**ACKNOWLEDGEMENT**

This capstone project is the result of tremendous effort and the invaluable support of various individuals who have been directly or indirectly involved. The combined contributions of these individuals, each in their own unique way, have made this achievement possible. I would like to sincerely thank and acknowledge the following individuals for their assistance in bringing this study to fruition:

First and foremost, I offer my gratitude and recognition to the **Almighty God** for His continuous provisions throughout my journey in completing this thesis successfully. All of these blessings have been bestowed upon me through His grace, mercy, and unwavering love. With God, all things are achievable.

I extend my heartfelt appreciation to all my professors and instructors at NONESCOST, as well as to my advisor, **Dr. Kristine T. Soberano**, for their guidance, expertise, patience, constructive comments, and suggestions, all of which have played a crucial role in making this study possible.

Lastly, I would like to express my deep gratitude to my beloved wife, **Mrs. Meralynn F. Carton**, as well as the rest of my family, friends, and all the supportive individuals who have worked behind the scenes, offering unwavering support and encouragement throughout my academic journey.

**Abstract**

*This study aimed to develop an Alumni Tracker with Job Matching system using Artificial Intelligence (AI) integration. The system collects and analyzes data on alumni's education, work experience, skills, and preferences to provide personalized job recommendations. The study utilized an iterative approach and Agile methodology in the system design, development, testing, deployment, and maintenance phases. The project team used AI algorithms, including Hybrid Filtering, Collaborative Filtering, User Based Content Filtering, and NLP algorithm, to develop an effective job matching system. The system was evaluated based on the ISO 25010 Software Quality Model criteria, and the results indicated that the system met the requirements for reliability, usability, maintainability, security, compatibility, and functional suitability. The Alumni Tracker with Job Matching using AI Integration system sets itself apart from other alumni tracker systems by providing personalized job recommendations and up-to-date information on job openings. The study concludes that the integration of AI in the Alumni Tracker system is highly effective and beneficial for managing alumni data, providing personalized job recommendations through AI job matching and NLP algorithms, and generating detailed reports for alumni, employers, employment rate, and job postings.*

***Keywords:*** ***Artificial Intelligence, Alumni Tracker, Job Matching, Hybrid Filtering, NLP Algorithm***

**TABLE OF CONTENTS**

TITLE PAGE i

Approval Sheet ii

Acknowledgment iii

Abstract iv

Table of Contents v

List of Figures vii

List of Tables viii

Chapter I - INTRODUCTION

Background of the Study 1

Objectives of the Study 2

Scope and Limitations 3

Significance of the Study 4

Definition of Terms 6

Conceptual Framework of the Study 8

Chapter II - RELATED LITERATURE AND PRIOR ARTS SEARCH

Related Literatures 9

Prior Arts 18

Synthesis 23

Chapter III - METHODOLOGY

System Design 24

Data Gathering Procedure 26

Context Flow Diagram 29

Data Flow Diagram 30

Entity-Relationship Diagram 31

Application Architecture 32

Use Case Diagram 33

Software Requirements 34

Hardware and Other Required Devices 35

Cost-Benefit Analysis 35

Chapter IV - PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

In terms of managing NONESCOST Alumni’s data 41

In terms of integrating AI using Job Matching Algorithm to provide personalized job recommendations 43

In terms of integrating AI using Natural Language Processing (NLP) Algorithm to analyze text and providing suggestions 44

In terms of generating report 49

In terms of the characteristics set in ISO 25010 Software Quality Model 53

Chapter V - SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary of Findings 55

Conclusion 56

Recommendation 57

References 58

APPENDICES

A  Letter to the Client 59

B  Self-made Questionnaire for ALMAI 60

C  Questionnaire for ISO 25010:

Software Quality Standards 61

Curriculum Vitae 62

**LIST OF FIGURES**

Figure 1 Conceptual Framework of the Study 8

Figure 2 Agile Software Development 24

Figure 3 Context Flow Diagram 29

Figure 4 Data Flow Diagram 30

Figure 5 Entity Relationship Diagram 31

Figure 6 Application Architecture 32

Figure 7 Use Case Diagram 33

Figure 8 Alumni’s Profiles 38

Figure 9 Alumni’s Education 39

Figure 10 Alumni’s Work Experience 39

Figure 11 Alumni’s Skills Assessment 40

Figure 12 Alumni’s Job Preferences 40

Figure 13 Alumni’s Job Matching 42

Figure 14 Job’s Best Candidate 43

Figure 15 Alumni Job Preferences with AI 44

Figure 16 Alumni Report per Batch 45

Figure 17 Alumni Report per College 46

Figure 18 Alumni Report per Courses 46

Figure 19 Employer Report 47

Figure 20 Employer Report per Industry 47

Figure 21 Job Posting Report per year 48

Figure 22 Job Posting Report per month 48

Figure 23 Employer Dashboard 50

Figure 24 Admin Dashboard 51

Figure 25 Alumni Dashboard 51

**LIST OF TABLES**

Table 1  Sample Size 22

Table 2  Reliability and Statistics 24

Table 3  Developmental Cost 33

Table 4  Operational Cost 33

Table 5  Total Developmental and Operational Cost 34

Table 6  Benefits of the system 34

Table 7  Cost-Benefit Analysis 35

Table 8  In terms of centralizing records of Barangay

Health Center and Barangay Office 41

Table 9  In terms of managing barangay public information 44

Table 10 In terms of filtering constituents’ profile as

to requests, complaints, and health services availed 47

Table 11 In terms of displaying inventory of medical

and office supplies 49

Table 12 In terms of mobile application allowing registered users to set appointments, file complaints,

and view medical Records 53

Table 13 In terms of the characteristics set in

ISO 25010 Software Quality Model 57

Table 14 In terms of usefulness, satisfaction,

and ease of use and learning 60