

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Objectives of the Study

The purpose of this research itself is to get the final results of the two algorithms will be compared and then from the data that is already owned will be processed using the Traveling Salesman Problem case. The algorithms analyzed are Greedy algorithm and Genetic algorithm.

3.2 Research Design

Research design itself is a plan of how data collection and processing can be implemented to achieve the objectives of the research. This research is correlational research. This correlational study is a study to find out where the variables used have or do not have a relationship between one another but do not care about the relationship has a cause or effect. This correlational research is also to find out from one algorithm that has the variables needed when analyzing the algorithm whether if the data is different, the results will be different or not.

The case study used is a case study that can be completed using analysis of the two selected algorithms. The data taken will be explained with numbers and pictures or graphics.

3.3 Data and Data Source

In this research, the data is very important to be able to carry out the analysis to be carried out. Existing data is data in the form of numbers and images.

The data is taken by using a third-party assistance application to help get a simple graphic image in the form of a floor plan and data is also obtained from social media from the information obtained by the author and then the data is added by itself to obtain a large amount of data. For simplicity's sake, data is retrieved with the help of the following:

1. Instagram Social Media

The data was originally obtained from social media, namely Instagram from the Semarang city government account. Where the data contains the route that they have set themselves as the route they will use. Then the writer draws it so it forms like a floor plan chart that contains lines and points that show the route of the data earlier. The data was originally obtained from social media, namely Instagram from the city government account of Semarang. Where the data contains the route that they have set themselves as the route they will use. Then the writer draws it so that it forms like a floor plan graph that contains lines and points that show the route of the data earlier.

2. Google Maps

Because it requires a lot of data, and the data obtained from social media is still small, the authors use Google Maps as an alternative in searching data. After the initial data is obtained, then proceed with survey data via Google Maps. By connecting the route so that the desired amount of data is reached.

3.4 Analytic Data

After getting all the data needed, data analysis is done in order to get the desired final result as a goal.

Initial data will be displayed in tabular form. Which contains detailed data used during the process. Then the data will be processed according to the path of each algorithm that has been determined. For Greedy algorithm, the data needed is only in the form of table data and graph data, so that before the process takes place, the data can be explained by the author. And then after the Greedy algorithm analysis process is complete, the data generated can be displayed again and compared with the data generated by the Genetic algorithm. For the Genetic algorithm, the data needed is in the form of graph and table data, as well as variable data which is the specific data needed in the algorithm. This data will be taken randomly 5 times, and then all data will enter the genetic algorithm analysis process. The data generated will be taken data that has the best results and then will be compared with

the data generated by the greedy algorithm. Then, the final results obtained later will be the result of a comparison between the data of the two algorithms and which algorithm is the most optimal.

3.5 Summary

The conclusion of this chapter is an explanation of the research design and an explanation of data retrieval and the data used in the next chapter.

