



Department of Information Technology

Minor Project

IV B Tech I Semester [2021 – 2025]

Project Title: Multiple Disease Prediction System Using Machine Learning

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Problem Statement:

The early diagnosis of diseases such as diabetes, heart disease, and Parkinson's disease is crucial for effective treatment and management. However, traditional diagnostic methods are often time-consuming, costly, and require specialized medical expertise. There is a need for a system that can quickly and accurately predict the likelihood of these diseases using readily available health data.

Introduction:

This project aims to develop a web-based application for the prediction of diabetes, heart disease, and Parkinson's disease using machine learning models. The application provides an interactive interface where users can input relevant health parameters to obtain predictions about the presence of these diseases. The system leverages pre-trained machine learning models to analyze the input data and generate diagnostic results, potentially facilitating early intervention and improving patient outcomes.

Existing System:

The existing systems for predicting diseases are specialized tools that focus on individual diseases such as diabetes, heart disease, or Parkinson's disease. These systems often use sophisticated algorithms tailored to each specific disease.

Advantages:

1. **High Accuracy:** Due to the specialization, these systems can achieve high accuracy in predicting the respective diseases.
2. **Advanced Algorithms:** They utilize advanced algorithms and models fine-tuned for specific diseases, enhancing their predictive performance.
3. **Established Methodologies:** The methodologies used in these systems are well-researched and have been validated over time.

Disadvantages:

1. **Lack of Integration:** Users need to interact with multiple systems to get predictions for different diseases, leading to inconvenience.

2. **High Costs:** Specialized systems can be expensive, making them less accessible to the general public.
3. **Time-Consuming:** Obtaining predictions from separate systems can be time-consuming.
4. **Limited Accessibility:** Non-specialists or those without technical knowledge might find it difficult to use these systems effectively.

Proposed System:

The proposed system aims to integrate multiple disease prediction capabilities into a single platform using machine learning models. This system will be deployed as a web application using Streamlit, providing an easy-to-use interface for users to input their medical data and receive predictions for various diseases.

Advantages:

1. **Unified Platform:** Combines predictions for multiple diseases into one system, improving user convenience.
2. **User-Friendly Interface:** Accessible through a web application, making it easy for non-specialists to use.
3. **Quick Predictions:** Provides fast and reliable predictions based on user input data.
4. **Cost-Effective:** Reduces the need for multiple specialized systems, lowering the overall cost.

Disadvantages:

1. **Data Dependency:** The accuracy of predictions is highly dependent on the quality and quantity of input data provided by the user.
2. **Over-Reliance:** Users might over-rely on the system's predictions without seeking professional medical consultation.
3. **Integration Complexity:** Combining multiple prediction models into a single system can be complex and might require significant computational resources.

Software & Hardware Requirements:

Software:

- Python
- Streamlit
- Machine learning libraries (e.g., scikit-learn, pandas, numpy)
- Model files for diabetes, heart disease, and Parkinson's prediction

Hardware:

- A computer with an internet connection
- Basic processing power to handle model computations
- Adequate RAM to run the Streamlit application smoothly