ESO207: Assignment 5

Due on 16 October, 2015

Q1 You are located at the top-left corner (i.e., $(1, 1)$)of an $m \times n$ grid. You can only move either down or right at any point in time. Some cells of the grid are given to be blocked and you cannot enter such cells. You are trying to reach the bottom-right corner (i.e., (m, n)) of the grid. Design an efficient algorithm to compute the total number of distinct paths.

Q2 Given strings s_1, s_2, s_3, design an efficient algorithm to find whether s_3 is formed by the interleaving of s_1 and s_2.

String s_3 is said to be formed by interleaving s_1 and s_2 if s_1 if a subsequence of s_3 and after removing that subsequence what remains is s_2. For example, given: $s_1 =$ "*aabcc*", and $s_2 =$ "*dbbca*". If $s_3 =$ "*aadbbcbcac*", then return true. On the other hand if $s_3 =$ "*aadbbbaccc*", return false.