Lecture 2

Thursday, August 12, 2021 12:05 PM

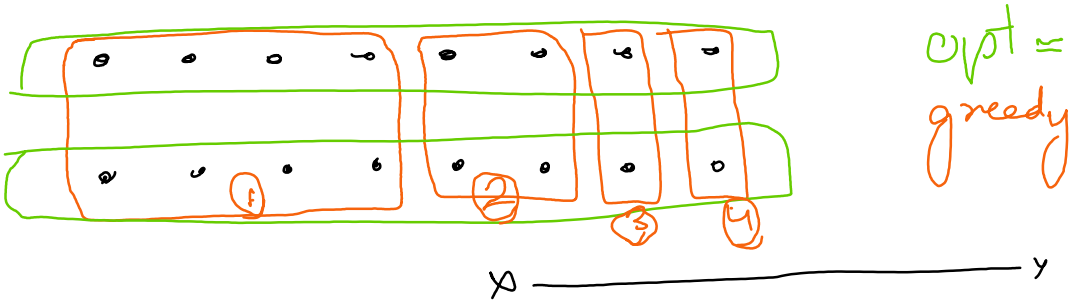
Set cover

$U = \{e_1, e_2 \ldots e_m\}$, $S_1, S_2 \ldots S_n \subseteq U$

Find a minimum collection of sets which cover all elements
whose union is U

NP-hard.

Greedy algorithm: repeat
pick the set which covers the most elements in U
remove covered elements from U
until $U = \phi$



opt = 2
greedy solution = 4

Analyzing the greedy algorithm for set cover.

We will associate a value, $\in [0,1]$, with each element (v_i is value of elem
such that the sum of the values of the elements in any set is atmos

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