CS367 Announcements
Mon, July 29th, 2013

- H6 due Today 6pm

- P3 due Wed July, 31st 11:59pm

Last Time

- Priority Queues

- Heaps

Today

- Hashing

Hashing

Motivation

Terminology

- hash table

- tablesize (TS)

- load factor (LF)

- key

- hash function

- collision

- ideal hashing

Choosing a Hash Function

Properties of a good hash function

Typically, a hash function has 2 steps:

Guidelines for Choosing Table Size

Heap class data members:

Resizing the Hash Table

Hash Functions

Example: Suppose we wish to store the information for 150 students in a hash table. The key value for each student is the student's ID, for example:

    9012345678   9018765432   9023456789

What should we use as the table size for our hash table?

Hashing Techniques

mod by table size

extraction

folding

Strategies for Handling Non-Integer Keys

Example: Java's `String.hashcode()`

$$h(s) = \sum_{i=1}^{n-1} s[i] \cdot 31^{n-1-i}$$

where terms are summed using Java 32-bit int addition, $s[i]$ denotes the ith character of the string s, and n is the length of s.