Project Report: Healthcare Dashboard in Power BI

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1. Introduction

This project report outlines the development and implementation of a **Healthcare Dashboard** using **Power BI**. The dashboard is designed to provide a comprehensive overview of hospital operations, patient demographics, and key performance indicators (KPIs) to support data-driven decision-making in healthcare management.

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2. Objectives

The primary objectives of this project were:

- To create an interactive and visually appealing dashboard for healthcare data analysis.
- To provide insights into patient demographics, treatment costs, bed utilization, and staff allocation.
- To monitor and improve key metrics such as **ER time**, **patient feedback**, and **average ratings**.
- To enable hospital administrators to make informed decisions based on real-time data.

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3. Data Overview

The dataset used for this project included the following key metrics:

- **Total Patients**: 2,506
- **Total Treatment Cost**: $404.49K
- **Total Beds**: 2,847
- **Total Staff**: 262
- **Average Rating**: 4.63

4. Dashboard Design and Features

The dashboard was designed to provide a user-friendly interface with the following key features:

4.1 Key Metrics Overview

- **Total Patients**: Displays the total number of patients treated.
- **Total Treatment Cost**: Shows the overall cost of treatments.
- **Total Beds**: Indicates the number of beds available in the hospital.
- **Total Staff**: Provides the count of staff members.

- **Average Rating**: Reflects the average patient satisfaction rating.

4.2 Patient Demographics

- **Total Patients by Gender**: A visual representation of patient distribution by gender (Male and Female).

- **Total Patients by Age Group**: Breakdown of patients by age groups (Below 6Y, 41-60Y, 60+Y).

- **Total Patients by Patient Type**: Categorization of patients into **Inpatient** and **Outpatient**.

4.3 Operational Insights

- **Average ER Time by Department**: Highlights the average emergency room (ER) time for different departments.

- **Patient Feedback**: Displays patient feedback categories (e.g., Fully Agree, Rather Agree, Rather Disagree, Fully Disagree, Don’t Know).

- **Readmission and Discharge Rates**: Shows the number of patients readmitted or discharged, categorized by gender.

4.4 Interactive Filters

- **State/City**: Allows users to filter data by location.

- **Department Name**: Enables filtering by specific hospital departments.

- **Month**: Provides the option to view data for a specific month.

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5. Visualizations Used

The dashboard incorporates a variety of visualizations to present data effectively:

- **Cards**: For displaying key metrics (e.g., Total Patients, Total Treatment Cost).

- **Bar Charts**: For comparing patient demographics (e.g., Total Patients by Gender, Total Patients by Age Group).

- **Pie Charts**: For showing patient feedback distribution.

- **Tables**: For detailed breakdowns (e.g., Readmission and Discharge Rates).

- **Filters**: Interactive filters for State/City, Department Name, and Month.

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6. Insights and Analysis

The dashboard provides the following insights:

- **Patient Demographics**: The majority of patients are in the 41-60 age group, with a nearly equal distribution of males and females.

- **ER Time**: The average ER time varies by department, indicating potential bottlenecks in certain areas.

- **Patient Feedback**: Most patients provided positive feedback, with a significant percentage "Fully Agreeing" with the quality of care.

- **Readmission Rates**: A small percentage of patients were readmitted, with slightly higher rates among males.

- **Financials**: The total treatment cost is $404.49K, providing a clear picture of hospital expenses.

7. Conclusion

The **Healthcare Dashboard** developed in Power BI provides a comprehensive and interactive tool for hospital administrators to monitor and analyze key metrics. By leveraging the power of data visualization, the dashboard enables better decision-making, improved patient care, and efficient resource allocation.

8. Tools and Technologies Used

- **Power BI**: For data visualization and dashboard creation.

- **Power Query**: For data cleaning and transformation.

- **Excel**: For initial data preparation.

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