Week #10: Dispersed Poisson Regression

Due: 04/09/2023

This week's assignment is to revise your analysis in Week #9 by adding a new section to include a quasi-Poisson model to the report. In this new analysis, we modify the predictor variables in the following ways.

1. Instead of using two variables **HightTemp** and **LowTemp** in the model, we will use the new variable **AvgTemp = (HighTemp + LowTemp)/2**.
2. Discretize **Precipitation** using the following definition: if **Precipitation** = 0, then NewPrecip = 0; if **Precipitation** > 0, then NewPrecip = 1.

The dispersed Poisson regression model will have three predictor variables: **Day**, **AvgTemp**, and **NewPrecip**.

Here are the steps for building the model (similar to the case study in the class note):

1. Fit the quasi-Poisson regression model on the counts of cyclists who entered and left the Bridge in your data set.
2. Report the value of the estimated dispersion parameter and based on the value determine whether the regular Poisson model or the quasi-Poisson should be used as the final model. The two models have the same estimated coefficients by different p-values.
3. Make a visualization to show the relationship between the number of cyclists who entered and left the bridge and the related predictor variables.