Q2

Written by Xiao Hu
Z5223731

Answer:

Step1:

We fill a table of the size of the 2D map.

Step2:

We can simple solve the subproblem which is what is the minimum number of moves to reach the $point(i,j)$ with the best score $opt(i,j)$. The base cases are:

$moves(1,1) = 1$ and $moves(i,j) = 0$ for all i and j that are off the board.

Then we solve the following recursion:

$$moves(i,j) = \begin{cases} moves(i-1,j) & if\ opt(i-1,j) < opt(i,j-1) \\ moves(i,j-1) & if\ opt(i-1,j) > opt(i,j-1) \\ moves(i-1,j) + moves(i,j-1) & if\ opt(i-1,j) = opt(i,j-1) \end{cases}$$

It will run in $O(n^2)$.