

**COMPARISON OF GOMPERTZ, EXPONENTIAL,
LOGISTICS AND LINEAR GROWTH MODELS
TO ESTIMATE POPULATION OF JOHOR IN 2023**

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ABSTRACT

Johor is a state that located in southern west in peninsular Malaysia. The population growth increased at rate of 2.2% for period from 2010 to 2020. One of the main problems in world is population growth. This is important issue that must be alerted to. Growth model is one of the methods to estimate the population and also can represents the data in mathematical way. Estimate population can help the government to take first step to avoid overpopulation or underpopulation in a country. Then, it also can help for make sure the country stable. Thus, in this study there are three types of growth model that had been used to estimate population growth in Johor. The growth models are Exponential, Logistics and Gompertz. Moreover, to determine the best growth models among them is based on value of the Root Mean Square Error (RSME). Based on the results, it shows Logistics Growth Model is the best because of the value or RSME is the lowest other than models while the value for adjusted R^2 is the highest and closer to 1.

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CHAPTER 1

INTRODUCTION TO RESEARCH

1.1 Introduction

The context in this chapter includes the basic of research. It has nine part which is background of study, problem statement, objectives, significance of the project, scope of projects, project benefits, definition of term and concept, and organization of the project.

1.2 Background of Study

Population is a collection of people who occupy a certain geographic area and space based on sociology, population become one of the most discussed topics, both through the mass media and in conversations. The world's population is growing because death rates have declined over the past several decades at a much faster pace than birth rates have, and as we go from the historical pattern of high birth and death rates, we pass through the demographic transition (Weeks, 2020).

In Peninsular Malaysia, there are a state that called as Johor. It is located the southernmost state of the mainland in Malaysia, and it also shares border with Singapore. According to Department of Statistical Malaysia population of Johor residents in 2020 is 4009670 people