

Computer Science 373 – Analysis of Algorithms
Prof. Steven Skiena
Fall 2021

Homework 5 – Dynamic Programming and Intractability
Due Thursday December 2, 2021

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. Solutions must be submitted via BlackBoard, with each partner submitting the same full assignment. Please don't wait until the last minute to look at the problems. All numbered problems come from the **third** 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 havgens when ui type fasht”
“leonard skiena”, “lynard skynard”
2. Problem 10-8.
3. Problem 10-13.
4. Problem 10-25.
5. Problem 10-30.
6. Problem 10-31.
7. Problem 11-1.
8. Problem 11-2.
9. Problem 11-11.
10. Problem 11-16.
11. Problem 11-17.
12. Problem 11-18.
13. Problem 11-22.

Interested students can try the programming challenge problems at the end of each chapter – the amount of extra credit is small enough that you should be motivated by interest and not greed. Hot shots are encouraged to prepare Wiki solutions for any problems that need them.