DSC640 Week 1& 2

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
library(magrittr)
library(plotly)
```

```
##
## Attaching package: 'plotly'
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

```
library(purrr)
```

```
##
## Attaching package: 'purrr'
```

```
## The following object is masked from 'package:magrittr':
##
##     set_names
```

```
library(PythonInR)
```

```
##
## Initialize Python Version 2.7.16 (default, Nov  9 2019, 05:55:08)
## [GCC 4.2.1 Compatible Apple LLVM 11.0.0 (clang-1100.0.32.4) (-macos10.15-objc-s
```

```
library(readr)
library(readxl)
library(RCurl)
```

```
## Loading required package: bitops
```

```
library(remotes)
library(rmarkdown)
library(Rserve)
library(reticulate)
library(stringr)
library(tibble)
library(tidyr)
```

```
##
## Attaching package: 'tidyr'
```

```
## The following object is masked from 'package:RCurl':
##
##     complete
```

```
## The following object is masked from 'package:magrittr':
##
##     extract
```

```
library(tidyverse)
```

```
## -- Attaching packages ---------------------------------------------------------------------- tidyverse 1
```

```
## v forcats 0.4.0
```

```
## -- Conflicts ------------------------------------------------------------------------------ tidyverse_conflic
## x tidyr::complete()  masks RCurl::complete()
## x tidyr::extract()   masks magrittr::extract()
## x plotly::filter()   masks dplyr::filter(), stats::filter()
## x dplyr::lag()       masks stats::lag()
## x purrr::set_names() masks magrittr::set_names()
```

Using the Obama approval ratings data in this exercise. First I will import the dataset and view the structure.

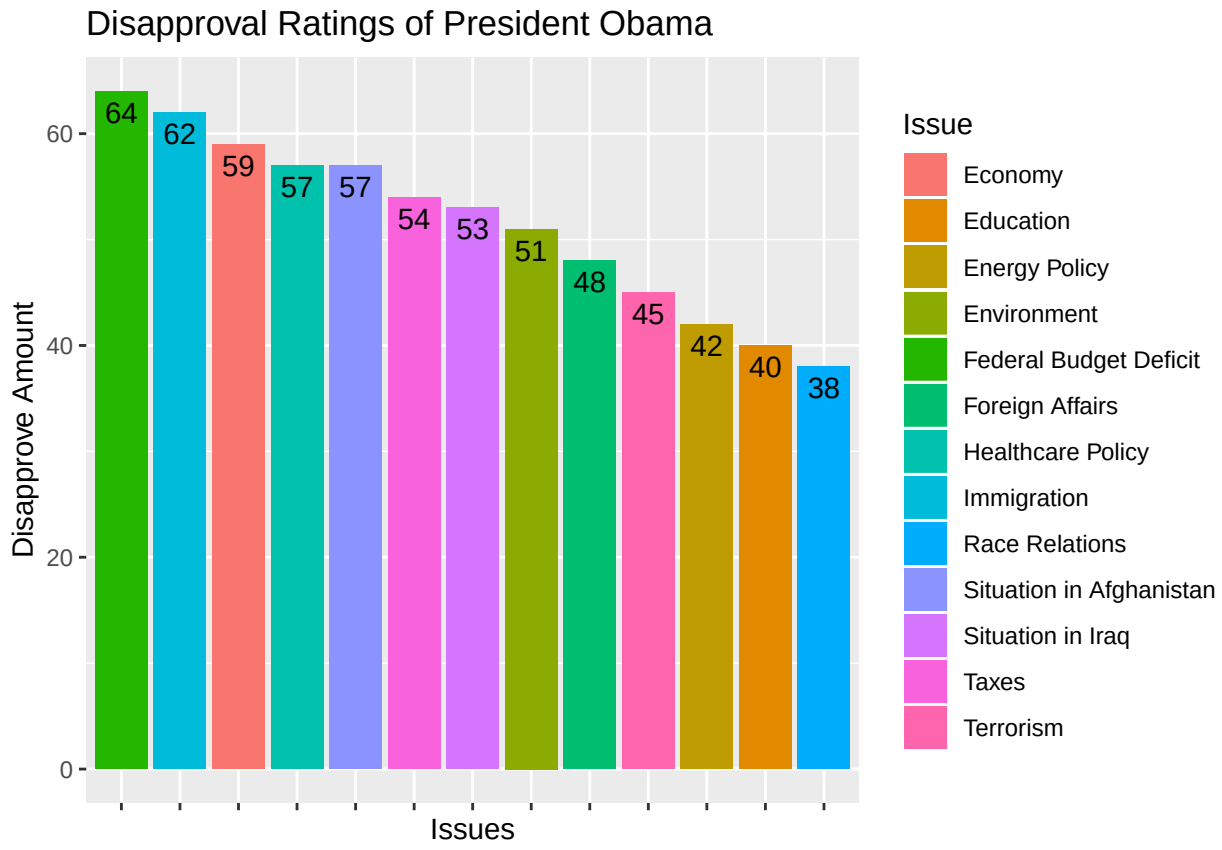
```
## Observations: 13
## Variables: 4
## $ Issue      <chr> "Race Relations", "Education", "Terrorism", "Energy Poli...
## $ Approve    <dbl> 52, 49, 48, 47, 44, 43, 41, 41, 40, 38, 36, 31, 29
## $ Disapprove <dbl> 38, 40, 45, 42, 48, 51, 53, 54, 57, 59, 57, 64, 62
## $ None       <dbl> 10, 11, 7, 11, 8, 6, 6, 5, 3, 3, 7, 5, 9
```

```
summary(potus_O)
```

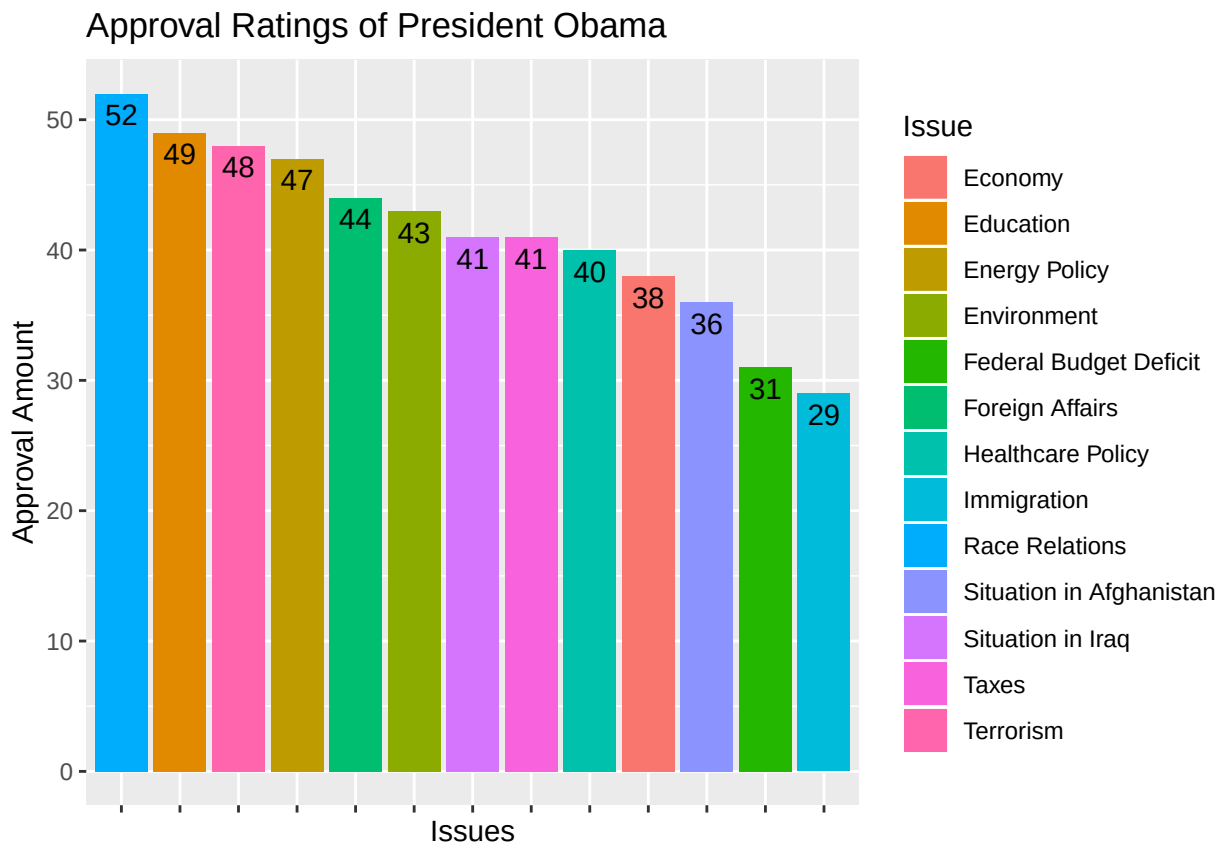
```
##     Issue              Approve        Disapprove         None
##  Length:13          Min.   :29.00   Min.   :38.00   Min.   : 3
##  Class :character   1st Qu.:38.00   1st Qu.:45.00   1st Qu.: 5
##  Mode  :character   Median :41.00   Median :53.00   Median : 7
##                     Mean   :41.46   Mean   :51.54   Mean   : 7
##                     3rd Qu.:47.00   3rd Qu.:57.00   3rd Qu.: 9
##                     Max.   :52.00   Max.   :64.00   Max.   :11
```

```
potus_O %>%
  dplyr::select(Issue, Disapprove) %>%
```

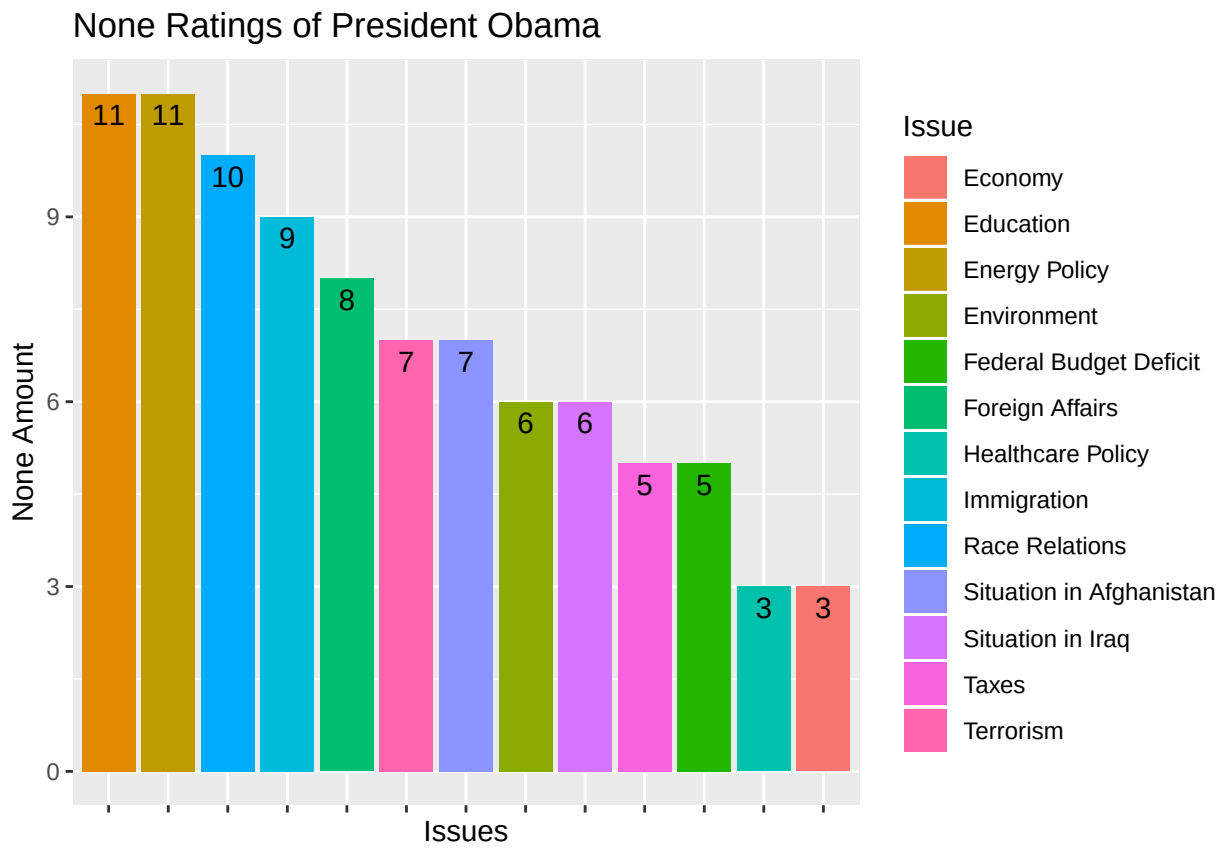
```
  dplyr::arrange(-Disapprove) %>%
  dplyr::mutate(SortOrder = factor(Issue, Issue)) %>%
  ggplot2::ggplot(ggplot2::aes(x=SortOrder, y=Disapprove, fill=Issue)) +
  ggplot2::geom_bar(stat = 'identity') +
  ggplot2::xlab("Issues") + ggplot2::ylab('Disapprove Amount') +
  ggplot2::theme(axis.text.x = element_blank()) +
  ggplot2::geom_text(aes(label = Disapprove, vjust = 1.5)) +
  ggplot2::ggtitle('Disapproval Ratings of President Obama')
```




```
potus_0 %>%
  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') +
  ggplot2::xlab("Issues") + ggplot2::ylab('Approval Amount') +
  ggplot2::theme(axis.text.x = element_blank()) +
  ggplot2::geom_text(aes(label = Approve, vjust = 1.5)) +
  ggplot2::ggtitle('Approval Ratings of President Obama')
```

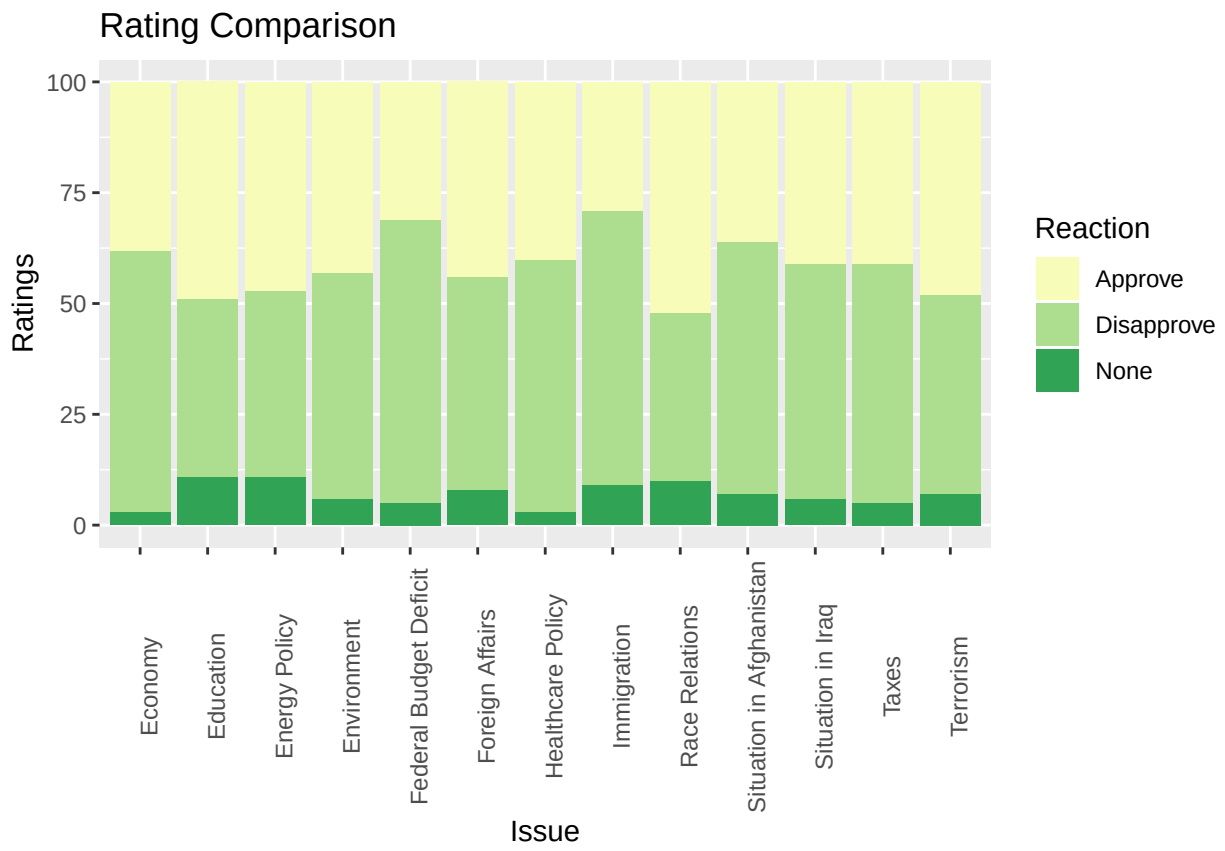



```
potus_0 %>%
  dplyr::select(Issue, None) %>%
  dplyr::arrange(-None) %>%
  dplyr::mutate(SortOrder = factor(Issue, Issue)) %>%
  ggplot2::ggplot(ggplot2::aes(x=SortOrder, y=None, fill=Issue)) +
  ggplot2::geom_bar(stat = 'identity') +
  ggplot2::xlab("Issues") + ggplot2::ylab('None Amount') +
  ggplot2::theme(axis.text.x = element_blank()) +
  ggplot2::geom_text(aes(label = None, vjust = 1.5)) +
  ggplot2::ggtitle('None Ratings of President Obama')
```

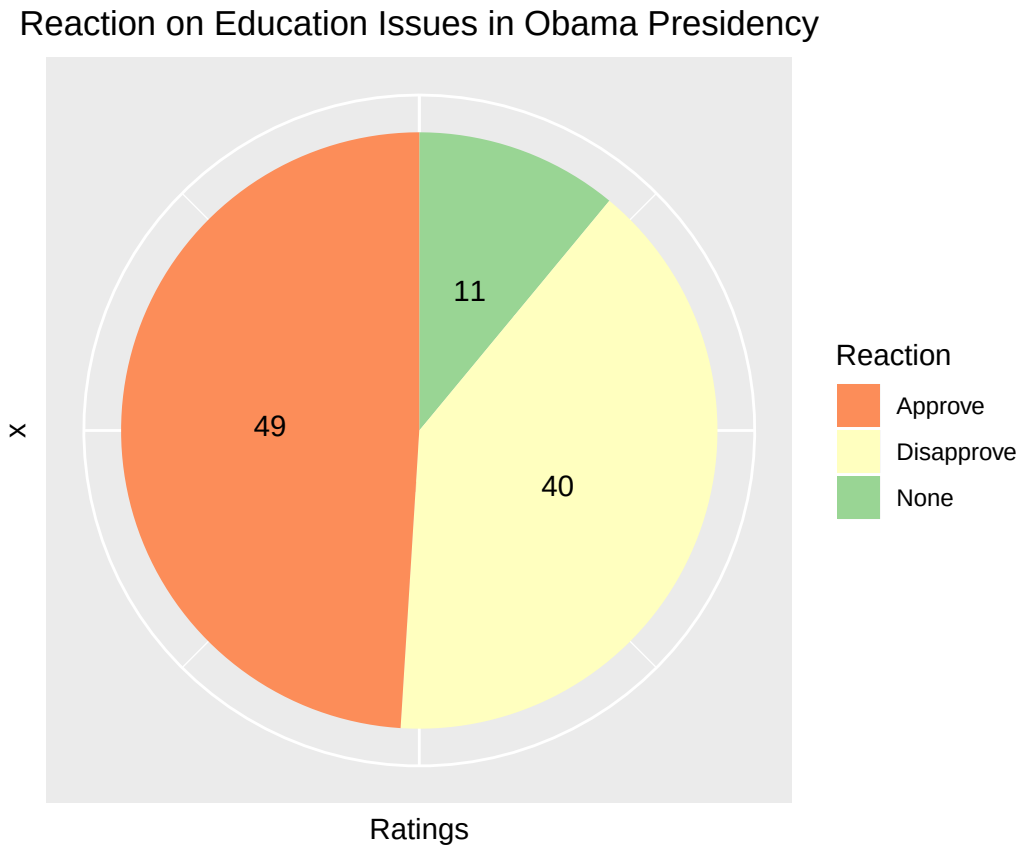


After looking at the stack bar graph I notice the light blue for 'Approve" Reaction is difficult to read and hard on the eyes, I should of done two things here: 1) change the color pallate 2) provide text

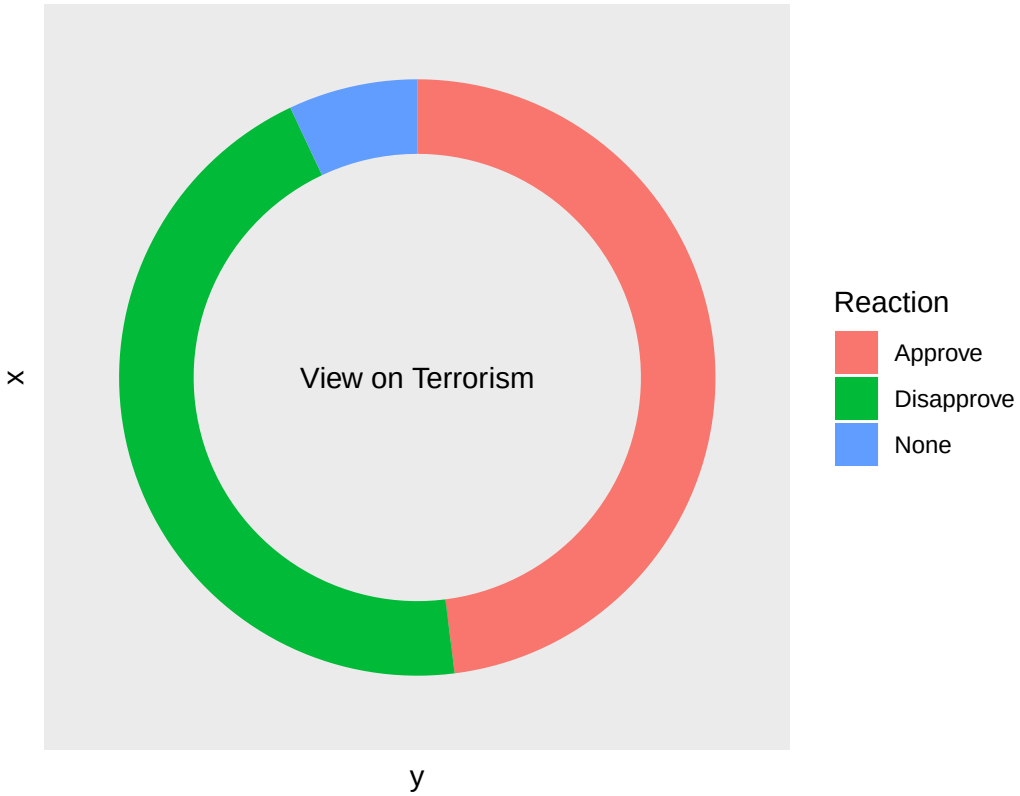
```
d1 = potus_0 %>%
  tidyr::gather('Reaction','Ratings', Approve, Disapprove, None)
ggplot2::ggplot(data = d1, ggplot2::aes(x = Issue, y = Ratings, fill = Reaction)) +
  ggplot2::geom_bar(stat = 'identity') +
  ggplot2::theme(axis.text.x = element_text(angle = 90)) +
  ggplot2::ggtitle("Rating Comparison") +
  ggplot2::scale_fill_brewer(palette = 15)
```




```
d1 %>%
  dplyr::filter(Issue == 'Education') %>%
  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 Education Issues in Obama Presidency') +
  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))
```




```
d1 %>%
    dplyr::filter(Issue == 'Terrorism') %>%
    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 = 'View on Terrorism') +
         ggplot2::labs(title = '')
```


View on Terrorism
Reaction
Approve
Disapprove
None
x
y