

PC side / PG-01

```
Terminal
hhong@PG-01: ~/Cloud/bin
hhong@PG-01:~/Cloud/bin$ java pc/PC
PC(168.18.104.56) is bounded for IO module connection.
PC(168.18.104.56) is bounded for Worker module connection.
Connected IP : 168.18.104.57
Connected IP : 168.18.104.57 168.18.104.58
Connected IP : 168.18.104.57 168.18.104.58 168.18.104.61
Connected IP : 168.18.104.57 168.18.104.58 168.18.104.61
Multiplication Thread 0 start..

Multiplication Thread 1 start..

Multiplication Thread 2 start..

Multiplication Thread 0 finished..

Multiplication Thread 1 finished..

Multiplication Thread 2 finished..

Determinant Thread(Worker) 0 start..

Determinant Thread(Worker) 1 start..

Determinant Thread(Worker) 2 start..
Connected IP : 168.18.104.57 168.18.104.58 168.18.104.61
Determinant Thread(Worker) 0 finished..

Determinant Thread(Worker) 0 start..

Determinant Thread(Worker) 1 finished..

Determinant Thread(Worker) 1 start..

Determinant Thread(Worker) 2 finished..

Determinant Thread(Worker) 2 start..
Connected IP : 168.18.104.57 168.18.104.58 168.18.104.61
Determinant Thread(Worker) 0 finished..

Determinant Thread(Worker) 0 start..

Determinant Thread(Worker) 1 finished..

Determinant Thread(Worker) 1 start..

Determinant Thread(Worker) 2 finished..

Determinant Thread(Worker) 2 start..
Connected IP : 168.18.104.57 168.18.104.58 168.18.104.61 |
```

Worker1 / PG-02

```
Terminal
hhong@PG-02: ~/Cloud/bin
hhong@PG-02:~/Cloud/bin$ java w/W
Worker's ID: 168.18.104.57
Compute multiplication..
Compute Determinant..
Compute Determinant..
Compute Determinant..
Compute Determinant..
Compute Determinant..
```

Worker2 / PG-03

```
Terminal
hhong@PG-03: ~/Cloud/bin
hhong@PG-03:~/Cloud/bin$ java w/W
Worker's ID: 168.18.104.58
Compute multiplication..
Compute Determinant..
Compute Determinant..
Compute Determinant..
Compute Determinant..
Compute Determinant..
```

Worker3 / PG-04

```
Terminal
hhong@PG-04: ~/Cloud/bin
hhong@PG-04:~/Cloud/bin$ java w/W
Worker's ID: 168.18.104.61
Compute multiplication..
Compute Determinant..
Compute Determinant..
Compute Determinant..
Compute Determinant..
```

IO / PG-05

```
Terminal
hhong@PG-05: ~/Cloud/bin
hhong@PG-01: ~/Clo... x hhong@PG-02: ~/Clo... x hhong@PG-03: ~/Clo... x hhong@PG-04: ~/Clo... x hhong@PG-05: ~/Clo... x
hhong@PG-05:~/Cloud/bin$ java io/IO 12
Matrix A.txt and B.txt are generated
IO is connected to 168.18.104.56

>>>Computing matrix C...
Matrix C.txt is generated

>>>Computing determinant...
Determinant of Matrix A :10482412576210

Execution Time : 15655ms.
hhong@PG-05:~/Cloud/bin$ |
```

```
Terminal
hhong@PG-05: ~/Cloud/bin
hhong@PG-01: ~/Clo... x hhong@PG-02: ~/Clo... x hhong@PG-03: ~/Clo... x hhong@PG-04: ~/Clo... x hhong@PG-05: ~/Clo... x
hhong@PG-05:~/Cloud/bin$ java io/IO 12
Matrix A.txt and B.txt are generated
IO is connected to 168.18.104.56

>>>Computing matrix C...
Matrix C.txt is generated

>>>Computing determinant...
Determinant of Matrix A :-20967011608572


Execution Time : 22285ms.
hhong@PG-05:~/Cloud/bin$ |
```

```
Terminal
hhong@PG-05: ~/Cloud/bin
hhong@PG-01: ~/Clo... x hhong@PG-02: ~/Clo... x hhong@PG-03: ~/Clo... x hhong@PG-04: ~/Clo... x hhong@PG-05: ~/Clo... x
hhong@PG-05:~/Cloud/bin$ java io/IO 12
Matrix A.txt and B.txt are generated
IO is connected to 168.18.104.56

>>>Computing matrix C...
Matrix C.txt is generated

>>>Computing determinant...
Determinant of Matrix A :-6802697022300

Execution Time : 42719ms.
hhong@PG-05:~/Cloud/bin$ |
```



Execution time comparison.

Matrix Size : 12

3 Workers : 15,655ms

2 Workers : 22,285ms

1 Worker : 42,719ms

Verify result with octave

```
>> load A.txt
>> load B.txt
>> load C.txt
>> A*B-C
ans =

0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0

>> det(A)
ans = -6.8027e+12
>> format long
>> det(A)
ans = -6802697022300.01
>> |
```