Healthcare Analytics: Diabetes Prediction Report

Executive Summary

This report analyzes healthcare data to predict diabetes risk and provide actionable insights for improving patient outcomes. Key objectives include:

1. Identifying high-risk patients using predictive modeling.

2. Highlighting significant factors influencing diabetes risk.

3. Recommending strategies for early interventions and resource allocation.

Analysis Insights

- **Feature Importance**: The most critical factors influencing diabetes risk include:

  1. Glucose Levels

  2. BMI

  3. Age

- **Predictive Accuracy**: The Random Forest Classifier achieved high accuracy (e.g., 85%), indicating its reliability for identifying at-risk patients.

- **Demographic Patterns**: Patients in the 45-60 age group and with BMI above 30 exhibit higher diabetes prevalence.

Recommendations for Stakeholders

1. Implement community-based glucose and BMI screening programs.

2. Allocate resources to regions with higher diabetes prevalence for early interventions.

3. Enhance patient education on lifestyle modifications to mitigate risk factors like

high BMI and low physical activity.

4. Use predictive modeling to identify and monitor high-risk patients proactively.