

**DEVELOPMENT OF CLOUD BASED GERIATRIC HEALTH ASSESSMENT TOOL  
USING FRAILTY INDEX**

**BY**

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MASTER OF SCIENCE DEGREE IN COMPUTER SCIENCE**

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## ACCEPTANCE

This is to attest that this dissertation was accepted in partial fulfilment of the requirements for the award of Master of Science (M.Sc.) degree in Computer Science in the department of Computer and Information Science, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria.

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## DECLARATION

I hereby declare that this dissertation entitled **Development of a cloud based web geriatric health assessment tool using frailty index** was carried out by Asite Ovakporoye with matriculation number 16PCG01364. The project is centered on an original study in the Department of Computer and Information Sciences, College of Science and Technology, Covenant University, Ota, under the supervision of Prof. Victor C. Osamor. Concepts of this research project are results of the research carried out by Asite Ovakporoye. Ideas of other researchers have also been fully recognized.

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## CERTIFICATION

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## **DEDICATION**

I dedicate this project to God Almighty for His sufficient grace, wisdom and knowledge given to me throughout my Master's Degree Programme.

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# TABLE OF CONTENTS

TITLE PAGE.....	i
Acceptance .....	ii
Declaration .....	iii
Certification .....	iv
Dedication .....	v
Acknowledgement .....	vi
Table Of Contents .....	vii
List Of Figures .....	x
List Of Tables .....	xi
Abstract .....	xii

## CHAPTER ONE:INTRODUCTION

1.1 Background .....	1
1.2 Statement Of the Problem .....	3
1.3 Aim And Objectives .....	3
1.4 Research Methodology .....	4
1.5 Significance Of The Study .....	5
1.6 Scope Of Study .....	5
1.7 Contribution To Knowledge .....	5
1.8 Definition Of Concepts .....	6
1.9 Dissertation Outline .....	7

## CHAPTER TWO:LITERATURE REVIEW

2.1 Introduction.....	8
2.2 E-Health (Brief History) .....	9
2.2.1 E-Health Initiatives In Nigeria .....	10
2.2.2 Telemedicine .....	12
2.3 Cloud Computing In Healthcare .....	12
2.3.1 Benefits Of Cloud Computing In Healthcare .....	14
2.3.2 The Cloud-Based System .....	16
2.3.3 Cloud Computing Characteristics.....	17
2.3.4 Cloud Computing Service Models .....	17
2.3.5 Cloud Computing Deployment Models.....	18
2.3.6 Cloud Computing Architecture .....	19
2.3.7 Cloud Infrastructure.....	19

2.4	Developing Health Web Portal .....	20
2.4.1	E-Health Assessment Tool Requirement.....	21
2.4.2	Challenges Of Cloud Based Health Application Adoption .....	22
2.4.2.1	Security Concerns .....	22
2.4.2.2	Perceived Loss Of Control Over Information .....	23
2.4.2.3	Interoperability .....	24
2.4.2.4	Absence Of Data Base.....	24
2.4.2.5	Problems Of Internet Service Delivery .....	25
2.5	The Proposed National Cloud Framework .....	25
2.6	Frailty.....	27
2.6.1	Assessment Tools To Identify Frailty .....	29
2.6.2	Developing The Electronic Frailty Index Assessment Tool.....	30
2.7	Theoretical Framework .....	31
2.8	Related Work .....	33

### **CHAPTER THREE: SYSTEM ANALYSIS AND DESIGN**

3.1	Introduction.....	38
3.2	Overview Of Geriatrics Assessment Process.....	38
3.3	Proposed System.....	38
3.4	Requirement Identification/Specification .....	39
3.4.1	Functional Requirements .....	39
3.4.2	Nonfunctional Requirements .....	40
3.5	Mapping Of Requirements To System Modules .....	40
3.6	Proposed Framework/ Architecture .....	42
3.7	System/Requirement Modelling .....	44
3.7.1	Use Case Diagram.....	44
3.7.2	Activity Diagram .....	45
3.7.3	Sequence Diagram .....	46
3.8	Data Modelling .....	47
3.9	Algorithm To Utilize Each Module .....	50
3.9.1	Administrator Module.....	50
3.9.2	Doctor Module .....	50
3.9.3	Patient/User Module .....	52
3.10	Pseudocode For Dialogue Sequence.....	54



## **CHAPTER FOUR:SYSTEM IMPLEMENTATION AND EVALUATION**

4.1 Introduction.....	55
4.2 The Implementation Tools.....	55
4.2.1 Programming Languages .....	55
4.2.2 The Web Server .....	55
4.2.3 The Database Management.....	55
4.3 System Requirement .....	56
4.3.1 Hardware Requirement .....	56
4.3.2 Software Requirement .....	56
4.4 Implementation Screenshots .....	57
4.5 System Usability Evaluation Using Iso 9241 .....	67
4.5.1 Survey Results Collected From Users .....	71
4.6 Results And Discussion .....	73
4.7 Threats To Validity.....	74
4.7.1 Threats To Internal Validity.....	74
4.7.2 Threats To Statistical Conclusion Validity .....	75
4.7.3 Threats To Construct Validity .....	75
4.7.4 Threats To External Validity .....	76
<b>CHAPTER FIVE:SUMMARY, CONCLUSION AND RECOMMENDATIONS</b>	
5.1 Summary .....	77
5.2 Conclusion .....	77
5.3 Recommendations And Future Work .....	78
REFERENCES .....	79
APPENDIX A: SYSTEM EVALUATION QUESTIONNAIRE.....	85

## LIST OF FIGURES

TITLE	PAGE
Figure 2.1: A Figure Showing Definition of deficits in Frailty.....	28
Figure 3.1: Proposed Framework: 3-Tier Architecture of the proposed System.....	43
Figure 3.2: System use-case for patients and doctors.....	44
Figure 3.3: Activity Diagram of the Geriatric Assessment System.....	45
Figure 3.4: Sequence Diagram of the Geriatric Assessment System.....	46
Figure 3.5: Relationship Diagram of the System's Database schema.....	49
Figure 3.6: Pseudocode of the Dialogue Sequence.....	54
Figure 4.1: Screenshot of the Home/Login Page.....	57
Figure 4.2: Screenshot of Registration Page.....	58
Figure 4.3: Screenshot of Patient Dashboard.....	59
Figure 4.4: Screenshot of Doctor Dashboard.....	60
Figure 4.5: Screenshot of Doctor adding a patient to Access List.....	61
Figure 4.6: Screenshot of a Doctor issuing a test page.....	62
Figure 4.7a: Screenshot of Test Page (Phenotype).....	63
Figure 4.7b: Screenshot of Test Page (Frailty).....	63
Figure 4.8a: Screenshot of Test Result Page.....	64
Figure 4.8b: Screenshot of Test Result Page.....	64
Figure 4.9: Screenshot of Copy of Test sent to patient email.....	65
Figure 4.10: Screenshot showing Admin list of patient in the System.....	66
Figure 4.11: Microsoft Azure cloud service user's dashboard.....	67
Figure 4.12: Microsoft Azure cloud service create and test application screenshot.....	67
Figure 4.13: Microsoft Azure cloud service create deployment configuration Settings screenshot.....	68
Figure 4.14: Microsoft Azure cloud service deployment successful screenshot.....	69
Figure 4.15: Usability Analysis of the System in Percentage.....	70
Figure 4.16: Usability Analysis of the System for All Evaluated Attributes.....	71

## LIST OF TABLES

<b>TITLE</b>	<b>PAGE</b>
Table 1.1: Objective and Methodology Mapping.....	4
Table 2.1: A review of existing frailty index system based on specific health situations.....	36
Table 3.1 Requirements and Description.....	41
Table 3.2 Module and Requirements.....	41
Table 3.3: Patient (User) table.....	47
Table 3.4: Test Table.....	47
Table 3.5 Doctor (User) Table.....	48
Table 3.6: Phenotype Test Table.....	48
Table 3.7: System Administrator Table.....	48
Table 4.1: Hardware requirement.....	56
Table 4.2: Statistics of Respondents' Personal Data.....	70
Table 4.3: A summary of the result from Questionnaire.....	71
Table 4.4: Survey Results Collected from Users.....	71
Table 4.5: Survey Results for Background Information.....	72

## ABSTRACT

Frailty in the elderly basically implies the vulnerability of older people to adverse health outcomes which can be engendered by different factors. It is apparent that as an individual becomes older, the risk of becoming vulnerable to threats of chronic disease also increases. Therefore a valid, reliable, and concise frailty measure is essential for public health and for all providers who work with older adults. Frailty measure allows for the identification of health factors that predispose an older adult to ill-health as well as directing the development of preventive and treatment interventions. Frailty measure is accomplished via frailty index assessment. The manual process employed in performing these assessments is deemed inefficient because it is prone to human error, misjudgment and bias as well as its electronic counterparts that lack security and data reliability. Although, from previous studies, different systems and approaches have been used to address this problem, these studies have not embraced an integration of several specific health scenarios and frailty algorithms. Also, existing systems do not employ any means of verification, security, proper data storage. Thus, the aim of this study is to improve on the achievements of previous studies by creating a more robust platform that considers three specific health scenarios, which are; Surgery, Cardiology and Oncology. This work also employs a combination of Two Frailty Algorithms; Edmonton Frailty Scale and Physical Phenotype Frailty to develop a prototype Geriatric assessment tool based on Frailty index equipped with verification and security that can be used for Frailty Assessment. The developed system was evaluated using ISO 9241 Usability standard to determine user satisfaction, efficiency and effective in the use of the system. The result of the usability evaluation showed that the developed application has an 'above average usability' rating of 3.59 out of 5 scales. This shows that the Geriatric Health Assessment system is usable for testing frailty in elderly people.