## **1. Cardiac Patients Medical Report Analysis Introduction:** Heart attacks are a leading cause of premature mortality globally, with India witnessing over 3 million deaths annually due to heart attacks and strokes. Numerous factors can impact heart health and efficiency. By gaining valuable insights and taking necessary precautions, we can effectively manage the challenges and complications associated with cardiac health.

## **Project Objective:** In this study, we conducted a detailed analysis of medical reports from numerous heart patients. The goal was to perform exploratory analysis, uncover significant findings, and process the dataset for potential use in machine learning models. Ultimately, these models could aid in predicting the likelihood of heart attacks in new patients.

## By conducting this in-depth analysis, we hope to contribute to the advancement of medical knowledge, enhance patient care, and improve outcomes for individuals at risk of cardiac issues.

**Data Dictionary:**

1. age (#)

2. sex : 1= Male, 0= Female (Binary)

3. (cp)chest pain type (4 values -Ordinal):Value 1: typical angina ,Value 2: atypical angina, Value 3: non-anginal pain , Value 4: asymptomatic

4. (trestbps) resting blood pressure (#)

5. (chol) serum cholesterol in mg/dl (#)

6. (fbs)fasting blood sugar > 120 mg/dl(Binary)(1 = true; 0 = false)

7. (restecg) resting electrocardiography results(values 0,1,2)

8. (thalach) maximum heart rate achieved (#)

9. (exang) exercise induced angina (binary) (1 = yes; 0 = no)

10. (oldpeak) = ST depression induced by exercise relative to rest (#)

11. (slope) of the peak exercise ST segment (Ordinal) (Value 1: up sloping , Value 2: flat , Value 3: down sloping )

12. (ca) number of major vessels (0–3, Ordinal) colored by fluoroscopy

13. (thal) maximum heart rate achieved — (Ordinal): 3 = normal; 6 = fixed defect; 7 = reversible defect

Fields Not to be used: ‘trestbps', 'restecg', 'thalach', 'exang', 'oldpeak', 'slope', 'ca'

#### **Recommended Analysis**

1. What age group is most vulnerable or has a large number of patients with a higher risk of heart attack?

* *Bar Chart Age distribution along the dataset*

1. Are men mostly prone to heart attacks or women?
2. What chest pain types pose a severe risk of a heart attack?
3. How fasting blood sugar is related to heart attack?
4. What type of thalassemia severely leads to heart attack?
5. Due to cholesterol, how many patients are at higher risk?

**Dataset Link:**

<https://www.kaggle.com/datasets/johnsmith88/heart-disease-dataset>