

```
import mpi.MPI;

public class ScatterGather {
    public static void main(String args[]) {
        MPI.Init(args);

        int rank = MPI.COMM_WORLD.Rank();
        int size = MPI.COMM_WORLD.Size();
        int root = 0;

        int sendbuf[] = null;
        sendbuf = new int[size];

        if(rank==root)
        {
            sendbuf[0] = 10;
            sendbuf[1] = 20;
            sendbuf[2] = 30;
            sendbuf[3] = 40;

            System.out.print("Processor "+rank+" has data: ");
            for(int i = 0; i < size; i++)
            {
                System.out.print(sendbuf[i]+" ");
            }
            System.out.println();
        }

        int recvbuf[] = new int[1];
```

```

MPI.COMM_WORLD.Scatter(sendbuf, 0, 1, MPI.INT, recvbuf, 0, 1, MPI.INT, root);

System.out.println("Processor "+rank+" has data: "+recvbuf[0]);

System.out.println("Processor "+rank+" is doubling the data");

recvbuf[0]=recvbuf[0]*2;


MPI.COMM_WORLD.Gather(recvbuf, 0, 1, MPI.INT, sendbuf, 0, 1, MPI.INT, root);


if(rank==root)
{
    System.out.println("Process 0 has data: ");
    for(int i=0;i<4;i++)
    {
        System.out.print(sendbuf[i]+ " ");
    }
}

MPI.Finalize();
}
}

```

Output:

PROBLEMS 825 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR

bash + -

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ export MPJ_HOME="E:\NEHA_ENGG\BE\Distributed systems\MPIDSPrac3\mpj-v0_44"

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ javac -cp \$MPJ_HOME/lib/mpj.jar ScatterGather.java
javac: invalid flag: _ENGG\BE\Distributed
Usage: javac <options> <source files>
use -help for a list of possible options

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ javac -cp \$MPJ_HOME/lib/mpj.jar ScatterGather.java
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lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ javac -cp "\$MPJ_HOME/lib/mpj.jar" ScatterGather.java

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ \$MPJ_HOME/bin//mpjrun.sh -np 4 ScatterGather
bash: E:\NEHA: No such file or directory

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ "\$MPJ_HOME/bin/mpjrun.sh" -np 4 ScatterGather
Error: Unable to access jarfile E:\NEHA

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ "\$MPJ_HOME/bin/mpjrun.sh" -np 4 ScatterGather

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PROBLEMS 825 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR

bash + -

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ javac -cp "\$MPJ_HOME/lib/mpj.jar" ScatterGather.java

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ \$MPJ_HOME/bin//mpjrun.sh -np 4 ScatterGather
bash: E:\NEHA: No such file or directory

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ "\$MPJ_HOME/bin/mpjrun.sh" -np 4 ScatterGather
Error: Unable to access jarfile E:\NEHA

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$ "\$MPJ_HOME/bin/mpjrun.sh" -np 4 ScatterGather
Path to mpj.jar: E:\NEHA_ENGG\BE\Distributed systems\MPIDSPrac3\mpj-v0_44\lib/mpj.jar
MPJ Express (0.44) is started in the multicore configuration
Processor 0 has data: 10 20 30 40
Processor 0 has data: 10
Processor 0 is doubling the data
Processor 3 has data: 40
Processor 3 is doubling the data
Processor 1 has data: 20
Processor 2 has data: 30
Processor 2 is doubling the data
Processor 1 is doubling the data
Process 0 has data:
20 40 60 80

lenovo@LAPTOP-MDV2CJ8J MINGW64 /e/NEHA_ENGG/BE/Distributed systems/MPIDSPrac3
\$

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