CS215 Chapter5E Lab – Graphical Visualizations with Die Simulations

Name:_____

***Create a Python file called Lab5E_DiceSimulartions_YourName.py.

1. Form the video, you have code that produces a bar chart. Please convert this code into a function called crate_barchart which takes a list called results, a tile for the graph, a title for the x axis and a title for the y-axis.

2. Outside of your function, update your code so that you pass in the rolls list below and the appropriate titles into the function. You should see the same chart you are used to.

3. Now, create code to simulate the following situations. Each simulation should occur many times so that we can use the Law of Large Numbers to get a percentage that *should* approximate the true probability of the situation in question. Call the new function to show a bar chart that helps you estimate the true probability.

- We want to know the probability of getting at least 1 one in 4 rolls of a die. So here one trial refers to 4 dice roles. Create a bar chart to show how many trials yielded 0 one's, 1 one, 2 one's, 3 one's. Copy and paste the bar graph into a word doc and below it give your guess for what the probability of getting at least one 1 in 4 rolls is.

- We want to know the probability of getting at least 1 pair of snake eyes of 24 rolls of 2 die. So one trial refers to 24 dice roles now. Create a bar chart to show how many trials yielded 0 pairs of snake eyes, 1 pair of snake eyes, etc. Copy and paste the bar graph into a word doc and below it give your guess for what the probability of getting at least one snake eye in 24 rolls is. Also, answer the question: Does the data support that the Chavelier de Mere seemed to lose money when playing the second version of his game?

- We want to know the probability of winning craps, given that we have a certain point. In other words, we want to know what the probability is of rolling an X before a 7 in the game of craps, where X = 4, 5, 6, 8, 9, 10. So do a simulation for each of this and create a bar chart for each. Copy and paste your bar charts into a work document – All on the same page. What is you guess for each? Does any point seem to have the same probability of winning?

SUBMISSION INFO

TO GET CREDIT FOR THIS LAB, UPLOAD THE FOLLOWING TO THE SUBMISSION AREA.

- Your word doc with your summaries/answers. (Put your name at the top. Make the word document look professional: make the pictures the same size and make it easy to read.)
- Your code