PARALLEL AND DISTRIBUTED COMPUTING
L – 19,20
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Exercise :
Simple MPI program for checking the given input number is prime, odd or even

CODE :

```
#include "mpi.h"
#include<stdio.h>
#include<stdlib.h>
#include<math.h>

int isprime(int n) {
   int i;
   if (n>10) {
      for (i=2; i<=n/2; i=i+2)
      if ((n%i)==0)
         return 0;
      return 1;
  }
   else
      return 0;
}

int is_odd(int n) {
   if (n%2)
      return 0;
   return 1;
}

int main() {
   int ntasks, rank, n;
   MPI_Init(NULL, NULL);

   printf("Enter the number : ");
   scanf("%d", &n);

   MPI_Comm_rank(MPI_COMM_WORLD,&rank);
   MPI_Comm_size(MPI_COMM_WORLD,&ntasks);

   if (rank==0) {
      if (isprime(n))
         printf("%d is a prime number \n",n);
   }
```

```
    if (rank>0) {
        if (is_odd)
            printf("%d is an odd number \n" );
        else
            printf("%d is an even number \n" );
    }
    MPI_Finalize();
    return 0;
}
```

OUTPUT :

```
[dhrubanka@dhrubanka-pc 17BCE1019_LAB6_PDC_8AUG]$ mpicc pdc_lab8_17BCE1019.c
[dhrubanka@dhrubanka-pc 17BCE1019_LAB6_PDC_8AUG]$ ./a.out
Enter the number : 5
```