Execrise_5-2_Week_9-10

Tushar Muley

11/07/2021

load libraries

```
library(ggplot2)
library(stringr)
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(readr)
library(tidyr)
library(readxl)
library(maps)
```

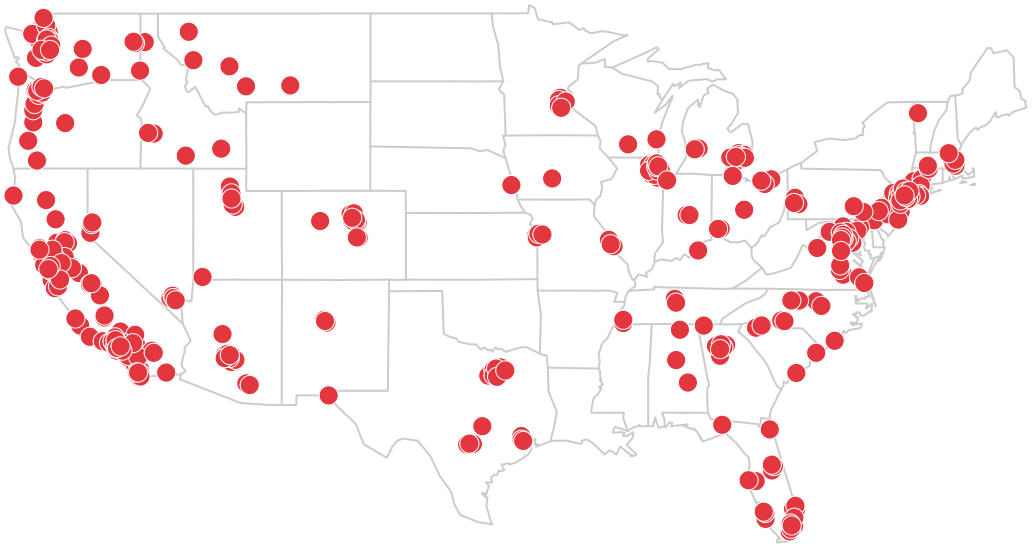
load data

```
costcos <-
  read.csv("C:/Users/Tushar/Documents/Bellevue_University/DSC_640_Class/Week_9_10/costcos-geocoded.csv"
```

spatial Chart

```
map(database="state", col="#cccccc")
symbols(costcos$Longitude, costcos$Latitude, bg="#e2373f", fg="#ffffff",
  lwd=0.5, circles=rep(1, length(costcos$Longitude)),
  inches=0.05, add=TRUE)+
title(main="R Spatial Chart of Costco Locations")
```

R Spatial Chart of Costco Locations



```
## integer(0)
```

heat Map

load data

```
ppg <-
  read_excel("C:/Users/Tushar/Documents/Bellevue_University/DSC_640_Class/Week_9_10/ppg2008.xlsx")
```

```
sapply(ppg, class)
```

```
##        Name           G         MIN         PTS         FGM         FGA
## "character"   "numeric"   "numeric"   "numeric"   "numeric"   "numeric"
##         FGP         FTM         FTA         FTP         3PM         3PA
##   "numeric"   "numeric"   "numeric"   "numeric"   "numeric"   "numeric"
##         3PP         ORB         DRB         TRB         AST         STL
##   "numeric"   "numeric"   "numeric"   "numeric"   "numeric"   "numeric"
##         BLK          TO          PF
##   "numeric"   "numeric"   "numeric"
```

cars mt data

```
data <- as.matrix(mtcars)
```

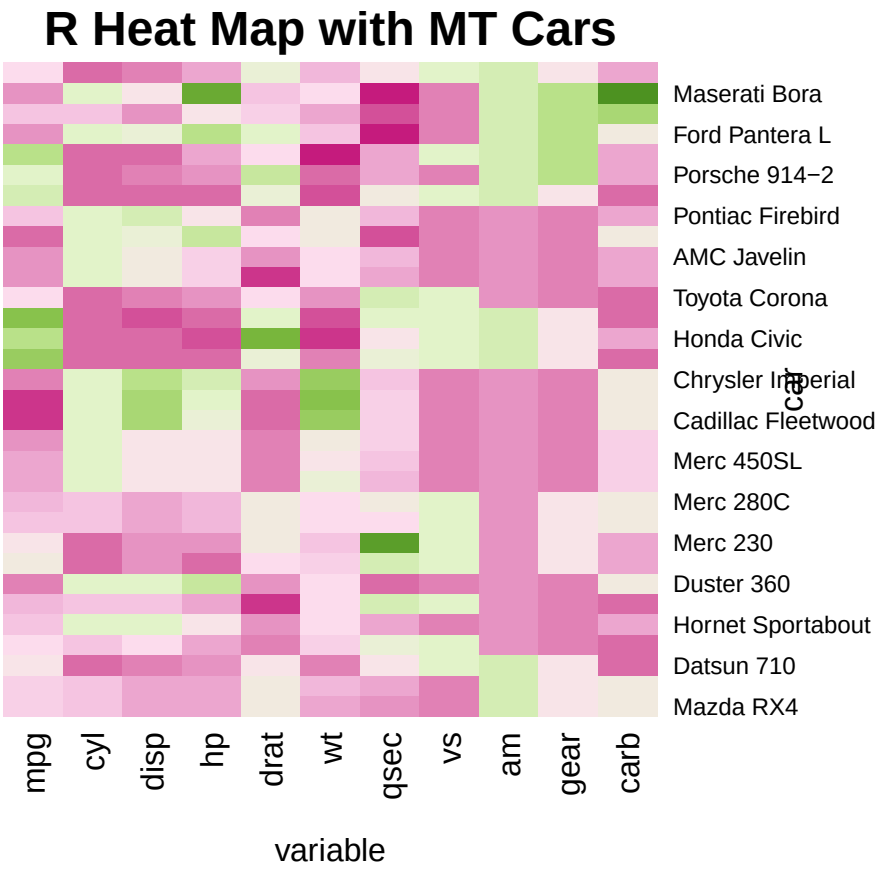
bring new color

```
library(RColorBrewer)

coul <- colorRampPalette(brewer.pal(8, "PiYG"))(25)
```

heat map

```
heatmap(data, Colv = NA, Rowv = NA, scale="column", col = coul, xlab="variable",
        ylab="car", main= "R Heat Map with MT Cars")
```



#Contour chart

prepare data

```
data.loess <- loess(qsec ~ wt * hp, data = mtcars)
```

create a sequence of incrementally increasing (by 0.3 units) values for both wt and hp

```
xgrid <-  seq(min(mtcars$wt), max(mtcars$wt), 0.3)
ygrid <-  seq(min(mtcars$hp), max(mtcars$hp), 0.3)
```

create a df

```
data.fit <-  expand.grid(wt = xgrid, hp = ygrid)
```

feed the data into loess model

```
mtrx3d <-  predict(data.loess, newdata = data.fit)
mtrx3d[1:4, 1:4]
```

```
##           hp
## wt         hp= 52.0 hp= 52.3 hp= 52.6 hp= 52.9
##   wt=1.513 19.04237 19.03263 19.02285 19.01302
##   wt=1.813 19.25566 19.24637 19.23703 19.22764
##   wt=2.113 19.55298 19.54418 19.53534 19.52645
##   wt=2.413 20.06436 20.05761 20.05077 20.04383
```

Transform data to long form

```
#Use the melt function to transform data in long form
library(reshape2)
```

```
##
## Attaching package: 'reshape2'
```

```
## The following object is masked from 'package:tidyr':
##
##     smiths
```

```
mtrx.melt <- melt(mtrx3d, id.vars = c("wt", "hp"), measure.vars = "qsec")
names(mtrx.melt) <- c("wt", "hp", "qsec")
```

numeric form the data

```
mtrx.melt$wt <- as.numeric(str_sub(mtrx.melt$wt, str_locate(mtrx.melt$wt, "=")[1,1] +1))
mtrx.melt$hp <- as.numeric(str_sub(mtrx.melt$hp, str_locate(mtrx.melt$hp, "=")[1,1] + 1))

head(mtrx.melt)
```

```
##      wt hp     qsec
## 1 1.513 52 19.04237
## 2 1.813 52 19.25566
## 3 2.113 52 19.55298
## 4 2.413 52 20.06436
## 5 2.713 52 20.65788
## 6 3.013 52 20.88378
```

contour map

```
ggplot(mtrx.melt, aes(x = wt, y = hp, z = qsec)) +
  stat_contour(geom = "polygon", aes(fill = ..level..)) +
  geom_tile(aes(fill = qsec)) +
```

```
  stat_contour(bins = 15) +
  ggtitle("R Contour map of MT Cars") +
  xlab("Weight (1,000lbs)") +
  ylab("Horsepower") +
  guides(fill = guide_colorbar(title = "¼ Mi. Time (s)"))
```