CIT651 –Introduction to Machine Learning and Statistical Data Analysis

Assignment #2

Implement a function to verify the Central Limit Theorem using throwing a die example. The steps of the function should be as follows:

1. Simulate the outcome of throwing a die 1000 times: Use a population of discrete values (1, 2, 3, 4, 5, 6) with uniform distribution.
2. Plot the histogram (100 bins).
3. Simulate the outcome of throwing TWO dice 1000 times: by generating two samples as in step 1.
4. Calculate the average of the resulting values of the two dice in each time.
5. Plot the histogram of the average value (100 bins).
6. Calculate the mean and variance.
7. Simulate the outcome of throwing TEN dice 1000 times: by generating ten samples as in step 1.
8. Calculate the average of the resulting values of the ten dice in each time.
9. Plot the histogram of the average value (100 bins).
10. Calculate the mean and variance.

Deliverables:

- Your code.
- The histograms obtained in steps 2, 5 and 9.
- The mean and variance values obtained in steps 6 and 10.