UNIVERSITI TEKNOLOGI MARA

UTILIZATION OF GEORGE DANTZIG LINEAR PROGRAMMING MODEL BASED ON COMPUTATIONAL EXCEL SOLVER IN MINIMIZING TELECOMMUNICATION NETWORK DELAY, P09S23

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ABSTRACT

Mathematics, specifically Linear Programming (LP), is used to reduce telecommunication network delays in this study. Modern society relies more on efficient data transmission, making network performance and latency optimisation essential. Excel Solver is used to investigate using LP to distribute user sessions to reduce network time. The project seeks to optimise telecommunication network resource allocation by analysing data and creating an LP model. After reviewing relevant literature, the LP model is developed and designed. Using Excel Solver, the study evaluates how LP reduces network delay and ensures data flow. Excel Solver improved model precision, allowing the network delay to be reduced to below 200 ms. This figure may slightly exceed the initial delay, but it is still within an acceptable range and deemed minimum for practical reasons. This optimisation proves LP approaches work in telecommunication. These findings help telecommunications professionals develop future solutions to increase network performance and user experience. The reduction in network latency proves these technologies work, paving the path for future innovations in responsive and efficient telecommunication networks.

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TABLE OF CONTENTS

	Page
SUPERVISOR'S APPROVAL	**i**
AUTHOR'S DECLARATION	**ii**
ABSTRACT	**iii**
ACKNOWLEDGEMENT	**iv**
TABLE OF CONTENTS	**v**
LIST OF TABLES	**vii**
LIST OF FIGURES	**viii**
LIST OF ABBREVIATIONS	**ix**
CHAPTER ONE: INTRODUCTION	**1**
1.1 Problem Statement	2
1.2 Research Objectives	3
1.3 Significance of Study	3
1.4 Scope and Limitations of Study	4
1.5 Definitions of Terms	4
CHAPTER TWO: LITERATURE REVIEW	**5**
2.1 Introduction	5
2.2 Voice over Internet Protocol (VoIP)	5
2.3 Fuzzy Logic System	6
2.4 Gradient-Based Minimum Delay (GBMD) algorithm	6
2.5 Mixed integer linear programming (MILP)	7

2.6 Case study based on delay in neural network 7
2.7 Case study on transmission delay 8
2.8 Linear Programming (LP) 8

CHAPTER THREE: RESEARCH METHODOLOGY 10
3.1 Introduction 10
3.1.1 Stage 1: Identify the background of study 11
3.1.2 Stage 2: Literature Review 12
3.1.3 Stage 3: Development of model and data 12
3.1.4 Stage 4: Implementation of model 21
3.1.5 Stage 5: Result collection 21
3.2 Implementation 21
3.2.1 Calculation to minimize the total network delay 21
3.2.2 Usage of Excel Solver in to solve linear programming 22

CHAPTER FOUR: RESULTS AND DISCUSSIONS 23
4.1 Background of Study 23
4.2 Result of Optimization of VoIP 23
4.3 Limitation 31

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS 32
5.1 Overview 32
5.2 Conclusion 32
5.3 Recommendation 33

REFERENCES 34

APPENDICES 37