Homework 1

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This homework is due on Jan. 25, 2021 at 11:00pm. Please submit as a pdf file on Canvas.

Problem 1: (4 pts) Demonstrate basic command of Markdown by creating a bulleted list with three items, a numbered list with three items, and a sentence that has one word in bold and one word in italics.

- Item 1
- Item 2
- Item 3
    1. Item 2a
    2. Item 2b
    3. Item 2c
- This is my **first** assignment for the *Data Visualization* class. I found how to make a ***word*** in both bold and italics.

Problem 2: (3 pts) The `economics` dataset contains various time series data from the US economy:

```
economics
```

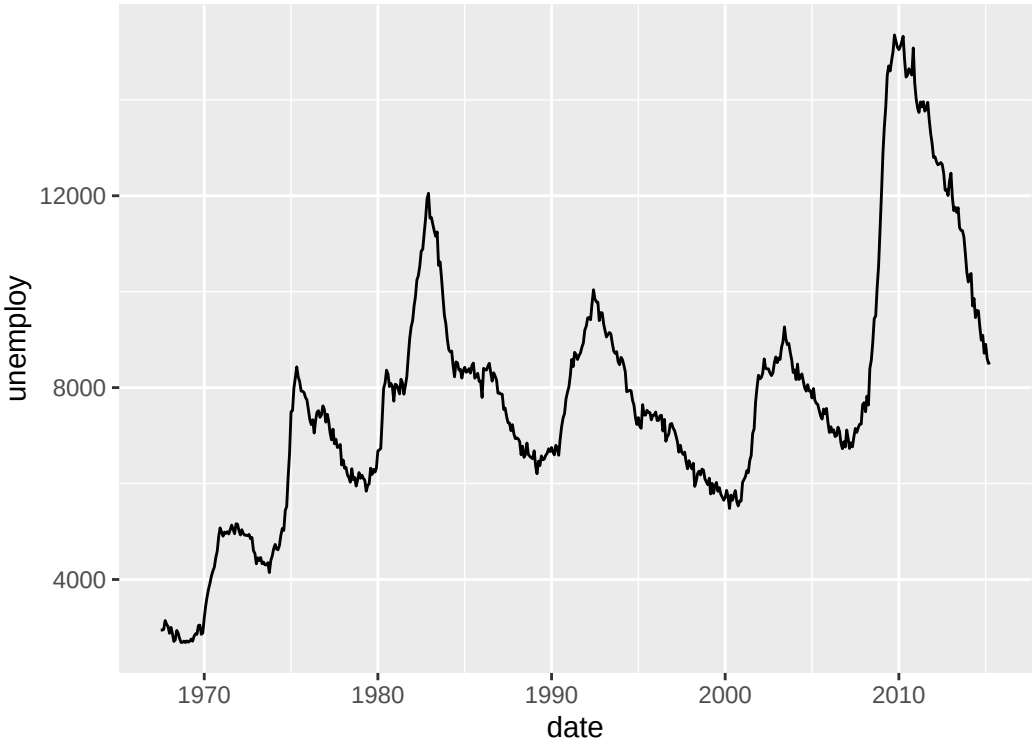
```
## # A tibble: 574 x 6
##    date         pce    pop psavert uempmed unemploy
##    <date>     <dbl>  <dbl>   <dbl>   <dbl>    <dbl>
##  1 1967-07-01  507. 198712    12.6     4.5     2944
##  2 1967-08-01  510. 198911    12.6     4.7     2945
##  3 1967-09-01  516. 199113    11.9     4.6     2958
##  4 1967-10-01  512. 199311    12.9     4.9     3143
##  5 1967-11-01  517. 199498    12.8     4.7     3066
##  6 1967-12-01  525. 199657    11.8     4.8     3018
##  7 1968-01-01  531. 199808    11.7     5.1     2878
##  8 1968-02-01  534. 199920    12.3     4.5     3001
##  9 1968-03-01  544. 200056    11.7     4.1     2877
## 10 1968-04-01  544  200208    12.3     4.6     2709
## # ... with 564 more rows
```

```
str(economics)
```

```
## tibble [574 x 6] (S3: spec_tbl_df/tbl_df/tbl/data.frame)
##  $ date    : Date[1:574], format: "1967-07-01" "1967-08-01" ...
##  $ pce     : num [1:574] 507 510 516 512 517 ...
##  $ pop     : num [1:574] 198712 198911 199113 199311 199498 ...
##  $ psavert : num [1:574] 12.6 12.6 11.9 12.9 12.8 11.8 11.7 12.3 11.7 12.3 ...
##  $ uempmed : num [1:574] 4.5 4.7 4.6 4.9 4.7 4.8 5.1 4.5 4.1 4.6 ...
##  $ unemploy: num [1:574] 2944 2945 2958 3143 3066 ...
```

Use ggplot to make a line plot of the number of unemployed (column `unemploy`) versus time (column `date`).

```
ggplot(economics, aes(date, unemploy)) +
  geom_line()
```



Problem 3: (3 pts) Again using the `economics` dataset, now make a scatter plot (using `geom_point()`) of the number of unemployed versus the personal savings rate (`psavert`), and color points by date.

```
ggplot(economics, aes(unemploy, psavert, color = date)) +
  geom_point() +
  labs(x = "Number of Unemployed", y = "Personal Savings Rate")
```


Personal Savings Rate
15
10
5
4000
8000
12000
Number of Unemployed
date
2010
2000
1990
1980
1970