Edit Distance and complexity.

The edit distance between two strings S and T is the minimum number of elementary character operations (insertions, deletions, or replacements) that are needed to transform S into T. For example, the edit distance from “UTEP” to “KTEP” is 1 (replace ‘U’ by ‘K’), the edit distance between “stars” and “storms” is 2 (replace ‘a’ by ‘o’, insert ‘m’ after ‘r’).

In class we will discuss two ways of computing the edit distance; one uses simple recursion and the other uses a technique called dynamic programming that eliminates the repeated computations done by the recursive method. Your task consists of implementing both algorithms and performing experiments to compare their running times for strings of various lengths.

Write a report describing your work. We are particularly interested in your observations about the behavior of each algorithm as the size of the input data increases and also in the comparison of different algorithms for each input size. You may want to use graphs or plots to illustrate this.