

Define an array of size $(n+1)$ called OPT , and let $OPT[i]$ be the optimal number of dollars through the i -th act. Also let $OPT[0] = 0$

Our base case is act 1, in which the optimal solution is $m[1]$. (since it is the only one possible to perform).

Thus $OPT[1] = m[1]$.

Otherwise, to find the optimal dollars through the i -th act, we need to add the pay for the i -th act ($m[i]$) and the optimal pay through the $(i-p[i]-1)$ th act ($OPT[i-p[i]-1]$).

In the case that $(i-p[i]-1) \leq 0$, use 0 as the optimal value.

We need to minus one at the end because we cannot perform $p[i]$ previous acts, not including the i th act.

For example, if $p[9] = 4$ then we need the optimal pay through the $(9-4-1 = 4)$ th act, since we cannot perform in act 5, or $(9-4)$. Thus we have to use the value of $OPT[4]$ and not $OPT[5]$.

In other words, $OPT[i] = m[i] + OPT[\max(0, i-p[i]-1)]$

Finally, the optimal pay value for the final (n th) act is $OPT[n]$.

There are $O(n)$ cases and each of them takes $O(1)$ time to fill in. Therefore, the total time is $O(n)$.