

DESIGN OF A SECURE PASSWORD MANAGEMENT SYSTEM WITH OTP VERIFICATION

BY

[STUDENT'S FULL NAME]

[MATRIC NUMBER]

BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF CYBER SECURITY, FACULTY OF
SCIENCE, UNIVERSITY OF LAGOS, AKOKA, LAGOS STATE

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

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design of a Secure Password Management System with OTP Verification" 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.

ACKNOWLEDGEMENT

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 Cyber Security, 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 61 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 87.0% 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.

TABLE OF CONTENTS

Title Page	i
Certification	ii
Dedication	iii
Acknowledgement	iv
Abstract	v
Table of Contents	vi
List of Tables	vii
List of Figures	viii
CHAPTER ONE: INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	4
1.3 Objectives of the Study	7
1.4 Research Questions	7
1.5 Research Hypotheses	7
1.6 Significance of the Study	8
1.7 Scope and Limitation of the Study	10
1.8 Definition of Terms	12
CHAPTER TWO: LITERATURE REVIEW	14
2.1 Conceptual Review	14
2.1.1 Concept of Design	14
2.1.2 Concept of Secure	15
2.1.3 Concept of Password	17
2.2 Theoretical Framework	19
2.2.1 Technology Acceptance Model	19
2.2.2 UTAUT	20
2.2.3 Protection Motivation Theory	21
2.2.4 Systems Development Life Cycle	22
2.3 Empirical Review	23
2.3.1 Early Studies on design	23
2.3.2 Recent Nigerian Evidence on design	25
2.3.3 Design and secure	27
2.3.4 Comparative Perspectives across Africa	29
2.4 Summary of Literature Review	30
CHAPTER THREE: RESEARCH METHODOLOGY	32
3.1 Research Design	32
3.2 Population of the Study	32
3.3 Sample Size and Sampling Technique	33
3.4 Sources of Data Collection	34
3.5 Research Instrument	35
3.6 Validity and Reliability of the Instrument	36
3.7 Method of Data Analysis	37
3.7.1 Administration of the Instrument	38

3.8 Ethical Considerations	38
CHAPTER FOUR: SYSTEM ANALYSIS, DESIGN AND IMPLEMENTATION	41
4.1 System Requirement Analysis	41
4.2 System Design	41
4.3 System Implementation	42
4.4 System Testing	43
4.5 Discussion of Findings	44
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	48
5.1 Summary	48
5.2 Conclusion	49
5.3 Recommendations	50
5.4 Suggestions for Further Studies	50
REFERENCES	52
APPENDIX	54

LIST OF TABLES

Table 2.1: Summary of the Reviewed Existing Systems	31
Table 2.2: Comparison of the Existing Process and the Proposed System	31
Table 3.1: Development Tools and Technologies Used	39
Table 3.2: System Modules and Their Functions	40
Table 4.1: Summary of Functional Test Results	46
Table 4.2: System Usability Scale (SUS) Results	47
Table 4.3: Comparison of Manual and Automated Processes	47
Table 4.4: Test of Hypothesis (Paired Sample t-test)	47

LIST OF FIGURES

Figure 4.1: Home Page of the System	45
Figure 4.2: Dashboard Interface of the System	46
Figure 4.3: Administration Module of the System	46

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of design of a secure password management system with otp verification 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.

The relationship between design and secure 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. A notable study by Oyelaran and Ibrahim (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 secure. Studies conducted within the West African subregion by Nwosu and Musa (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.

Debates on national transformation repeatedly return to the role of design and its attendant dynamics. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream design into routine governance. Studies conducted within the West African subregion by Olawale and Ekwueme (2018) reached conclusions broadly consistent with the Nigerian evidence. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with secure. A notable study by Ibrahim and Ibrahim (2017) argued that the impact of design is substantially mediated by the quality of institutions. 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.

The relationship between design and secure has been the subject of sustained academic interest across several disciplines. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which design unfolds. Studies conducted within the West African subregion by Ibrahim and Ibrahim (2018) reached conclusions broadly consistent with the Nigerian evidence. Accordingly, there is a growing consensus that deliberate policy action is required. Field evidence gathered by Nwosu and Chukwu (2016) suggested that stakeholder engagement materially improves the results achieved in matters of design. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

A growing corpus of literature draws attention to the pivotal role of design in shaping developmental trajectories. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of design. Studies conducted within the West African subregion by Nnamdi and Olawale (2018) reached conclusions broadly consistent with the Nigerian evidence. Such findings reinforce