

KausikChattapadhyay_DSC640_1.2_R

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R Markdown

You need to submit 3 bar charts, 3 stacked bar charts, 3 pie charts, and 3 donut charts using Tableau or PowerBI, Python and R using the data from the link below (the link will download a zipped folder containing three data files.) You may also use your own datasets if you wish. You can also submit using D3 if you choose – but it is not required. You can choose which library to use in Python or R, documentation is provided to help you decide and as you start to play around in the libraries, you will decide which you prefer.

Excercise in R

```
# Import required packages
library('magrittr')

# Import data to be used for visualization
fileData = paste(getwd(), '/obama-approval-ratings.xls', sep = '')
obama = xlsx::read.xlsx(fileData, sheetIndex = 1, stringsAsFactors = FALSE)

# Examine data
obama
```

##	Issue	Approve	Disapprove	None
## 1	Race Relations	52	38	10
## 2	Education	49	40	11
## 3	Terrorism	48	45	7
## 4	Energy Policy	47	42	11
## 5	Foreign Affairs	44	48	8
## 6	Environment	43	51	6
## 7	Situation in Iraq	41	53	6
## 8	Taxes	41	54	5
## 9	Healthcare Policy	40	57	3
## 10	Economy	38	59	3
## 11	Situation in Afghanistan	36	57	7
## 12	Federal Budget Deficit	31	64	5
## 13	Immigration	29	62	9

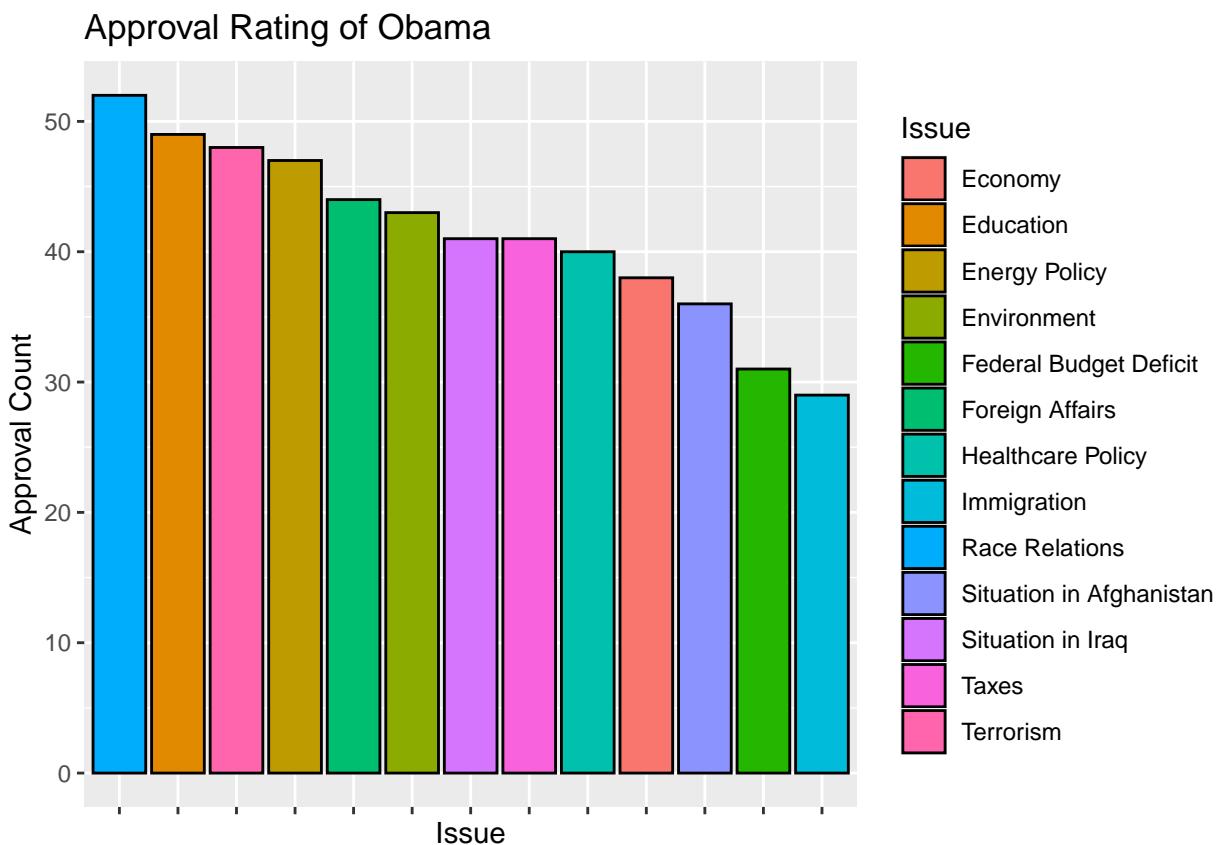
Bar chart

Looks like we can plot the issue in x-axis and any of the corresponding ratings in the y-axis. I am choosing the approval ratings as the measure.

```

library(ggplot2)
obama %>%
  dplyr::select(Issue, Approve) %>%
  dplyr::arrange(-Approve) %>%
  dplyr::mutate(SortOrder = factor(Issue, Issue)) %>%
  ggplot2::ggplot(ggplot2::aes(x=SortOrder, y=Approve, fill=Issue)) +
  ggplot2::geom_bar(stat='identity', color='black') +
  ggplot2::xlab('Issue') + ggplot2::ylab('Approval Count') +
  ggplot2::theme(axis.text.x=element_blank()) +
  ggplot2::ggtitle('Approval Rating of Obama')

```

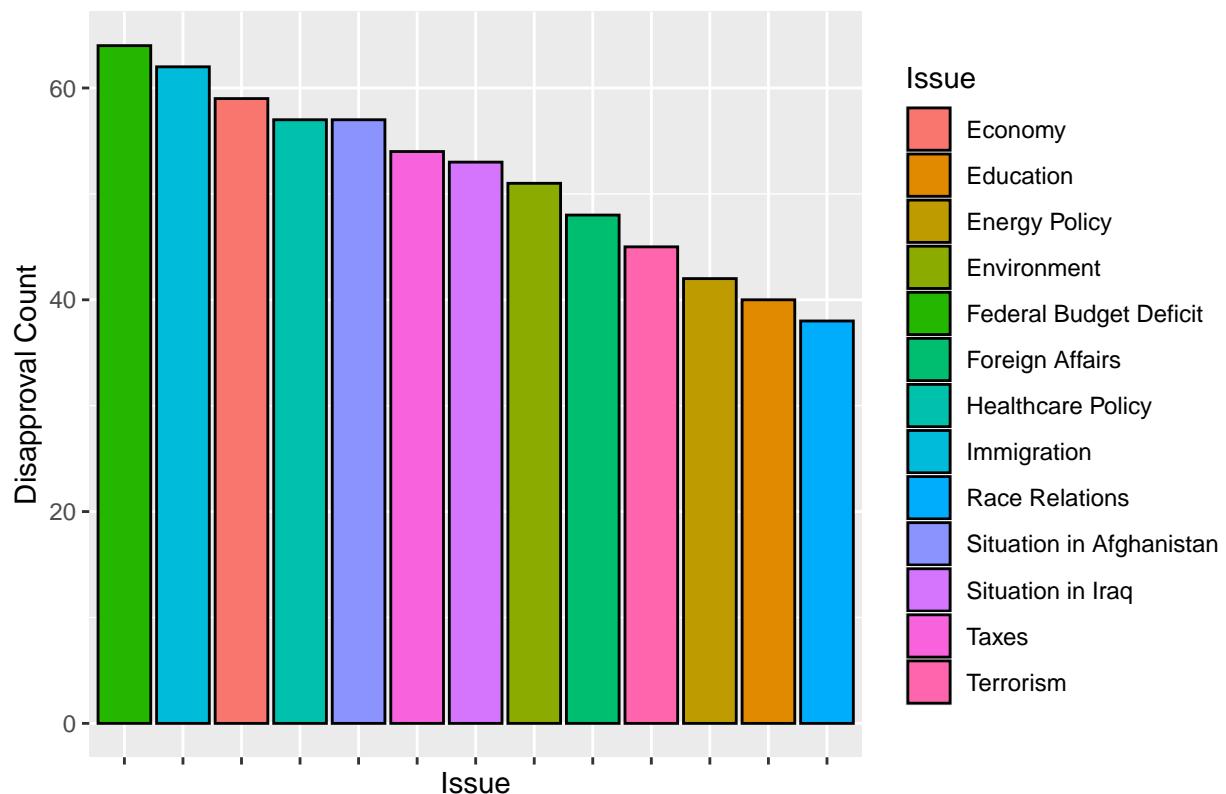


```

obama %>%
  dplyr::select(Issue, Disapprove) %>%
  dplyr::arrange(-Disapprove) %>%
  dplyr::mutate(SortOrder = factor(Issue, Issue)) %>%
  ggplot2::ggplot(ggplot2::aes(x=SortOrder, y=Disapprove, fill=Issue)) +
  ggplot2::geom_bar(stat='identity', color='black') +
  ggplot2::xlab('Issue') + ggplot2::ylab('Disapproval Count') +
  ggplot2::theme(axis.text.x=element_blank()) +
  ggplot2::ggtitle('Disapproval Rating of Obama')

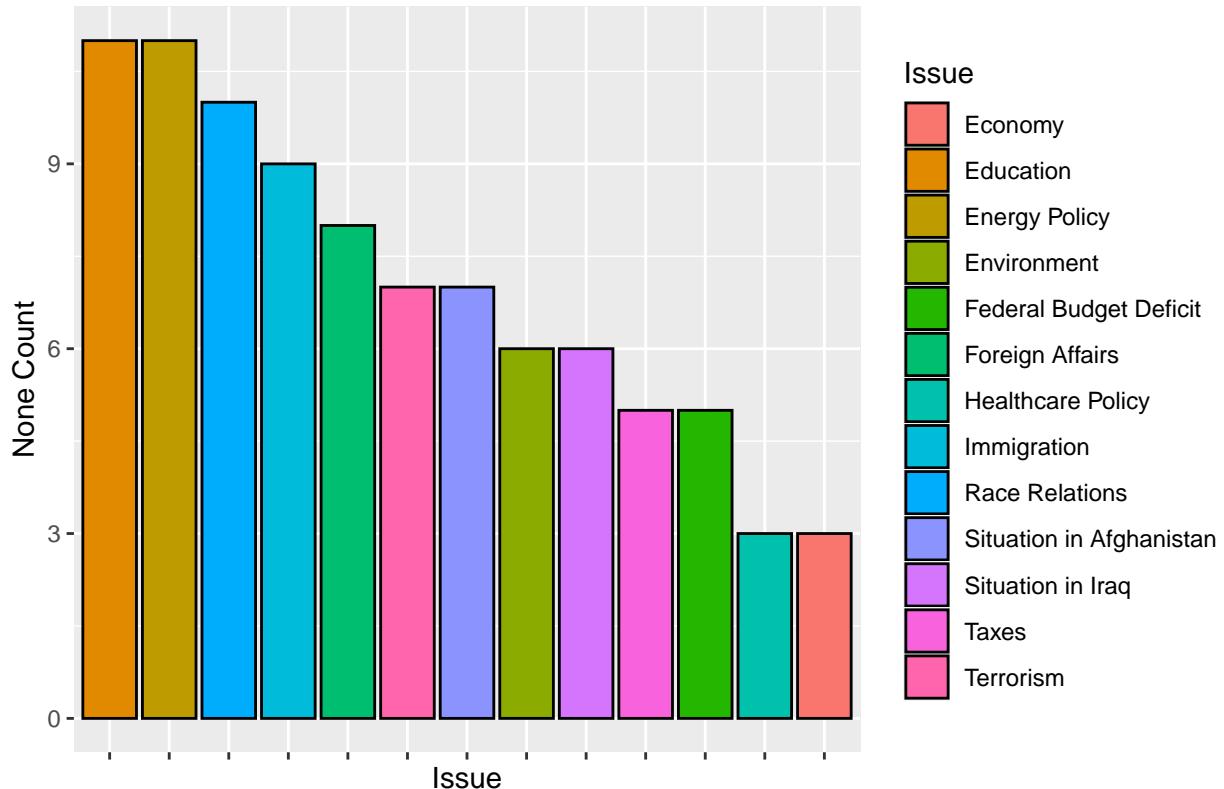
```

Disapproval Rating of Obama



```
obama %>%
  dplyr::select(Issue, None) %>%
  dplyr::arrange(-None) %>%
  dplyr::mutate(SortOrder = factor(Issue, Issue)) %>%
  ggplot2::ggplot(ggplot2::aes(x=SortOrder, y=None, fill=Issue)) +
    ggplot2::geom_bar(stat='identity', color='black') +
    ggplot2::xlab('Issue') + ggplot2::ylab('None Count') +
    ggplot2::theme(axis.text.x=element_blank()) +
    ggplot2::ggtitle('None Rating of Obama')
```

None Rating of Obama

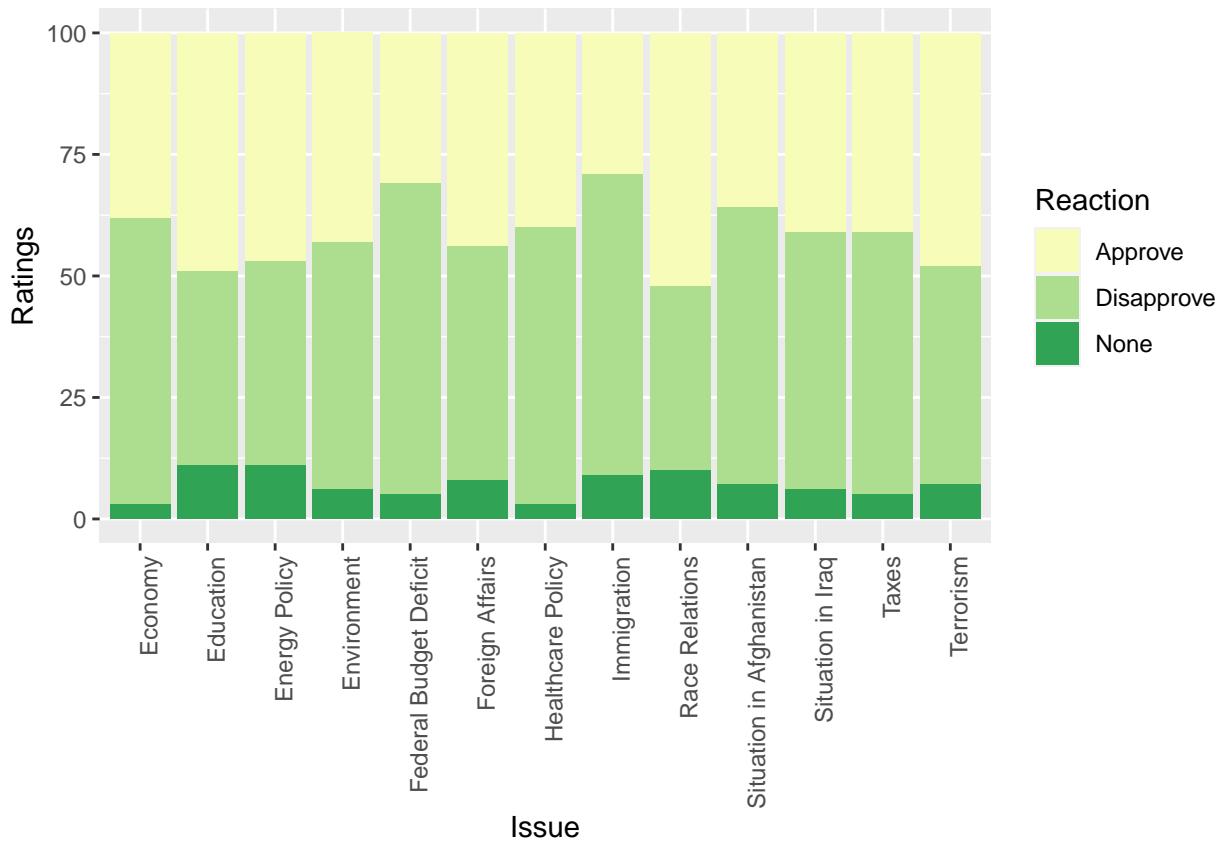


Stacked Bar Chart

For this, I will plot each issue with their respective Approval, Disapproval and Neutral counts. This will generate a 100% stacked bar chart for each issue, so that the reactions are rightfully captured.

```
# I need to reshape the data to long format for this purpose
obama_long = obama %>%
  tidyr::gather('Reaction', 'Ratings', Approve, Disapprove, None)

# Plot stacked
ggplot2::ggplot(data = obama_long, ggplot2::aes(x = Issue, y = Ratings, fill = Reaction)) +
  ggplot2:: geom_bar(stat='identity') +
  ggplot2::theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  ggplot2::scale_fill_brewer(palette = 15)
```

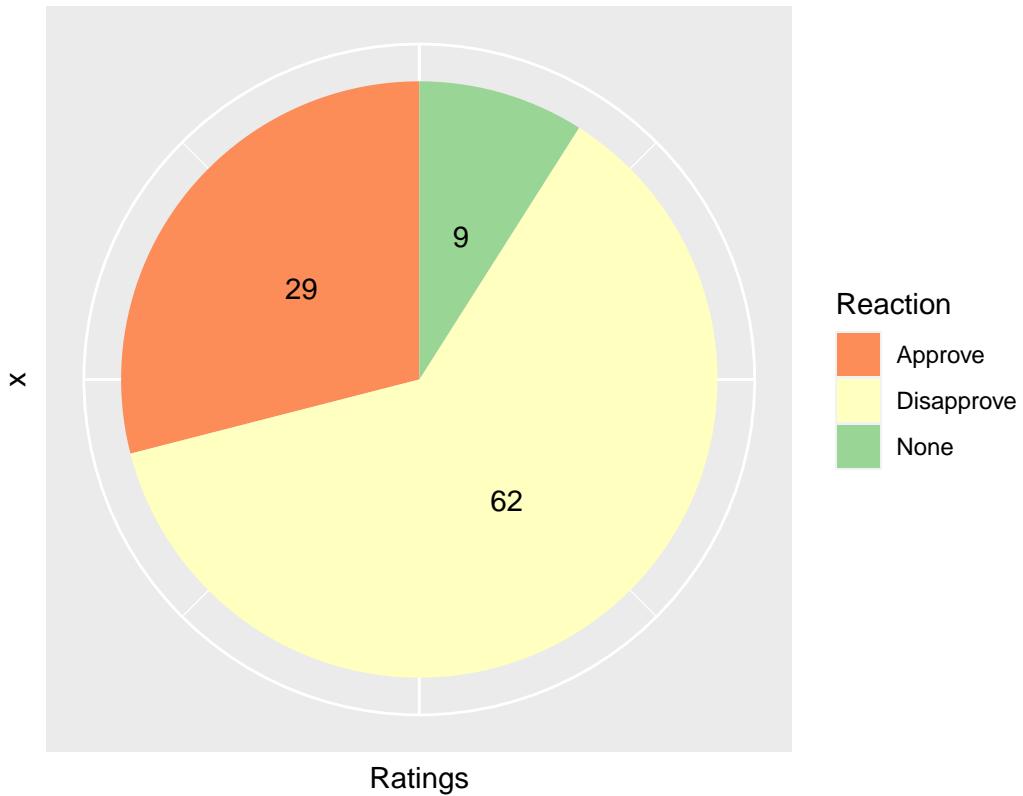


Pie Chart

For pie chart demonstration, I would like to pick the Immigration issue and plot the different ratings in a pie.

```
# For this purpose, I would need the long data set. Because we need the stacked chart before creating p
# Since pie chart is not easy to digest, I would NOT use the same color family for the different section
obama_long %>%
  dplyr::filter(Issue=='Immigration') %>%
  ggplot2::ggplot(ggplot2::aes(x="", y=Ratings, fill=Reaction)) +
  ggplot2::geom_bar(width = 1, stat = 'identity') +
  ggplot2::coord_polar('y', start=0) +
  ggplot2::geom_text(aes(label = Ratings), position = position_stack(vjust = 0.5)) +
  ggplot2::ggtitle(label = 'Reaction on Immigration Issue in Obama Era') +
  ggplot2::scale_fill_brewer(palette='Spectral') +
  ggplot2::theme(axis.line = element_blank(),
    axis.text = element_blank(),
    axis.ticks = element_blank(),
    plot.title = element_text(hjust = 0.5))
```

Reaction on Immigration Issue in Obama Era



Donut Chart

For donut chart demonstration, I would like to pick the Education issue and plot the different ratings in the shape of a ring/donut.

```
obama_long %>%
  dplyr::filter(Issue=='Education') %>%
  dplyr::mutate(ymax=cumsum(Ratings),
                ymin=c(0,ymax[1:length(ymax)-1])) %>%
  ggplot2::ggplot(ggplot2::aes(fill=Reaction, ymax=ymax, ymin=ymin, xmax=4, xmin=3)) +
  ggplot2::geom_rect() +
  ggplot2::coord_polar(theta='y') +
  ggplot2::xlim(c(0, 4)) +
  ggplot2::theme(panel.grid=element_blank()) +
  ggplot2::theme(axis.text=element_blank()) +
  ggplot2::theme(axis.ticks=element_blank()) +
  ggplot2::annotate('text', x = 0, y = 0, label = 'Reaction on Education') +
  ggplot2::labs(title='')
```

