

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Instrument

A Research Instrument is a tool used to collect, measure, and analyze data related to your research interests.

1. Software

- a) The operating system that will used is Ubuntu
- b) Notepad ++

2. Hardware

- a) The processor that will used is intel i3
- b) 500 GB hard driver
- c) 8GB RAM

3.2 Data Collection

Data collection is obtained from history of flight report in angkasa pura. The data collected is from year 2018 – 2020. First step we must converted from pdf to be csv file. After that we must import to mysql database. In this project data where is used is only departure passenger data.

3.3 Research Procedure

In this project there are have five step in research. Here is the procedure:

1. Literature Study

Collecting 10 journals related to data mining, forecasting, MAPE, then make analysis how the problems could be solved using this implementation. This literature is needed as reference to solved the problems which will be resolved.

2. Data Collection

The data to be used is flight history data for the last three years. The data obtained is actual data related to flight history at Ahmad Yani airport.

3. System Design

The system design should contain how Double Exponential smoothing method work for made forecast. The step design will be described with a flow chart. This process will help to keep how the procedure work is.

4. Coding & Testing

After data already combined from 2018 until 2020. The first thing todo is import the data into database. Next step is processing data using double exponential smoothing algorithm and then count the percentage error using Measure Absolute Percentage Error. In the double exponential procces is using alpha from 0.1-0.9. from that process we can compare where is the best result between alpha 0.1 until 0.9 using mape.

5. Report

From this project the best result of the calculation is to use alpha 0.6. These results are obtained by comparing each result from the calculation process that has been carried out.

