

Analysis of Algorithms - CS 323

Lecture #7 - March 16, 2016

Notes by: Solomon Pinkhasov

Announcements

- Homeworks have not been assigned (aside from the Project).
- Exam #1 with the solutions is available online.
- Exams are currently being graded.

Next Lecture Exam **NOTE IT**

Linear Search $\Theta(n)$

Binary $\Theta(\log n)$

BST balanced $\Theta(\log n)$ avg

imbalanced $\Theta(n)$ worst

variations of BST $\Theta(\log n)$

hash function

$h(k)$

XXXX - XX - XXXX

$h(k) = k \bmod 10,000$

$k_1 \neq k_2$ YY-YYY-YYYY

$h(k_1) = h(k_2)$ would be, collision

$n = \#$ of elements

$m = \text{size of array}$

chaining

ISSUE BAND

chaining blocks

worst case $O(n)$

avg $O(m)$

Resolution to Chaining

probing


linear probing

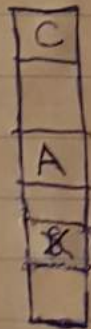
$$h(k, i) = h(k) + ia + \underline{b}$$

subfunctioning

mod m
(with functions)
keeps u in a range
quadratic


$$h(k, i) = h(k) + \underline{ia^2 + bi + c}$$

We are going thru array this way 



* Redistribute things

Issues

- Space in array to do it
- Finding a thing  how long

Flag to continue probing

