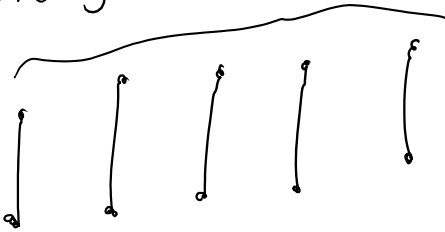


$$\begin{aligned}
 T(n) &= T\left(\frac{2n}{10}\right) + T\left(\frac{7n}{10}\right) + n \\
 &= T\left(\frac{4n}{100}\right) + T\left(\frac{14n}{100}\right) + \frac{2n}{10} + \frac{7n}{10} + n \\
 &= \dots \\
 &= n \sum_{i=1}^{\log_{10} n} \left(\frac{9}{10}\right)^i + \frac{81n}{100} + \dots + \frac{9^n n}{10^i}
 \end{aligned}$$

Thm: Greedy is at most twice OPT.

Greedy = 2k.

Pf.



By def it is a vertex cover. If not I would add endpoints of an uncovered edges

Goal: OPT ≥ k?

OPT has to choose one of the endpoints of each of these k edges in order to cover them. So, OPT ≥ k.

Note: By Greedy ALG, these k edges do not share endpoints