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Intuitively, we'd like to schedule jobs like this:

Suppose 1, 2, 3 are the "earlies" 3 jobs can be scheduled.

The max profit at end time of job 1 is profit(1); ... of job 2 is profit(2); ... of job 3 is profit(3) + max(profit(1), profit(2))

Let's sort the jobs in their ending time.

Lee $MP(i)$ be the max profit at the end time of job i. Note job i is not necessarily scheduled for the proper $MP(i)$.

so $MP(0) = \text{profit}(0)$

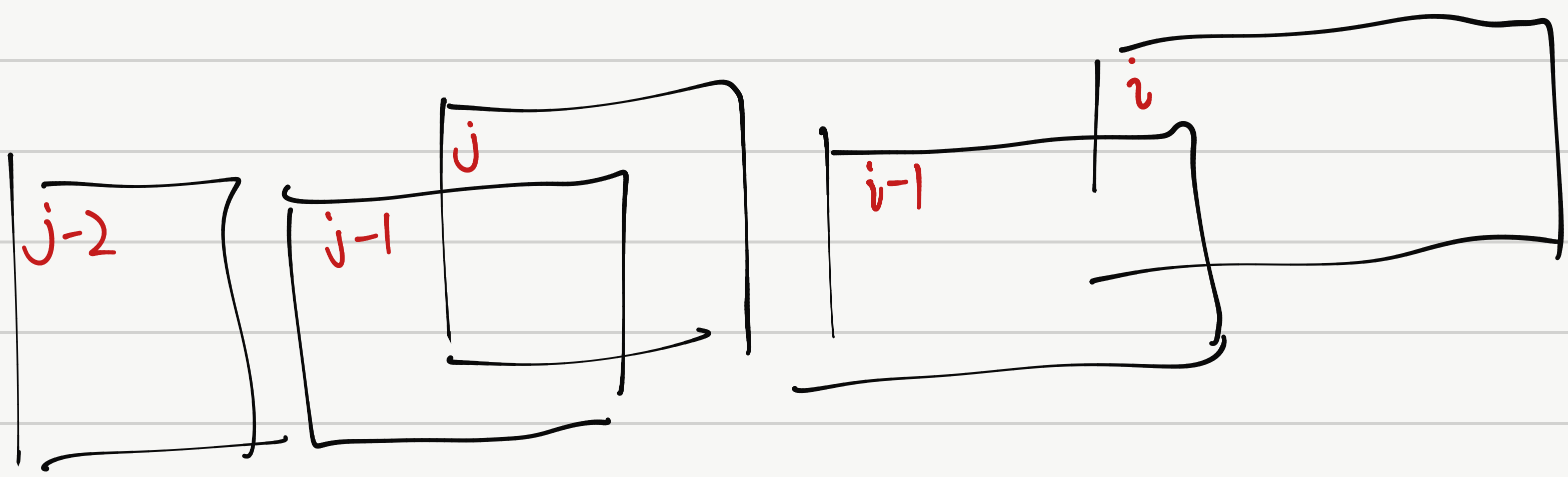
$MP(1) = \begin{cases} MP(0) + \text{profit}(1), \\ \quad \text{if job } 0 \text{ and } 1 \text{ do not conflict;} \end{cases}$

$$\begin{cases} & \text{profit}(1), \\ & \text{otherwise.} \end{cases}$$

...

$$MP(i) = \text{profit}(i) + MP(j).$$

where j is the max in $[0, i)$ such that job i and j do not conflict.



For example, as this picture shows,

$$MP(i) = MP(j) + \text{profit}(i)$$

why not $MP(j-1) + \text{profit}(i)$?

Q: $MP(j) = MP(j-2) + \text{Max}(\text{profit}(j), \text{profit}(j-1))$

so no need to consider $MP(j-1)$

Our result is the max among $MP(0)$, $MP(1)$, $\dots$ $MP(n-1)$.