Assignment 4: Debugging Code

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## The Assignment:

*Tip: View this in the visual editor in RStudio*

You want to re-create the word document shared with this assignment titled Debugged\_Document.docx. Below is the workflow to do so, ***however*** you will notice if you attempt to render this R Markdown document as is, it does NOT reproduce the Debugged\_Document.docx file, and it won’t even render until you fix some of the mistakes/missing elements. Therefore, this workflow is not reproducible! Your task is to fix the below coding workflow so that it renders and **exactly** matches the output of Debugged\_Document.docx (*including* whether or not certain code chunks and/or outputs are shown).

There are a total of **5 fixes** you need to make to the workflow below. To complete this assignment you must identify the 5 errors and specify what they are.

**List here the 5 errors you had to fix in this workflow:**



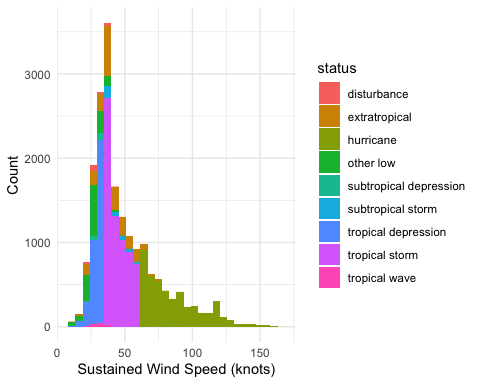
#### The NOAA Atlantic Hurricane Dataset

This exploratory workflow uses the atlantic\_storms.csv file in the data folder for this lesson. This dataset is based on the NOAA Atlantic hurricane database (<https://www.nhc.noaa.gov/data/#hurdat>). The data includes storm tracks of storms from 1975-2021, as well as some characteristics (like wind and air pressure) during their progression. Storms from 1979 onward are measured every six hours during the lifetime of the storm. Storms in earlier years have some missing data. Descriptions of each variable in the dataset can be found in data/atlantic\_storms\_desc.txt.

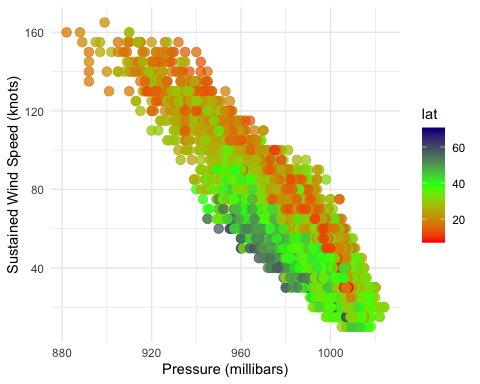
We read in the data and initially explore its structure:

## name year month day   
## Length:19066 Min. :1975 Min. : 1.000 Min. : 1.00   
## Class :character 1st Qu.:1993 1st Qu.: 8.000 1st Qu.: 8.00   
## Mode :character Median :2004 Median : 9.000 Median :16.00   
## Mean :2002 Mean : 8.699 Mean :15.78   
## 3rd Qu.:2012 3rd Qu.: 9.000 3rd Qu.:24.00   
## Max. :2021 Max. :12.000 Max. :31.00   
##   
## hour lat long status   
## Min. : 0.000 Min. : 7.00 Min. :-109.30 Length:19066   
## 1st Qu.: 5.000 1st Qu.:18.40 1st Qu.: -78.70 Class :character   
## Median :12.000 Median :26.60 Median : -62.25 Mode :character   
## Mean : 9.094 Mean :26.99 Mean : -61.52   
## 3rd Qu.:18.000 3rd Qu.:33.70 3rd Qu.: -45.60   
## Max. :23.000 Max. :70.70 Max. : 13.50   
##   
## category wind pressure tropicalstorm\_force\_diameter  
## Min. :1.000 Min. : 10.00 Min. : 882.0 Min. : 0.0   
## 1st Qu.:1.000 1st Qu.: 30.00 1st Qu.: 987.0 1st Qu.: 0.0   
## Median :1.000 Median : 45.00 Median :1000.0 Median : 110.0   
## Mean :1.898 Mean : 50.02 Mean : 993.6 Mean : 146.3   
## 3rd Qu.:3.000 3rd Qu.: 65.00 3rd Qu.:1007.0 3rd Qu.: 220.0   
## Max. :5.000 Max. :165.00 Max. :1024.0 Max. :1440.0   
## NA's :14382 NA's :9512   
## hurricane\_force\_diameter  
## Min. : 0.00   
## 1st Qu.: 0.00   
## Median : 0.00   
## Mean : 14.81   
## 3rd Qu.: 0.00   
## Max. :300.00   
## NA's :9512

Let’s first explore wind speed across all the different storm types with a histogram:



Now we want to visualize the relationship between pressure and wind speed *across latitudes*, where higher latitudes (blue) indicate locations further north:



Finally, let’s visualize each hurricane’s maximum diameter through the years:

