

ARPIT KUMAR

1RV17CS024

7TH CSE A1, PADP

PROGRAM 1-B

CODE:

```
#include<stdio.h>

#include<mpi.h>

#include<stdlib.h>

#define SEED 3655942

int main(int argc, char **argv){
    int iter = 10000;
    int i, reduced_count,reduced_iter, count = 0;
    int rank;
    double pi,x,y,z,t;
    MPI_Init(&argc,&argv);
    MPI_Comm_rank(MPI_COMM_WORLD,&rank);
    if(rank==0){
        t = MPI_Wtime();
    }
    if(rank>0){
        srand(SEED+rank*10);
        for(i=0;i<iter;i++){
            x = (double)rand()/RAND_MAX;
            y = (double)rand()/RAND_MAX;
            z = x*x + y*y;
            if(z<=1) count++;
        }
    }
    MPI_Reduce(&count,&reduced_count,1,MPI_INT,MPI_SUM,0,MPI_COMM_WORLD);
```

```
MPI_Reduce(&iter,&reduced_iter,1,MPI_INT,MPI_SUM,0,MPI_COMM_WORLD);  
reduced_iter = reduced_iter - iter;  
if(rank==0){  
    t = MPI_Wtime() - t;  
    pi = (double)reduced_count/(double)reduced_iter * 4;  
    printf("pi : %lf time: %lf\n",pi,t);  
}  
MPI_Finalize();  
return 0;  
  
}
```

OUTPUT:

```
The vader shared memory BTL will fall back on another single-copy  
mechanism if one is available. This may result in lower performance.  
  
Local host: Rohit  
-----  
pi : 3.138800 time: 0.000860  
-----
```