Prediction Of Heart Disease Using Classification Algorithms

Heart disease is the major cause of morbidity and mortality globally. It is a leading cause of death worldwide and accounts for over 17.3 million deaths annually. The World Health Organization (WHO) has estimated that by 2030, heart disease will be the leading cause of death globally. Therefore, accurate prediction of heart disease using classification algorithms is crucial for early intervention and prevention.

The UCI Heart Disease dataset is a popular dataset used for research in the field of heart disease prediction. It contains data for 270 patients, each with 13 attributes including age, sex, chest pain type, blood pressure, serum cholesterol, fasting blood sugar, resting electrocardiographic results, major risk factors, and the presence or absence of heart disease.

The goal of this project is to develop a classification model that can accurately predict the presence or absence of heart disease based on the given attributes. The model will be trained using various classification algorithms, such as logistic regression, decision trees, random forests, and support vector machines. The performance of the model will be evaluated using metrics such as accuracy, precision, recall, and F1 score.

The data is split into training and testing sets, with 70% of the data used for training and 30% for testing. The model will be trained using the training set and evaluated using the testing set. The model will be fine-tuned using cross-validation and grid search to optimize the hyperparameters.

Once the model is trained and validated, it will be deployed to predict heart disease in new patients based on their attributes. The model can be integrated into healthcare systems to help doctors and patients make informed decisions about their health.

In summary, the prediction of heart disease using classification algorithms is a crucial area of research in the field of medicine. The UCI Heart Disease dataset provides a valuable resource for researchers to develop and evaluate classification models for heart disease prediction. The accuracy and precision of these models can significantly impact the outcomes of patients with heart disease.