Problem Statement and Goals
Population Growth

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Table 1: Revision History

Date	Developer(s)	Change
January 19, 2023	Zehong Wang	Initial Version

1 Problem Statement

1.1 Problem

The earth's population growth is a significant current issue. It is uncertain if the population will continue to rise or if it will reach a stabilization point. This software aims to understand the use of differential equations in modeling the growth of a population and assessing the accuracy of the models.

1.2 Inputs and Outputs

1.2.1 Inputs

- The earth's population and related information in the past
- Supervised datasets for Drasil

1.2.2 Outputs

- Detailed Documents and Code that support population predicting
- Exponential growth of population in the future
- Logistic growth of population in the future

1.3 Stakeholders

- Zehong Wang
- Dr. Spencer Smith

- Students in CAS741

1.4 Environment

This software can run on personal laptops or Cloud Virtual Machine, example details as follows:

- Hardware: MacBook Air with M2 chip
- Software: MacOS Ventura 13.1; Ubuntu 22.04 LTS on MultiPass VM

2 Goals

- Capture knowledge through Drasil and generate documentation and code
- Predict the growth of population by exponential model
- Predict the growth of population by logistic model

3 Stretch Goals

- Extending Drasil tools such as Markdown Generating