

TABLE OF CONTENTS

APPROVAL PAGE	ii
PREFACE.....	iii
TABLE OF CONTENTS.....	iv
LIST OF FIGURES	vi
LIST OF TABLES	ix
INTISARI.....	x
ABSTRACT	xi
Chapter I INTRODUCTION	1
1.1. Background Problem	1
1.2. Problem Statement.....	3
1.3. Research Scope.....	3
1.4. Research Objective	3
1.5. Research Significance.....	4
CHAPTER II LITERATURE STUDY	5
CHAPTER III THEORETICAL BASIS	11
3.1. Data Preprocessing	11
3.1.1. Text Cleaning.....	11
3.1.2. Case-folding.....	12
3.1.3. Tokenization.....	13
3.1.4. Part-of-Speech (POS) Tagging	13
3.1.5. Dependency Parsing.....	16
3.1.6. Global Vector (GloVe) Embeddings.....	17
3.2. Bi-Directional Long Short-Term Memory (BiLSTM)	17
3.3. Relational Graph Attention Network.....	21
3.4. Performance Metrics.....	25
3.4.1. Accuracy	26
3.4.2. Macro-Average F1 Score	26
CHAPTER IV RESEARCH METHOD	27
4.1. Research Overview.....	27
4.2. Data.....	28
4.3. Research Methods.....	29
4.4. Data Pre-processing.....	30
4.5. Data Splitting for Training, Validation, and Testing	31
4.6. Model Design	31
4.6.1. Contextual Encoder.....	32
4.6.2. Relational Graph Attention Network (RGAT) Encoder	33
4.6.3. Pooling Layer.....	36
4.6.4. Hyperparameters	37
4.7. Model Evaluation	38
CHAPTER V IMPLEMENTATION	40
5.1. Data Collection.....	40



5.2. Data Pre-processing	41
5.3. Data Splitting.....	48
5.4. Classifier Model	48
5.4.1 Preparing Vocab Files	49
5.4.2. Model	52
5.4.3. Data Loader.....	57
5.4.4. Model Training	59
5.5. Model Evaluation	67
CHAPTER VI RESULTS	70
6.1. Data Collection.....	70
6.2. Data Pre-processing and Splitting	70
6.3. Classifier Model Results.....	74
CHAPTER VII CONCLUSION	84
7.1. Conclusion.....	84
7.2. Suggestions.....	85
REFERENCES.....	86