

## Honda Motor Co.

### Where's Honda now?

Honda Motor Co. was originally reluctant to hop onto the electric car wave. Finally, they've announced the development of an electric car division and plan to launch a car in 2025. They've experienced a significant 20% drop in unit sales over the last fiscal year but have been slowly recovering as new developments create excitement. My analysis forecasted the closing price variable using multilayer perceptron and LSTM and compared that to the actual findings.

### How Did We Get Here?

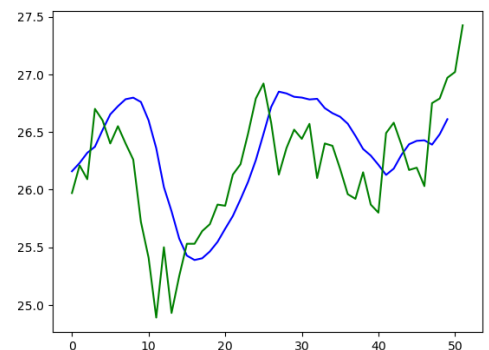
Before forecasting the dataset, I decided to predict the "open" and "close" columns out of curiosity. However, after running an initial forecast I realized the data seemed more difficult to evaluate and understand the visual output with both variables, so I chose to focus solely on the close price.

Using Weka I forecasted the close variable using linear regression. After seeing numbers that seemed to increase incredibly quickly I decided to shift to multilayer perceptron, in hopes of getting more accurate results. I ran a forecast using multilayer perceptron and daily periodicity to predict the next 5 days. The results appeared promising.

I also utilized python in order to run a forecast using LSTM. I decided to do this in order to diversify my findings and so that I can use the visualization to reflect on the real findings using a dual-line chart.

### Did I Win Big?

Three days later, once the real stock had actually moved, I reflected upon the forecast. I noticed that both methods were fairly accurate. My multilayer perceptron result was fairly conservative in comparison to the real stock price, predicting an increase, however one that moved at a rate that was slower than the real stock. In the end the final day predicted was \$27.01 compared to \$27.6. As for LSTM, the results nearly mimicked the actual changes, with slight differences. The final predicted day only had a difference of .2 in price, providing a much more accurate result. The figure shown has the predicted in blue.



### How do we use this?

The results showed that when a clear pattern is shown through stock history, on a non-volatile company, forecasting can be used to accurately predict future changes. LSTM predictions resulted in the best forecasting in regards to this data, and would be my first choice for future stock forecasting.