Problem Statement

Heart disease remains a leading cause of mortality worldwide , Current diagnostic methods can be invasive, expensive, and inaccessible to many populations There is a need for a non-invasive, cost-effective, and highly accurate method for early detection and classification of heart disease to improve patient outcomes and reduce healthcare costs.

Objective

The objective of this project is to develop a machine learning model that utilizes the medical data to classify individuals according to their risk of heart disease if they have or not and give an explanation why they gave this answer

The goal is to achieve a model with high accuracy, sensitivity, and specificity that can be integrated into data workflows to assist healthcare providers in identifying at-risk patients at an early stage, This model will not only aid in the early detection but also in the personalized management of heart disease

planned approach

build an interface that contain the data that the user should give to a model that can classify this medical data giving the best accuracy for this crucial data the user provide and be specific in it’s explanation using XAI explainable AI the will provide the user by why it diagnose him like that

After Exploration

In exploring the heart disease dataset, critical bits of knowledge developed that improve our understanding of variables impacting heart health. Starting information investigation that age, cholesterol levels, and blood pressure are basic indicators of heart disease, proving existing medical research. Visual investigations, such as histograms and correlation matrix, appeared a clear positive relationship between age and cholesterol levels, recommending that more seasoned people ordinarily have higher cholesterol, which may be a known hazard calculate for heart malady. Furthermore, the information contained a few categorical factors like chest torment sort and resting electrocardiographic comes about, which were successfully encoded to get ready for machine learning modeling. Examination of lost information guaranteed that the dataset was total, upgrading the unwavering quality of the ensuing prescient models. This exhaustive information investigation set a solid establishment for building exact prescient models to classify heart illness Danger.