Possible Project: Probability
UConn–PCS: Data Science, 2021
Due Date: 11 am, July 1, 2021

Three players enter a room and a red or blue hat is placed on each person's head. The color of each hat is determined by an independent coin toss. No communication of any sort is allowed, except for an initial strategy session before the game begins. Once they have had a chance to look at the other hats but not their own, the players must simultaneously guess the color of their own hats or pass. The puzzle is to find a group strategy that maximizes the probability that at least one person guesses correctly and no-one guesses incorrectly. Use simulation to approximate the probability of success for the following strategies.

a. One person guesses and the others pass (0.5).

b. For each person, guess the color he/she does not see if he/she see same colors, and pass is he/she sees different colors (0.75).

Note: This is the same problem as in homework 3. However, in order to work on this project, you will have to write R code to approximate the probabilities by simulation. During your presentation, you will have to go over your code and explain it to others.