

Machine Learning for Diabetes Prediction

Team Details

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Selected Project Option

Option 1 - Data Modeling Track

Problem Statement

The objective is to develop a predictive model for diagnosing diabetes mellitus using machine learning techniques. By analyzing various health metrics and historical data, we aim to identify patterns and correlations that contribute to the accurate prediction of diabetes, facilitating early intervention and management.

Project Idea and Approach

Our approach involves using supervised learning algorithms (Logistic Regression, Random Forest, k-Nearest Neighbors, and Support Vector Machine) to analyze the PIMA Indians Diabetes Dataset. We will preprocess the data, perform exploratory data analysis, apply feature engineering with Principal Component Analysis (PCA) for dimensionality reduction, and compare the performance of the algorithms to select the optimal model. The project emphasizes the importance of accurate diabetes prediction to improve healthcare outcomes.

References

[1] Uswa Ali Zia, Dr. Naeem Khan. "Predicting diabetes in medical datasets using machine learning techniques."

[2] Vinaytosh Mishra, Dr. Cherian Samuel, Prof. S.K.Sharma. "Use of Machine Learning to Predict The Onset of Diabetes."

[3] Md. Aminul Islam and Nusrat Jahan. "Prediction of Onset Diabetes using Machine Learning Techniques."