Distributed Systems Project, Spring 2016

Jussi Kangasharju
Course Outline

3 exercises to look at distributed systems in practice

Exercises mostly programming

2 individual exercises, 1 group exercise

Groups of up to 3 people allowed

Group work not mandatory, but recommended
Course Schedule

19.1. Start of first exercise (individual)
21.1. and 26.1. Q&A for first exercise

28.1. Deadline for first exercise

28.1. Start of second exercise (individual)
2.2., 4.2., and 9.2., Q&A for second exercise

9.2. Start of third exercise (group)

11.2. Deadline for second exercise

16.2., 18.2., 23.2., 25.2., 1.3., and 3.3. Q&A for third exercise

13.3. Deadline for third exercise
People

Jussi Kangasharju
Office hour: Tue 13-14 or ask for appointment by email

Ossi Karkulahti
Office hour: During meetings or ask appointment by email

Twitter: #UnivHelsinkiCS_DSP16 (also visible on course page)
Assignments

Distributed algorithms
   Individual assignments about algorithms

Spark (or possibly another, TBD)
   Use Spark to analyze a data set

Overlay networks
   Design, analyze, and implement an overlay network

Details for assignments 2 and 3 presented later
Grading

Each assignment graded on scale 1-5
Must get at least 1 in every assignment

Same grade for all members of group

Overall grade is weighted average of assignment grades
  Assignments 1 and 2: Weight 1
  Assignment 3: Weight 2
Assignment 1: Algorithms

Link to assignment will be posted to course website
Individual Assignments on Distributed Algorithms

1. Lamport clocks
2. Vector clocks
3. Bully election algorithm
4. Gossiping

Simple programs communicating over the network
Select assignment: (student ID % 4) + 1
General Idea

Multiple programs on different machines

Everybody knows everybody

Programs communicate to implement a given algorithm

Key points: Network communication, correct algorithm
House Rules

Configuration file for nodes and ports
Format:

<ID> <IP/HOST> <PORT>

Command line argument indicates what is client’s ID
File has an arbitrary number of lines

Must conform to specified output format
Deviation results in a reduced grade
Programs must be runnable on Ukko cluster
Next steps

Q&A session on 21.1. and 26.1.

Deadline for returning January 28\textsuperscript{th} at 10:00

Details for next exercise announced on 28.1.

See assignment sheet for instructions for how to return