Задание 1

Загружаем Orders.csv в mysql.

```
CREATE TABLE Orders (
    client_id INT,
    purchase_date DATE
);
```

```
LOAD DATA INFILE 'C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\Orders.csv'
INTO TABLE Orders
FIELDS TERMINATED BY ','
LINES TERMINATED BY '\n'
IGNORE 1 ROWS
(@client_id, @purchase_date)
SET client_id = CAST(@client_id AS UNSIGNED),
    purchase_date = STR_TO_DATE(@purchase_date, '%m/%d/%Y');
```

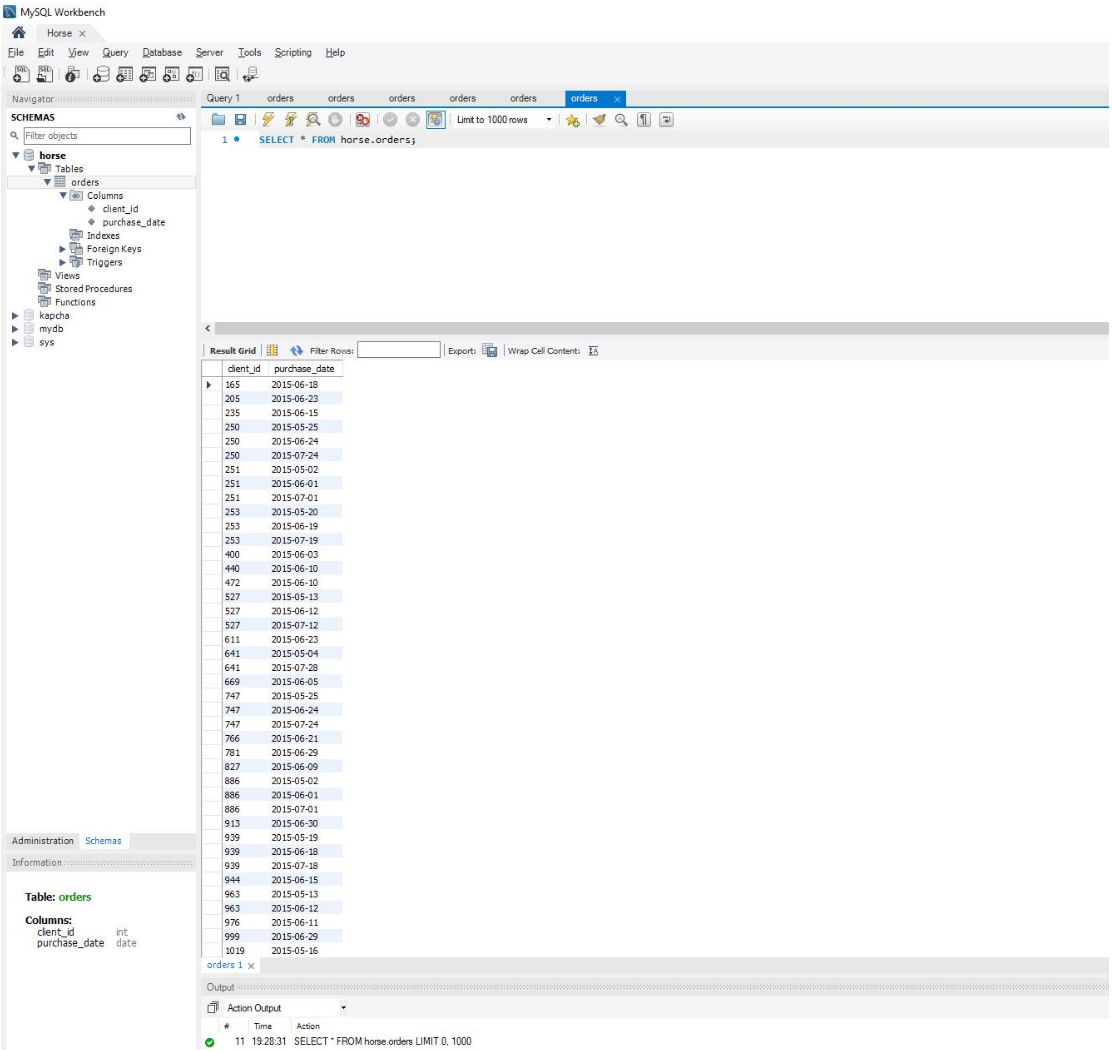


Table: orders

Columns:
client_id int
purchase_date date

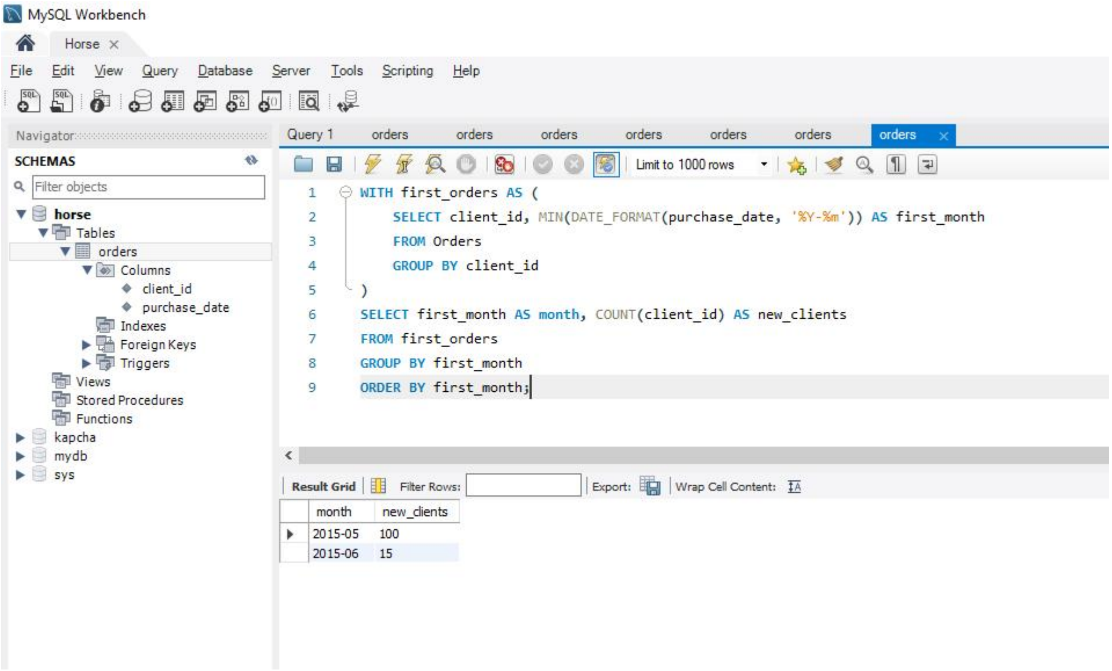
```
SELECT * FROM horse.orders;
```

client_id	purchase_date
165	2015-06-18
205	2015-06-23
235	2015-06-15
250	2015-05-25
250	2015-06-24
250	2015-07-24
251	2015-05-02
251	2015-06-01
251	2015-07-01
253	2015-05-20
253	2015-06-19
253	2015-07-19
400	2015-06-03
440	2015-06-10
472	2015-06-10
527	2015-05-13
527	2015-06-12
527	2015-07-12
611	2015-06-23
641	2015-05-04
641	2015-07-28
669	2015-06-05
747	2015-05-25
747	2015-06-24
747	2015-07-24
766	2015-06-21
781	2015-06-29
827	2015-06-09
886	2015-05-02
886	2015-06-01
886	2015-07-01
913	2015-06-30
939	2015-05-19
939	2015-06-18
939	2015-07-18
944	2015-06-15
963	2015-05-13
963	2015-06-12
976	2015-06-11
999	2015-06-29
1019	2015-05-16

```
#   Time      Action
11  19:28:31  SELECT * FROM horse.orders LIMIT 0, 1000
```

1. Новые торговые точки:

```
WITH first_orders AS (
   SELECT client_id, MIN(DATE_FORMAT(purchase_date, '%Y-%m')) AS first_month
   FROM Orders
   GROUP BY client_id
)
SELECT first_month AS month, COUNT(client_id) AS new_clients
FROM first_orders
GROUP BY first_month
ORDER BY first_month;
```

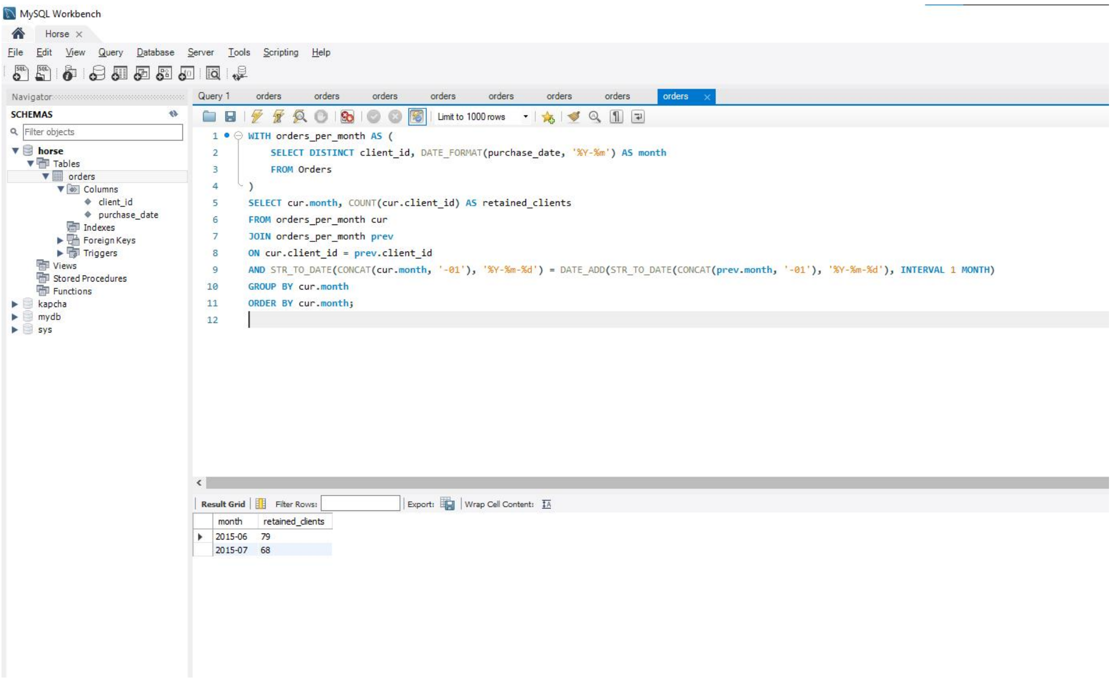


```
WITH first_orders AS (
    SELECT client_id, MIN(DATE_FORMAT(purchase_date, '%Y-%m')) AS first_month
    FROM Orders
    GROUP BY client_id
)
SELECT first_month AS month, COUNT(client_id) AS new_clients
FROM first_orders
GROUP BY first_month
ORDER BY first_month;
```

month	new_clients
2015-05	100
2015-06	15

2. Торговые точки, сделавшие заказ в прошлом месяце и в этом

```
WITH orders_per_month AS (
   SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
   FROM Orders
)
SELECT cur.month, COUNT(cur.client_id) AS retained_clients
FROM orders_per_month cur
JOIN orders_per_month prev
ON cur.client_id = prev.client_id
AND STR_TO_DATE(CONCAT(cur.month, '-01'), '%Y-%m-%d') =
DATE_ADD(STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d'), INTERVAL 1 MONTH)
GROUP BY cur.month
ORDER BY cur.month;
```

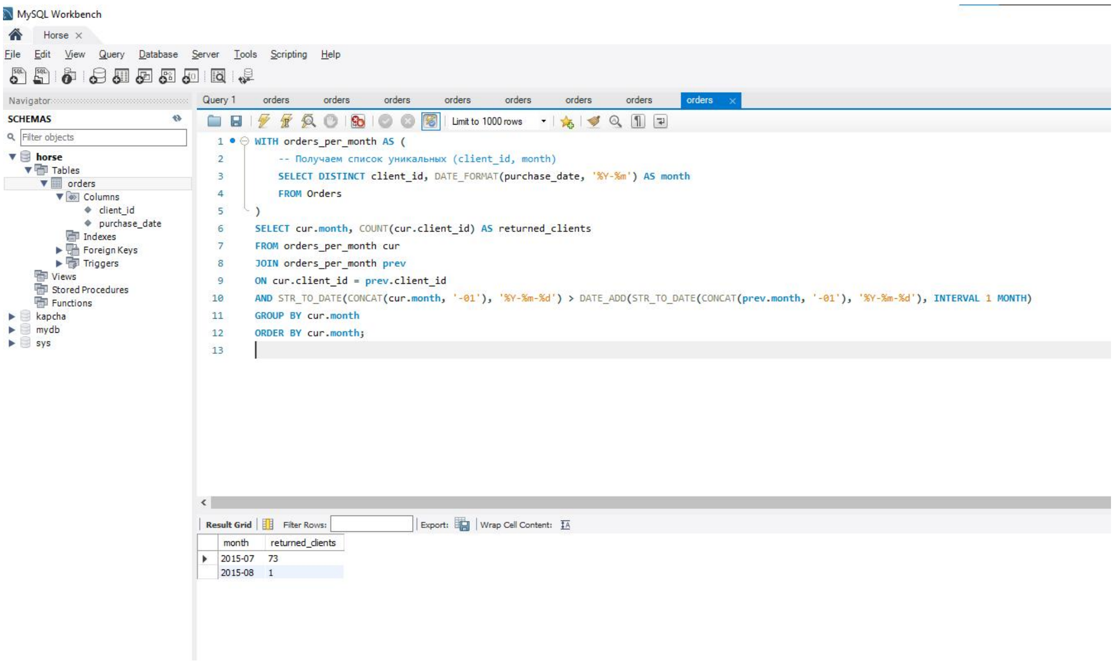


```
WITH orders_per_month AS (
    SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
    FROM Orders
)
SELECT cur.month, COUNT(cur.client_id) AS retained_clients
FROM orders_per_month cur
JOIN orders_per_month prev
ON cur.client_id = prev.client_id
AND STR_TO_DATE(CONCAT(cur.month, '-01'), '%Y-%m-%d') = DATE_ADD(STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d'), INTERVAL 1 MONTH)
GROUP BY cur.month
ORDER BY cur.month;
```

month	retained_clients
2015-06	79
2015-07	68

3. Торговые точки, которые когда-то что-то заказали(только не в прошлом месяце) и вернувшиеся.

```
WITH orders_per_month AS (
    -- Получаем список уникальных (client_id, month)
    SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
    FROM Orders
)
SELECT cur.month, COUNT(cur.client_id) AS returned_clients
FROM orders_per_month cur
JOIN orders_per_month prev
ON cur.client_id = prev.client_id
AND STR_TO_DATE(CONCAT(cur.month, '-01'), '%Y-%m-%d') >
DATE_ADD(STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d'), INTERVAL 1 MONTH)
GROUP BY cur.month
ORDER BY cur.month;
```

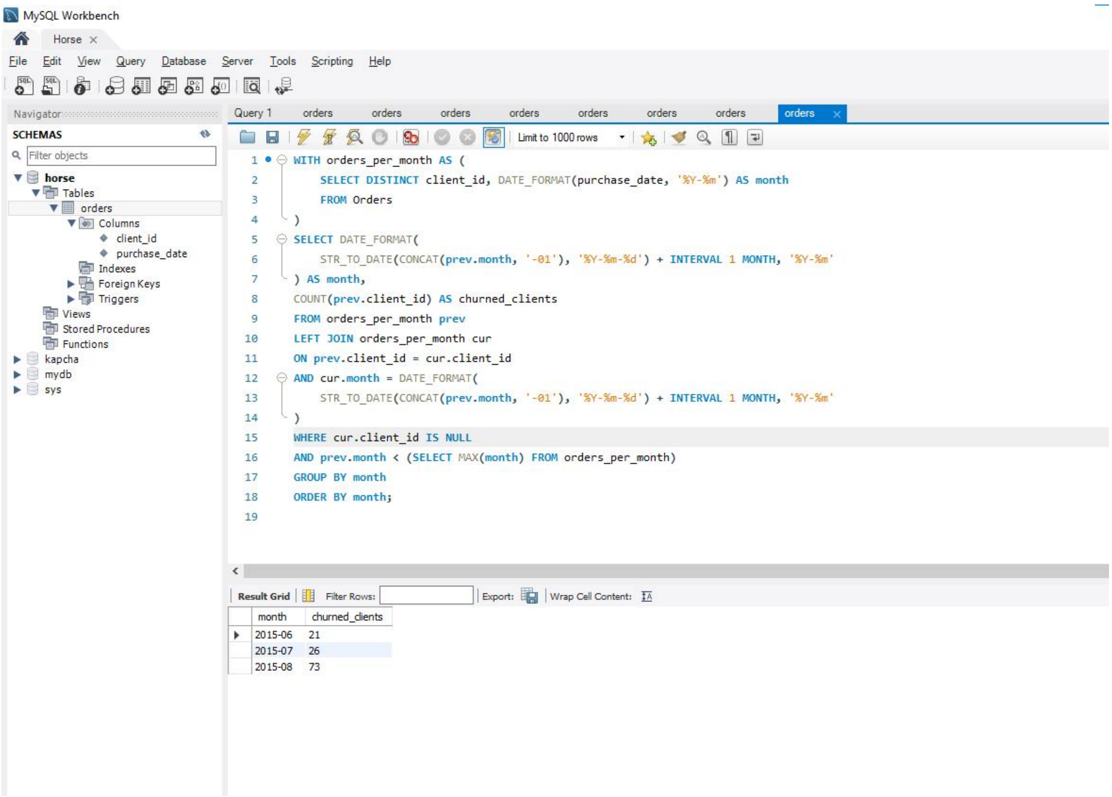


```sql
WITH orders_per_month AS (
    -- Получаем список уникальных (client_id, month)
    SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
    FROM Orders
)
SELECT cur.month, COUNT(cur.client_id) AS returned_clients
FROM orders_per_month cur
JOIN orders_per_month prev
ON cur.client_id = prev.client_id
AND STR_TO_DATE(CONCAT(cur.month, '-01'), '%Y-%m-%d') > DATE_ADD(STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d'), INTERVAL 1 MONTH)
GROUP BY cur.month
ORDER BY cur.month;
```

month	returned_clients
2015-07	73
2015-08	1

4. Торговые точки, отвалившиеся в этом месяце.

```sql
WITH orders_per_month AS (
  SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
  FROM Orders
)
SELECT DATE_FORMAT(
  STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d') + INTERVAL 1 MONTH, '%Y-%m'
) AS month,
COUNT(prev.client_id) AS churned_clients
FROM orders_per_month prev
LEFT JOIN orders_per_month cur
ON prev.client_id = cur.client_id
AND cur.month = DATE_FORMAT(
  STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d') + INTERVAL 1 MONTH, '%Y-%m'
)
WHERE cur.client_id IS NULL
AND prev.month < (SELECT MAX(month) FROM orders_per_month)
GROUP BY month
ORDER BY month;
```



```sql
WITH orders_per_month AS (
    SELECT DISTINCT client_id, DATE_FORMAT(purchase_date, '%Y-%m') AS month
    FROM Orders
)
SELECT DATE_FORMAT(
    STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d') + INTERVAL 1 MONTH, '%Y-%m'
) AS month,
COUNT(prev.client_id) AS churned_clients
FROM orders_per_month prev
LEFT JOIN orders_per_month cur
ON prev.client_id = cur.client_id
AND cur.month = DATE_FORMAT(
    STR_TO_DATE(CONCAT(prev.month, '-01'), '%Y-%m-%d') + INTERVAL 1 MONTH, '%Y-%m'
)
WHERE cur.client_id IS NULL
AND prev.month < (SELECT MAX(month) FROM orders_per_month)
GROUP BY month
ORDER BY month;
```

month	churned_clients
2015-06	21
2015-07	26
2015-08	73