Homework 03

DSO 545: Statistical Computing and Data Visualization

Fall 2019

Due Date: Friday September 20, 2019 (EOD at 11:59pm)

Instructions

- Use Python to answer all questions (Feel free to use any IDE or Jupyter notebook)
- Submit your Python file to blackboard with comments when needed
- USC won't tolerate any kind of cheating
- Good luck

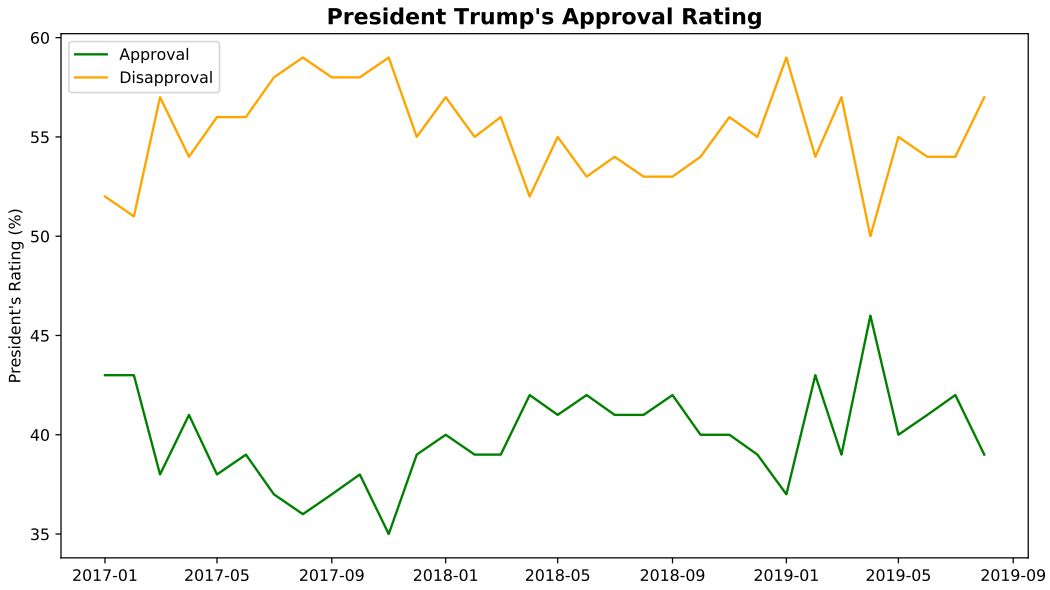
President Trump's Approval Rating 2017-2019

In this homework, we will visualize how President's Trump approval rating has changed over the last two years. Some of the visual elements in this homework are based on what we have done in class, and some others extend what we did in class. Remember that Google is your best friend when you are learning how to code in Python!

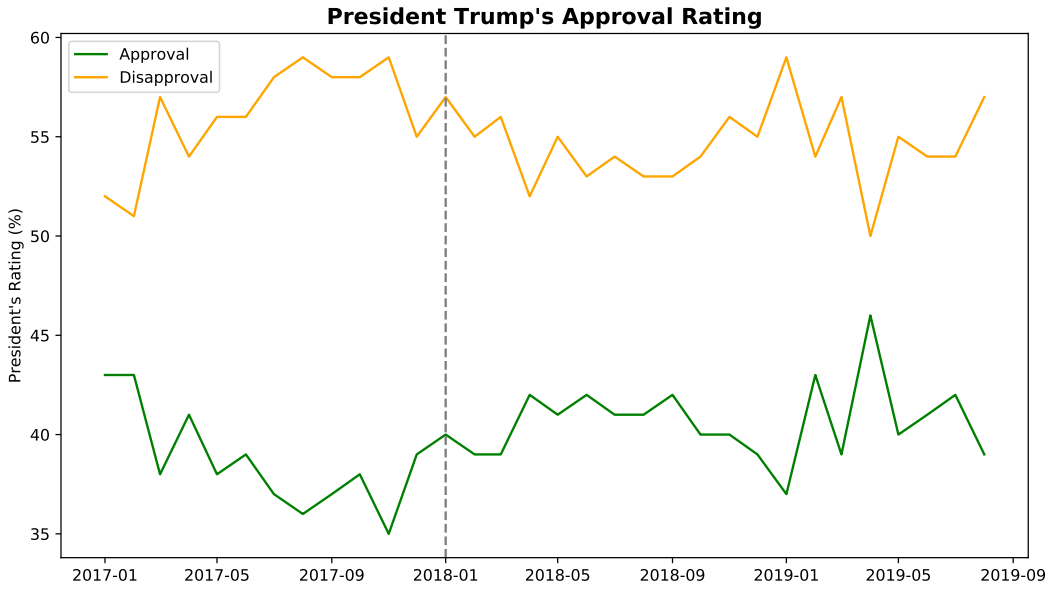
The dataset ('trump_approval.csv') has 4 columns:

Column	Description
Date	Date of the poll
Approve	% of people in the sample who approve President Trump policies
Disapprove	% of people in the sample who disapprove President Trump policies
No Opinion	% of people in the sample who are neutral regarding President Trump policies

1. **(1 point)** Use the panda's dataframe method to `to_datetime()` to update the datat type of the Date variable to a date/time variable.
2. **(1.5 points)** Create a line chart that shows President's Trump approval rating as follows. The approval line is green, the disapproval line is orange, and the title is bold of fontsize 14. In addition, the plot's figure size is 11x6

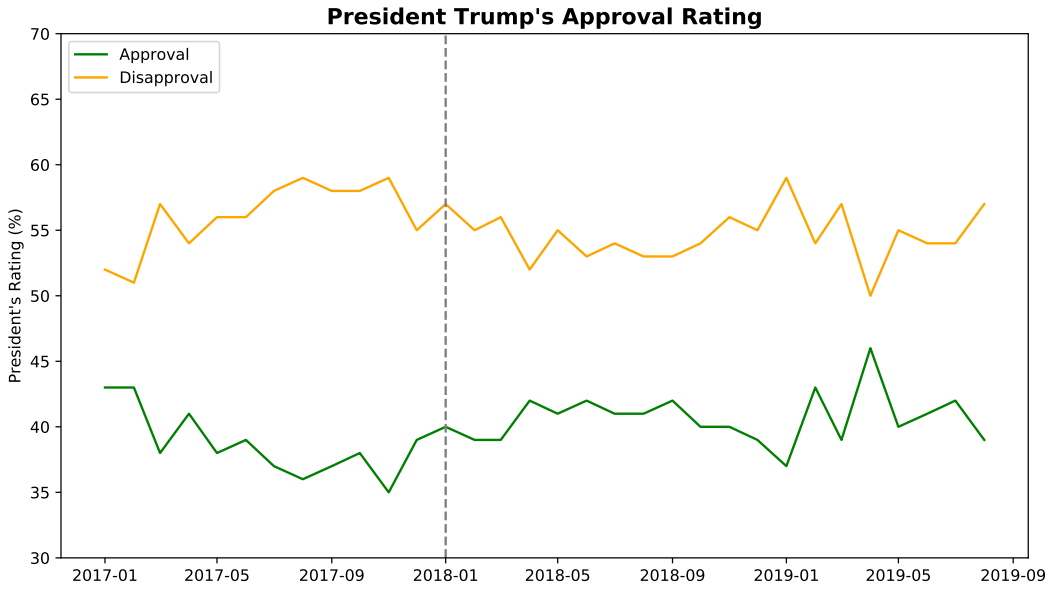


3. **(1.5 points)** Add a horizontal line at "2018-01-01". The vertical line should be dashed and grey.



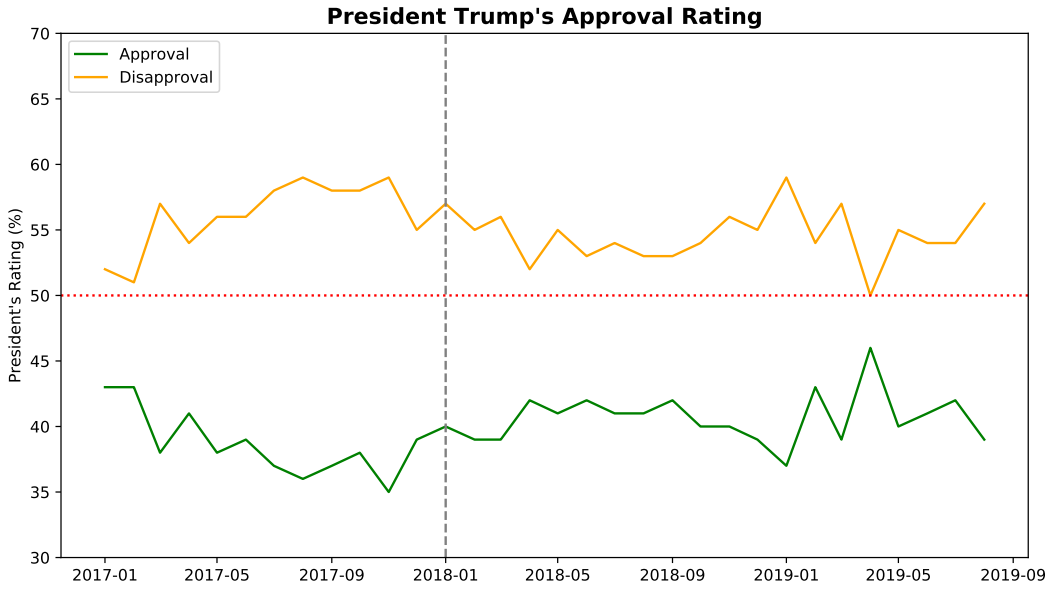
4. **(1 point)** Extend the limits on the y-axis as follows (from 30 to 70):

```
## (30, 70)
```



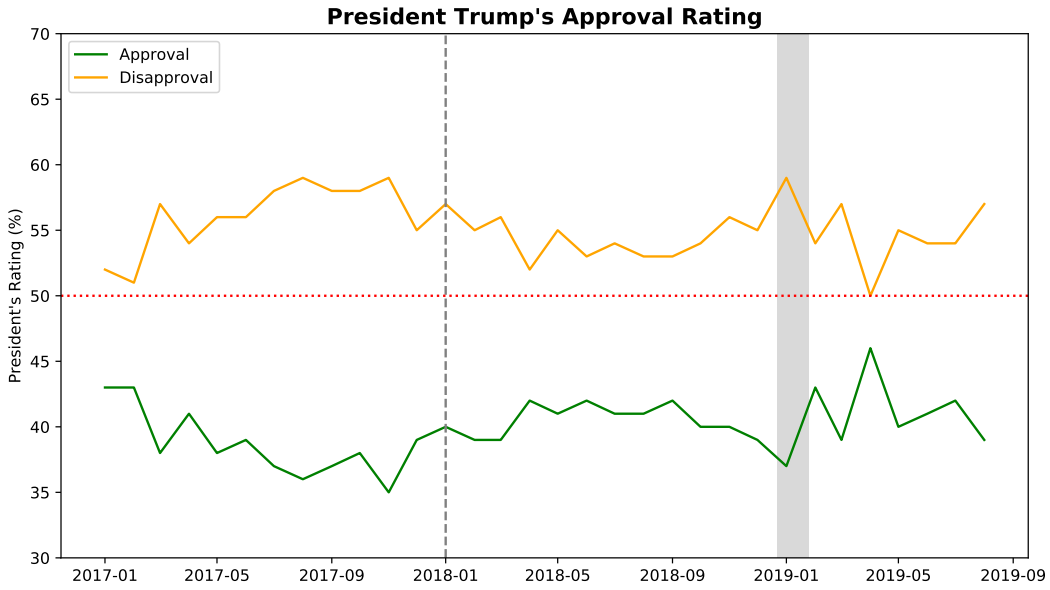
5. **(1 points)** Add a horizontal line at the 50% level approval as follows. The line should be dotted red.

```
## (30, 70)
```



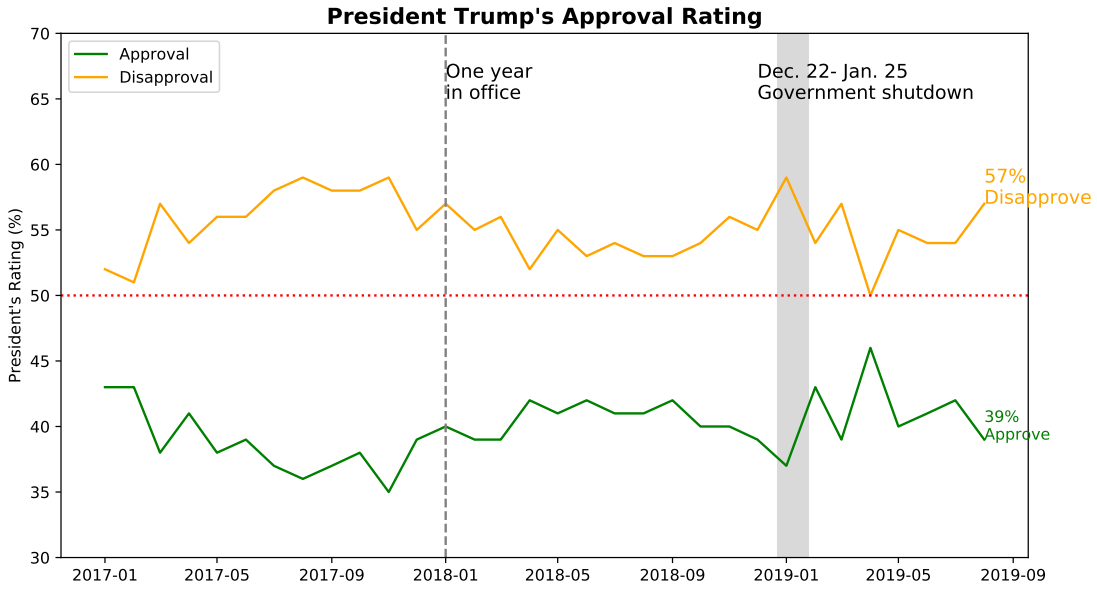
6. **(1.5 points)** Use the matplotlib method `axvspan()` to add a vertical span to show the government shutdown period between Dec 22, 2018 and Jan 1, 2019. The span should be grey and the alpha level should be 0.3.

```
## (30, 70)
```



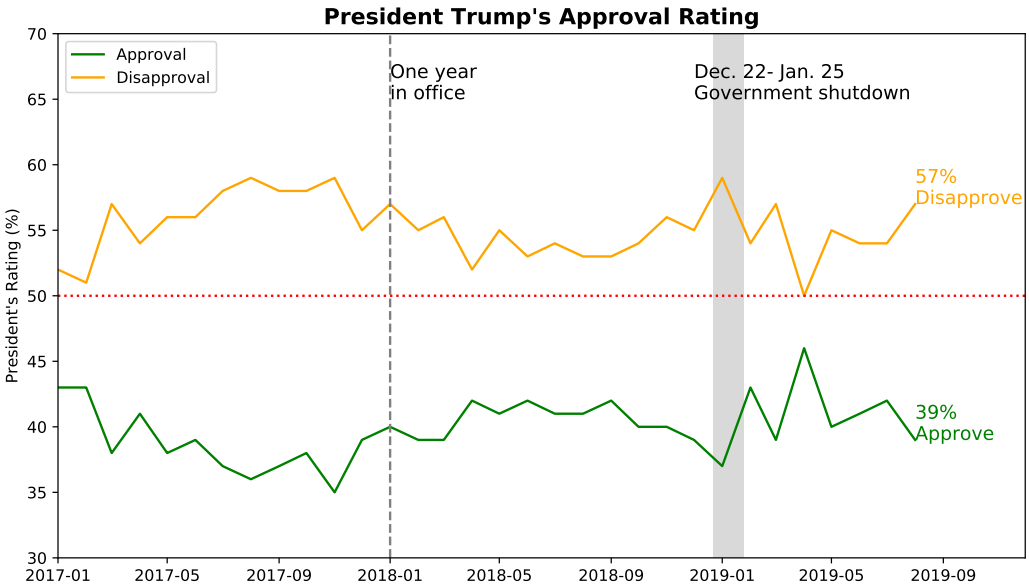
7. **(1.5 points)** Add the text labels on the plot as follows. The font size for all text is 12.

```
## (30, 70)
```



8. **(1 point)** Extend the x-axis to include all year of 2019 so the text can fit in the border.

```
## (30, 70)
## (736330.0, 737393.0)
```


President Trump's Approval Rating
Approval
Disapproval
One year
in office
Dec. 22- Jan. 25
Government shutdown
57%
Disapprove
39%
Approve
President's Rating (%)
70
65
60
55
50
45
40
35
30
2017-01
2017-05
2017-09
2018-01
2018-05
2018-09
2019-01
2019-05
2019-09