BIOST 509: In-Class Exercise 4

Instructor: Amy Willis, Biostatistics, UW

Due date: 6:30pm on October 18, 2019 via Canvas

Instructions

In this homework we will look at the distribution and trends in life expectancies in countries in the 20th century.

Install and load the `R` package `gapminder` with the following command:

```
library(tidyverse)
install.packages("gapminder")
```

Once you have installed the package, you can load it using

```
library(gapminder)
```

and inspect the dataset as follows:

```
gapminder
```

```
## # A tibble: 1,704 x 6
##    country     continent  year lifeExp      pop gdpPercap
##    <fct>       <fct>     <int>   <dbl>    <int>     <dbl>
##  1 Afghanistan Asia       1952    28.8  8425333      779.
##  2 Afghanistan Asia       1957    30.3  9240934      821.
##  3 Afghanistan Asia       1962    32.0 10267083      853.
##  4 Afghanistan Asia       1967    34.0 11537966      836.
##  5 Afghanistan Asia       1972    36.1 13079460      740.
##  6 Afghanistan Asia       1977    38.4 14880372      786.
##  7 Afghanistan Asia       1982    39.9 12881816      978.
##  8 Afghanistan Asia       1987    40.8 13867957      852.
##  9 Afghanistan Asia       1992    41.7 16317921      649.
## 10 Afghanistan Asia       1997    41.8 22227415      635.
## # ... with 1,694 more rows
```

The dataset contains life expectancy (`lifeExp`), population (`pop`), GDP per capita (`gdpPercap`) on each country in each `year`.

Answer the following questions. Submit your answers to the below questions in a R Script (.R), Word (.doc or .docx) or pdf file to Canvas. Don't forget to include both your code and answers in your response.

Questions

1. Make a scatterplot of life expectancy with year. (Every country should be an observation.) You can use either `plot` or `ggplot`.
2. Make a histogram showing the distribution of life expectancies for all countries in year 1997. You can use either `hist` or `ggplot`.
3. Using `ggplot`, draw a line plot of life expectancy over time for a country of your choosing (e.g., your country of birth).

4. (Optional) Using `ggplot`, draw a line plot of life expectancy over time for *several countries* of your choosing (e.g., countries you have lived in, travelled to or would like to travel to). Make the line for each country a different color. Also optional: Add a title to your plot, begin the y-axis at zero, and format the axis labels nicely (e.g., "Life Expectancy (years)").