Introduction To Algorithms
CS430

Fall 2015
HomeWork 6
Due 27th October

1. The NucCar Company wishes to set up charging stations for its cars, the Quantum cars, at n possible locations $s_1, s_2 ... s_n$ along a straight long highway. The locations are at distance $d_1, d_2 \ldots d_n$ 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 choose the locations so as to obtain the maximum estimated profit. (20)

2. The DoNoEvil Company wishes to buy out patents that have value so that it can spread its goodwill in the world. Let $p_1, p_2, \ldots p_n$ be the patents with cost $m_1, m_2, \ldots m_n$ and with value $v_1, v_2 \ldots v_n$. It has allocated M units of money for this strategy. Find the patents with maximum total value that it can buy within its budget. (20)

3. A subsequence is a palindrome if it reads the same left to right as well as right to left. Given a string of characters, $x_1, x_2 \ldots x_n$, devise an algorithm to determine the maximum sized subsequence that is a palindrome. (20)

4. Problem: 15-3 from CLRS. (pg 405) (20)