Week1&2 Exercises in R

In [3]:
```
install.packages("xlsx", dependencies = TRUE)
```

```
also installing the dependencies 'processx', 'diffobj', 'rematch2', 'brio', 'callr', 'cli', 'desc', 'ellipsis', 'lifecy
cle', 'pkgload', 'praise', 'ps', 'rlang', 'waldo', 'withr', 'rex', 'rJava', 'xlsxjars', 'rprojroot', 'testthat', 'covr'
```

```
  There are binary versions available but the source versions are later:
          binary source needs_compilation
processx   3.5.2  3.7.0              TRUE
diffobj    0.3.4  0.3.5              TRUE
brio       1.1.2  1.1.3              TRUE
callr      3.7.0  3.7.2             FALSE
cli        2.5.0  3.4.0              TRUE
desc       1.3.0  1.4.2             FALSE
lifecycle  1.0.0  1.0.2             FALSE
pkgload    1.2.1  1.3.0             FALSE
ps         1.6.0  1.7.1              TRUE
rlang     0.4.11  1.0.5              TRUE
waldo      0.2.5  0.4.0             FALSE
withr      2.4.2  2.5.0             FALSE
rex        1.2.0  1.2.1             FALSE
rJava      1.0-4  1.0-6              TRUE
rprojroot  2.0.2  2.0.3             FALSE
testthat   3.0.2  3.1.4              TRUE
covr       3.5.1  3.6.1              TRUE

  Binaries will be installed
package 'processx' successfully unpacked and MD5 sums checked
package 'diffobj' successfully unpacked and MD5 sums checked
package 'rematch2' successfully unpacked and MD5 sums checked
package 'brio' successfully unpacked and MD5 sums checked
package 'cli' successfully unpacked and MD5 sums checked
package 'ellipsis' successfully unpacked and MD5 sums checked
package 'praise' successfully unpacked and MD5 sums checked
package 'ps' successfully unpacked and MD5 sums checked
package 'rlang' successfully unpacked and MD5 sums checked
package 'rJava' successfully unpacked and MD5 sums checked
package 'xlsxjars' successfully unpacked and MD5 sums checked
package 'testthat' successfully unpacked and MD5 sums checked
package 'covr' successfully unpacked and MD5 sums checked
package 'xlsx' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\Sravanthi\AppData\Local\Temp\RtmpI597wp\downloaded_packages
```

```
installing the source packages 'callr', 'desc', 'lifecycle', 'pkgload', 'waldo', 'withr', 'rex', 'rprojroot'

Warning message in install.packages("xlsx", dependencies = TRUE):
"installation of package 'callr' had non-zero exit status"Warning message in install.packages("xlsx", dependencies = TR
UE):
"installation of package 'lifecycle' had non-zero exit status"Warning message in install.packages("xlsx", dependencies
= TRUE):
"installation of package 'waldo' had non-zero exit status"Warning message in install.packages("xlsx", dependencies = TR
UE):
"installation of package 'pkgload' had non-zero exit status"
```

In [13]:

```r
# Importing necessary packages
library('magrittr')

Data = paste(getwd(), '/obama-approval-ratings.xls', sep = '')
Obama_Ratings = xlsx::read.xlsx(Data, sheetIndex = 1, stringsAsFactors = FALSE)

# Examine data
Obama_Ratings
```

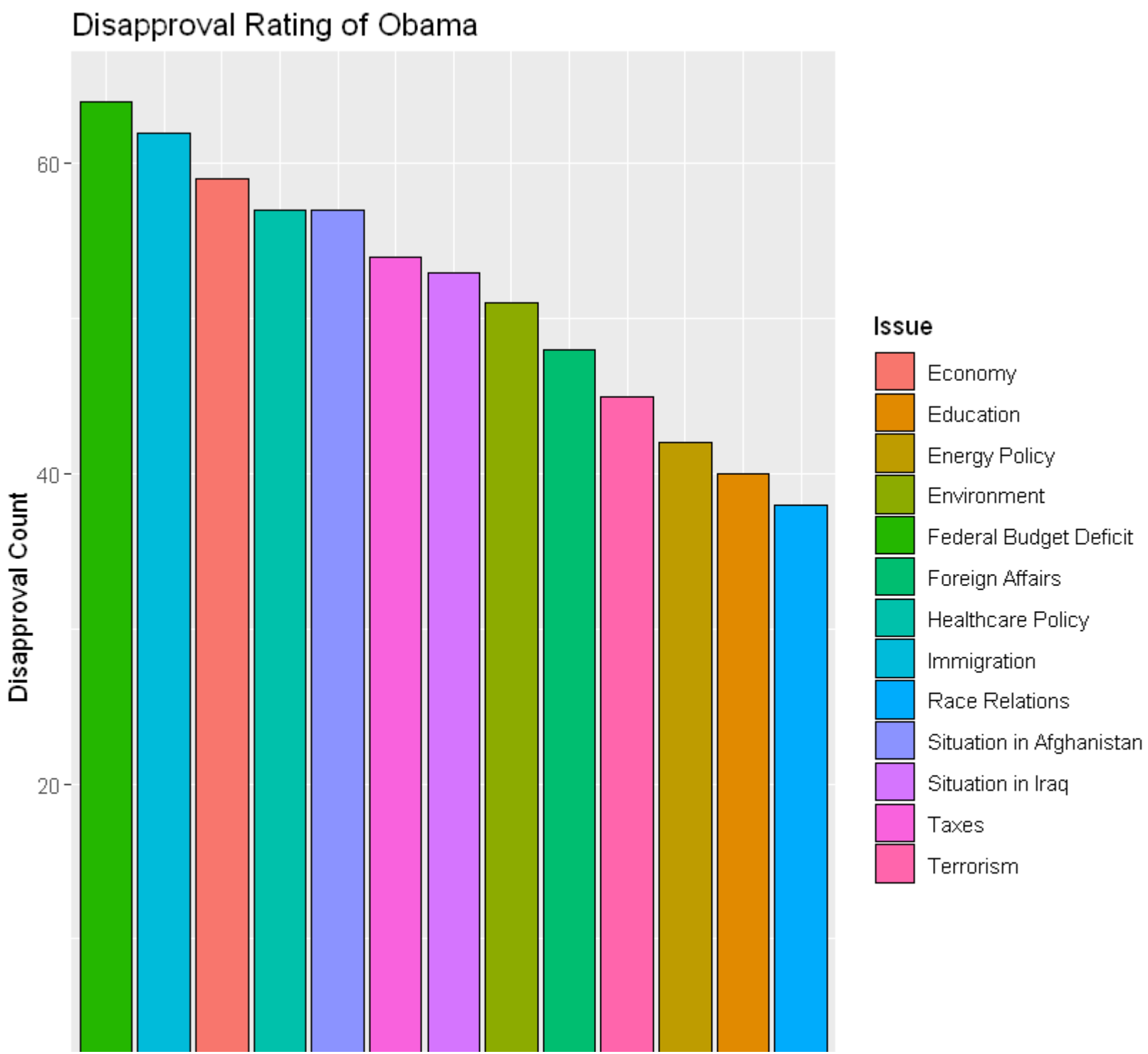
Issue	Approve	Disapprove	None
Race Relations	52	38	10
Education	49	40	11
Terrorism	48	45	7
Energy Policy	47	42	11
Foreign Affairs	44	48	8
Environment	43	51	6
Situation in Iraq	41	53	6
Taxes	41	54	5
Healthcare Policy	40	57	3
Economy	38	59	3
Situation in Afghanistan	36	57	7
Federal Budget Deficit	31	64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

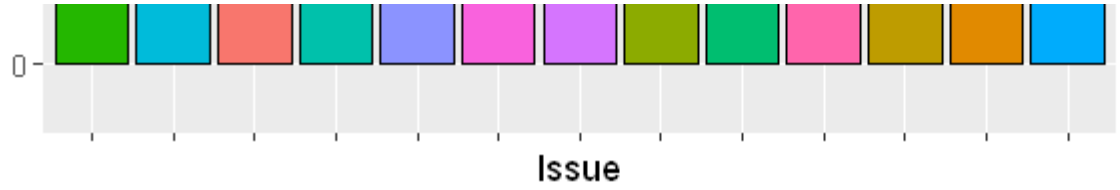
In [16]:
```
library(ggplot2)
```

Barchart - R

In [ ]:
```
#Plotting bar chart for Issue and Disapproval rate
```

In [17]:
```
Obama_Ratings %>%
    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')
```

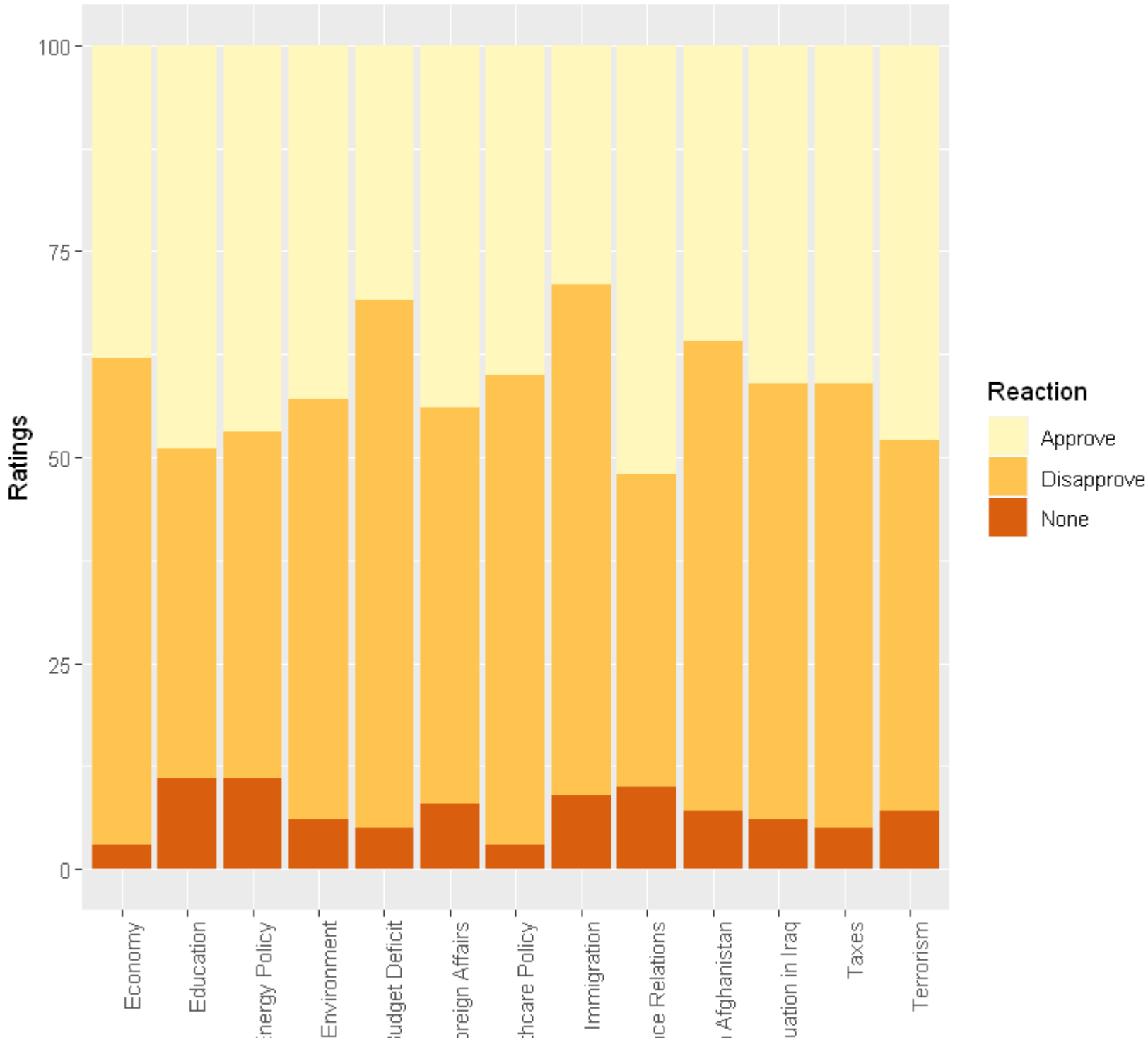

Disapproval Rating of Obama
Disapproval Count
60
40
20
Issue
Economy
Education
Energy Policy
Environment
Federal Budget Deficit
Foreign Affairs
Healthcare Policy
Immigration
Race Relations
Situation in Afghanistan
Situation in Iraq
Taxes
Terrorism



Stacked Bar Chart - R

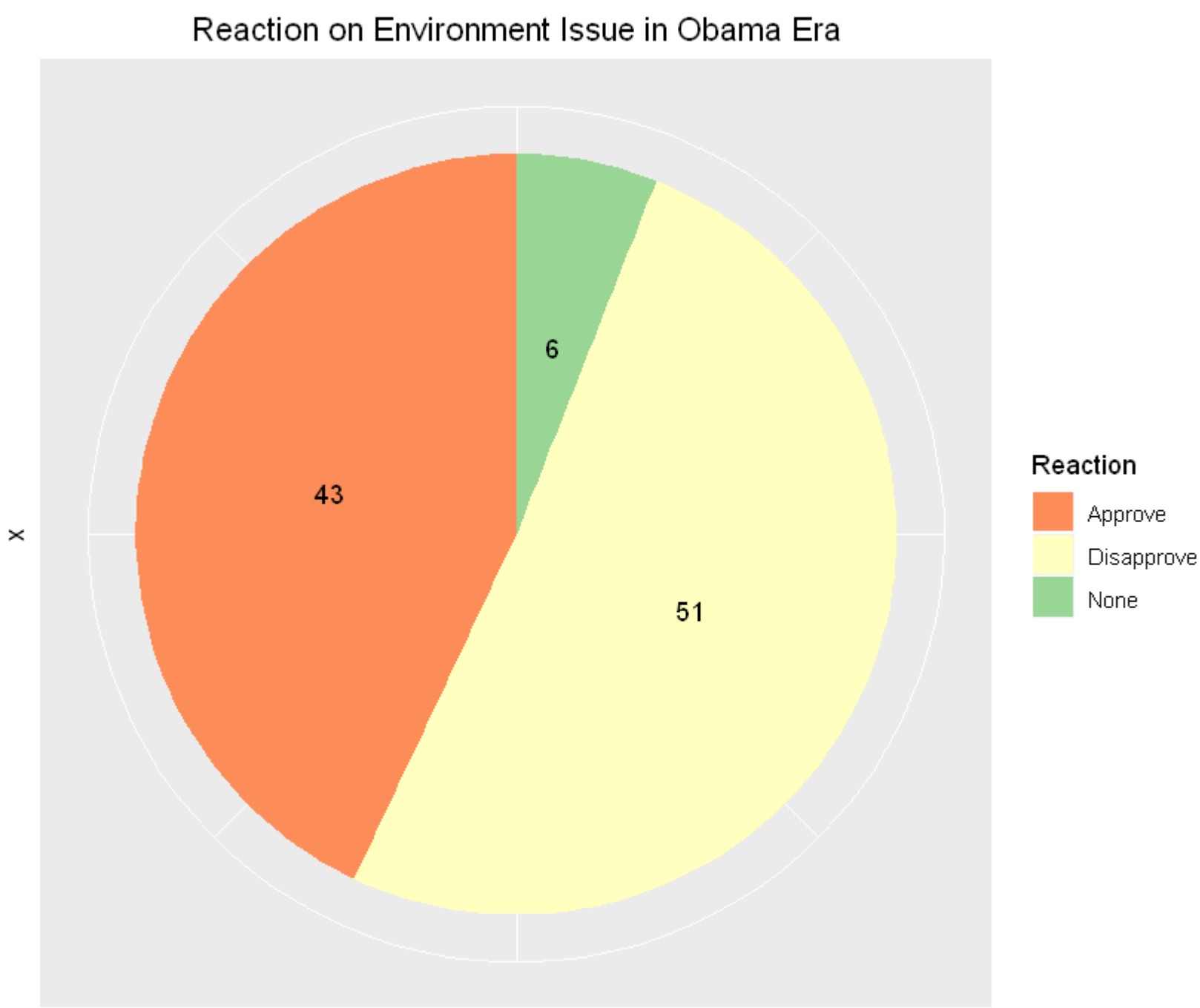
In [20]:
```
#Plotting stacked bar chart for issue and all the genres of approval
Obama_Ratings_long = Obama_Ratings %>%
    tidyr::gather('Reaction','Ratings', Approve, Disapprove, None)

# Plot stacked
ggplot2::ggplot(data = Obama_Ratings_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 = 17)
```


Ratings
100
75
50
25
0
Economy
Education
nergy Policy
Environment
udget Deficit
oreign Affairs
thcare Policy
Immigration
ce Relations
Afghanistan
uation in Iraq
Taxes
Terrorism
Reaction
Approve
Disapprove
None

Pie Chart - R

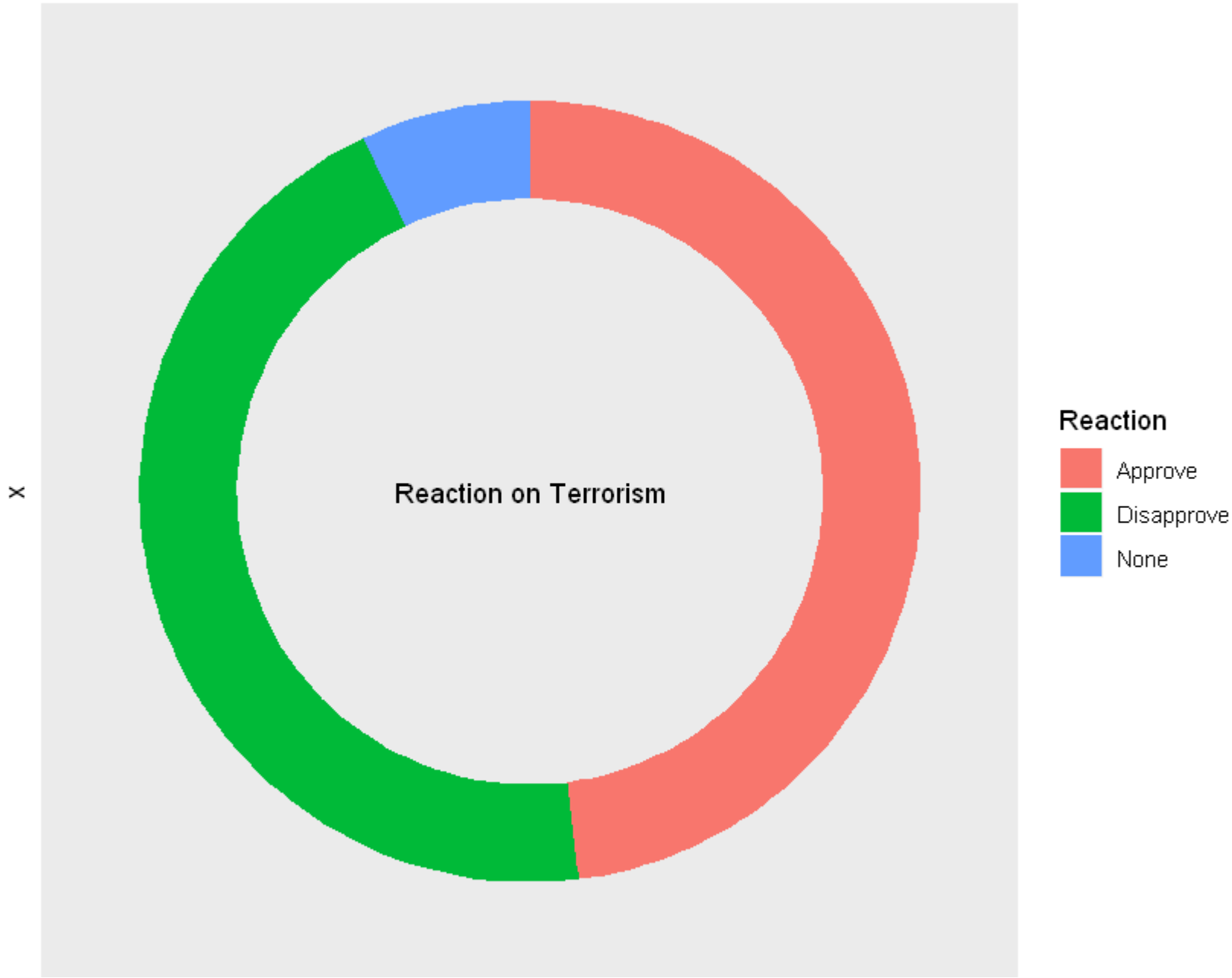
In [21]:
```
#Plotting pie chart for Environment issue and all genres of ratings
Obama_Ratings_long %>%
    dplyr::filter(Issue=='Environment') %>%
    ggplot2::ggplot(ggplot2::aes(x="", y=Ratings, fill=Reaction))+
        ggplot2::geom_bar(width = 1, stat = 'identity') +
        ggplot2::coord_polar('y', start=0) +
        ggplot2::geom_text(aes(label = Ratings), position = position_stack(vjust = 0.5)) +
        ggplot2::ggtitle(label = 'Reaction on Environment 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 Environment Issue in Obama Era
x
6
43
51
Reaction
Approve
Disapprove
None

Ratings

Donut chart - R

In [22]:
```r
#Plotting Donut chart for Terrorism issue in all genres of rating
Obama_Ratings_long %>%
    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 = 'Reaction on Terrorism') +
         ggplot2::labs(title='')
```


x
Reaction on Terrorism
Reaction
Approve
Disapprove
None

y