



## TABLE OF CONTENTS

APPROVAL PAGE .....	i
PLAGIARISM-FREE STATEMENT .....	ii
MOTTO AND OFFERING PAGE .....	iii
PREFACE .....	iv
TABLE OF CONTENTS .....	v
LIST OF FIGURES .....	vii
LIST OF TABLES .....	viii
LIST OF ATTACHMENT .....	x
ABSTRACT .....	xi
CHAPTER I INTRODUCTION .....	1
1.1 Background .....	1
1.2 Research Problems .....	3
1.3 Research Limitation .....	3
1.4 Objectives.....	3
1.5 Research Benefits.....	4
CHAPTER II LITERATURE REVIEW .....	5
2.1 The Association Rules Research Uses The Apriori Algorithm .....	5
2.2 The Association Rules Research Uses The FP-Growth Algorithm .....	8
2.3 The Association Rules Research Uses The ECLAT Algorithm .....	11
2.4 Differences of This Research from Existing Resarch .....	15
CHAPTER III BASIC THEORY .....	16
3.1 Data Mining .....	16
3.2 Association Rule .....	16
3.3 Apriori Algorithm .....	17
3.4 FP-Growth Algorithm .....	19
3.5 ECLAT Algorithm .....	21
3.6 Comparison between The Three Algorithms .....	22
3.7 Big-O Notation.....	23
3.8 Visualization of Association Rules .....	23
CHAPTER IV RESEARCH METHODOLOGY .....	25
4.1 Research Description .....	25
4.2 Research Steps .....	25
4.3 Data Collection.....	26
4.4 Data Pre-processing .....	26
4.5 Model Design .....	27
4.5.1 Apriori.....	28
4.5.2 FP-Growth.....	31
4.5.3 ECLAT .....	34
4.6 Evaluation .....	37
CHAPTER V IMPLEMENTATION .....	38
5.1 Hardware and Software.....	38



UNIVERSITAS  
GADJAH MADA

Comparison of Apriori, FP-Growth and ECLAT Algorithms to Determine Association Rules on Sales Data  
(Case Study: Toko Roti Ferisa, Bantul, DI Yogyakarta)  
FERDINAND THEMA. W, Anny Kartika Sari, S.Si., M.Sc., Ph.D  
Universitas Gadjah Mada, 2020 | Diunduh dari <http://etd.repository.ugm.ac.id/>

5.1.1 Hardware .....	38
5.1.2 Software .....	38
5.2 System Implementation.....	38
5.2.1 Data Pre-processing .....	39
5.2.2 Apriori.....	39
5.2.3 FP-Growth.....	43
5.2.4 ECLAT .....	47
5.2.5 Input Value and Time Process .....	49
CHAPTER VI RESULT AND DISCUSSION .....	50
6.1 Data Pre-processing .....	50
6.2 Results .....	51
6.2.1 Apriori Algorithm Test Results.....	51
6.2.2 FP-Growth Algorithm Test Results .....	60
6.2.3 ECLAT Algorithm Test Results.....	68
6.3 Complexity of Apriori, FP-Growth and ECLAT Algorithms.....	77
6.3 Discussion .....	81
6.5 Visualization of The Results .....	84
CHAPTER VII CONCLUSION AND FUTURE WORKS .....	85
7.1 Conclusions .....	85
7.2 Future Works.....	86
REFERENCES .....	87
ATTACHMENT.....	89