Homework 1: Basic Logic Gates

Background:

A typical computer architecture is based on a set of elementary logic gates like And, Or, etc., as well as other more complex chips. This project engages you in the construction of a typical set of basic logic gates and focuses on the documentation and building the code. These gates form the elementary building blocks from which more complex chips will be later constructed, and which you'll have to come up with the solutions for on your own.

Objective:

Build some of the logic gates described in Chapter 1 (see list below), yielding a basic chip-set. The only building blocks that you can use in this project are primitive Nand gates and the composite gates that you will gradually build on top of them.

Contract:

When loaded into the supplied Hardware Simulator, your chip design (modified .hdl program), tested on the supplied .tst script, should produce the outputs listed in the supplied .cmp file. If that is not the case, the simulator will let you know.

Grading method:

If the chip passes *all* the tests specified in the supplied test script, it receives about two thirds of its allotted points. The remaining third reflects the documentation provided for each chip.

What do you turn in?

The .hdl files ONLY (there are 4 of them) and the documentation.pdf file (see Documentation Instructions for guidelines on how to do this), in a ZIP file per Project Submission Guidelines (see document on Blackboard).

Chip	***Working?***	***Documented?***
Not	/ 15	/ 10
And	/ 15	/ 10
Or	/ 15	/ 10
Xor	/ 15	/ 10
Total	/ 60	/ 40

See http://nand2tetris.org/01.php for some tips/resources/tools (note that the asisgnment on the website is substantially different from the assignment that is described above, if you need clarification email your instructor. You will be graded based on this documents requirements).