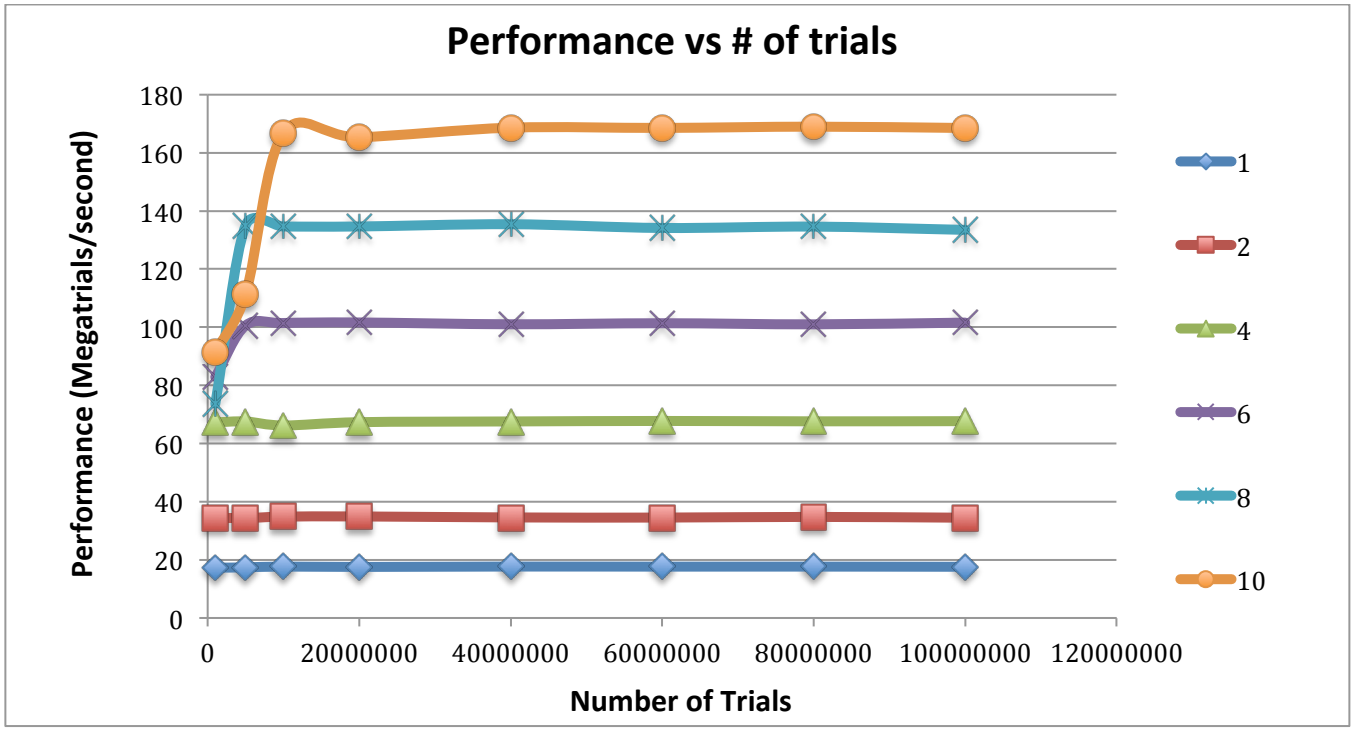
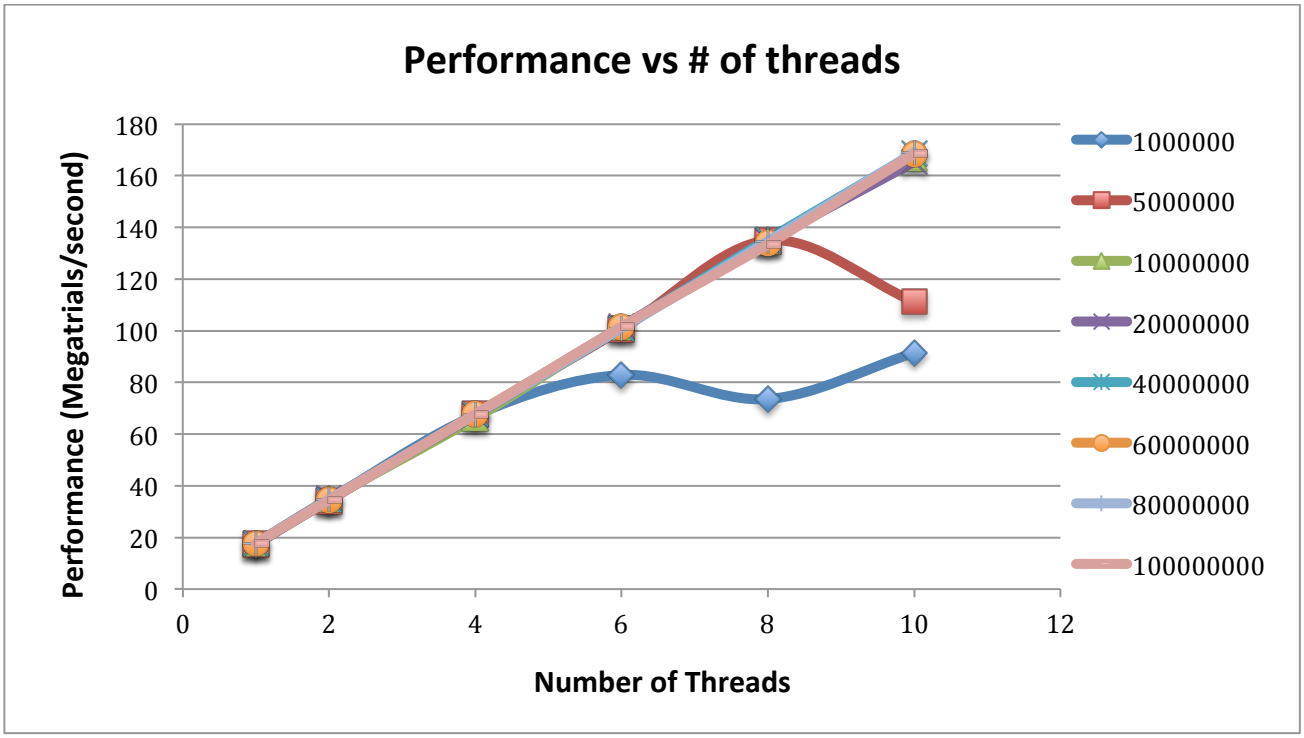
Project 1: OpenMP Monte Carlo Simulation

I. Following table shows the performance recorded corresponding to the number of threads in number of trials:

	Number of Threads					
Number of Trials	1	2	4	6	8	10
1000000	17.27	34.51	67.29	82.88	73.57	91.46
5000000	17.41	34.36	67.58	100.56	134.94	111.24
10000000	17.68	34.85	66.21	101.44	134.64	166.78
20000000	17.56	34.92	67.34	101.63	134.64	165.36
40000000	17.69	34.58	67.59	101.01	135.42	168.62
60000000	17.66	34.53	67.76	101.37	134.13	168.54
80000000	17.67	34.76	67.63	100.99	134.6	168.97
100000000	17.61	34.48	67.69	101.58	133.47	168.51

II. Following graphs show the performance vs number of trials and number of threads:





III. Chosing one of the runs (the one with the maximum number of trials would be good), tell me what you think the actual probability is.

The probability is **0.19** for the run with maximum number of trials.

IV. Compute Fp, the Parallel Fraction, for this computation.

Parallel Fraction:

Fp calculation would first require us to calculate the SpeedUp 'S':

S = (Peak performance of thread 8)/(Peak performance of thread 1)

Considering maximum number of trials for the calculation,

S= 168.51/17.61 = 9.57

Fp = (N/(N+1)) * (1 – (1/S))
= (8/(8+1)) * (1-(1/9.57))
= 0.80

Thus parallel fraction(Fp) = 0.80

The code was run on Flip server.