Exercise 5.2: Heat Maps, Spatial Charts, and Contour Charts

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Plots Using R

```
knitr::opts_chunk$set(echo = TRUE, warning = FALSE)

# Set Working Directory
setwd("C:/Users/micha/OneDrive/Documents/GitHub/DSC640/Weeks9-10/")

# Load libraries
library(ggplot2)
library(maps)
```

```
## Warning: package 'maps' was built under R version 4.1.2
```

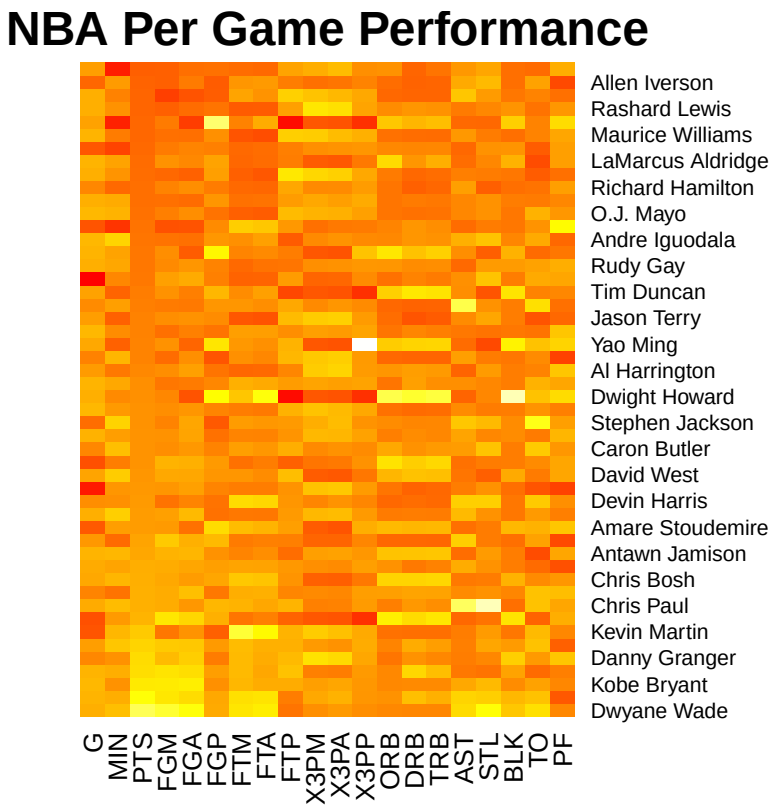
Load Data

```
# Load the data
costcos <- read.csv("costcos-geocoded.csv", header = TRUE)
ballers <- read.csv("ppg2008.csv", header = TRUE, row.names = 1)
```

Heat Map

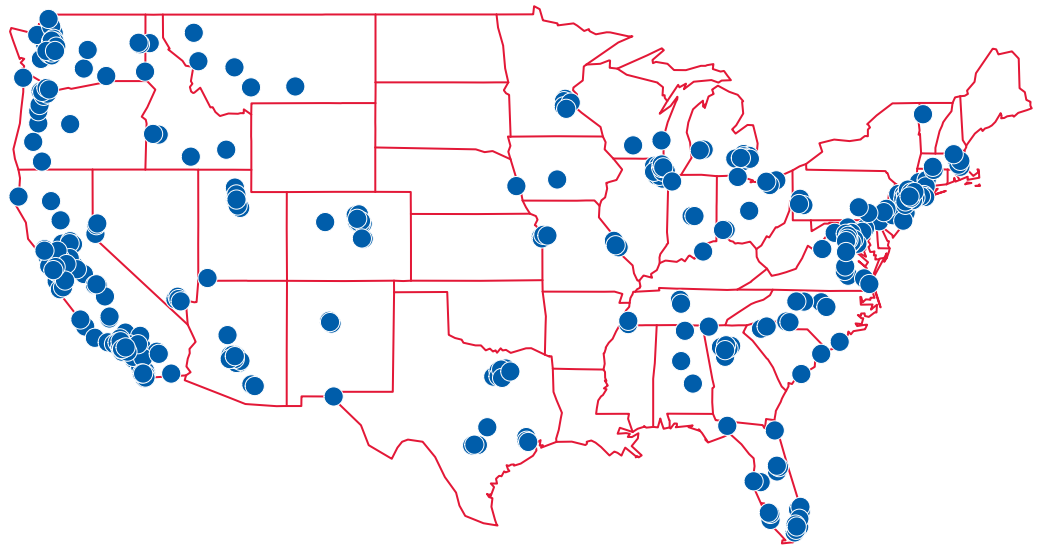
```
# Store data as a matrix for heatmap
baller_matrix <- data.matrix(ballers)

# Make a heat map
heatmap(baller_matrix, Rowv = NA, Colv = NA,
        col = heat.colors(256),  # sets colors to red / yellow
        scale = 'column', margins = c(5,10),
        main = "NBA Per Game Performance")
```



Spatial Chart

```
# Make the map
map(database = 'state',
    col = '#E31837')    # Costco red
# Add the Costcos
symbols(costcos$Longitude, costcos$Latitude,
        bg = '#005DAA', # Costco blue
        fg = '#ffffff', # white
        lwd = 0.1,
        circles = rep(1, length(costcos$Longitude)),
        inches = 0.05,  # size of circles
        add = TRUE)     # add each to map instead of crating new plot
# Add title
title("US Costco Locations (Lower 48)", adj = 0)
```



Contour Chart

```
# Plot area + contour
ggplot(costcos, aes(x=Longitude, y=Latitude)) +
  stat_density2d(aes(fill = ..level..), geom = 'polygon', color='white') +
  theme(legend.position = 'none') +
  xlim(-165, -60) +
  ggtitle("Contour Plot of Costco Locations by Lat/Lon Coordinates")
```