CSCI 451/551 Fall 2017 Homework Assignments

Homework Policies:
Please turn in only one copy of the assignment per group.
Please use D2L for submissions.

Homework #2 (due Tue, Sept 26) - 25 points

1. (10 points) Implement the local alignment algorithm from class (Smith-Waterman). You may use a simple scoring function such as +2 match, -1 otherwise.
   Demonstrate that the algorithms works on some sample strings. Provide source code and test run log(s). You should print out the alignment along with the score (only print one in the case of ties).

   (+2 points) *Bonus part*: Implement the linear space version of the algorithm (using the divide-and-conquer approach we discussed).

2. (5 points) Exercise 2 in Section 2.7 of the textbook.

3. (10 points) Exercise 9 in Section 2.7 of the textbook.
   Hint: Consider using an auxiliary array R(i,j,k,l) in formulating a dynamic programming solution. R(i,j,k,l) is the OPT score of aligning S[1..i] with T[1..j] where there is a reversal of the substring S[k,l] in S.