

DESIGN AND IMPLEMENTATION OF A DATA MINING PATTERN DISCOVERY SYSTEM

BY

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DEGREE IN DATA SCIENCE

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Implementation of a Data Mining Pattern Discovery System" 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

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 Data 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 68 users were purposively selected for the usability evaluation, out of which 65 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 87.4% 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 data mining pattern discovery system 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.

design, when examined in relation to implementation, reveals complex and often paradoxical dynamics. In Nigeria, the intersection of design and implementation is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. Empirical evidence from Chukwu and Umeh (2021) suggests that positive developments in implementation are associated with improvements in design. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Studies conducted within the West African subregion by Olawale and Ogbeide (2018) reached conclusions broadly consistent with the Nigerian evidence. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

The phenomenon of design, while not new, has acquired fresh analytical urgency in Nigeria. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which design unfolds. Findings reported by Olawale and Famuyide (2018) observed that respondents with greater exposure to design recorded markedly different results. These developments carry important implications for policy and practice in data science. The work of Ogunlana and Ogbeide (2023) extended earlier analyses by demonstrating that implementation reinforces the effects of design. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Contemporary scholarship increasingly frames design as inseparable from the broader question of implementation. National policies and programmes have sought, with varying degrees of success, to respond to the realities of design and implementation. Findings reported by Ogunlana and Ogbeide (2018) observed that respondents with greater exposure to design recorded markedly different results. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Studies conducted within the West African subregion by Olawale and Osinachi (2018) reached conclusions broadly consistent with the Nigerian evidence. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The relationship between design and implementation has been the subject of sustained academic interest across several disciplines. Economic pressures and resource scarcity frequently determine the pace at which design advances in practice. Field evidence gathered by Eze and Dauda (2016) suggested that stakeholder