CS 381 Assignment 9 due Friday, Nov. 10, 2006

Please write your name and net id on all pages turned in. We need net id to record your grade. If you turn in each problem on a separate sheet we will grade your problems in parallel and get your assignment back to you by the following Wednesday. If you turn in homework not on separate sheets we will circulate your homework and grade the problems in serial and thus it will likely be delayed somewhat in getting back to you.

1. Let M be a Turing machine and let L(M) be the set of strings that are accepted by M. How would you design a Turing machine that lists all strings in L(M)? We want only a clear English description of how the Turing machine would work, a high level description of maybe ten sentences.

2. Show that $\left\{a^n b^n c^n d^n e^n f^n g^n h^n \mid n \geq 1\right\}$ can be written as the intersection of two context-free languages.

3. Show that if the halting problem for Turing machines starting with blank tape was decidable then whether a Turing machine M halts when started on input x would be decidable.

4. 9.2.4

5 9.2.6