```
In [3]:  import sqlite3
         import pandas as pd
```

```
In [4]:  # Connect to SQLite database
         conn = sqlite3.connect("online_sales.db")
         cursor = conn.cursor()

         # Create the table
         cursor.execute('''
         CREATE TABLE IF NOT EXISTS online_sales (
             order_id INTEGER PRIMARY KEY,
             order_date TEXT,
             amount REAL,
             product_id TEXT
         )
         ''')
         conn.commit()
```

```
In [5]:  data = [
             (101, '2024-01-15', 250.00, 'P001'),
             (102, '2024-01-20', 180.00, 'P002'),
             (103, '2024-02-05', 300.00, 'P003'),
             (104, '2024-02-15', 500.00, 'P001'),
             (105, '2024-03-10', 120.00, 'P004'),
             (106, '2024-03-20', 220.00, 'P002'),
             (107, '2024-04-25', 350.00, 'P003'),
             (108, '2024-05-05', 275.00, 'P001'),
             (109, '2024-06-01', 600.00, 'P005'),
             (110, '2024-06-10', 450.00, 'P004'),
             (111, '2024-06-25', 300.00, 'P003'),
             (112, '2024-07-01', 200.00, 'P002'),
             (113, '2024-07-15', 150.00, 'P004'),
             (114, '2024-08-10', 800.00, 'P005'),
             (115, '2024-08-20', 400.00, 'P001'),
         ]

         cursor.executemany("INSERT INTO online_sales VALUES (?, ?, ?, ?)", data)
         conn.commit()
```

```
In [6]:  def run_query(query):
             return pd.read_sql_query(query, conn)
```

Extract Month

```
In [7]:  run_query('''SELECT order_id, order_date, STRFTIME('%m', order_date) AS month
         FROM online_sales;''')
```

Out[7]:

	order_id	order_date	month
0	101	2024-01-15	01
1	102	2024-01-20	01
2	103	2024-02-05	02
3	104	2024-02-15	02
4	105	2024-03-10	03
5	106	2024-03-20	03
6	107	2024-04-25	04
7	108	2024-05-05	05
8	109	2024-06-01	06
9	110	2024-06-10	06
10	111	2024-06-25	06
11	112	2024-07-01	07
12	113	2024-07-15	07
13	114	2024-08-10	08
14	115	2024-08-20	08

Group by Year and Month

```
In [8]:  run_query('''SELECT STRFTIME('%Y', order_date) AS year,
             STRFTIME('%m', order_date) AS month,
```

```
        COUNT(*) AS total_orders
FROM online_sales
GROUP BY year, month;''')
```

Out[8]:

	year	month	total_orders
0	2024	01	2
1	2024	02	2
2	2024	03	2
3	2024	04	1
4	2024	05	1
5	2024	06	3
6	2024	07	2
7	2024	08	2

Total Revenue with SUM()

In [9]:
```
run_query('''SELECT STRFTIME('%Y', order_date) AS year,
       STRFTIME('%m', order_date) AS month,
       SUM(amount) AS total_revenue
FROM online_sales
GROUP BY year, month;''')
```

Out[9]:

	year	month	total_revenue
0	2024	01	430.0
1	2024	02	800.0
2	2024	03	340.0
3	2024	04	350.0
4	2024	05	275.0
5	2024	06	1350.0
6	2024	07	350.0
7	2024	08	1200.0

Order Volume with COUNT(DISTINCT)

In [10]:
```
run_query('''SELECT STRFTIME('%Y', order_date) AS year,
       STRFTIME('%m', order_date) AS month,
       COUNT(DISTINCT order_id) AS order_volume
FROM online_sales
GROUP BY year, month;''')
```

Out[10]:

	year	month	order_volume
0	2024	01	2
1	2024	02	2
2	2024	03	2
3	2024	04	1
4	2024	05	1
5	2024	06	3
6	2024	07	2
7	2024	08	2

Sort by Revenue

In [11]:
```
run_query('''SELECT STRFTIME('%Y', order_date) AS year,
       STRFTIME('%m', order_date) AS month,
       SUM(amount) AS total_revenue
FROM online_sales
GROUP BY year, month
ORDER BY total_revenue DESC;''')
```

Out[11]:

	year	month	total_revenue
0	2024	06	1350.0
1	2024	08	1200.0
2	2024	02	800.0
3	2024	01	430.0
4	2024	04	350.0
5	2024	07	350.0
6	2024	03	340.0
7	2024	05	275.0

Filter 2024 Data Only

In [12]:
```
run_query('''SELECT STRFTIME('%Y', order_date) AS year,
        STRFTIME('%m', order_date) AS month,
        SUM(amount) AS total_revenue,
        COUNT(DISTINCT order_id) AS order_volume
FROM online_sales
WHERE STRFTIME('%Y', order_date) = '2024'
GROUP BY year, month
ORDER BY month;''')
```

Out[12]:

	year	month	total_revenue	order_volume
0	2024	01	430.0	2
1	2024	02	800.0	2
2	2024	03	340.0	2
3	2024	04	350.0	1
4	2024	05	275.0	1
5	2024	06	1350.0	3
6	2024	07	350.0	2
7	2024	08	1200.0	2