Python Script

April 17, 2025

[1]:
```
# Step 1: Import Libraries
import sqlite3
import pandas as pd
import matplotlib.pyplot as plt
```

[2]:
```
# Step 2: Create/Connect to Database
conn = sqlite3.connect('sales_data.db')

# Step 3: Create Table & Insert Data
conn.execute('''CREATE TABLE IF NOT EXISTS sales (
                product TEXT,
                quantity INTEGER,
                price REAL)''')
```

[2]:
```
<sqlite3.Cursor at 0x2a119b90420>
```

[3]:
```
# Step 4: Insert Sample Data
sample_data = [
    ('Widget', 15, 29.99),
    ('Gadget', 8, 49.99),
    ('Widget', 10, 29.99),
    ('Doodad', 20, 9.99),
    ('Gizmo', 5, 99.99),
    ('Gadget', 12, 49.99),
    ('Doodad', 25, 9.99),
    ('Widget', 8, 27.99),
    ('Gizmo', 3, 105.99),
    ('Thingamajig', 18, 39.99)
]
conn.executemany('INSERT INTO sales VALUES (?,?,?)', sample_data)
conn.commit()
```

[4]:
```
# Step 5: Run SQL Query
query = '''
    SELECT product,
           SUM(quantity) AS total_units,
           SUM(quantity * price) AS revenue
    FROM sales
```

```
    GROUP BY product
'''
df = pd.read_sql_query(query, conn)
```

[5]:
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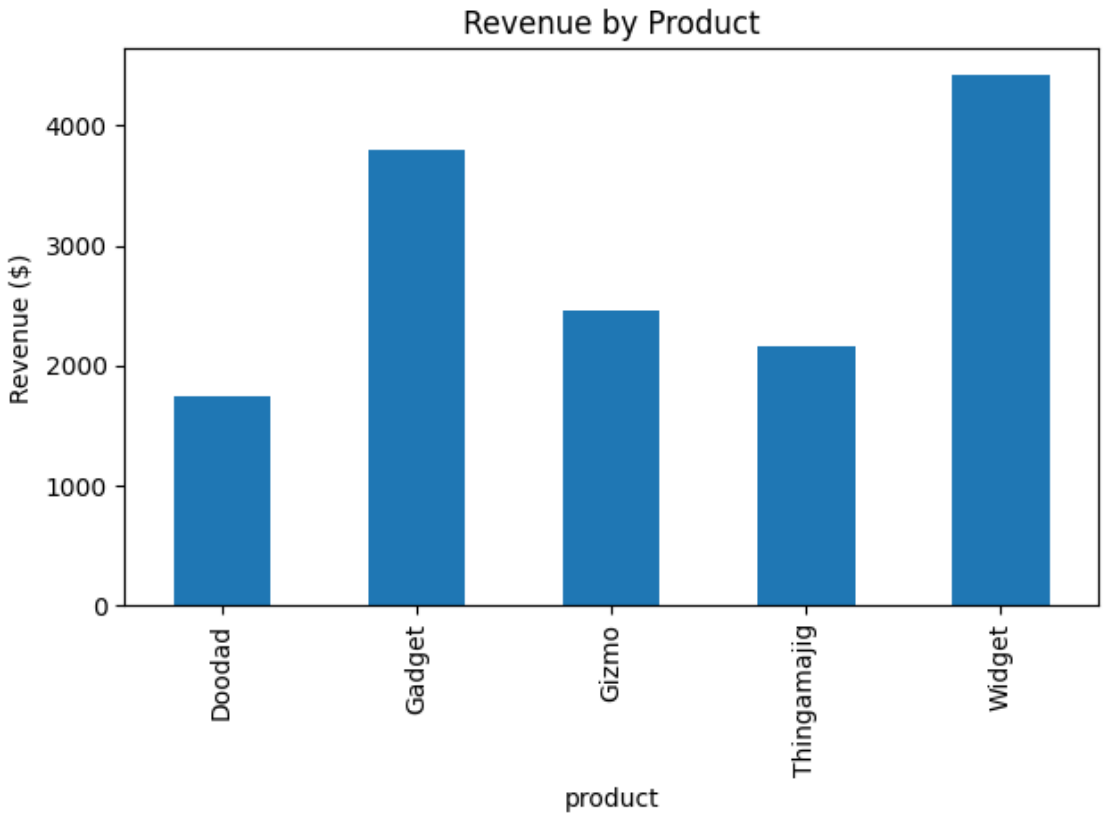
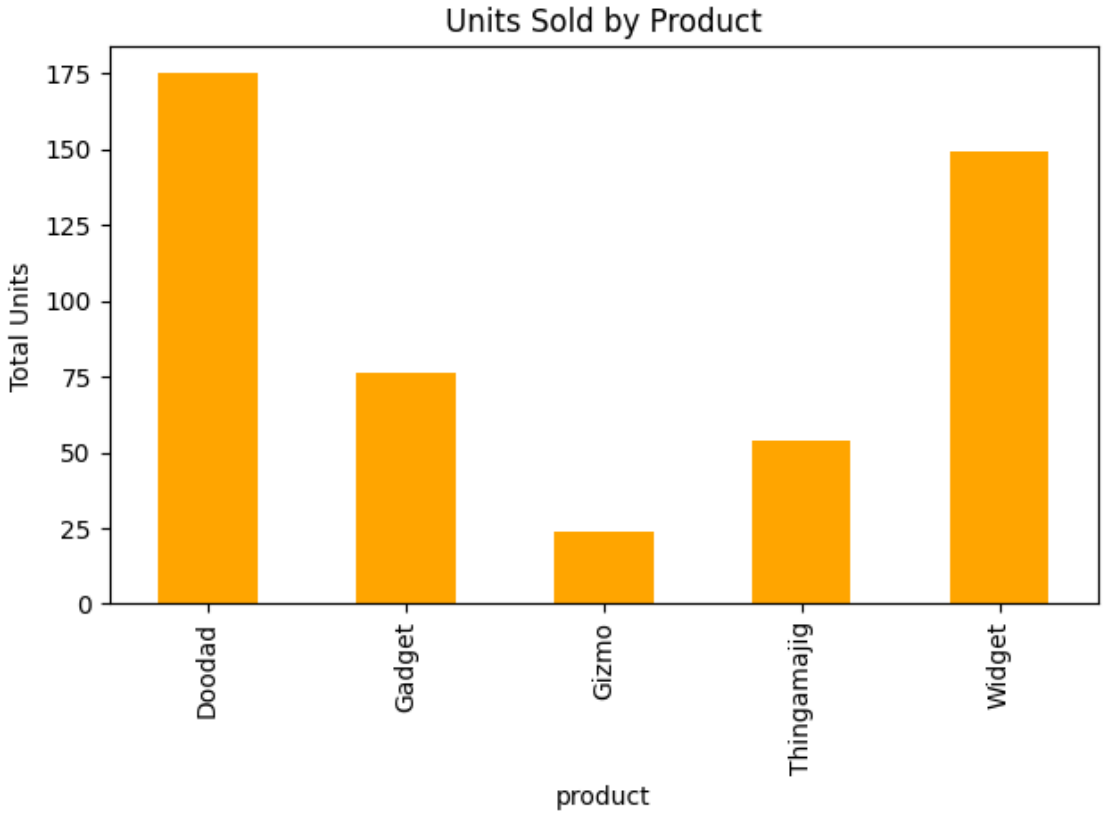
# Step 6: Print Results
print("\nSales Summary:")
print(df.to_string(index=False))
```

```
Sales Summary:
    product  total_units  revenue
     Doodad          175  1748.25
     Gadget           76  3799.24
      Gizmo           24  2453.76
Thingamajig           54  2159.46
     Widget          149  4420.51
```

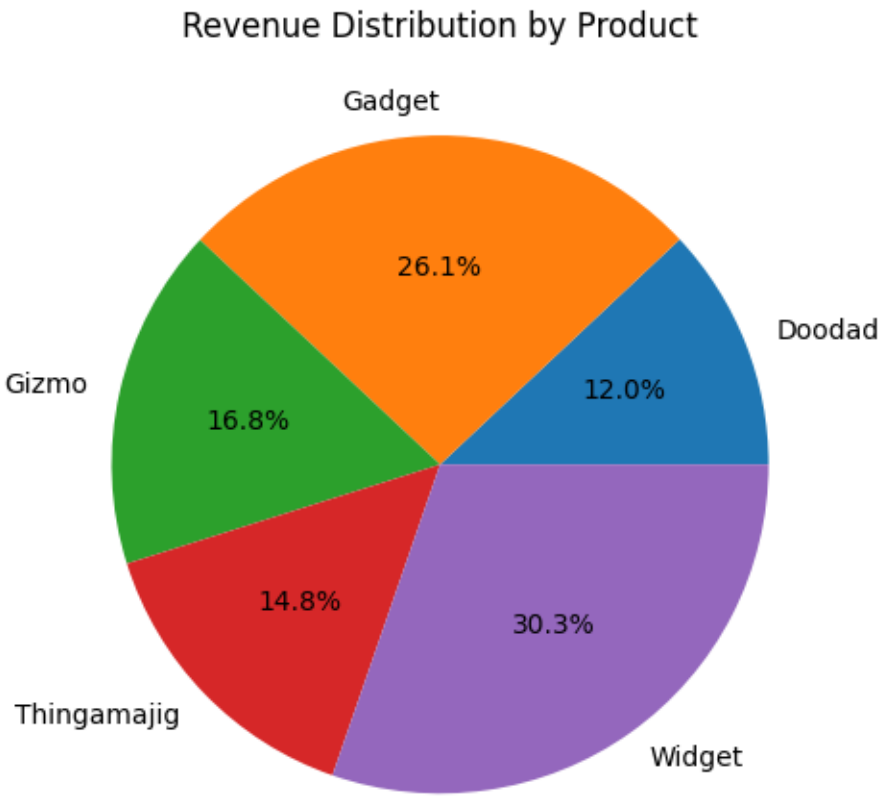
[6]:
```
# Step 7: Generate Revenue by product(Bar Chart)
df.plot(kind='bar', x='product', y='revenue',
        title='Revenue by Product', legend=False)
plt.ylabel('Revenue ($)')
plt.tight_layout()
plt.savefig("Revenue by Product.png")
plt.show()
```



[7]:
```
#Step 8: Generate Units Sold by Product (Bar Chart)
df.plot(kind='bar', x='product', y='total_units',
        title='Units Sold by Product', legend=False, color='orange')
plt.ylabel('Total Units')
plt.tight_layout()
plt.savefig("units_sold_chart.png")
plt.show()
```



[8]:
```
# Generate  Revenue Distribution (Pie Chart)
df.set_index('product')['revenue'].plot(
    kind='pie',
    autopct='%1.1f%%',
    title='Revenue Distribution by Product',
    ylabel=''
)
plt.tight_layout()
plt.savefig("revenue_pie_chart.png")
plt.show()
```


Revenue Distribution by Product
Gadget
26.1%
Doodad
12.0%
Gizmo
16.8%
14.8%
30.3%
Thingamajig
Widget