



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

Healthcare Analytics Dashboard using Power BI

The domain of the Project:
Healthcare Data Analytics and Visualization

Team Mentors (and their designation):
Siddhika Shah(Data Analyst-Power BI)

Team Members:
1. Mr. Karthik Doli B.Tech, 4th year pursuing ---- Team Leader

Period of the project
January 2025 to June 2025



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DECLARATION

The project titled “**Healthcare Analytics Dashboard using Power BI**” has been mentored by Siddhika Shah , organised by SURE Trust, from January 2025 to June 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.

Team Member:

1. Mr. Karthik Doli

Siddhika Shah
Data Analyst—Company Name

Prof. Radhakumari
Executive Director & Founder
SURE Trust



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Executive Summary

This project aims to develop an interactive healthcare analytics dashboard using Power BI to uncover meaningful insights from hospital and patient datasets. It visualizes patient demographics, diagnosis patterns, doctor performance, department loads, and treatment costs. The objective is to enable better hospital decision-making, resource management, and patient service optimization. The final dashboard allows healthcare stakeholders to identify critical patterns, improve efficiency, and support data-driven medical decisions.



Introduction

Background:

In the modern healthcare environment, data plays a vital role in enhancing patient care and improving operational efficiency. However, raw data often remains underutilized.

Problem Statement:

Hospitals often lack the tools to derive quick and actionable insights from their operational and patient data.

Scope and Limitations:

The project is limited to the analysis of structured hospital data related to patients, doctors, costs, and departments. Predictive analytics or real-time updates are not part of this project.

Innovation Component:

The use of Power BI to create a real-time, interactive healthcare dashboard makes data easy to interpret for non-technical healthcare staff and management.



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Project Objectives

- Visualize hospital data for better understanding of patient profiles and treatment outcomes
- Identify high-cost treatments and patient flow trends
- Evaluate doctor and department performance
- Improve healthcare resource allocation decisions



Methodology and Results

Tools Used:

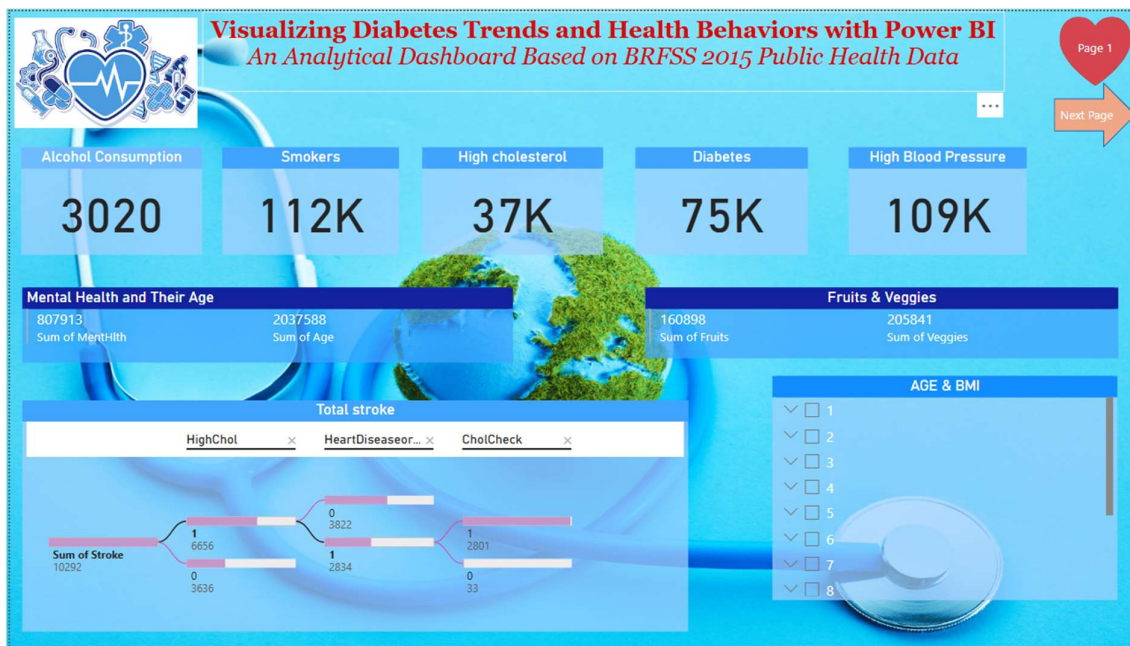
- **Microsoft Power BI**
- **Excel** for data preprocessing and cleaning

Methodology:

1. Data preprocessing in Excel
2. Imported into Power BI
3. Data modeling using relationships between tables
4. Visual dashboards created using slicers, KPIs, cards, bar charts, pie charts, line graphs

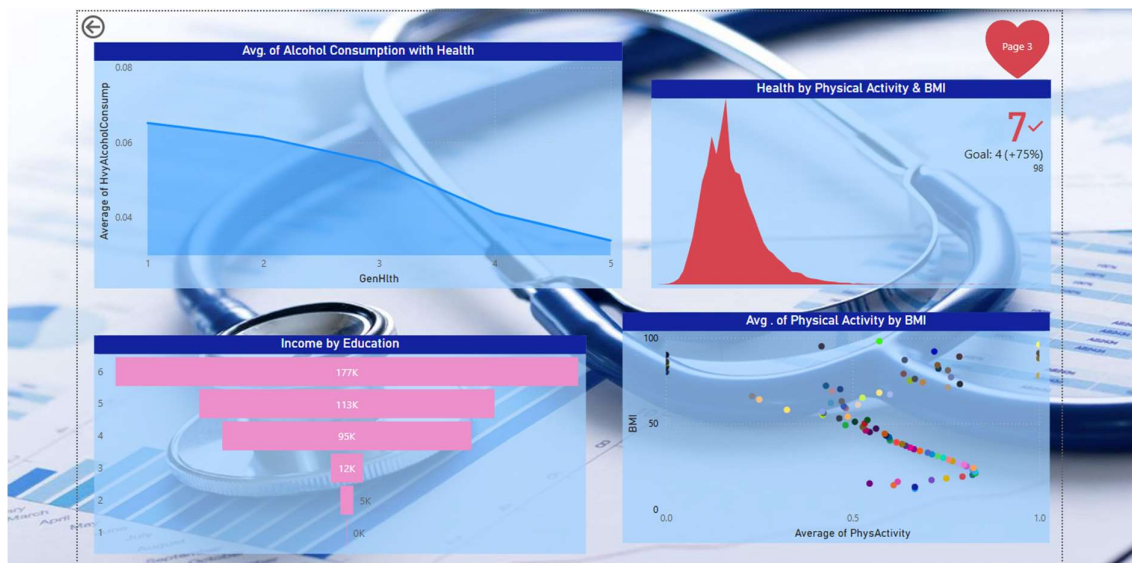
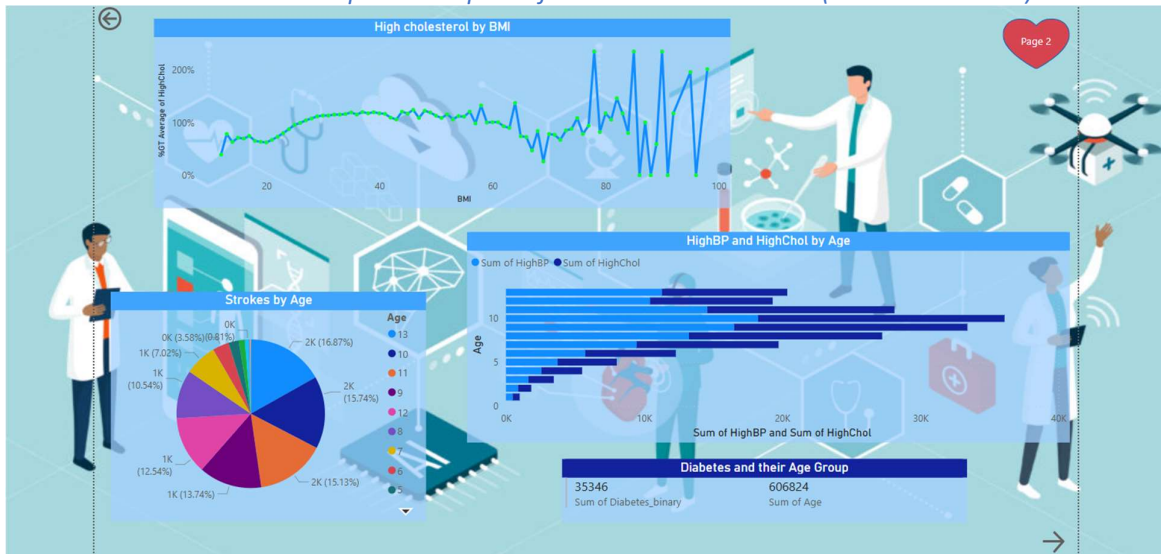
Key Dashboard Insights:

- **Gender & Age Distribution** of Patients
- **Top 5 Diagnoses**
- **Treatment Costs by Department**
- **Admissions Trend Over Time**
- **Doctor-wise Patient Count and Efficiency**





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Learning and Reflection

Technical Skills Gained:

- Power BI Dashboarding
- DAX for calculations and measures
- Data modelling and relationship creation
- Data storytelling through visuals

Team Experience:

- Real-world dataset analysis
- Collaborating on healthcare-oriented use cases
- Dividing responsibilities among team members
- Presenting insights in a professional format



Conclusion and Future Scope

- The Healthcare Analytics Dashboard developed as part of this project stands as a robust and insightful tool designed to support data-driven decisions in the healthcare sector. By leveraging Microsoft Power BI, the project successfully transformed raw hospital data into clear, interactive visualizations that highlight key operational and clinical trends.
- The dashboard provides:
- A **comprehensive overview of patient demographics**, such as age and gender distribution, helping hospitals understand their primary patient groups.
- **Department-wise treatment costs**, enabling financial tracking and budgeting.
- **Top diagnoses and disease trends**, supporting early intervention planning.
- **Doctor-wise patient statistics**, aiding in evaluating staff performance and patient load management.
- **Time-based admissions analysis**, useful for predicting busy periods and managing resources efficiently.
- This solution helps hospital administrators, doctors, and policymakers quickly identify patterns that otherwise remain hidden in spreadsheets. The project also serves as a practical demonstration of how healthcare institutions—especially in resource-constrained environments—can benefit from business intelligence tools.
- The work aligns with global healthcare trends that emphasize transparency, data accessibility, and improved patient outcomes through technology. Moreover, this kind of solution can be replicated across rural and urban hospitals to significantly enhance healthcare delivery.



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Future scope of this project

There are several areas where this project can be expanded to provide even greater value:

- 1. Real-Time Data Integration:**

Currently, the dashboard works with static datasets. Connecting it to live hospital databases via APIs would enable real-time monitoring and instant insights for decision-making.

- 2. Predictive Analytics:**

With machine learning integration, the project could forecast disease outbreaks, predict patient readmissions, or highlight at-risk patients based on historical trends.

- 3. Patient Feedback Analytics:**

Incorporating sentiment analysis on patient reviews or surveys can help assess service quality and highlight areas needing improvement.

- 4. Mobile and Web Deployment:**

The dashboard can be embedded into hospital websites or mobile apps, enabling doctors and administrators to access critical insights on the go.

- 5. Scalability Across Hospitals:**

The model can be scaled and customized for other hospitals or healthcare networks, including government health centres, NGOs, or private clinics, especially in rural and underserved regions.

- 6. Integration with Government Schemes and Insurance Data:**

Adding data from public health programs like Ayushman Bharat or insurance claims can further enhance the analysis and make it policy relevant.



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