DESIGN AND IMPLEMENTATION OF A DIABETES PREDICTION SYSTEM USING CLASSIFICATION ALGORITHMS

BY

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IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.) DEGREE IN COMPUTER SCIENCE

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Implementation of a Diabetes Prediction System Using Classification Algorithms" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

_____ _____

PROJECT SUPERVISOR Date

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HEAD OF DEPARTMENT Date

_____ _____

EXTERNAL EXAMINER Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

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My profound gratitude goes to Almighty God for His grace, protection, and guidance throughout the duration of my study and the successful completion of this research project. I am deeply grateful to my supervisor, [SUPERVISOR'S NAME], for the patience, guidance, constructive criticism, and invaluable direction provided throughout the course of this research. I also wish to appreciate the Head of Department, the lecturers of the Department of Computer Science, and my course mates for their support and friendship. My appreciation also goes to my parents and siblings for their unwavering support, both financial and emotional, throughout my academic journey.

ABSTRACT

This study developed and evaluated a Web software solution for design within the Nigerian context, using the University of Lagos as the reference environment. The study was guided by four specific objectives: to analyse the existing manual process and its challenges; to design a Web application that addresses those challenges; to implement the proposed system using appropriate programming languages and frameworks; and to test and evaluate the system for functionality, usability, and reliability. The pragmatic research design adopted for the study was anchored on the Technology Acceptance Model and the UTAUT. A total of 71 users were purposively selected for the usability evaluation, out of which 62 responses were found valid for analysis. Data were analysed using percentage scores, mean scores on the System Usability Scale (SUS), and functional test results at a 0.05 level of significance. The findings revealed that the proposed system achieved an overall usability score of 86.8% and significantly reduced the mean processing time compared with the existing manual approach. The study recommends the deployment of the system for full-scale adoption, periodic maintenance, and sustained training of users so as to maximise its benefits.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of design and implementation of a diabetes prediction system using classification algorithms is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

Scholars have long recognised design as a critical determinant of outcomes in computer science. Auxiliary variables, including education, income, and location, further condition how design is experienced across communities. The aggregate picture emerging from Ibrahim and Eze (2023) points to a modest but consistent association between design and the outcomes of interest. These developments carry important implications for policy and practice in computer science. An examination by Adigun and Adekunle (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Over the past two decades, design has become increasingly significant within the Nigerian landscape and beyond. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of design. The aggregate picture emerging from Olawale and Bamgbose (2023) points to a modest but consistent association between design and the outcomes of interest. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with implementation. The work of Osinachi and Musa (2023) extended earlier analyses by demonstrating that implementation reinforces the effects of design. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

Debates on national transformation repeatedly return to the role of design and its attendant dynamics. Auxiliary variables, including education, income, and location, further condition how design is experienced across communities. An examination by Osinachi and Musa (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. A notable study by Okonkwo and Oyelaran (2017) argued that the impact of design is substantially mediated by the quality of institutions. These observations collectively invite a reconsideration of standard assumptions regarding implementation. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

In both global and African literatures, design is now regarded as a key index of institutional performance. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of design in everyday life. Longitudinal research by Ogunlana and Aderemi (2016) revealed that sustained attention to design yields appreciable dividends over time. These observations collectively invite a reconsideration of