Instructions

- This homework assignment is worth 43 points.
- Please submit a **.R** files to Blackboard.
- **Please strive for clarity and organization.**
- **Due Date: September 17, 2021 by 11:59 pm.**

Exercise 1

(5 points) Under what circumstances would you use the mean as a measure of central tendency instead of the median? and vice-versa?

Exercise 2

(5 points) A basketball team free throw percentages are: 50, 98, 25, 76, 88, 75, 80. Compute the range and IQR.

Exercise 3

(8 points) Consider the statistics of two teams from the English Premier League in the 2019-2020 season:

Categorical Variable → Compare Entropy

Find Proportion

P(MW) = 26/35 :

P(ML) = 9/35 :

Team	Total Goals	Wins	Losses
Manchester City	102	26	9
Liverpool	85	32	3

which team has the higher variability in terms of game outcome?

Exercise 4

Consider the batting average from 2009 to 2015 baseball players:

Player	Position	2009	2010	2011	2012	2013	2014	2015
Marlon Byrds	Outfielder	0.283	0.293	0.276	0.210	0.291	0.264	0.247
Sam Fuld	Outfielder	0.299	0.143	0.240	0.255	0.199	0.239	0.197

In R, answer the following:

(a) (5 points) Create two vectors with called: `byrd` and `fuld` to store their corresponding batting average.

(b) (5 points) Report the average batting average of both players. What player has the higher average batting average from 2009 to 2015?

(c) (5 points) Report the standard deviation of the batting average of both players. What player has the higher variability in their batting average from 2009 to 2015?

(d) (5 points) Report the coefficient of variation of the batting average of both players. What player has the higher variability in their batting average from 2009 to 2015 in terms of their CVs?

(e) (5 points) Report the IQR of the batting average of both players. What player has the higher variability in their batting average from 2009 to 2015 in terms of their IQR?