

Task1 -> Hello World

```
-bash-4.1$ whoami
tgupta5
-bash-4.1$ mpif90 -o hello_world_object_code hello_world.f90
-bash-4.1$ qsub -I -l nodes=2:ppn=4
qsub: waiting for job 9321.grape.soe.ucsc.edu to start
qsub: job 9321.grape.soe.ucsc.edu ready

-bash-4.1$ cd $PBS_O_WORKDIR
-bash-4.1$ mpirun -np 8 hello_world_object_code
Hello! (From processor #      4 out of      8 )
Hello! (From processor #      5 out of      8 )
Hello! (From processor #      6 out of      8 )
Hello! (From processor #      7 out of      8 )
Hello! (From processor #      0 out of      8 )
Hello! (From processor #      1 out of      8 )
Hello! (From processor #      2 out of      8 )
Hello! (From processor #      3 out of      8 )
-bash-4.1$ exit
logout

qsub: job 9321.grape.soe.ucsc.edu completed
-bash-4.1$ rm -f hello_world_object_code
```

Task2 -> Simple Send Recieve

```
-bash-4.1$ whoami
tgupta5
-bash-4.1$ mpif90 -o ssr_object_code simple_send_recieve.f90
-bash-4.1$ qsub -I -l nodes=2:ppn=4
qsub: waiting for job 9329.grape.soe.ucsc.edu to start
qsub: job 9329.grape.soe.ucsc.edu ready

-bash-4.1$ cd $PBS_O_WORKDIR
-bash-4.1$ mpirun -np 8 ssr_object_code
Processor      1 is sending data to processor      2

Processor      2 is recieving data from processor      1

Processor      2
Currently, my array is:
  1      1      1      1      1      1      1      1      1      1

Processor      2
After recieving data, my array is:
  1      2      3      4      5      6      7      8      9     10

-bash-4.1$ exit
logout

qsub: job 9329.grape.soe.ucsc.edu completed
-bash-4.1$ rm -f ssr_object_code
```

Task3 -> Ping Pong

```
-bash-4.1$ whoami
tgupta5
-bash-4.1$ mpif90 -o ping_pong_object_code ping_pong.f90
-bash-4.1$ qsub -I -l nodes=2:ppn=4
qsub: waiting for job 9333.grape.soe.ucsc.edu to start
qsub: job 9333.grape.soe.ucsc.edu ready

-bash-4.1$ cd $PBS_O_WORKDIR
-bash-4.1$ mpirun -np 8 ping_pong_object_code
I Ping just sent a message to pong!
I Ping just got a message: 'This is message from Pong'
I Pong just got a message: 'This is message from Ping'
I Pong just sent a message to ping!
-bash-4.1$ exit
logout

qsub: job 9333.grape.soe.ucsc.edu completed
-bash-4.1$ rm -f ping_pong_object_code
```

Task5 -> Ring

```
-bash-4.1$ whoami
tgupta5
-bash-4.1$ mpif90 -o ring_object_code ring.f90
-bash-4.1$ qsub -I -l nodes=2:ppn=4
qsub: waiting for job 9335.grape.soe.ucsc.edu to start
qsub: job 9335.grape.soe.ucsc.edu ready

-bash-4.1$ cd $PBS_O_WORKDIR
-bash-4.1$ mpirun -np 8 ring_object_code
Should I pass Left or Right? Enter '0' for Left or '1' for right:
1
I, Processor      0  recieved message:      7  from processor      7
I, Processor      1  recieved message:      0  from processor      0
I, Processor      2  recieved message:      1  from processor      1
I, Processor      3  recieved message:      2  from processor      2
I, Processor      4  recieved message:      3  from processor      3
I, Processor      5  recieved message:      4  from processor      4
I, Processor      6  recieved message:      5  from processor      5
I, Processor      7  recieved message:      6  from processor      6
-bash-4.1$ exit
logout

qsub: job 9335.grape.soe.ucsc.edu completed
-bash-4.1$ rm -f ring_object_code
```

Task6 -> Pi

```
-bash-4.1$ whoami
tgupta5
-bash-4.1$ mpif90 -o pi_object_code pi.f90
-bash-4.1$ qsub -I -l nodes=2:ppn=4
qsub: waiting for job 9337.grape.soe.ucsc.edu to start
qsub: job 9337.grape.soe.ucsc.edu ready

-bash-4.1$ cd $PBS_O_WORKDIR
-bash-4.1$
-bash-4.1$ mpirun -np 8 pi_object_code
Processor          3 got      3928296 hits in the circle!
Processor          7 got      3925898 hits in the circle!
Processor          0 got      3926605 hits in the circle!
Processor          4 got      3926569 hits in the circle!
Processor          1 got      3928674 hits in the circle!
Processor          6 got      3927635 hits in the circle!
Processor          2 got      3926499 hits in the circle!
Approximation of Pi: 3.1417291
Processor          5 got      3927116 hits in the circle!
-bash-4.1$ exit
logout

qsub: job 9337.grape.soe.ucsc.edu completed
-bash-4.1$ rm -f pi_object_code
```