

# Heart Disease Diagnostic Analysis

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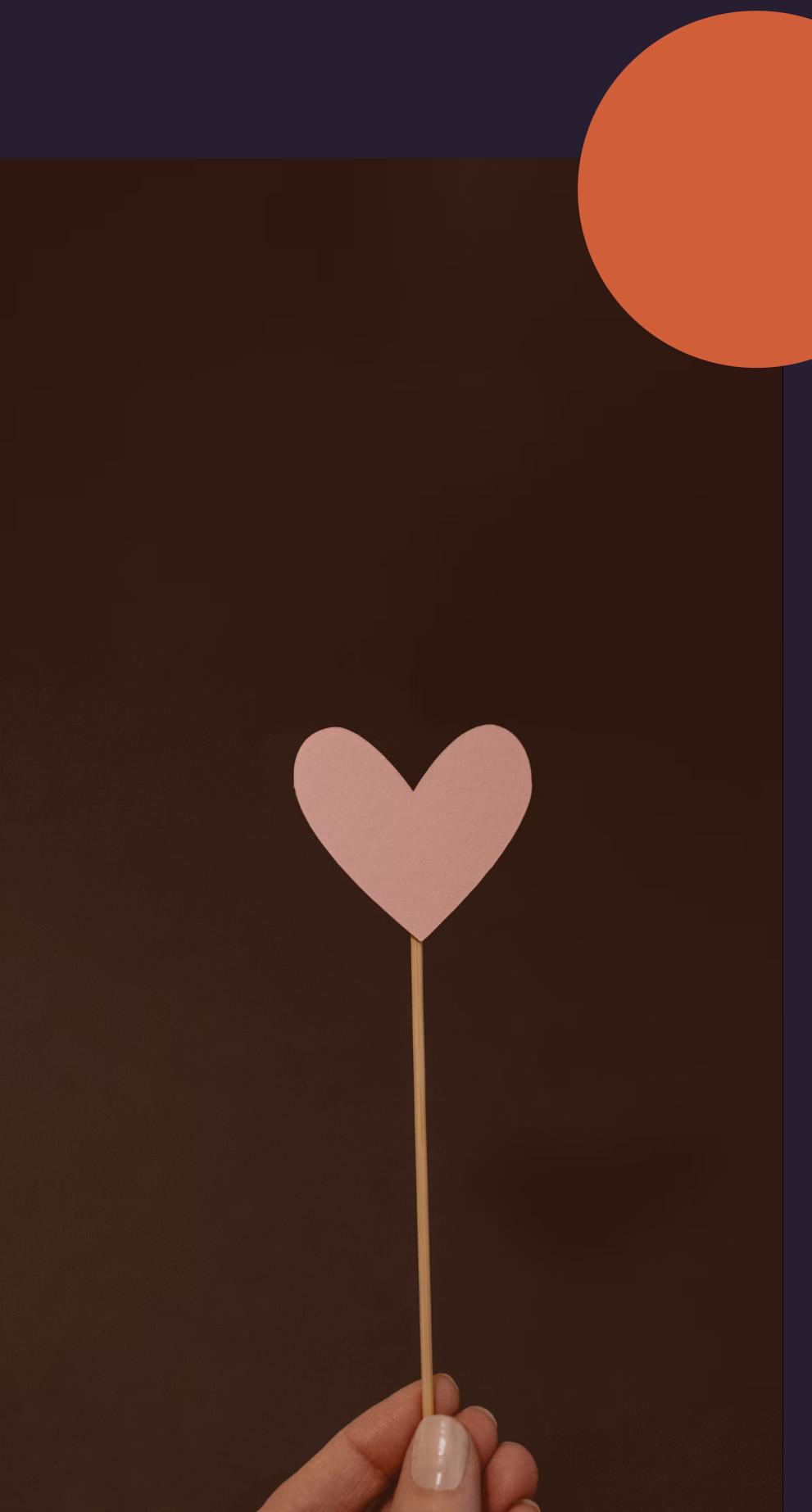
**1. Introduction**

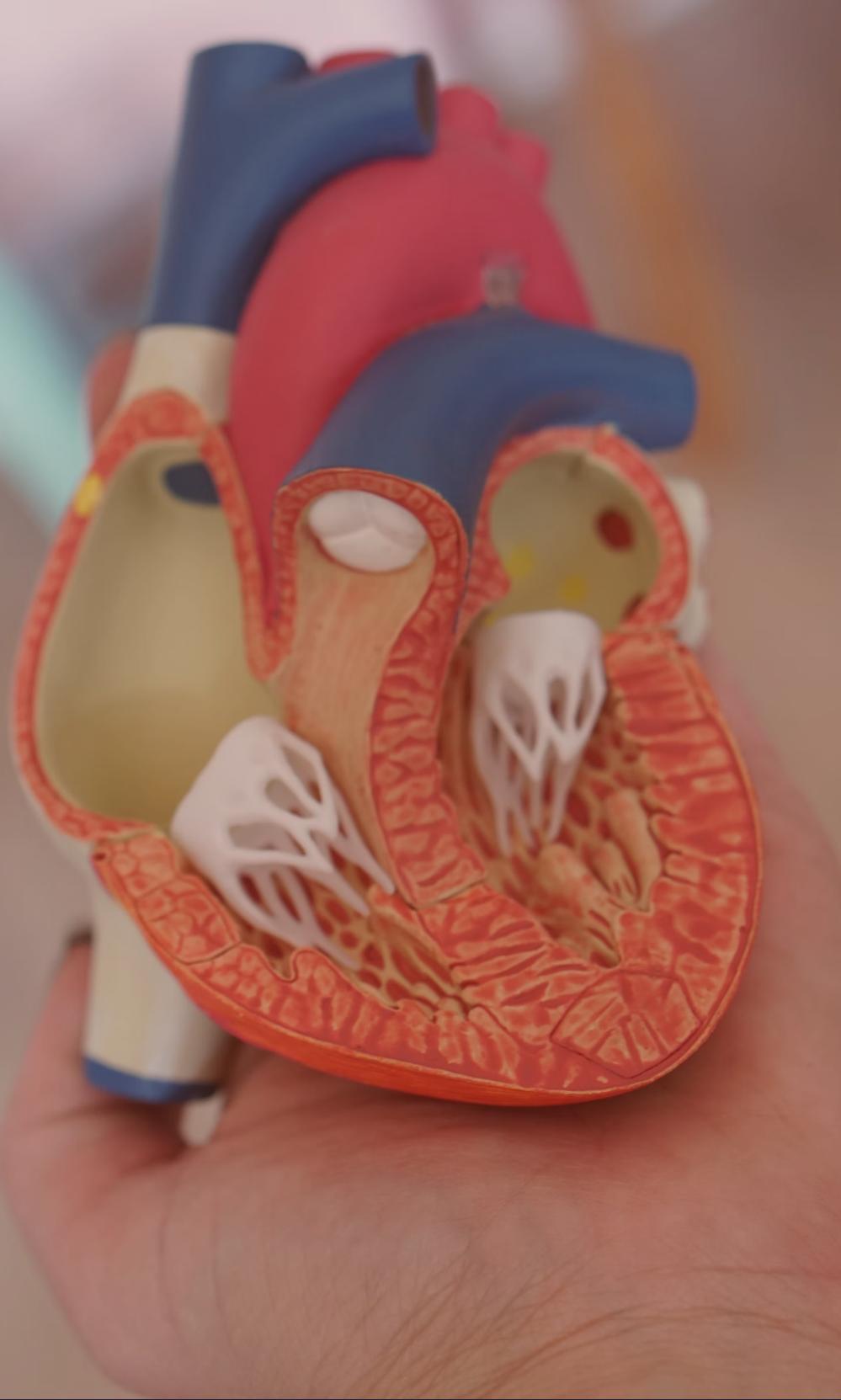
**2. Process**

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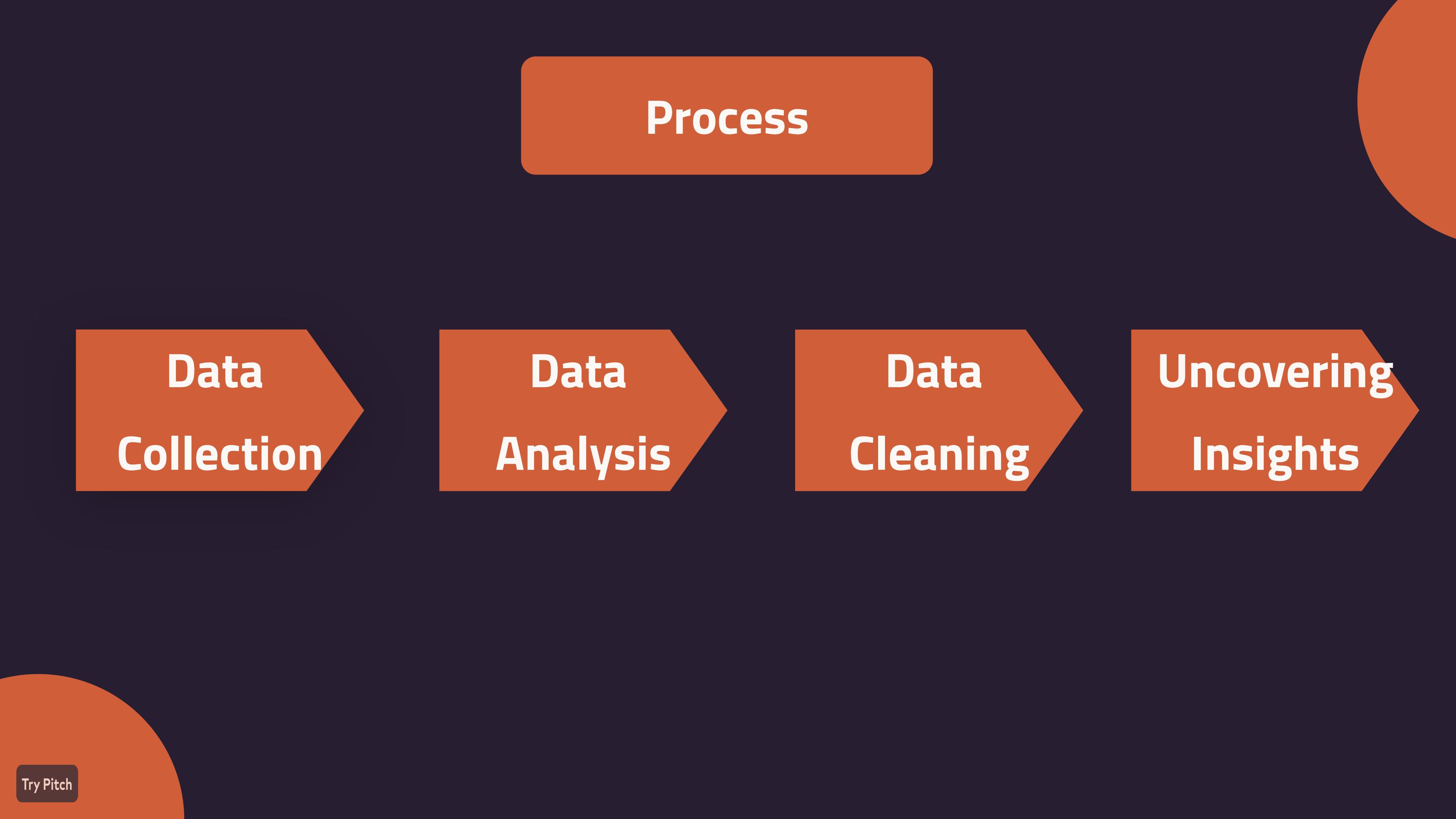


# Introduction

The Heart disease diagnostic Analysis aims to provide the comprehensive overview on presence and absence of the Heart disease but on the given parameters and provide insights that involves the Reasons for the Heart disease.

- There are fourteen features in Dataset :
  1. **age:** The person's age in years
  2. **sex:** The person's sex (1 = male, 0 = female)
  3. **cp:** The chest pain experienced (Value 1: typical angina, Value 2: atypical angina, Value 3: non-anginal pain, Value 4: asymptomatic)
  4. **trestbps:** The person's resting blood pressure (mm Hg on admission to the hospital)
  5. **chol:** The person's cholesterol measurement in mg/dl

6. fbs: The person's fasting blood sugar (> 120 mg/dl, 1 = true; 0 = false)
7. restecg: Resting electrocardiographic measurement (0 = normal, 1 = having ST-T wave abnormality, 2 = showing probable or definite left ventricular hypertrophy by Estes' criteria)
8. thalach: The person's maximum heart rate achieved
9. exang: Exercise induced angina (1 = yes; 0 = no)
10. oldpeak: ST depression induced by exercise relative to rest
11. slope: the slope of the peak exercise ST segment (Value 1: upsloping, Value 2: flat, Value 3: downsloping)
12. ca: The number of major vessels (0-3)
13. thal: A blood disorder called thalassemia (3 = normal; 6 = fixed defect; 7 = reversible defect)
14. target: Heart disease (0 = no, 1 = yes)



**Data  
Collection**

**Data  
Analysis**

**Data  
Cleaning**

**Uncovering  
Insights**

**Process**

# HEART DISEASE DIAGNOSTIC ANALYSIS

NumPy

Pandas

Matplotlib

Gender

All

Disease

 0  1

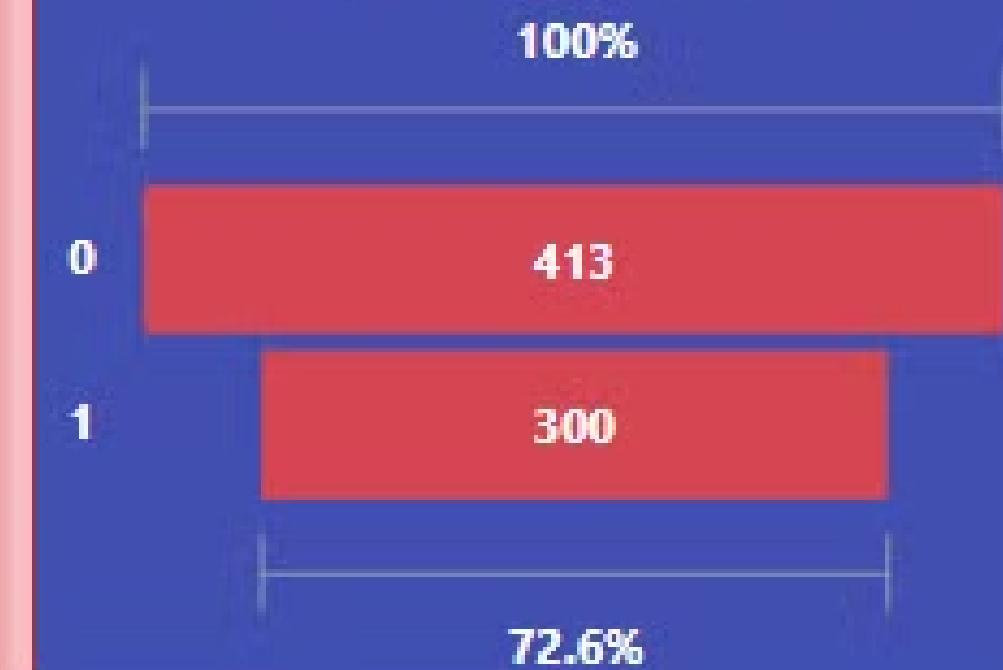
Heart Disease Presence  
Absence



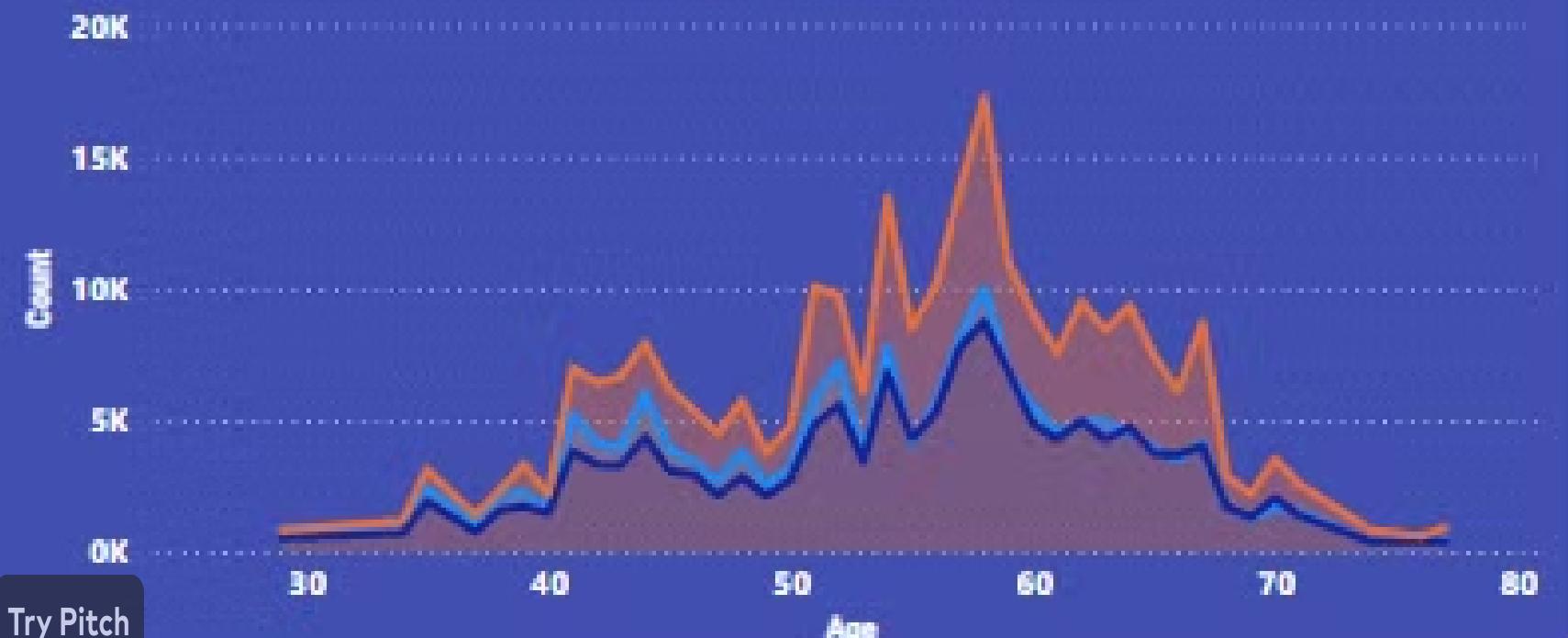
Age Distribution



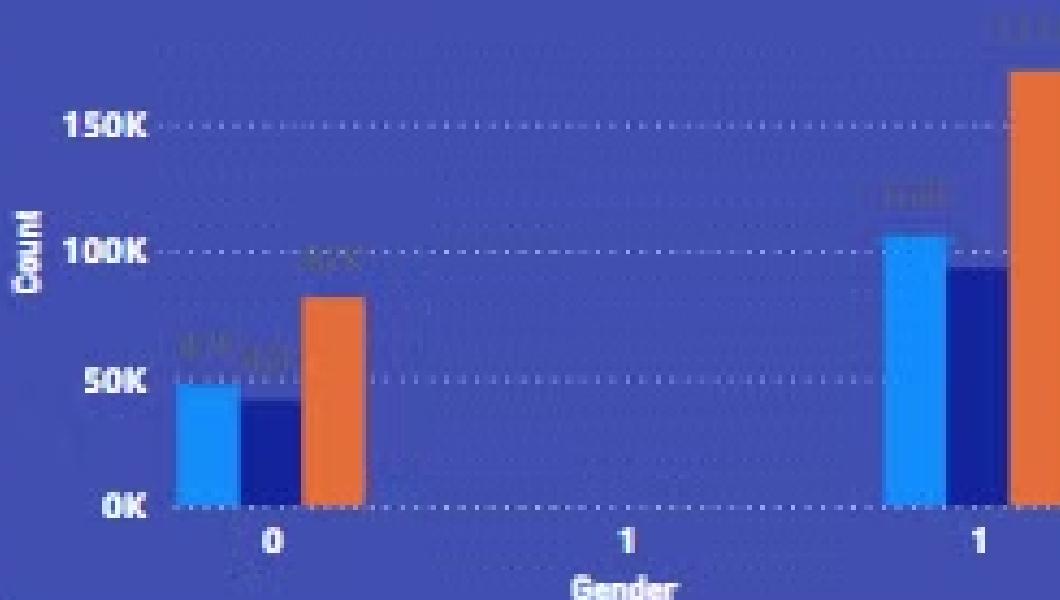
Distribution by Gender



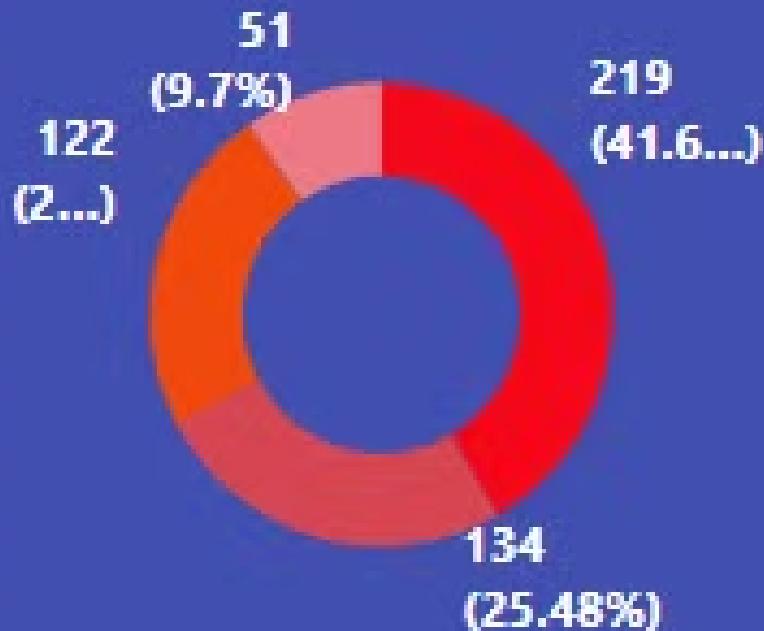
Blood Pressure, Heart Rate, Cholesterol by Age



Blood Pressure, Heart rate,  
Cholesterol by Gender

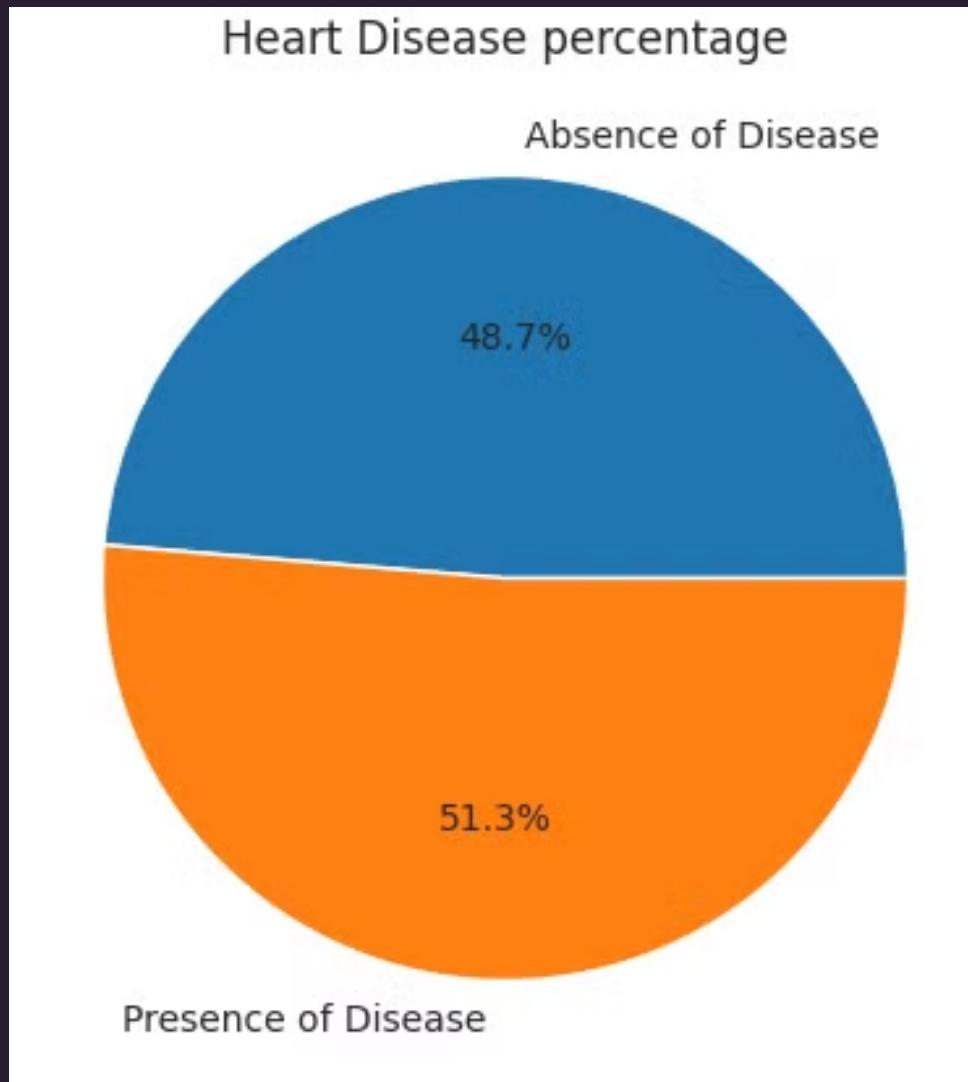


Disease by cholesterol

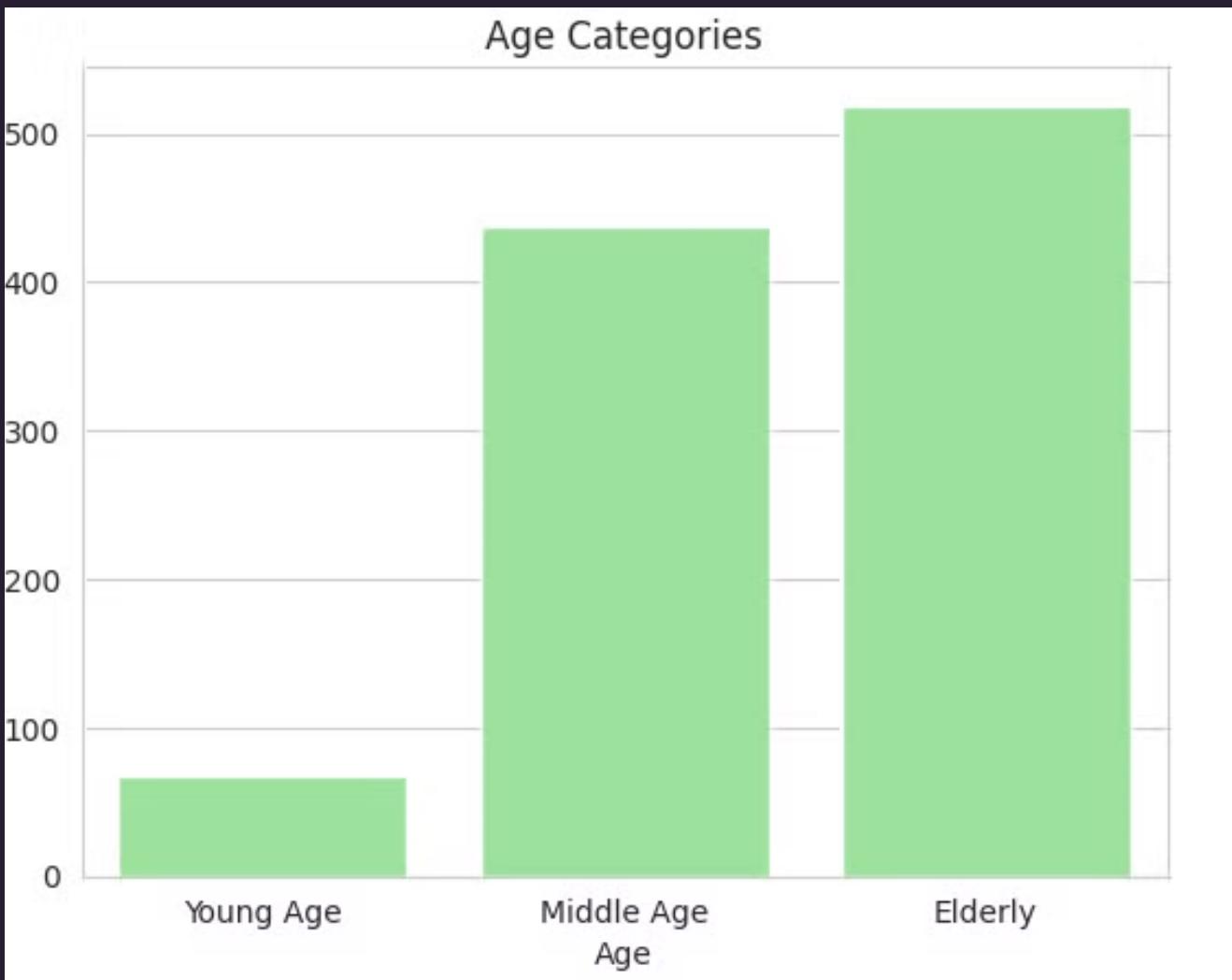


# Insights

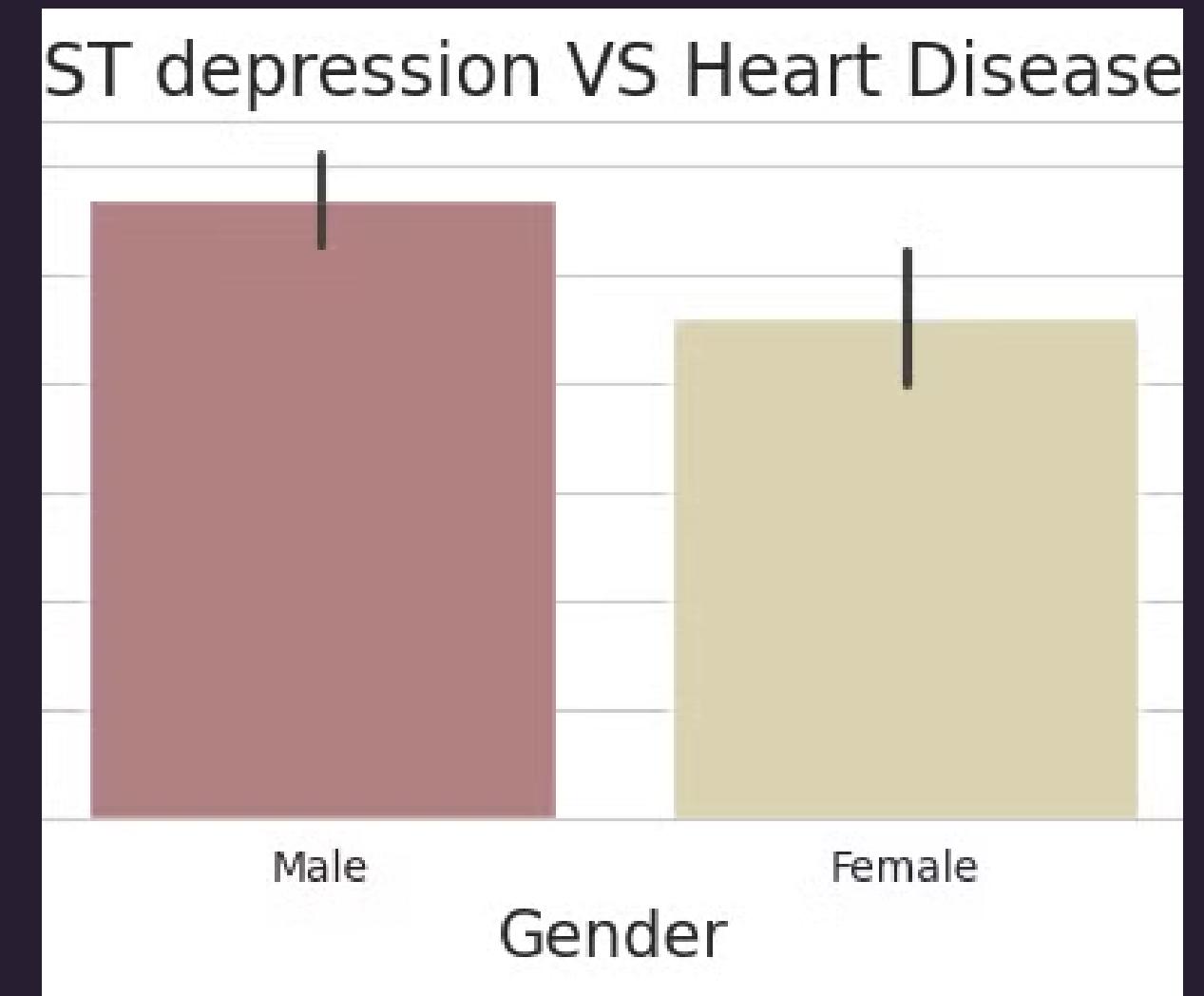
## Percentage of Heart Disease Present



## Heart Disease present based on Age Category

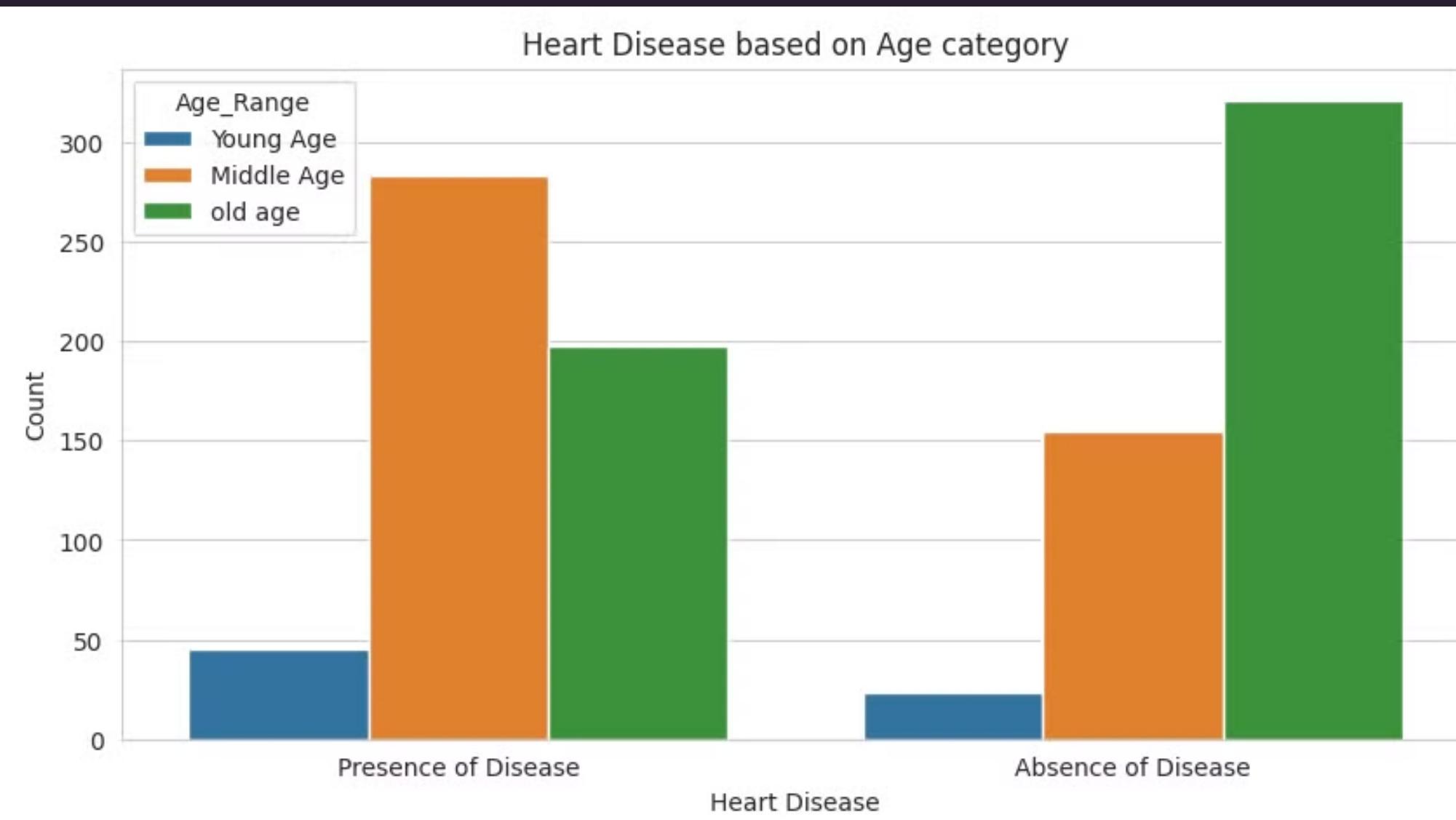


## ST Depression VS Heart Disease

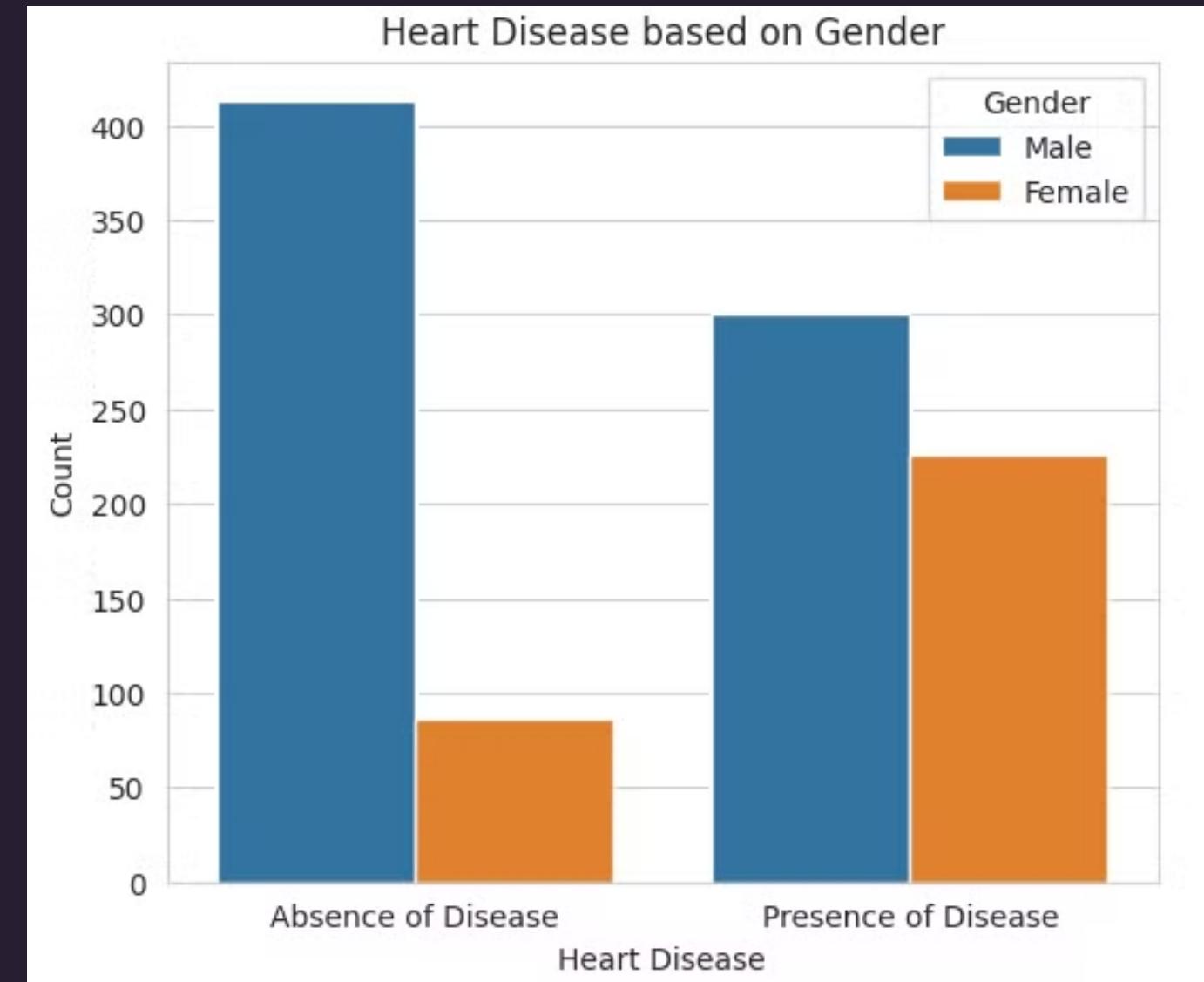


1. From the overall population, people having heart disease (51.3%) are lesser than those who have heart disease(48.7%)
2. In this section, the best analysis can be divided into the elderly, middle-aged, young people by looking at the age ranges. Elder age people more prone to heart disease.
3. More Males are prone to ST depression as compare to females.

## Heart Disease Based on Age Category

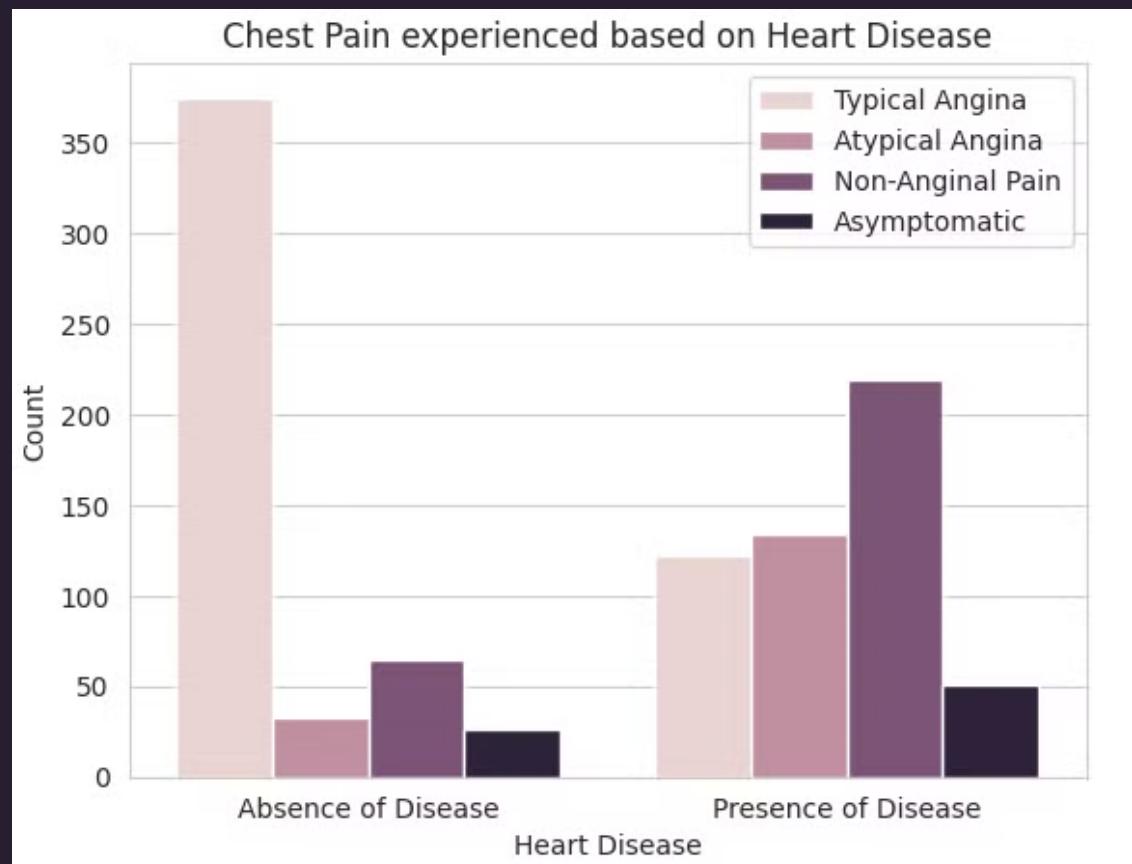


## Heart Disease Based on Gender

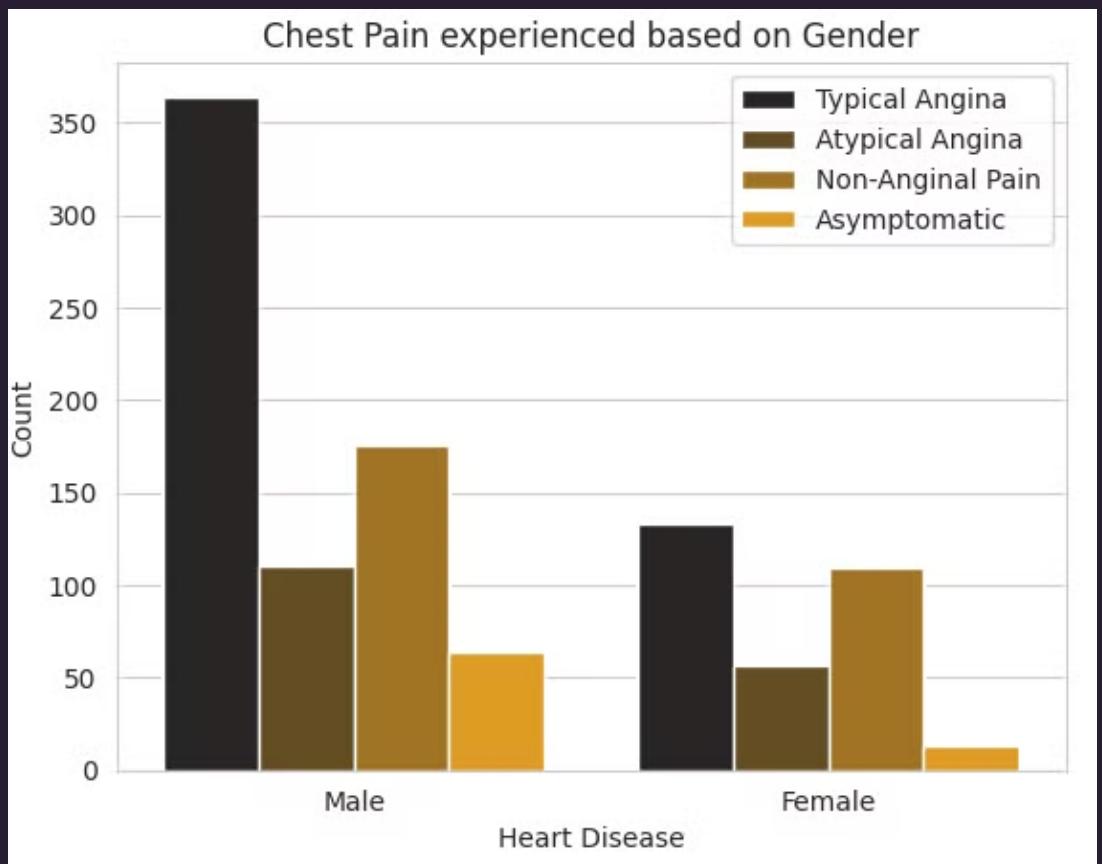


1. Middle Age People are most affected by Heart Disease AND Old Age People are mostly FREE from any kind of Heart Disease.
2. We can see that Males are more prone to Heart Disease than the Females.

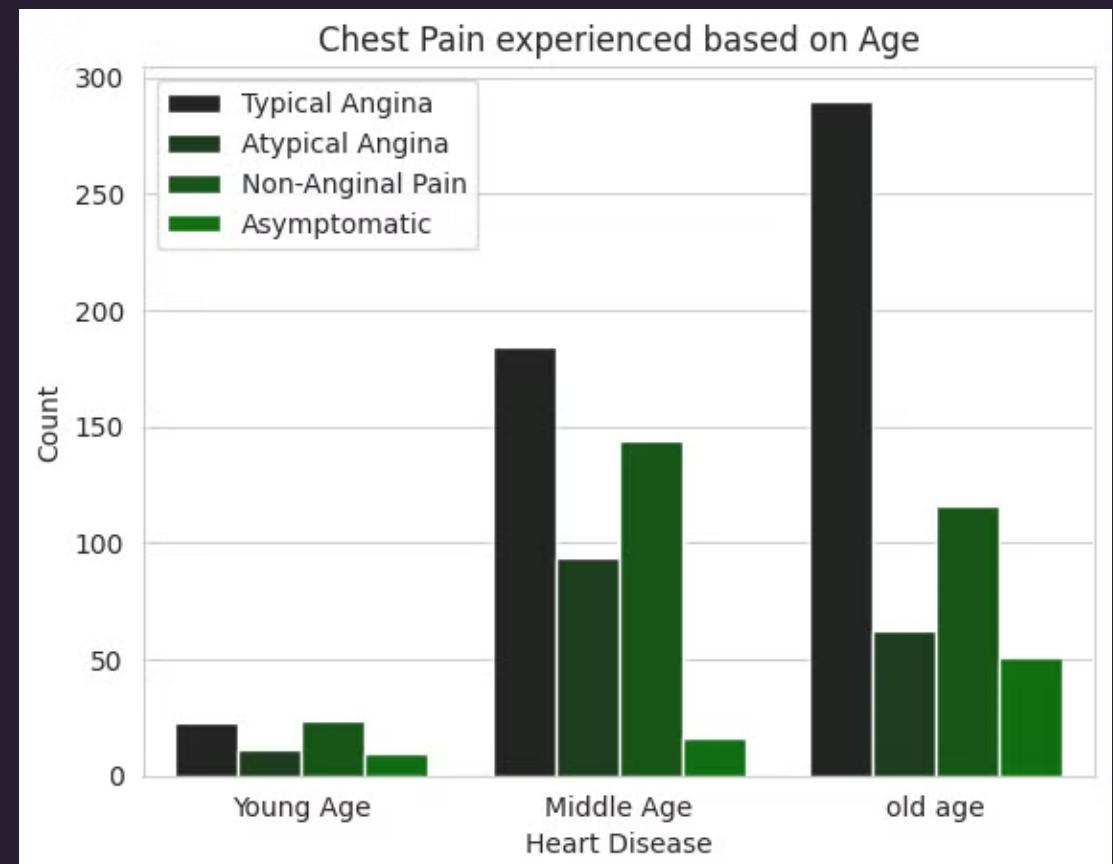
## Chest Pain experience based on Heart Disease



## Chest Pain Experienced Based on Gender

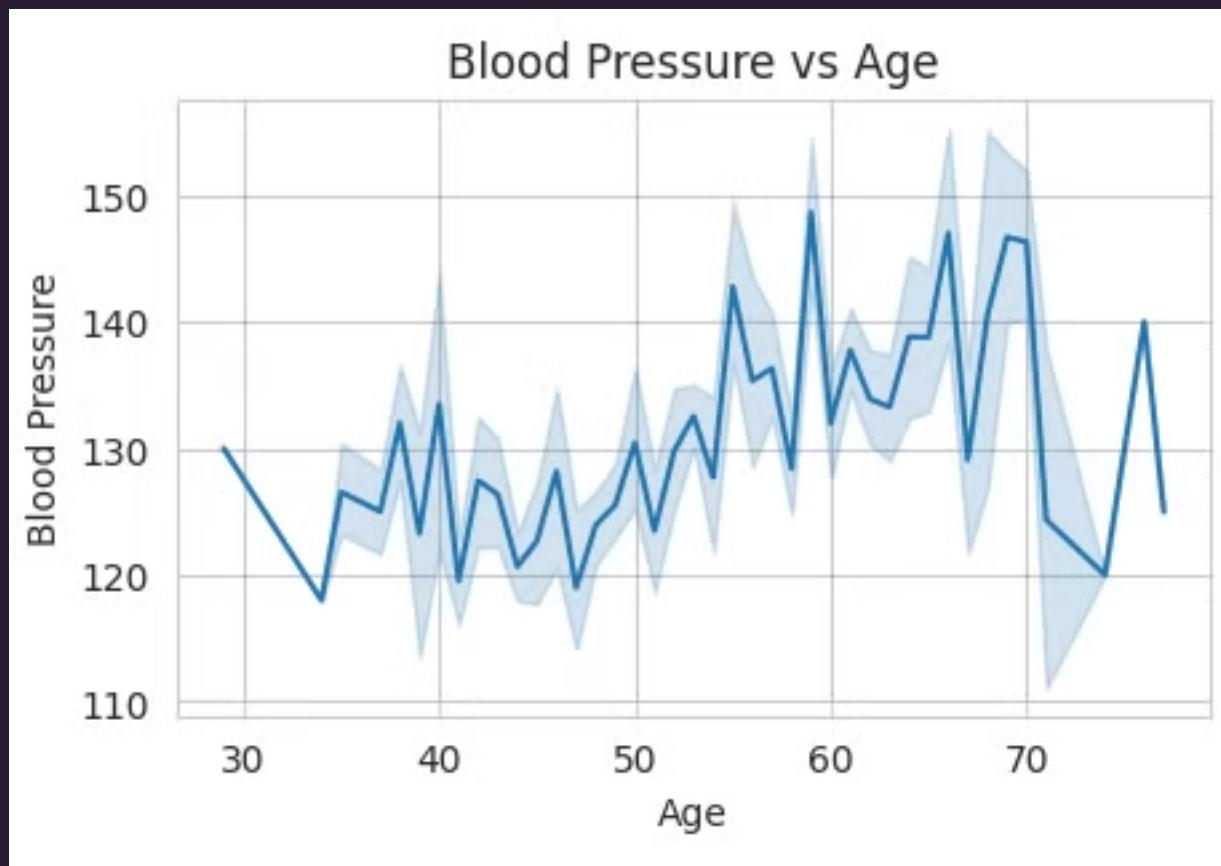


## Chest Pain Experienced Based On Age Category

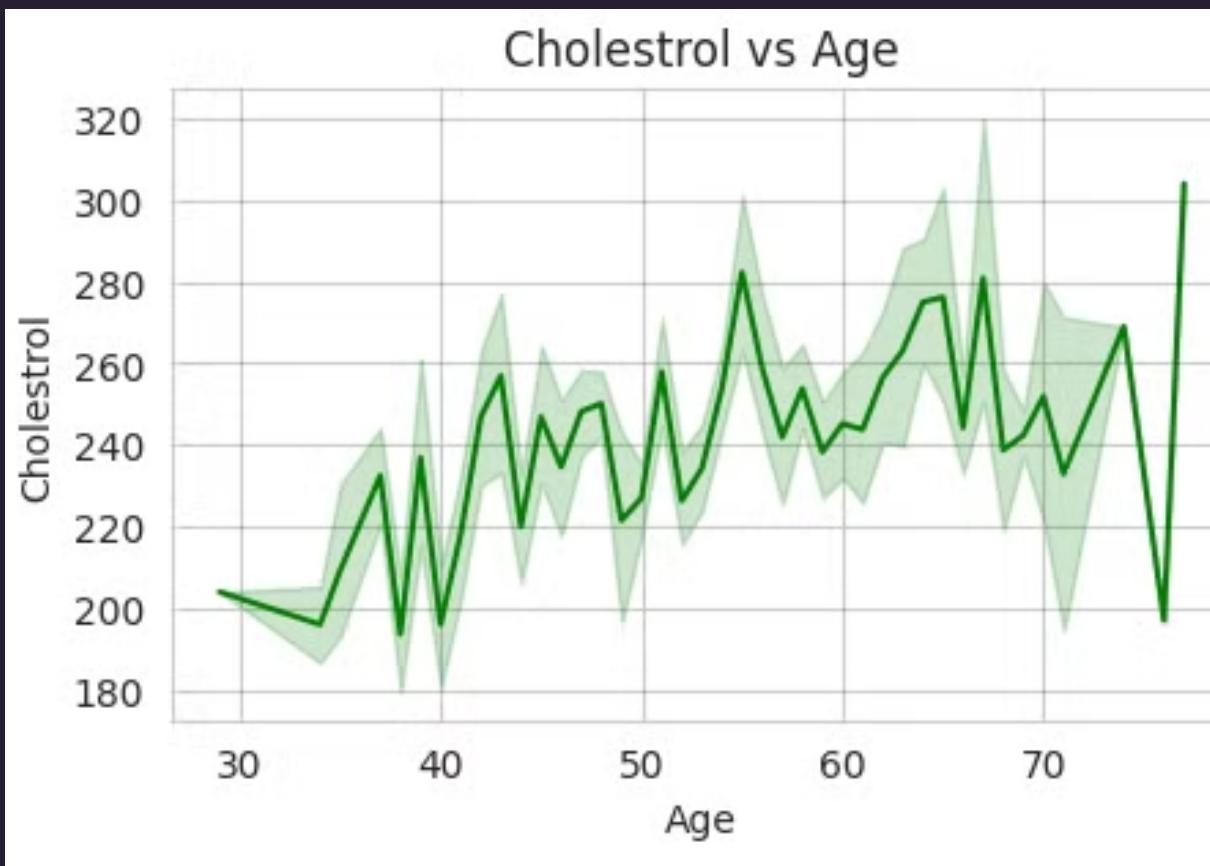


1. It seems people having Typical Angina chest pain have a higher chance of heart disease.
2. We can see that a higher number of men are suffering from Typical Angina type of Chest Pain than Females.
3. There is very high number of Typical Angina Chest Pain in old age Category

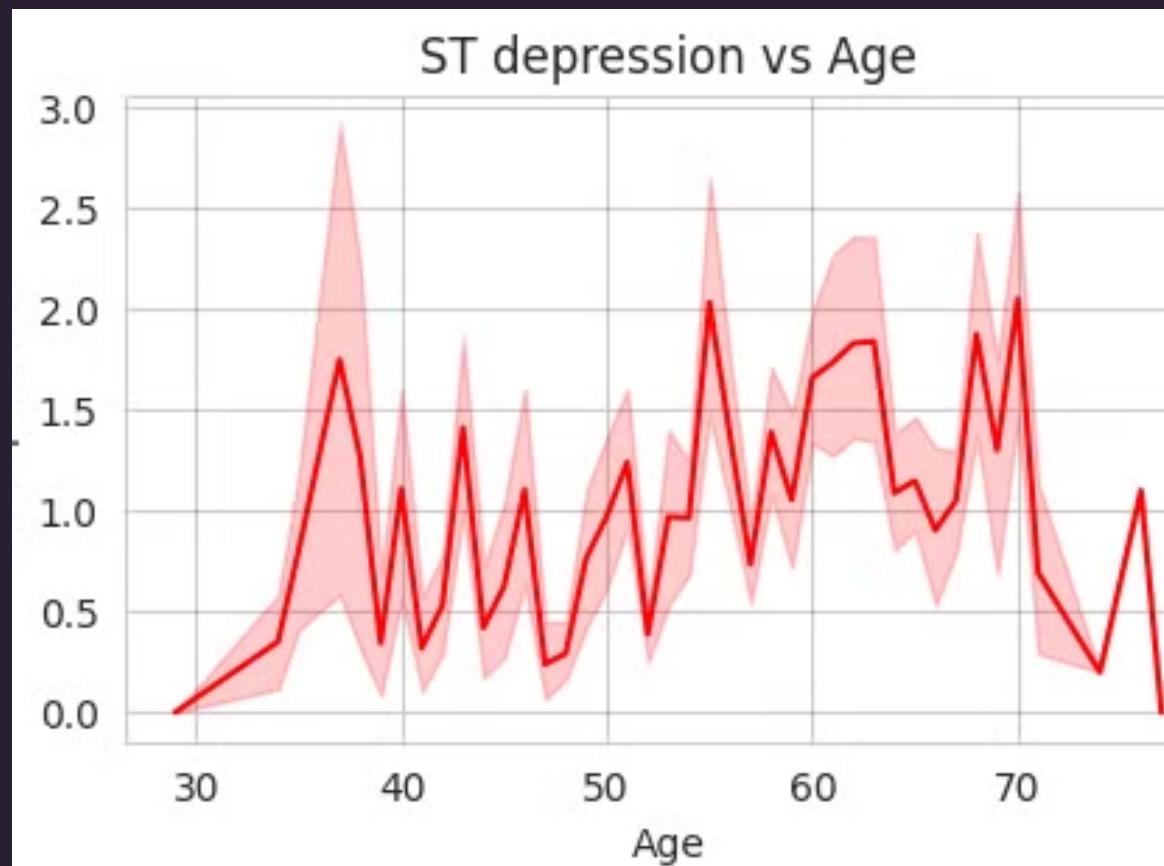
## Blood Pressure VS Age



## Cholesterol VS Age



## ST Depression VS Age



1. Here we can observe that Blood Pressure increases between age of 50 to 60 and somehow continue the pattern till 70.
2. Similarly Cholesterol Increasing in the age group of 50-60 and continue till 70.
3. we can observe from here that ST depression mostly increases between the age group of 30-40.

ST depression refers to a finding on an electrocardiogram, wherein the trace in the ST segment is abnormally low below the baseline.

## Summary

**From the analysis on Heart Disease we can observe :**

- 1. From the overall population, people having heart disease (51.3%) are lesser than those who have heart disease(48.7%)**
- 2. More Males are prone to ST depression as compare to females.**
- 3. Middle Age People are most affected by Heart Disease AND Old Age People are mostly FREE from any kind of Heart Disease.**
- 4. Males are more prone to Heart Disease than the Females.**
- 5. People having Typical Angina chest pain have a higher chance of heart disease.**
- 6. Higher number of men are suffering from Typical Angina type of Chest Pain.**
- 7. There is very high number of Typical Angina Chest Pain in old age Category**
- 8. Blood Pressure increases between age of 50 to 60 and somehow continue the pattern till 70.**
- 9. Similarly Cholesterol Increasing in the age group of 50-60 and continue till 70.**
- 10. we can observe from here that ST depression mostly increases between the age group of 30-40.**