CSCI 2270 - Gupta, Trivedi, Zagrodzki - CS2: Data Structures

Started on	Saturday, 16 March 2019, 9:19 PM
State	Finished
Completed on	Saturday, 16 March 2019, 9:28 PM
Time taken	8 mins 37 secs
Grade	**9.38** out of 10.00 (**94%**)

Question **1**

Correct

Mark 1.25 out of 1.25

What causes a collision when hashing?

Select one:

- a. two hash keys are the same. ✔
- b. a segmentation fault
- c. an input produces two hash keys
- d. the program runs out of memory.

Your answer is correct.

Question **2**

Correct

Mark 1.25 out of 1.25

In which of the following situations is separate chaining inefficient?

Select one:

- a. all values in an array of size n hash to the same address ✔
- b. none of these
- c. separate chaining is never inefficient
- d. all values in an array of size n hash to different addresses

Your answer is correct.

Question **3**

Correct

Mark 1.25 out of 1.25

Which of the following is true about open addressing?

Select one:

- a. open addressing prevents collisions
- b. hashed values will always be found in the table ✔
- c. open addressing is synonymous with separate chaining
- d. hashed values will always be found at their first hashed address

Your answer is correct.

Correct

Mark 1.25 out of 1.25

Select one or more:

- a. Hash function need to consume huge computing power for higher security
- b. Hash function should be designed so that it distributes the index values of inserted objects uniformly across the table. ✔
- c. Hash function should minimize collision. ✔
- d. All options are correct

Your answer is correct.

Question **5**

Correct

Mark 1.25 out of 1.25

The necessary components to a hash table are:

Select one:

- a. The array where the records are stored
- b. A hash function that generates the mapping to an array index
- c. Both of the above ✔
- d. None of these

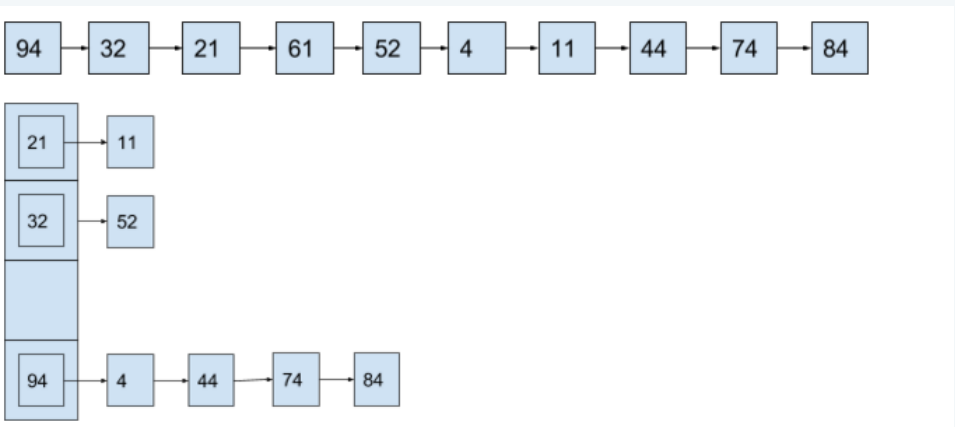
Your answer is correct.

Question **6**

Partially correct

Mark 0.63 out of 1.25

Below is a hash table with separate chaining, and a linked list. Hash function is given as **f(x) = x % 10.** What is the number of comparisons needed to search for a key of **44** in each data structure? One comparison is one operation and one call to a hash function is one operation.You can ignore all operations that are not a comparison or call to a hash function .



1. Number of operations required to search for element 44 in linked list?

8 ✔

2. Number of operations required to search for element 44 in hash table?

7 ✖

Your answer is partially correct.

1 of your answers is correct.

SECTIONS
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Correct

Mark 1.25 out of 1.25

The hash function receives the input {7, 6, 4, 3, 10} in that order. Place each number in the hash table at its correct address..

Address	0	1	2	3	4
	6	7	4	3	10

Your answer is correct.

Question **8**

Correct

Mark 1.25 out of 1.25

The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table of length 10 with hash function h(k) = k mod 10 and **linear probing**. What is the hash table after all the insertions?

Select one:

a.

0	
1	
2	2
3	23
4	
5	15
6	
7	
8	18
9	

b.

0	
1	
2	12
3	13
4	2
5	3
6	23
7	5
8	18
9	15

c.

0	
1	
2	12
3	13
4	
5	5
6	
7	
8	18
9	

d.

0	
1	
2	12, 2
3	13, 3, 23
4	
5	5, 15
6	
7	
8	18
9	

Your answer is correct.