MULTIPLE DISEASE PREDICTION USING MACHINE LEARNING AND WEB DEPLOYMENT

GROUP : 33

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Defined problem: The "Multiple Diseases Prediction Using Machine Learning and Python Libraries" project aims to develop a machine learning model that can predict the likelihood of an individual developing one of three diseases: diabetes, heart disease, and Parkinson's disease. This project will utilize the Python programming language, along with the NumPy, Pandas, Matplotlib, and scikit-learn libraries, to analyze a large dataset of patient information and identify patterns and correlations that can be used to predict disease outcomes.

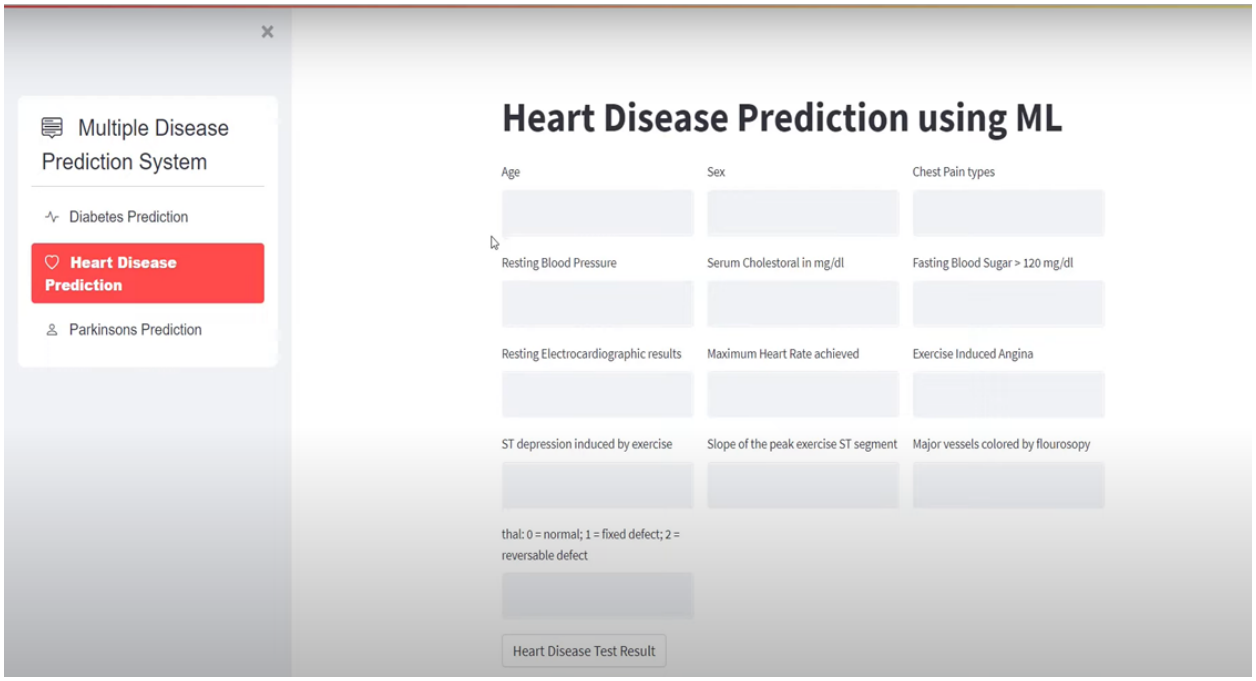
Objectives: The primary objective of this project is to create a web application that can be used by healthcare professionals and patients to assess their risk of developing these diseases and make informed decisions about their health. The application will be built using Streamlit, a popular framework for building web applications, and will be designed to be user-friendly and easy to navigate. The model will be trained using Support Vector Machine, Logistic Regression and Support Vector Machine Classifier respectively for diabetes, heart diseases and parkinson's diseases prediction.

Relevance: The relevance of this project lies in the growing need for accurate and efficient methods for predicting disease outcomes. With the increasing prevalence of chronic diseases and the rising costs of healthcare, there is a growing need for tools that can help healthcare professionals and patients make informed decisions about their health. The use of various input data like number of pregnancies, glucose level, age, blood pressure, bmi value, diabetes pedigree function value for diabetes prediction, age, sex, chest pain, maximum heart rate for heart diseases prediction and for parkinson's diseases prediction we use input data spread 1, spread 2, PPE , RPDE , D2 value respectively will make this model more accurate and efficient.

Implementation: The implementation of this project will involve several steps, including data collection and preprocessing, feature selection and engineering, model selection and training, and web application development. The data collection and preprocessing step will involve acquiring a large dataset of patient information and cleaning and transforming the data to make it suitable for analysis. The feature selection and engineering step will involve identifying the most relevant and informative features to use in the model. The model selection and training step will involve choosing and

training a machine learning model to predict disease outcomes. Finally, the web application will be developed using Streamlit and deployed to a web server.

DEMONSTRATION OF USER INTERACTION:



Plan Of Action: The plan of action for the "Multiple Diseases Prediction Using Machine Learning and Python Libraries" project will involve the following steps:

Data Collection and Preprocessing: Acquire a large dataset of patient information for diabetes, heart disease, and Parkinson's disease. Clean and transform the data to make it suitable for analysis.

Feature Selection and Engineering: Identify the most relevant and informative features to use in the model.

Model Selection and Training: Train three different machine learning models Support Vector Machine, Logistic Regression and Support Vector Machine Classifier respectively for diabetes, heart diseases and parkinson's diseases prediction.

Web Application Development: Develop a web application using Streamlit that can take patient information as input and predict the likelihood of developing one of the three diseases.

Model Evaluation and Optimization: Evaluate the performance of the trained models using appropriate metrics and optimize the models as needed.

Deployment: Deploy the web application to a web server and make it available to healthcare professionals and patients.

Documentation: Create a report documenting the methods used, results obtained, and the performance of the models.

Maintenance and Updating: Continuously monitor the performance of the models and update them as needed.

Deliverables: The deliverables of this project will include a working web application, a report documenting the methods used and results obtained, and the trained machine learning model that can be used for future predictions. The web application will be able to take patient information as input and predict the likelihood of developing one of the three diseases. The report will provide a detailed description of the project, including the data collection and preprocessing steps, the machine learning models used, and the results obtained. The trained machine learning model will be made available to healthcare professionals and researchers for further research and analysis. Overall, this project will provide a valuable tool for healthcare professionals and patients to make informed decisions about their health, and contribute to the field of disease prediction using machine learning.