Detailed Project Proposal

Web Application for AIDS detection using Machine Learning

Student Name:

Student Number:

Course:

Supervised by:

Type Of Proposal: Development

Introduction

The development of a website that is integrating a machine learning model to predict the outcomes of AIDS, it uses Streamlit. This framework is known for making Python scripts interactive and web-friendly, which can handle large data. The challenge of AIDS is significant in health, and using data science to tackle this could provide insightful results.

Aim

The main aim of this project is to develop a reliable machine learning model that can predict AIDS outcomes. The project will use the Streamlit framework so that it can create an interactive web application which can be accessible easily.

Objectives

1. To create a machine learning model using a comprehensive dataset on AIDS.

2. To train the model with suitable algorithms, such as the logistic regression, random forests, and maybe neural networks.

3. To validate the accuracy of this model in predicting AIDS based on clinical and demographic indicators.

4. To develop a user-friendly web interface that allows users to input their data and receive predictions.

5. To incorporate interactive elements in the website for better user engagement and understanding.

Methodology

Initially, an extensive AIDS dataset will be utilized to develop a machine learning model. Suitable algorithms, such as logistic regression, random forests, and neural networks could be considered for this classification task. After the model has been trained and validated to ensure it predicts accurately, the focus will shift to developing the web interface using Streamlit. Streamlit allows for easy integration of interactive widgets, such as sliders, buttons, and text inputs, which facilitates efficient collection of user inputs. These inputs then act as parameters for the machine learning model. In the Python script that powers the website, functions will be incorporated to process these inputs through the model and display the predictions on the web page. Streamlit also supports embedding data visualizations, which will be used to present charts and graphs that can help users understand the model’s predictions.

Conclusion

Upon the completion of this project, it is expected that the website will function as a tool that aids in the prediction of AIDS outcomes, leveraging the power of machine learning. This will not only demonstrate the practical application of data science in solving significant health issues but also provide a user-friendly platform for users to interact with the model. The integration of interactive elements and data visualizations will further enhance the understanding and accessibility of the predictive analysis, making it a valuable resource for users and researchers alike.