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scored in Linked List

Assessment in 35 min 23 sec on 6 Jun 2021 19:50:03 PDT

99%

955/965

Full My Nguyen

Name:

Email: nguyen\_my@yahoo.com

Test

**Linked List Assessment** 

Name:

Taken 6 Jun 2021 19:50:03 PDT

On:

35 min 23 sec/ 90 min Time

Taken:

Personal nguyen\_my@yahoo.com

Email

Address:

Contact +14084096862

Number:

Resume: https://hackerrank-

resumes.s3.amazonaws.com/412894/JhbK9vK\_4Bhc4Gvuv7s5hgcFJGeFCAThWliNY1UGAfhwRPsrmVekT5ZtKXgX8QA2Ag/My\_Nguyen\_Resume.PDF

Linkedin: https://www.linkedin.com/in/my-nguyen-87849

Invited

Curriculum

by:

Skills Score:

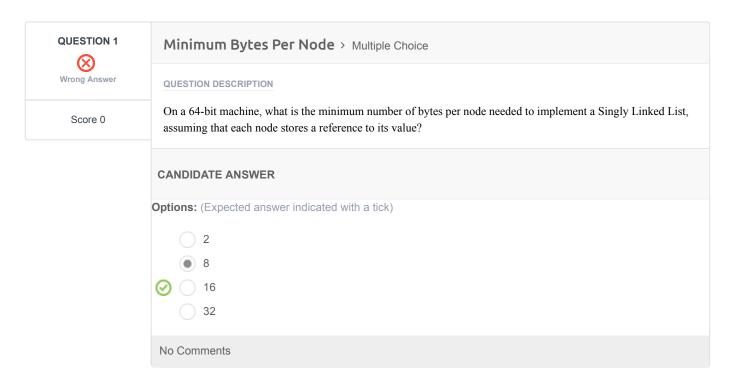
Tags

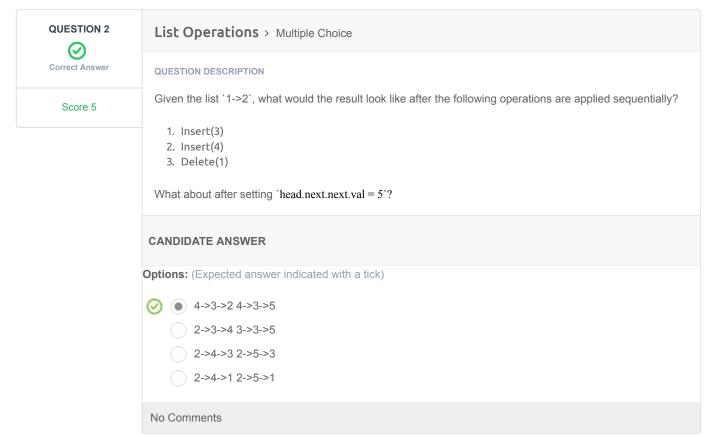
Score:

#### **Recruiter/Team Comments:**

No Comments.

	Question Description	Time Taken	Score	Status
Q1	Minimum Bytes Per Node > Multiple Choice	52 sec	0/5	$\otimes$
Q2	List Operations > Multiple Choice	1 min 55 sec	5/ 5	<b>②</b>
Q3	Time and Space Complexity > Multiple Choice	2 min 35 sec	0/5	$\otimes$
Q4	Execution By Hand > Multiple Choice	5 min 3 sec	5/ 5	<b>⊘</b>
Q5	Algorithm Space Complexity > Multiple Choice	4 min 8 sec	5/ 5	<b>②</b>
Q6	Compute Length > Coding	1 min 44 sec	40/ 40	<b>②</b>
Q7	Palindrome Linked List > Coding	4 min 44 sec	400/ 400	<b>②</b>
Q8 2	Plus One Linked List > Coding	6 min 56 sec	400/ 400	<b>②</b>







Score 0

# Time and Space Complexity > Multiple Choice

**QUESTION DESCRIPTION** 

What is the space and time complexity of the following algorithm for reversing a linked list?

```
def get_last(head):
    if not head or not head.next:
        return head
    return get_last(head.next)

def reverse(head):
    if not head or not head.next:
        return head
    r = reverse(head.next)
    l = get_last(r)
    head.next = None
    l.next = head
    return r
```

#### **CANDIDATE ANSWER**

**Options:** (Expected answer indicated with a tick)

- Time Complexity: O(n) Space Complexity: O(1)
- Time Complexity: O(n) Space Complexity: O(n)
- Time Complexity: O(n^2) Space Complexity: O(1)
- ✓ Time Complexity: O(n^2) Space Complexity: O(n^2)

No Comments



Score 5

### **Execution By Hand** > Multiple Choice

QUESTION DESCRIPTION

What is the output of running the following code with the input 'head =  $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5$ , k = 3'?

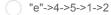
```
def do_what(head, k):
  if not head:
       return head
   e = head
   ne = head
   i = 0
   while i < k:
       e = e.next
       if not e:
          return head
       i += 1
   while e.next:
     ne = ne.next
       e = e.next
   d = Node("d")
   d.next = ne.next
   ne.next = None
   e.next = head
   return d.next
```

#### **CANDIDATE ANSWER**

**Options:** (Expected answer indicated with a tick)



3->4->5->1->2



"e"->1->2->3->4

5->1->2->3->4

No Comments



Score 5

# Algorithm Space Complexity > Multiple Choice

QUESTION DESCRIPTION

What is the space complexity of the following algorithm for splitting a linked list into parts?

```
def splitListToParts(root, k):
  if k < 2:
       return [root]
   len_l = 0
   c = root
   while c:
      len l += 1
       c = c.next
   binlen = int(len 1 / k)
   olen = len_l - binlen * k
   blens = [binlen for i in range(k)]
   for i in range(olen):
      blens[i] += 1
   ds = [ListNode("dummy") for _ in range(k)]
   c = root
   t = 0
   b = 0
   cd = ds[0]
   while c:
      if t == blens[b]:
           b += 1
           t = 0
           cd = ds[b]
       cd.next = c
       c = c.next
       cd = cd.next
       cd.next = None
       t += 1
   return [d.next for d in ds]
```

### **CANDIDATE ANSWER**

**Options:** (Expected answer indicated with a tick)











O(n\*k)

No Comments

Correct Answer

**⊘** 

Score 40

### Compute Length > Coding

QUESTION DESCRIPTION

Please compute the length of the list A.

#### **CANDIDATE ANSWER**

### Language used: Java 7

```
// Complete the getLength function below.
       * For your reference:
       * SinglyLinkedListNode {
            int data;
8
             SinglyLinkedListNode next;
       * }
      */
     static int getLength(SinglyLinkedListNode A) {
         int count = 0;
14
         while (A != null) {
             count++;
              A = A.next;
         return count;
19
```

TESTCASE	DIFFICULTY	TYPE	STATUS	SCORE	TIME TAKEN	MEMORY USED
TestCase 0	Easy	Sample case	Success	10	0.0603 sec	22 KB
TestCase 1	Easy	Hidden case	Success	10	0.0575 sec	22.1 KB
TestCase 2	Easy	Hidden case	Success	10	0.056 sec	22 KB
TestCase 3	Easy	Hidden case	Success	10	0.0666 sec	22 KB

No Comments

#### **QUESTION 7**



Score 400

### Palindrome Linked List > Coding

QUESTION DESCRIPTION

Given a singly linked list, determine if it is a palindrome.

#### **CANDIDATE ANSWER**

### Language used: Java 7

```
// Complete the isPalindrome function below.

/*

* For your reference:

*

* SinglyLinkedListNode {
```

```
int data;
 8
             SinglyLinkedListNode next;
      * }
       */
     static boolean isPalindrome(SinglyLinkedListNode head) {
          SinglyLinkedListNode middle = findMiddle(head);
14
         SinglyLinkedListNode reversed = reverse(middle);
         while (head != null && reversed != null) {
             if (head.data != reversed.data)
                  return false;
              head = head.next;
              reversed = reversed.next;
          return true;
      private static SinglyLinkedListNode findMiddle(SinglyLinkedListNode head)
25 {
          SinglyLinkedListNode slow = head;
         SinglyLinkedListNode fast = head;
         while (fast != null && fast.next != null) {
              fast = fast.next.next;
              slow = slow.next;
         }
          return slow;
     private static SinglyLinkedListNode reverse(SinglyLinkedListNode head) {
         SinglyLinkedListNode previous = null;
          while (head != null) {
              SinglyLinkedListNode tmp = head.next;
              head.next = previous;
              previous = head;
              head = tmp;
          return previous;
```

TESTCASE	DIFFICULTY	TYPE	STATUS	SCORE	TIME TAKEN	MEMORY USED
TestCase 0	Easy	Sample case	Success	10	0.0618 sec	22.2 KB
TestCase 1	Easy	Hidden case	Success	10	0.0569 sec	22.1 KB
TestCase 2	Easy	Hidden case	Success	10	0.0555 sec	21.9 KB
TestCase 3	Easy	Hidden case	Success	10	0.0642 sec	22.1 KB
TestCase 4	Easy	Hidden case	Success	10	0.0825 sec	23.7 KB
TestCase 5	Easy	Hidden case	Success	10	0.0905 sec	25.6 KB
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TestCase 8	Easy	Hidden case	Success	10	0.0774 sec	23.5 KB
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TestCase 11	Easy	Hidden case	Success	10	0.0939 sec	25.8 KB
TestCase 12	Easy	Hidden case	Success	10	0.0869 sec	25.8 KB
TestCase 13	Easy	Hidden case	Success	10	0.0979 sec	25.8 KB
TestCase 14	Easy	Hidden case	Success	10	0.0594 sec	22 KB

TestCase 16 Easy Hidden case   Success 10 0.0901 sec 26.3 KB  TestCase 17 Easy Hidden case   Success 10 0.0807 sec 26 KB  TestCase 18 Easy Hidden case   Success 10 0.0993 sec 26.1 KB  TestCase 19 Easy Hidden case   Success 10 0.0618 sec 22 KB  TestCase 20 Easy Hidden case   Success 10 0.0656 sec 22.2 KB  TestCase 21 Easy Hidden case   Success 10 0.0794 sec 24.1 KB  TestCase 22 Easy Hidden case   Success 10 0.0794 sec 24.1 KB  TestCase 23 Easy Hidden case   Success 10 0.0794 sec 25.9 KB  TestCase 24 Easy Hidden case   Success 10 0.0753 sec 25.9 KB  TestCase 25 Easy Hidden case   Success 10 0.0927 sec 25.6 KB  TestCase 26 Easy Hidden case   Success 10 0.0946 sec 26 KB  TestCase 26 Easy Hidden case   Success 10 0.0839 sec 24.8 KB
TestCase 18 Easy Hidden case  Success 10 0.0993 sec 26.1 KB  TestCase 19 Easy Hidden case  Success 10 0.0618 sec 22 KB  TestCase 20 Easy Hidden case  Success 10 0.0656 sec 22.2 KB  TestCase 21 Easy Hidden case  Success 10 0.0794 sec 24.1 KB  TestCase 22 Easy Hidden case  Success 10 0.068 sec 22.8 KB  TestCase 23 Easy Hidden case  Success 10 0.0753 sec 25.9 KB  TestCase 24 Easy Hidden case  Success 10 0.0927 sec 25.6 KB  TestCase 25 Easy Hidden case  Success 10 0.0927 sec 25.6 KB
TestCase 19 Easy Hidden case  Success 10 0.0618 sec 22 KB  TestCase 20 Easy Hidden case  Success 10 0.0656 sec 22.2 KB  TestCase 21 Easy Hidden case  Success 10 0.0794 sec 24.1 KB  TestCase 22 Easy Hidden case  Success 10 0.068 sec 22.8 KB  TestCase 23 Easy Hidden case  Success 10 0.0753 sec 25.9 KB  TestCase 24 Easy Hidden case  Success 10 0.0927 sec 25.6 KB  TestCase 25 Easy Hidden case  Success 10 0.0946 sec 26 KB
TestCase 20 Easy Hidden case  Success 10 0.0656 sec 22.2 KB  TestCase 21 Easy Hidden case  Success 10 0.0794 sec 24.1 KB  TestCase 22 Easy Hidden case  Success 10 0.068 sec 22.8 KB  TestCase 23 Easy Hidden case  Success 10 0.0753 sec 25.9 KB  TestCase 24 Easy Hidden case  Success 10 0.0927 sec 25.6 KB  TestCase 25 Easy Hidden case  Success 10 0.0946 sec 26 KB
TestCase 21 Easy Hidden case  Success 10 0.0794 sec 24.1 KB  TestCase 22 Easy Hidden case  Success 10 0.068 sec 22.8 KB  TestCase 23 Easy Hidden case  Success 10 0.0753 sec 25.9 KB  TestCase 24 Easy Hidden case  Success 10 0.0927 sec 25.6 KB  TestCase 25 Easy Hidden case  Success 10 0.0946 sec 26 KB
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TestCase 23 Easy Hidden case
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TestCase 25 Easy Hidden case
TestCase 26 Easy Hidden case ⊘ Success 10 0.0839 sec 24.8 KB
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TestCase 27 Easy Hidden case   ✓ Success 10 0.0861 sec 25.8 KB
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TestCase 37 Easy Hidden case
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TestCase 39 Easy Hidden case ⊘ Success 10 0.0973 sec 26 KB

No Comments

### QUESTION 8



Score 400

# Plus One Linked List > Coding

### QUESTION DESCRIPTION

Given a non-negative integer represented as a non-empty singly linked list of digits, add one to the integer. You may assume the integer do not contain any leading zero, except the number 0 itself.

The digits are stored such that the most significant digit is at the head of the list.

### Example:

Input: 1->2->3

Output: 1->2->4

### Language used: Java 7

```
// Complete the addOne function below.
 4
       * For your reference:
       * SinglyLinkedListNode {
       * int data;
 8
             SinglyLinkedListNode next;
       * }
       */
      static SinglyLinkedListNode addOne(SinglyLinkedListNode head) {
         SinglyLinkedListNode reversed = reverse(head);
         SinglyLinkedListNode current = reversed;
          SinglyLinkedListNode previous = null;
          while (current != null) {
             if (current.data != 9) {
                  current.data++;
                  break;
              } else {
                 current.data = 0;
                  previous = current;
                  current = current.next;
24
         }
          if (current == null) {
              SinglyLinkedListNode node = new SinglyLinkedListNode(1);
              previous.next = node;
          }
          return reverse (reversed);
      }
       static SinglyLinkedListNode reverse(SinglyLinkedListNode head) {
          SinglyLinkedListNode previous = null;
         while (head != null) {
              SinglyLinkedListNode tmp = head.next;
              head.next = previous;
              previous = head;
              head = tmp;
41
          return previous;
       }
```

TESTCASE	DIFFICULTY	TYPE	STATUS	SCORE	TIME TAKEN	MEMORY USED
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TestCase 2	Easy	Hidden case	Success	10	0.0632 sec	22 KB
TestCase 3	Easy	Hidden case	Success	10	0.0617 sec	22.2 KB
TestCase 4	Easy	Hidden case	Success	10	0.0578 sec	21.9 KB
TestCase 5	Easy	Hidden case	Success	10	0.0747 sec	24 KB
TestCase 6	Easy	Hidden case	Success	10	0.0779 sec	24 KB
TestCase 7	Easy	Hidden case	Success	10	0.0534 sec	22 KB

TestCase 8	Easy	Hidden case	Success	10	0.0842 sec	26.2 KB
TestCase 9	Easy	Hidden case	Success	10	0.109 sec	26.6 KB
TestCase 10	Easy	Hidden case	Success	10	0.0845 sec	24.3 KB
TestCase 11	Easy	Hidden case	Success	10	0.0894 sec	26.2 KB
TestCase 12	Easy	Hidden case	Success	10	0.1037 sec	26.4 KB
TestCase 13	Easy	Hidden case	Success	10	0.0661 sec	22.4 KB
TestCase 14	Easy	Hidden case	Success	10	0.0799 sec	23 KB
TestCase 15	Easy	Hidden case	Success	10	0.0594 sec	22.1 KB
TestCase 16	Easy	Hidden case	Success	10	0.0917 sec	25.8 KB
TestCase 17	Easy	Hidden case	Success	10	0.0837 sec	26.5 KB
TestCase 18	Easy	Hidden case	Success	10	0.0664 sec	23.3 KB
TestCase 19	Easy	Hidden case	Success	10	0.0728 sec	23.3 KB
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TestCase 38	Easy	Hidden case	Success	10	0.0715 sec	24 KB
TestCase 39	Easy	Hidden case	Success	10	0.0729 sec	24.1 KB

No Comments

### **QUESTION 9**



Correct Answer

Score 100

### LRU Cache > Coding

#### QUESTION DESCRIPTION

Design and implement a data structure for Least Recently Used (LRU) cache. It should support the following operations: get and put.

get (key) - Get the value (will always be positive) of the key if the key exists in the cache, otherwise

put (key, value) - Set or insert the value if the key is not already present. When the cache reached its

capacity, it should invalidate the least recently used item before inserting a new item.

An optimal can do both operations in O(1) time complexity.

Feel free to implement or use any data structures available in the standard library, unless you find a pre-built LRU Cache in the standard library.

Here is an example usage.

#### **CANDIDATE ANSWER**

#### Language used: Java 7

```
1 static class LRUCache {
      private int capacity;
      private Map<Integer, Integer> map;
      public LRUCache(int capacity) {
          this.capacity = capacity;
          map = new LinkedHashMap<>();
8
       }
       public int get(int key) {
          if (map.containsKey(key)) {
              int value = map.get(key);
              map.remove(key);
               map.put(key, value);
              return value;
          } else {
               return -1;
          }
       }
       public void put(int key, int value) {
          if (map.containsKey(key))
              map.remove(key);
          else {
               if (map.size() >= capacity) {
                  int k = map.keySet().iterator().next();
                   map.remove(k);
          map.put(key, value);
       }
32 }
```

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TestCase 0	Easy	Sample case	Success	10	0.0789 sec	24.4 KB
TestCase 1	Easy	Hidden case	Success	10	0.4251 sec	80.5 KB
TestCase 2	Easy	Hidden case	Success	10	0.3278 sec	66.9 KB
TestCase 3	Easy	Hidden case	Success	10	0.3877 sec	85.4 KB
TestCase 4	Easy	Hidden case	Success	10	0.1899 sec	38.7 KB
TestCase 5	Easy	Hidden case	Success	10	0.3782 sec	84.8 KB
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TestCase 8	Easy	Hidden case	Success	10	0.3032 sec	58 KB
TestCase 9	Easy	Hidden case	Success	10	0.2369 sec	46.2 KB

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