Ryan Timbrook
DataScience 350 – Week 3 Assignment

Assignment:

Simulate the conditional probabilities and variances of the distributions for winning a car vs. a goat for the Monty Hall Problem.

Observations:

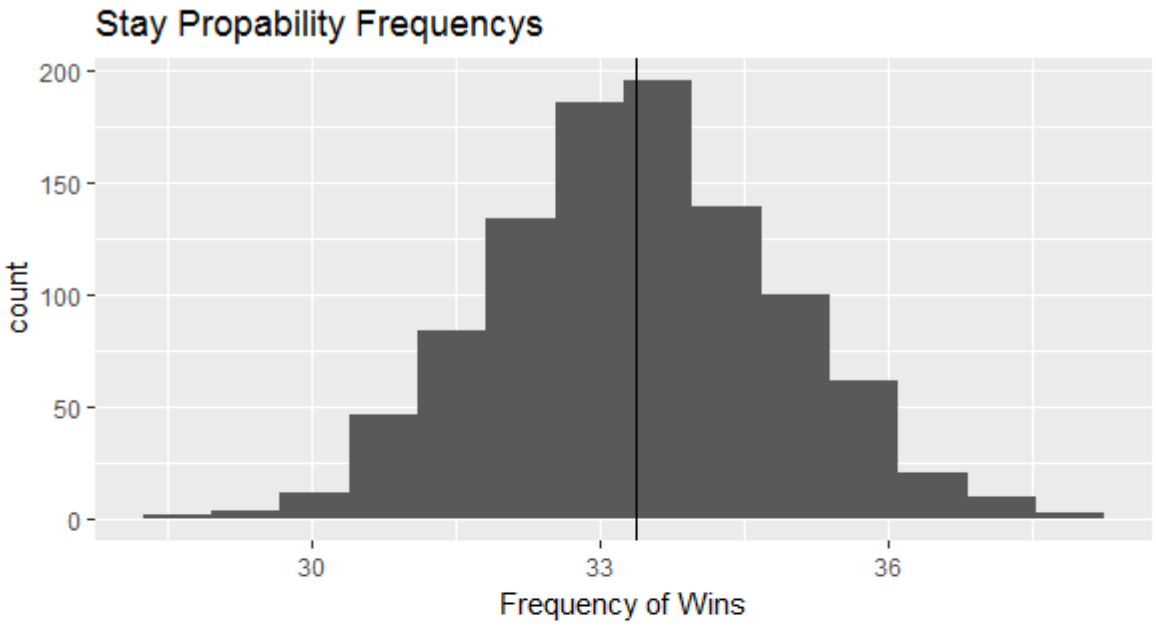
- Choosing to switch doors after the host opens door two results in a 2/3 chance of winning versus if the contestant chooses to stay with their first choice their chance of winning is 1/3. These results can be seen in Tables 1 and 2 where in Table 1 the mean probability of winning when the contestant chooses to switch doors is 66.65 and in Table 2, when choosing to Stay with their first choice, the mean is 33.38. These statistics were generated by running 1000 guess over 1000 trials.

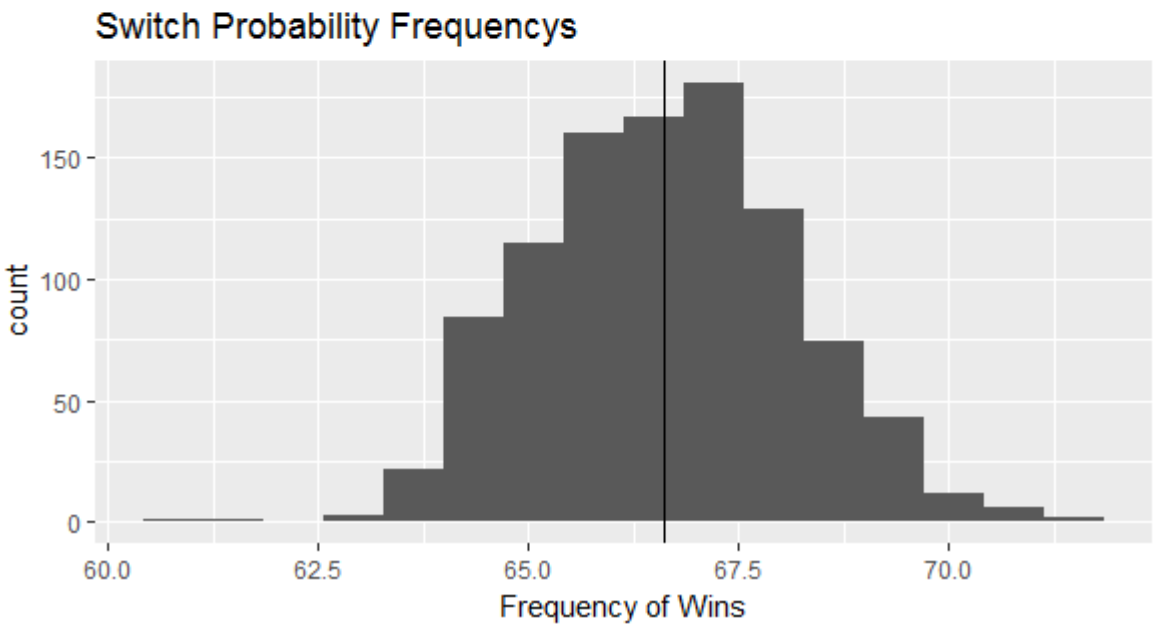
Table 1: Statistical Summary Table of the Switch data frame created from 1000 guesses by 1000 trials

	wins	**p.wins**
Min	611.0	61.10
Median	666.5	66.65
Mean	666.3	66.63
Max	713.0	71.30

Table 2: Statistical Summary Table of the Stay data frame created from 1000 guesses by 1000 trials

	wins	**p.wins**
Min	284.0	28.40
Median	334.0	33.40
Mean	333.8	33.38
Max	380.0	38.00


Stay Propability Frequencys
200
150
100
50
0
count
30
33
36
Frequency of Wins


Switch Probability Frequencys
150
100
50
0
count
60.0
62.5
65.0
67.5
70.0
Frequency of Wins