Heart Disease Predictions

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Stakeholders

- Doctors that treat heart disease or patients that are be seen because they may have heart disease are the two most important stakeholders for this dataset and would benefit the most from this model.

Data

```
Age                 int64
Sex                 object
ChestPainType       object
RestingBP           int64
Cholesterol         float64
FastingBS           object
RestingECG          object
MaxHR               int64
ExerciseAngina      object
Oldpeak             float64
ST_Slope            object
HeartDisease        int64
dtype: object
```
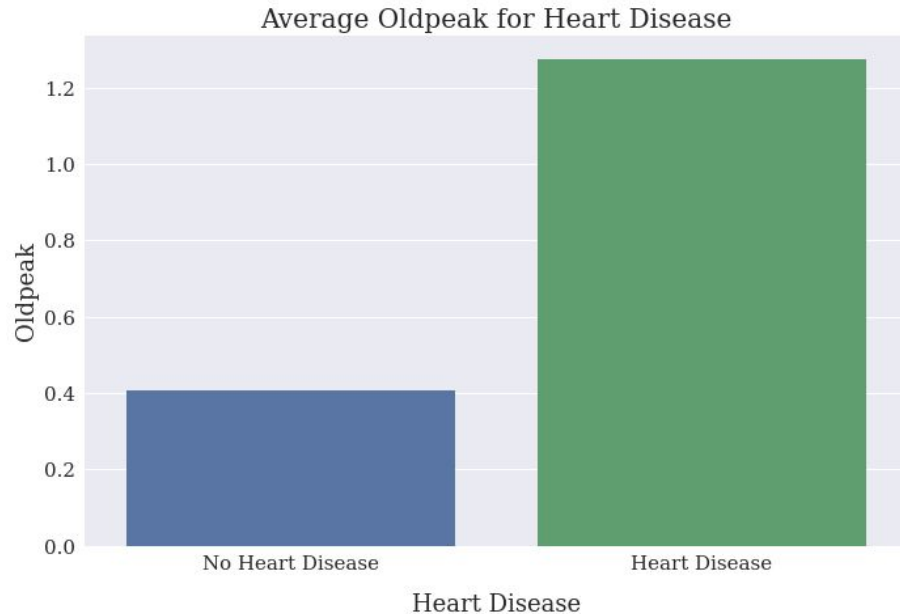
This data contains multiple numeric and categorical data. The numeric data looks at Age, Resting Blood Pressure, , Cholesterol, Max Heart Rate, and Old Peak. While our categorical data that was used to in our models was Sex, Chest Pain Type, Fasting Blood Sugar, Resting ECG, Exercise Angina, and ST Slope.

Insight One


Average Oldpeak for Heart Disease

To understand this graph we first must understand what Oldpeak is. Oldpeak is the depression of the ST Segment on an EKG. This shows us that individuals with heart disease have on average a oldpeak of around 1.2. While those without oldpeak have an oldpeak around 0.4. This tells us that oldpeak is can be explored as prominent feature in predicting heart disease in some individuals.
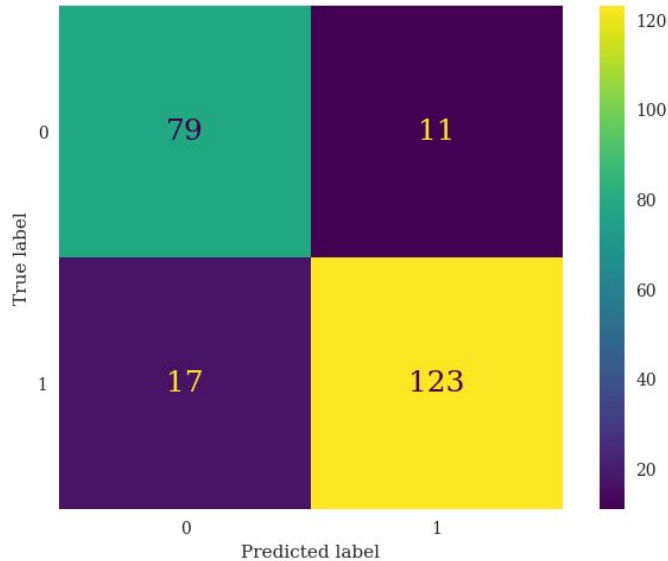
Insight Two

This plot further explores oldpeak; which is the depression of the ST Segment on an EKG. This time we evaluated the the average Oldpeak based on the type of ST Segment the individual has. A lower Oldpeak is seen for those without heart disease

Average Oldpeak for ST Slope compared with Heart Disease
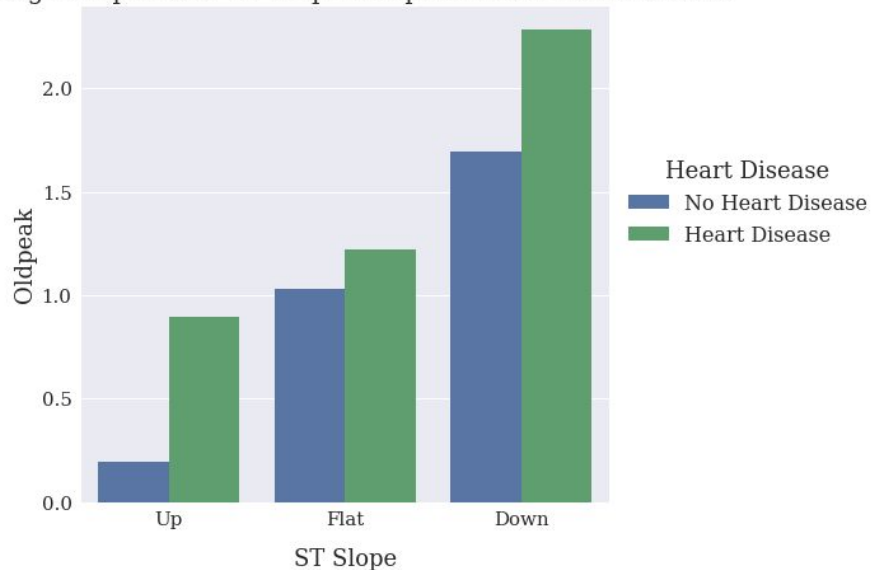
Limitations

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- This model was able to limit false negatives down to 17 on the testing set, But that is still a significant number of individuals being told they don't have heart disease when they actually do and need treatment.

Recommendations

- Do not recommend using this model to predict Heart Disease in its current state, due to the number false negatives.
- Retraining on a larger dataset

Next Steps

Next Steps, would be to work with a Subject Matter expert to find out which features are the most important, and what we could do for feature engineering to better improve the number of false negatives. Minimizing that number is the most important part of being able to properly treat individuals that may have Heart Disease.