HEART DISEASE ANALYSIS

Presented By Sai Krishna Tandasi

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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.

- 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

Introduction

- 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: down sloping)
- ca: The number of major vessels (0-3)
- thal: A blood disorder called thalassemia (3 = normal; 6 = fixed defect; 7 = reversable defect)
- target: Heart disease (0 = no, 1 = yes)

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.
- Do ETL: Extract- Transform and Load data from the heart disease diagnostic database
- You can perform EDA through python. The database extracts various information such as
- Heart disease rates, Heart disease by gender, by age.
- You can even compare attributes of the data set to extract necessary information. Make the necessary dashboard with the best you can extract from the data. Use various visualization and features and make the best dashboard
- Find key metrics and factors and show the meaningful relationships between attributes.

Process

Data Understanding

- Understood the data and found Key Performance Indicators (KPIs) of the data

Data Cleaning

- Removed unnecessary columns which have no impact in KPIs
- Excel, Power Query

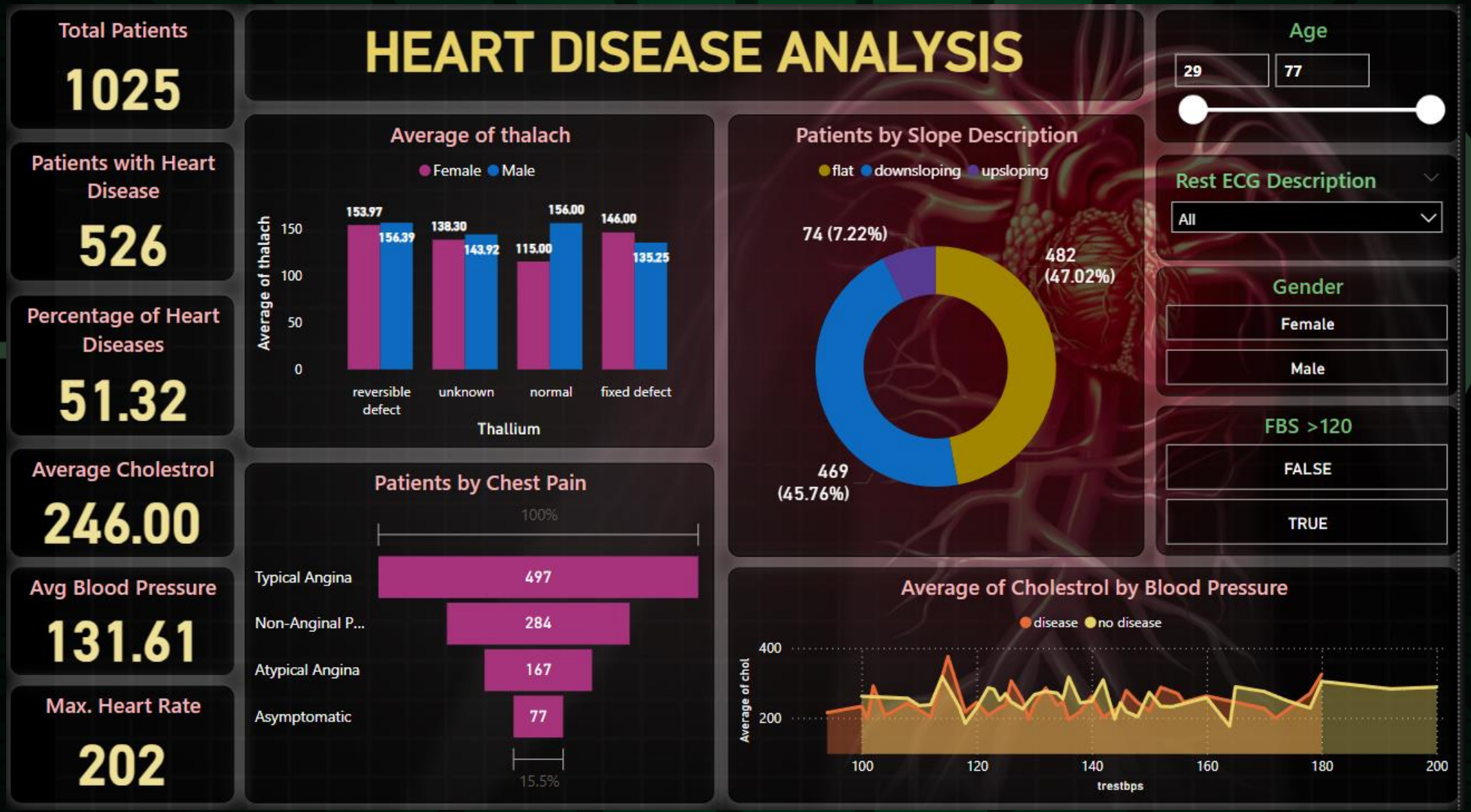
Data Analysis

- Derived dominant categories in each KPI(Area and Production) with various filters
- Derived some key visual insights
- Python, Pandas, Seaborn

Uncovering Insights

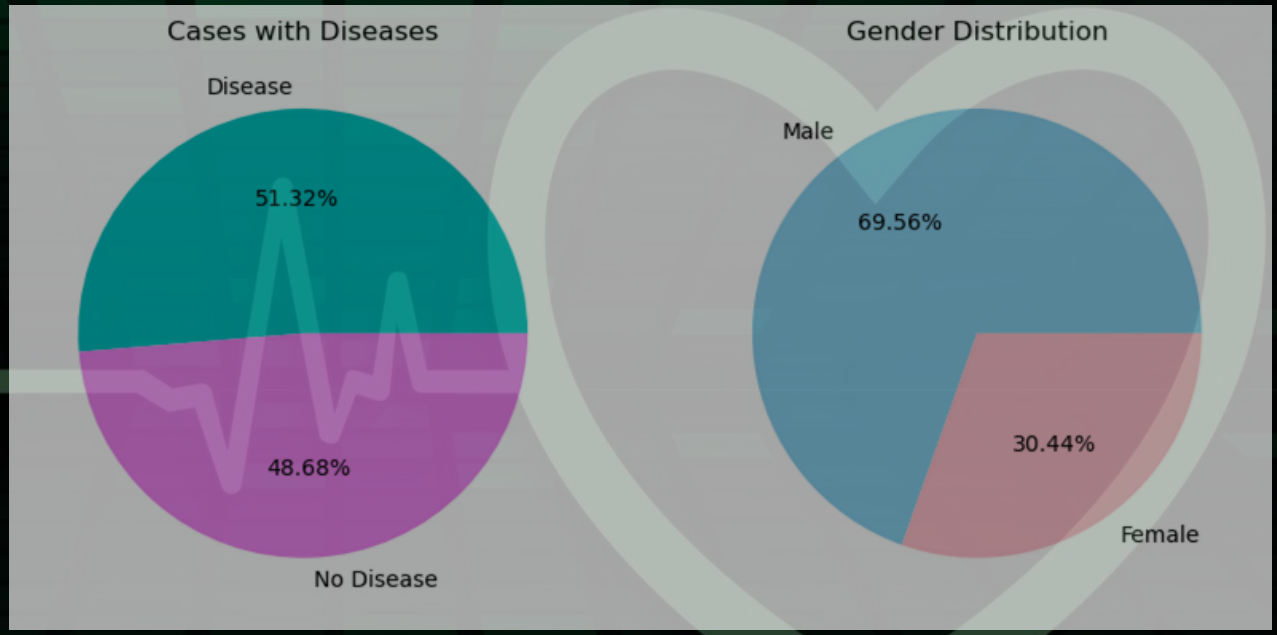
- Created visual Dashboards showing the impact of various sectors influencing the KPIs
- Microsoft Power BI

Dashboard


HEART DISEASE ANALYSIS
Total Patients
1025
Patients with Heart Disease
526
Percentage of Heart Diseases
51.32
Average Cholestrol
246.00
Avg Blood Pressure
131.61
Max. Heart Rate
202
Average of thalach
Female Male
Average of thalach
150
100
50
0
153.97
156.39
138.30
143.92
115.00
156.00
146.00
135.25
reversible defect
unknown
normal
fixed defect
Thallium
Patients by Slope Description
flat downsloping upsloping
74 (7.22%)
482 (47.02%)
469 (45.76%)
Age
29
77
Rest ECG Description
All
Gender
Female
Male
FBS >120
FALSE
TRUE
Patients by Chest Pain
100%
Typical Angina
497
Non-Anginal P...
284
Atypical Angina
167
Asymptomatic
77
15.5%
Average of Cholestrol by Blood Pressure
disease no disease
Average of chol
400
200
100
120
140
160
180
200
trestbps

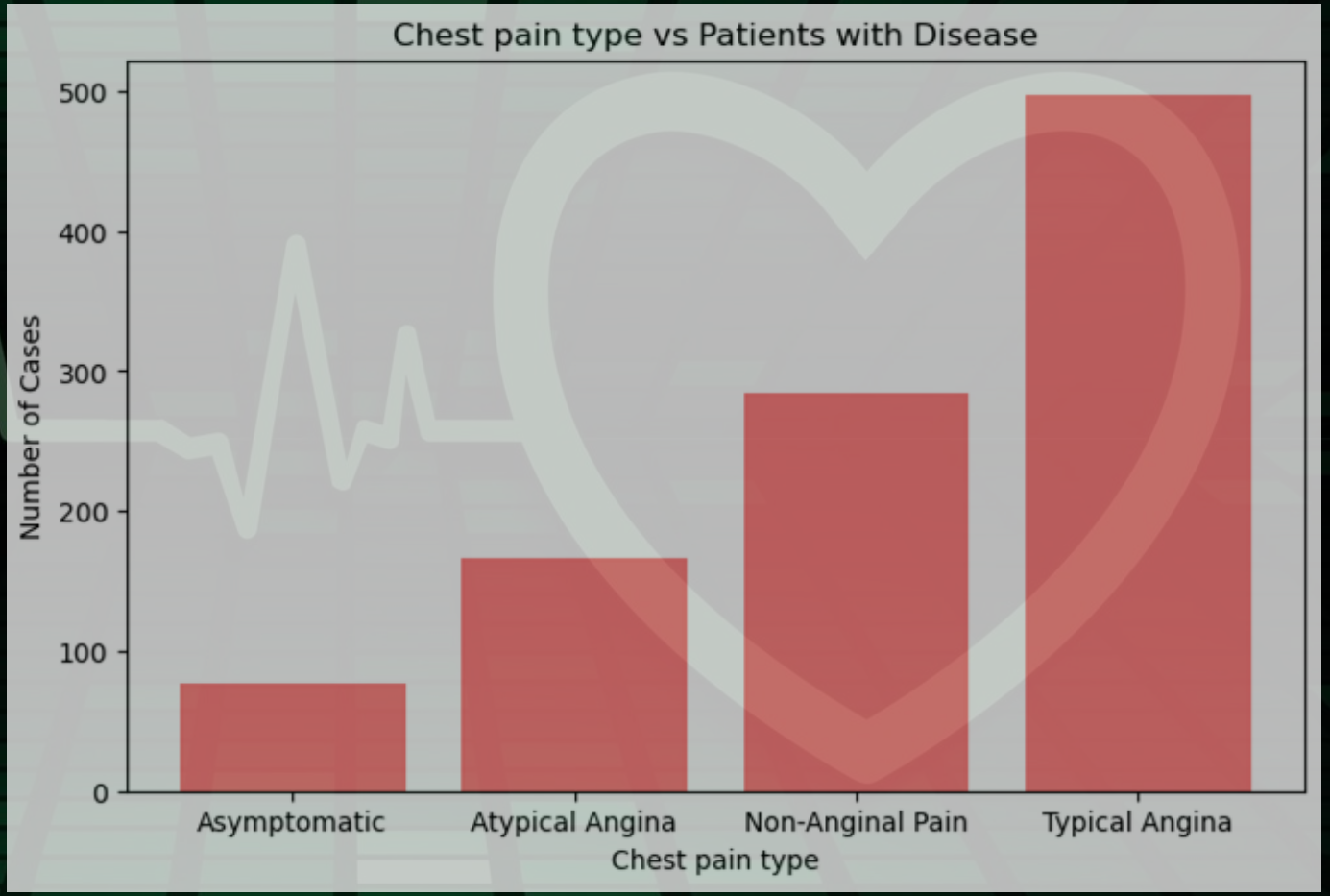
Insights

- From All Cases Almost more than of the people are suffering with Heart Disease.
- Males are suffering with heart diseases more than Females.
- Almost 70% males are suffering with Heart Disease.



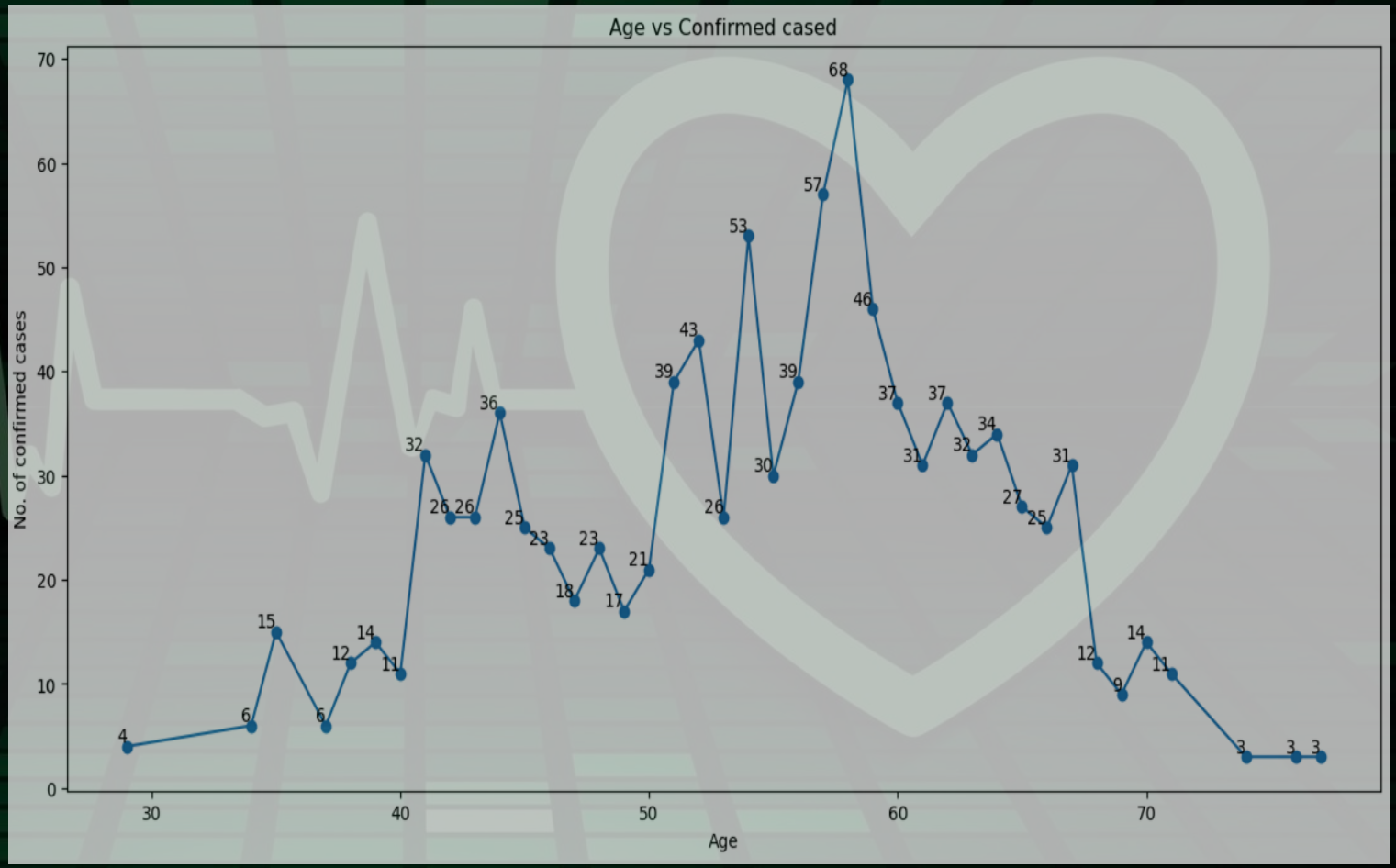
Insights

- Patients with Typical Anginal Pain have more chance of getting Heart Disease.
- Cases with Asymptomatic pain have less chance of getting heart Disease.
- Patients are also suggested to take necessary treatment during the Asymptomatic Pain.



Insights

- Patients with age in between 55 to 65 have high chance of getting Heart Disease.
- Sudden raise in line shows that there is significant change when age enters into 55.
- Also Patients with young age have less chance of getting Heart Disease.



Conclusion

From the analysis on Heart Disease we can observe :

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

Power BI Link: https://app.powerbi.com/links/vYyIW7r-cD?ctid=209a70f5-a678-4831-9798-ea1ea04aa9b8&pbi_source=linkShare