ESTIMATION OF SELANGOR POPULATION BASED ON YEAR USING EXPONENTIAL GROWTH MODEL, LOGISTIC GROWTH MODEL AND GOMPERTZ GROWTH MODEL

IZZATI ZAKIRAH BINTI SALIM

Thesis submitted in Fulfilment of the Requirement for Bachelor of Science (Hons.) Mathematical Modelling and Analytics College of Computing, Informatics and Mathematics Universiti Teknologi MARA

August 2023

ABSTRACT

The aim of this project is to estimate the population of Selangor. This project has been conducted using secondary data that has been collected from Department of Statistic Malaysia. The data have been collected from 1991 to 2021. The calculation of population is conducted using Microsoft Excel. This calculation needs to do carefully using excel to prevent calculation error. Exponential growth model, logistic growth model and Gompertz growth model are used to estimate the population of Selangor. The result from this project shows that exponential growth model, logistic growth model and Gompertz growth model are suitable to calculate Selangor's population. We also estimate that logistic growth model is better than exponential model and Gompertz growth model.

ACKNOWLEDGEMENT

First and foremost, I would like to express my gratitude towards Allah S.W.T for all

His blessings and guidance for me in facing all the challenges to complete this project.

Firstly, my special thanks go to my supervisor, Madam Roslina Binti Ramli who helped

me by giving a lot of guidance to prepare this research paper until it was finished. Her

willingness to motivate contributes tremendously to my project.

Secondly, I am also grateful to my colleagues and friends who provided assistance,

encouragement, and feedback during the various stages of this project. Their input and

constructive criticism significantly enhanced the quality of my work.

Furthermore, I extend my thanks to University Technology Mara Kuala Terengganu for

providing the necessary resources, access to facilities, and funding that enabled me to

carry out this research. Their support was invaluable. me by giving the information that

I needed through this case study.

I would also like to expand my deepest gratitude to all those who have directly and

indirectly guided me in writing this case study. I thank all the people for their help

directly and indirectly to complete my case study

ii

TABLE OF CONTENTS

| | | Page |
|---------|---------------------------------|------|
| DECLA | RATION BY THE SUPERVISOR | i |
| DECLA | RATION BY THE CANDIDATE | ii |
| ABSTR | ACT | i |
| ACKNO | OWLEDGEMENT | ii |
| TABLE | OF CONTENTS | iii |
| LIST O | F TABLES | V |
| LIST O | F FIGURES | vi |
| INTRO | DUCTION OF RESEARCH | 1 |
| 1.1 | Introduction | 1 |
| 1.2 | Background of Study | 1 |
| 1.3 | Problem Statement | 4 |
| 1.4 | Objectives | 5 |
| 1.5 | Significance of the Project | 5 |
| 1.6 | Scope of the Project | 6 |
| 1.7 | Project Benefits | 6 |
| 1.8 | Definition of Terms and Concept | 7 |
| 1.9 | Organization of Report | 8 |
| LITER A | ATURE REVIEW | 10 |
| 2.1 | Introduction | 10 |

| | 2.2 | Literature Review | . 11 | |
|-------------------------------|-------|----------------------|------|--|
| | 2.3 | Conclusion | . 15 | |
| METHODOLOGY | | | | |
| | 3.1 | Introduction | . 16 | |
| | 3.2 | Fundamental Research | . 16 | |
| | 3.3 | Research Step | . 17 | |
| | 3.4 | Conclusion | .24 | |
| IMPLEMENTATION | | | .25 | |
| RES | ULT A | ND DISCUSSION | .41 | |
| CONCLUSION AND RECOMMENDATION | | | .51 | |
| REFERENCES | | | | |
| APP | ENDIC | CES | .55 | |