

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\tT1\tT2\tT4\tT8");
    for(n=10; n<=1000000; n*=10){
        printf("\n%ld\t",n);
        for(int t=1; t<=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;
}

```

Output:

```

mahesh@mahesh-VirtualBox:~/Desktop/padp$ cc -fopenmp prog2-1.c
mahesh@mahesh-VirtualBox:~/Desktop/padp$ ./a.out

```

Size	T1	T2	T4	T8
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
1000	3.160000 0.000036s	3.196000 0.000111s	3.108000 0.000969s	3.144000 0.000637s
10000	3.127200 0.000767s	3.162000 0.000857s	3.153600 0.001641s	3.116000 0.008779s
100000	3.137840 0.004808s	3.147720 0.007891s	3.136200 0.020523s	3.143960 0.014175s
1000000	3.141192 0.044074s	3.137920 0.203663s	3.142608 0.146635s	3.140032 0.102286s

Graphs:

