First sort jobs $f(Cj) \leq \ldots \leq f(Cn)$.

Define $\text{OPT}(j)$ to be max weight of comp jobs in $C(1\ldots j)$.

Base Case $\text{OPT}(0) = 0$

IH: Suppose we know $\text{OPT}(k)$ for all $0 \leq k < j$.

IS: To find $\text{OPT}(j)$, let's characterize $\text{OPT}$.

- Case 1: $\text{OPT}$ has $j$. So it doesn't have $p(j) + \ldots + j-1$.

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

- Case 2: $\text{OPT}$ doesn't have $j$. So $\text{OPT}(j) = \text{OPT}(j-1)$.

We just need to take max

$\text{OPT}(j) = \max \{ \text{OPT}(j-1), w_j + \text{OPT}(pCj) \}$.