

Feb 28

# Interval Scheduling Problem

$[2, 5) = \{2, 3, 4\}$   
→

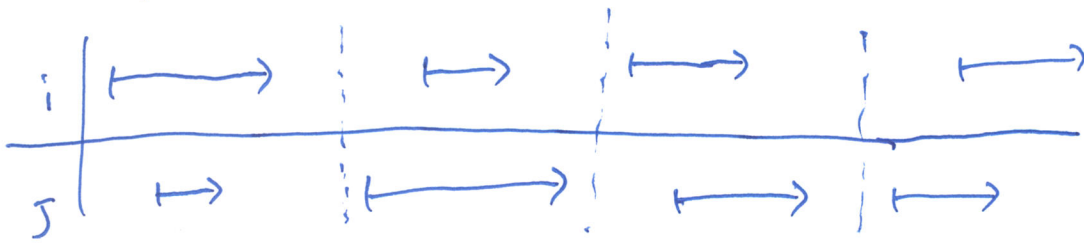
Input:  $n$  intervals,  $i^{\text{th}}$  interval  $[s(i), f(i))$

Output: A valid schedule with max # intervals

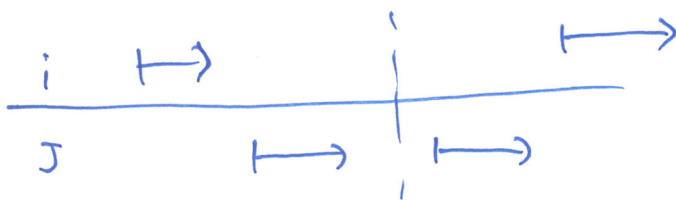
Def: A schedule  $S \subseteq [n] (= \{1, 2, \dots, n\})$

Def: A valid schedule  $S$  has no conflicts

Def  $i$  &  $j$  conflict



no conflict



Obs: A valid schedule sorted by the start or finish time gives the same order

Assume: Input intervals are sorted by finish time.

$$(f(1) \leq f(2) \leq \dots \leq f(n))$$

↳ (if not, sort in  $O(n \log n)$  time.