ABSTRACT

A Weather changes will affect the lifestyle and human activities that inhabit areas affected by the weather. Extreme weather changes can cause disaster. One of them is flooding. Here the author wants to focus on research related to extreme weather changes that can cause disasters. Indonesia as a tropical country certainly has its own characteristics related to weather patterns. air temperature tends to be high, sunlight that occurs throughout the year, has low air pressure. With these characteristics will also form patterns and the possibility of natural disasters. We can minimize losses due to natural disasters if there is proper preparation in dealing with the possibility of natural disasters. And careful preparation in dealing with natural disasters is of course based on knowledge about predictions of when and where these natural disasters will occur. This weather change can be predicted based on past weather data. These data produce patterns related to the time and intensity of a parameter taking place. The data for this research comes from the Badan Meteorologi, Klimatologi dan Geofisika (BMKG) database. The data used is only data generated from the Bandung Raya City BMKG station. Then is carried out, in the form of data cleansing and adjustment. Backpropagation neural network (BPNN) is an algorithm that is used by the author in forecasting related to changes in weather conditions. The backpropagation neural network (BPNN) in this study was built using the KERAS and TENSORFLOW libraries. The programming language used in this research is PYTHON and by using JUPYTER notebook tools. The model used is using 1 input layer, 6 hidden layers and 1 output layer. As for the epochs used, the number is 10,000. The results of this study are in the form of graphs per weather parameter in the Bandung Raya area in 2021. Apart from that, this research also produces figures related to daily weather changes in Bandung Raya. In this study the evaluation of the algorithm model is displayed using the Mean Squared Error (MSE) value. and the results of MSE in this study for each parameter are as follows. The average temperature parameter produces an MSE value of 0.47. The humidity parameter produces an MSE value of 25.83. At wind speed the MSE value is 0.44 and for the sun exposure parameter the MSE value is 6.41. Data from this weather research can be

used to find out how accurate and effective the Backpropagation Neural Network (BPNN) algorithm is in predicting weather forecasts.