

Question 1 Report

- 1. First, generate 1 Million numbers between 1 to 6(inclusive) using the rand() function and stored it in an array.
- 2. Print the frequency on the terminal.
- 3. Plot a Bar graph using ms excel sheets comparing it with the Calculated Value of frequency.Following is the Data Inputted into the Graph.



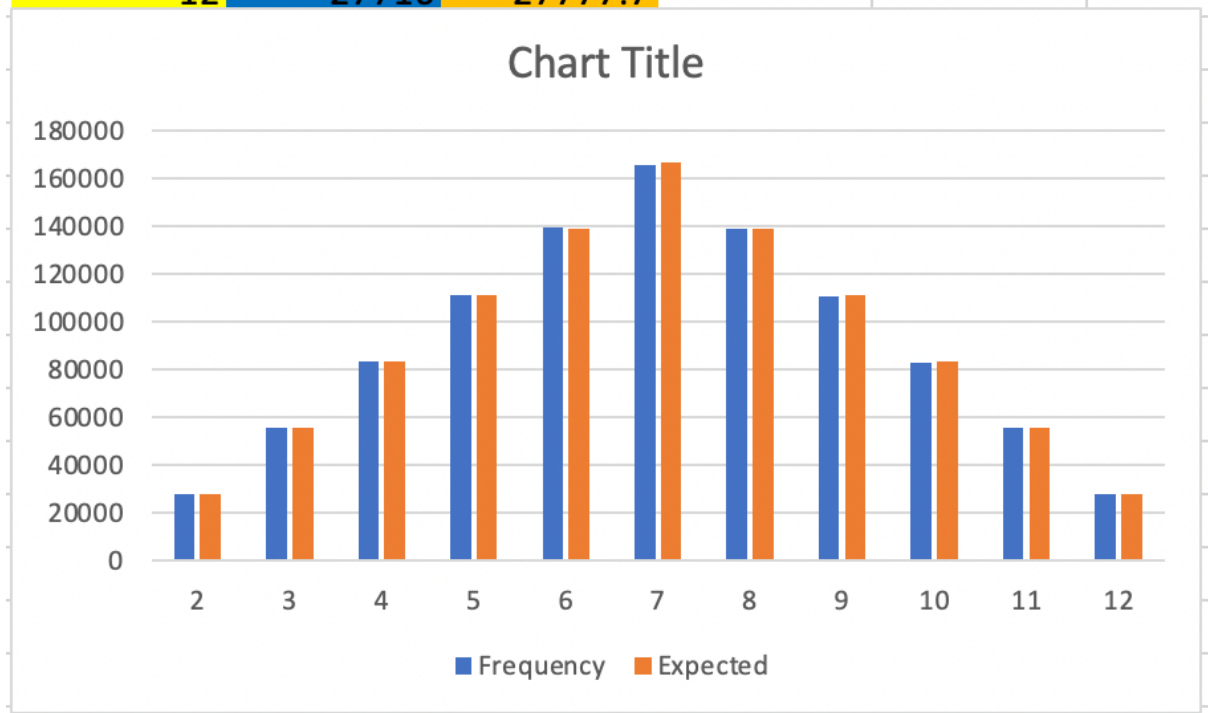
Conclusion:-

Our Experimental Values for probabilities are very similar to that of our Calculated Values.

Question 2:-

1. First, generate two separate sequences of 1 Million numbers from 1 to 6(inclusive) and then summed each corresponding number and printed it into a File(for e.g. 1st number of sequence 1 + 1st number of sequence 2).(Note :- the seed is set as `srand(time(0))` to ensure a different sequence of numbers in both cases).
2. promptly print the frequency table on the terminal

Dice Roll	Frequency	Expected			
2	27948	27777.7			
3	55624	55555.5			
4	83505	83333.3			
5	111159	111111.1			
6	139466	138888.8			
7	165876	166666.6			
8	139297	138888.8			
9	110720	111111.1			
10	82932	83333.3			
11	55757	55555.5			
12	27716	27777.7			



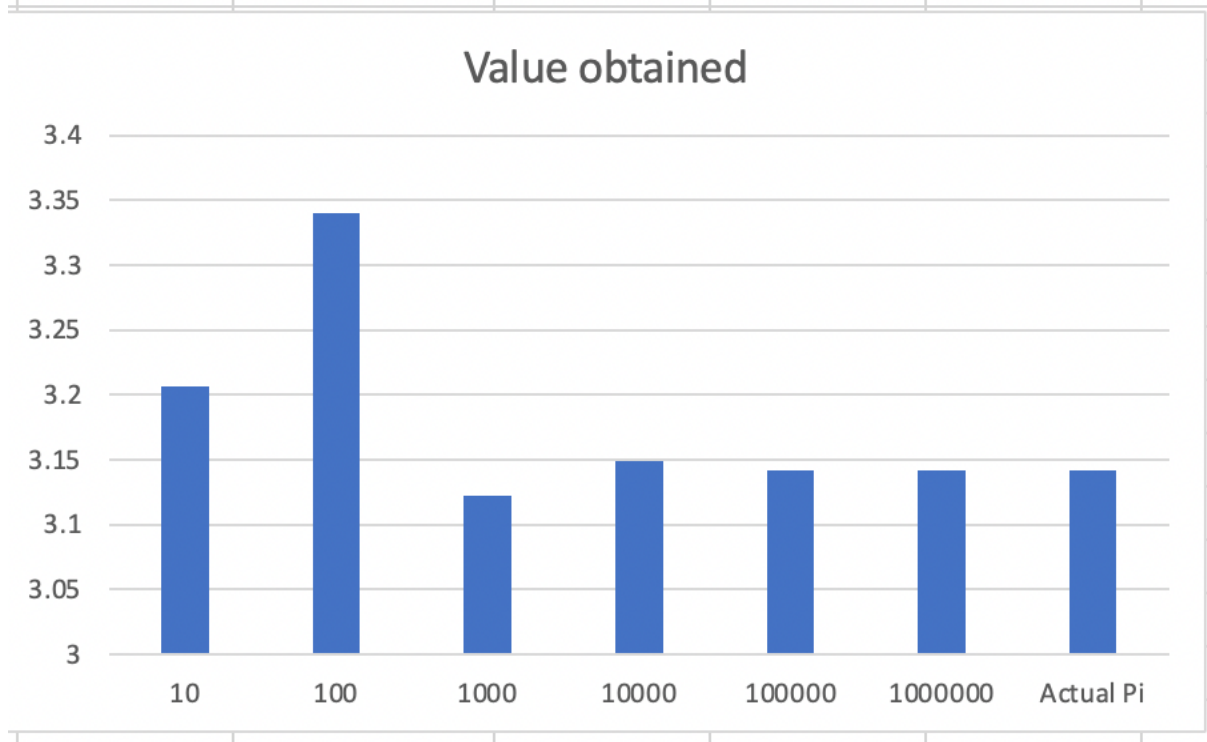
Conclusion:-

Our Experimental Values for probabilities are very similar to that of our Calculated Values.

Question 3:-

1. First, generate $2N$ numbers from 0 – 1, and then summed the square of each corresponding number pair.
2. Compute the number of points which lie within the circle using the equation of circle.
3. Find value of Pi using the given formula.

N	Value obtained			
10	3.206927			
100	3.340476			
1000	3.122572			
10000	3.148847			
100000	3.141944			
1000000	3.141568			
Actual Pi	3.14159			



Conclusion:-

At smaller Values of N , The value of Approximate π fluctuates rapidly, however at larger values of N , it fluctuates far less and reaches a constant Value(π) as N tends to infinity.