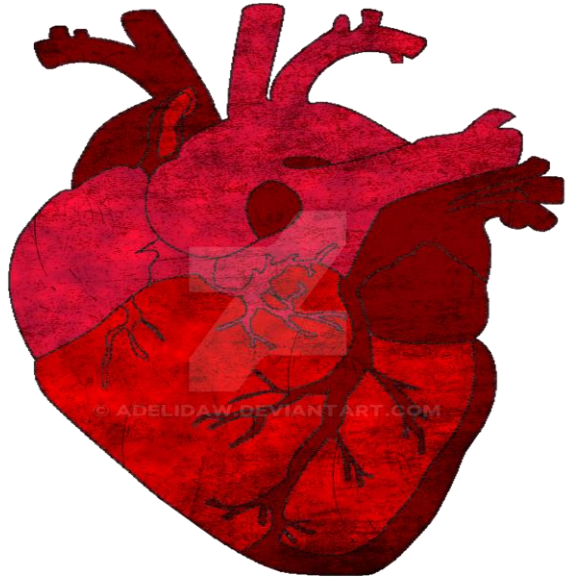


Heart Disease Diagnostic - Analysis

PROJECT REPORT

William Johnson

Project Detail

Project Title	**Heart Disease Diagnostic - Analysis**
Technology	**Business Intelligence**
Domain	**Healthcare**
Project Difficulty level	**Advanced**
Programming Language Used	**Python**
Tools Used	**Jupyter Notebook, MS-Excel, MS-Power BI**

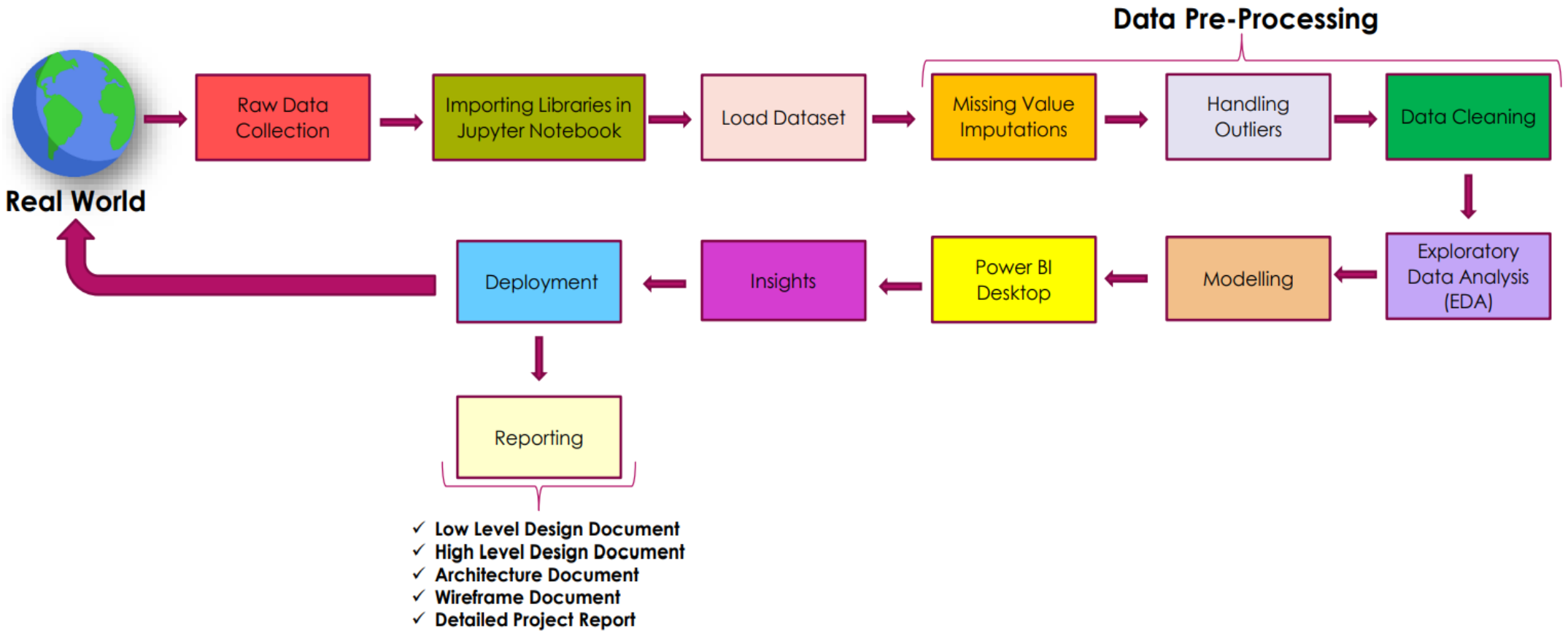
Objective

The goal of this project is to analyze the heart disease occurrence, based on a combination of features that describes the heart disease

Problem Statement

- Health is real wealth in the pandemic time we all realized the brute effects of covid-19 on all irrespective of any status. You are required to analyze this health and medical data for better future preparation
- A dataset is formed by taking into consideration some of the information of 297 individuals

Architecture



Dataset Information

age: The person's age in years

sex: The person's sex (**1 : male, 0 : female**)

cp: The chest pain experienced (**1: typical angina, 2 : atypical angina, 3 : non-anginal pain, 4 : asymptomatic**)

trestbps: The person's resting blood pressure (**mm Hg** on admission to the hospital)

fbs: The person's fasting blood sugar **(> 120 mg/dl, 1 : true; 0 : false**)

restecg: Resting electrocardiographic measurement **(0 : normal, 1 : having ST-T wave abnormality, 2 : showing probable or definite left ventricular hypertrophy by Estes' criteria**)

chol: The person's cholesterol measurement in **mg/dl**

thalach: The person's maximum heart rate achieved

exang: Exercise induced angina (**1 : yes; 0 : no**)

oldpeak: ST depression induced by exercise relative to rest

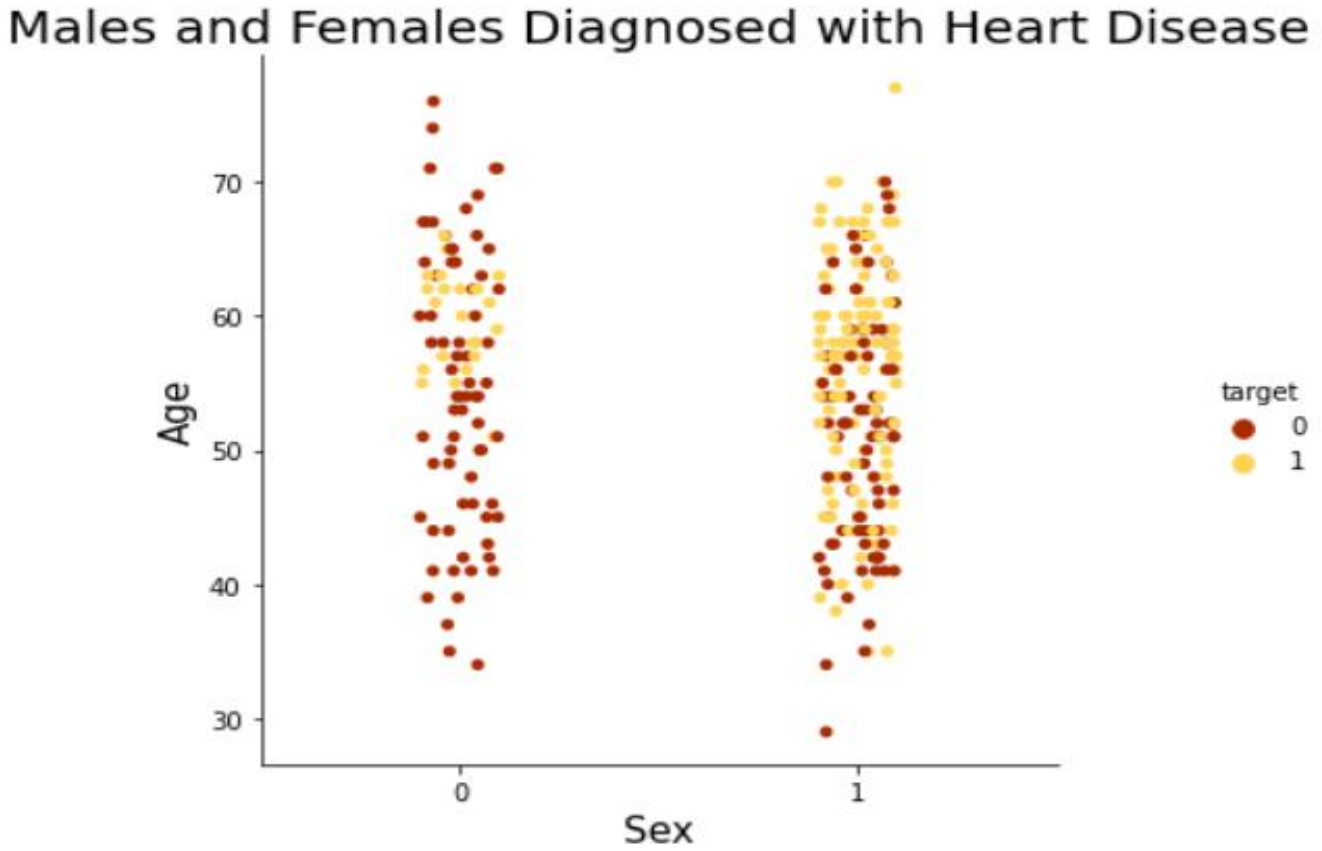
Slope : the slope of the peak exercise ST segment (**1 : upsloping, 2 : flat, 3 : down sloping**)

ca: The number of major vessels (**0 - 3**)

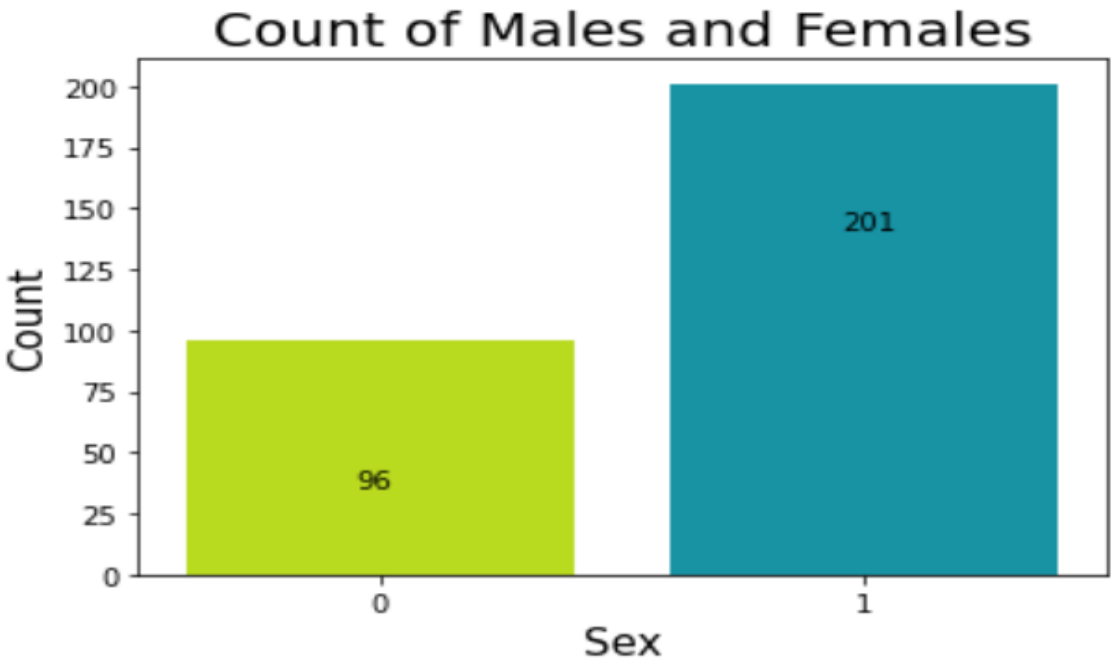
Thal : a blood disorder called thallasemia(**3 : normal, 6 = fixed defect; 7 =reversable defect**)

num: Heart disease (**0 : no, 1 : yes**)

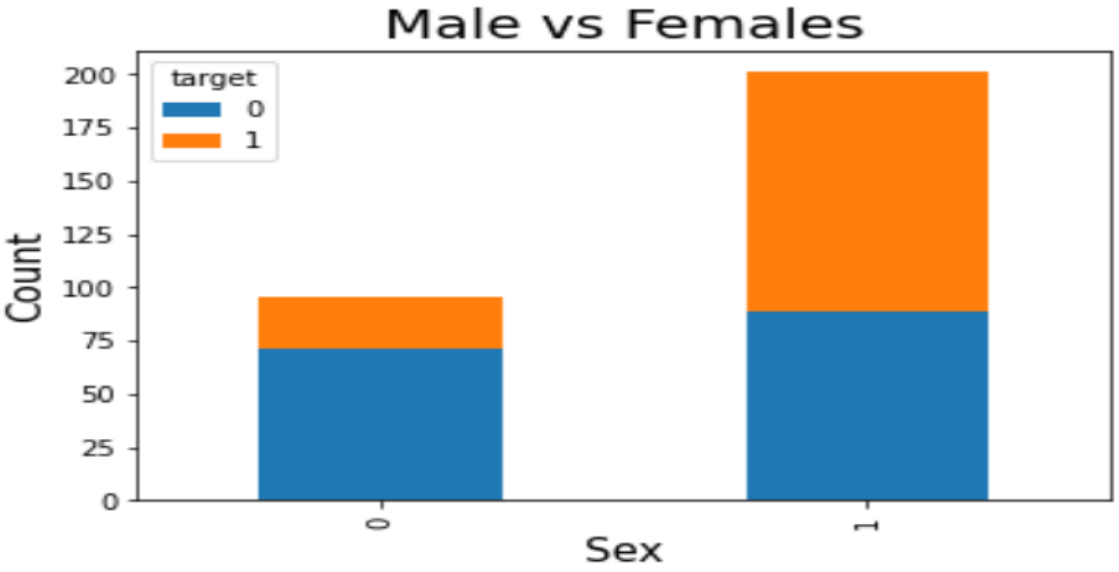
Insights



- From the plot it is understood that females are less likely to have heart disease than males
- We can also see that chances of females getting a heart disease increases between the age of 55 and 65 years
- And the chances of males getting a heart disease increases above 45 years of age

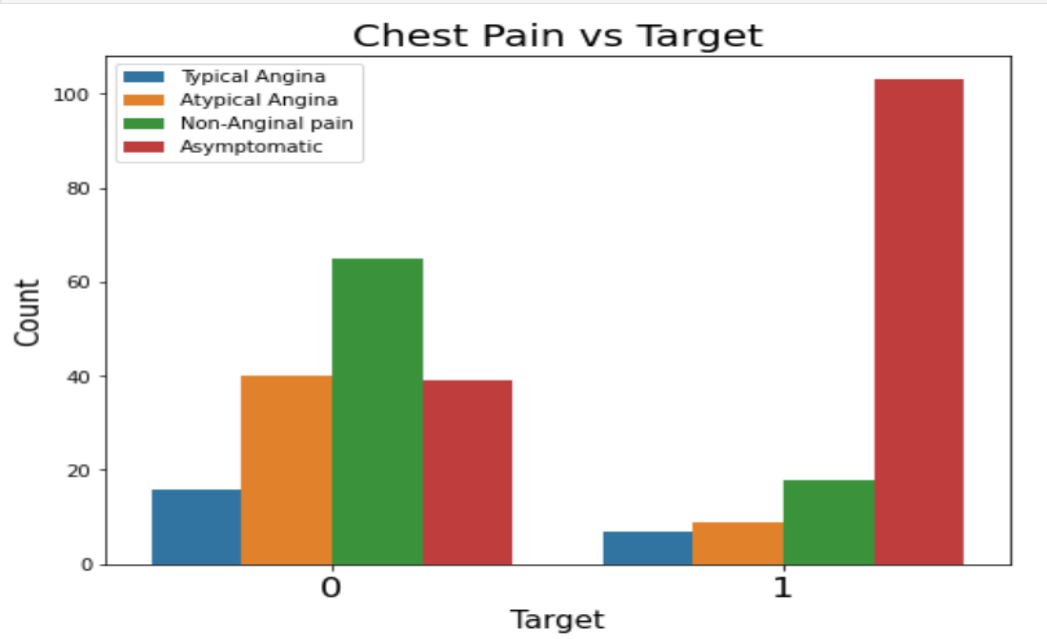


- As the number of males is comparatively higher than the number of females, we may not get accurate results when we are doing gender comparisons with different features

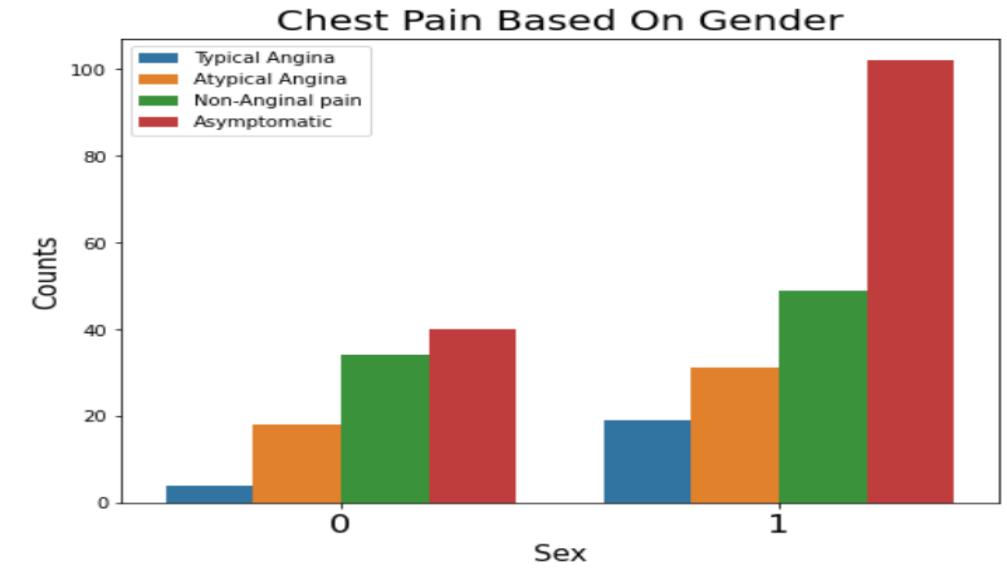


- Females not having heart disease is 71 and having heart disease is 25

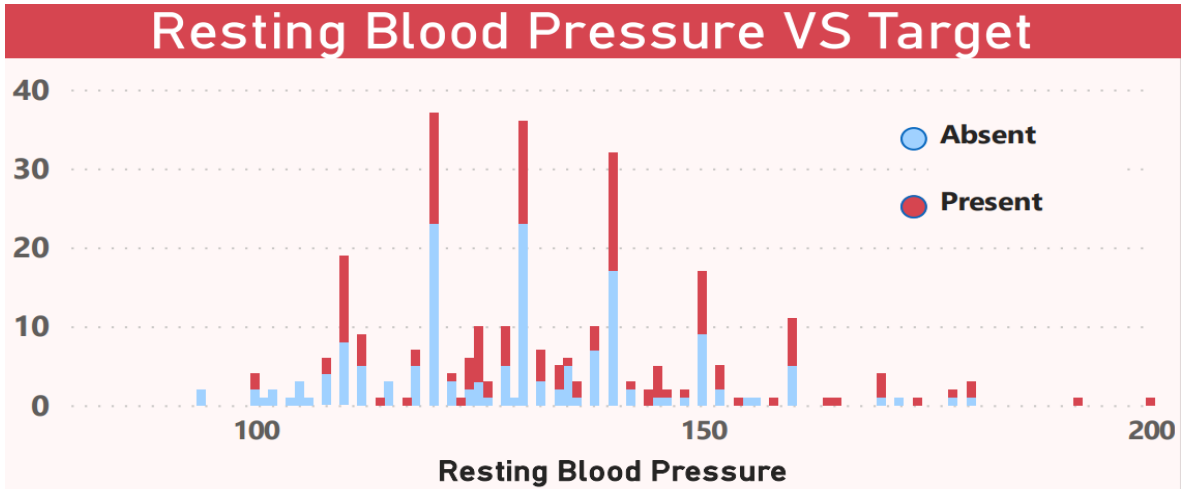
- Males not having heart disease is 89 and having heart disease is 112



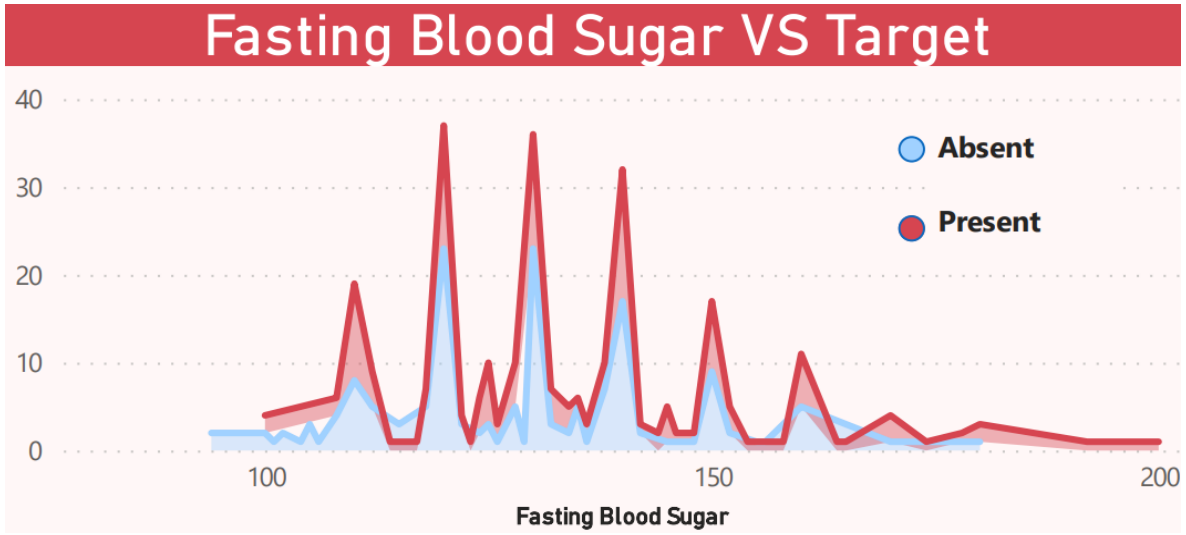
- Patients suffering from asymptomatic chest pain are more susceptible to having heart diseases Asymptomatic Chest pain means shows no symptoms of heart disease, it is medically known as silent myocardial infarction



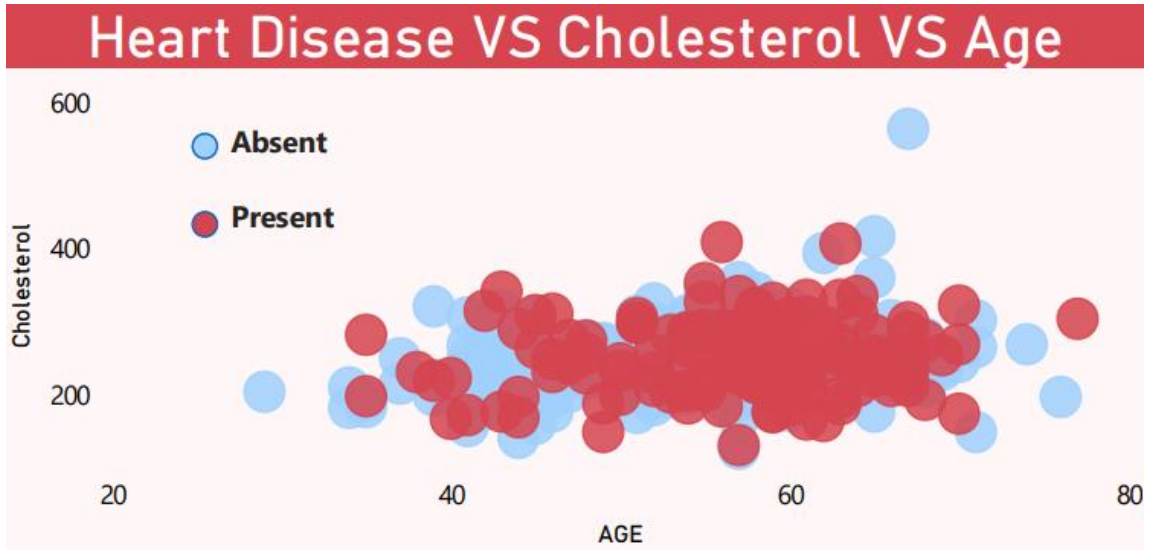
- We can see that men are more susceptible from asymptomatic type of Chest Pain



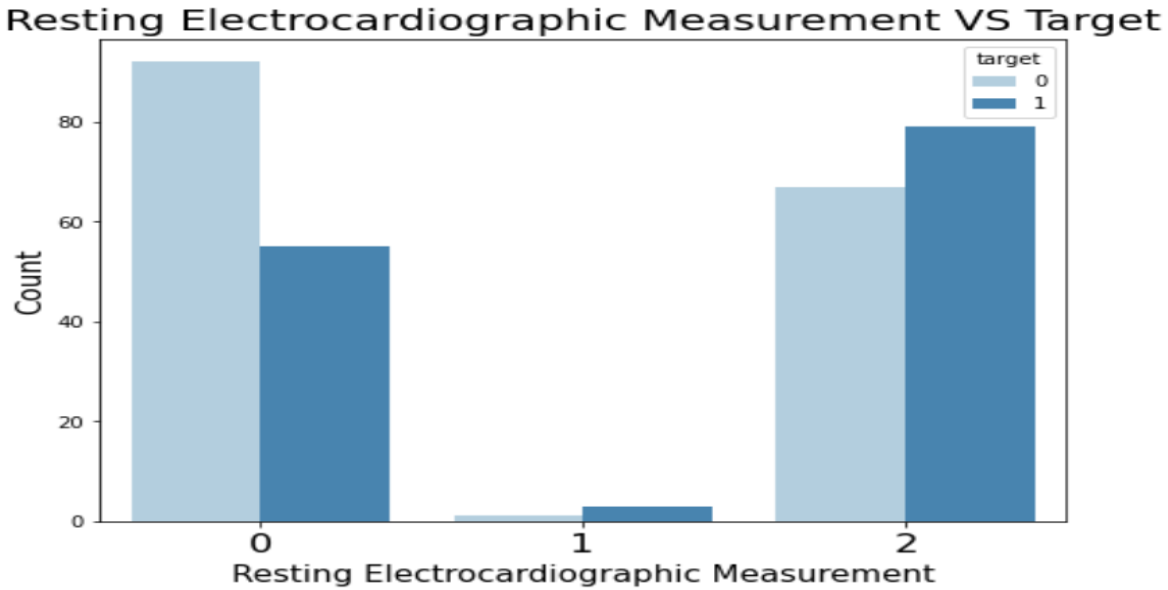
- The plot we can see that blood pressure 140 or higher indicates that the target individual has heart disease



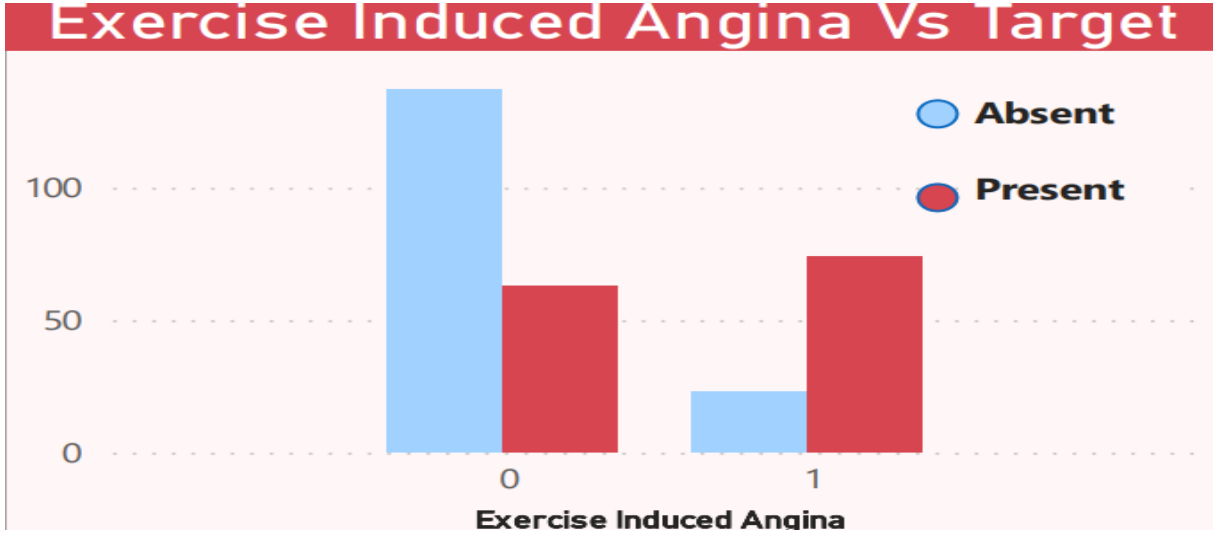
- Patients having fasting blood sugar >120 mg/dl have higher chances of having heart diseases



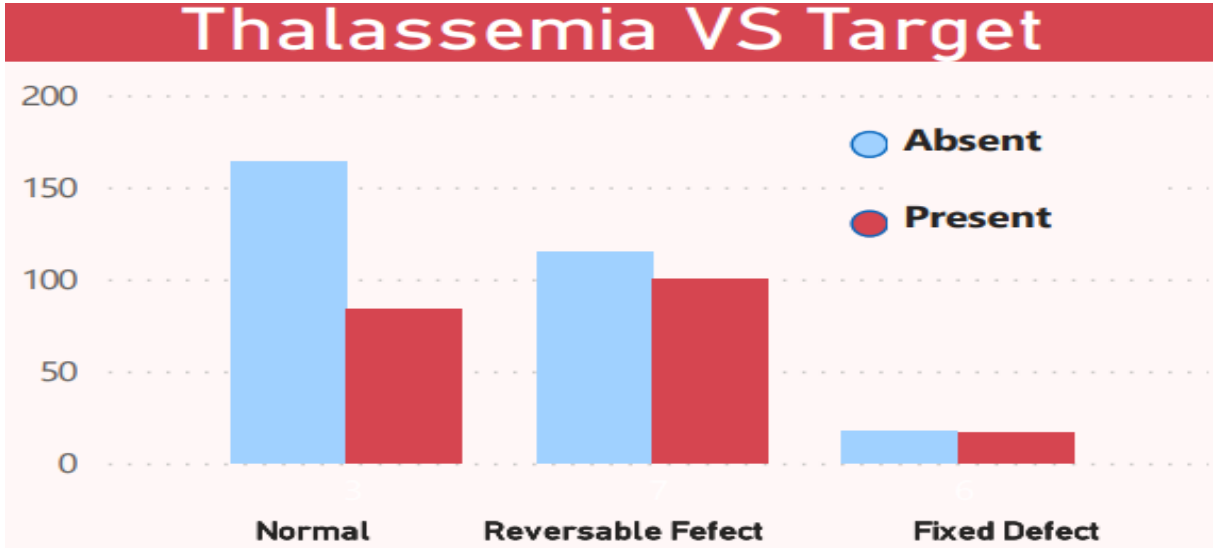
- Individuals having cholesterol level between 250 and above have a higher chances of getting heart diseases



- We can see that the patients diagnosed with symmetric T waves and left ventricular hypertrophy are prone to getting diagnosed with heart diseases



- Exercise induced anginal pain have slightly higher chances of getting heart diseases than without exercise induced pain



- People are more prone to heart diseases having fixed defect and reversable defect

Conclusion

- 46.13% People suffering from heart disease
- The number of males is comparatively higher than the number of females, we may not get accurate results when we are doing gender comparisons with different features
- People having asymptomatic chest pain have a higher chance of heart disease
- High number of cholesterol level in people having heart disease
- People are more prone to heart diseases having fixed defect and reversable defect thalassemia
- Blood pressure 140 or higher indicates that the target individual has heart disease
- Patients having fasting blood sugar >120 mg/dl have higher chances of having heart diseases
- Further study of outliers are needed to make more accurate analysis

Q & A

Q1) What's the source of data?

Ans) The Dataset was taken from iNeuron's Provided Project Description Document.
https://drive.google.com/drive/folders/165Pjmfb9W9PGy0rZjHEA22LW0Lt3Y-Q8

Q2) What was the type of data?

Ans) The data was the combination of numerical and Categorical values.

Q 3) What's the complete flow you followed in this Project?

Ans) Refer slide 5th for better Understanding

Q4) What techniques were you using for data?

Ans) Removing unwanted attributes -Visualizing relation of independent variables with each other and output variables -Cleaning data and imputing if null values are present. -Converting Numerical data into Categorical values

Q 6) What were the libraries that you used in Python?

Ans) I used Pandas, NumPy and Matplotlib and Seaborn libraries in Pandas.

THANK YOU