

CHAPTER 1

INTRODUCTION

1.1 Background

Nowadays, Indonesia is attacked by a virus called Corona Virus or Covid-19. This condition is called a pandemic. Almost every area in Indonesia was attacked and infected by this virus. Semarang is one of them. The Semarang city government urges the Semarang people to always be at home when the pandemic is still ongoing, or can be called "lockdown". Semarang residents are advised not to go outside to the mall, or hang out to a crowded place, and also always wear a mask if necessary to go outside. Always maintain personal hygiene, by always washing hands using water and soap or using disinfecting water. The Semarang city government plans to spray disinfectants in various areas in Semarang by directing members of the Polrestabes. In this case, Polrestabes also needs the fastest route so that it can be done in a short time. In this case, not all existing algorithms can provide optimal results to solve cases. Because in one case with another case, each algorithm has its own results. And each of these algorithms has advantages and disadvantages in completing optimization results in the shortest route search.

In this analysis, two algorithms will be used for comparison, namely the Greedy algorithm and the Genetic algorithm. There are 70 locations that are going to be passed by the spray trucks owned by Semarang Polrestabes. The Greedy algorithm is an algorithm whose way of working is to find the maximum value while each step taken in finding the fastest route. While Genetic algorithms are natural-based algorithms, which means finding solutions to problems in a natural way. Which is an evolutionary theory but is converted into a computational algorithm. Data is collected through observation, Google Maps and social media obtained by Semarang government social media. For coordinates from various regions which are captured, taken with the help of google maps. Then all the data is converted into a table. In this analysis, the results sought are a comparison of the more optimal implementations of the two algorithms. In the case of spraying disinfectant by Semarang Polrestabes, these two algorithms function to get the most optimal results in determining the effectiveness and speed of a route.

1.2 Problem Formulation

1. How do you compare the greedy algorithm with the genetic algorithm to get optimal results in the case of the shortest route?
2. From the two algorithms, which is the most optimal in finding the fastest route?

1.3 Scope

1. The algorithm used is the Greedy and Genetic algorithm
2. The only observation area is in Semarang city
3. The area that will be sprayed are follows from Semarang Polrestabes data
4. The path used is the path that can be passed by a car / truck
5. The results sought are the effectiveness from one of the algorithm

1.4 Objective

The purpose of this analysis is to compare Greedy Algorithm and Genetic Algorithm in the Travelling Salesman Problem Project case. The case study is the route of spraying disinfectant by Semarang Polrestabes. The result is the use of algorithm which has the most optimal end result in getting the fastest route and the level of effectiveness that can answer the given case.