OVERVIEW

This exercise accompanies the lessons in Environmental Data Analytics on generalized linear models.

Directions

1. Rename this file `<FirstLast>_A08_TimeSeries.Rmd` (replacing `<FirstLast>` with your first and last name).
2. Change "Student Name" on line 3 (above) with your name.
3. Work through the steps, **creating code and output** that fulfill each instruction.
4. Be sure to **answer the questions** in this assignment document.
5. When you have completed the assignment, **Knit** the text and code into a single PDF file.

Set up

1. Set up your session:

- Check your working directory
- Load the tidyverse, lubridate, zoo, and trend packages
- Set your ggplot theme

```
#1
library(knitr)
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.2.3

## Warning: package 'ggplot2' was built under R version 4.2.3

## Warning: package 'tibble' was built under R version 4.2.3

## Warning: package 'tidyr' was built under R version 4.2.3

## Warning: package 'readr' was built under R version 4.2.3

## Warning: package 'purrr' was built under R version 4.2.3

## Warning: package 'dplyr' was built under R version 4.2.3

## Warning: package 'stringr' was built under R version 4.2.3

## Warning: package 'forcats' was built under R version 4.2.3

## Warning: package 'lubridate' was built under R version 4.2.3
```

```
library(lubridate)
library(here)
```

```
## Warning: package 'here' was built under R version 4.2.2
```

1

```
library(cowplot)
```

```
## Warning: package 'cowplot' was built under R version 4.2.2
```

```
library(ggplot2)
library(ggthemes)
library(zoo)
```

```
## Warning: package 'zoo' was built under R version 4.2.3
```

```
library(trend)
```

```
## Warning: package 'trend' was built under R version 4.2.3
```

```
library(Kendall)
```

```
## Warning: package 'Kendall' was built under R version 4.2.3
```

```
here
```

```
## function (...)
## {
##     .root_env$root$f(...)
## }
## <bytecode: 0x000002019ac9c3f8>
## <environment: namespace:here>
```

```
getwd()
```

```
## [1] "C:/Users/17038/Documents/EDASpring2023/Assignments"
```

```
mytheme <- theme_wsj() + theme(plot.title = element_text(hjust = 0.5),
  panel.grid.minor = element_line(color = 2,
  size = 0.25,
  linetype = 1),
  legend.position = "bottom",
  axis.text = element_text(face="plain", size = 12),
  axis.title=element_text(size=14),
  title = element_text(size=14))
```

```
## Warning: The 'size' argument of 'element_line()' is deprecated as of ggplot2 3.4.0.
## i Please use the 'linewidth' argument instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```

```
theme_set(mytheme)
```

#2

```
Garinger <- list.files(path="~/EDASpring2023/Data/Raw/Ozone_TimeSeries", full.names = TRUE) %>%
  lapply(read_csv) %>%
  bind_rows
```

```
## Rows: 360 Columns: 20
## -- Column specification -----------------------------------------------
## Delimiter: ","
## chr  (8): Date, Source, UNITS, Site Name, AQS_PARAMETER_DESC, CBSA_NAME, STA...
## dbl (12): Site ID, POC, Daily Max 8-hour Ozone Concentration, DAILY_AQI_VALU...
##
## i Use 'spec()' to retrieve the full column specification for this data.
## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.
## Rows: 359 Columns: 20
## -- Column specification -----------------------------------------------
## Delimiter: ","
## chr  (8): Date, Source, UNITS, Site Name, AQS_PARAMETER_DESC, CBSA_NAME, STA...
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##
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## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.
## Rows: 354 Columns: 20
## -- Column specification -----------------------------------------------
## Delimiter: ","
## chr  (8): Date, Source, UNITS, Site Name, AQS_PARAMETER_DESC, CBSA_NAME, STA...
## dbl (12): Site ID, POC, Daily Max 8-hour Ozone Concentration, DAILY_AQI_VALU...
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```

```
## 
## i Use ‘spec()‘ to retrieve the full column specification for this data.
## i Specify the column types or set ‘show_col_types = FALSE‘ to quiet this message.
## Rows: 359 Columns: 20
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```