

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**A GOAL PROGRAMMING APPROACH FOR
FOOD PRODUCT DISTRIBUTION**

P37M19

MAZIAH RASHIDAH MOHD RAMZI (2015100497)

NURUL ASYIKIN MOHAMAD ASRI (2015110147)

NUR MAZIAH CHE MD KARI (2015110121)

**Report submitted in partial fulfillment of the requirement
for the degree of
Bachelor of Science (Hons.) Management Mathematics
Faculty of Computer and Mathematical Sciences**

JULY 2019

ACKNOWLEDGEMENTS

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

Firstly, we are grateful to Allah S.W.T for giving us the strength and guidance in completing our final year project successfully. We also would like to express our deepest gratitude to our supervisor, Madam Norul Fadhilah binti Ismail, the one who is willing to guide, support and give us encouragement throughout our journey to complete this final year project. Many knowledges and meaningful information have been gained from her in order to help us improve our project.

We would like to extend our appreciation to Dr Mat Salim bin Selamat and Dr Khairul Anwar bin Rasmani, who gave us guidance and consultation regarding to our report. Special thanks to the owner of Ifa Traditional Food, Puan Sarifah who gave us the opportunity to collect the data of her food production. Moreover, special thanks go to our parents who always pray for us and give a constant blessing during the whole term of the project. Last but not least, thanks to our classmates who always keep supporting us and give a suggestion on this paper.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES	iv
NOMENCLATURE	v
ABSTRACT	vi
1.0 INTRODUCTION	1
1.1 Problem Statement	3
1.2 Objectives	4
1.3 Scope of the Project	4
1.4 Significance and Benefit of the Project	4
2.0 LITERATURE REVIEW	5
2.1 Introduction.....	5
2.2 Product Distribution using Artificial Neural Networks (ANN).....	5
2.3 Goal Programming in Agricultural Production and the Products Recovery Operational Planning	6
2.4 Product Distribution using Goal Programming	7
3.0 METHODOLOGY AND IMPLEMENTATION	8
3.1 Introduction.....	8
3.2 Data Collection	12
3.3 Data Analyze.....	14
3.3.1 Decision Variable.....	14
3.4 Constraint.....	15
3.4.1 Hard Constraints	15
3.4.2 Soft Constraints.....	16
3.5 Summarization of Model	20
3.5.1 Goals and Priorities.....	20
3.5.2 Objective Functions	21
3.6 LINGO Software Model	21
4.0 RESULTS AND DISCUSSION	22
4.1 Introduction.....	22
4.2 Results.....	22
4.3 Implementation of the Model.....	24
5.0 CONCLUSIONS AND RECOMMENDATIONS	27
5.1 Introduction.....	27
5.2 Conclusion	27
5.3 Recommendation	27
REFERENCES	28
APPENDIX A	29

LIST OF TABLES

Table 1 Types of goal and deviation variables needed to be minimized in z	10
Table 2 Cost and selling price for each food product	12
Table 3 Supply and demand of products.....	12
Table 4 Delivery costs	13

LIST OF FIGURES

Figure 1 The Conducting Project Flowchart.....	9
Figure 2 LINGO Software inputs	30
Figure 3 LINGO Software results.....	30

ABSTRACT

Small and Medium Enterprise (SME) is now prominent industry in Malaysia. In general, the demand for traditional food is expected to increase in the future since there are many people still do not know how to make it. Traditional food product is unable to fulfil the customer's need despite the high demand due to certain limiting factors. Therefore, this research will apply a goal programming method in order to optimize the consumer's demands of traditional food in Senawang, Paroi, Seremban and Kuala Pilah. This research presents a goal programming model is to formulate with three objectives. Then, LINGO Software is then being used to test the model. The result shows that the objectives were fully achieved, and this proves that goal programming approach is a useful tool.