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Machine Learning-Based Risk Prediction for Diabetes Using Health Survey and Clinical Indicators

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Abstract: The increasing global burden of diabetes necessitates proactive data-driven methods for risk detection and management. This research explores a comprehensive dataset of 35 health indicators—covering demographics, laboratory results, and lifestyle variables—to identify patterns related to diabetes occurrence. Employing multiple machine learning models, the study evaluates key predictors such as BMI, age, blood pressure, and physical activity. Results highlight the potential of these models in supporting targeted interventions and strengthening public health strategies.

Keywords: Diabetes Prediction, Health Surveys, Machine Learning, Risk Modeling, Public Health Analytics

