Week_2_Assignment_Raj_Ponnam_R

January 12, 2023

[2]:
```
# Import required packages
library('magrittr')

# Import data to be used for visualization
fileData1 = paste(getwd(), '/world-population.xlsm', sep = '')
population = xlsx::read.xlsx(fileData1, sheetIndex = 1, stringsAsFactors =␣
 ↪FALSE)

fileData2 = paste(getwd(), '/AEP_hourly.csv', sep = '')
aep = read.csv2(fileData2, sep=',', stringsAsFactors = FALSE) %>%
        as.data.frame()

fileData3 = paste(getwd(), '/Superstore.xls', sep = '')
superstore = xlsx::read.xlsx(fileData3, sheetIndex = 1, stringsAsFactors =␣
 ↪FALSE)

# Examine data
print(head(population))
print(head(aep))
print(head(superstore))
```

```
  Year Population
1 1960 3028654024
2 1961 3068356747
3 1962 3121963107
4 1963 3187471383
5 1964 3253112403
6 1965 3320396924
             Datetime  AEP_MW
1 2004-12-31 01:00:00 13478.0
2 2004-12-31 02:00:00 12865.0
3 2004-12-31 03:00:00 12577.0
4 2004-12-31 04:00:00 12517.0
5 2004-12-31 05:00:00 12670.0
6 2004-12-31 06:00:00 13038.0
  Row.ID       Order.ID Order.Date  Ship.Date      Ship.Mode Customer.ID
1      1 CA-2016-152156 2016-11-08 2016-11-11   Second Class    CG-12520
2      2 CA-2016-152156 2016-11-08 2016-11-11   Second Class    CG-12520
```

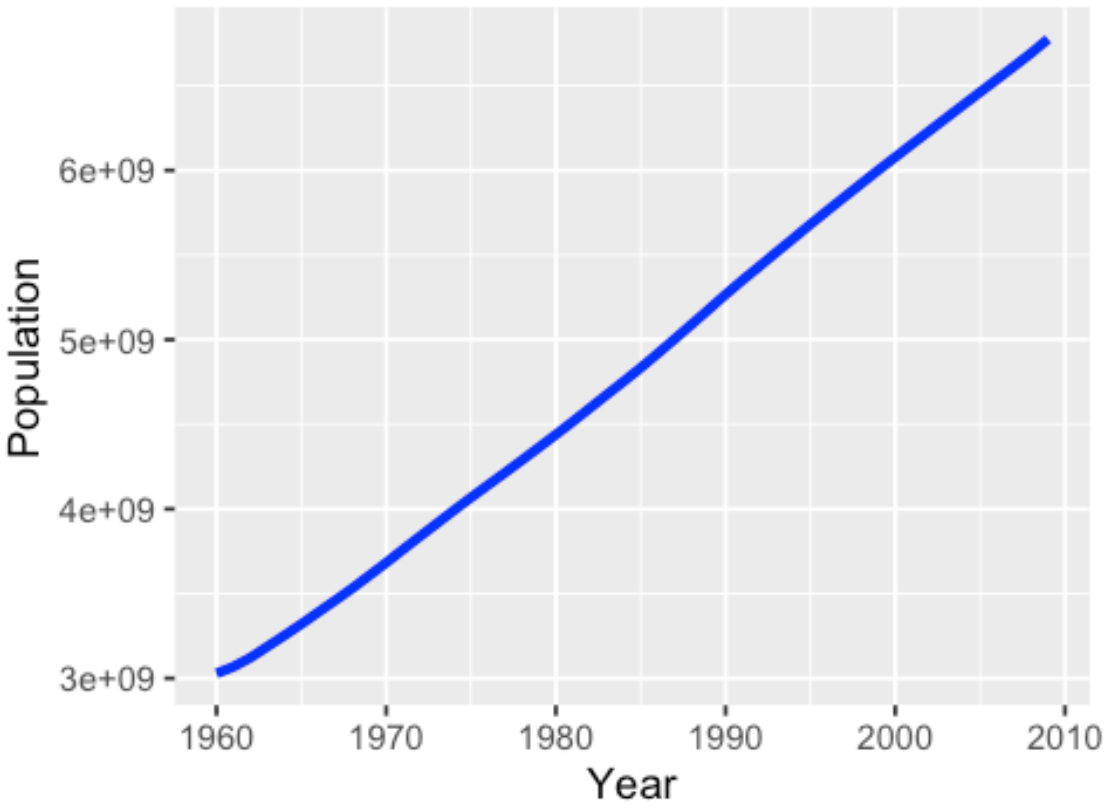
```
3      3 CA-2016-138688 2016-06-12 2016-06-16   Second Class    DV-13045
4      4 US-2015-108966 2015-10-11 2015-10-18 Standard Class    SO-20335
5      5 US-2015-108966 2015-10-11 2015-10-18 Standard Class    SO-20335
6      6 CA-2014-115812 2014-06-09 2014-06-14 Standard Class    BH-11710
    Customer.Name   Segment       Country            City      State
1     Claire Gute  Consumer United States       Henderson   Kentucky
2     Claire Gute  Consumer United States       Henderson   Kentucky
3 Darrin Van Huff Corporate United States     Los Angeles California
4  Sean O'Donnell  Consumer United States Fort Lauderdale    Florida
5  Sean O'Donnell  Consumer United States Fort Lauderdale    Florida
6 Brosina Hoffman  Consumer United States     Los Angeles California
  Postal.Code Region      Product.ID        Category Sub.Category
1       42420  South FUR-BO-10001798       Furniture    Bookcases
2       42420  South FUR-CH-10000454       Furniture       Chairs
3       90036   West OFF-LA-10000240 Office Supplies       Labels
4       33311  South FUR-TA-10000577       Furniture       Tables
5       33311  South OFF-ST-10000760 Office Supplies      Storage
6       90032   West FUR-FU-10001487       Furniture  Furnishings
                                                      Product.Name    Sales
1                                  Bush Somerset Collection Bookcase 261.9600
2      Hon Deluxe Fabric Upholstered Stacking Chairs, Rounded Back 731.9400
3        Self-Adhesive Address Labels for Typewriters by Universal  14.6200
4                    Bretford CR4500 Series Slim Rectangular Table 957.5775
5                                 Eldon Fold 'N Roll Cart System  22.3680
6 Eldon Expressions Wood and Plastic Desk Accessories, Cherry Wood  48.8600
  Quantity Discount    Profit
1        2     0.00   41.9136
2        3     0.00  219.5820
3        2     0.00    6.8714
4        5     0.45 -383.0310
5        2     0.20    2.5164
6        7     0.00   14.1694
```

1 World Population data

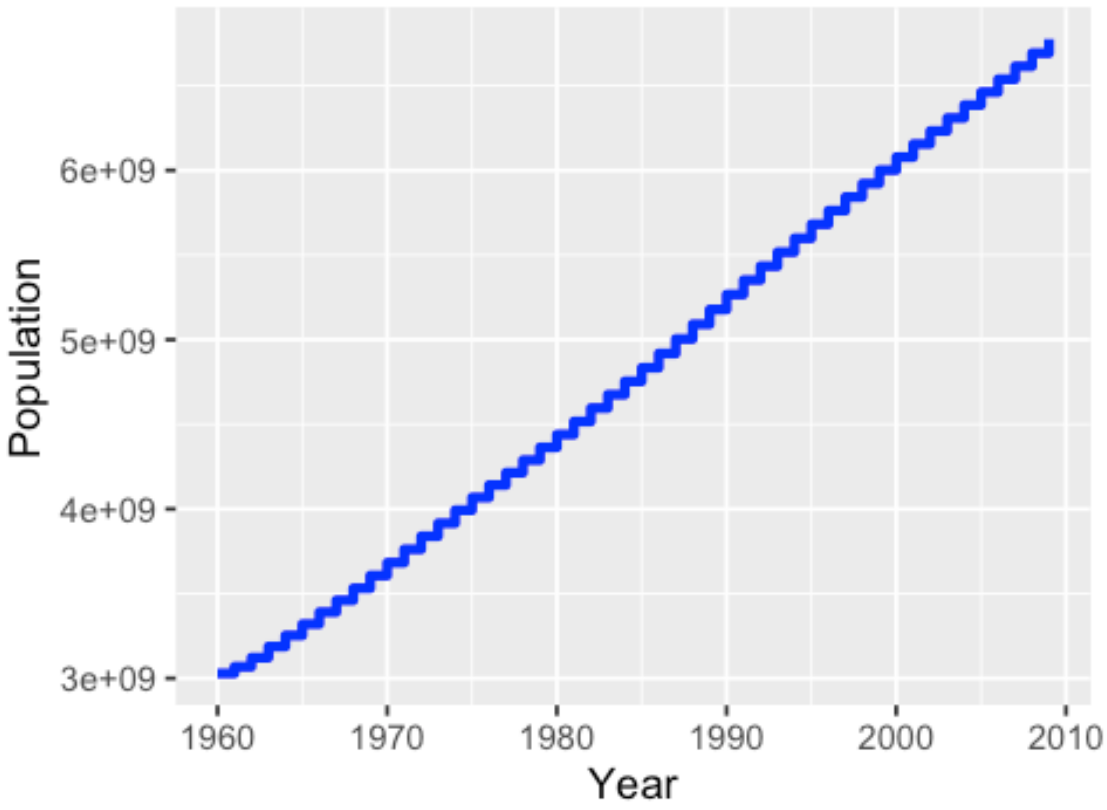
Line and Step graph

[3]:
```
options(repr.plot.width = 4, repr.plot.height = 3)

ggplot2::ggplot(data=population, ggplot2::aes(x=Year, y=Population)) +
  ggplot2::geom_line(linetype='solid', color='blue', size=1.2)
```



[4]:
```
ggplot2::ggplot(data=population, ggplot2::aes(x=Year, y=Population)) +
  ggplot2::geom_step(linetype='solid', color='blue', size=1.2)
```



2 AEP Data

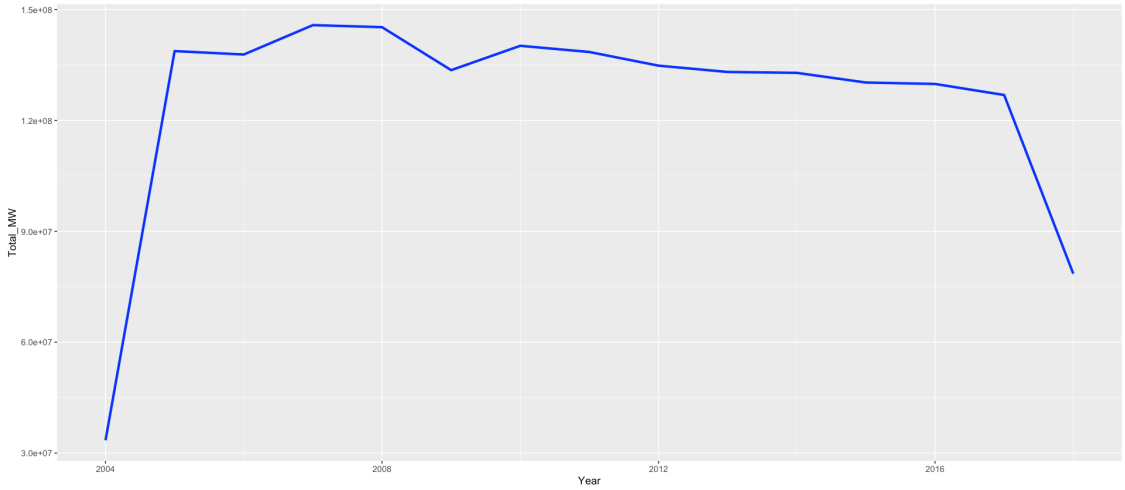
Line and Step graph

For the AEP data, there are too many observations to put in a line plot. Hence I calculated the total of AEP_MW for each year and plotted them

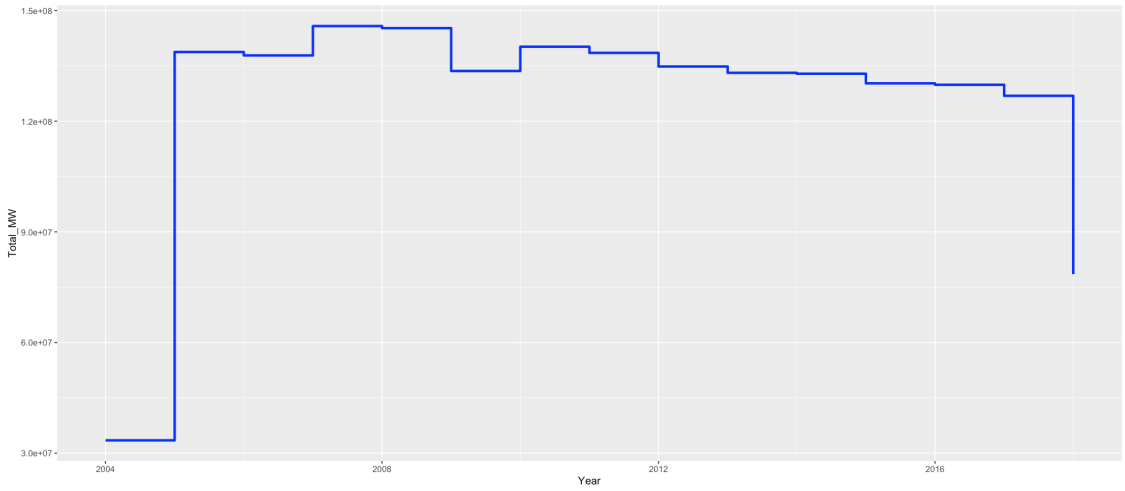
[6]:
```
# Prepare dataset
aep_aggr = aep %>%
  dplyr::mutate(Year = as.numeric(format(as.Date(Datetime), '%Y')),
                AEP_MW = as.numeric(AEP_MW)) %>%
  dplyr::group_by(Year) %>%
  dplyr::summarise(Total_MW = sum(AEP_MW))
```

[7]:
```
options(repr.plot.width = 16, repr.plot.height = 7)

ggplot2::ggplot(data=aep_aggr, ggplot2::aes(x=Year, y=Total_MW)) +
  ggplot2::geom_line(linetype='solid', color='blue', size=1.2)
```



[8]:
```
ggplot2::ggplot(data=aep_aggr, ggplot2::aes(x=Year, y=Total_MW)) +
  ggplot2::geom_step(linetype='solid', color='blue', size=1.2)
```



3 Sample Superstore data

Line and Step graph

For this data set, I plan to plot the profit by order year and segment. This needs some additional data preparation as below.

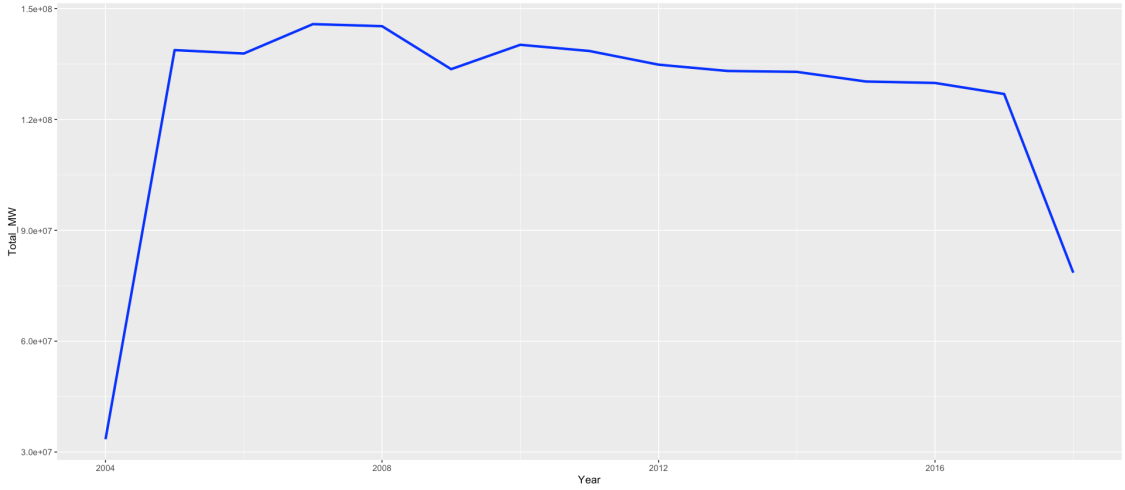
[9]:
```
superstorePrep = superstore %>%
                  dplyr::mutate(OrderYear = as.numeric(format(as.Date(Order.
↪Date), '%Y'))) %>%
                  dplyr::select(OrderYear, Segment, Profit) %>%
```

```
                dplyr::group_by(OrderYear, Segment) %>%
                dplyr::summarise(TotalProfit = sum(Profit))
```

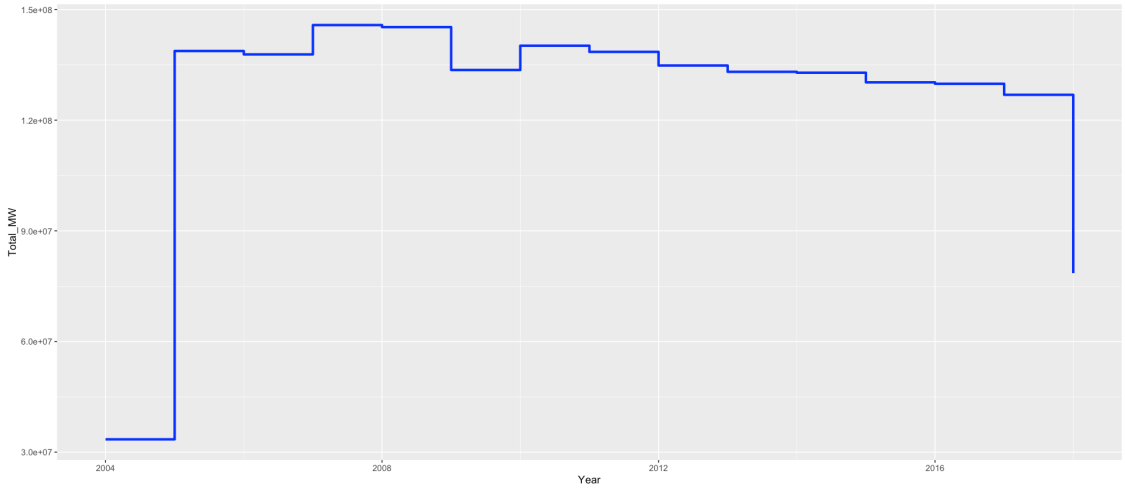
```
`summarise()` has grouped output by 'OrderYear'. You can override using the
`.groups` argument.
```

[10]:
```
options(repr.plot.width = 16, repr.plot.height = 7)

ggplot2::ggplot(data=aep_aggr, ggplot2::aes(x=Year, y=Total_MW)) +
  ggplot2::geom_line(linetype='solid', color='blue', size=1.2)
```



[11]:
```
ggplot2::ggplot(data=aep_aggr, ggplot2::aes(x=Year, y=Total_MW)) +
  ggplot2::geom_step(linetype='solid', color='blue', size=1.2)
```



4 Sample Superstore data

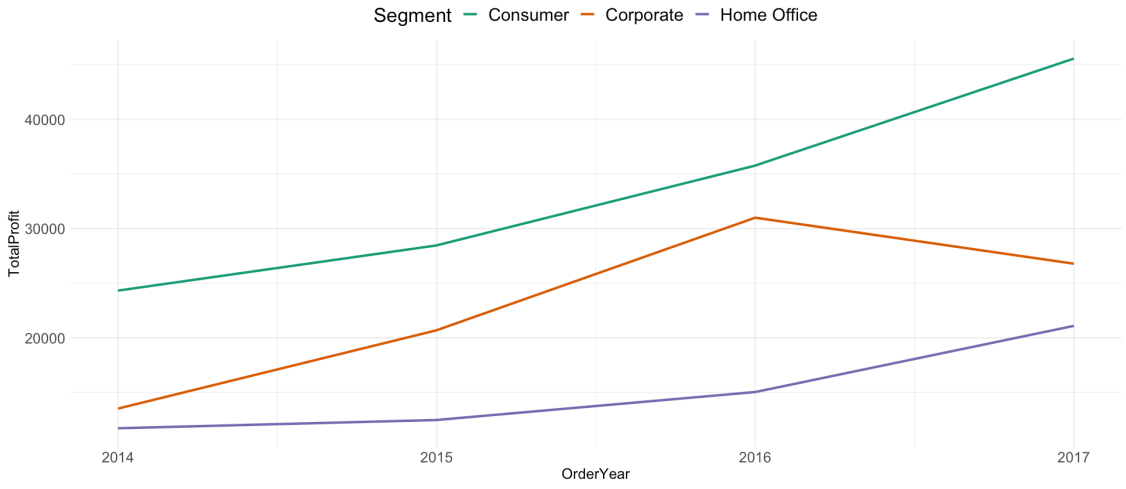
Line and Step graph

For this data set, I plan to plot the profit by order year and segment. This needs some additional data preparation as below.

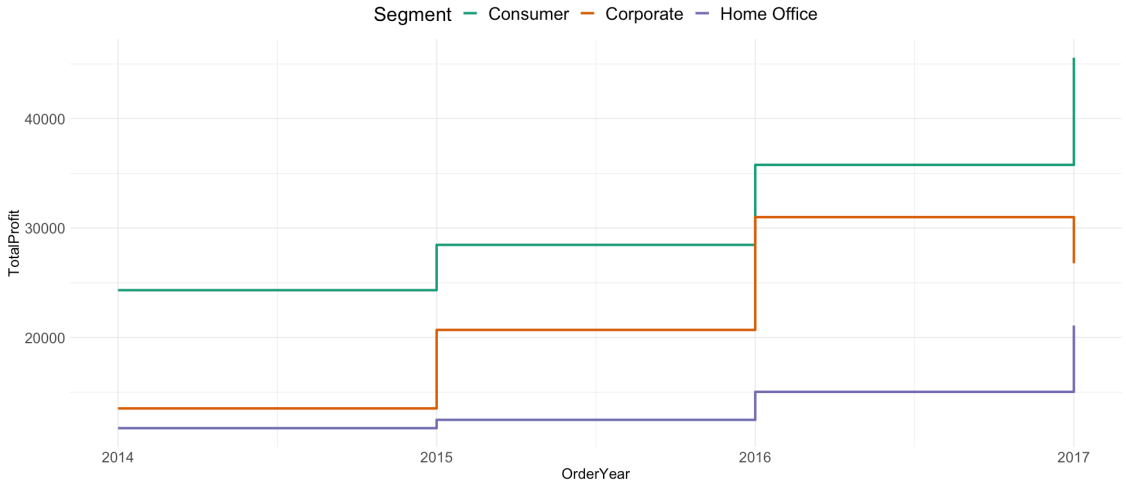
[12]:
```
superstorePrep = superstore %>%
                  dplyr::mutate(OrderYear = as.numeric(format(as.Date(Order.
↪Date), '%Y'))) %>%
                  dplyr::select(OrderYear, Segment, Profit) %>%
                  dplyr::group_by(OrderYear, Segment) %>%
                  dplyr::summarise(TotalProfit = sum(Profit))
```

```
`summarise()` has grouped output by 'OrderYear'. You can override using the
`.groups` argument.
```

[13]:
```
ggplot2::ggplot(data=superstorePrep, ggplot2::aes(x=OrderYear, y=TotalProfit,␣
↪group=Segment)) +
    ggplot2::geom_line(linetype='solid', size=1.2, ggplot2::aes(color=Segment))␣
↪+
    ggplot2::scale_color_brewer(palette='Dark2') +
    ggplot2::theme_minimal() +
    ggplot2::theme(legend.position='top',
                   legend.title=ggplot2::element_text(size=20),
                   legend.text=ggplot2::element_text(size=18),
                   axis.text=ggplot2::element_text(size=15),
                   axis.title=ggplot2::element_text(size=15)
                  )
```



[14]:
```
ggplot2::ggplot(data=superstorePrep, ggplot2::aes(x=OrderYear, y=TotalProfit,␣
↪group=Segment)) +
    ggplot2::geom_step(linetype='solid', size=1.2, ggplot2::aes(color=Segment))␣
↪+
    ggplot2::scale_color_brewer(palette='Dark2') +
    ggplot2::theme_minimal() +
    ggplot2::theme(legend.position='top',
                   legend.title=ggplot2::element_text(size=20),
                   legend.text=ggplot2::element_text(size=18),
                   axis.text=ggplot2::element_text(size=15),
                   axis.title=ggplot2::element_text(size=15)
                  )
```



[ ]: