CS 252

W, 17 April 2024
Try “smallest interval available”
Why does "smallest first" fail?

Counter-example
Why does “earliest start” fail?
Thm. "Earliest finish" greedy alg. works for this problem.

Proof outline

Given Alg \( A = \{ i_1, \ldots, i_k \} \)

Suppose Opt \( \Omega = \{ j_1, \ldots, j_m \} \)

is optimal

prove \( k \geq m \)

\( m \) is as large as possible
How many possible subsets of $R$ are there?

Valid subsets (no overlap)

$$|R| \leq 2$$

Finite set $R = \{a, b, c\}$

Digression

$$2^3 = \{\emptyset, \{c\}, \{a\}, \{b\}, \{a, c\}, \{a, b\}, \{a, b, c\}\}$$
Proof, continued

\[ A = \sum i_1, \ldots, i_\alpha \]

\[ \Theta = \sum j_1, \ldots, j_\mu \]

1. \( f(i, \cdot) \leq f(j, \cdot) \) \text{ Base}

2. \( f(i_x) \leq f(j_x) \) \text{ Induction for } x = 2, \ldots, k

3. wrap it up