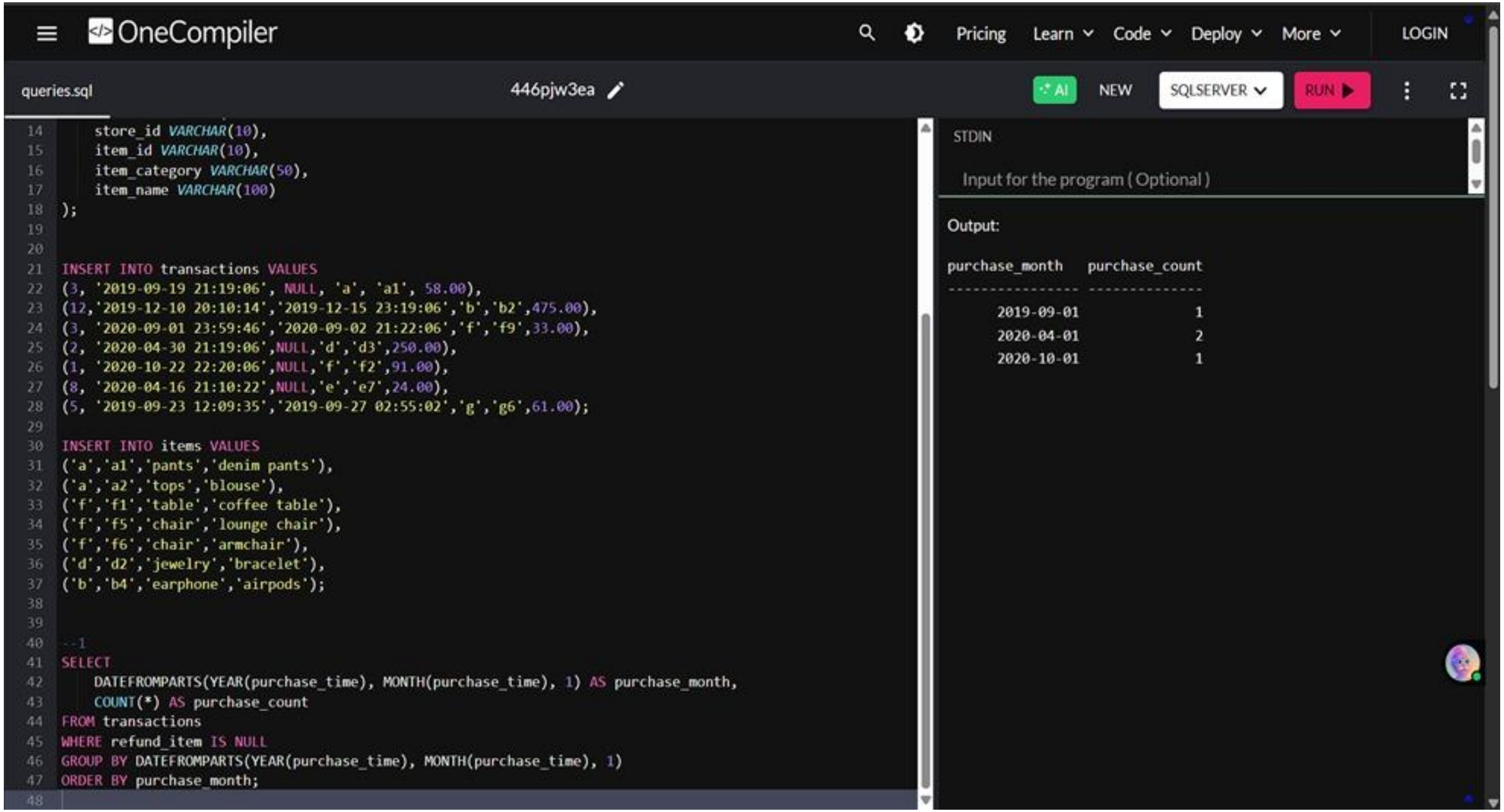
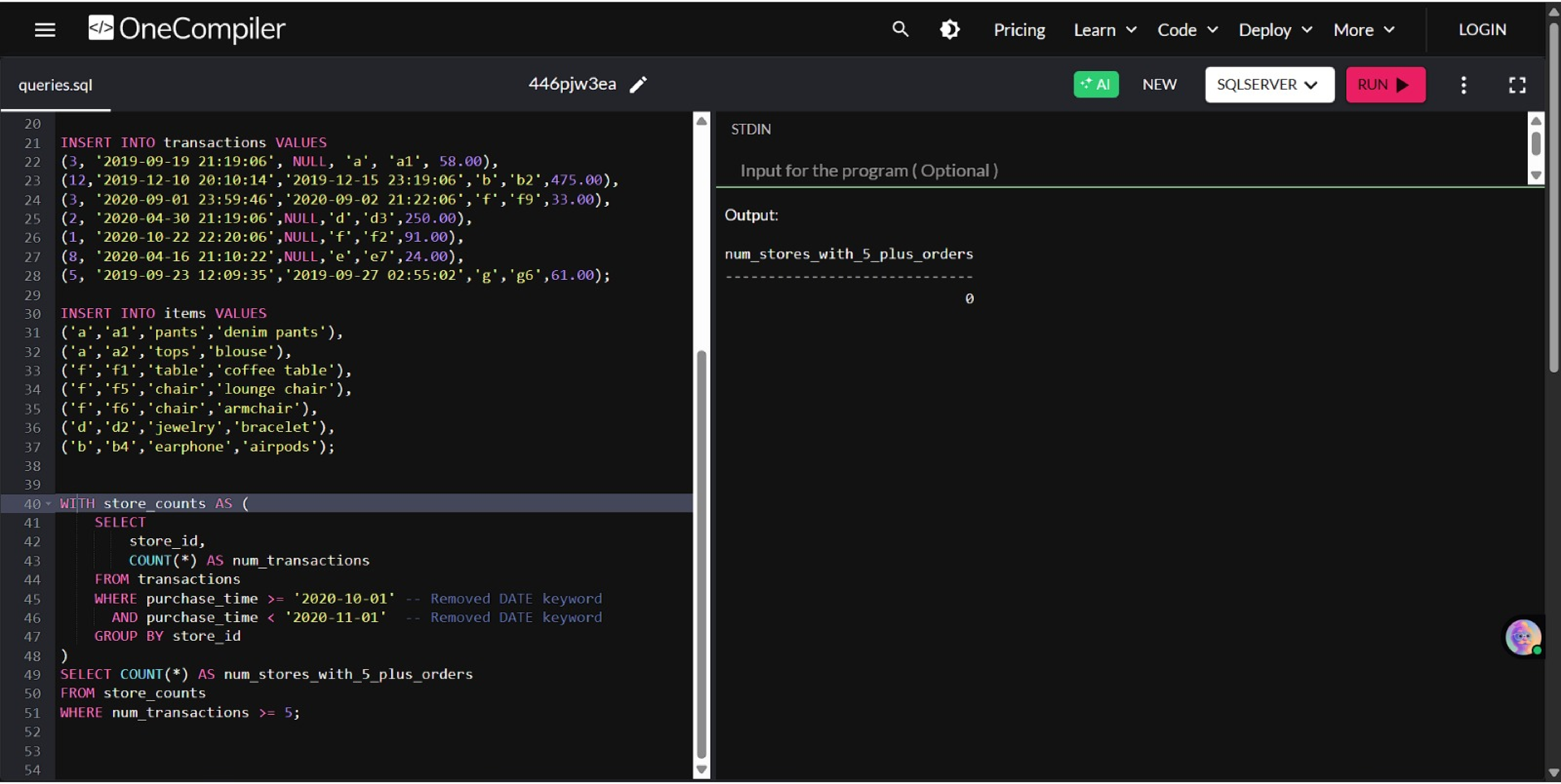


```sql
    store_id VARCHAR(10),
    item_id VARCHAR(10),
    item_category VARCHAR(50),
    item_name VARCHAR(100)
);


INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


--1
SELECT
    DATEFROMPARTS(YEAR(purchase_time), MONTH(purchase_time), 1) AS purchase_month,
    COUNT(*) AS purchase_count
FROM transactions
WHERE refund_item IS NULL
GROUP BY DATEFROMPARTS(YEAR(purchase_time), MONTH(purchase_time), 1)
ORDER BY purchase_month;
```

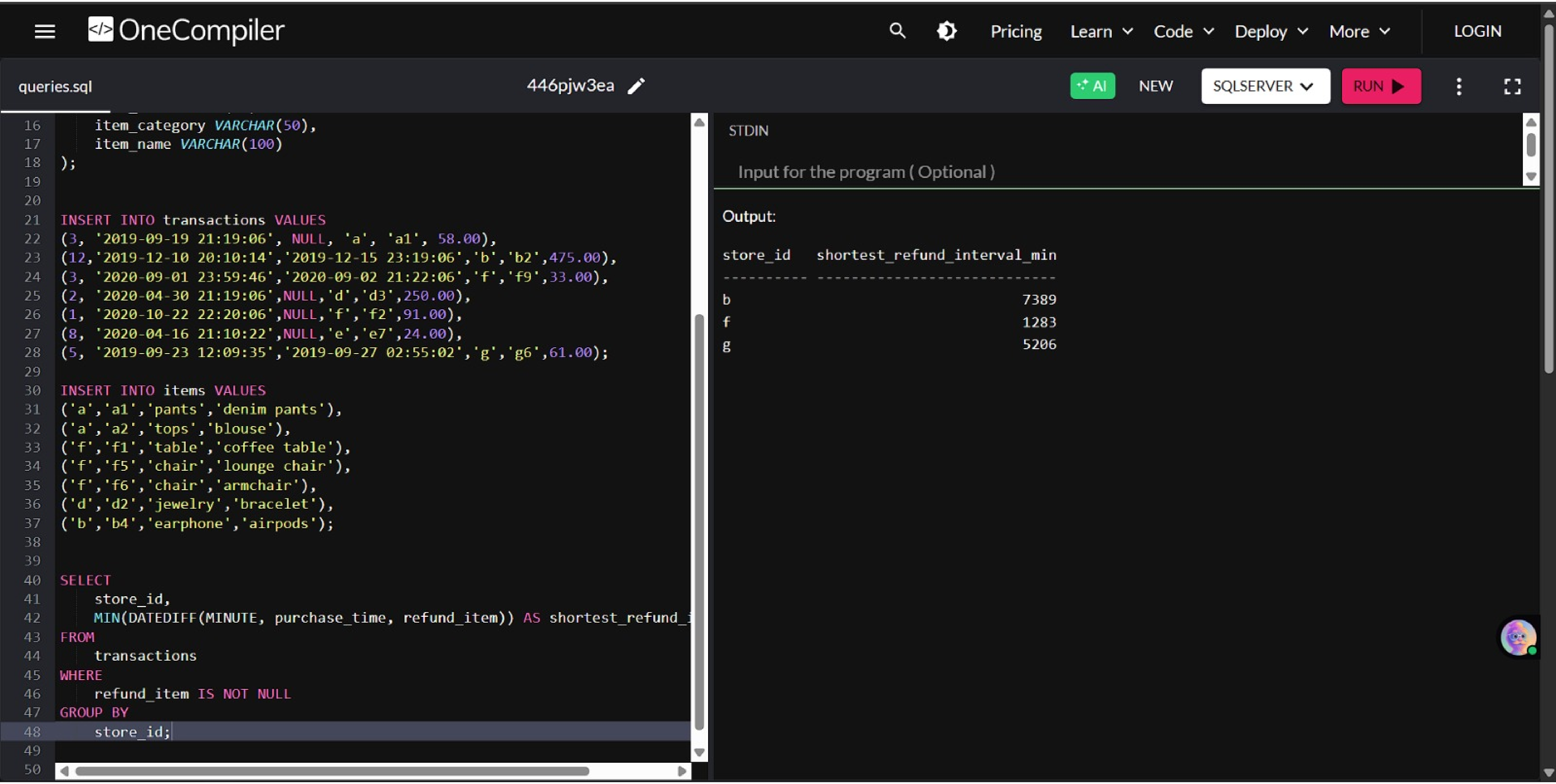
Output:

```
purchase_month   purchase_count
---------------- --------------
      2019-09-01              1
      2020-04-01              2
      2020-10-01              1
```



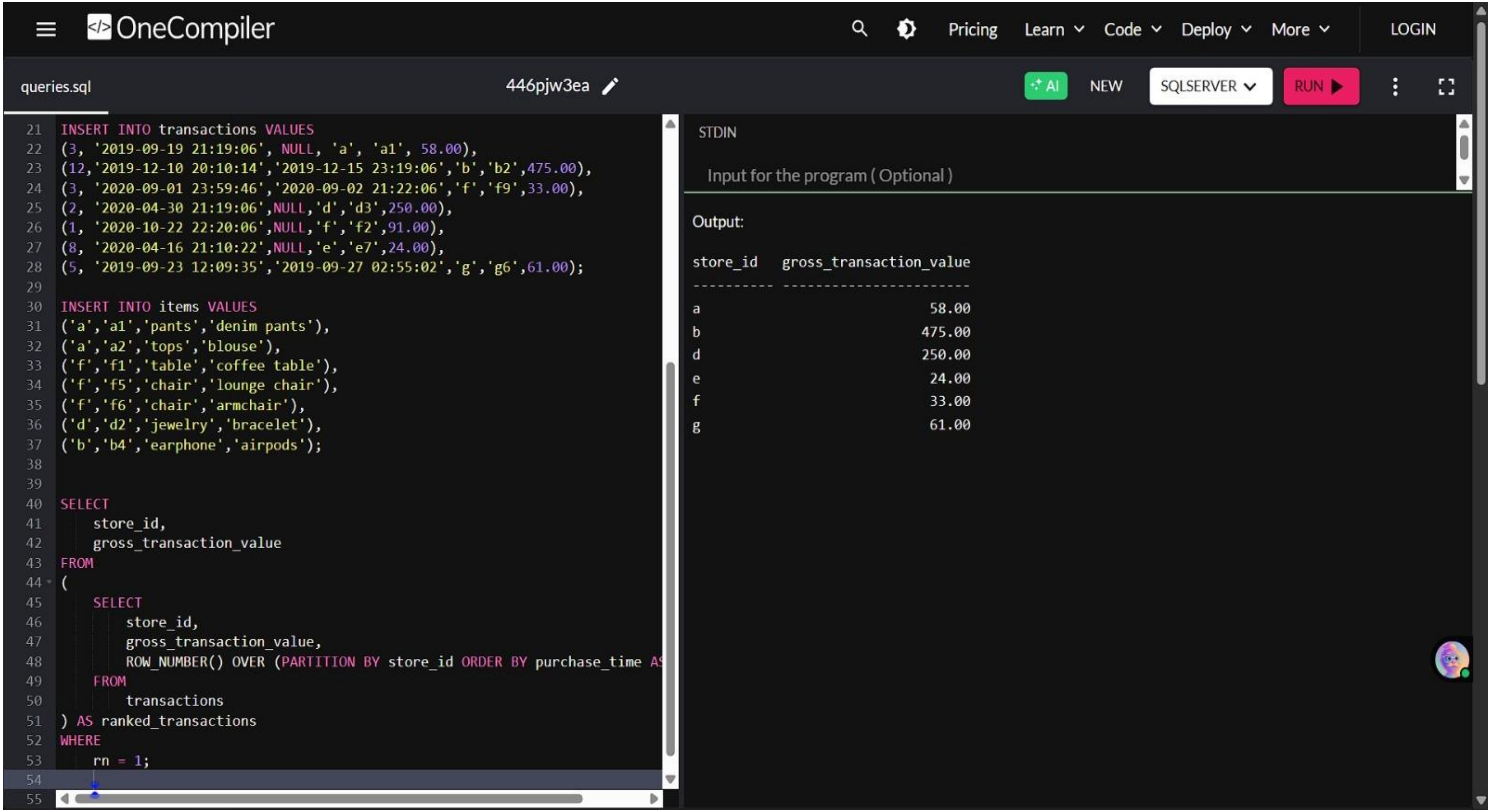
```sql

INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


WITH store_counts AS (
    SELECT
        store_id,
        COUNT(*) AS num_transactions
    FROM transactions
    WHERE purchase_time >= '2020-10-01' -- Removed DATE keyword
      AND purchase_time < '2020-11-01'  -- Removed DATE keyword
    GROUP BY store_id
)
SELECT COUNT(*) AS num_stores_with_5_plus_orders
FROM store_counts
WHERE num_transactions >= 5;
```

```
num_stores_with_5_plus_orders
-----------------------------
                            0
```



```sql
    item_category VARCHAR(50),
    item_name VARCHAR(100)
);


INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


SELECT
    store_id,
    MIN(DATEDIFF(MINUTE, purchase_time, refund_item)) AS shortest_refund_i
FROM
    transactions
WHERE
    refund_item IS NOT NULL
GROUP BY
    store_id;
```

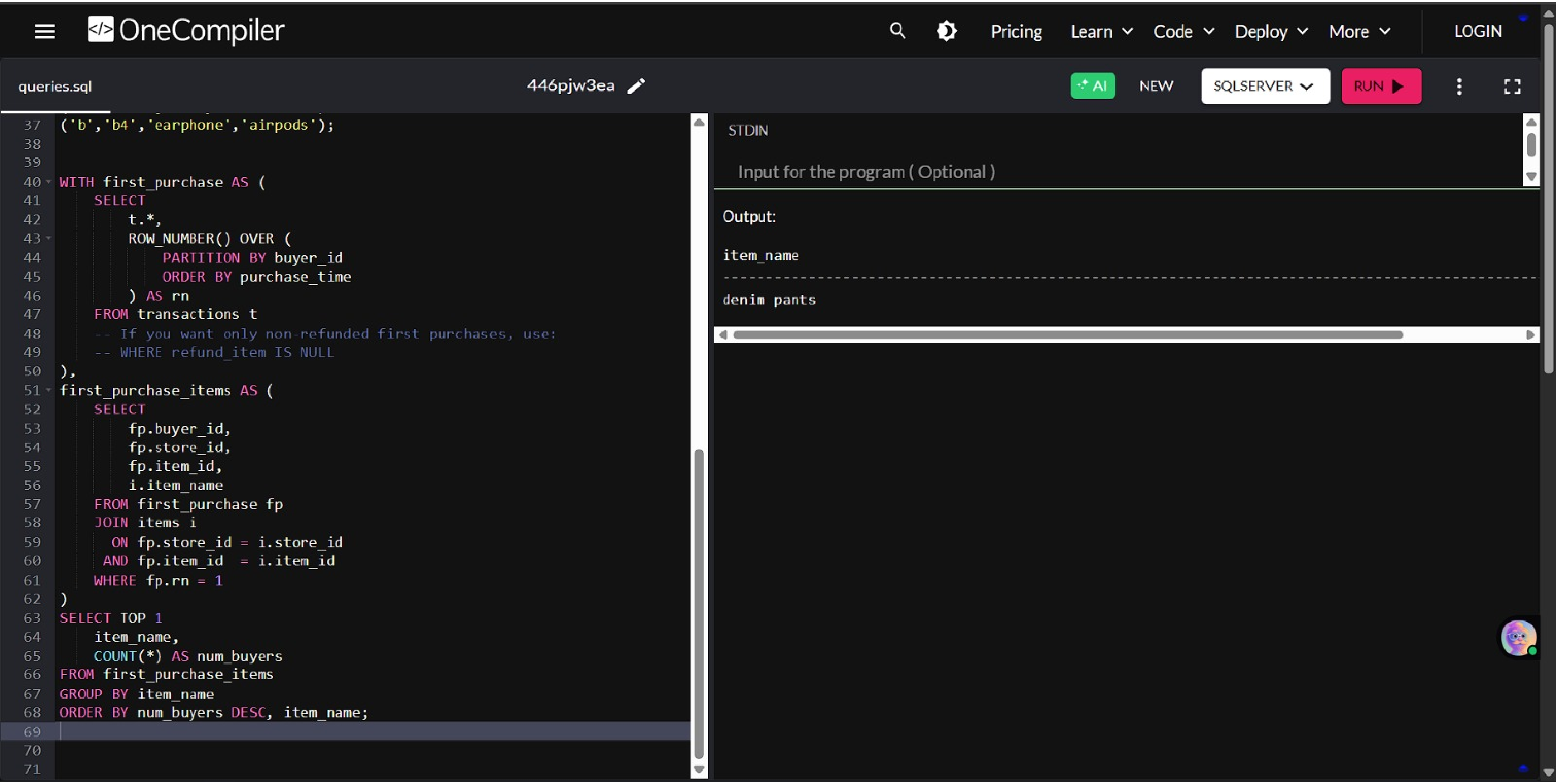
```
store_id   shortest_refund_interval_min
---------- ----------------------------
b                                  7389
f                                  1283
g                                  5206
```



```sql
INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


SELECT
    store_id,
    gross_transaction_value
FROM
(
    SELECT
        store_id,
        gross_transaction_value,
        ROW_NUMBER() OVER (PARTITION BY store_id ORDER BY purchase_time A
    FROM
        transactions
) AS ranked_transactions
WHERE
    rn = 1;

```

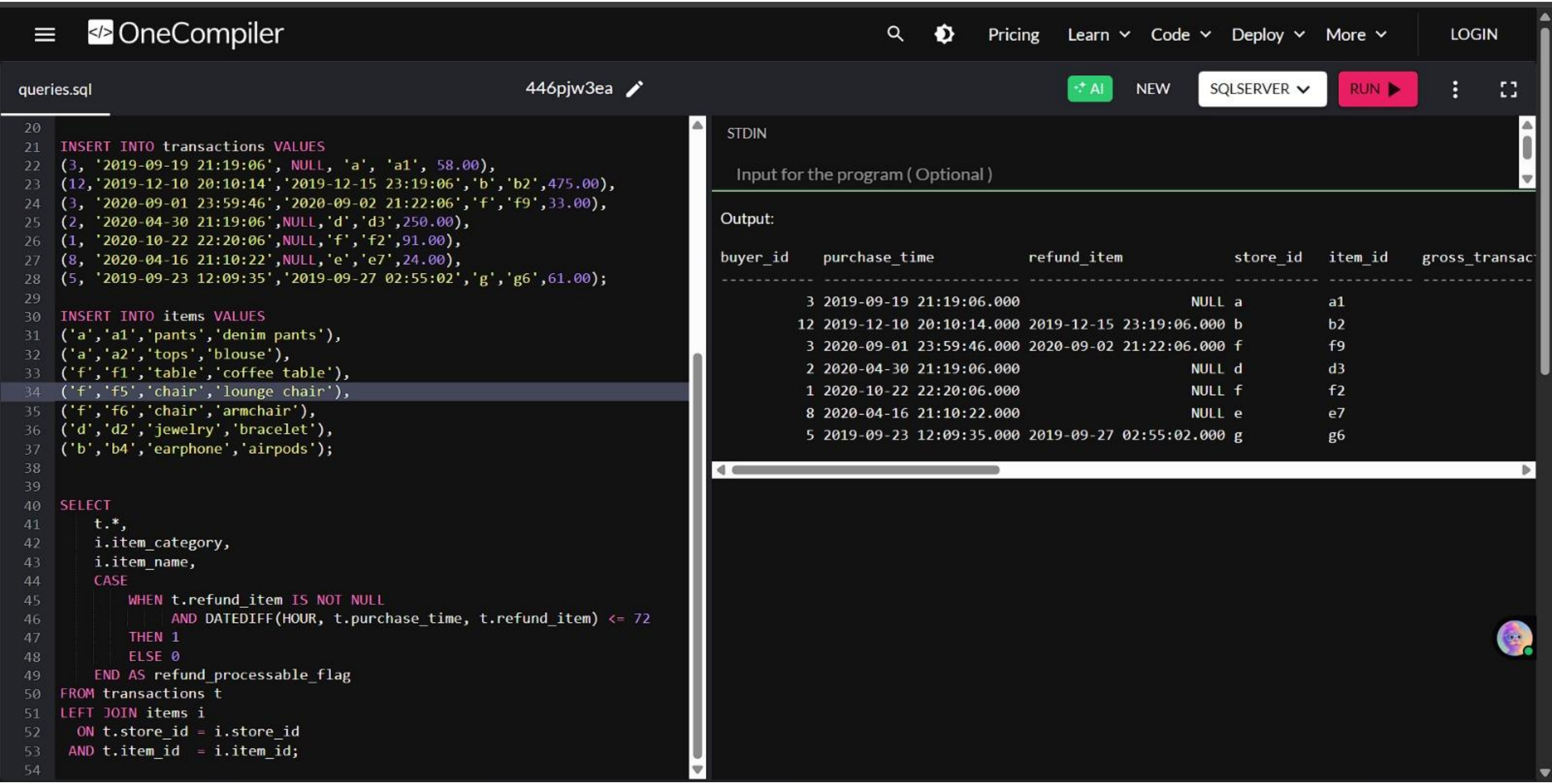
Output:

```
store_id   gross_transaction_value
---------- -----------------------
a                            58.00
b                           475.00
d                           250.00
e                            24.00
f                            33.00
g                            61.00
```



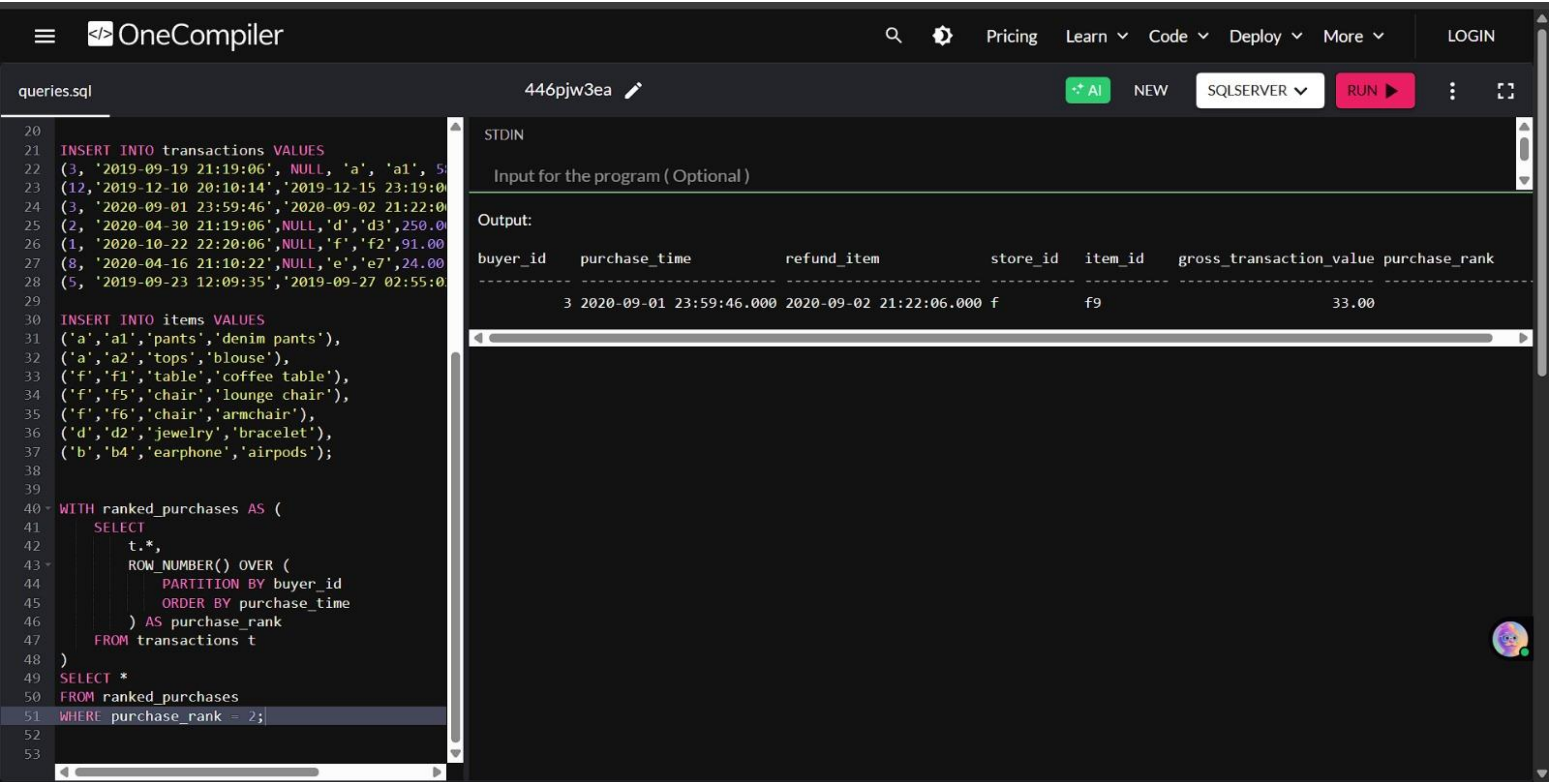
```sql
('b','b4','earphone','airpods');


WITH first_purchase AS (
    SELECT
        t.*,
        ROW_NUMBER() OVER (
            PARTITION BY buyer_id
            ORDER BY purchase_time
        ) AS rn
    FROM transactions t
    -- If you want only non-refunded first purchases, use:
    -- WHERE refund_item IS NULL
),
first_purchase_items AS (
    SELECT
        fp.buyer_id,
        fp.store_id,
        fp.item_id,
        i.item_name
    FROM first_purchase fp
    JOIN items i
      ON fp.store_id = i.store_id
     AND fp.item_id  = i.item_id
    WHERE fp.rn = 1
)
SELECT TOP 1
    item_name,
    COUNT(*) AS num_buyers
FROM first_purchase_items
GROUP BY item_name
ORDER BY num_buyers DESC, item_name;
```

```
item_name
------------------------------------------------------------------------------------------------
denim pants
```



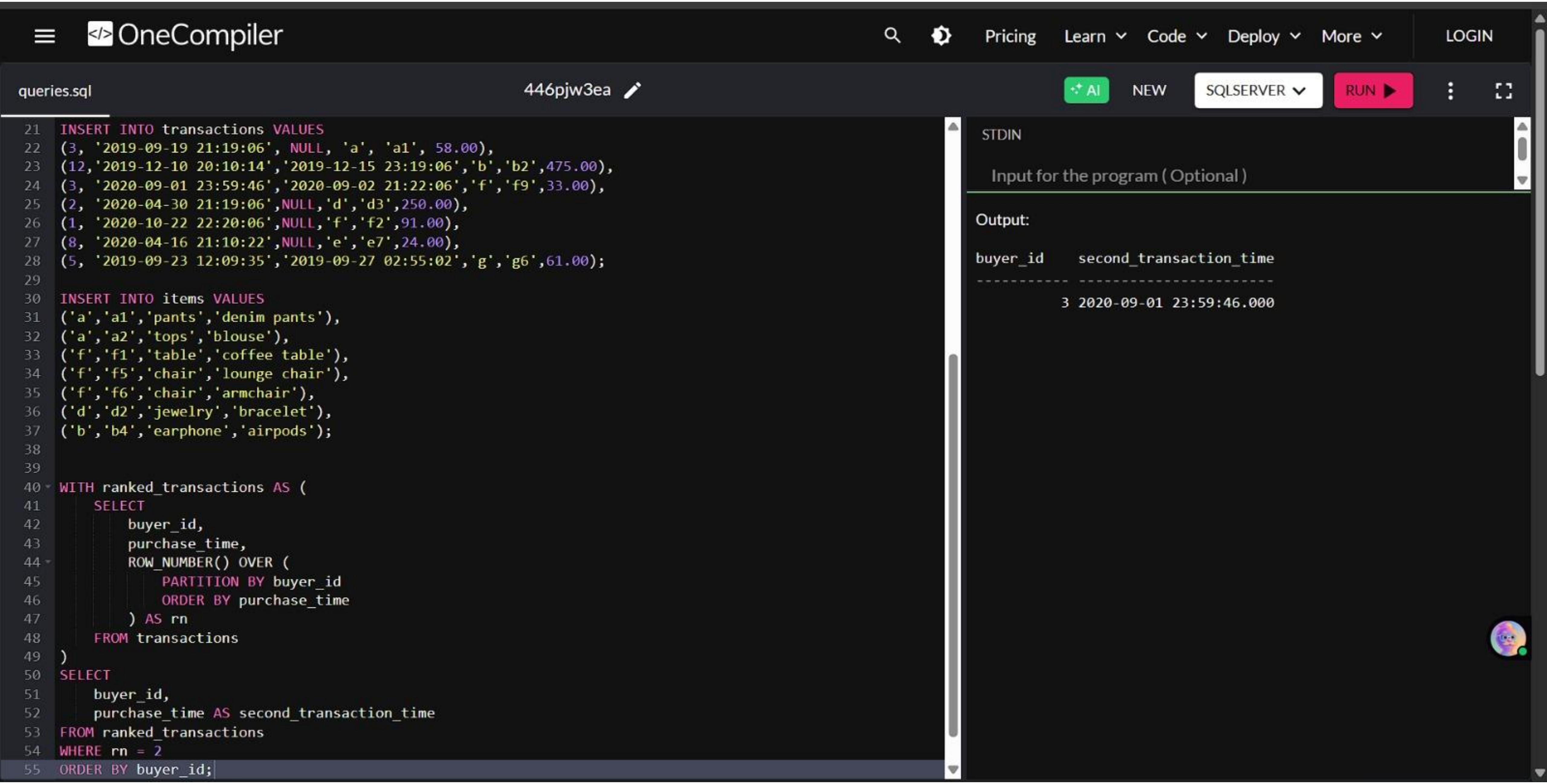
```

INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


SELECT
    t.*,
    i.item_category,
    i.item_name,
    CASE
        WHEN t.refund_item IS NOT NULL
             AND DATEDIFF(HOUR, t.purchase_time, t.refund_item) <= 72
        THEN 1
        ELSE 0
    END AS refund_processable_flag
FROM transactions t
LEFT JOIN items i
  ON t.store_id = i.store_id
 AND t.item_id  = i.item_id;

```

```
buyer_id    purchase_time           refund_item             store_id  item_id   gross_transac
----------- ----------------------- ----------------------- --------- --------- -------------
          3 2019-09-19 21:19:06.000                    NULL a         a1
         12 2019-12-10 20:10:14.000 2019-12-15 23:19:06.000 b         b2
          3 2020-09-01 23:59:46.000 2020-09-02 21:22:06.000 f         f9
          2 2020-04-30 21:19:06.000                    NULL d         d3
          1 2020-10-22 22:20:06.000                    NULL f         f2
          8 2020-04-16 21:10:22.000                    NULL e         e7
          5 2019-09-23 12:09:35.000 2019-09-27 02:55:02.000 g         g6
```



```sql

INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 5
(12,'2019-12-10 20:10:14','2019-12-15 23:19:0
(3, '2020-09-01 23:59:46','2020-09-02 21:22:0
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.0
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00
(5, '2019-09-23 12:09:35','2019-09-27 02:55:0

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


WITH ranked_purchases AS (
    SELECT
        t.*,
        ROW_NUMBER() OVER (
            PARTITION BY buyer_id
            ORDER BY purchase_time
        ) AS purchase_rank
    FROM transactions t
)
SELECT *
FROM ranked_purchases
WHERE purchase_rank = 2;


```

```
buyer_id    purchase_time           refund_item             store_id   item_id    gross_transaction_value purchase_rank
----------- ----------------------- ----------------------- ---------- ---------- ----------------------- ----------------
          3 2020-09-01 23:59:46.000 2020-09-02 21:22:06.000 f          f9                           33.00
```



```
INSERT INTO transactions VALUES
(3, '2019-09-19 21:19:06', NULL, 'a', 'a1', 58.00),
(12,'2019-12-10 20:10:14','2019-12-15 23:19:06','b','b2',475.00),
(3, '2020-09-01 23:59:46','2020-09-02 21:22:06','f','f9',33.00),
(2, '2020-04-30 21:19:06',NULL,'d','d3',250.00),
(1, '2020-10-22 22:20:06',NULL,'f','f2',91.00),
(8, '2020-04-16 21:10:22',NULL,'e','e7',24.00),
(5, '2019-09-23 12:09:35','2019-09-27 02:55:02','g','g6',61.00);

INSERT INTO items VALUES
('a','a1','pants','denim pants'),
('a','a2','tops','blouse'),
('f','f1','table','coffee table'),
('f','f5','chair','lounge chair'),
('f','f6','chair','armchair'),
('d','d2','jewelry','bracelet'),
('b','b4','earphone','airpods');


WITH ranked_transactions AS (
    SELECT
        buyer_id,
        purchase_time,
        ROW_NUMBER() OVER (
            PARTITION BY buyer_id
            ORDER BY purchase_time
        ) AS rn
    FROM transactions
)
SELECT
    buyer_id,
    purchase_time AS second_transaction_time
FROM ranked_transactions
WHERE rn = 2
ORDER BY buyer_id;
```

Output:

```
buyer_id    second_transaction_time
----------- -----------------------
          3 2020-09-01 23:59:46.000
```