CSCI 1320 (Principles of Algorithm Design I), Fall 2007
Homework X

Assigned: December 10, 2007.

Due: December 12, 2007, at 5pm. *Not accepted late.*

Credit: Up to 30 extra-credit points.

1   General Instructions

Below is a list of programming problems. You can attempt as many or as few as you like, but notice that you can receive at most 30 extra-credit points. You will probably learn more by doing problems from later chapters, but if your goal is to maximize points — do whatever seems easiest to you.

I am also open to the possibility of giving extra credit for other work — other problems from the textbook, a report on something course-related (perhaps something related to the history of programming, or other programming languages), etc. If you have an idea for such a project, let's negotiate (by e-mail or in person).

For this assignment, please work individually, without discussing the problems with other students. If you want to discuss problems with someone, talk to me.

2   Programming Problems

1. (Up to 10 extra-credit points.) Do problem 49 *or* problem 50 from chapter 6 of the textbook (p. 385).

2. (Up to 10 extra-credit points.) Do problem 51 from chapter 6 of the textbook (p. 385).

3. (Up to 10 extra-credit points.) Do problem 27 from chapter 7 of the textbook (p. 454).

4. (Up to 10 extra-credit points.) Do problem 29 from chapter 8 of the textbook (p. 545).

5. (Up to 10 extra-credit points.) Do problem 34 from chapter 8 of the textbook (p. 548).

6. (Up to 10 extra-credit points.) Do problem 34 from chapter 8 of the textbook (p. 548), but using binary search *written using recursion rather than a loop.*

7. (Up to 10 extra-credit points.) Do problem 39 from chapter 10 of the textbook (p. 659).

8. (Up to 10 extra-credit points.) Do problem 31 from chapter 11 of the textbook (p. 741), but write a complete program rather than only a function. Prompt the user for the required input values (string to insert, string to insert into, position).

9. (Up to 10 extra-credit points.) Do problem 36 from chapter 11 of the textbook (p. 741), but write a complete program rather than only a function. Prompt the user for the required input value (string to be checked for "is it a palindrome?").

10. (Up to 10 extra-credit points.) Do problem 28 from chapter 12 of the textbook (p. 814), but write a complete program rather than only a function. Prompt the user for the required input values (month, day, year, and days after today — you can use integers for all four).