Extracting Sales Summary from SQLite Database using Python

Objective: Use SQL inside Python to pull simple sales info (like total quantity sold,total revenue) and display it using basic print statements and a simple bar chart.

In [6]:
```
# Import necessary libraries

import sqlite3
import pandas as pd
import matplotlib.pyplot as plt
```

In [8]:
```
# Connect to the SQLite database

conn = sqlite3.connect("sales_data.db")
cursor = conn.cursor()
```

In [10]:
```
# Create a small sales table (run only once)

cursor.execute('''
CREATE TABLE IF NOT EXISTS sales(
    id INTEGER PRIMARY KEY,
    product TEXT,
    quantity INTEGER,
    price REAL)
''')
```

Out[10]:
```
<sqlite3.Cursor at 0x17ef94c0fc0>
```

In [14]:
```
# Insert sample sales data

sample_data = [
    ('Apples',10,1.5),
    ('Bananas',5,1.0),
    ('Oranges',8,1.2),
```

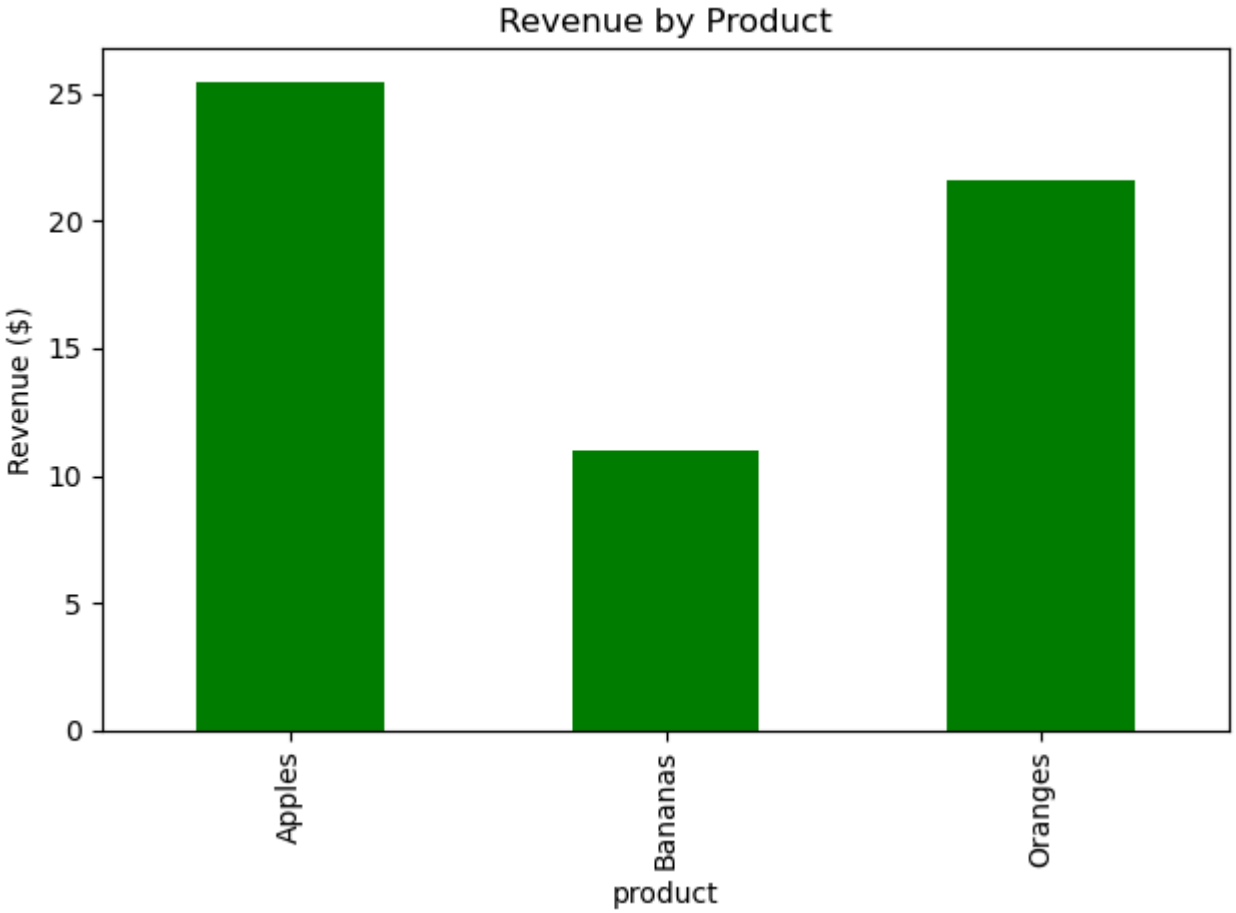
```
    ('Apples',7,1.5),
    ('Bananas',6,1.0),
    ('Oranges',10,1.2)
]

cursor.executemany('INSERT INTO sales(product,quantity,price) VALUES (?,?,?)',sample_data)
conn.commit()
```

In [16]:
```
# Run SQL query to get total quantity and revenue per product

query = '''
SELECT
     product,
     SUM(quantity) AS total_quantity,
     SUM(quantity * price) AS revenue
FROM sales
GROUP BY product'''

df = pd.read_sql_query(query,conn)

# Display results
print("Sales Summary:")
print(df)
```

```
Sales Summary:
   product  total_quantity  revenue
0   Apples              17     25.5
1  Bananas              11     11.0
2  Oranges              18     21.6
```

In [18]:
```
# Plot the bar chart for revenue per product

df.plot(kind='bar',x='product',y='revenue',legend=False,color='green')

# Title of the plot
plt.title("Revenue by Product")

#Adding Label to the plot
plt.ylabel("Revenue ($)")

plt.tight_layout()
```

```
# Show the chart
plt.show()

# Close Connection
conn.close()
```



SUMMARY

1. Created and Connected to SQLite Database

- Used Python’s built-in sqlite3 library to create a database file called sales_data.db.
- Established a connection and set up a cursor to execute SQL commands.

2. Created a Sales Table

- Defined a table named sales with the columns: product, quantity, and price.

3. Inserted Sample Sales Data

- Added a few rows of sample data for different products (Apples, Bananas, Oranges) with their quantity sold and price.

4. Queried the Database Using SQL

- Wrote an SQL query to:Group data by product.
- Calculated the total quantity sold for each product.
- Calculated the total revenue using SUM(quantity * price).

5. Loaded and Displayed Data Using pandas

- Used pandas to run the SQL query and convert the results into a DataFrame.
- Printed the results in a clean tabular format.

6. Visualized Revenue with matplotlib

- Created a simple bar chart to display revenue by product.
- Used matplotlib for easy and effective visualization.

Skills Practiced

- Database creation and connection in Python.
- Writing and running SQL queries.

- Data manipulation with pandas.
- Data visualization with matplotlib.

THANK YOU