

Feedback — Hash Tables

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You submitted this quiz on **Mon 12 Oct 2015 4:10 PM EDT**. You got a score of **3.00** out of **3.00**.

To specify an array or sequence of values in an answer, separate the values in the sequence by whitespace. For example, if the question asks for the first ten powers of two (starting at 1), then the following answer is acceptable:

```
1 2 4 8 16 32 64 128 256 512
```

If you wish to discuss a particular question and answer in the forums, please post the entire question and answer, including the seed (which can be used by the course staff to uniquely identify the question) and the explanation (which contains the correct answer).

Question 1

(seed = 163664)

Insert the following sequence of 12 keys into a separate-chaining hash table with 3 chains:

key	hash
---	----
G	2
V	2
K	0
R	1
X	1
T	0

B 0
H 0
C 1
W 0
F 1
I 1

Consider a search miss for the key D, whose hash value is 2.
What is the sequence of keys that get compared with D?

You entered:

V G

Your Answer		Score	Explanation
V G	✓	1.00	
Total		1.00 / 1.00	

Question Explanation

The correct answer is: V G

Here is the separate-chaining hash table after inserting the 12 keys:

0: W -> H -> B -> T -> K

1: I -> F -> C -> X -> R

2: V -> G

Question 2

(seed = 512195)

Give the array that results after inserting the following sequence of 10 keys into an initially empty linear-probing hash table.

key hash

--- ----

T	4
X	8
O	9
Z	0
M	7
G	1
S	3
C	7
V	6
P	0

Assume that the size of the hash table is 10 and that it neither grows nor shrink.

You entered:

Z G C S T P V M X O

Your Answer	Score	Explanation
Z G C S T P V M X O	✓ 1.00	
Total	1.00 / 1.00	

Question Explanation

The correct answer is: Z G C S T P V M X O

Here is the array immediately after each insertion:

T:	- - - - T - - - - -
X:	- - - - T - - - X -
O:	- - - - T - - - X O
Z:	Z - - - T - - - X O
M:	Z - - - T - - M X O
G:	Z G - - T - - M X O
S:	Z G - S T - - M X O
C:	Z G C S T - - M X O
V:	Z G C S T - V M X O
P:	Z G C S T P V M X O

Question 3

(seed = 230971)

Suppose that the following keys are inserted into an initially empty linear-probing hash table but not necessarily in the order given:

key	hash
C	4
L	6
N	1
R	5
S	6
T	0
U	1

Assuming that the size of the hash table is 7 and that it does not grow or shrink,
which one or more of the following could be the contents of the resulting array?

Your Answer	Score	Explanation
<input type="checkbox"/> C U T S N R L	✓ 0.20	
<input type="checkbox"/> R N L T U C S	✓ 0.20	
<input checked="" type="checkbox"/> T U L N C R S	✓ 0.20	U R S T L N C
<input type="checkbox"/> L S U R N T C	✓ 0.20	No key is in preferred position.
<input checked="" type="checkbox"/> L T N U C R S	✓ 0.20	S R L T N C U
Total	1.00 / 1.00	

Question Explanation

