

Apr 18

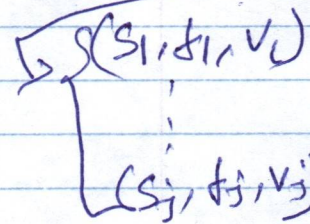
Weighted Interval Scheduling problem

Input: n intervals. i th interval = (s_i, f_i, v_i)
↑ start time
↑ finish time
↑ value

Output: Instead of outputting an optimal solution O , output $v(O) = \sum_{i \in O} v_i$

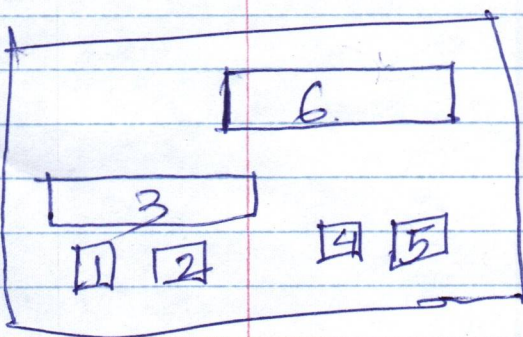
Def $OPT(j)$: value of optimal solution for $[j]$
 $1 \leq j \leq n$

Goal: $OPT(n)$.

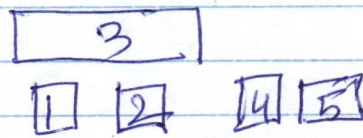


$$f_1 \leq f_2 \leq \dots \leq f_n$$

Def let O_j be an optimal solution for $[j]$
 $v(O_j) = OPT(j)$



Case 1: $j \notin O_j \Rightarrow 6 \notin O_6$



O_6 is an optimal solution for $[5]$

$[5] \rightarrow OPT(5) = OPT(j-1) \quad j \notin O_j$
 $O(6) = OPT(5)$