql>
```

```
mysql> -- Insert sample data
```

```
mysql> INSERT INTO Orders VALUES
```

```
-> (1, 101, 'USA', 200.00, 'Shipped', '2023-01-15'),
-> (2, 102, 'USA', 150.00, 'Pending', '2023-03-10'),
-> (3, 103, 'India', 300.00, 'Shipped', '2023-02-20'),
-> (4, 104, 'India', 250.00, 'Cancelled', '2022-12-25'),
-> (5, 105, 'UK', 100.00, 'Shipped', '2023-01-05'),
-> (6, 106, 'UK', 400.00, 'Shipped', '2023-04-01'),
-> (7, 107, 'USA', 350.00, 'Shipped', '2023-05-15'),
-> (8, 108, 'India', 180.00, 'Pending', '2023-06-10');
```

```
Query OK, 8 rows affected (0.01 sec)
```

```
Records: 8 Duplicates: 0 Warnings: 0
```

```
mysql>
```

```
mysql> -- 1
```

```
mysql> SELECT *, ROW_NUMBER() OVER (ORDER BY order_date) AS row_num FROM Orders;
```

```
+-----+-----+-----+-----+-----+-----+-----+
| order_id | customer_id | country | amount | status | order_date | row_num |
+-----+-----+-----+-----+-----+-----+-----+
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 1 |
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 2 |
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 3 |
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 4 |
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 5 |
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 6 |
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 7 |
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 8 |
+-----+-----+-----+-----+-----+-----+-----+
```

```
8 rows in set (0.00 sec)
```

```
mysql>
```

```
mysql> -- 2
```

```
mysql> SELECT *, RANK() OVER (PARTITION BY country ORDER BY amount DESC) AS rank_in_country  
FROM Orders;
```

```
+-----+-----+-----+-----+-----+-----+-----+  
| order_id | customer_id | country | amount | status | order_date | rank_in_country |  
+-----+-----+-----+-----+-----+-----+-----+  
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 1 |  
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 2 |  
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 3 |  
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 1 |  
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 2 |  
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 1 |  
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 2 |  
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 3 |  
+-----+-----+-----+-----+-----+-----+-----+
```

```
8 rows in set (0.00 sec)
```

```
mysql>
```

```
mysql> -- 3
```

```
mysql> SELECT *, DENSE_RANK() OVER (PARTITION BY country ORDER BY amount DESC) AS  
dense_rank_in_country FROM Orders;
```

```
+-----+-----+-----+-----+-----+-----+-----+  
| order_id | customer_id | country | amount | status | order_date | dense_rank_in_country |  
+-----+-----+-----+-----+-----+-----+-----+  
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 1 |  
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 2 |  
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 3 |  
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 1 |  
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 2 |  
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 1 |  
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 2 |  
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 3 |
```

```
+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 4

mysql> SELECT *, NTILE(4) OVER (PARTITION BY country ORDER BY amount) AS bucket FROM Orders;

```
+-----+-----+-----+-----+-----+-----+
```

```
| order_id | customer_id | country | amount | status | order_date | bucket |
```

```
+-----+-----+-----+-----+-----+-----+
```

```
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 1 |
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 2 |
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 3 |
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 1 |
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 2 |
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 1 |
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 2 |
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 3 |
```

```
+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 5

mysql> SELECT *, LEAD(amount) OVER (PARTITION BY country ORDER BY order_date) AS next_amount FROM Orders;

```
+-----+-----+-----+-----+-----+-----+
```

```
| order_id | customer_id | country | amount | status | order_date | next_amount |
```

```
+-----+-----+-----+-----+-----+-----+
```

```
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 300.00 |
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 180.00 |
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | NULL |
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 400.00 |
```

	6		106		UK		400.00		Shipped		2023-04-01		NULL	
	1		101		USA		200.00		Shipped		2023-01-15		150.00	
	2		102		USA		150.00		Pending		2023-03-10		350.00	
	7		107		USA		350.00		Shipped		2023-05-15		NULL	

```
+-----+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 6

mysql> SELECT *, LAG(amount) OVER (PARTITION BY country ORDER BY order_date) AS prev_amount
FROM Orders;

```
+-----+-----+-----+-----+-----+-----+-----+
```

	order_id		customer_id		country		amount		status		order_date		prev_amount	
--	----------	--	-------------	--	---------	--	--------	--	--------	--	------------	--	-------------	--

```
+-----+-----+-----+-----+-----+-----+-----+
```

	4		104		India		250.00		Cancelled		2022-12-25		NULL	
	3		103		India		300.00		Shipped		2023-02-20		250.00	
	8		108		India		180.00		Pending		2023-06-10		300.00	
	5		105		UK		100.00		Shipped		2023-01-05		NULL	
	6		106		UK		400.00		Shipped		2023-04-01		100.00	
	1		101		USA		200.00		Shipped		2023-01-15		NULL	
	2		102		USA		150.00		Pending		2023-03-10		200.00	
	7		107		USA		350.00		Shipped		2023-05-15		150.00	

```
+-----+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 7

mysql> SELECT DISTINCT country,

-> FIRST_VALUE(amount) OVER (PARTITION BY country ORDER BY order_date) AS first_amount

-> FROM Orders;

```
+-----+-----+
```

```
| country | first_amount |
```

```
+-----+-----+
```

```
| India | 250.00 |
```

```
| UK | 100.00 |
```

```
| USA | 200.00 |
```

```
+-----+-----+
```

```
3 rows in set (0.00 sec)
```

```
mysql>
```

```
mysql> -- 8
```

```
mysql> SELECT * FROM Orders WHERE YEAR(order_date) = 2023;
```

```
+-----+-----+-----+-----+-----+-----+
```

```
| order_id | customer_id | country | amount | status | order_date |
```

```
+-----+-----+-----+-----+-----+-----+
```

```
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 |
```

```
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 |
```

```
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 |
```

```
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 |
```

```
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 |
```

```
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 |
```

```
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 |
```

```
+-----+-----+-----+-----+-----+-----+
```

```
7 rows in set (0.00 sec)
```

```
mysql>
```

```
mysql> -- 9
```

```
mysql> SELECT country, SUM(amount) AS total_amount FROM Orders GROUP BY country;
```

```
+-----+-----+
```

```
| country | total_amount |
```

```
+-----+-----+
```

```
| USA | 700.00 |
```

India		730.00	
-------	--	--------	--

UK		500.00	
----	--	--------	--

+-----+	+-----+
---------	---------

3 rows in set (0.00 sec)

mysql>

mysql> -- 10

mysql> SELECT country, AVG(amount) AS avg_amount FROM Orders GROUP BY country;

+-----+	+-----+
---------	---------

country		avg_amount	
---------	--	------------	--

+-----+	+-----+
---------	---------

USA		233.333333	
-----	--	------------	--

India		243.333333	
-------	--	------------	--

UK		250.000000	
----	--	------------	--

+-----+	+-----+
---------	---------

3 rows in set (0.00 sec)

mysql>

mysql> -- 11

mysql> SELECT country, COUNT(*) AS order_count FROM Orders GROUP BY country;

+-----+	+-----+
---------	---------

country		order_count	
---------	--	-------------	--

+-----+	+-----+
---------	---------

USA		3	
-----	--	---	--

India		3	
-------	--	---	--

UK		2	
----	--	---	--

+-----+	+-----+
---------	---------

3 rows in set (0.00 sec)

mysql>

mysql> -- 12

```
mysql> SELECT *, ROW_NUMBER() OVER (PARTITION BY country ORDER BY order_date) AS  
row_num_country FROM Orders;
```

```
+-----+-----+-----+-----+-----+-----+-----+  
| order_id | customer_id | country | amount | status | order_date | row_num_country |  
+-----+-----+-----+-----+-----+-----+-----+  
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 1 |  
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 2 |  
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 3 |  
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 1 |  
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 2 |  
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 1 |  
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 2 |  
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 3 |
```

```
+-----+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

```
mysql>
```

```
mysql> -- 13
```

```
mysql> SELECT *, CUME_DIST() OVER (PARTITION BY country ORDER BY amount) AS cum_dist FROM  
Orders;
```

```
+-----+-----+-----+-----+-----+-----+-----+  
| order_id | customer_id | country | amount | status | order_date | cum_dist |  
+-----+-----+-----+-----+-----+-----+-----+  
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | 0.3333333333333333 |  
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | 0.6666666666666666 |  
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 1 |  
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | 0.5 |  
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 1 |  
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | 0.3333333333333333 |  
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | 0.6666666666666666 |  
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 1 |
```

```
+-----+-----+-----+-----+-----+-----+-----+
```


8 rows in set (0.00 sec)

mysql>

mysql> -- 14

mysql> SELECT *, PERCENT_RANK() OVER (PARTITION BY country ORDER BY amount) AS
percent_rank FROM Orders;

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to
your MySQL server version for the right syntax to use near 'percent_rank FROM Orders' at line 1

mysql>

mysql> -- 15

mysql> SELECT *, amount - LAG(amount) OVER (PARTITION BY country ORDER BY order_date) AS
diff_prev_order FROM Orders;

```
+-----+-----+-----+-----+-----+-----+-----+
| order_id | customer_id | country | amount | status | order_date | diff_prev_order |
+-----+-----+-----+-----+-----+-----+-----+
| 4 | 104 | India | 250.00 | Cancelled | 2022-12-25 | NULL |
| 3 | 103 | India | 300.00 | Shipped | 2023-02-20 | 50.00 |
| 8 | 108 | India | 180.00 | Pending | 2023-06-10 | -120.00 |
| 5 | 105 | UK | 100.00 | Shipped | 2023-01-05 | NULL |
| 6 | 106 | UK | 400.00 | Shipped | 2023-04-01 | 300.00 |
| 1 | 101 | USA | 200.00 | Shipped | 2023-01-15 | NULL |
| 2 | 102 | USA | 150.00 | Pending | 2023-03-10 | -50.00 |
| 7 | 107 | USA | 350.00 | Shipped | 2023-05-15 | 200.00 |
+-----+-----+-----+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 16

mysql> SELECT *, SUM(amount) OVER (PARTITION BY country ORDER BY order_date) AS
running_total FROM Orders;

```
+-----+-----+-----+-----+-----+-----+-----+
| order_id | customer_id | country | amount | status | order_date | running_total |
+-----+-----+-----+-----+-----+-----+-----+
```

	4		104		India		250.00 Cancelled 2022-12-25 250.00
	3		103		India		300.00 Shipped 2023-02-20 550.00
	8		108		India		180.00 Pending 2023-06-10 730.00
	5		105		UK		100.00 Shipped 2023-01-05 100.00
	6		106		UK		400.00 Shipped 2023-04-01 500.00
	1		101		USA		200.00 Shipped 2023-01-15 200.00
	2		102		USA		150.00 Pending 2023-03-10 350.00
	7		107		USA		350.00 Shipped 2023-05-15 700.00

8 rows in set (0.00 sec)

mysql>

mysql> -- 17

mysql> SELECT * FROM (

-> SELECT *, DENSE_RANK() OVER (PARTITION BY country ORDER BY amount DESC) AS rank

-> FROM Orders

->) AS ranked

-> WHERE rank <= 3;

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'rank

FROM Orders

) AS ranked

WHERE rank <= 3' at line 2

mysql>

mysql> -- 18

mysql> SELECT * FROM Orders WHERE amount > 100 AND status = 'Shipped';

	order_id		customer_id		country		amount status order_date
	1		101		USA		200.00 Shipped 2023-01-15

	3		103		India		300.00		Shipped		2023-02-20	
	6		106		UK		400.00		Shipped		2023-04-01	
	7		107		USA		350.00		Shipped		2023-05-15	

```
+-----+-----+-----+-----+-----+-----+
```

4 rows in set (0.00 sec)

mysql>

mysql> -- 19

mysql> SELECT customer_id, COUNT(*) AS orders_count FROM Orders GROUP BY customer_id;

```
+-----+-----+
```

	customer_id		orders_count	
--	-------------	--	--------------	--

```
+-----+-----+
```

	101		1	
--	-----	--	---	--

	102		1	
--	-----	--	---	--

	103		1	
--	-----	--	---	--

	104		1	
--	-----	--	---	--

	105		1	
--	-----	--	---	--

	106		1	
--	-----	--	---	--

	107		1	
--	-----	--	---	--

	108		1	
--	-----	--	---	--

```
+-----+-----+
```

8 rows in set (0.00 sec)

mysql>

mysql> -- 20

mysql> SELECT *, RANK() OVER (PARTITION BY country, status ORDER BY amount DESC) AS rank_group FROM Orders;

```
+-----+-----+-----+-----+-----+-----+-----+
```

	order_id		customer_id		country		amount		status		order_date		rank_group	
--	----------	--	-------------	--	---------	--	--------	--	--------	--	------------	--	------------	--

```
+-----+-----+-----+-----+-----+-----+-----+
```

	4		104		India		250.00		Cancelled		2022-12-25		1	
--	---	--	-----	--	-------	--	--------	--	-----------	--	------------	--	---	--

	8		108		India		180.00		Pending		2023-06-10		1	
	3		103		India		300.00		Shipped		2023-02-20		1	
	6		106		UK		400.00		Shipped		2023-04-01		1	
	5		105		UK		100.00		Shipped		2023-01-05		2	
	2		102		USA		150.00		Pending		2023-03-10		1	
	7		107		USA		350.00		Shipped		2023-05-15		1	
	1		101		USA		200.00		Shipped		2023-01-15		2	

+-----+-----+-----+-----+-----+-----+-----+

8 rows in set (0.00 sec)

mysql>