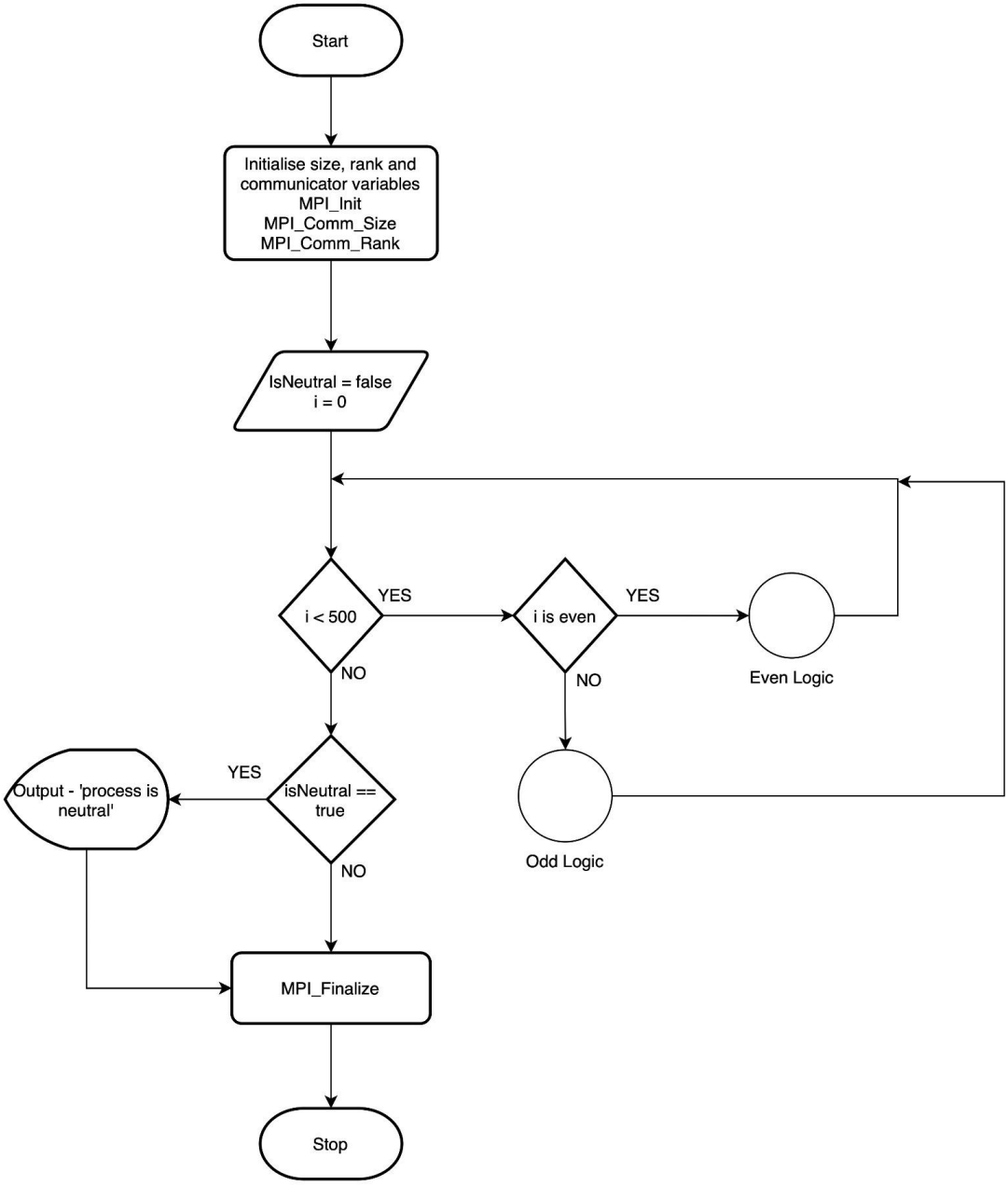
IPDP Assignment

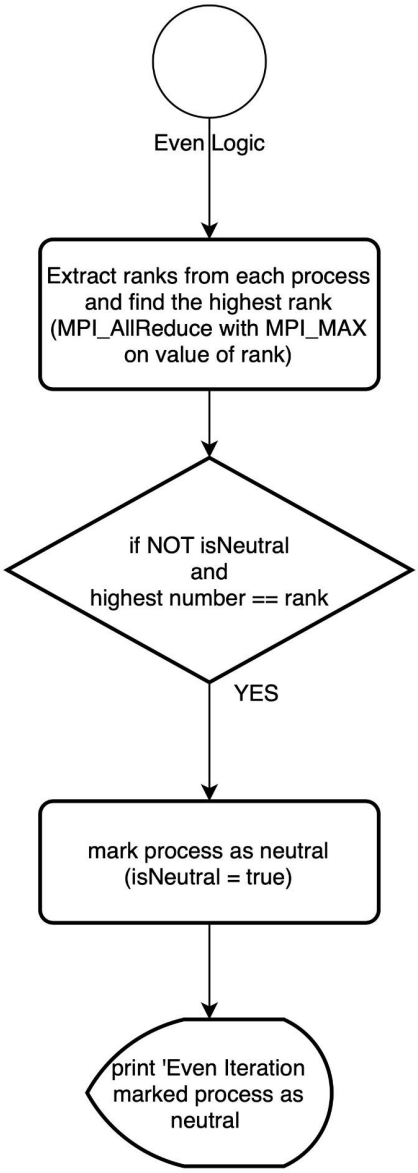
Problem 1

Implementation Design

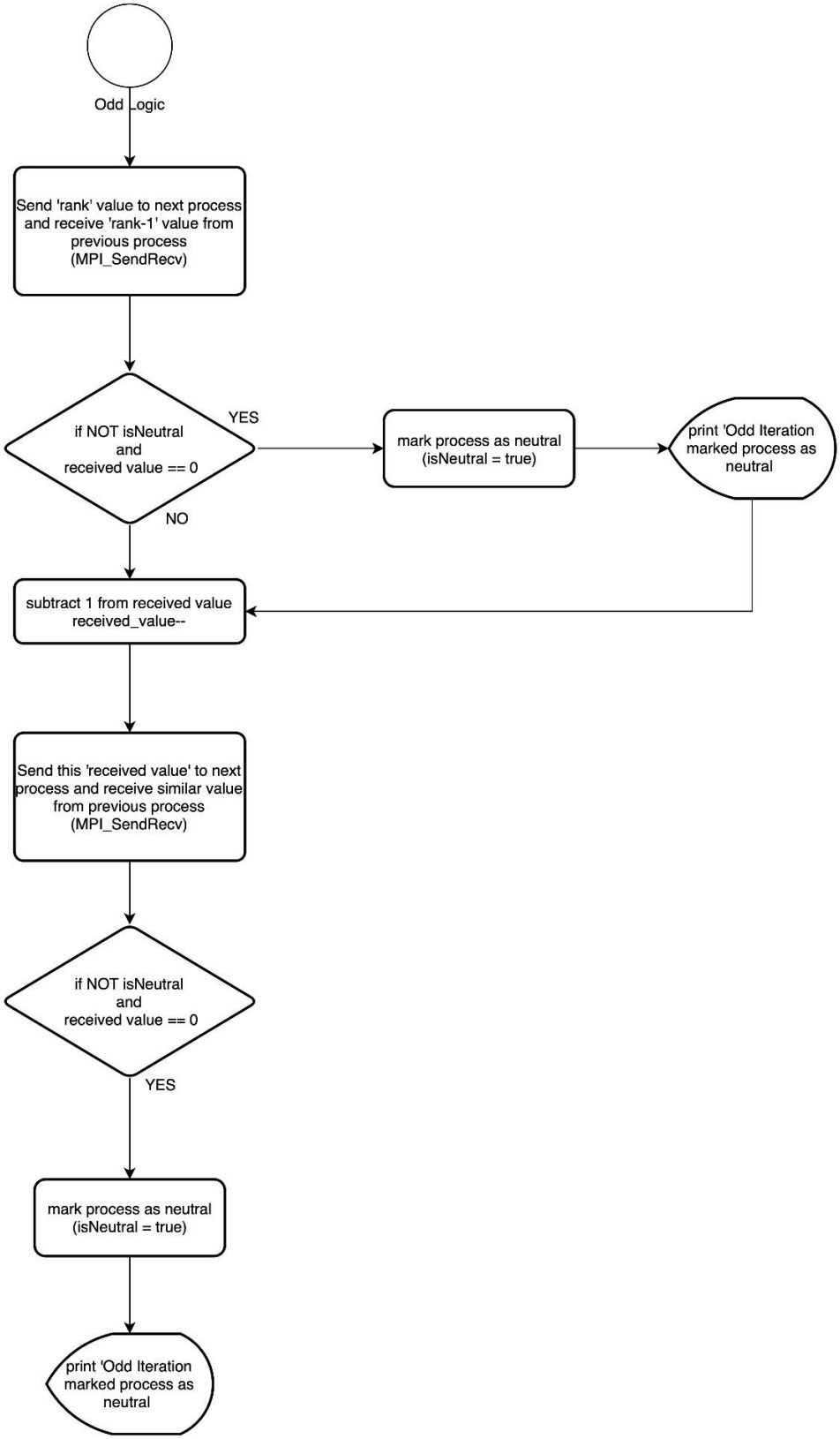
MPI Processes - High Level



Even Iteration Logic



Odd Iteration Logic



Program Execution Steps

Pre-requisites

1. Download the source code

   Use Git cli tool to clone the below repository on the node

   `git clone https://github.com/thegoodparticle/ipdp-assignment.git`

2. Move to problem 1 source code folder

   `cd ipdp-assignment/P1/src`

Commands to execute

1. Compile the MPI source code

   `mpicc problem1.c -o problem1.out`

```
labuser@node1:~/ipdp-assignment/P1/src$ ls -l
total 4
-rw-rw-r-- 1 labuser labuser 3361 Nov 11 13:41 problem1.c
labuser@node1:~/ipdp-assignment/P1/src$ mpicc problem1.c -o problem1.out
labuser@node1:~/ipdp-assignment/P1/src$
labuser@node1:~/ipdp-assignment/P1/src$
labuser@node1:~/ipdp-assignment/P1/src$ ls -l
total 24
-rw-rw-r-- 1 labuser labuser  3361 Nov 11 13:41 problem1.c
-rwxrwxr-x 1 labuser labuser 17128 Nov 11 15:16 problem1.out
labuser@node1:~/ipdp-assignment/P1/src$
```

2. Run the executable file with -n <integer> as the number of processes

   `mpirun -n 4 –oversubscribe problem1.out`

```
labuser@node1:~/ipdp-assignment/P1/src$
labuser@node1:~/ipdp-assignment/P1/src$ mpirun -n 4 --oversubscribe problem1.out
Odd Iteration 1: Marking process(1) as neutral
Even Iteration 0: Marking process(3) as neutral
Odd Iteration 1: Marking process(2) as neutral
Process 2 is neutral
Process 3 is neutral
Process 1 is neutral
labuser@node1:~/ipdp-assignment/P1/src$
```

```
labuser@node1:~/ipdp-assignment/P1/src$ mpirun -n 100 --oversubscribe problem1.out
Odd Iteration 1: Marking process(3) as neutral
Odd Iteration 1: Marking process(1) as neutral
Odd Iteration 1: Marking process(2) as neutral
Even Iteration 0: Marking process(99) as neutral
Process 1 is neutral
Process 99 is neutral
Process 3 is neutral
Process 2 is neutral
```

```
labuser@node1:~/ipdp-assignment/P1/src$ mpirun -n 1 --oversubscribe problem1.out
Even Iteration 0: Marking process(0) as neutral
Process 0 is neutral
labuser@node1:~/ipdp-assignment/P1/src$
```

Thank You!