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PADP lab Program 2

```
Code:
#include<stdio.h>
#include<stdlib.h>
#include<omp.h>
#define SEED 50123
int main()
{
        long n = 0, i, count = 0;
        double x,y,z;
//
        printf("Enter the number of iterations used to estimate pi: ");
//
        scanf("%ld", &n);
        srand(SEED);
        printf("Size\t\tT1\t\tT2\t\tT4\t\tT8");
        for(n=10; n<=1000000; n*=10){
                printf("\n\%ld\t",n);
        for(int t=1; t\le 8; t*=2){
                        count = 0;
                        double start = omp get wtime();
        omp_set_num_threads(t);
                        #pragma omp parallel for private(x, y, z) reduction( +: count)
                        for (i=0; i< n; i++)
```

```
x = (double)rand()/RAND_MAX;
y = (double)rand()/RAND_MAX;

z = x*x+y*y;
if (z<=1) count++;
}

double pi=(double)count/n * 4;
double stop = omp_get_wtime();
printf("%lf %lfs\t",pi,stop-start);
}

return 0;
}</pre>
```

Output:

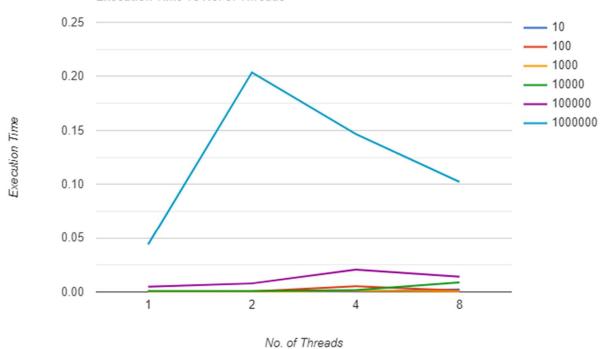
```
Activities

    Terminal ▼

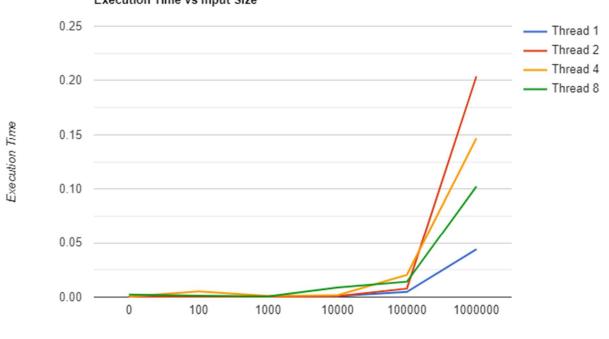
                                                                                                                             Nov 6 2
                                                                                                            mahesh@mahesh-Virtual
       mahesh@mahesh-VirtualBox:~/Desktop/padp$ cc -fopenmp prog2-1.c
        mahesh@mahesh-VirtualBox:~/Desktop/padp$ ./a.out
                                                                                    T4
                                                                                                                 T8
        Size
                                                       T2
        10
                 2.800000 0.000004s
                                              2.800000 0.000216s
                                                                          3.600000 0.000497s
                                                                                                       2.400000 0.002210s
        100
                 3.120000 0.000007s
                                              3.120000 0.000424s
                                                                           2.880000 0.005266s
                                                                                                       3.360000 0.001352s
                                                                                                       3.144000 0.000637s
                 3.160000 0.000036s
                                              3.196000 0.000111s
                                                                           3.108000 0.000969s
        1000
       10000 3.127200 0.000767s
100000 3.137840 0.004808s
1000000 3.141192 0.044074s
                                              3.162000 0.000857s
                                                                           3.153600 0.001641s
                                                                                                       3.116000 0.008779s
                                                                                                       3.143960 0.014175s
3.140032 0.102286s
                                              3.147720 0.007891s
3.137920 0.203663s
                                                                           3.136200 0.020523s
                                                                           3.142608 0.146635s
```

Graphs:

Execution Time vs No. of Threads



Execution Time vs Input Size



Input Size