**Heart Attack Prediction Project**

**Overview**

This project predicts the possibility of a heart attack based on medical parameters. It consists of three main components:

1. **Notebook**: Details the end-to-end process, from data preparation to model training and evaluation.
2. **API**: A Python script that serves predictions using a pre-trained model.
3. **Frontend**: An HTML file for the user interface to interact with the prediction model.

**1. Notebook: Heart\_Attack\_Prediction\_Notebook.ipynb**

This Jupyter Notebook includes all steps performed in the project:

* **Data Reading**: Loading the dataset for analysis.
* **Exploratory Data Analysis (EDA)**: Analyzing data to identify patterns and relationships.
* **Preprocessing**: Cleaning and normalizing the data for model training.
* **Classification Models**: Training multiple classification models to identify the best-performing model.
  + Logistic Regression
  + Support Vector Machines (SVM)
  + Decision Trees
  + Random Forest
  + K-Nearest Neighbors (KNN)
  + Naive Bayes
* **Saving the Model**: Exporting the best model as Classification\_best\_model.pkl for use in production.

**2. API: Predicting\_Heart\_Attack\_Possibility\_script**

This Flask-based API serves as the backend for the project:

* **Functionality**:
  + Accepts input data as JSON through a POST request.
  + Predicts the risk of a heart attack (High Risk or Low Risk).
  + Returns the prediction in JSON format.
* **How to Run**:

1- Install the required libraries:

pip install flask flask-cors joblib

2-Start the server:

Run main.py placed in python Predicting\_Heart\_Attack\_Possibility\_script

**3. Frontend: new\_1.html**

This HTML file provides an interface for the heart attack prediction model:

* **Features**:
  + Input fields for medical parameters (e.g., age, cholesterol, etc.).
  + Displays the prediction result with visual feedback.
* **How to Use**:
  + Open the new\_1.html file in a browser.
  + Enter the required data and click the "Predict" button.
  + The result (High Risk or Low Risk) is displayed as text.