**PRCP-1016-HeartDieseasePred**

**Problem Statement**

Task 1:-Prepare a complete data analysis report on the given data.

Task 2:- Create a model predicting potential Heart Diseases in people using Machine Learning algorithms.

Task3:-Suggestions to the Hospital to awake the predictions of heart diseases prevent life threats.

**Dataset Link:**

* Cardiovascular diseases (CVDs) are the number 1 cause of death globally, taking an estimated 17.9 million lives each year, which accounts for 31% of all deaths worldwide. Four out of 5CVD deaths are due to heart attacks and strokes, and one-third of these deaths occur prematurely in people under 70 years of age. Heart failure is a common event caused by CVDs and this dataset contains 11 features that can be used to predict a possible heart disease.
* People with cardiovascular disease or who are at high cardiovascular risk (due to the presence of one or more risk factors such as hypertension, diabetes, hyperlipidaemia or already established disease) need early detection and management wherein a machine learning model can be of great help.

**Domain:** Healthcare

**Link :** <https://d3ilbtxij3aepc.cloudfront.net/projects/CDS-Capstone-Projects/PRCP-1016-HeartDieseasePred.zip>

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## Dataset

1. There are 14 columns in the dataset, where the patient\_id column is a unique and random identifier. The remaining 13 features are described in the section below.
2. · slope\_of\_peak\_exercise\_st\_segment (type: int): the slope of the peak exercise [ST segment](https://en.wikipedia.org/wiki/ST_segment), an electrocardiography read out indicating quality of blood flow to the heart
3. · thal (type: categorical): results of [thallium stress test](https://www.ucsfbenioffchildrens.org/tests/007201.html) measuring blood flow to the heart, with possible values normal, fixed\_defect, reversible\_defect
4. · resting\_blood\_pressure (type: int): resting blood pressure
5. · chest\_pain\_type (type: int): chest pain type (4 values)
6. · num\_major\_vessels (type: int): number of major vessels (0-3) colored by flourosopy
7. · fasting\_blood\_sugar\_gt\_120\_mg\_per\_dl (type: binary): fasting blood sugar > 120 mg/dl
8. · resting\_ekg\_results (type: int): resting electrocardiographic results (values 0,1,2)
9. · serum\_cholesterol\_mg\_per\_dl (type: int): serum cholestoral in mg/dl
10. · oldpeak\_eq\_st\_depression (type: float): oldpeak = [ST depression](https://en.wikipedia.org/wiki/ST_depression) induced by exercise relative to rest, a measure of abnormality in electrocardiograms
11. · sex (type: binary): 0: female, 1: male
12. · age (type: int): age in years
13. · max\_heart\_rate\_achieved (type: int): maximum heart rate achieved (beats per minute)
14. · exercise\_induced\_angina (type: binary): exercise-induced chest pain (0: False, 1: True)

**Model Comparison Report**

Create a report stating the performance of multiple models on this data and suggest the best model for production.

**Report on Challenges faced**

Create a report which should include challenges you faced on data and what technique used with proper reason.

Note:-All above task has been created on single jupyter notebook and share the same while final submission of project.

# Heart-Damage-Prediction

# Earthquake Damage Prediction Project

# Description

Cardiovascular diseases (CVDs) are the leading cause of death globally, responsible for an estimated 17.9 million deaths annually, accounting for 31% of all deaths worldwide. Most CVD deaths result from heart attacks and strokes, with one-third occurring prematurely in individuals under 70. Heart failure, a frequent outcome of CVDs, necessitates early detection and management, especially for those at high cardiovascular risk due to factors like hypertension, diabetes, and hyperlipidaemia. Machine learning models can significantly aid in the early identification and management of these high-risk individuals, improving outcomes and reducing premature deaths from heart disease.

## Overview

This project aims to prepare a comprehensive data analysis report, develop a machine learning model to predict potential heart diseases, and provide suggestions to the hospital for implementing predictive measures to prevent life-threatening conditions.

## Structure

\* Importing Necessary Libraries

\* Load DataSets

\* Exploratory Data Analysis

\* Data Preprocessing

\* Feature Selection

\* Model Implementation

\* Model Evaluation

\* Model Comparision Report

\* Conclusion

\* Challenges Faces Report

## How to Run

1. Clone the repository:

```bash

git clone https://github.com/Shivangim05/Heart-Damage-Prediction.git