```
prana@desktop-gu50280:~$ mpicc hello.c -o hello
prana@desktop-gu50280:~$ mpiexec -n 4 ./hello
Hello from rank 0 out of 4
Hello from rank 1 out of 4
Hello from rank 2 out of 4
Hello from rank 3 out of 4
prana@desktop-gu50280:~$
```

1

```
prana@desktop-gu50280:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever

2: wlp3s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP
    link/ether b0:d5:83:9a:05:2d brd ff:ff:ff:ff:ff:ff
    inet 172.22.251.109/16 brd 172.22.255.255 scope global dynamic wlp3s0
       valid_lft 3421sec preferred_lft 3421sec
    inet6 fe80::b2d5:83ff:fe9a:52d/64 scope link
       valid_lft forever preferred_lft forever

prana@desktop-gu50280:~$
```

2)

```
vivek@desktop-lm2011:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever

2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP
    link/ether 48:2a:e3:11:6b:90 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.11/24 brd 192.168.1.255 scope global dynamic enp2s0
       valid_lft 3400sec preferred_lft 3400sec
    inet6 fe80::4a2a:e3ff:fe11:6b90/64 scope link
       valid_lft forever preferred_lft forever

vivek@desktop-lm2011:~$
```

ssh

```
prana@desktop-gu50280:~$ ssh vivek@192.168.1.11
The authenticity of host '192.168.1.11' can't be established.
ECDSA key fingerprint is SHA256:Xckt9nG65R3F90VL0ZwjxDTTqx-WWg.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.1.11' (ECDSA) to the list of known hosts.
vivek@192.168.1.11's password:
vivek@desktop-lm2011:~$
```

host

```
prana@desktop-gu50280:~$ cat hosts
172.22.251.109 slots=4
192.168.1.11 slots=4
prana@desktop-gu50280:~$
```

C file compile

```
prana@desktop-gu50280:~$ mpicc hello.c -o hello
prana@desktop-gu50280:~$
```

running

```
prana@desktop-gu50280:~$ mpiexec -n 4 ./hello
Hello from rank 0 out of 4
Hello from rank 1 out of 4
Hello from rank 2 out of 4
Hello from rank 3 out of 4
prana@desktop-gu50280:~$
```

```
prana@desktop-gu50280:~$ mpicc sum_scatter_reduce.c -o sum_scatter_reduce
prana@desktop-gu50280:~$
```

Q7
.

```
prana@desktop-gu50280:~$ mpiexec -n 4 ./sum_scatter_reduce 1000000
Global sum of 1000000 elements = 499500000
prana@desktop-gu50280:~$
```

8)

```
prana@desktop-gu50280:~$ mpicc sum_point_to_point.c -o sum_point_to_point
prana@desktop-gu50280:~$
```

9)

```
prana@desktop-gu50280:~$ mpiexec -n 4 ./sum_point_to_point 1000000
Global sum of 1000000 elements = 499500000
prana@desktop-gu50280:~$
```