■ Healthcare BI Case Study – Portfolio Presentation

Project Overview:
This project analyzes hospital operations across five regional branches of **MedCare Group** to uncover inefficiencies, improve patient satisfaction, and enhance financial performance using **Business Intelligence** and **Data Analytics**.

By integrating Excel, SQL, Python, and Power BI, the analysis delivers data-driven insights into patient flow, readmissions, and profitability — supported by predictive modeling and visual storytelling.

■■ Tools & Technologies

Tool	Purpose
Excel	Initial data cleaning & exploration
SQL Server	Data storage, transformation, KPI calculation
Python (Pandas, Matplotlib)	Statistical analysis, correlation, forecasting
Power BI	Dashboard visualization & executive reporting
Markdown / GitHub	Documentation & portfolio presentation

■ Key Insights

Operational:
- Longest stays found in Cardiology & Orthopedics departments.
- Pediatrics achieved the highest satisfaction (8.9) with shortest stays.
- Wait Time vs Satisfaction correlation: $r = -0.63$.

Regional:
- North Region had the highest readmission rate (12%).
- East Region performed best overall in satisfaction and throughput.

Financial:
- Private Insurance generated 62% of total revenue with a 24% margin.
- Public Insurance cases were less profitable due to longer durations.

Predictive:
- Forecasted 6% rise in monthly admissions for 2025.
- Projected satisfaction increase of +0.5 points with reduced wait times.
- Revenue expected to grow by 8.5% in 2025.

■ Recommendations Summary

Focus Area	Recommendation
Wait Time Reduction	Introduce automated patient scheduling
Readmission Prevention	Launch post-discharge follow-up programs

Doctor Workload	Redistribute patient assignments dynamically
Profit Optimization	Rebalance insurance mix towards higher-margin plans
Satisfaction Boost	Launch continuous patient feedback system

■ **Conclusion:**

This Healthcare BI Case Study demonstrates end-to-end analytics excellence — from raw data to actionable insights.

It's a complete example of how a Data Analyst or BI Analyst can transform operational chaos into strategic clarity using data-driven intelligence.