Healthcare Analytics Dashboard for Patient Outcomes and Hospital Performance

Capstone Project 1 – Proposal Report

1. Executive Summary

This project will develop a Power BI dashboard displaying key patient records, treatments, and hospital performance metrics. It will enable healthcare administrators to monitor real-time data on patient care and hospital operations, supporting data-driven decision-making to improve overall efficiency.

2. Problem Statement

Background: Limited visibility into real-time healthcare metrics hinders timely decision-making and patient care improvements.

Objective: Develop dashboards to monitor and analysis key healthcare performance indicators.

Scope: Initial focus on patient outcomes, treatment efficiency, and hospital resource utilization across all departments and medical units.

3. Data Sources

The Data is obtained from an Online Website Kaggle the link below,

Link - https://www.kaggle.com/datasets/prasad22/healthcare-dataset

The data file is 8 MB in size, containing 55,000 rows and 15 columns.

Includes patient details such as name, blood group, age, gender, medical condition, admission and discharge dates, doctors, hospitals, admission type, insurance information, billing amounts, room numbers, Medication and test results.

4. Methodology

Data Integration: Load the dataset into Power BI, clean it, and ensure correct data types for key fields like dates and billing amounts. Create new columns like length of stay and billing per day.

Dashboard Design: Work with healthcare professionals to select key metrics, and design clear visuals to display patient demographics, admissions, billing, and outcomes

Interactivity: Add slicers for demographics, admission types, and insurance, with filters for dates and drill-down features for deeper analysis.

5. Expected Outcomes

- The dashboard will serve as an interactive tool to track and visualize critical healthcare metrics.

- It will offer real-time insights into patient data, hospital admissions, medical conditions, and financial performance.

- This will empower healthcare administrators to make informed decisions, enhance hospital management, and ultimately improve patient care.

6. Tools and Technologies

- Power BI: For building the dashboard and visualizing the data.

- Power Query: For cleaning and preparing the data.

DAX (Data Analysis Expressions): For creating calculated fields and advanced metrics.

7. Risks and Challenges

Data Quality: Making sure the patient records are accurate and complete.

Stakeholder Alignment: Collaborating with healthcare professionals to ensure the dashboard meets their needs.

User Training: Ensuring users know how to interact with Power BI features effectively.

8. Conclusion

This project is poised to empower healthcare organizations with visually engaging and informative dashboards, enabling quicker and more informed decision-making. The dashboards will be tailored to the specific needs of healthcare professionals, ensuring a user-friendly experience that fosters a culture of data-driven decision-making and ultimately improves patient care outcomes.