**Assignment 3 Descriptive statistics**

Due date: See syllabus

**Purpose**:
Descriptive statistics provide basic understanding about a dataset. In this assignment, you will access data from an external file and calculate commonly used descriptive statistics for multiple variables in the dataset. You will also calculate descriptive statistics for sub-groups under the same variable.

**Tasks:** Write an R script that performs the following operations in the order listed. At the beginning of each task, write a comment marking the task number.
Name the file as: lab3-<your last name>.R

1. Make the following packages available: tidyverse, ggpubr, rstatix (You need to install these packages if they haven't been installed)
2. Download the 'world happiness score.csv' file from Blackboard. This dataset contains the 'happiness score', 'health score', 'freedom score', 'trust score' and several other scores of countries from 4 regions: Africa, AsiaPacific, Europe, and PanAmerica
3. Import 'world happiness score.csv' dataset and save it to a data frame named 'happydata'. Check the structure of "happydata" (1 point)
4. Browse and understand the data in each column
5. Change the 'region' variable into a factor variable (1 point)
6. Central tendency: Calculate the mean, median, mode of Happiness.Score of all countries (2 points; 1 for mean and median, 1 for mode)
7. Selecting cases: Calculate the mean, median, mode of Happiness.Score of 'Europe' countries. (1 points)
8. Spread: Calculate the standard deviation, variance, min, max, range, and quantile for Happiness.Score (1 point)
9. Use the sapply() function to calculate the mean and standard deviation for all numeric variables. (1 point)
10. Use the summary() function to get a summary statistics for the entire dataset (1 point)
11. Use the pipes operator to calculate the mean and standard deviation of Happiness.Score for different regions. What do you learn from the result? (Answer this question using the # comment). (2 points; 1 for the code, 1 for the answer to the question)

**Submission:**
Submit the .r script file to Blackboard via the Lab3 submission link