Heart Failure Prediction

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Problem -

- People with cardiovascular disease or who are at high cardiovascular risk
- Early detection and management wherein a machine learning model can be of great help.

Stakeholders - doctors and medical board

Terminology -

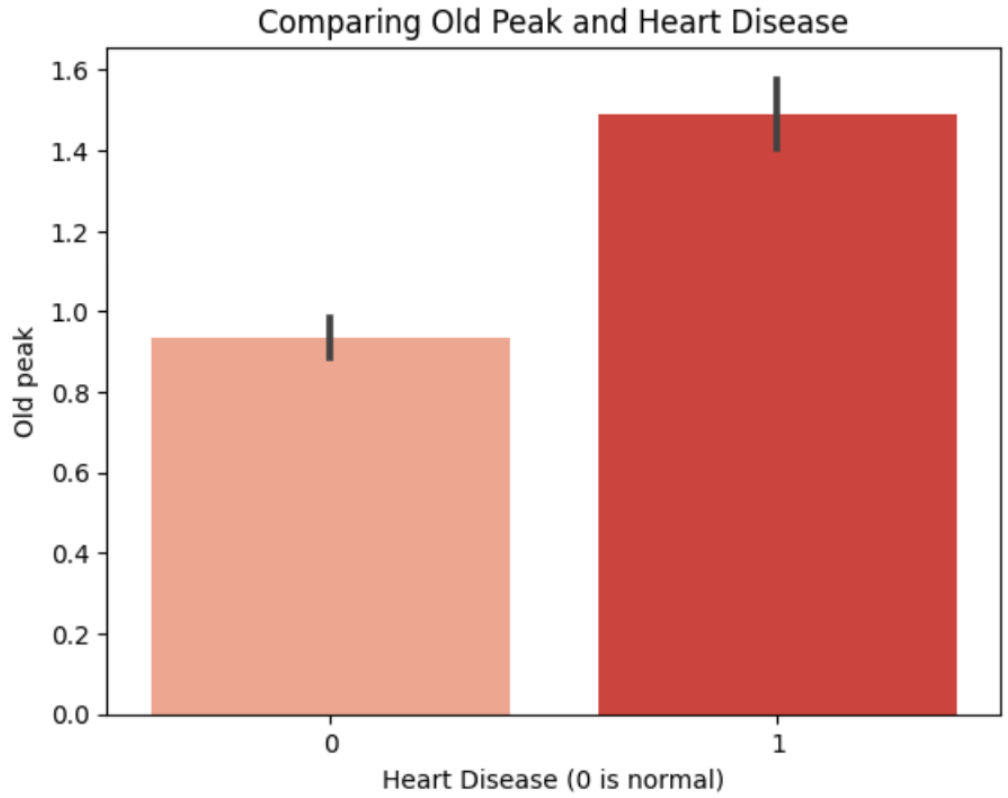
- Oldpeak - ST depression induced by exercise relative to rest.
  - If a doctor suspects there may be something wrong with a person's heart, they may decide to order an ECG
  - An ST depression can be an outcome of an electrocardiogram (ECG) test

Sources - https://www.hindawi.com/journals/cmmm/2017/8272091/tab1/

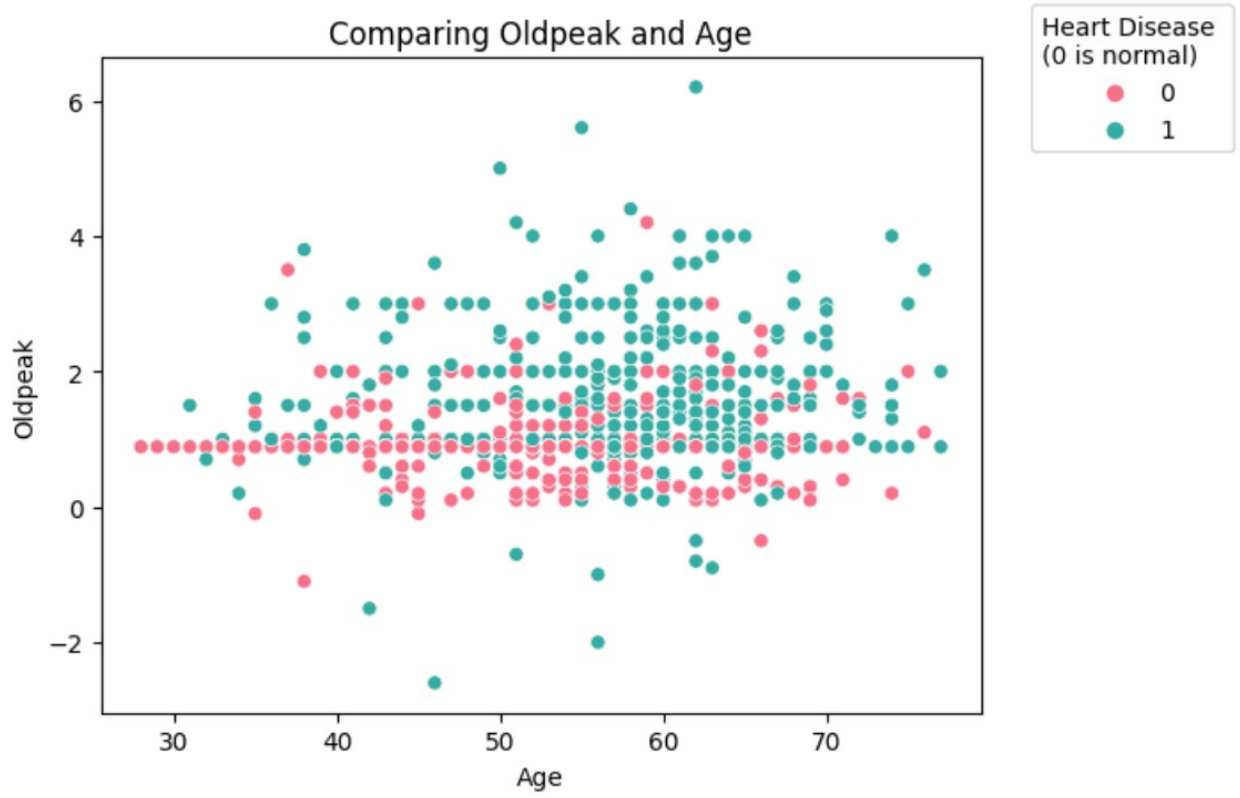
- https://www.medicalnewstoday.com/articles/st-depression-on-ecg#:~:text=An%20ST%20depression%20can%20be,decide%20to%20order%20an%20ECG

Oldpeak and Heart Disease

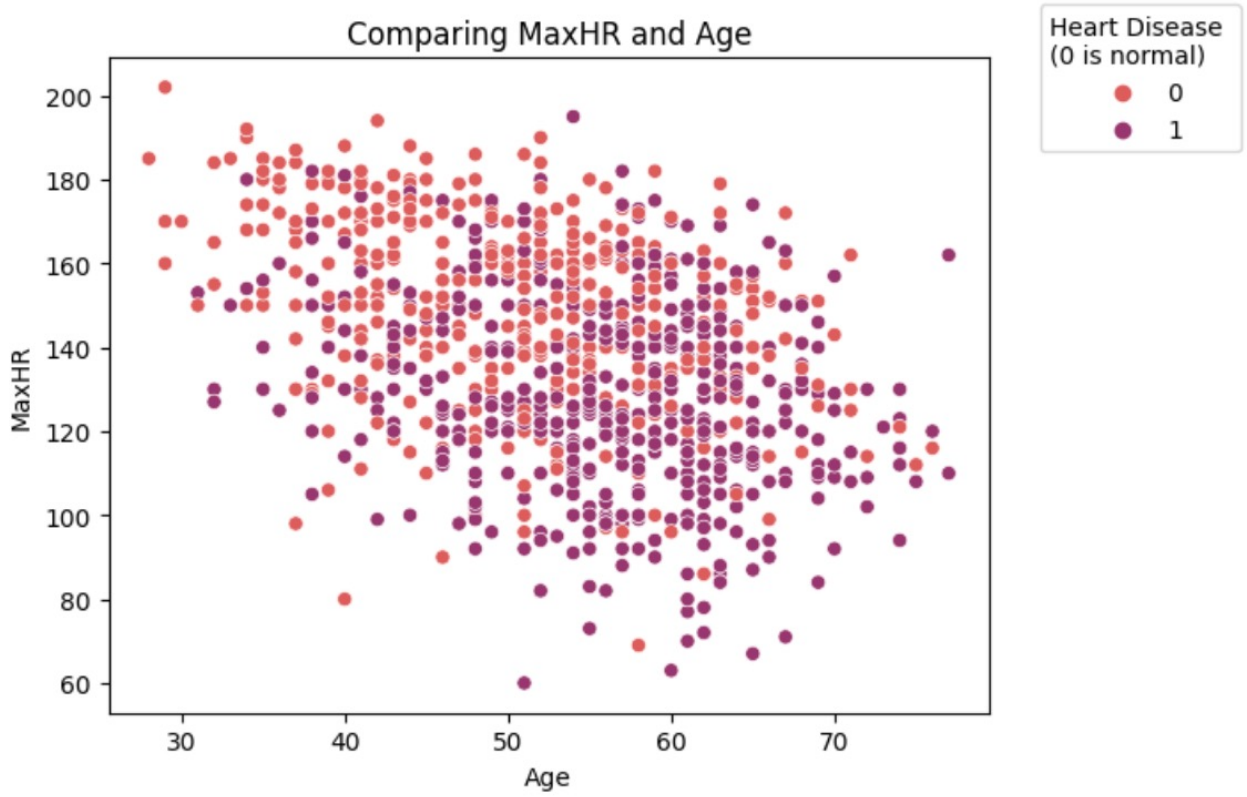
Those with a higher Oldpeak are very likely to get heart disease



Oldpeak and age



Scatterplot – comparing MaxHR and Age



Model strengths and Limitations

- The Random Forest Classifier model score tells us that the features used in the model together account for 89.5% of the variance in the target.

- There is an emphasis in reducing false negatives. ***False negatives*** are incorrect predictions that someone was normal when instead they had heart disease.

Recommendations -

- Patients - Our insights show that people who have a higher Oldpeak are at risk of having heart disease and a management plan should be put in place to treat.
- Also, patients with a lower maximum heart, not taking into account for age, all have a higher risk of getting heart disease.