Assignment 4
TERM PROJECT
VERSION 0.12

DUE DATE: Wednesday December 9th, 2015 @ 5:00 pm

OBJECTIVE
The objective of this assignment is for you to apply concepts that you have learned in class to an original problem that you have devised. You are required to demonstrate that you are solving an important problem and there are restrictions on the types of projects that you can choose.

This assignment may be modified to clarify any questions (and the version number incremented), but the crux of the assignment and the distribution of points will not change.

Grading: This assignment will account for 25 points towards your cumulative course grade. There are several components to this assignment, and the points-breakdown is listed in the remainder of the text. This assignment is to be done individually. The scoring process will involve a one-to-one interview session where you will demonstrate the functionality of your project. You are required to make two presentations and reports as part of this effort. The slots for these interview sessions and presentations will be posted a few days prior to the submission deadline.

1 Requirements
As part of your term project you are required to design a system that solves a problem. The requirements are the following:

1. Your project should be a distributed systems problem. It should build on concepts that you have learned in class. Examples of unacceptable projects include: designing a new cryptographic encryption/decryption algorithm.
2. Your system or application should execute on a minimum of 25 machines. The problem should be data-intensive or compute-intensive. Examples of unacceptable projects include:
   a. Using MPI, Fortran, or shared-memory based systems to solve the problem.
3. Either the problem or the solution you propose has to be original. Examples of unacceptable projects include:
   a. Assignments from Distributed Systems (x55 series at CSU) or Big Data (x35 series at CSU) courses at CSU, MOOCS or other universities.
   b. Implementation of existing systems: You cannot, for example, say you will be implementing Chord, BitTorrent, etc.
   c. Term projects from previous courses that you have taken (or are currently taking). The submission has to be an original submission that you have done specifically for CS555.
   d. Submitting projects that you are working on as part of your Research Assistantships or your day job. This is to ensure a level playing field for your peers.
2 Third-party libraries and restrictions:
You are allowed to use 3rd party libraries ONLY AFTER you have received approval from the instructor. You are allowed to use libraries from the Hadoop, Storm, and Spark ecosystem. Once you have chosen the libraries that you will use, you are responsible for coping with issues that you encounter with them i.e. there is no assistance for debugging why your Storm cluster is not working the way it should. You can discuss your proposed project with your peers at the architectural level, but the project implementation is an individual effort.

3 Deliverables

[5 points]
November 3rd: In class presentation (and submission of a 2-page report) of your proposed term project. The presentation is restricted to be for 5 minutes. You should have 5 slides for your presentation and the content of these slides is tightly regulated to ensure that you are not wandering off on tangents during presentation.

1. Slide 1: Project Title
2. Slide 2: Problem characterization
   a. This is a technical description of the problem. Your audience is your peers so express it in a way that they can appreciate.
3. Slide 3: Why the problem is important
4. Slide 4: Proposed solution and implementation strategy
   a. Methodology summary and the libraries that you are planning to use
5. Slide 5: Evaluating the effectiveness of your solution
   a. What are numbers that will use to assess how good your solution is? Examples of these include: accuracy, turn around times, throughputs, number of false positive or false negatives, mean squared errors, etc.

You are also required to submit a report. Single-spaced, 1’ margins, 10 point Times New Roman with no paddings. The report should include all the sections that were required in your presentation.

[15 points]
Code and presentation submission:
Demonstration of project functionality, including a one-on-one interview session. The interview schedule will be posted once the

[5 points] Final Report and Presentation. The regulated number and content of slides will be made available.
**Submission deadline:**
Please submit the source codes for your project by the 5:00 pm on the due date. This should be mailed to cs555@cs.colostate.edu. There is a **1 point deduction** for mailing it to the instructor’s e-mail account. We will rely on the honor system: please do not make any modifications to the codebase after the submission deadline has elapsed.

**Change History**

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