

University of Dhaka
Department of Computer Science and Engineering
CSE 4211: Distributed Systems Lab

Assignment Code: A5

Assignment Title: Logical Clock Synchronization

Date of Assignment: 18/9/2018

Last Date of Submission: 01/10/2018

Objectives:

- I. Write a Sync. Process that does the following:
 - a. Maintains the list of all the active processes (address of each process)
 - b. Sends the active process list to each new process connected to it.
 - c. Periodically checks if the processes are active and discards the entry of dumped processes from the list.
- II. Write an Worker Process that does the following:
 - a. When getting started, each worker process takes a random clock time, gets the list of all the processes from the Sync. Process and sends and receives message from all the active processes
 - b. Uses a loop to simulate clock tick. Sleeps a random time between (50-100ms) during each iteration.
 - c. Prints the clock upon getting synced each time (when clock time changes after receiving a message)

Note: There should be at least four Worker Process running. New Worker Process can be added at runtime. At least two worker process should be in different server machine. All the worker processes run the Lamport's logical clock synchronization algorithm. Resources regarding Lamport's algorithm can be found at: <http://books.cs.luc.edu/distributedsystems/clocks.html>

Marks:

- 1) Solving problems, I and II will net 60% marks.
- 2) The rest of the marks (40%) will be distributed via Viva and Testing.

Deliverables:

- 1) A single package containing all necessary files, codes and instructions for running the program on a generic machine.

The deliverables are to be sent in a single compressed package by email. The compressed filename must be of the format: [Roll No.]_[Assignment Code].

Submission Format:

The assignment must be submitted by email. The email must have the following formatting. The submission will not be accepted if the format is not in the correct order.

Subject: [Assignment Code] [Assignment Title] [Roll No]

Body: Assignment Code

Assignment Name

Roll No.

Date of Assignment

Date of Submission

- 1) Attachment: A single package containing all necessary files, codes and instructions for running the program on a generic machine. The compressed filename must be of the format: [Roll No.][Assignment Code].

Example Format:

Subject: [A5] [Echo Server and Client] [Gr – 017]

Body: Assignment Code: A5

Assignment Name: Echo Server and Client

Roll No.1: SH – 017

Roll No.2: SH – 305

Date of Assignment: 18/09/2018

Date of Submission: 01/10/2018

Attachment: Gr-017_A5.tar / Gr-017_A5.zip

Penalty:

- 1) **Plagiarism:** If it can be proven beyond reasonable doubt that the assignment code(s) was plagiarized, the code will be invalid and no marks will be attributed.
- 2) **Late Submission:** Failure to submit the assignment on time will result in 50% cumulative reduced mark which will be activated each week after the original submission date has passed.