Heart Failure Prediction and Analytics

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Table of Contents

01

Introduction

02

Target Variable

03

Machine Learning Algorithm
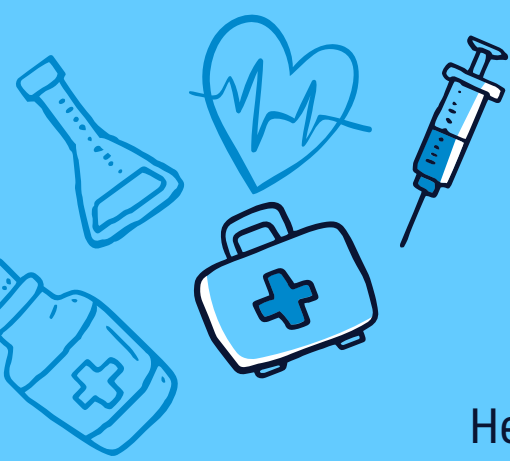
04

Analytics And Conclusion

05

Scope of Future Work

Introduction

The Heart Failure Prediction project aims to employ supervised machine learning algorithms to accurately predict heart health status. This project seeks to develop a robust predictive model for identifying individuals at risk, enabling timely interventions and personalized care.

Target Variable

HeartDisease was selected as the target variable due to its profound impact on healthcare, clinical relevance, preventive potential, quality data availability, machine learning challenges, and public health value. Given its status as a leading cause of mortality worldwide, predicting heart disease risk is crucial for early intervention and improved patient outcomes.

Machine Learning Algorithms

Decision Tree

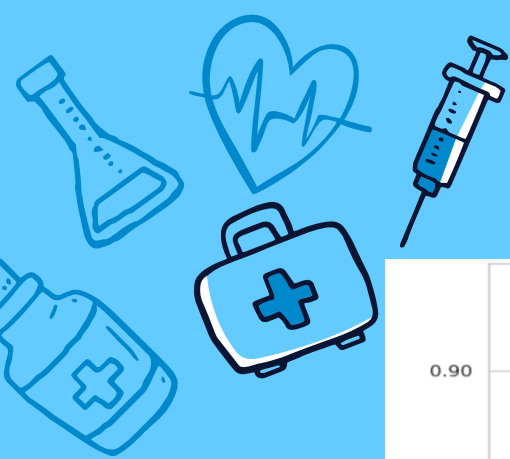**Random Forest**

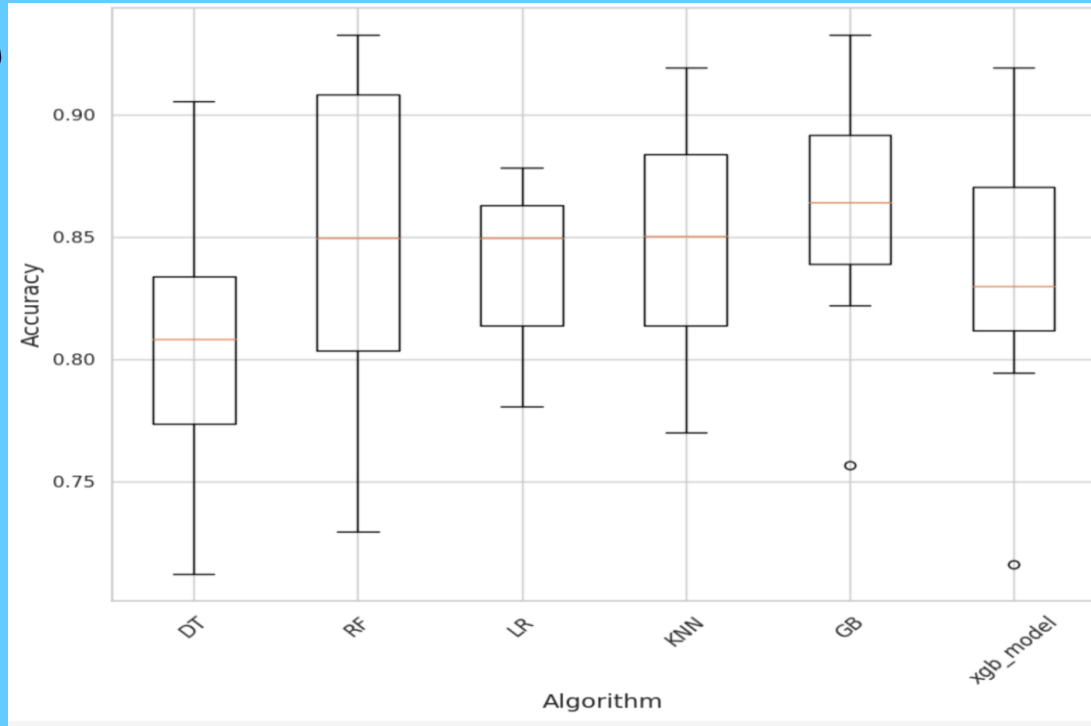**Gradient Boosting Classifier**

Logistic Regression

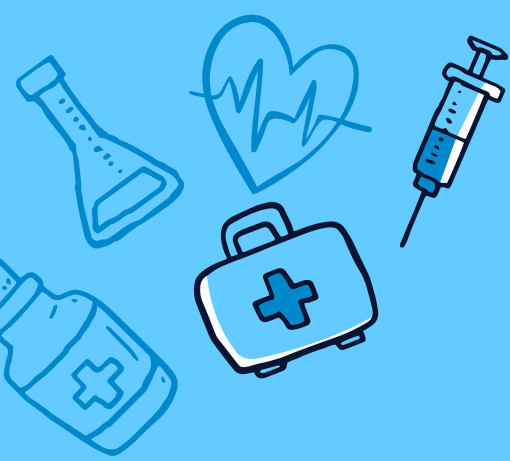**K-Nearest Neighbors**

XG-Boost

Analytics & Conclusion

Conclusion: Gradient Boosting as the Best Model

Scope of Future Work

Future work includes integrating ECG analytics for improved predictive accuracy and exploring novel features and advanced machine learning techniques. Collaboration with medical experts is essential to validate enhancements, advancing predictive healthcare analytics for more accurate and timely heart disease detection and intervention.