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Question4:

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

$Total(i,1) = \text{Max}(total(i-1,2) + e(i-1,2), total(i-1,3)+e(i-1,3)) + e(i,1)$

$Total(i,2) = \text{Max}(total(i-1,1) + e(i-1,1), total(i-1,3)+e(i-1,3)) + e(i,2)$

$Total(i,3) = \text{Max}(total(i-1,2) + e(i-1,2), total(i-1,1)+e(i-1,1)) + e(i,3)$

Maximum total enjoyable will be

$\text{Max}(total(i,1), total(i,2), total(i,3))$

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