Jin-Ao Olson Zhang

Z5211414

Question4:

Suppose total(i,j) as the maximum total enjoyable from first day to ith day

,and j be the type of activity at this day.

Since we cant do the same activity two days in a row, so If

(i,1) then the previous will be (i-1,2) or (i-1,3)

Basic case：

Total(0,1) = e(0,1)

Total(0,2) = e(0,2)

Total(0,3) = e(0,3)

Recursively,

Total(i,1) = Max(total(i-1,2) + e(i-1,2) ,total(i-1,3)+e(i-1,3) ) + e(i,1)

Total(i,2) = Max(total(i-1,1) + e(i-1,1) ,total(i-1,3)+e(i-1,3) ) + e(i,2)

Total(i,3) = Max(total(i-1,2) + e(i-1,2) ,total(i-1,1)+e(i-1,1) ) + e(i,3)

Maximum total enjoyable will be

Max(total(i,1),total(i,2),total(i,3))

It takes O(3\*n) in the worst case.