

ABSTRACT

Indonesia as an archipelago that has very wide waters, produces a tidal phenomenon, the point of severity occurs on the north coast of Central Java, especially in the Semarang region. The absence of tidal predictions for the following day resulted in the hampering of data issued to relevant agencies, which resulted in sailing permits being not issued, and data validation being inaccurate. The aim of sea tide research for the next day using the single exponential smoothing and least squares method, is expected to reduce the impact of risks that occur, reduce ship accident at sea and increase the vigilance of fishermen in sailing. This study uses variables X and Y where X is a fixed value while Y is a random value. The point is that the value of the variable X will predict the variable Y so that there is the possibility of several variables Y. One of the uses of linear data is to make predictions based on data that has been previously owned.

The process of making sea tide predictions begins with data collection, then the object-based system design is done using UML, followed by the creation of a database, the design of the system interface for pre-researchers. Then implemented in the main programming language.

Obtained the test results, namely the prediction of single exponential smoothing produces the smallest MAE value of 5.9. while the least squares method produces the smallest MAE (mean absolute error) value of 10.2 and from the TNI AL prediction data produces the smallest MAE value of 47.8. It can be compared that the single exponential MAE testing method produces a smaller error value compared to the smoothing least squares and TNI AL predictions.

Keywords: Least Squares, MAE, Predictions, Single Exponential Smoothing, Tide

ABSTRACT

Indonesia has vast waters so it impacts on the tide and severity phenomena occurring on the north coast of Central Java, especially in the Semarang region. Nowadays, there is no prediction of tide for the next day and it will result in obstruction of data issued to the relevant agencies. In addition, this also results in the absence of a Sailing a seal of approval and the data validation is inaccurate. The aims of this research is to know the tide for the next day using the single exponential smoothing and least squares method and is expected to reduce the impact of risks that occur as well as reduce ship accidents at sea and increase the vigilance in sailing. This study used the variables X and Y where X is a fixed value and Y is a random value. It means that the value of variable X will predict the variable Y so that there is the possibility of several variables Y . One of the usage of linear data is to make predictions based on data that has been previously owned.

The design application of ebbtide predictions begins with data collection and the design an object-based system used UML. The next stage was to make a database, design the system interface for the forecaster and implemented in the programming language.

The results show the prediction of single exponential smoothing produce the smallest MAE value of 5.9. The least squares method results the smallest MAE (mean absolute error) value of 10.2 and based on the TNI AL prediction data produces the smallest MAE value of 47.8. Thus according to the test results, it can be compared that the single exponential MAE testing method produces a smaller error value compared to the smoothing least squares method and the prediction of the Navy.

Keywords: *Least Squares, MAE, Sea Tides, Prediction, Single Exponential Smoothing*

