Universiti Teknologi MARA

Malay Language Sentence Checker

Mohammad Safiq Bin Hamzah

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

January 2014

ACKNOWLEDGEMENTS

Alhamdulillah. Thanks to Allah SWT, whom with His willing giving me the opportunity to complete this Final Year Project with the title Malay Language Sentence Checker. I have taken efforts in this project but it would not been done without the kind support and help of many individuals. I would like to extend my sincere thanks to all of them.

Firstly, I would like to give my special thanks of gratitude to my lecturer, Madam Siti Khatijah Nor bt. Abdul Rahim, Sir Mohamed Imran bin Mohamed Ariff and also to my beloved dedicated supervisor, Madam Masurah bt. Mohamad who had teach from the beginning and also give a guidance to finish this report. Their advice and support all trough in completing this Final Year Project report. They never give up in supporting me and also give me a lot of time to me even they are busy with their work. I am very grateful to have my lecturer and my supervisor.

Bigger thanks and appreciate also to my parents, family, housemate, and friends for their encouragement, cooperation, and support for report completion, from the beginning until the end. Everyone has been contributed by supporting my work, give ideas and also help myself during the progress of my report until it is fully finished.

Last but not least, I also would like to give thanks to Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA for giving me this opportunity to learn and giving a great experience by doing this Final Year Project.

ABSTRACT

People nowadays tend to ignore the importance of grammar or spelling in daily usage such as texting, emailing or chatting. This research presented the development of Malay Language Sentence Checker, which can check the incorrect spelling and grammar. There are so many grammar checkers in the online web based but most of them were only check for English grammar because English was an international language that every country used it. That's why this research will focus only on Malay language that still not has been widely used in the Internet. The main purpose of this research is to develop an interactive online learning system that can evaluate the Malay language sentences constructed by the user and also to guide user to construct a good Malay sentence. This research will help students who want to construct Malay sentence in ease and attractive ways with implemented some of interactive and colorful website to attract the students. Malay Language Sentence Checker will check the spelling errors and give some suggestions and then each word will be categorized using POS tagger, and the structure of the word class will be compared with the correct grammar structure. From the testing, all the system functional as required and from the analysis the system is suitable to use by the primary students who want to learn construct a good Malay sentence. From the questionnaire given, more than 80% from the respondents satisfy about the research project. For the future works, the researcher still could continue developed the project to improve the research project with increase the number of grammar rules, type of sentence and also developed in mobile application platform.

Key words: Malay language, spelling, POS tagger, grammar structure, primary students.

TABLE OF CONTENT

CONTEN	Г	PAGE
SUPERVI	SOR'S APPROVAL	ii
DECLAR	ATION	iii
ACKNOW	LEDGEMENTS	iv
ABSTRAC	CT	v
TABLE OF CONTENT		vi
LIST OF	FIGURES	ix
LIST OF	TABLES	xi
CHAPTER 1: INTRODUCTION		1
1.0	Introduction	1
1.1	Background	1
1.2	Problem Statement	2
1.3	Objectives	3
1.4	Scopes	3
1.5	Significances	4
1.6	Conclusion	4
CHAPTER 2: LITERATURE REVIEW		5
2.0	Introduction	5
2.1	Language Checker	6

2.2	Rules	8
2.3	 Techniques 2.3.1 Statistics-based checking using n-gram analysis 2.3.2 Part-Of-Speech (POS) Tagger 2.3.3 Context-Free-Grammar (CFG) 2.3.4 Chunk Grammar-based 2.3.5 Top-Down Parsing Technique 2.3.6 Collins's Parser 	9 9 10 11 11 12 12
2.4	 Current System 2.4.1 Myammar-English Machine Translator 2.4.2 Sentence Correction for Malay language 2.4.3 Punjabi Grammar Checker 2.4.4 System Grammar Checker for English and Bangla 2.4.5 Indonesian Parsing 2.4.6 Arab Grammatical Relation System 2.4.7 Malay Language Sentence Checker 2.4.8 Interactive Learning System 	13 13 14 14 15 15 16 17 18
2.5	Conclusion	19
CHAPTE	R 3: RESEARCH METHODOLOGY	20
3.0	Introduction	20
3.1	Development Methodology	20
3.2	Research Process	25
3.3	Grammar Structure or Context Free Grammar	28
3.4	Research Planning	28
3.5	Conclusion	29
CHAPTE	R 4: SYSTEM DEVELOPMENT AND DESIGN	30
4.0	Introduction	30
4.1	System Requirements	30
4.2	System Development4.2.1 Spelling Algorithm4.2.1 Grammar Algorithm	31 31 34