Healthcare Data Analysis Dashboard

Project Report

Team Members

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1. Introduction

The Healthcare Data Analysis Dashboard is a visual analytics project focused on deriving meaningful insights from patient medical records. By analyzing

demographic patterns, disease spread, and hospital resource utilization, it assists healthcare professionals in making data-driven decisions.

2. Problem Statement

Large volumes of patient data are collected daily, but much of it remains underutilized. Manual analysis is slow and lacks accuracy.

Global Problem Solved:
The project helps address the underutilization of healthcare data, enabling better resource allocation, disease monitoring, and strategic healthcare planning.

3. Objectives

Clean and preprocess anonymized patient data

Analyze disease and demographic trends

Visualize key insights through an interactive dashboard

Support healthcare teams in decision-making

4. Dataset Overview

· Source: Healthcare Dataset from Kaggle

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

· Records: ~10,000+ patients

· Key Fields: Age, Gender, Diagnosis, Region, Resource Usage

5. Tools & Technologies Used

Tool/Technology	Purpose
Python	Data cleaning & preprocessing
Pandas	Data manipulation
Power BI	Dashboard creation & visualization
Google Drive	Team collaboration & sharing

6. Methodology

· Data Collection - Acquired anonymized medical records

· Data Cleaning (Python) - Handled missing values, removed duplicates, standardized formats

· Dashboard Development (Power BI) - Linked and visualized data through filters, charts, and KPIs

7. Dashboard Summary

The Power BI dashboard includes:

· Patient age & gender distribution

· Most common disease categories

· Resource usage by department & time

· Filterable visuals for diagnosis and region

🗁 File: Medical Data Dashboard.pbix

8. Results & Insights

· Older patients (50+) dominate hospital visits

· Some diseases cluster by region (urban vs rural)

· Resource demand peaks during Q3

· Gender-based differences found in treatment patterns

9. Scope & Use Cases

· Hospital admins can use it for daily capacity planning

· Policymakers can track disease trends and resource stress

· Extendable with machine learning for predictive analytics

· Usable in real-time with hospital IoT integration

10. Conclusion

The dashboard successfully converts complex healthcare data into understandable visuals. It brings efficiency and clarity to resource planning and patient analysis and lays the foundation for future predictive health systems.

11. References

· Dataset: Healthcare Dataset from Kaggle

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

· Python 3.10, Pandas 1.5

· Power BI Desktop (March 2024 release)

· Google Drive – Collaboration platform

12. Project Files Summary

- Healthcare_dataset.csv – Raw Dataset
- cleaned_medical_data.csv – Cleaned dataset
- main.py – Python cleaning script
- requirements.txt – Python Libraries
- Medical Data Dashboard.pbix – Power BI Dashboard
- README.txt – Project structure guide
- Project_Report.pdf – This report