

# Assignment 4: Matrix Multiplication using MPI

## Problem Description

In this assignment, you are supposed to calculate the product of two matrices A (of size  $N \times 32$ ) and B (of size  $32 \times N$ ), which should be an  $N \times N$  matrix. Specifically, you are supposed to:

- Design a parallel scheme for computing matrix multiplication, including how to:
  - Separate the task into divisions and let each process finish one division
  - Transfer data between processes
  - Form the output matrix using the result of each process.
- Implement the parallel mechanism with any type of communications in MPI (e.g., Blocking communication (MPI\_Send/MPI\_Recv), or Collective communication).
- Observe the running time of your programs; change some of the parameters to see how it is associated with N and communication type (and number of processes, if available).