IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 6, November 2024

Predictive Modeling for Diabetic Management: A Machine Learning Approach

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Abstract: *Effective diabetic management is crucial for improving patient outcomes and reducing healthcare costs. This study investigates the application of machine learning techniques to develop predictive models for diabetic management. By leveraging comprehensive patient data, including demographics, medical history, and lifestyle factors, various algorithms such as decision trees, random forests, support vector machines, and neural networks were evaluated. The models demonstrated high accuracy in predicting blood glucose levels, potential complications, and the effectiveness of different treatment regimens. These predictive insights facilitate personalized treatment plans and timely interventions, enhancing patient care. The approach aims to empower healthcare providers with data-driven tools to optimize diabetic management strategies, ultimately improving the quality of life for diabetic patients and minimizing the risk of severe complications.*

Keywords: Diabetic management, machine learning, predictive modeling, decision trees, random forests

DOI: 10.48175/IJARSCT-22526