Quiz 9 - Hash Tables

CS 14 - Data Structures

May 6, 2013

Questions:

1. What are the two components of a hashtable?

   (a)

   (b)

2. What ADTs can be efficiently implemented with a hash table?

3. Let's say you're implementing a Map. Name the advantages and disadvantages of using each of these data structures.

   (a) Hash table
      i. adv:

      ii. dis:

   (b) AVL tree
      i. adv:

      ii. dis:

   (c) Linked list
      i. adv:

      ii. dis:

   (d) Vector
      i. adv:

      ii. dis:

4. Define a "perfect hash function" and describe when you would use it.

5. Define the "load factor." What is the tradeoff between having a high and low load factor?

6. Name four properties we want our hash functions to have.

   (a)

   (b)

   (c)

   (d)

7. What is the difference between "separate chaining" and "open addressing"?

8. Name the best and worst case run times of these functions on a hash table. You may assume the table is implemented using separate chaining and linked lists.

	best	worst
(a) insert		
(b) delete		
(c) lookup		

   Repeat for separate chaining with AVL trees and open addressing.