Heart Attack Prediction (Hattack.ai)

Project Idea:

The project aims to develop a predictive model for heart attacks using clinical records containing various health metrics in less developed countries. As there is a lack of doctors and clinics in most less developed countries, it is hard to mature all the patients. So, by doing some simple blood tests, checking for the symptoms and leveraging machine learning algorithms, this project seeks to identify key factors contributing to heart attacks and predict the likelihood of such events occurring in individuals. The specific goals include detecting early warning signs, forecasting potential heart attack occurrences, and providing actionable health recommendations to mitigate risks.

Relevance to Sustainable Development Goals (SDGs):

This project aligns with Goal 3 (Good Health and Well-being) by focusing on preventing and managing cardiovascular diseases. By using advanced machine learning techniques for prediction and recommendation, the project contributes to reducing the incidence of heart attacks, improving overall health outcomes, and promoting healthy lifestyles.

Literature Examples:

- **"Machine Learning in Cardiovascular Disease Prediction":** This study demonstrates the use of machine learning algorithms for predicting cardiovascular diseases. The research achieves accurate predictions of cardiovascular events by applying techniques such as logistic regression, decision trees, and support vector machines, which can inform healthcare strategies and interventions.
- **"Deep Learning Approaches for Healthcare Data Analysis":** This research paper explores deep learning approaches for analyzing healthcare data, including electronic health records and patient monitoring data. By leveraging convolutional neural networks (CNNs) and recurrent neural networks (RNNs), the study achieves high accuracy in predicting health outcomes and provides insights into patient health trends.

Describe Your Data:

The primary data source for this project is a CSV file containing health metrics related to heart attack risks. The CSV file includes information on patient demographics, cholesterol levels, blood pressure readings, electrocardiogram (ECG) results, and other relevant medical data. Data preprocessing will involve feature engineering, handling missing values, and normalizing the data to prepare it for machine learning analysis.

Approach (Machine Learning):

For this project, machine learning algorithms will be utilized to analyze the patterns in the health metrics data and make predictions for heart attack occurrences. Models such as logistic regression, decision trees, and support vector machines are used to predict heart attack risk. Still,

in this project, the logistic regression model will be trained on the historical health data to forecast the likelihood of heart attacks. Additionally, the system will provide recommendations based on the predicted risks, suggesting lifestyle changes, medical interventions, or further diagnostic tests to address potential health challenges.