Introduction To Algorithms
CS430

Spring 2014
HomeWork 7
Due 4th April

1. **Problem 1:** The Beagle Company wishes to set up charging stations for its phones, the Froid phones, at n possible locations $s_1, s_2 \dots s_n$ along a straight long highway. The locations are at distance $d_1, d_2 \dots d_n$ from the start of the highway. The estimate of profit that can be obtained from location s_i is $p_i > 0$. Given that locations chosen must be at least k distance apart, give an efficient algorithm to determine the maximum estimated profit that Beagle Company can obtain.

   (20)

2. **Problem 2:** A subsequence is a palindrome if it reads the same left to right as well as right to left. Given a string of characters, $x_1, x_2 \dots x_n$, devise an algorithm to determine the maximum sized subsequence that is a palindrome.

   (20)

3. **Problem 3:** Suppose we wish to make change for a bill of a certain value into smaller coins of denominations $d_1, d_2 \dots d_n$. Given unlimited coins of the denominations, design a dynamic programming algorithm to determine if it is possible to make change for an input bill of value v.

   (20)

4. **Problem 4:** Problem: 15-3 .CLRS. (pg 405)

   (20)