Heart Disease - Classifications (Machine Learning)

INTRODUCTION

In this work the Dataset are collected from **Kaggle.com .**

We have a data which classified if patients have heart disease or not according to features in it. We will try to use this data to create a model which tries predict if a patient has this disease or not.

Therefore Six machine learning classification algorithms namely **Decision Tree, SVM and Naive Bayes, Logistic Regression, KNN ,Random Forest** are used in this experiment to detect heart disease. The performances of all the algorithms are evaluated on measures Accuracy.

DATA CONTAIN

- age - age in years
- sex - (1 = male; 0 = female)
- cp - chest pain type
- trestbps - resting blood pressure (in mm Hg on admission to the hospital)
- chol - serum cholestoral in mg/dl
- fbs - (fasting blood sugar > 120 mg/dl) (1 = true; 0 = false)
- restecg - resting electrocardiographic results
- thalach - maximum heart rate achieved
- exang - exercise induced angina (1 = yes; 0 = no)
- oldpeak - ST depression induced by exercise relative to rest
- slope - the slope of the peak exercise ST segment
- ca - number of major vessels (0-3) colored by flourosopy
- thal - 3 = normal; 6 = fixed defect; 7 = reversable defect
- target - have disease or not (1=yes, 0=no)

DATA EXPLORATION

Here,

The percentage of patient haven’t heart disease

The percentage of patient have heart disease

The percentage of patient Female

The percentage of patient Male

1st normalize the data by this formula:

$$X_{changed} = \frac{X - X_{min}}{X_{max} - X_{min}}$$

Than Apply logistic regression find the Accuracy 86.89%

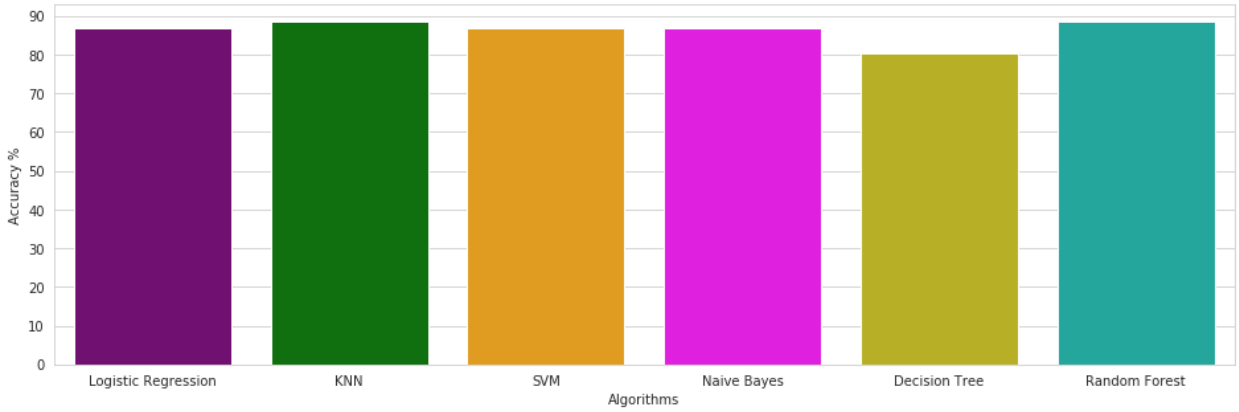
Apply KNN find the Accuracy 88.52%

Apply SVM find the Accuracy 86.89%

Apply Naïve Bayes find the Accuracy 86.89%

Apply Decision Tree find the Accuracy 80.33%

Apply Random Forest find the Accuracy 88.52%



Accuracy is measured over correctly and incorrectly classified instances. Results obtained show KNN & Random Forest outperforms with the highest accuracy of 88.52% comparatively other algorithms.