Geographic Information Science III - Lab 2

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Loading Libraries:

```
library(sf)
```

```
## Linking to GEOS 3.5.1, GDAL 2.2.2, PROJ 4.9.2
```

```
library(spData)
```

```
## To access larger datasets in this package, install the spDataLarge
## package with: `install.packages('spDataLarge',
## repos='https://nowosad.github.io/drat/', type='source')`
```

The Dataset of Interest:

For this lab, I will be using the *world* dataset that is in the *spData* package

```
class(world)
```

```
## [1] "sf"         "tbl_df"     "tbl"        "data.frame"
```

Looking at the class of the world dataset, we can see that it is loaded as a "data.frame" in simple features as desired.

Summary of Key Variables in World Dataset:

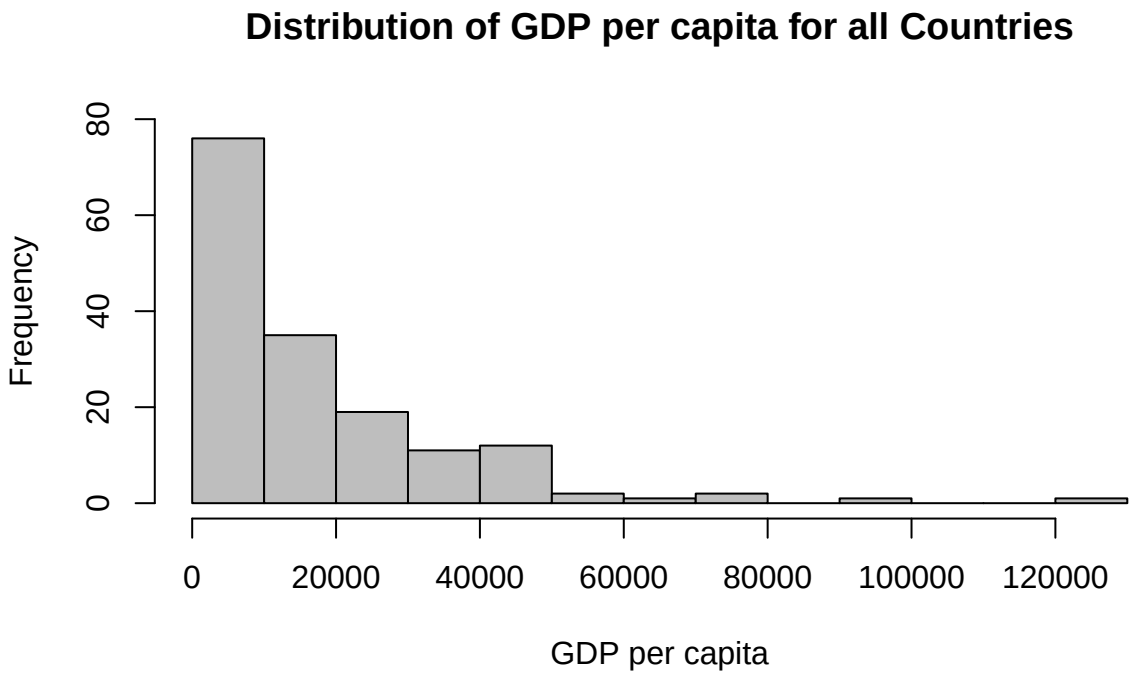
```
summary(st_drop_geometry(world[ , c("area_km2", "pop", "lifeExp", "gdpPercap")]))
```

```
##     area_km2             pop               lifeExp        gdpPercap
##  Min.   :    2417   Min.   :5.630e+04   Min.   :50.62   Min.   :   597.1
##  1st Qu.:   46185   1st Qu.:3.755e+06   1st Qu.:64.96   1st Qu.:  3752.4
##  Median :  185004   Median :1.040e+07   Median :72.87   Median : 10734.1
##  Mean   :  832558   Mean   :4.282e+07   Mean   :70.85   Mean   : 17106.0
##  3rd Qu.:  621860   3rd Qu.:3.075e+07   3rd Qu.:76.78   3rd Qu.: 24232.7
##  Max.   :17018507   Max.   :1.364e+09   Max.   :83.59   Max.   :120860.1
##                     NA's   :10          NA's   :10      NA's   :17
```

Looking at the summary table, we see that the mean area is $832558 km^2$ for all countries, the mean population is $4.282e+07$ people, the mean life expectancy is 70.85 years, and the mean GDP per capita is 17106.0. Based on the findings above, future analysis will focus on GDP per capita.

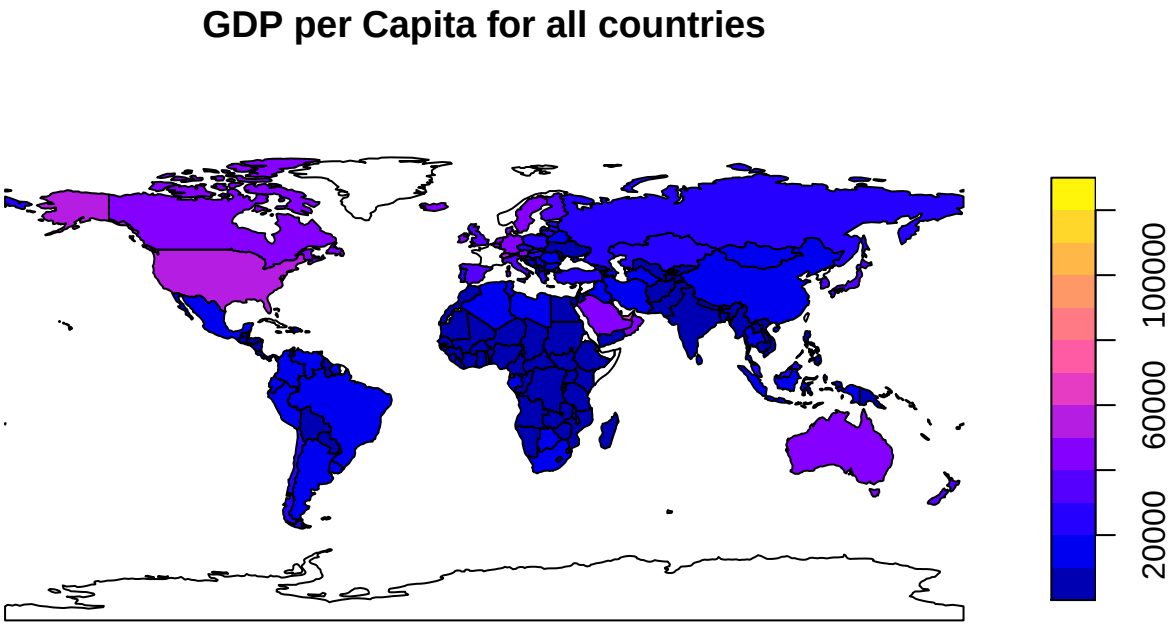
GDP per Capita

```
hist(world$gdpPercap, main = "Distribution of GDP per capita for all Countries",
     ylim=c(0, 80), xlab = "GDP per capita", col = "gray")
```



Based on the histogram above, it is clear that a majority of countries have GDP per capita less than $\$20,000$.

```
plot(world[, "gdpPercap"], main = "GDP per Capita for all countries")
```



Specifically examining the generated map, we see that areas with higher GDP per capita are located in North America, Europe, the Middle East, and Austrailia.