

Mar 5

# Interval Scheduling Problem

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

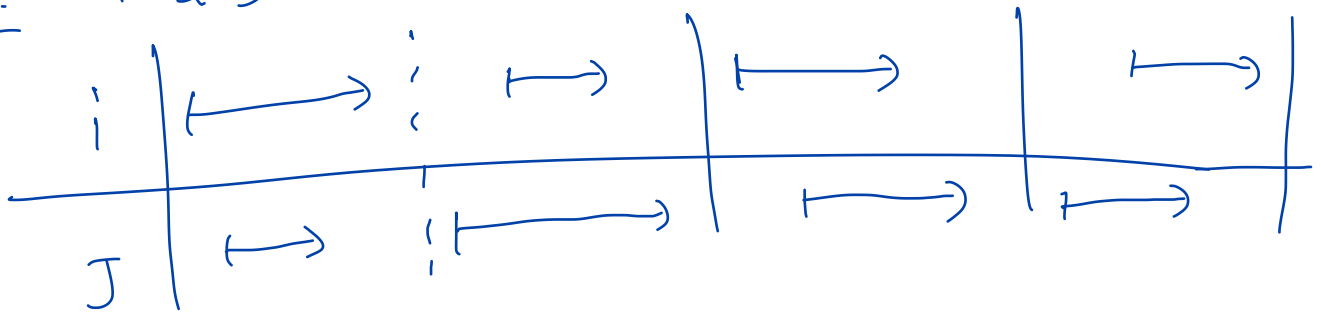
$[2, 5) \rightarrow \{2, 3, 4\}$

Output: A valid schedule with  
max # intervals

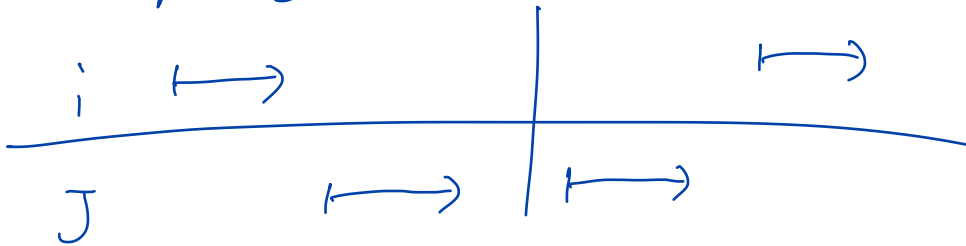
Def: A schedule  $S \subseteq [n]$  ( $= \{1, 2, \dots, n\}$ )

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