Day 3 - Statistics

Part 1 - Practice!

\* If you get stuck, feel free to ask your peers in your breakout group or refer to the corresponding sections in the lesson template code.

1. Creating your Data Set
   1. Open up the file named “Wave 5 RShiny Day 3 Workshop.R” in RStudio.
   2. Collect everyone’s ages and put them in a vector called “ages”.
   3. Using the sample() function in R, generate 5 random numbers between 1 and 10, and put these numbers into a vector called “random”.
2. Practicing Central Tendencies - do by hand first, then check your work in R.
   1. Find the mean of the sets of numbers in “ages” and in “random” by hand.
   2. Find the median of the sets of numbers in “ages” and in “random” by hand.
   3. Check your answers by running the appropriate commands in R.
   4. (Bonus!) Write your own function that takes a vector of numbers and outputs the mode of the set of numbers. Note: the existing “mode” function in the base package of R does something completely different than expected!
   5. Find the mode of the sets of numbers in “ages” and in “random” by hand and check your work using the new “mode” function you wrote in part d).
3. Practicing Measures of Spread - no need to do by hand first, just calculate directly in R.
   1. Find the min, max, and range of the sets of numbers in “ages” and in “random”.
   2. Find the 25th and 75th percentile of the sets of numbers in “ages” and in “random”.
   3. Find the interquartile range of the sets of numbers in “ages” and in “random”.
   4. Find the variance of the sets of numbers in “ages” and in “random”.
   5. Find the standard deviation of the sets of numbers in “ages” and in “random”.

Part 2 - Apps! (Bonus)

\*Refer to <https://lucaspingpao.shinyapps.io/statistics-calculator/> to see the finalized version of the following statistics app you will be developing.

1. Open “Statistics Calculator App.R” in RStudio. Try running the app locally.
2. Add more statistical functions to your calculator (e.g. range, variance, etc.).
3. Create buttons that specifically calculate certain statistical functions instead of having just a generic “Compute” button.
4. Design your calculator to make it look more user friendly!

(e.g. fill up the space on your app page)