Internship Task Submission Report

Task: Task 7 — Data Analyst Internship

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Introduction

This report presents the solution for Task 7 of the Data Analyst Internship at Elevate Labs. The task demonstrates the ability to connect Python with a database, execute SQL queries, analyze sales data, and generate a visualization of the results.

SQL Query Used

```
SELECT
    product,
    SUM(quantity) AS total_qty,
    SUM(quantity * price) AS revenue
FROM sales
GROUP BY product
ORDER BY revenue DESC;
```

Python Script

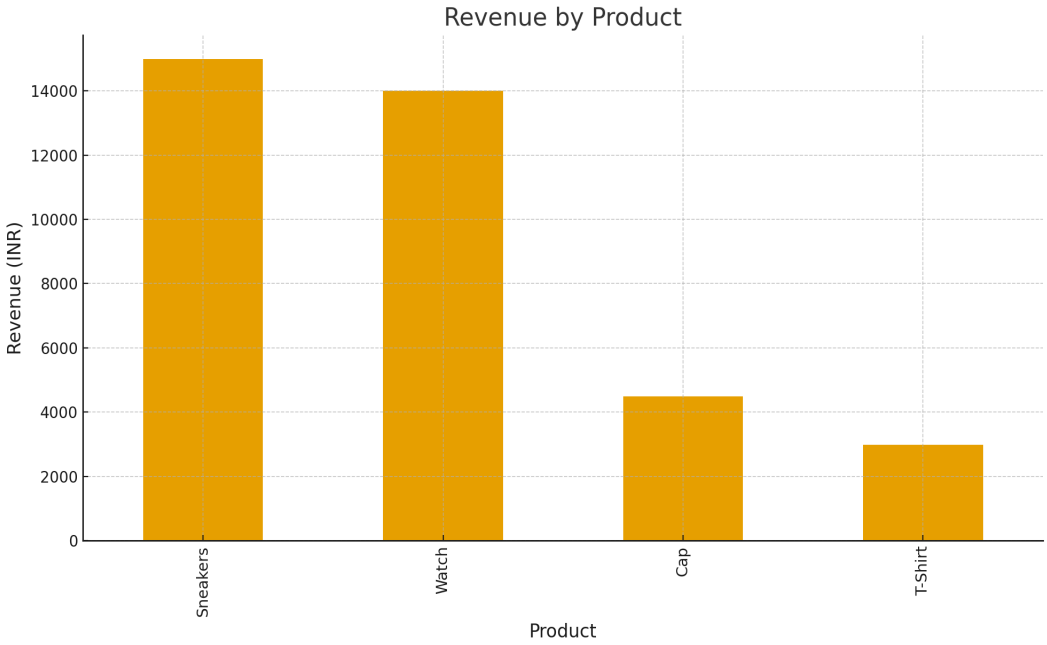
```
"""
Task: Data Analyst Internship - Task 7
This script connects to sales_data.db, runs SQL to get total quantity sold and revenue per product,
prints the DataFrame, and plots a bar chart of revenue per product.

How to run:
    python3 task7_submission.py

Files created/used:
    - sales_data.db (SQLite database)
    - sales_chart.png (saved bar chart)
"""
import sqlite3
import pandas as pd
import matplotlib.pyplot as plt

DB_PATH = "sales_data.db"

def main():
    # 1. Connect to the database
    conn = sqlite3.connect(DB_PATH)

    # 2. SQL query: total quantity and revenue per product
    query = """
    SELECT
        product,
        SUM(quantity) AS total_qty,
        SUM(quantity * price) AS revenue
    FROM sales
    GROUP BY product
    ORDER BY revenue DESC;
    """

    # 3. Load into pandas
    df = pd.read_sql_query(query, conn)

    # 4. Print results
    print("Sales summary (by product):")
```

```
    print(df.to_string(index=False))

    # 5. Plot a simple bar chart of revenue per product
    ax = df.plot(kind='bar', x='product', y='revenue', legend=False, title='Revenue by Product', fontsize=10)
    ax.set_xlabel('Product')
    ax.set_ylabel('Revenue (INR)')
    plt.tight_layout()
    plt.savefig("sales_chart.png")
    print("\nSaved bar chart to sales_chart.png")

    conn.close()

if __name__ == "__main__":
    main()
```

SQL Query Output

product	total_qty	revenue
Sneakers	6	14994.0
Watch	4	13996.0
Cap	15	4485.0
T-Shirt	15	2985.0

Visualization



Short Interview-Style Answers

- How did you connect Python to a database? → Using sqlite3.connect("sales_data.db").
- What SQL query did you run? → The query shown above, which groups by product.
- What does GROUP BY do? → It groups rows with the same value so aggregate functions work per group.
- How did you calculate revenue? → Using SUM(quantity * price).
- How did you visualize the result? → By plotting with pandas/matplotlib into a bar chart.
- Benefit of SQL inside Python? → It combines powerful querying (SQL) with analysis & visualization (Python/pandas)

Conclusion

The task successfully demonstrates the integration of SQL with Python for data analysis. Using SQLite for data storage, SQL for querying, and pandas/matplotlib for analysis and visualization, the workflow reflects key skills required for a Data Analyst role.