

TABLE OF CONTENTS

APPROVAL SHEET	i
PERNYATAAN	ii
SURAT PENGANTI PENGESAHAN	iii
ACKNOWLEDGEMENTS	vii
TABLE OF CONTENTS	viii
LIST OF TABLE	xiii
LISTINGS	xiv
INTISARI	xv
ABSTRACT	xvii
I. INTRODUCTION	1
1.1 Background of the Problem	1
1.2 Problem Identification	2
1.3 Problem Scope	2
1.4 Problem Formulation	3
1.5 Purpose of the Research	3
1.6 Benefits of the Research	3
1.7 Scope of Research	4
II. LITERARY REVIEW	5
III. THEORETICAL FRAMEWORK	7
3.1 Information Retrieval	7
3.2 Text Processing	7
3.2.1 Tokenisation	8
3.2.2 Filtering	9
3.2.3 Stemming	10
3.2.4 Tagging	11

3.2.5	Analysing	12
3.3	Database Systems	13
3.4	Access to Instant Messaging Services	14
IV.	RESEARCH METHODOLOGY	15
4.1	Description of the Research	15
4.2	Design of the Research	15
4.3	Design of the System	15
4.4	System Data Flow Diagram	16
4.5	User Interface – The Control Panel	19
4.5.1	Main Form	19
4.5.2	Main Form + Setting & Logout	19
4.5.3	Chat Page	20
4.5.4	Setting Page	21
4.5.5	Per-Chat Menu Page	21
4.5.6	Per-Chat Custom Setting	22
4.5.7	Important Message Menu	23
4.6	Quality Testing	23
4.6.1	Functional Testing	23
4.6.2	Usability Testing	24
4.7	Accuracy Rate Calculation	25
4.7.1	Precision at K	25
4.7.2	R-Precision	26
V.	IMPLEMENTATION	27
5.1	Database Implementation	27
5.1.1	Users Table	28
5.1.2	Users_Setting Table	29
5.1.3	Rooms Table	29
5.1.4	Contacts Table	30
5.1.5	User_Tokens Table	30

5.1.6	User_Apps Table	31
5.1.7	User Room Setting Table	32
5.1.8	Chats Table	32
5.1.9	Room Participants Table	33
5.2	Program Implementation	34
5.2.1	Library Configuration	34
5.2.2	Keyword Extraction and Storage	34
5.2.3	Important Keyword Determination	36
5.2.4	Display of Important Message	40
5.3	Dataset Characteristics	42
5.4	User Preference Determination	44
5.5	Calculation of Suitable Messages	46
5.5.1	Query	48
5.5.2	Filtering	48
5.5.3	Clustering	48
5.5.4	Json Export API	48
5.6	System Interface	49
5.6.1	User preference interface.	49
5.6.2	User Chat interface.	49
5.6.3	Important messages interface.	50
5.6.4	Favorite messages and important message indicators in chat.	51
VI.	RESULT AND DISCUSION	52
6.1	Application Recommendation	52
6.2	System Quality Testing	54
6.2.1	Research Respondents and Term Determination	54
6.2.2	Functionality testing	55
6.2.3	Usability Testing	56
6.3	Accuracy Calculation	59
6.3.1	Precision at K	59
6.3.2	R - Precision	60

VII. CONCLUSION AND SUGGESTION	62
7.1 Conclusion	62
7.2 Suggestions	62
BIBLIOGRAPHY	64
ATTACHMENT	66
List of Respondence	66
Questionnaire	67

LIST OF TABLE

3.1:	Tokenisation	8
3.2:	Filtering	9
5.1:	User Table	28
5.2:	Field User Setting Table	29
5.3:	Field Rooms Table	29
5.4:	Field Contacs Table	30
5.5:	Field User Tokens Table	31
5.6:	Field User Apps Table	31
5.7:	Field Room Setting Table	32
5.8:	Field Chart Table	33
5.9:	Field Room Participants Table	33

LIST OF FIGURE

1.1:	Users of Telephone, Internet and Social Media	1
3.1:	Tokenisation, Filtering and Stemming	8
3.2:	Stemming	11
3.3:	TF-IDF Applied on Text Stems	13
3.4:	The Telegram Client Bot Function Listing	14
4.1:	Data Flow Diagram of the Application	16
4.2:	Message Transformation Workflow	18
4.3:	Main Form Page	19
4.4:	Main Form + Setting and Logout	19
4.5:	Chat Page	20
4.6:	Setting Page	21
4.7:	Per-Chat Menu Page	21
4.8:	Per-Chat Custom Setting	22
4.9:	Important Message Menu	23
5.1 :	Database Implementation Design	27
5.2:	Dataset Generation with Elasticsearch and Dashbuilder	43
5.3:	User Preference	49
5.4:	User Chat Interface	50
5.5:	Important Messages Interface	51
5.6:	Message Indicators in Chat Interface	51
6.1:	Important Keyword	52
6.2:	Important Chat	53

LISTINGS

5.1:	ExtractKeywordFromText Function	35
5.2:	AddChatToMyFavorite Function	37
5.3:	UpdateMySetting Function	39
5.4:	GetChatIDsByRank Function	41
5.5:	Code Detail for Important Keywords Checking	42
5.6:	User Preference Determination Calculation	45
5.7:	Calculation of Suitable Message Query Result	47