Computer Science 373 – Analysis of Algorithms
Prof. Steven Skiena
Fall 2017

Homework 5 – Dynamic Programming and Intractability
Due Thursday December 7, 2017

Each of the problems should be solved on a separate sheet of paper to facilitate grading. Limit the solution of each problem to one sheet of paper. Please don't wait until the last minute to look at the problems.

All numbered problems come from the second edition of *The Algorithm Design Manual*, by Skiena. Interested students may attempt the extra credit programming challenges problems described at the end of the relevant chapters for a small amount of additional points – small enough that you should be motivated primarily by interest and not greed.

1. Implement the dynamic programming algorithm for approximate string matching (in whatever language you wish) and use it to find the best alignment between the following pairs of strings:

   "watch the movie raising arizona?", "watch da mets raze arizona?"

   "this is what happens when I type slow", "htishisth whaty havpens when ui type fasht"

   "leonard skiena", "lynard skynard"

2. Exercises 8-3 and 8-7.

3. Exercise 8-14.

4. Exercises 8-18 and 8-19.

5. Exercise 9-1.

6. Exercise 9-2.

7. Exercises 9-8 and 9-10.

8. Exercises 9-11 and 9-12.

9. Exercise 9-13.