DSO 545 Take Home Final

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I. Case 01 Icecream

1. Aggregate the dataset to find the average spending on icecream for all listed countries over the given years.

```r
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
```

```r
icecream<-read.csv("icecream.csv")
##use group_by and summarize to aggregate spending data by countries
aggreg<-icecream %>%
  group_by(Country.or.Area) %>%
  summarize(spending=mean(USDinMillions))
head(aggreg)
```

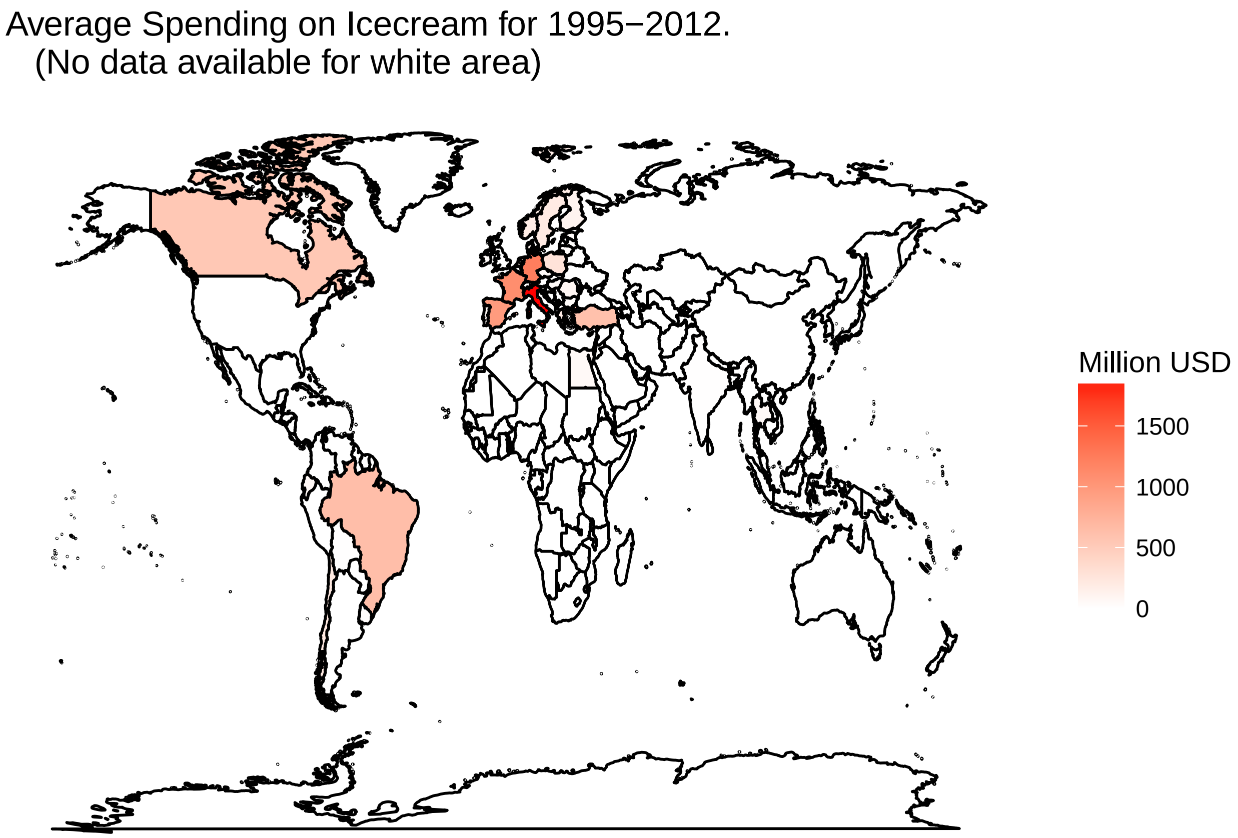
```
## # A tibble: 6 x 2
##   Country.or.Area   spending
##            <fctr>      <dbl>
## 1         Albania   3.225439
## 2         Bolivia   5.487864
## 3          Brazil 637.807535
## 4        Bulgaria  32.672548
## 5          Canada 545.672454
## 6           Chile 208.901264
```

2. Create a chloropleth map that shows the average spending on icecream for the listed countiresover the given years.

```r
library(ggplot2)
library(stringr)
##read in the world map data and merge it with icecream spending data by country
world_map=map_data("world")
aggreg$Country.or.Area<-as.character(aggreg$Country.or.Area)
icecream_world<-left_join(x=world_map, y=aggreg, by=c("region"="Country.or.Area"))

##is spending value is NA, convert the value to 0
icecream_world<-mutate(icecream_world, spending=ifelse(is.na(spending), 0,spending))
```

```
###create the map
ggplot(icecream_world, aes(x=long, y=lat, group=group, fill=spending))+
  geom_polygon(color="black")+
  scale_fill_gradient(low="white", high="red", name="Million USD")+
  labs(title="Average Spending on Icecream for 1995-2012. \n   (No data available for white area)", x="
  theme_void()
```


Average Spending on Icecream for 1995−2012.
(No data available for white area)
Million USD
1500
1000
500
0

II. Case 02

1. Use rvest R package to scrape the data table. Save it to players.

```
library(rvest)
```

```
## Loading required package: xml2
```

```
##save the page url
page<-"https://en.wikipedia.org/wiki/Designated_Player_Rule"
###scrape web table
players<-page %>%
  read_html() %>%
  html_node("table") %>%
  html_table()
```

2. Clean the column with compensation information. Change the column type to numeric, and rename it Compensation.

```
library(stringr)
##use str_replace_all to remove $ and comma in the string and convert the variable
##into a numeric one
players<-players %>% mutate(Compensation=as.numeric(
  str_replace_all(`2017 Guaranteed compensation[14]`,
                  pattern="\\$|,",
                 replacement="")))
```

```
## Warning in evalq(as.numeric(str_replace_all(`2017 Guaranteed
## compensation[14]`, : NAs introduced by coercion
```

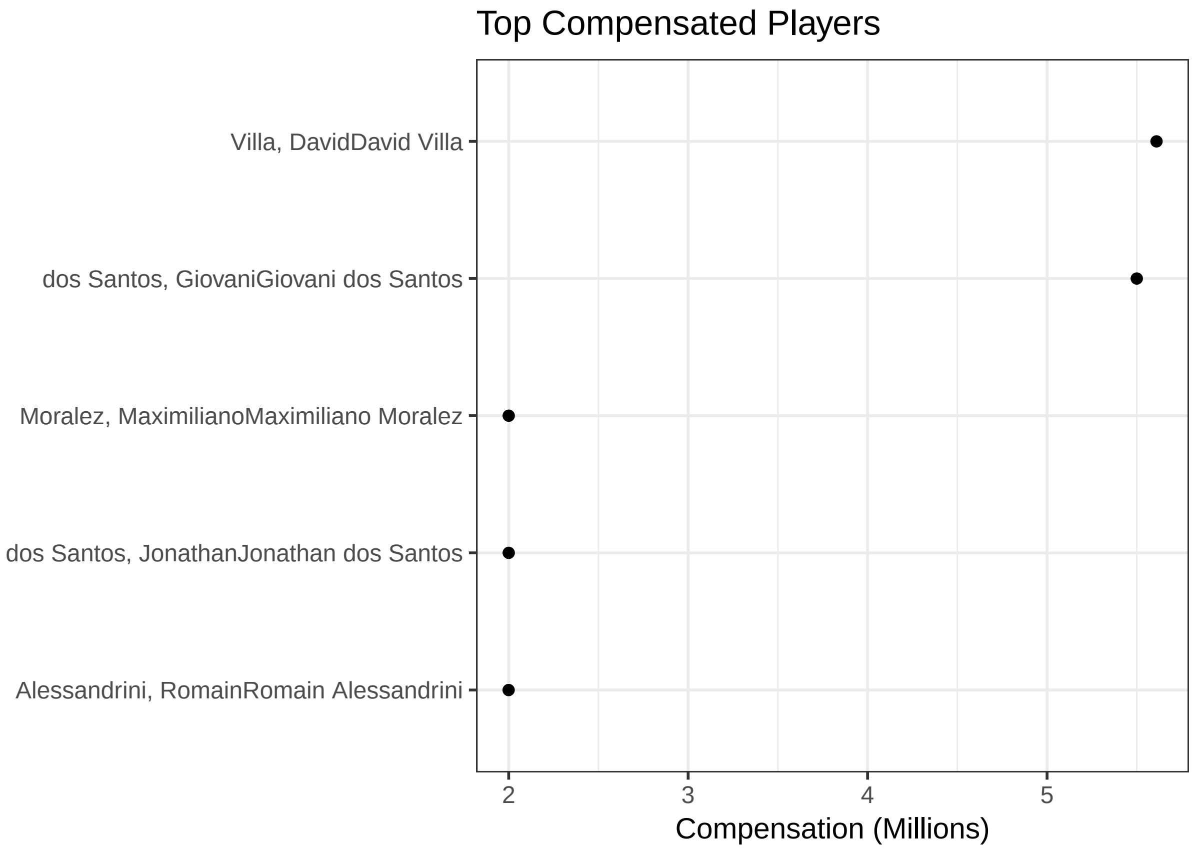
3. Create a subset of players called NYLAplayers, which only contains records of players currently playing for New York City FC or LA Galaxy, and order your subset by Compensation in decreasing order.

```
##change the column names of players dataset
colnames(players)=c("year", "player", "nation", "club", "compensationText", "Compensation")

##get the rows of players belonging to "New York City FC" and "LA Galaxy"
NYLAplayers<-players %>%
  filter(club%in% c("New York City FC", "LA Galaxy")) %>%
  select(c("year", "player", "club", "Compensation")) %>%
  arrange(desc(Compensation))
```

4. Visualize the NYLAplayers compensation

```
library(ggplot2)
ggplot(NYLAplayers, aes(x=Compensation, y=reorder(player, Compensation)))+
  geom_point()+
  ###the following code change the break labels
  scale_x_continuous(breaks=c(2e6, 3e6, 4e6, 5e6),labels=c("2", "3", "4", "5"))+
  labs(title="Top Compensated Players",
       x="Compensation (Millions)",
       y="")+
  theme_bw()
```



III. Case 03: How much does Joey Owe Chandler in Friends TV Show?

```r
library(stringr)
fileName<-"friends.txt"
text<-readChar(fileName,file.info(fileName)$size)
##create a parser using regular expression
parser="\\$[0-9]+"
###extract all the information related to money using the parser, convert the list to a vector
dollars<-unlist(str_extract_all(string = text, pattern=parser))
dollars<-as.numeric(str_replace_all(dollars, "\\$", ""))
##sum up the numbers
sum(dollars)
```

```
## [1] 91760
```

Answer: Joey owes Chandler $91760