



## TASK 2

# HEART DISEASE DATA ANALYSIS



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# Received messy columns

- age
- sex
- chest pain type (4 values)
- resting blood pressure
- serum cholestoral in mg/dl
- fasting blood sugar > 120 mg/dl
- resting electrocardiographic results (values 0,1,2)
- maximum heart rate achieved
- exercise induced angina
- oldpeak = ST depression induced by exercise relative to rest
- the slope of the peak exercise ST segment
- number of major vessels (0-3) colored by flourosopy.
- thal: 0 = normal; 1 = fixed defect; 2 = reversable defect



# Cleaned and standardized dataset column names



- age – The age of the individual.
- sex – Gender of the individual (1 = male, 0 = female).
- chest pain type – Type of chest pain (0 = typical angina, 1 = atypical angina, 2 = non-anginal pain, 3 = asymptomatic).
- resting blood pressure – Blood pressure of the individual while at rest (in mm Hg).
- serum cholestoral – Cholesterol level in mg/dl.
- fasting blood sugar – Fasting blood sugar > 120 mg/dl (1 = true, 0 = false).
- resting electrocardiographic results – Results of the resting ECG (0 = normal, 1 = having ST-T wave abnormality, 2 = showing probable or definite left ventricular hypertrophy).
- maximum heart rate achieved – The highest heart rate achieved during exercise.
- exercise induced angina – Whether exercise induced angina (1 = yes, 0 = no).
- oldpeak – ST depression induced by exercise relative to rest.
- the slope of the peak exercise ST segment – The slope of the ST segment during peak exercise (0 = upsloping, 1 = flat, 2 = downsloping).
- number of major vessels colored by fluoroscopy – Number of major vessels (0-3) colored by fluoroscopy.
- thal – Thalassemia blood disorder (0 = normal, 1 = fixed defect, 2 = reversible defect).
- age group – A custom column that categorizes individuals into different age groups.
- heart disease – Binary column representing if the individual has heart disease (1 = yes, 0 = no).

# Heart Disease Risk Analysis Dashboard

Average of Age

54

Max Heart Rate

202

AgeGroup

All

Gender

All

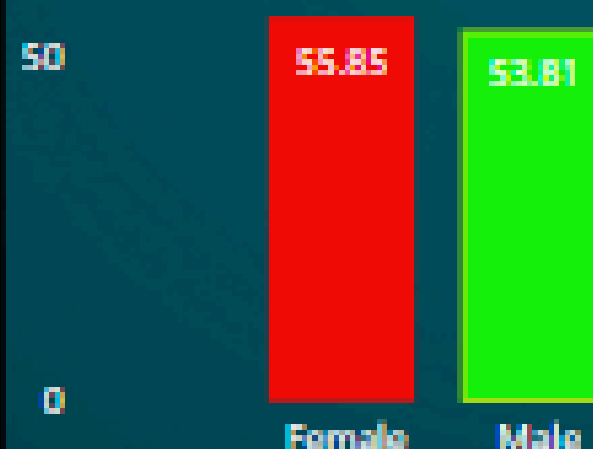
Average Cholesterol Level by Age Group



Percentage of High Cholesterol KPI

204

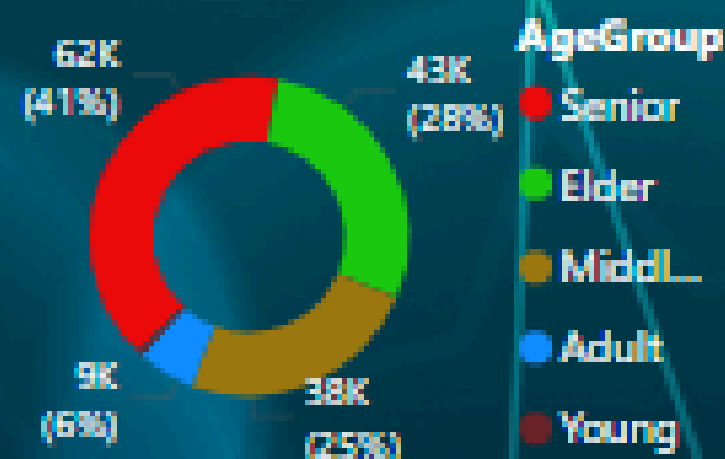
Age Distribution by Sex



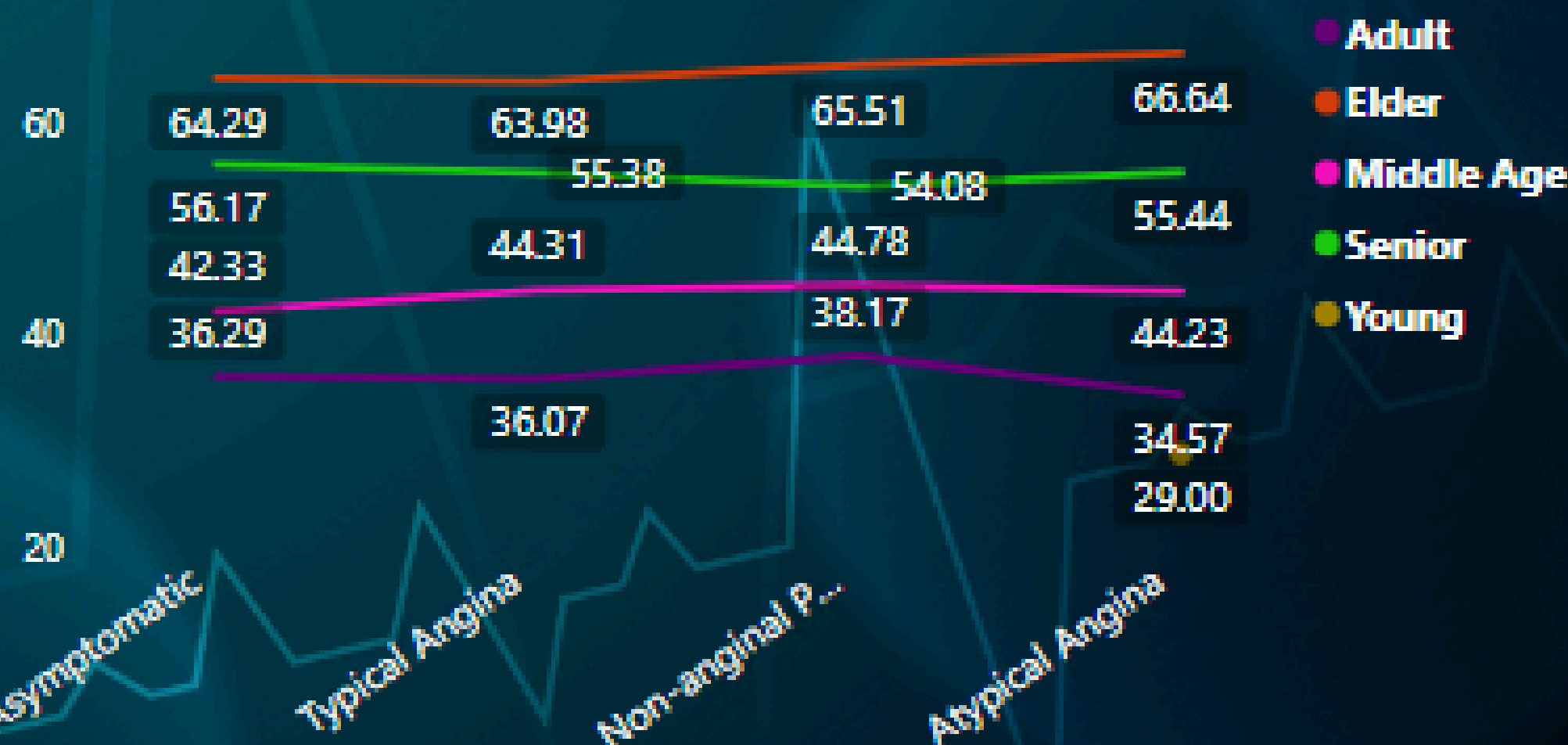
Heart Rate Across Age Groups KPI

202

Heart Disease Distribution by Age Group



Average Age vs Chest Pain Type Across Age Groups





# Key Insights



- Average Age: Provides the central age of the dataset's population.
- Maximum Heart Rate: Shows the highest heart rate recorded.
- Percentage of High Cholesterol: Reveals the proportion of individuals with high cholesterol.
- Heart Rate Across Age Groups: Indicates how average maximum heart rate varies with age.
- Age and Gender Filtering: Allows detailed analysis based on age group and gender.
- Age Distribution by Gender: Compares age distribution between males and females.
- Heart Disease by Age Group: Shows how heart disease prevalence varies by age group.
- Average Cholesterol by Age Group: Displays average cholesterol levels for different age groups.
- Average Age and Chest Pain Type: Shows how average age relates to different chest pain types across age groups.



# Conclusion



The analysis reveals several important insights about heart health across different demographics. The average age and maximum heart rate data provide a snapshot of the overall physical condition of the population, while variations in age distribution by gender offer insights into gender-specific age trends. The percentage of individuals with high cholesterol is significant, highlighting a notable proportion at risk for heart disease. Average cholesterol levels by age group show how this risk factor evolves with age. Additionally, the distribution of heart disease across age groups identifies which ages are more affected, suggesting that heart disease prevalence changes with age. The relationship between average age and chest pain types across age groups further illustrates how chest pain symptoms vary with age, which is crucial for accurate diagnosis and treatment. Overall, these insights emphasize the importance of monitoring heart health metrics such as cholesterol and heart rate, and addressing age-related variations to improve prevention and management strategies for heart disease.



**THANK YOU**

