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shengtatng v

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()

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Notes

Problem 4

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Final due Dec 14, 2022 07:30 +08

Problem 4-1

10/10 points (graded)

You are given the following function and class and function specifications for the two coding problems on this page (also available in this file, <u>die.py</u>):

```
<u>die.py</u>
```

Write a function called <code>makeHistogram(values, numBins, xLabel, yLabel, title=None)</code>, with the following specification:

```
def makeHistogram(values, numBins, xLabel, yLabel, title=None):
    """
    - values, a list of numbers
    - numBins, a positive int
    - xLabel, yLabel, title, are strings
    - Produces a histogram of values with numBins bins and the indicated labels
    for the x and y axes
    - If title is provided by caller, puts that title on the figure and otherwise
    does not title the figure
"""
```

Paste your entire function (including the definition) in the box.

Restrictions:

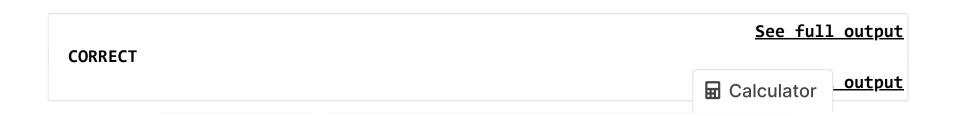
- Do not paste import pylab in the box.
- You should only be using the <code>pylab.hist</code>, <code>pylab.title</code>, <code>pylab.xlabel</code>, <code>pylab.ylabel</code>, <code>pylab.show</code> functions from the pylab module.
- Do not leave any debugging print statements when you paste your code in the box.

```
3
4
        - values, a list of numbers
5
        - numBins, a positive int
6
        - xLabel, yLabel, title, are strings
7
        - Produces a histogram of values with numBins bins and the indicated labels
8
          for the x and y axes
9
        - If title is provided by caller, puts that title on the figure and otherwise
10
          does not title the figure
11
12
      pylab.hist(values, bins = numBins)
13
      pylab.xlabel(xLabel)
14
      pylab.ylabel(yLabel)
15
      if title != None:
16
          pylab.title(title)
17
      pylab.show()
```

Press ESC then TAB or click outside of the code editor to exit

Correct

Test results



Submit You have used 1 of 50 attempts

✓ Correct (10/10 points)

Problem 4-2

20/20 points (graded)

Write a function called <code>getAverage(die, numRolls, numTrials)</code>, with the following specification:

def getAverage(die, numRolls, numTrials):
 """

- die, a Die
- numRolls, numTrials, are positive ints
- Calculates the expected mean value of the longest run of a number over numTrials runs of numRolls rolls.
- Calls makeHistogram to produce a histogram of the longest runs for all the trials. There should be 10 bins in the histogram
- Choose appropriate labels for the x and y axes.
- Returns the mean calculated to 3 decimal places

....

A run of numbers counts the number of times the same dice value shows up in consecutive rolls. For example:

- a dice roll of 1 4 3 has a longest run of 1
- a dice roll of 1 3 3 2 has a longest run of 2
- a dice roll of 5 4 4 4 5 5 2 5 has a longest run of 3

When this function is called with the test case given in the file, it will return 5.312. Your simulation may give slightly different values.

Paste your entire function (including the definition) in the box.

Restrictions:

- Do not import or use functions or methods from [pylab], [numpy], or [matplotlib].
- Do not leave any debugging print statements when you paste your code in the box.

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