Hospital Readmission Prediction for Diabetic Patients

This project aims to help hospitals reduce readmission rates of diabetic patients by predicting which patients are most at risk of being readmitted to the hospital in 30 days, ultimately improving patient care and resource management.

Project Team

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Problem Statement

1

Focus

Hospital readmissions and analyzing risk factors.

2

Key Issue:

Hospital readmissions disrupt operations and impact patient care.

3

Objective

Use machine learning to help hospitals make data-driven decisions to reduce readmissions.

4

Hypothesis

Factors such as medical history, length of stay, and chronic conditions, contribute significantly to readmission rates.

Data

1 Source

Data sourced from VCU Center for Clinical and Translational Research

Reference: https://doi.org/10.1155/2014/781670

2 Details

Database contains data systematically collected from participating institutions electronic medical records and includes encounter data (emergency, outpatient, and inpatient), provider specialty, demographics (age, sex, and race), etc.

3 Data Types

Numerical and categorical(e.g., age, medical history, medications).

4 Feasibility

Ready access to data ensures timely completion of the project.

Solution Approach

1 Data Pipeline

Implement data preprocessing, focusing on data cleaning, imputation of missing values, and transforming categorical variables into actionable insights.

2 Techniques

Correlation Analysis, Principal Component Analysis to name a few.

3 Models

We start with Logistic Regression, explore advanced options like Decision Trees and other models.

4 Future Potential

If time permits, build an Interactive Dashboard for data visualization and decision.