

### Assignment No.3

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Subject: LP-V (Distributed System)

Code:

```
from mpi4py import MPI
import numpy as np

comm = MPI.COMM_WORLD
rank = comm.rank

send_buf = []

if rank == 0:
    arr =
np.array([12,21241,5131,1612251,161,6,161,1613,161363,12616,367,8363])
    arr.shape = (3, 4)
    send_buf = arr
v = comm.scatter(send_buf, root=0)
print("Local sum at rank{0}: {1}".format(comm.rank, np.sum(v)))
recvbuf = comm.reduce(v, root=0)
if comm.rank == 0:
    global_sum = np.sum(recvbuf)
    print("Global sum: "+ str(global_sum))
```

Output:

```
Command Prompt

C:\Users\hp\Desktop\ds lab\Assignment No.3>set MSMPI
MSMPI_BENCHMARKS=C:\Program Files\Microsoft MPI\Benchmarks\
MSMPI_BIN=C:\Program Files\Microsoft MPI\Bin\

C:\Users\hp\Desktop\ds lab\Assignment No.3>mpiexec -np 3 python sum.py
Local sum at rank 2: 182709
Local sum at rank 1: 1941
Local sum at rank 0: 1638635
Global sum: 1823285

C:\Users\hp\Desktop\ds lab\Assignment No.3>_
```