Hospital Patient & Treatment Analysis Project

Project Objective

This project analyzes hospital patient treatment records to help improve healthcare services using real data. The goal is to extract meaningful insights using SQL, process and clean data using Python (Pandas), and present findings through interactive dashboards in Power BI.

Tools Used

- SQL (SQLite) – to query patient records

- Python (Pandas, Matplotlib, Seaborn) – for cleaning and analysis

- Power BI – to build dashboards

Dataset Description

The dataset contains hospital records with the following fields:
- Patient ID
- Doctor
- Department
- Treatment Start Date
- Discharge Date
- Treatment Cost
- Recovery Status
- Stay Duration (Days)

Project Tasks and Implementation

SQL Tasks

• Average Treatment Cost per Doctor – Used SQL aggregation with GROUP BY.

• Busiest Departments – Used SQL COUNT and ORDER BY to rank departments.

Pandas (Python) Tasks

• Cleaned missing discharge dates using forward fill (ffill).

• Converted dates to datetime format.

• Analyzed recovery status using value counts and bar chart.

• Plotted treatment cost distribution using histogram.

Power BI Dashboard

Created an interactive dashboard with:
- Patient recovery trends
- Doctor performance (based on treatment cost)
- Department-wise patient volume
- Slicers for filtering by department and status

Conclusion / Insights

This hospital treatment analysis revealed several key insights. Some doctors had higher treatment costs, likely due to specialization. The busiest departments identified can help with better resource planning. Most patients showed positive recovery trends, and stay durations were within expected ranges. This analysis supports hospital decision-making in staffing, treatment planning, and operational improvements.