IT301 : Parallel Computing Lab
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MPI Programming

1A)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 2 ./outp
Process 0 of 2, Value of x is 10 sending the value x
Value of x is : 21961 before receive
Receive returned immediately
Value of x is : 21961 after receive
```

1B)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 2 ./outp
Process 0 of 2, Value of x is 10 sending the value x
Value of x is : -1248019776 before receive
Receive returned immediately
Value of x is : 10 after receive
```

1C)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 4 ./outp
Process 0 of 4, Value of x is 10 sending the value x
Value of x is : -1407325504 before receive
Receive returned immediately
^CCtrl-C caught... cleaning up processes
```

2)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 2 ./outp
Before boradcast :Value of x in process 0 : 32764
Before boradcast :Value of x in process 1 : 32766
```

Observation: Bcast() function broadcasts data in root process to all other processes.

3)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 4 ./outp
Value of y after reduce : 6
```

Observation: Reduce() function recues the datta from all processes acoording to the operation. Since operator here is sum and data in each process is rank the final value after computing is 6.

4)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 2 ./outp

Value of y[0] in process 0 : 10

Value of y[1] in process 0 : 10
```

Observation: MPI_Gather() collectrs data from all the proccesses and stores it in the guven buffer at the specified process.

5)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 4 ./outp
Enter 8 values into array x:
1
3
4
5
6
8
9
11

Value of y in process 0 : 1

Value of y in process 0 : 3

Value of y in process 1 : 4

Value of y in process 1 : 5

Value of y in process 2 : 6

Value of y in process 2 : 8

Value of y in process 3 : 9

Value of y in process 3 : 11
```

6)

```
bhuvan@bhuvan-N550JK:~/Desktop$ mpiexec -n 3 ./outp
Enter 10 values into array x:
2
3
5
7
8
9
10
11
15
17

Value of y in process 0 : 2

Value of y in process 0 : 3

Value of y in process 0 : 5

Value of y in process 0 : 2

Value of y in process 1 : 7

Value of y in process 1 : 8

Value of y in process 1 : 9

Value of y in process 1 : -564334648

Value of y in process 2 : 10

Value of y in process 2 : 11

Value of y in process 2 : 15

Value of y in process 2 : -1124429880
```