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Mat 375

29 April 2018

Final Model for Mango

Mango is northern city in Togo, situated on the Oti River. It is located about 16 miles from the Ghana border along the main North/South road. It is the capital for cattle and peanut trade in the North, surrounded by more rural area. Mango is located in the North half of the country so there is only one rainy season each year. In class there was some discussion over how the final model captures the variables better for northern or southern countries. Overall I think the final model does a good job of capturing Mango’s temperature and rainfall averages.

 The minimum temperature was the first model I chose to look at. Here is the picture of the average minimum temperature versus the predicted minimum temperature. The predicted model does not capture enough of the valleys in the data. The average minimum drops below twenty degrees plenty of times each year. For Mango specifically I would prefer the predictor to capture a little bit more of the variation in temperature. From looking at this picture it is clear to see the increasing trend over time.

The residual plot for the minimum model is shown below.



The residual plot makes me a little anxious, a majority of the data points fall below the x axis. There is sinusoidal or other pattern that is clear. The R Squared variable is .704 which is acceptable for this large scale final model, but I would prefer a higher number.

Below is a picture of the average maximum temperature versus the predicted maximum temperature.

I think the final model a good job of capturing the variance and predicting the maximum temperature. There is a small amount that model does not capture at the peak of temperature which is worrisome since temperature is rising.

Below is the residual plots for the final model.



The residual plot for maximum is much more pleasing than for the minimum temperature. There is no pattern appearing and the data points are split evenly across the positive and negatives values. The R Squared for the maximum temperature model is surprisingly lower than the minimum at .65. This is acceptable but I would like to see a value greater than .9.

Below the average rainfall versus predicted rainfall model is pictured.



A majority of the data is captured by the predictive model, but the peaks are out of reach. It is difficult with such a drastic data set to capture and predict future data. The negative values do appear but this could be changed if there was more time to fix the model.

Below is the residual plot.



This plot shows no pattern and has scattered data points split evenly across the x axis. A majority of the data points are hovering around the axis. The R Squared value for this model was .88 which is surprisingly high. When the modeling team described how difficult it was to try to model rainfall data due to it’s scattered nature I was not expecting such a high value.

Overall I think that our conclusion in class was correct, the final model does a better job of predicting values for northern cities. Mango’s temperature and rainfall data was captured well by the final model.

Paper paragraph

Mango is northern city in Togo, situated on the Oti River. It is located about 16 miles from the Ghana border along the main North/South road. The minimum temperature model captures a majority of the actual data, missing the lower values. The R Squared value is .70 and the residual plots shows no pattern. The maximum temperature is also captured well by the final model. The R Squared value is .65 and the residual plot shows no pattern. The rainfall for Mango is the most impressive model. The data is well captured and the R Squared value is .88. The residual plot shows no pattern and the majority of data hovers around the x axis.

Matthew was a great partner, our communication was the best of any of my partners. Due to my inability to code he did a majority of the coding work. I wrote our discussions and interpretations for our city. He did misspell my name on the third mini project but there’s no harm in that. Overall I was lucky with partners throughout the course and did not have any major issues.