

Computer Science 373 – Analysis of Algorithms  
Prof. Steven Skiena  
Fall 2018

Homework 5 – Dynamic Programming and Intractability  
Due Thursday December 6, 2018

To facilitate grading, limit the solution of each problem to the front side of a single sheet of paper. You may put two or more problems on a single side if they completely fit, but keep the problems in order. Staple all these sheets together! 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.

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. Problem 8-3.
3. Problem 8-7.
4. Problem 8-14.
5. Problem 8-18.
6. Problem 8-19.
7. Problem 9-1.
8. Problem 9-2.
9. Problem 9-8.
10. Problem 9-10.
11. Problem 9-11.
12. Problem 9-12.
13. Problem 9-13.

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.