Plotting a distrubtion

Help Center

Imagine you are going to roll a pair of dice a bunch of times. You might like to know the expected outcome of these rolls.

Question: If you roll the dice once, what would you expect the sum to be?

Question: If you roll the dice "a bunch of times", what sums would you expect to get?

Write a function to plot the distribution of the sum of two dice for a given number of rolls. Your function should look as follows:

```
def plot_dice_rolls(nrolls):
    """
    Plot the distribution of the sum of two dice when they are rolled
    nrolls times.

    Arguments:
    nrolls - the number of times to roll the pair of dice

    Returns:
    Nothing
    """
```

To "roll" a die, you will want to randomly choose a number between 1 and 6. In Python, one way to do that is as follows:

```
import random
value = random.randrange(1, 7)
```

The most useful way to plot such a distribution is as a *frequency distribution*. This means that the sum of the y values of the plot should be 1. That way the plot will give you the relative frequency of occurrence of each sum in the experiments you ran. So, if the y value of the x value 3 in your plot is 0.35, that means that 35% of the time, the sum of the two dice was 3. Throughout the semester, you will be asked to plot such frequency distributions and analyze them.

Once you are confident you've written `plot_dice_rolls` correctly, run it for various values of `nrolls`. Try 10, 100, 1000, ... Do the results match your expectations? Do the results change if you run the function with the same value of `nrolls` multiple times? What should happen as nrolls gets larger and larger?

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