Universiti Teknologi MARA

Intelligent Agent For Checking Examination Questions (IACEQ)

Nur Amalina Binti Kamarudin

Thesis submitted in fulfilment of the of the requirements for Bachelor of Science (Hons.) Computer Science Faculty of Computer and Mathematical Sciences

January 2014

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim In The Name of ALLAH. The Most Gracious and Most Merciful

Alhamdullilah praised to Allah with his help and will, I have completed this proposal for my final year project on time. May this proposal will give benefit me and the others.

My greatest thanks and appreciation to my supervisor, Puan Normah Binti Ahmad for the valuable guidance and advice. She had taught a lot to me during preparation of the proposal and she never let me down. Her willingness to encourage me contributed tremendously to my project. I also would like to thank her for showing me some example that related to the topic of my project.

I also would like thank my lecturer; Puan Siti Khatijah Nor Binti Abdul Rahim and Mohamed Imran bin Mohamed Ariff. Theyhave guided me for the subjects CSP600 (Project Formulation) and CSP650 (Project). Theyhave also given me some ideas and suggestion on my project.

Finally, an honorable mention goes to my families and friends for their understandings and supports in completing proposal report for this system. Without helps of the particular that mentioned above, I would face many difficulties while doing this. Thank you for always supporting me and being there whenever I am in need. May Allah bless all of you. Amin. Thank you.

ABSTRACT

In the context of UiTM, the exam questions for each course are made by different lecturers. In preparing the final exam questions, each lecturer need to send the exam questions to the panel to decide which exam questions meet the requirement to be the final exam questions for the subject. Usually, lecturer does not compare the questions with the previous semester exam questions. Thus, the possibility of the questions being repeated again with the previous exam questions might be high. The problem is there is no intelligent agent that can measure the similarity of the questions when needed. The purpose of this paper is to develop an intelligent agent that will measure the similarity of the proposed exam questions with the previous exam questions. In the process of measuring the degree of the similarity of the questions, exact matching technique with synonym was chosen. The agent compares the proposed exam questions with the previous exam questions selected by the lecturer and generate result showing the degree of similarity between those questions. As a result, it is found out that all of the results are in range of 0.0056 to 0.1167 which is far from 1.000. This means, the proposed exam question and previous exam questions mostly are not similar. Only the same questions that are compared together produce 1.000 similarities which mean it is absolutely the same. This is proven by the result given by the system. IACEQ system can ease a lot of the lecturer task, saves their times and energy, but with some improvements. The hope is that the system can give benefit to the education field and help to reduce lecturer task.

TABLE OF CONTENTS

PAGE CONTENTS ii SUPERVISOR'S APPROVAL iii DECLARATION ACKNOWLEDGEMENT iv ABSTRACT v **TABLE OF CONTENTS** vi **LIST OF FIGURES** ix LIST OF TABLES х

CHAPTER ONE: INTRODUCTION

1.1	Introduction	1
1.2	Problem Statement	2
1.3	Objective	3
1.4	Scope	3
1.5	Significance	4

CHAPTER TWO: LITERATURE REVIEW

2.1	Intelligent Agent	5
2.2	Intelligent Agent in Teaching and Learning	7
2.3	Exam Questions	9
2.4	Pattern Matching	11
2.5	Semantic Similarity	14
2.6	Plagiarism	16

2.7	Optical Character Recognition	18
2.8	WordNet	18
2.9	English Open Word List	19
2.10	Summary	19

CHAPTER THREE:METHODOLOGY

~

3.1	Proposed Technique		21
3.2	Overview Research Framework		
3.3	Gathering Information		
3.4	Data Collection		
3.5	System	n Design	25
	3.5.1	Design Subprogram 1: Word Similarity26	
	3.5.2	Design and Develop Intelligent Agent28	
	3.5.3	Combine Subprogram 1 and Intelligent Agent29	
	3.5.4	Overview the System Flow29	
3.6	Testir	ng and Evaluation	31
3.7	Conclusion		

CHAPTER FOUR: IMPLEMENTATION

4.1	IACEQ	32
4.2	Intelligent Agent	33
4.3	Word Similarity Engine	34
4.4	Data and Text File	34
4.5	Tokenization of Words	35
4.6	Stopword Removal	35
4.7	Stemming	36
4.8	Listing Word-Frequencies	36