

Big Data Analytics

Exercise Sheet 3

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Exercise 1: Message Passing Basics (5 points)

- Which programming model is more suitable for MPI program? What are different component of an MPI program and how are the messages exchanged between different processes are distinguished.
- What are the differences between Blocking and Non-Blocking communication? Which scenarios are more suitable for either case? Give examples.

Exercise 2: Running an MPI program (5 points)

- Using your library of choice i.e. MPJExpress or OpenMPI run the Compute Pi program given in the lecture and fill table below. You can time your program using `System.currentTimeMillis()` function i.e.

```
starttime = System.currentTimeMillis();
```

```
... do work
```

```
endtime = System.currentTimeMillis() - starttime;
```

N	Ts (sec)	T _{p2} (sec)	T _{p4} (sec)
100,000,000			
500,000,000			

- Plot the speedup curve using the Speedup equation.