CS 6380: Distributed Computing
Section 001
Project 2

Instructor: Neeraj Mittal

Assigned on: Wednesday, March 21, 2018
Due date: Wednesday, April 18, 2018

You can work on this programming project either individually or in a group. A group can contain up to three students. *Code sharing among group is strictly prohibited and will result in disciplinary action being taken.*

You can do this project in C, C++ or Java. Each student is expected to demonstrate the operation of this project to the instructor or the TA. Since the project involves socket programming, you can only use machines dcXX.utdallas.edu, where XX $\in$ {01, 02, .., 45}, for running the program. Although you may develop the project on any platform, the demonstration has to be on dcXX machines; otherwise, you will be assessed a penalty of 20%.

1 Project Description

This project consists of two parts: (a) build a message-passing synchronous distributed system in which nodes are arranged in a certain topology (given in a configuration file), and (b) implement SynchGHS algorithm as described in the textbook for constructing a minimum spanning tree (MST).

You can assume that all links are bidirectional. As in the first project, you will need to use a synchronizer to simulate a synchronous system.

Output: Upon termination, each node should print the following to the screen: the subset of its edges that are part of the MST.

2 Submission Information

All the submission will be through eLearning. Submit all the source files necessary to compile the program and run it. Also, submit a README file that contains instructions to compile and run your program.

3 Sample Configuration File

```
#
# Configuration file for CS 6380 Project 2 (Spring 2018)
#
```

As per the "shell" convention, anything following a hash sign is
a comment and should be ignored by the parser.
#

Number of nodes
7

Here we list the individual nodes
#
Format is:

# UID	Hostname	Port
5	dc02.utdallas.edu	1234
200	dc03.utdallas.edu	1233
8	dc04.utdallas.edu	1233
184	dc05.utdallas.edu	1232
9	dc06.utdallas.edu	1233
37	dc07.utdallas.edu	1235
78	dc08.utdallas.edu	1236

List of edges and their weight, one per line. An edge is denoted
by (smaller uid, larger uid)

(5,200)	5
(5,8)	3
(5,37)	10
(8,184)	1
(8,78)	3
(184,200)	3
(37,78)	1
(9,78)	2
(9,200)	5