

# HEART DISEASE DIAGNOSTIC – ANALYSIS

## DETAILED PROJECT REPORT

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# PROJECT DETAIL

|                          |                                     |
|--------------------------|-------------------------------------|
| PROJECT TITLE            | HEART DISEASE DIAGNOSTIC - ANALYSIS |
| TECHNOLOGY               | BUSINESS INTELLIGENCE               |
| DOMAIN                   | HEALTHCARE                          |
| PROJECT DIFFICULTY LEVEL | ADVANCED                            |
| PROGRAMMING LANGUAGE     | PYTHON                              |
| TOOLS USED               | JUPYTER NOTEBOOK, POWER-BI          |

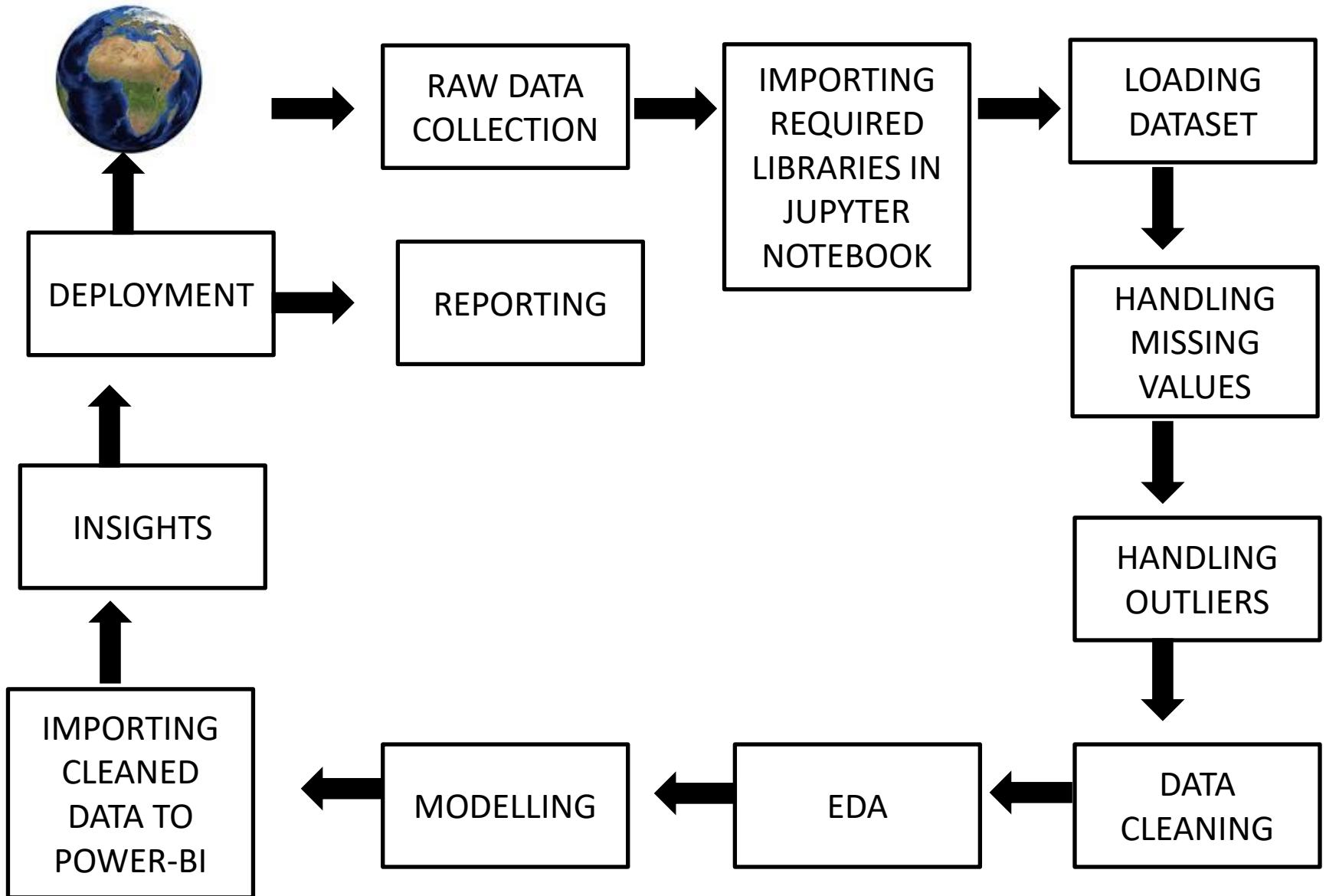
# OBJECTIVE

- The goal of this project is to analyze the data to understand the factors that related to heart disease and its occurrence based on the combination of features that describe 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.

# ARCHITECTURE

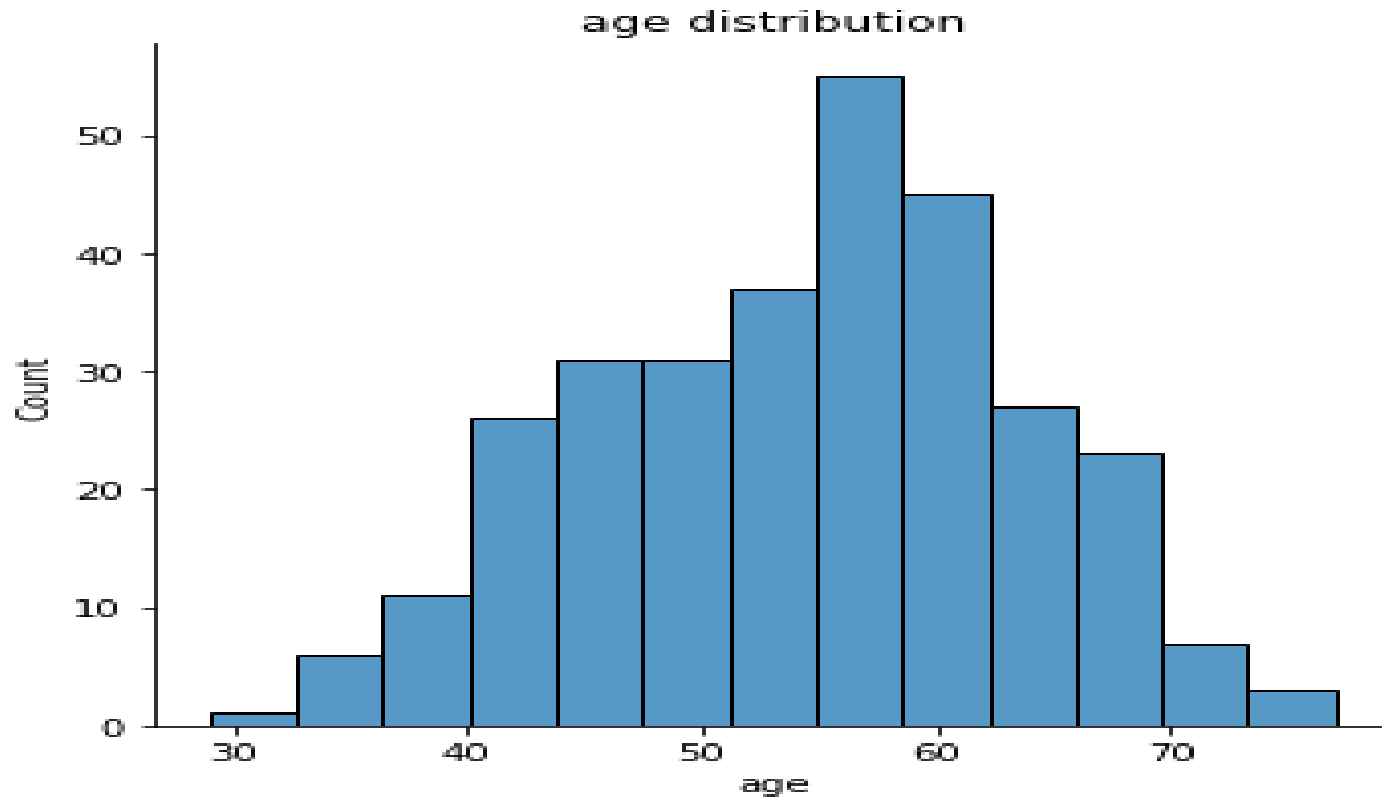


# DATASET INFORMATION

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

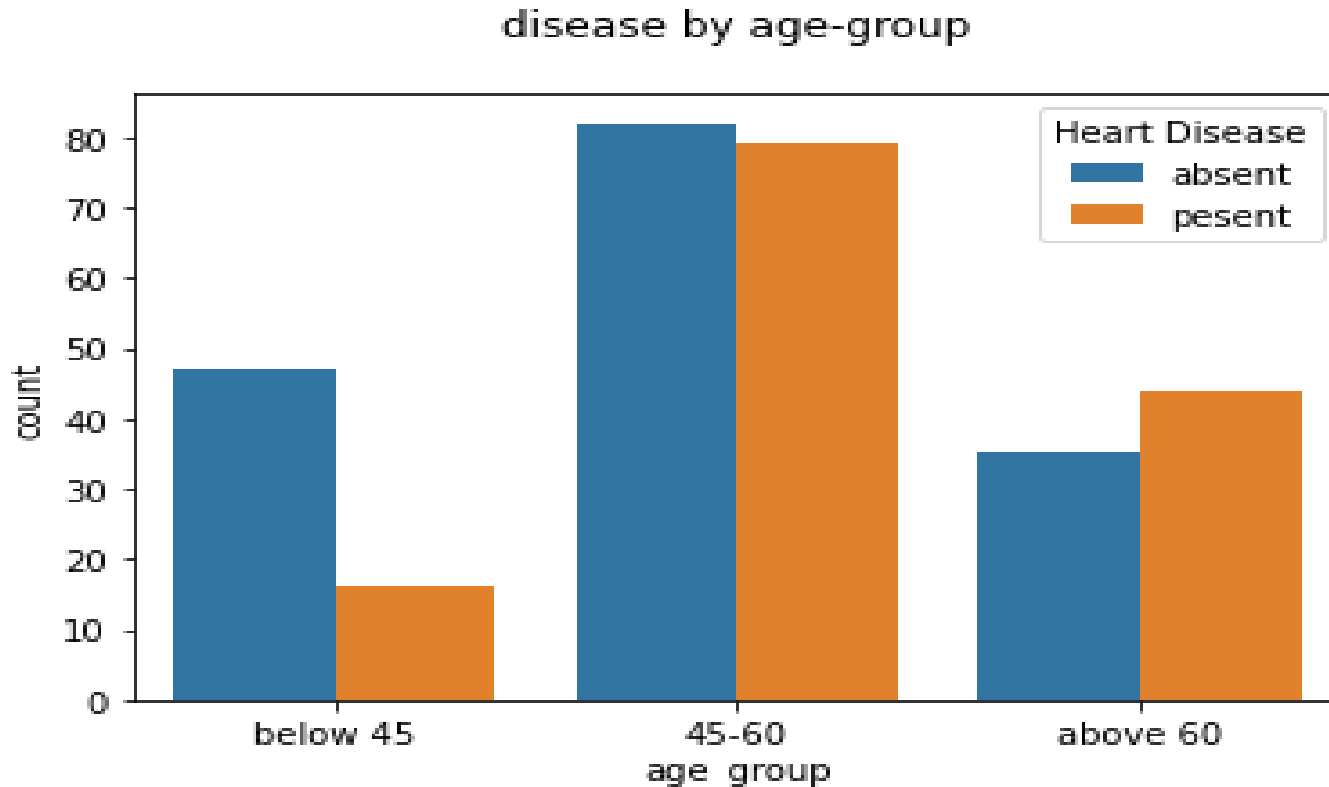
- thalach: The person's maximum heart rate achieved
- exang: Exercise induced angina  
(1 = yes; 0 = no)
- oldpeak: ST depression induced by exercise relative to rest
- slope: the slope of the peak exercise ST segment  
(Value 1: upsloping, Value 2: flat, Value 3: downsloping)
- ca: The number of major vessels (0-3)
- thal: A blood disorder called thalassemia  
(3 = normal; 6 = fixed defect; 7 = reversable defect)
- num: heart disease  
(0 = no, 1 = yes)

# Age distribution



We have maximum count of people in the age group of 40-70

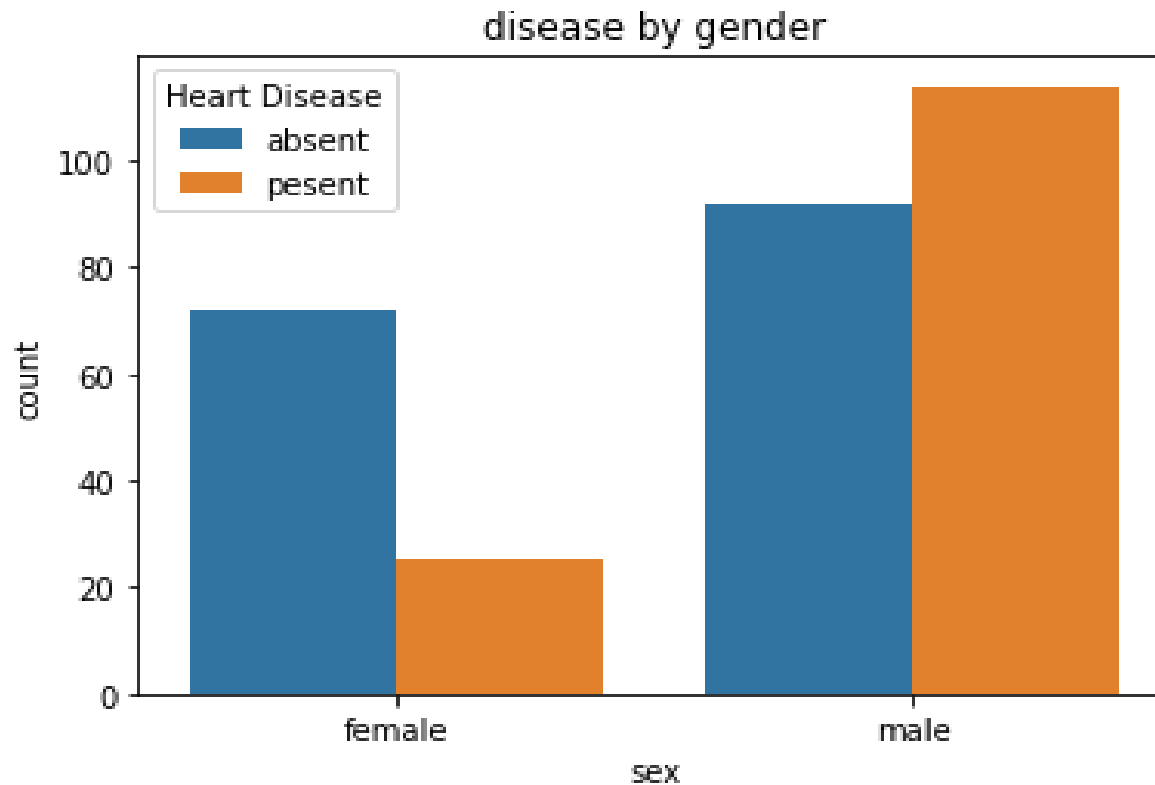
# Which age people are more suffering from disease



People in the age group 45-60 are more suffering from the heart disease.

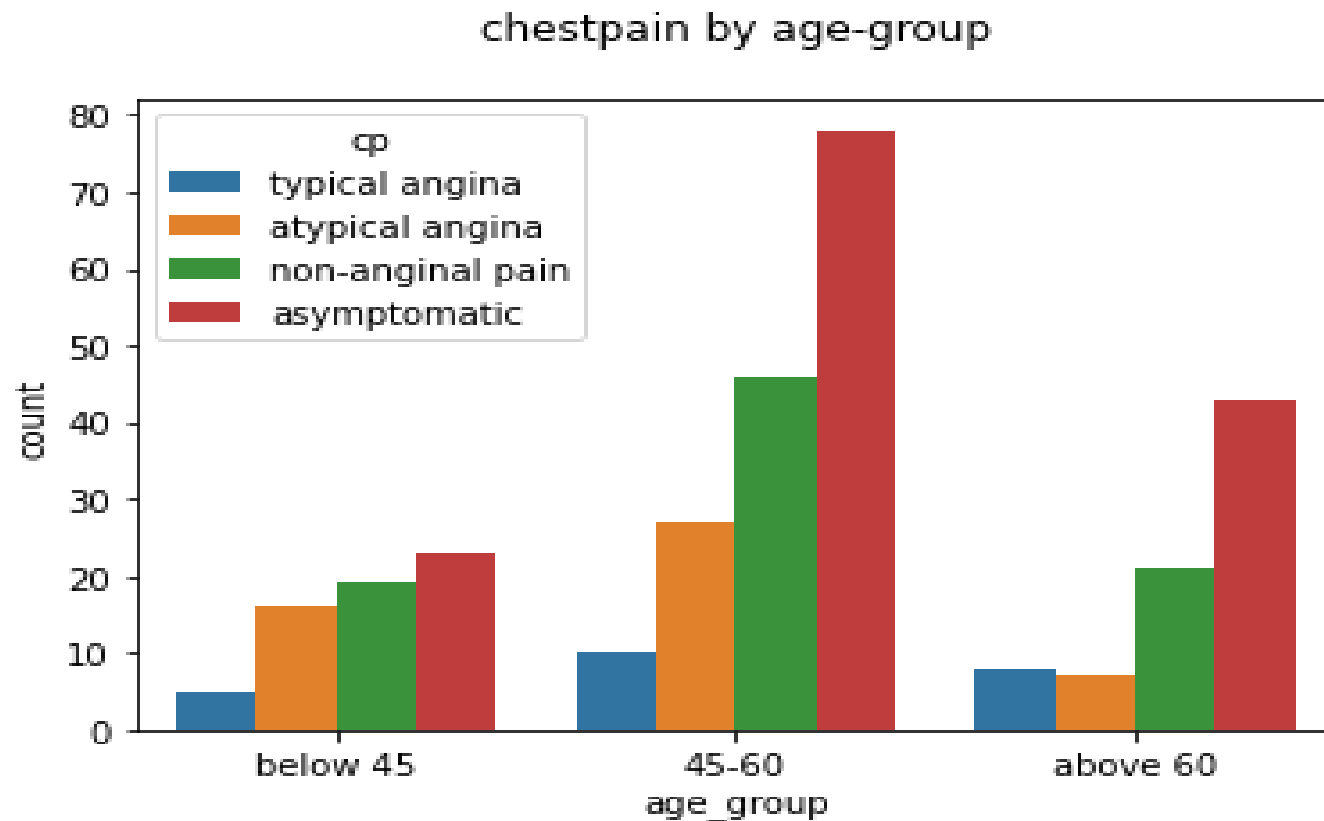


# Who are suffering more from heart disease



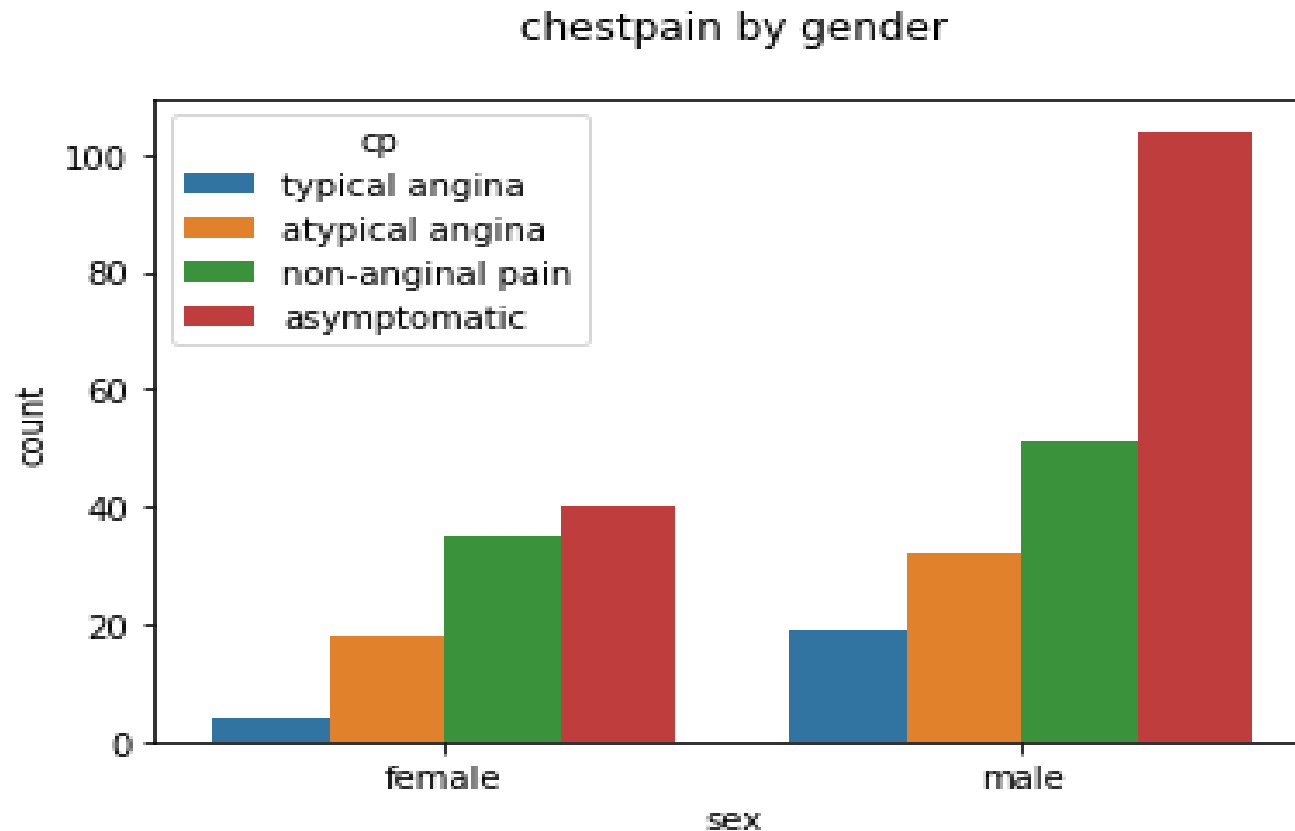
Men are more suffering from heart disease as compared to women.

# Type of chest pain by age group



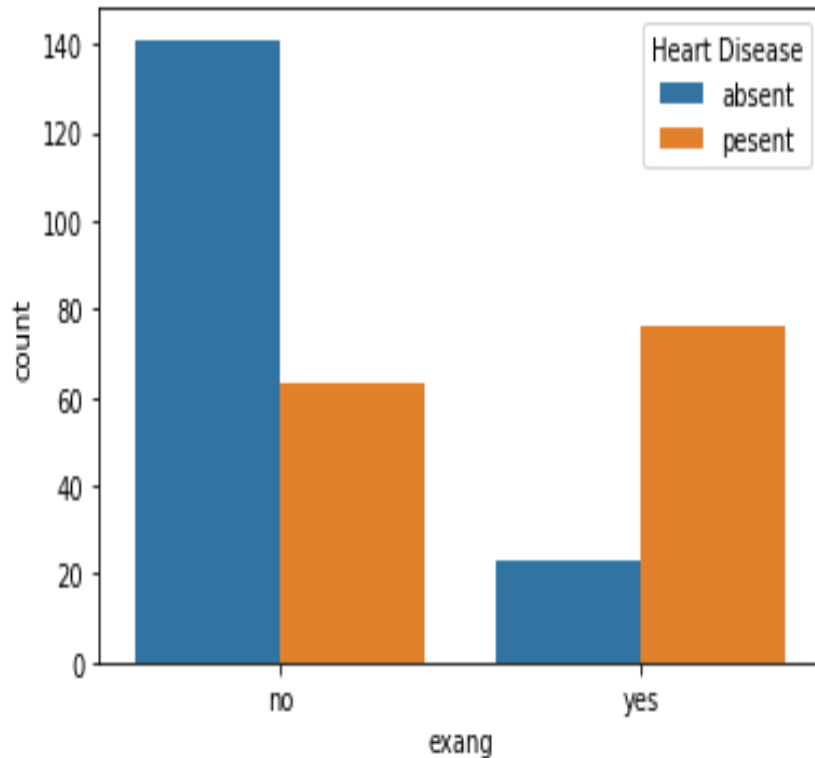
Asymptomatic chest pain is high in all age groups. 47% of people are suffering from asymptomatic chest pain.

# Chest pain by Gender

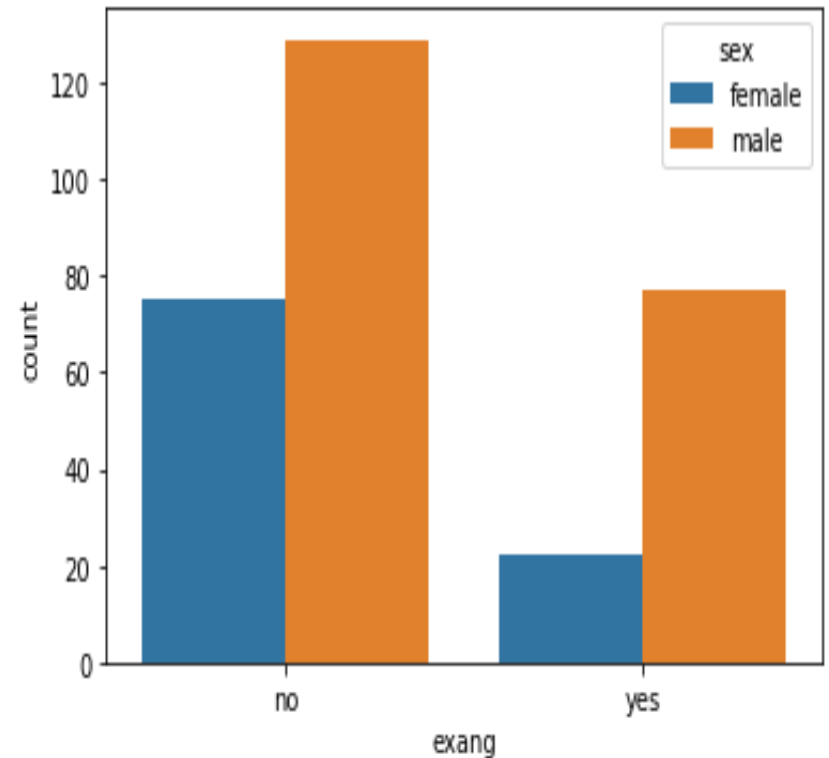


Men are more suffering from asymptomatic chest pain as compared women.

exercise induced angina

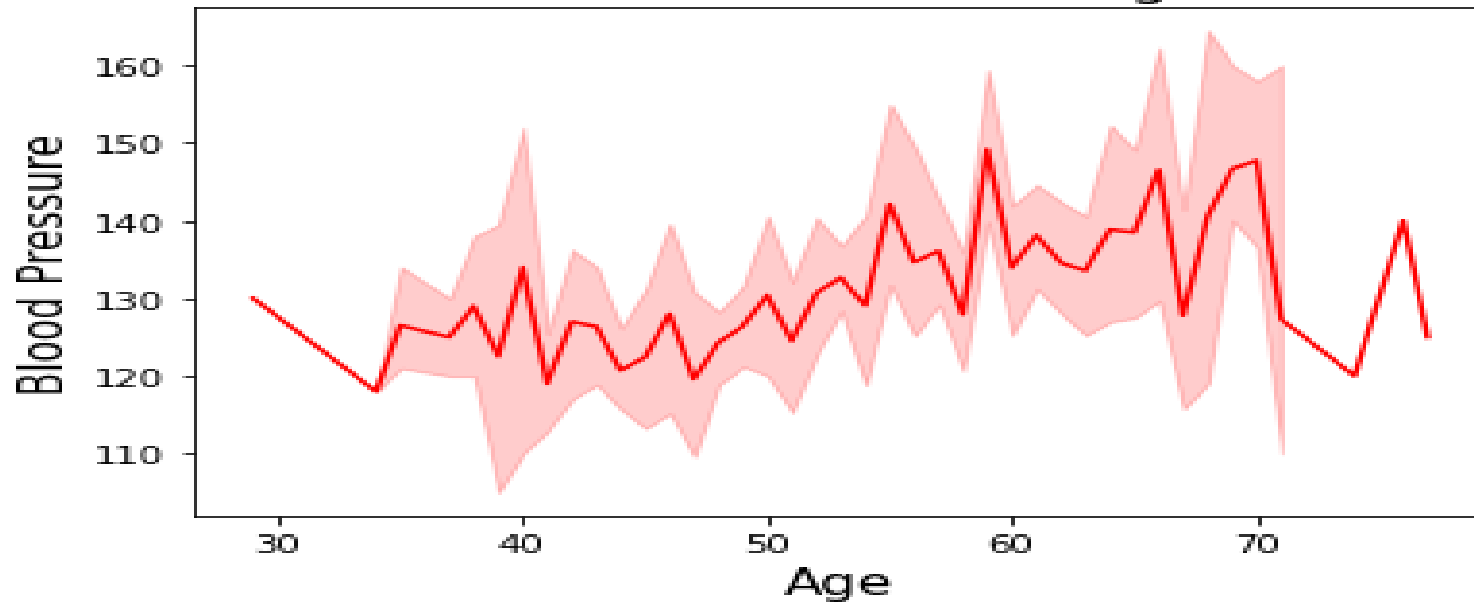


exercise induced angina by gender

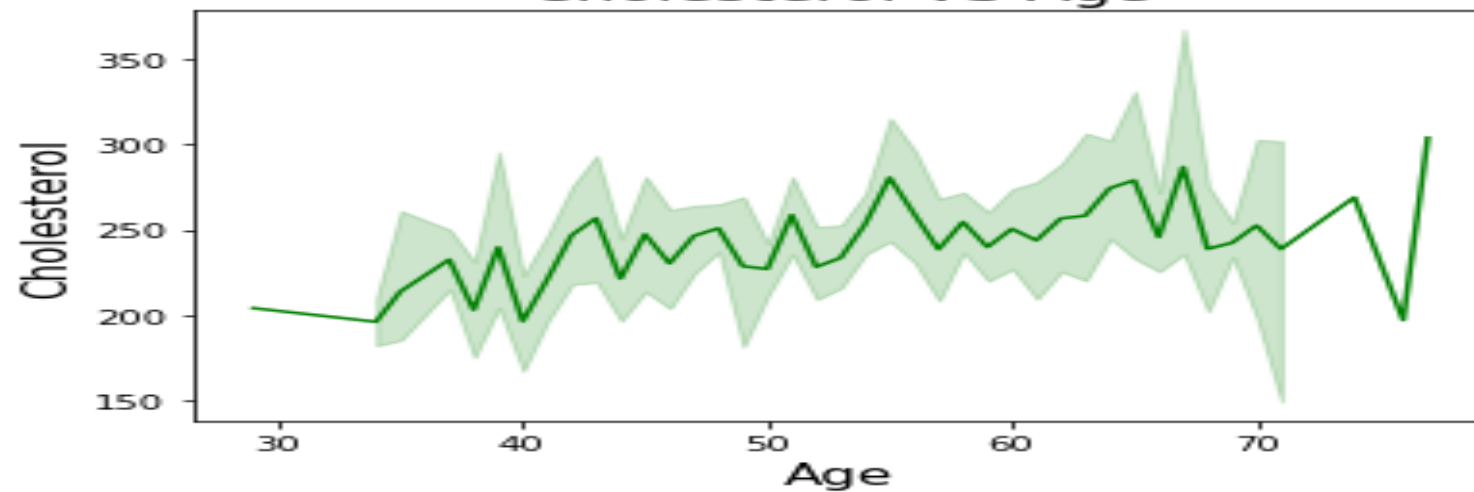


Exercised induced angina is more in diseased patients and both men and women are experienced it.

### Blood Pressure VS Age



### Cholesterol VS Age



# KPIs (Key Performance Indicators)

Key indicators displaying a summary of the Heart Disease and its relationship with different metrics

1. Percentage of people suffering from heart disease
2. Heart disease by gender
3. Heart disease by age-group
4. Type of chest pain experienced in patients suffering from heart disease
5. Exercised induced angina in patients
6. Cholesterol and blood pressure of the heart disease patients.

# Conclusion :

1. Approximately 46% of patients are suffering from the heart disease.
2. 55% of Male and 26% of female are suffering from the heart disease.
3. Elderly(above 60) patients are more prone to heart disease.
4. People with asymptomatic chest pain are more suffering from the heart disease followed by non-anginal chest pain.
5. Cholesterol and blood pressure is high in the age group 45-60.
6. Exercise induced angina is more seen in male as compared to female.

# Q & A

1. What is the source of data?

Ans. The dataset is provided by iNeuron.

2. What is the type of data?

Ans. Data has the numerical , float and categorical values.

3. What is the approach you followed?

Ans. Refer to slide 5 for better understanding.

4. What are the changes you made in the data?

Ans. Didn't changed values except the outliers and converted some columns to their proper format.

5. Which libraries you used?

Ans. Used Pandas, Numpy, Matplotlib, and Seaborn.



# Thank You.

Ravikumar Suram