This project consists of writing two benchmarks, one to measure the latency between two machines and one to measure the bandwidth available between two machines. For both of them, you will be using a TCP connection.

To measure the latency, a client starts a connection with the server and, then, measure the time $l_{\text{time}}$ to exchange one-byte messages with the server 1,000 times. Each time, the client sends one byte to the receiver, which answers with one byte. You should report the round-trip latency, which is $l_{\text{time}} / 1,000$, for 10 consecutive experiments in a graph or table.

To measure bandwidth, a client starts a connection with the server and, then, measure the time $b_{\text{time}}$ to send 1,024 messages of size $L$ bytes to the server, which answers with one byte. The bandwidth is $L / b_{\text{time}}$ KBps. You should execute the experiment for different values of $L$ (8, 16, 32, 64, 128, 256, 512, 1024) and report the bandwidth measured in each case in a table or graph.

You will run these benchmarks in two different environments: between two processes in the same machine and between two machines in the DC. Report the results for both scenarios.