CSCA48 Exercise 5

Due: February 16, 2014. 5:00pm

More recursion examples... YAY!!!

In a file called `ex5.py`, complete the following functions. All functions must be `recursive`, and only the `Easy` version of each function will be marked. (The `Hard` versions are just for fun).

edit_distance(s1, s2):

The edit distance of two strings is defined as: `The minimum number of single character changes that would be needed to turn s1 into s2`.

Easy: assume that s1 and s2 are the same length, and the only character changes available are replacing one character with another.
Hard: assume s1 and s2 may be different lengths, and we can also add and delete characters.

subsequence(s1, s2):

`s1` is a subsequence of `s2` iff `s2` can be made equal to `s1` by removing 0 or more of its characters removed.
Example: `subsequence('dog','XYZdABCo123g!!!')` should return True.

Easy: Return True iff `s1` is a subsequence of `s2`.
Hard: Return a list of integers representing the characters of `s2` that must be deleted to turn it into `s1`.

perms(s):

Easy: Given a string s, return a set of all possible permutations of the letters in s.
Hard: Assuming that s is a string of `0`s and `1`s, return a list of the permutations ordered such that they form a Gray Code (a sequence of binary numbers such that each successive pair of numbers differ by exactly 1 bit).

Submission:

Submit your file containing all three functions to MarkUs. Remember that **Only the Easy versions will be marked**. If you wish to submit the **Hard**er versions, ensure that they have different function names (or else the auto-marker will mark them as incorrect).