

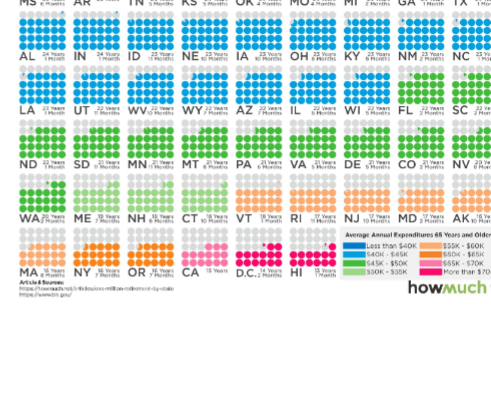
Mid-Term- Project-Redesign-Code

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1. Bad-Graph

```
# Install png package
library("png")
library("patchwork")
my_image <- readPNG("C:\\Users\\aniritha\\OneDrive\\Documents\\graphbad2.png", native = TRUE)
ggp_image <- ggplot2::ggplot() # Combine plot & image
  inset_element(p = my_image, left = 0.5,
               bottom = 0.35,
               right = 0.45,
               top = 0.95
               )
ggp_image
```



2.Dot-Plot

```
library(ggplot2)
library(plotly)

##
## Attaching package: 'plotly'

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

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

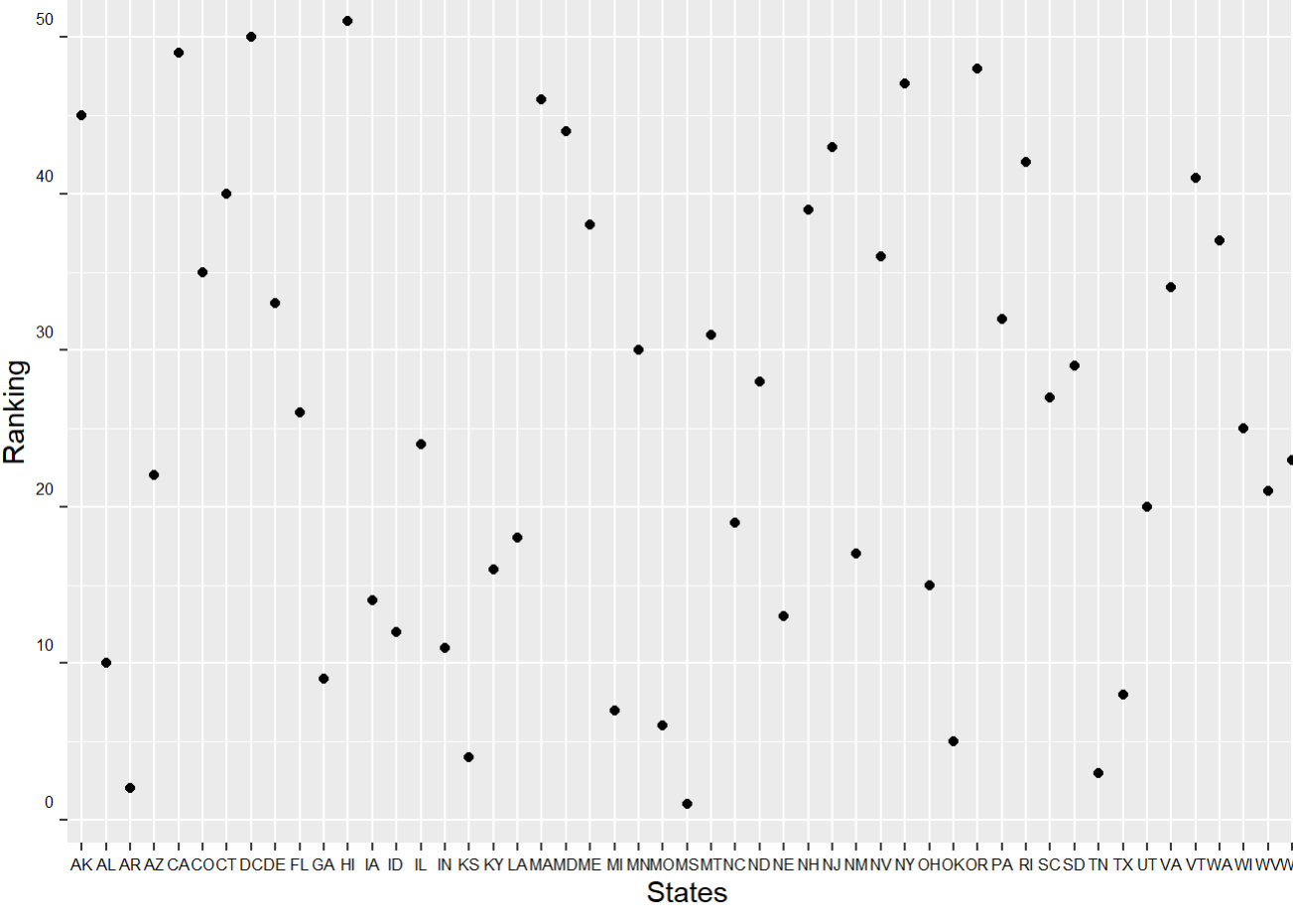
## The following object is masked from 'package:graphics':
##   layout

library(readr)
Data_df <- read_csv("STAT-515-Midtermdataset.csv")

## Rows: 51 Columns: 7

## == Column specification ==
## Delimiter: ","
## chr (4): State, Annual_expenditure_CostofLiving, YearsMonths, code
## dbl (3): CostofLiving, onemillion_last, Rank
##
## I use 'spec()' to retrieve the full column specification for this data.
## I Specify the column types or set 'show_col_types = FALSE' to quiet this message.

s <- ggplot(Data_df, aes(x = code, y = Rank)) +
  xlab("States") +
  ylab("Ranking") +
  geom_point()
s <- theme(axis.text = element_text(size = 6, vjust = -1, colour = "black"))
```



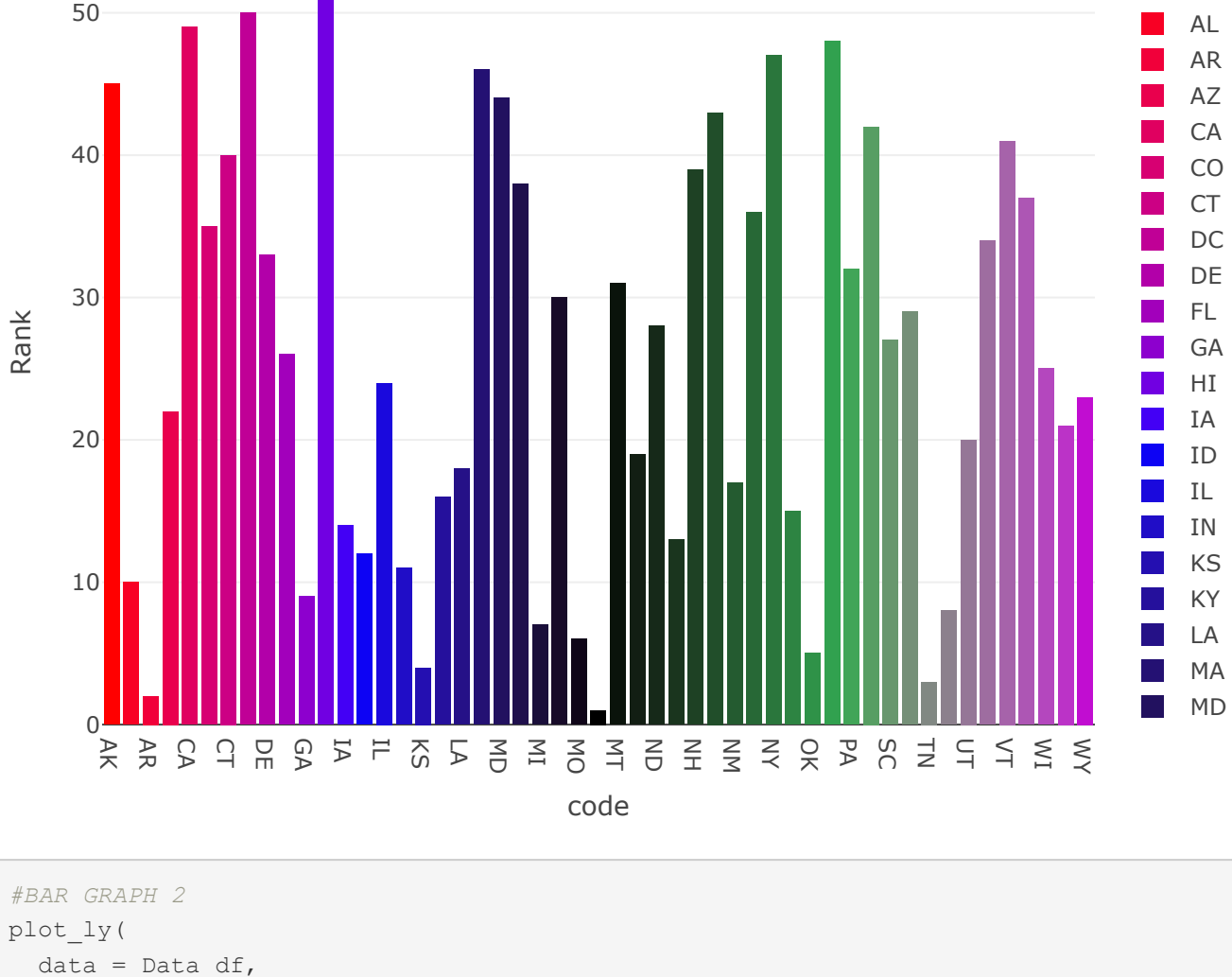
3. Bar-Graph

```
library(plotly)
library(readr)
library(ggplot2)
Data_df <- read_csv("STAT-515-Midtermdataset.csv")

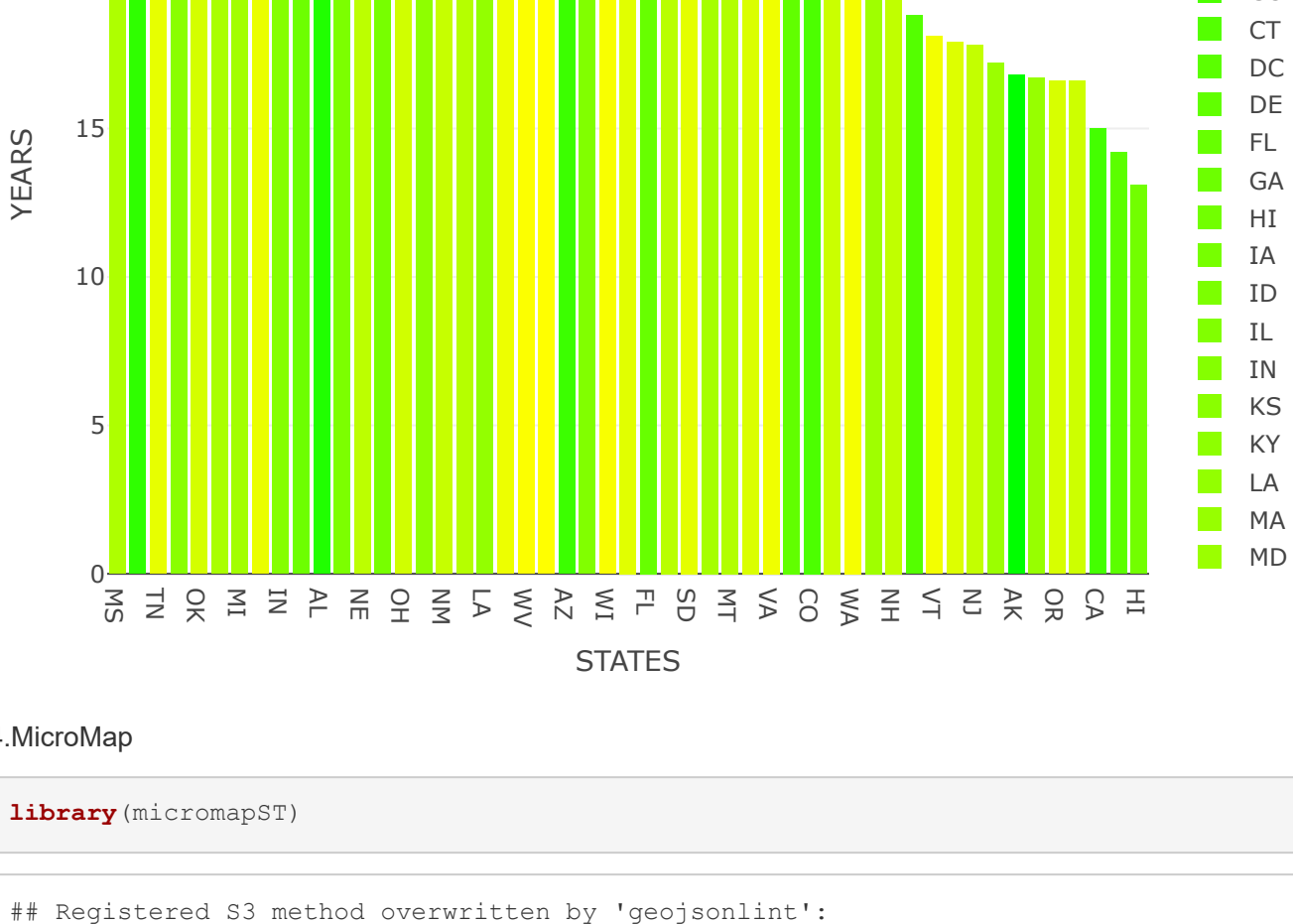
## Rows: 51 Columns: 7

## == Column specification ==
## Delimiter: ","
## chr (4): State, Annual_expenditure_CostofLiving, YearsMonths, code
## dbl (3): CostofLiving, onemillion_last, Rank
##
## I use 'spec()' to retrieve the full column specification for this data.
## I Specify the column types or set 'show_col_types = FALSE' to quiet this message.

#BAR GRAPH 1
plot_ly(
  data = Data_df,
  x = ~code,
  y = ~Rank,
  type = "bar",
  color = ~code,
  colors = c("red", "blue", "black", "#32a852", "#c100d1")
)
```



```
#BAR GRAPH 2
plot_ly(
  data = Data_df,
  x = ~code,
  y = ~onemillion_last,
  color = "bar",
  colors = c("green", "yellow")
)%>%layout(
  title = "HOW LONG $1 MILLION WOULD LONG LAST?",
  xaxis = list(title="STATES", categoryorder = "total descending"),
  yaxis = list(title = "YEARS")
)
```



4.MicroMap

```
library(micromapST)

## Registered S3 method overwritten by 'geosonlint':
##   method      from
##   print.location dplyr

library(tidyverse)

## == Attaching packages ==
##   tidyverse 1.3.2 ==

## ✓ tibble 3.1.8 ✓ dplyr 1.0.10
## ✓ tidyr 1.2.0 ✓ stringr 1.4.1
## ✓ purrr 0.3.4 ✓ forcats 0.5.2
## == Conflicts == tidyverse_conflicts() ==
## ✖ dplyr::filter() masks plotly::filter(), stats::filter()
## ✖ dplyr::lag() masks stats::lag()

millionWill <- read.csv(file = "STAT-515-Midtermdataset.csv", header=T, as.is=TRUE)
str(millionWill)

## 'data.frame': 51 obs. of 7 variables:
## $ State : chr "ALABAMA" "ALASKA" "ARIZONA" "ARKANSAS" ...
## $ CostofLiving : num 90.7 130.4 96.5 87.4 145.6 ...
## $ Annual_expenditure_CostofLiving: chr " $41,501.00 " " $59,666.00 " " $44,155.00 " " $39,991.00 " ...
## $ onemillion_last : num 24.1 16.8 22.6 25 15 21.2 18.8 21.4 14.2 22.2 ...
## $ YearsMonths : chr "24 Years, 1 Month" "16 Years, 10 Months" "22 Years, 7 Months" "25 Ye
## $ Rank : int 10 45 22 2 49 35 40 33 50 26 ...
## $ code : chr "AL" "AK" "AZ" "AR" ...

type=c('mapcum','id','dot','dot')
lab1=c("", "", "Cost of, one million")
lab2=c("", "", "Living Index", "will last")
lab3=c("", "", "Dollars", "Years")
col=c(NB,NB,"CostofLiving","onemillion_last")
col2=c(NB,NB,"YearsMonths")
refVal=c(NB,NB,0)

panelDesc <- data.frame(type=lab1,lab2,lab3,col1,col2,refVal)

fname = "1MillionWill.pdf"
pdf(file = fname,width = 7.5,height = 10)

micromapST(millionWill,
  panelDesc,
  rowHesecol = 'State',
  rowName = 'Full',
  sortVar = 'onemillion_last', ascend = FALSE,
  title = c("Can you Retire on 1 Million?",
    "Here is What You Need to Know..."),
  ignoreNoMatches = FALSE)

## End of micromapST processing.
##
## No warnings were logged.
## No stop messages were logged.
##

## [1] "micromapST Ends"
```

5.Plot

```
library(dplyr)
library(readr)
library(maps)

##
## Attaching package: 'maps'

## The following object is masked from 'package:purrr':
##   map

library(plotly)

#loading data
Data_df <- read_csv("STAT-515-Midtermdataset.csv") %>%
  mutate(hover = paste0("STATES:", " ", State, "\n", "RANK:", " ", Rank, "\n", "ANNUAL_LIVING_COST:", " ", Annual_expenditure_
  CostofLiving, "\n", "Year,MONTH:", " ", onemillion_last ))

## Rows: 51 Columns: 7

## == Column specification ==
## Delimiter: ","
## chr (4): State, Annual_expenditure_CostofLiving, YearsMonths, code
## dbl (3): CostofLiving, onemillion_last, Rank
##
## I use 'spec()' to retrieve the full column specification for this data.
## I Specify the column types or set 'show_col_types = FALSE' to quiet this message.

graph = plot_geo(Data_df,
  locationmode = "USA-states",
  colors = 'Spectral',
  ) %>%
  add_trace(locations = ~code,
            z = ~Rank,
            color = ~Rank,
            text = ~hover,
            hoverinfo = 'text'
            ) %>%
  add_trace(type = "scattergeo",
            locationmode = "USA-states",
            locations ~code,
            mode = "text",
            text = ~code,
            textfont = list(color = rgb(0,0,0), size = 12)
            ) %>%
  layout(geo = list(scope = "usa")) %>%
  layout(title = "How Long $1 Million Will Last in Retirement in Every State"
  ) %>%
  config(displayModeBar = FALSE)

graph
```

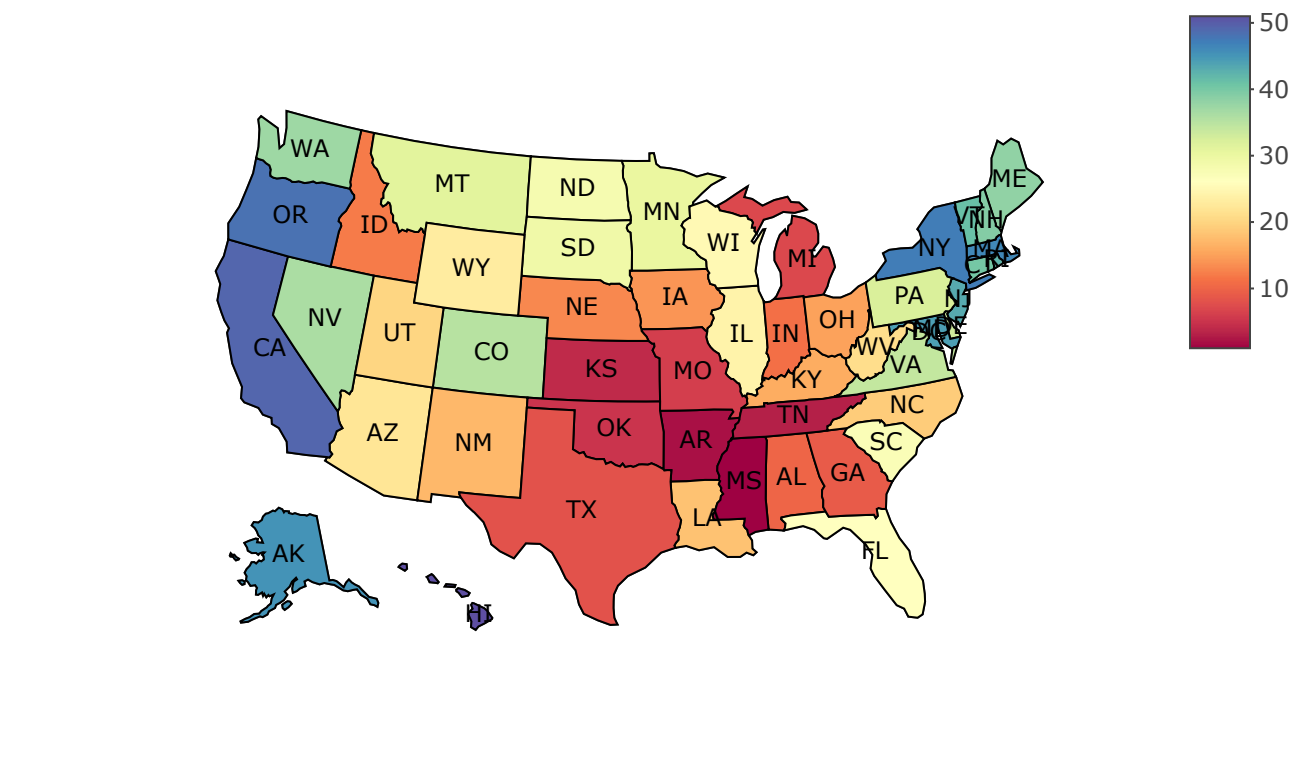


Figure 5: The Representation of Entire Interactive US map to know how long 1 million will last after Retirement in every state.

6. Projecting Top 4 countries with Low Rank and High Cost of Living

```
library(usmap)
library(dplyr)
library(maps)
library(plotly)

USA <- read.csv(
  file="STAT-515-Midtermdataset.csv",
  header=T, as.is=TRUE)
USA <- USA[order(USAStates),]
USASfips = statepop$sfips
USASabbr = statepop$abbr

h<-plot_usmap(data = USA, values = "Rank", include = c("CA","OR","NY","TX"),labels = TRUE) +
  scale_fill_distiller("Rank", palette="Spectral") +
  labs(title = "Top 4 Region", subtitle = "Low Rank States where Cost of Living High") +
  theme(legend.position = "right")
h
```

Top 4 Region

Low Rank States where Cost of Living High

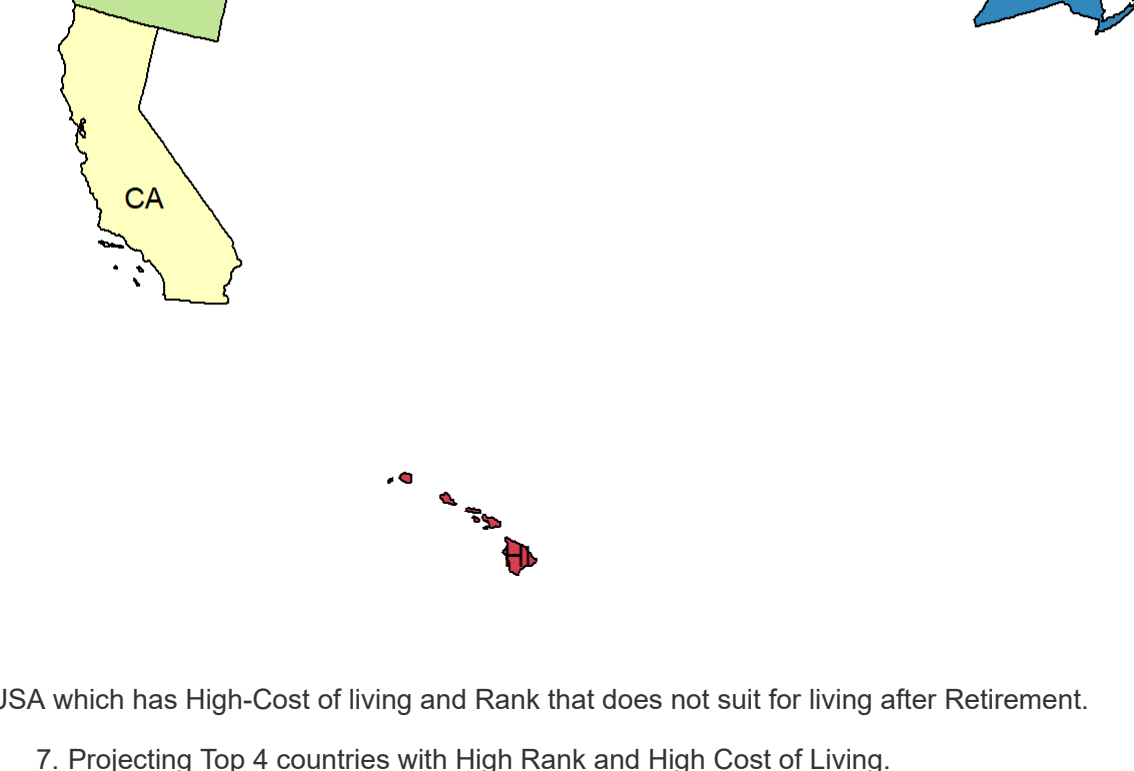


Figure 7: Shows The top-4 Region in

USA which has High-Cost of living and Rank that does not suit for living after Retirement.

7. Projecting Top 4 countries with High Rank and High Cost of Living.

```
library(usmap)

USA <- read.csv(
  file="STAT-515-Midtermdataset.csv",
  header=T, as.is=TRUE)
USA <- USA[order(USAStates),]
USASfips = statepop$sfips
USASabbr = statepop$abbr

h<-plot_usmap(data = USA, values = "Rank", include = c("MS","AR","TN","KS"),color = "Red",labels = TRUE) +
  scale_fill_distiller("Rank", palette="Spectral") +
  labs(title = "Top 4 Region", subtitle = "Rank States where Cost of Living Low") +
  theme(legend.position = "right")
h
```

TOP 4 Region

Rank States where Cost of Living Low

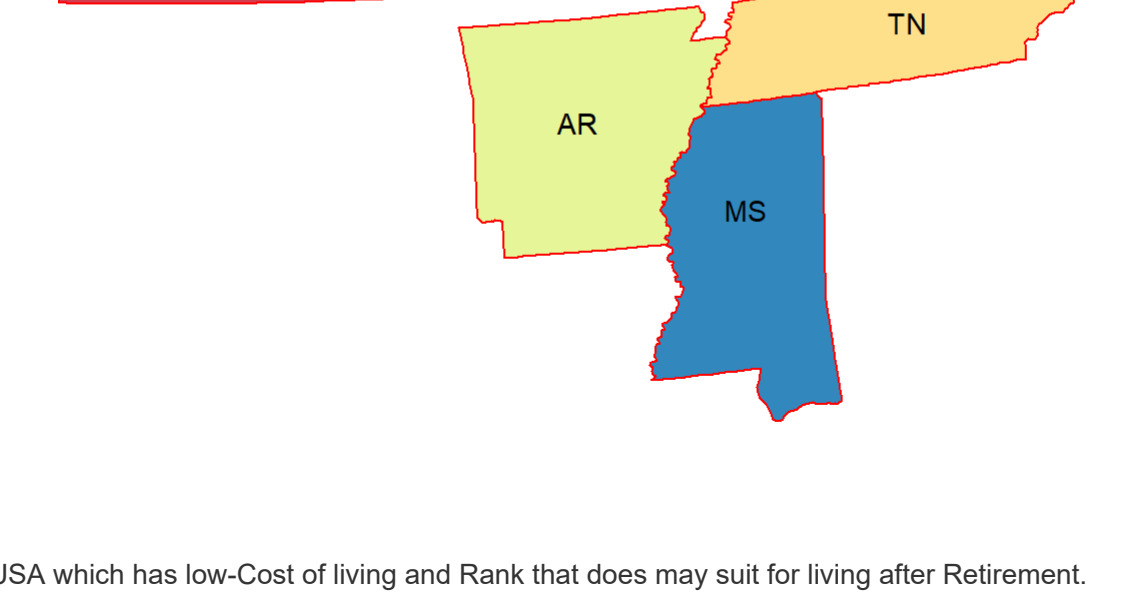


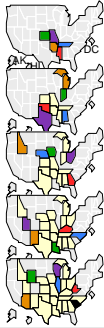
Figure 7: Shows The top-4 Region in

USA which has low-Cost of living and Rank that does may suit for living after Retirement.

Can you Retire on 1 Million?

Here is What You Need to Know...

Cumulative Maps
 States Above Featured Rows
 States Below Featured Rows



Median for Sorted Panel



U. S.
States

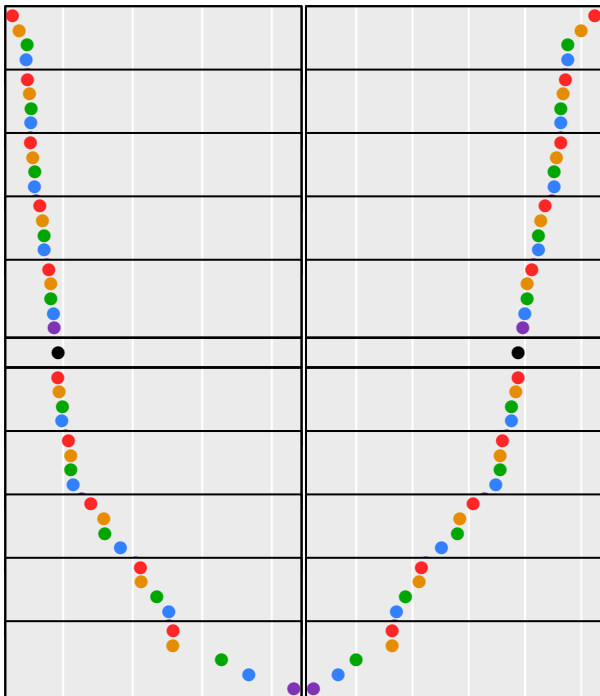


Cost of
Living Index

100 120 140 160

one million
will last

15 17.5 20 22.5 25



Dollars

Years