

First sort jobs $f[1] \leq \dots \leq f[n]$.

Define "OPT(j) to be max weight of comp jobs in $[1..j]$."

Base Case $OPT(0) = 0$

IH: Supp we know $OPT(k)$ for all $0 \leq k < j$.

IS: To find $OPT(j)$. Let's characterize OPT.

- Case 1: OPT has j . So it doesn't have $p[j] + \dots + j-1$.

$$\text{So } OPT(j) = OPT(p[j]) + w[j].$$

- Case 2. OPT doesn't have j . So $OPT(j) = OPT(j-1)$.

We just need to take max

$$OPT(j) = \max \{ OPT(j-1), w[j] + OPT(p[j]) \}.$$
