HEART DISEASE PREDICTION

Using Neural Networks(Keras)

THE TEAM

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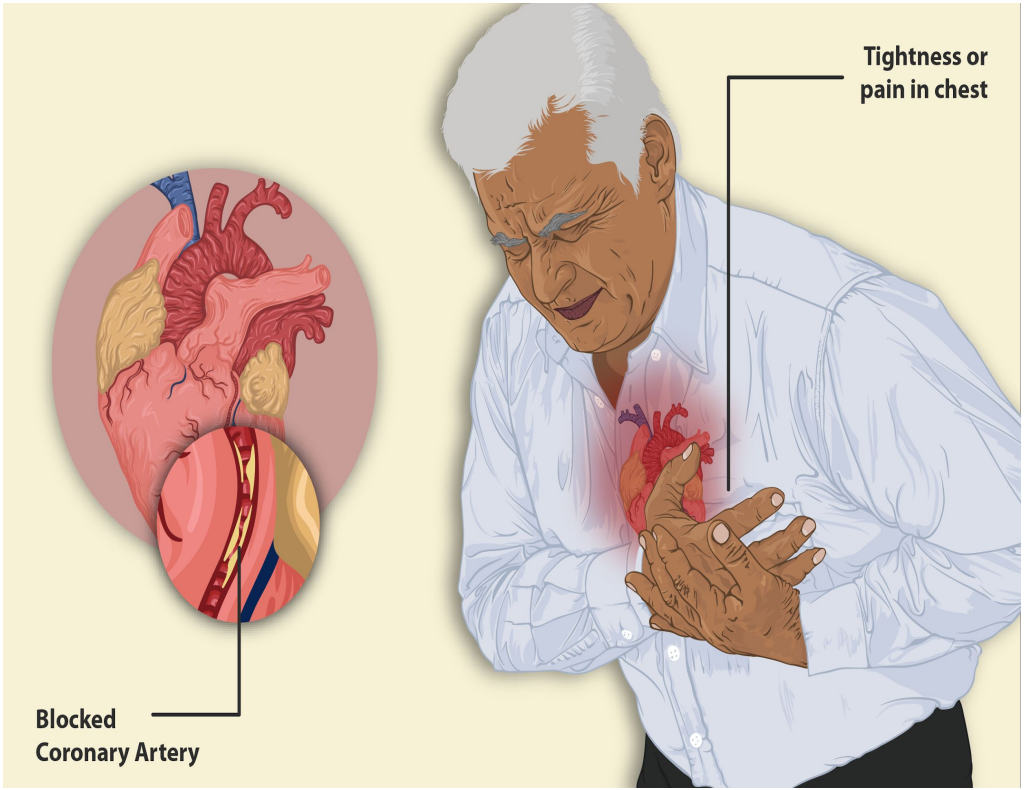
Overview



Heart disease describes a range of conditions that affect your heart. Diseases under the heart disease umbrella include blood vessel diseases, such as coronary artery disease, heart rhythm problems (arrhythmias) and heart defects you're born with (congenital heart defects), among others

Problem Statement and Justification

Heart disease is one of the biggest causes of morbidity and mortality among the population of the world. According to a news article, heart disease proves to be the leading cause of death for both women and men. The article states that

About 610,000 people die of heart disease in the United States every year–that's 1 in every 4 deaths.

Thus preventing Heart diseases has become more than necessary. Good data-driven systems for predicting heart diseases can improve the entire research and prevention process, making sure that more people can live healthy lives.

Research objective

Our project will focus on predicting heart disease using neural networks. Based on attributes such as blood pressure, cholesterol levels, heart rate, and other characteristic attributes, patients will be classified according to whether or not they have heart disease.

Experimental Design

Data Preparation

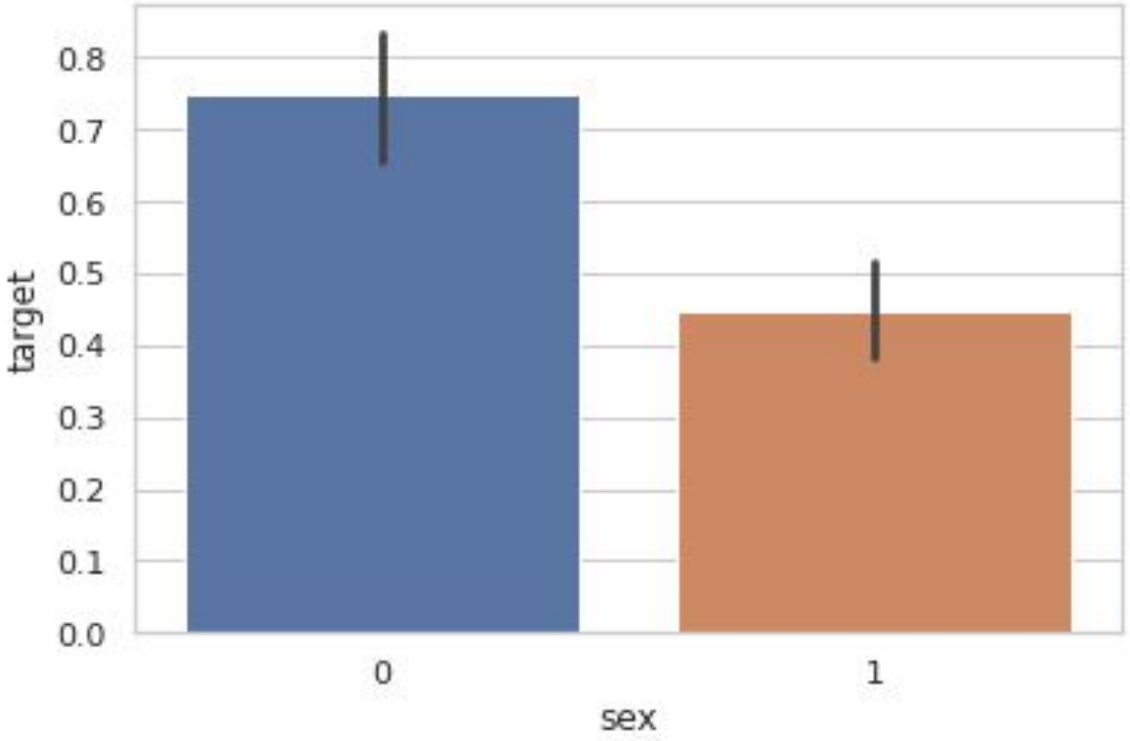
Data Cleaning

Exploratory Data Analysis

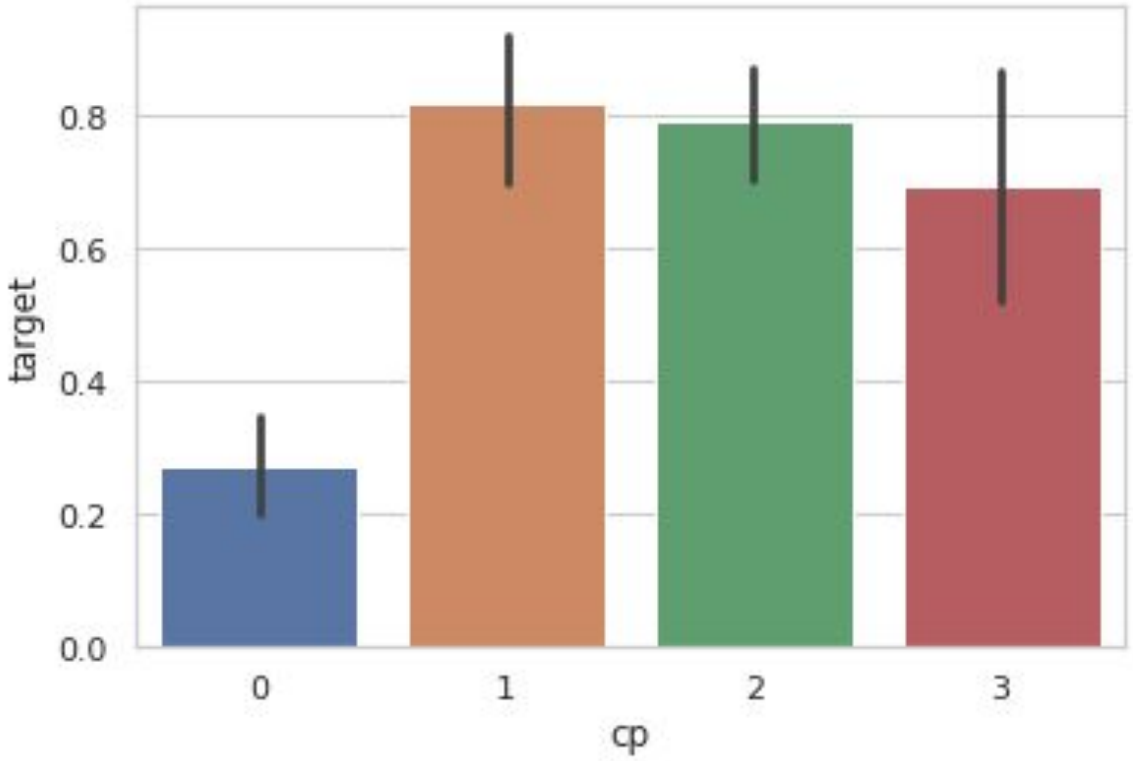
Modelling

Challenging the Solution

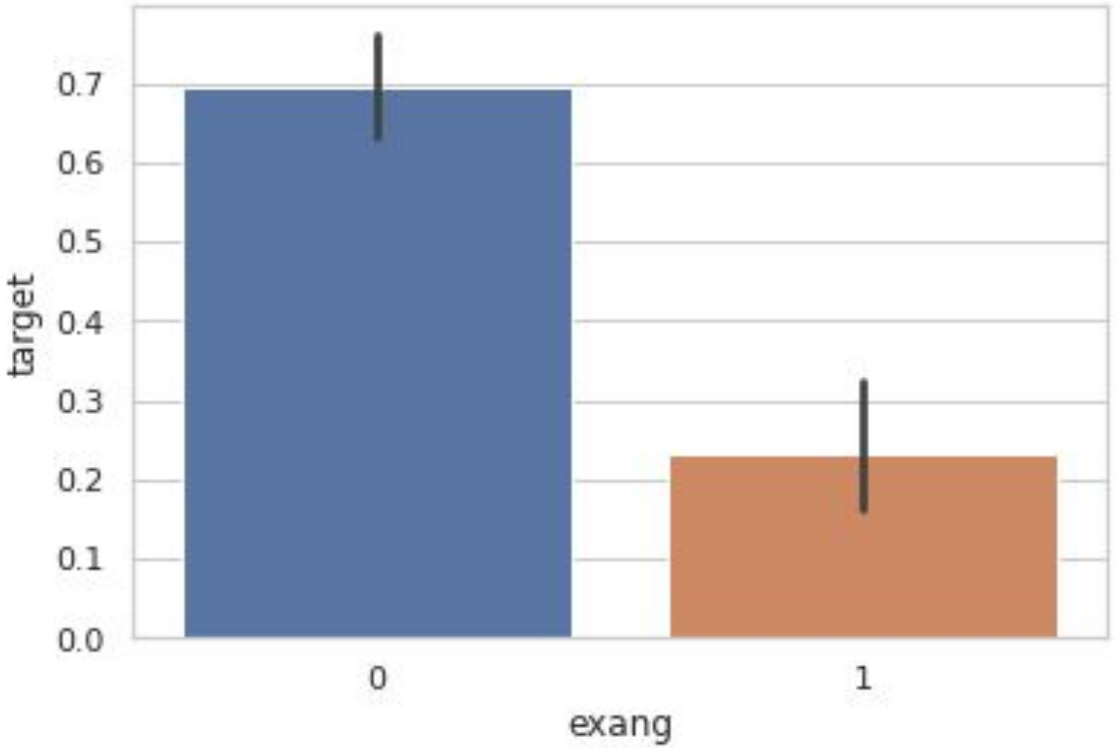
Project Insights



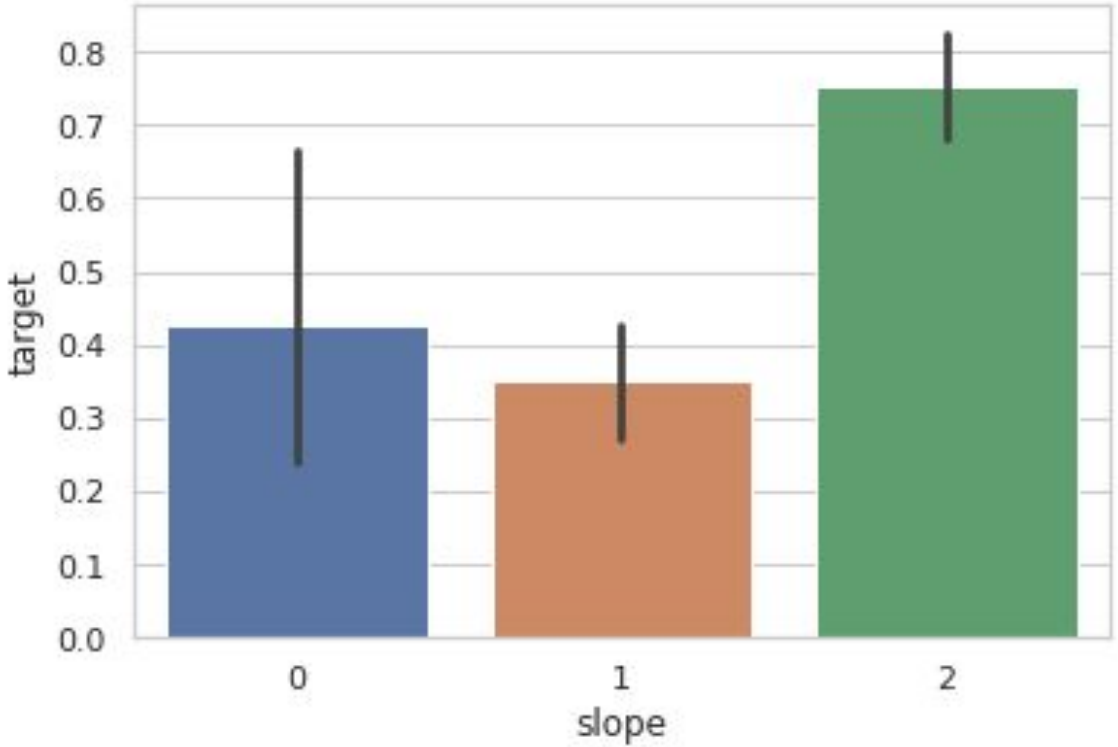
Females are more likely to have heart diseases than males



Those with atypical angina are more likely to have heart problems compared to those with normal angina denoted by 0



People with exercise induced angina are less likely to have heart problems

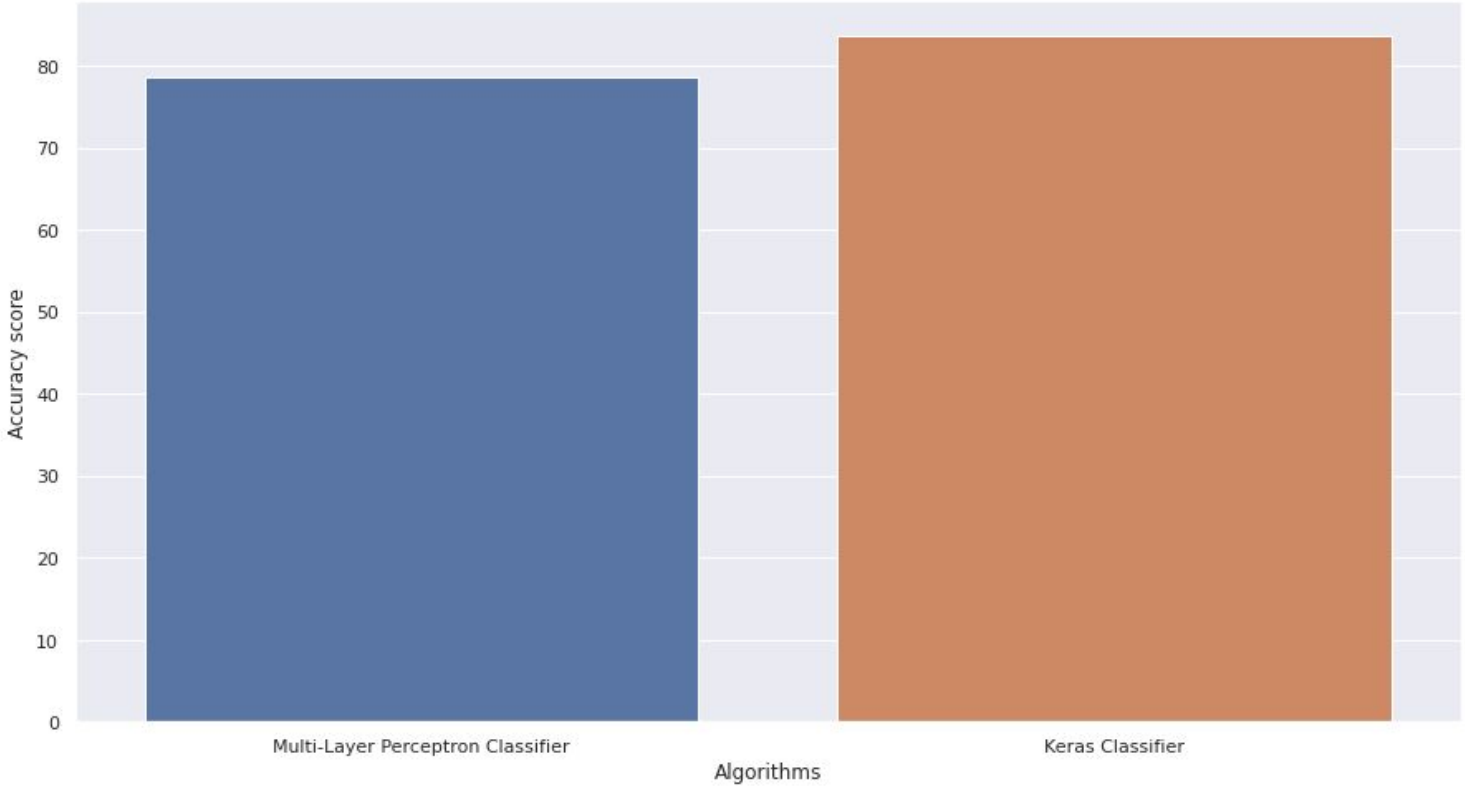


Those with a ST/heart rate slope 2 were more likely to have heart diseases

Other insights

- The top three features in determining heart diseases were chest pain type (cp), maximum heart rate achieved (thalach) and ST depression caused by exercise relative to rest (slope).
- Females who are suffering from the disease are older than males.
- Most of those showing heart disease symptoms are aged above 41 years.

Model Performance



The accuracy score achieved using Multi-Layer Perceptron Classifier is: 78.68852459016394 %
The accuracy score achieved using Keras Classifier is: 86.89 %

Recommendation

Based on our insights, we would recommend that the senior citizens to maintain a reasonable body weight. Check your cholesterol level regularly, especially if your family has a history of heart disease. Avoid smoking tobacco, using intravenous drugs, or taking street drugs.

Future Implementation

To create an end to end application which will take the data as input and the insights and predictions will be displayed on a dashboard.

Q&A