DEPARTMENT OF APEX INSTITUTE OF TECHNOLOGY

PROJECTPROPOSAL

1. Project Title: - Heart Disease Prediction using Machine Learning

2. Project Scope: -

The scope of the machine learning based heart disease prediction model includes the following:

1. Data Collection: Collecting a dataset of patient records that includes clinical and demographic features such as age, gender, blood pressure, cholesterol levels, and smoking habits.

2. Data Cleaning and Preprocessing: Cleaning and preprocessing the dataset to remove missing values, outliers, and irrelevant features.

3. Feature Engineering: Selecting relevant features and transforming them into a format suitable for machine learning algorithms.

4. Model Selection: Training and testing several machine learning models such as Logistic Regression, Random Forest, and Neural Networks to identify the best model for predicting heart disease.

5. Hyperparameter Tuning: Tuning the hyperparameters of the selected model to achieve the best possible performance.

6. Model Evaluation: Evaluating the performance of the final model using metrics such as accuracy, precision, recall, and F1 score.

7. Identification of Risk Factors: Identifying the most significant risk factors for heart disease and determining their relative importance in predicting the disease.

8. Deployment: Integrating the final model with a web application or electronic health record system to assist healthcare professionals in making informed decisions regarding patient care and management.

The project scope also includes ensuring that the model is developed in compliance with ethical and legal guidelines. The privacy and confidentiality of patient data must be protected, and the model should be fair and unbiased in its predictions. Additionally, the model should be regularly updated and re-evaluated to maintain its accuracy and reliability.

3. Requirements: -

- Hardware Requirements
  1. AMD Ryzen 7 or any other processor similar to this.
  2. 8GB RAM, 1TB of external memory.
  3. AMD Radeon or any other graphics for image processing.
- Software Requirements
  1. Python 3.7 or higher.
  2. Jupyter notebook or any other editor.
  3. Anaconda Navigator

STUDENTS DETAILS

Name	UID	Signature
Khushbu	21BCS3719	
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APPROVAL AND AUTHORITY TO PROCEED

We approve the project as described above, and authorize the team to proceed.

Name	Title	Signature (With Date)