

Dashboard / Courses / Hoc kỳ I năm học 2021-2022 (Semester 1 - Academic year 2021-2022)

- / Đại Học Chính Qui (Bacherlor program (Full-time study))
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- / Cấu trúc dữ liệu và giải thuật (thực hành) (CO2004) Trần Khánh Tùng (DH HK211)
- / Lab 1: OOP Review + Recursion + Array List + Singly Linked List / Lab 1: Singly Linked List

Started on	Tuesday, 28 September 2021, 10:23 PM
State	Finished
Completed on	Tuesday, 28 September 2021, 10:25 PM
Time taken	2 mins 19 secs
Marks	8.60/12.00
Grade	7.17 out of 10.00 (72 %)

```
Question 1
Correct
Mark 1.00 out of 1.00
```

Implement methods get, set, empty, indexOf, contains in template class SLinkedList (which implements List ADT) representing the singly linked list with type T with the initialized frame. The description of each method is given in the code.

```
template <class T>
class SLinkedList {
public:
   class Node; // Forward declaration
protected:
   Node* head;
   Node* tail;
   int count;
public:
   SLinkedList(): head(NULL), tail(NULL), count(0);
   ~SLinkedList() { };
   void
           add(T e);
   void
           add(int index, T e);
   int
           size();
   bool
          empty();
   Τ
           get(int index);
   void
           set(int index, T e);
   int
           indexOf(T item);
   bool
           contains(T item);
public:
    class Node {
    private:
        T data;
        Node* next;
        friend class SLinkedList<T>;
    public:
        Node() {
            next = 0;
        Node(Node* next) {
            this->next = next;
        Node(T data, Node* next = NULL) {
            this->data = data;
            this->next = next;
    };
```

For example:

Test Result

Test	Result
SLinkedList <int> list;</int>	[8,15,2,4,7,10,40,6]
int values[] = {10, 15, 2, 6, 4, 7, 40, 8};	
int index[] = {0, 0, 1, 3, 2, 3, 5, 0};	
int expvalues[]= {8, 15, 2, 4, 7, 10, 40, 6};	
<pre>for (int idx = 0; idx < 8; idx++){ list.add(index[idx], values[idx]); } assert(list.size() == 8); for (int idx = 0; idx < 8; idx++){ assert(list.get(idx) == expvalues[idx]); }</pre>	
<pre>cout << list.toString();</pre>	
SLinkedList <int> list;</int>	[]
<pre>assert(list.empty() == true); cout << list.toString();</pre>	

Answer: (penalty regime: 0, 0, 0, 5, 10 %)

```
template<class T>
 1
 2 •
    T SLinkedList<T>::get(int index) {
 3
        /* Give the data of the element at given index in the list. */
        if (index > count-1) return -1;
 4
        if (head != NULL)
 5
 6
        Node* h = head;
 8
        int idx = 0;
 9
        if (index == 0) return head->data;
        if (index == count-1 && tail != NULL) return tail->data;
10
11
        while (h)
12
13
            if (idx == index) return h->data;
14
            h = h->next;
15
            ++idx;
16
17
18
        return -1;
19
    template <class T>
20
21
    void SLinkedList<T>::set(int index, const T& e) {
22
        /st Assign new value for element at given index in the list st/
        if (head == NULL) return;
23
24
        if (index > count-1) return;
25
        if (index == 0)
26
27
            head->data = e;
28
            return;
29
30
        if (index == count-1 && tail != NULL)
31 -
32
            tail->data = e;
33
            return;
34
35
        int idx = 0;
        Node* h = head;
36
        while (h != nullptr)
37
38
39
            if (idx == index)
```

```
41
                h->data = e;
42
                return;
43
            }
44
            h = h->next;
45
            ++idx;
46
47
48
49
    template<class T>
50 •
    bool SLinkedList<T>::empty() {
51
        /* Check if the list is empty or not. */
        if (count == 0) return true;
52
53
        return false;
54
55
    template<class T>
56
57
    int SLinkedList<T>::indexOf(const T& item) {
        /* Return the first index wheter item appears in list, otherwise ret
58
        if (head == NULL ) return -1;
59
60
        if (head->data == item) return 0;
        if (tail != NULL && tail->data == item) return count-1;
61
        int idx = 0;
62
        Node* h = head;
63
        while (h)
64
65 🔻
        {
66
```

	Test	Expected	Got	
~	<pre>SLinkedList<int> list; int values[] = {10, 15, 2, 6, 4, 7, 40, 8}; int index[] = {0, 0, 1, 3, 2, 3, 5, 0}; int expvalues[]= {8, 15, 2, 4, 7, 10, 40, 6}; for (int idx = 0; idx < 8; idx++){ list.add(index[idx], values[idx]); } assert(list.size() == 8); for (int idx = 0; idx < 8; idx++){ assert(list.size(idx) == expvalues[idx]); } cout << list.toString();</int></pre>	[8,15,2,4,7,10,40,6]	[8,15,2,4,7,10,40,6]	*
~	<pre>SLinkedList<int> list; assert(list.empty() == true); cout << list.toString();</int></pre>	[]	[]	~

Passed all tests!

Correct

```
Question 2
Correct
Mark 1.00 out of 1.00
```

Implement methods **add**, **size** in template class **SLinkedList** (**which implements List ADT**) representing the singly linked list with type T with the initialized frame. The description of each method is given in the code.

```
template <class T>
class SLinkedList {
public:
   class Node; // Forward declaration
   Node* head;
   Node* tail;
   int count;
public:
   SLinkedList();
   ~SLinkedList();
          add(T e);
   void
         add(int index, T e);
   int
           size();
public:
    class Node {
    private:
        T data;
        Node* next;
        friend class SLinkedList<T>;
    public:
        Node() {
            next = 0;
        Node(Node* next) {
            this->next = next;
        Node(T data, Node* next) {
            this->data = data;
            this->next = next;
    };
```

For example:

Test	Result
<pre>SLinkedList<int> list; int size = 10;</int></pre>	[0,1,2,3,4,5,6,7,8,9]
<pre>for(int index = 0; index < size; index++){ list.add(index); }</pre>	
<pre>cout << list.toString();</pre>	

Test	Result
<pre>SLinkedList<int> list; int size = 10;</int></pre>	[9,8,7,6,5,4,3,2,1,0]
<pre>for(int index = 0; index < size; index++){ list.add(0, index); }</pre>	
<pre>cout << list.toString();</pre>	

Answer: (penalty regime: 0, 0, 0, 5, 10, 15 %)

```
template <class T>
 1
    void SLinkedList<T>::add(const T& e) {
 2 •
 3
        /* Insert an element into the end of the list. */
        Node* newNode = new Node(e,NULL);
 4
        if (tail == NULL || head == NULL)
 5
 6
            tail = newNode;
 8
            head = newNode;
 9
            head->next = tail;
10
            tail->next = NULL;
11
            ++count;
12
            return;
13
14
        tail->next = newNode;
15
        tail = newNode;
        ++(this->count);
16
17
        return;
18
19
    template<class T>
20
    void SLinkedList<T>::add(int index, const T& e) {
21 -
22
        //if (index > count-1) return;
23
        if (count == 0) {add(e); return;}
24
        if (index == 0)
25
            Node* newNode = new Node(e, NULL);
26
            newNode->next= head;
27
            head = newNode;
28
29
            ++count;
30
            return;
31
        if (index == count) {add(e); return;}
32
33
        Node* curr = head;
34
        Node* prev = nullptr;
35
        int idx = 0;
36
        while (curr)
37
            if (idx == index)
38
39 -
40
                Node* newNode = new Node(e, NULL);
41
                newNode->next = curr;
42
                prev->next = newNode;
43
                ++(this->count);
44
                return;
45
46
            prev = curr;
47
            curr = curr->next;
48
            ++idx;
49
        /* Insert an element into the list at given index. */
50
51
52
53
    template<class T>
54
55 vint SLinkedList<T>::size() {
```

	Test	Expected	Got	
~	<pre>SLinkedList<int> list; int size = 10;</int></pre>	[0,1,2,3,4,5,6,7,8,9]	[0,1,2,3,4,5,6,7,8,9]	~
	<pre>for(int index = 0; index < size; index++){ list.add(index); }</pre>			
	<pre>cout << list.toString();</pre>			
~	<pre>SLinkedList<int> list; int size = 10;</int></pre>	[9,8,7,6,5,4,3,2,1,0]	[9,8,7,6,5,4,3,2,1,0]	*
	<pre>for(int index = 0; index < size; index++){ list.add(0, index); }</pre>			
	<pre>cout << list.toString();</pre>			

Passed all tests! 🗸

Correct

```
Question 3

Correct

Mark 1.00 out of 1.00
```

Implement methods removeAt, removeItem, clear in template class SLinkedList (which implements List

ADT) representing the singly linked list with type T with the initialized frame. The description of each method is given in the code.

```
template <class T>
class SLinkedList {
public:
   class Node; // Forward declaration
protected:
   Node* head;
   Node* tail;
   int count;
public:
   SLinkedList();
   ~SLinkedList();
   void
           add(T e);
   void
           add(int index, T e);
   int
           size();
   bool
           empty();
   int
           size();
           clear();
   void
   Т
           get(int index);
   void
           set(int index, T e);
           indexOf(T item);
    int
   bool
           contains(T item);
           removeAt(int index);
   bool
           removeItem(T item);
public:
    class Node {
    private:
        T data;
        Node* next;
        friend class SLinkedList<T>;
    public:
        Node() {
            next = 0;
        Node(Node* next) {
            this->next = next;
        }
        Node(T data, Node* next = NULL) {
            this->data = data;
            this->next = next;
    };
```

For example:

Test Result

Test	Result
SLinkedList <int> list;</int>	[1,2,3,4,5,6,7,8,9]
<pre>for (int i = 0; i < 10; ++i) { list.add(i); }</pre>	
assert(list.get(0) == list.removeAt(0));	
<pre>cout << list.toString();</pre>	
SLinkedList <int> list;</int>	[0,1,2,3,4,5,6,7,8]
<pre>for (int i = 0; i < 10; ++i) { list.add(i); } assert(list.get(9) == list.removeAt(9));</pre>	
<pre>cout << list.toString();</pre>	
SLinkedList <int> list;</int>	[0,1,2,3,4,5,6,7,8]
<pre>for (int i = 0; i < 10; ++i) { list.add(i); } assert(list.removeItem(9));</pre>	
<pre>cout << list.toString();</pre>	

Answer: (penalty regime: 0 %)

```
template <class T>
 2
    T SLinkedList<T>::removeAt(int index)
 3 •
    {
 4
        if (count == 0) throw std::out_of_range("Index is out of range");
 5
        if (index > count-1) throw std::out_of_range("Index is out of range"
 6
        Node* h = head;
 7
        Node* prev = NULL;
 9
        T temp;
10
        if (index == 0)
11
            temp = h->data;
12
            head = h->next;
13
14
            delete h;
15
            --(this->count);
            return temp;
16
17
        if (index == count-1)
18
19
            while (h->next->next != NULL) h = h->next;
20
21
            temp = tail->data;
22
            delete tail;
23
            tail = h;
24
            tail->next = NULL;
25
            --(this->count);
26
            return temp;
27
        int idx = 0;
28
29
        while (h != NULL)
30 -
31
            if (idx == index)
32 •
33
                prev->next = h->next;
34
                temp = h->data;
35
                delete h;
```

```
36
                --(this->count);
37
                return temp;
38
            }
39
            ++idx;
40
            prev = h;
41
            h = h->next;
42
43
        throw std::out_of_range("Index is out of range");
44
        /* Remove element at index and return removed value */
45
    template <class T>
46
47
    bool SLinkedList<T>:::removeItem(const T& item)
48 •
        /* Remove the first apperance of item in list and return true, other
49
50
        if (count == 0) return false;
51
        Node* h = head;
         Node* prev = NULL;
52
        if (head != NULL && head->data == item)
53
54
        {
55
            head = head->next;
56
            delete h;
            --(this->count);
57
58
            return true;
59
60
        if (tail != NULL && tail->data == item)
61
            while (h->next->next != NULL) h = h->next;
62
            //temp = tail->data;
63
64
            delete tail;
            tail = h;
65
66
```

	Test	Expected	Got	
~	SLinkedList <int> list;</int>	[1,2,3,4,5,6,7,8,9]	[1,2,3,4,5,6,7,8,9]	~
	<pre>for (int i = 0; i < 10; ++i) { list.add(i); } assert(list.get(0) == list.removeAt(0));</pre>			
	<pre>cout << list.toString();</pre>			
~	SLinkedList <int> list;</int>	[0,1,2,3,4,5,6,7,8]	[0,1,2,3,4,5,6,7,8]	~
	<pre>for (int i = 0; i < 10; ++i) { list.add(i); } assert(list.get(9) == list.removeAt(9));</pre>			
	<pre>cout << list.toString();</pre>			
~	SLinkedList <int> list;</int>	[0,1,2,3,4,5,6,7,8]	[0,1,2,3,4,5,6,7,8]	~
	<pre>for (int i = 0; i < 10; ++i) { list.add(i); } assert(list.removeItem(9));</pre>			
	<pre>cout << list.toString();</pre>			

Passed all tests! 🗸

Correct

```
Question 4
Correct
Mark 1.00 out of 1.00
```

Class LLNode representing a node of singly linked lists is declared as below:

```
class LLNode {
public:
    int val;
    LLNode* next;
    LLNode(); // Constructor: val = 0, next = nullptr
    LLNode(int val, LLNode* next); // Constructor with customized data
```

Given a singly linked list head node.

Your task is to implement a function with following prototype:

```
LLNode* foldLinkedList(LLNode* head);
```

The function returns head node of the folded singly linked list.

More info:

A folded singly linked list is achieved by taking the first half of the linked list and folding over the second half and merging the intersecting nodes by taking their sum.

Note:

- The iostream library has been used and namespace std is being used. No other libraries are allowed.
- The constructors and methods of class LLNode have been defined fully so you do not need to redefine them.
- You can write helper functions.

For example:

Test	Result
int arr[] = {9, 5, 7, 5, 0};	[9, 5, 7, 5, 0]
LLNode* <pre>head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int));</pre>	[7, 10, 9]
LLNode::printList(head);	
cout << "\n";	
<pre>LLNode* newhead = foldLinkedList(head);</pre>	
LLNode::printList(newhead);	
int arr[] = {8, 4, 6, 8, 5, 3};	[8, 4, 6, 8, 5, 3]
LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int));	[14, 9, 11]
LLNode::printList(head);	
cout << "\n";	
<pre>LLNode* newhead = foldLinkedList(head);</pre>	
LLNode::printList(newhead);	

Answer: (penalty regime: 0 %)

```
typedef LLNode* ptr;
 1
 2
    LLNode* foldLinkedList(LLNode* head)
 3 •
    {
 4
        ptr h = head;
 5
        int size = 0; //
 6
        while (h)
 7
 8
             ++size;
 9
             h = h->next;
10
                                      Convert linked list to array
11
        int* arr = new int[size];
12
        h = head:
```

```
13
        for (int i = 0; i < size; ++i)</pre>
14 •
        {
            arr[i] = h->val;
15
16
            h = h->next;
17
18
            ptr res = NULL;
19
        if (size % 2 == 0)
20 🔻
            for (int i = 0; i < size/2; ++i)</pre>
21
22 🔻
                int tmp = arr[i] + arr[size-i-1];
23
```

	Test	Expected	Got	
~	<pre>int arr[] = {9, 5, 7, 5, 0}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = foldLinkedList(head); LLNode::printList(newhead);</pre>	[9, 5, 7, 5, 0] [7, 10, 9]	[9, 5, 7, 5, 0] [7, 10, 9]	*
~	<pre>int arr[] = {8, 4, 6, 8, 5, 3}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = foldLinkedList(head); LLNode::printList(newhead);</pre>	[8, 4, 6, 8, 5, 3] [14, 9, 11]	[8, 4, 6, 8, 5, 3] [14, 9, 11]	*
~	<pre>int arr[] = {}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = foldLinkedList(head); LLNode::printList(newhead);</pre>			*
~	<pre>int arr[] = {7, 3, 1, 9, 4, 6, 3, 8, 5, 5}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = foldLinkedList(head); LLNode::printList(newhead);</pre>	[7, 3, 1, 9, 4, 6, 3, 8, 5, 5] [10, 12, 9, 8, 12]	[7, 3, 1, 9, 4, 6, 3, 8, 5, 5] [10, 12, 9, 8, 12]	~

Te	st	Expected	Got	
3, 2, 9, 0, 0, 5, 4, 2, 3}; LLN cot LLN fol	Node* head = Node::createWithIterators(arr, arr sizeof(arr) / sizeof(int)); Node::printList(head); ut << "\n"; Node* newhead = IdLinkedList(head); Node::printList(newhead);	[8, 6, 9, 7, 3, 7, 6, 0, 3, 2, 2, 4, 6, 3, 6, 4, 2, 8, 3, 4, 2, 9, 4, 9, 5, 8, 5, 6, 9, 1, 5, 5, 9, 3, 1, 4, 2, 0, 1, 5, 1, 2, 9, 5, 0, 5, 3, 5, 1, 0, 6, 7, 3, 0, 9, 4, 0, 6, 0, 1, 3, 2, 9, 6, 6, 4, 4, 1, 5, 9, 6, 1, 1, 7, 9, 7, 7, 5, 1, 8, 4, 1, 4, 3, 0, 7, 7, 7, 9, 2, 9, 4, 2, 1, 2, 5, 7, 6, 5, 3, 1, 7, 2, 4, 3] [3, 7, 15, 4, 1, 11, 3, 6, 3, 7, 18, 8, 7, 9, 5, 1, 7, 13, 7, 4, 10, 12, 14, 8, 16, 11, 6, 16, 9, 10, 8, 12, 2, 11, 10, 15, 11, 6, 15, 7, 8, 5, 4, 7, 10, 6, 11, 10, 4, 14, 11, 10, 11]	[8, 6, 9, 7, 3, 7, 6, 0, 3, 2, 2, 4, 6, 3, 6, 4, 2, 8, 3, 4, 2, 9, 4, 9, 5, 8, 5, 6, 9, 1, 5, 5, 9, 3, 1, 4, 2, 0, 1, 5, 1, 2, 9, 5, 0, 5, 3, 5, 1, 0, 6, 7, 3, 0, 9, 4, 0, 6, 0, 1, 3, 2, 9, 6, 6, 4, 4, 1, 5, 9, 6, 1, 1, 7, 9, 7, 7, 5, 1, 8, 4, 1, 4, 3, 0, 7, 7, 7, 9, 2, 9, 4, 2, 1, 2, 5, 7, 6, 5, 3, 1, 7, 2, 4, 3] [3, 7, 15, 4, 1, 11, 3, 6, 3, 7, 18, 8, 7, 9, 5, 1, 7, 13, 7, 4, 10, 12, 14, 8, 16, 11, 6, 16, 9, 10, 8, 12, 2, 11, 10, 15, 11, 6, 15, 7, 8, 5, 4, 7, 10, 6, 11, 10, 4, 14, 11, 10, 11]	
3, 8, 4, 8, 2, 5, 2, 1, 9, 0, 9, 8, 8, 0, 4, 7, 6, 0, 3, 6, 9, 4, 6, 7, 6, 7, 9, 8, 8, 9, 9, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	tarr[] = {5, 8, 9, 4, 1, 3, 8, 2, 3, 5, 5, 6, 8, 8, 7, 4, 8, 1, 5, 5, 2, 5, 0, 9, 7, 0, 8, 1, 1, 3, 8, 4, 0, 5, 1, 6, 6, 0, 2, 5, 2, 2, 0, 8, 3, 0, 9, 4, 5, 2, 9, 3, 2, 7, 0, 3, 7, 7, 2, 8, 0, 7, 4, 9, 7, 2, 6, 8, 6, 2, 9, 0, 8, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 1, 7, 4, 8, 1, 4, 2, 2, 3, 8, 7, 2, 8, 8, 8, 4, 2, 9, 5, 4, 2, 7, 6, 8, 8, 8, 4, 2, 9, 5, 4, 2, 7, 6, 8, 9, 1, 8, 7, 5, 6, 7, 3, 2, 7, 8, 7, 5, 6, 6, 7, 3, 2, 7, 8, 7, 5, 6, 6, 3, 7, 5, 5, 9, 4, 1, 4, 3, 6, 3, 2, 5, 9, 7, 8, 5, 9, 1, 8, 7, 2, 9, 5, 8, 9, 3, 8, 4, 7, 1, 7, 2, 6, 1, 6, 8, 8, 8, 4, 0, 7, 5, 3, 6, 6, 2, 1, 9, 1, 9, 3, 5, 5, 2, 1, 2, 7, 4, 9, 6, 6, 5, 5, 6, 9, 8, 6, 8, 8, 4, 0, 7, 5, 3, 6, 6, 2, 1, 9, 1, 9, 3, 5, 5, 2, 1, 2, 7, 4, 9, 6, 6, 5, 5, 6, 9, 8, 6, 8, 7, 8, 4, 0, 8, 0, 3, 0, 1, 8, 5, 0, 2, 7, 0, 7, 8, 4, 0, 3, 7, 2, 5, 3, 9, 1, 2, 5, 1, 1, 2, 7, 6, 1, 6, 3, 9, 5, 2, 0, 4, 4, 0, 8, 5, 9, 5, 1, 1, 2, 7, 6, 1, 6, 3, 9, 5, 2, 0, 4, 4, 0, 8, 5, 9, 5, 9, 7, 9, 4, 7, 2, 7, 9, 2, 1, 0, 9, 1, 3, 5, 9, 5, 8, 7, 9, 5, 8, 9, 5, 9, 5, 8, 9, 3, 8, 7, 2, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	[5, 8, 9, 4, 1, 3, 8, 2, 3, 3, 5, 5, 6, 8, 8, 7, 4, 8, 1, 5, 8, 5, 2, 5, 0, 9, 7, 0, 8, 1, 1, 3, 4, 8, 4, 0, 5, 1, 6, 6, 0, 2, 5, 2, 8, 2, 0, 8, 3, 7, 7, 2, 8, 0, 7, 4, 5, 9, 7, 2, 6, 3, 4, 3, 1, 2, 2, 6, 2, 7, 3, 1, 9, 7, 1, 9, 6, 2, 6, 8, 1, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 9, 0, 3, 0, 1, 6, 4, 3, 4, 5, 1, 8, 8, 6, 3, 0, 7, 3, 0, 9, 8, 1, 7, 8, 4, 8, 1, 4, 2, 2, 3, 8, 7, 6, 1, 3, 8, 8, 6, 3, 0, 7, 3, 0, 9, 8, 1, 7, 8, 4, 8, 1, 4, 2, 2, 3, 8, 7, 5, 6, 6, 3, 7, 5, 5, 9, 4, 5, 1, 4, 3, 6, 3, 2, 5, 5, 7, 1, 8, 9, 8, 7, 7, 2, 9, 5, 8, 8, 8, 8, 8, 7, 0, 8, 7, 5, 0, 6, 3, 7, 5, 5, 9, 4, 5, 1, 4, 3, 6, 3, 2, 5, 9, 7, 8, 8, 8, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 7, 9, 8, 9, 7, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	[5, 8, 9, 4, 1, 3, 8, 2, 3, 3, 5, 5, 6, 8, 8, 7, 4, 8, 1, 5, 8, 5, 2, 5, 0, 9, 7, 0, 8, 1, 1, 3, 4, 8, 4, 0, 5, 1, 6, 6, 0, 2, 5, 2, 8, 2, 0, 8, 3, 7, 7, 2, 8, 0, 7, 4, 5, 9, 7, 2, 6, 3, 4, 3, 1, 2, 2, 6, 2, 7, 3, 1, 9, 7, 1, 9, 6, 2, 6, 8, 1, 1, 2, 9, 7, 6, 8, 6, 2, 9, 0, 8, 9, 0, 3, 0, 1, 6, 4, 3, 4, 5, 1, 8, 8, 6, 3, 0, 7, 3, 0, 9, 8, 1, 7, 8, 4, 8, 1, 4, 2, 2, 3, 8, 7, 6, 1, 3, 8, 8, 6, 3, 0, 7, 3, 0, 9, 8, 1, 7, 8, 4, 8, 1, 4, 2, 2, 3, 8, 7, 5, 6, 6, 3, 7, 5, 5, 9, 4, 5, 1, 4, 3, 6, 3, 2, 5, 5, 7, 1, 8, 9, 8, 7, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 6, 1, 6, 8, 8, 8, 4, 9, 6, 5, 1, 9, 8, 4, 9, 6, 5, 1, 9, 8, 4, 9, 6, 5, 1, 9, 8, 4, 9, 6, 5, 1, 9, 8, 8, 8, 4, 2, 9, 5, 4, 2, 7, 6, 8, 4, 9, 6, 5, 1, 4, 3, 6, 3, 2, 5, 9, 7, 8, 5, 0, 9, 1, 8, 7, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 9, 5, 8, 9, 3, 8, 4, 4, 7, 1, 7, 2, 6, 1, 6, 8, 8, 8, 7, 0, 8, 0, 5, 6, 9, 8, 8, 4, 4, 7, 1, 7, 2, 6, 1, 6, 8, 8, 8, 7, 0, 8, 0, 5, 5, 2, 1, 2, 7, 4, 9, 6, 6, 5, 3, 5, 6, 9, 8, 6, 8, 2, 7, 3, 4, 2, 6, 3, 0, 5, 9, 9, 1, 8, 6, 8, 2, 7, 3, 4, 2, 6, 3, 0, 5, 9, 9, 1, 8, 6, 9, 8, 7, 8, 4, 0, 8, 0, 3, 0, 1, 8, 4, 5, 0, 2, 7, 0, 7, 8, 4, 8, 5, 9, 9, 1, 8, 9, 8, 7, 9, 8, 9, 1, 2, 5, 1, 1, 2, 7, 4, 6, 1, 6, 3, 0, 2, 4, 8, 5, 9, 9, 6, 6, 9, 8, 7, 3, 6, 4, 4, 5, 0, 5, 9, 5, 1, 1, 0, 2, 9, 8, 8, 8, 8, 7, 0, 8, 9, 7, 3, 6, 4, 4, 5, 0, 5, 9, 5, 1, 1, 0, 2, 9, 8, 8, 8, 7, 0, 8, 9, 7, 3, 6, 4, 4, 5, 0, 5, 9, 5, 1, 1, 0, 2, 9, 8, 8, 8, 7, 0, 8, 9, 7, 3, 6, 4, 4, 5, 0, 5, 9, 5, 1, 1, 0, 2, 9, 8, 8, 8, 7, 0, 8, 9, 7, 3, 6, 8, 8, 8, 2, 2, 5, 8, 3, 0, 5, 9, 5, 9, 5, 9, 5, 9, 9, 5, 1, 1, 0, 2, 9, 8, 8, 8, 8, 7, 0, 8, 9, 7, 3, 6, 8, 8, 8, 2, 2, 5, 8, 3, 5, 9, 0, 1, 9, 7, 1, 4, 5, 1, 5, 5, 3, 7, 2, 6, 4, 1, 3, 2, 4, 6, 5, 2, 4, 1, 1, 3, 5, 6, 2, 0, 0, 5, 4, 7, 8, 4, 3, 1, 7,	

Test	Expected	Got	
3, 6, 3, 8, 0, 3, 1, 7, 2, 1, 7, 9};	0, 3, 1, 7, 2, 1, 7, 9]	0, 3, 1, 7, 2, 1, 7, 9]	
LLNode* head =	[8, 7, 13, 14, 16, 12, 9, 14, 6, 7,	[8, 7, 13, 14, 16, 12, 9, 14, 6, 7,	
LLNode::createWithIterators(arr, arr	7, 14, 9, 7, 14, 9, 11, 9, 14, 10,	7, 14, 9, 7, 14, 9, 11, 9, 14, 10,	
+ sizeof(arr) / sizeof(int));	11, 10, 7, 13, 14, 10, 2, 9, 12, 9,	11, 10, 7, 13, 14, 10, 2, 9, 12, 9,	
LLNode::printList(head);	9, 7, 12, 12, 11, 6, 15, 9, 13, 14,	9, 7, 12, 12, 11, 6, 15, 9, 13, 14,	
cout << "\n";	15, 11, 12, 5, 7, 8, 9, 7, 1, 10, 13,	15, 11, 12, 5, 7, 8, 9, 7, 1, 10, 13,	
LLNode* newhead =	9, 14, 14, 14, 3, 14, 6, 14, 15, 15,	9, 14, 14, 14, 3, 14, 6, 14, 15, 15,	
<pre>foldLinkedList(head);</pre>	8, 11, 2, 11, 7, 9, 5, 1, 9, 9, 11,	8, 11, 2, 11, 7, 9, 5, 1, 9, 9, 11,	
LLNode::printList(newhead);	9, 6, 15, 6, 14, 10, 8, 5, 12, 9, 9,	9, 6, 15, 6, 14, 10, 8, 5, 12, 9, 9,	
	10, 13, 3, 17, 3, 9, 13, 4, 3, 4, 11,	10, 13, 3, 17, 3, 9, 13, 4, 3, 4, 11,	
	5, 14, 5, 14, 10, 1, 10, 13, 8, 8,	5, 14, 5, 14, 10, 1, 10, 13, 8, 8,	
	16, 0, 9, 6, 9, 15, 7, 2, 11, 13, 12,	16, 0, 9, 6, 9, 15, 7, 2, 11, 13, 12,	
	17, 14, 6, 16, 4, 12, 13, 1, 13, 10,	17, 14, 6, 16, 4, 12, 13, 1, 13, 10,	
	4, 11, 9, 3, 10, 11, 15, 9, 6, 12, 5,	4, 11, 9, 3, 10, 11, 15, 9, 6, 12, 5,	
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	9, 11, 3, 6, 17, 7, 10, 17, 7, 10, 5,		
	8, 11, 11, 15, 14, 2, 8, 9, 3, 12,	8, 11, 11, 15, 14, 2, 8, 9, 3, 12,	
	15, 10, 14, 10, 10, 3, 5, 9, 11, 9,	15, 10, 14, 10, 10, 3, 5, 9, 11, 9,	
	2, 12, 18, 10, 12, 14, 0, 14, 8, 9,	2, 12, 18, 10, 12, 14, 0, 14, 8, 9,	
	10, 8, 9, 7, 3, 11, 10, 10, 6, 10, 5,		
	14, 5, 6, 15, 2, 8, 12, 3, 8, 4, 4,	14, 5, 6, 15, 2, 8, 12, 3, 8, 4, 4,	
	12, 11, 3, 9, 1, 5, 11, 9, 9, 3, 1,	12, 11, 3, 9, 1, 5, 11, 9, 9, 3, 1,	
	8, 5, 11, 16, 8, 9, 5, 6, 15, 6, 10,	8, 5, 11, 16, 8, 9, 5, 6, 15, 6, 10,	
	11, 12, 7, 15, 16, 6, 8, 11, 6, 11, 2, 11, 4, 8, 6, 10, 15, 14]	11, 12, 7, 15, 16, 6, 8, 11, 6, 11, 2, 11, 4, 8, 6, 10, 15, 14]	
	2, 11, 4, 0, 0, 10, 13, 14]	2, 11, 4, 0, 0, 10, 13, 14]	L
int arr[] = {0, 5, 7, 0, 9, 2, 8, 3,	[0, 5, 7, 0, 9, 2, 8, 3, 2, 2, 9, 3,	[0, 5, 7, 0, 9, 2, 8, 3, 2, 2, 9, 3,	•
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0, 8, 5, 0, 2, 8, 9, 6, 6, 8, 0, 6,	2, 8, 9, 6, 6, 8, 0, 6, 4, 2, 5, 1,	2, 8, 9, 6, 6, 8, 0, 6, 4, 2, 5, 1,	
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8, 4, 0, 0, 1, 0, 0, 5, 9, 1, 2, 8,	1, 0, 0, 5, 9, 1, 2, 8, 4, 7, 2, 3,	1, 0, 0, 5, 9, 1, 2, 8, 4, 7, 2, 3,	
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1, 1, 3, 0, 7, 7, 4, 8, 1, 6, 4, 2,	7, 7, 4, 8, 1, 6, 4, 2, 4, 6, 4, 7,	7, 7, 4, 8, 1, 6, 4, 2, 4, 6, 4, 7,	1

Test	Expected	Got
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2, 9, 1, 1, 0, 1, 2, 2, 9, 2, 3, 0,	0, 1, 2, 2, 9, 2, 3, 0, 6, 8, 0, 3,	0, 1, 2, 2, 9, 2, 3, 0, 6, 8, 0, 3,
6, 8, 0, 3, 8, 0, 4, 2, 5, 4, 7, 6,	8, 0, 4, 2, 5, 4, 7, 6, 8, 0, 2, 4,	8, 0, 4, 2, 5, 4, 7, 6, 8, 0, 2, 4,
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8, 4, 5, 8, 9, 5, 6, 5, 4, 0, 6, 7,	9, 5, 6, 5, 4, 0, 6, 7, 2, 6, 1, 6,	9, 5, 6, 5, 4, 0, 6, 7, 2, 6, 1, 6,
2, 6, 1, 6, 4, 6, 9, 6, 2, 0, 8, 2,	4, 6, 9, 6, 2, 0, 8, 2, 3, 7, 0, 7,	4, 6, 9, 6, 2, 0, 8, 2, 3, 7, 0, 7,
3, 7, 0, 7, 4, 1, 0, 3, 7, 9, 5, 9,	4, 1, 0, 3, 7, 9, 5, 9, 1, 5, 5, 7,	4, 1, 0, 3, 7, 9, 5, 9, 1, 5, 5, 7,
1, 5, 5, 7, 6, 2, 4, 6, 8, 0, 7, 9,	6, 2, 4, 6, 8, 0, 7, 9, 6]	6, 2, 4, 6, 8, 0, 7, 9, 6]
6};	[3, 7, 8, 9, 9, 9, 8, 1, 14, 8, 1,	[3, 7, 8, 9, 9, 9, 8, 1, 14, 8, 1,
LLNode* head =	11, 9, 9, 3, 2, 17, 5, 10, 9, 13, 2,	11, 9, 9, 3, 2, 17, 5, 10, 9, 13, 2,
LLNode::createWithIterators(arr, arr	6, 12, 5, 1, 8, 10, 3, 5, 17, 5, 8,	6, 12, 5, 1, 8, 10, 3, 5, 17, 5, 8,
<pre>+ sizeof(arr) / sizeof(int));</pre>	7, 12, 9, 9, 4, 14, 9, 4, 10, 12, 12,	7, 12, 9, 9, 4, 14, 9, 4, 10, 12, 12
<pre>LLNode::printList(head);</pre>	8, 13, 9, 7, 4, 7, 14, 10, 5, 9, 4,	8, 13, 9, 7, 4, 7, 14, 10, 5, 9, 4,
cout << "\n";	9, 2, 5, 5, 13, 7, 6, 5, 9, 5, 8, 12,	9, 2, 5, 5, 13, 7, 6, 5, 9, 5, 8, 12
LLNode* newhead =	17, 10, 9, 8, 13, 14, 1, 10, 6, 9,	17, 10, 9, 8, 13, 14, 1, 10, 6, 9,
<pre>foldLinkedList(head);</pre>	12, 13, 13, 13, 10, 11, 16, 13, 10,	12, 13, 13, 13, 10, 11, 16, 13, 10,
LLNode::printList(newhead);	7, 11, 13, 7, 2, 13, 13, 9, 10, 0,	7, 11, 13, 7, 2, 13, 13, 9, 10, 0,
**	11, 10, 2, 9, 14, 12, 9, 1, 6, 15,	11, 10, 2, 9, 14, 12, 9, 1, 6, 15,
	The state of the s	I

	Test	Expected	Got
		13, 8, 10, 15, 0, 9, 14, 3, 9, 1, 5,	13, 8, 10, 15, 0, 9, 14, 3, 9, 1, 5,
		10, 14, 1, 15, 6, 10, 11, 3, 2, 14, 11, 7, 10, 10, 8, 12, 10, 14, 3, 7,	10, 14, 1, 15, 6, 10, 11, 3, 2, 14, 11, 7, 10, 10, 8, 12, 10, 14, 3, 7,
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		9, 0, 14, 13, 10, 1, 5, 14, 6, 9, 15, 2, 3, 7, 7, 10, 14, 4, 6, 9, 9, 5, 0,	9, 0, 14, 13, 10, 1, 5, 14, 6, 9, 15, 2, 3, 7, 7, 10, 14, 4, 6, 9, 9, 5, 0,
		6, 3, 8, 5, 11, 7, 9, 12, 18, 4, 15, 6, 9, 12, 5, 13, 9, 6, 11, 9, 15, 2, 9, 4, 9, 16, 3, 6, 5, 15, 12, 12, 3,	6, 3, 8, 5, 11, 7, 9, 12, 18, 4, 15, 6, 9, 12, 5, 13, 9, 6, 11, 9, 15, 2, 9, 4, 9, 16, 3, 6, 5, 15, 12, 12, 3,
		4, 15, 9, 6, 10, 10, 1, 2, 9, 11, 16, 18, 3, 12, 11, 18, 6, 10, 3, 0, 6, 10, 0, 11, 12, 16, 10, 13, 16, 10, 8,	4, 15, 9, 6, 10, 10, 1, 2, 9, 11, 16, 18, 3, 12, 11, 18, 6, 10, 3, 0, 6, 10, 0, 11, 12, 16, 10, 13, 16, 10, 8,
		9, 11, 8, 9, 0, 15, 6, 12, 14, 7, 7, 11, 1, 14, 7, 7, 11, 9, 14, 9, 8, 13,	9, 11, 8, 9, 0, 15, 6, 12, 14, 7, 7, 11, 1, 14, 7, 7, 11, 9, 14, 9, 8, 13,
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	Test	Expected	Got
	0, 1, 1, 6, 1, 9, 0, 9, 2, 2, 1, 7,	1, 9, 0, 9, 2, 2, 1, 7, 9, 7, 9, 9,	1, 9, 0, 9, 2, 2, 1, 7, 9, 7, 9, 9,
	9, 7, 9, 9, 8, 4, 2, 1, 2, 9, 7, 2,	8, 4, 2, 1, 2, 9, 7, 2, 1, 4, 5, 1,	8, 4, 2, 1, 2, 9, 7, 2, 1, 4, 5, 1,
	1, 4, 5, 1, 5, 7, 5, 2, 9, 2, 5, 0,	5, 7, 5, 2, 9, 2, 5, 0, 1, 8, 0, 3,	5, 7, 5, 2, 9, 2, 5, 0, 1, 8, 0, 3,
	1, 8, 0, 3, 7, 0, 2, 3, 4, 8, 4, 8,	7, 0, 2, 3, 4, 8, 4, 8, 8, 1, 5, 8,	7, 0, 2, 3, 4, 8, 4, 8, 8, 1, 5, 8,
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	9, 4, 1, 1, 9, 5, 2, 4, 5, 0, 5, 8,	9, 5, 2, 4, 5, 0, 5, 8, 3, 0, 6, 5,	9, 5, 2, 4, 5, 0, 5, 8, 3, 0, 6, 5,
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		5, 2, 1, 0, 0, 1, 4, 7, 3, 3, 9, 0,	5, 2, 1, 0, 0, 1, 4, 7, 3, 3, 9, 0,
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	8, 7, 6, 2, 5, 4, 4, 1, 2, 9, 5, 2,	5, 4, 4, 1, 2, 9, 5, 2, 3, 0, 9, 6,	5, 4, 4, 1, 2, 9, 5, 2, 3, 0, 9, 6,
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	7, 1, 4, 0, 5, 5, 2, 6, 1, 3, 3, 6,	5, 5, 2, 6, 1, 3, 3, 6, 6, 1, 1, 5,	5, 5, 2, 6, 1, 3, 3, 6, 6, 1, 1, 5,
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	2, 6, 0, 0, 2, 7, 2, 4, 0, 1, 6, 7,	2, 7, 2, 4, 0, 1, 6, 7, 0, 2, 9, 3,	2, 7, 2, 4, 0, 1, 6, 7, 0, 2, 9, 3,
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	6, 1, 7, 9, 0, 6, 1, 8, 7, 7, 6, 0,	0, 6, 1, 8, 7, 7, 6, 0, 0, 9, 9, 4, 8 0 1 1 2 5 5 4 0 3 0 1	0, 6, 1, 8, 7, 7, 6, 0, 0, 9, 9, 4,
	0, 9, 9, 4, 8, 0, 1, 1, 2, 5, 5, 4, 0, 3, 0, 1, 1, 9, 8, 1, 2, 1, 3, 3,	8, 0, 1, 1, 2, 5, 5, 4, 0, 3, 0, 1, 1, 9, 8, 1, 2, 1, 3, 3, 6, 4, 9, 6,	8, 0, 1, 1, 2, 5, 5, 4, 0, 3, 0, 1, 1, 9, 8, 1, 2, 1, 3, 3, 6, 4, 9, 6,
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	, , , , , , , -, -, 0, 0, 0, 0, 0, 0	, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,

Test	Expected	Got
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snip 5, 9, 4, 1, 8, 8, 9, 1, 6,	snip , 6, 6, 11, 13, 15, 9, 11,	snip , 6, 6, 11, 13, 15, 9, 11,
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Test	Expected	Got	
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LLNode* head =	16, 7, 11, 6, 7, 13, 10, 4, 9, 9, 15,	16, 7, 11, 6, 7, 13, 10, 4, 9, 9, 15,	
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+ sizeof(arr) / sizeof(int));	13, 6, 8, 10, 3, 7, 1, 4, 8, 12]	13, 6, 8, 10, 3, 7, 1, 4, 8, 12]	
LLNode::printList(head);	_		
cout << "\n";			
LLNode* newhead =			
<pre>foldLinkedList(head);</pre>			
LLNode::printList(newhead);			
int ann[] = (0 0 0 0 2 4 0 4 2			
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3, 8, 3, 5, 1, 8, 6, 6, 8, 6, 0, 7,	12, 16, 14, 6, 8, 10, 17, 7, 4, 10,	12, 16, 14, 6, 8, 10, 17, 7, 4, 10,
2, 8, 9, 4, 3, 4, 2, 3, 3, 1, 8, 4,	10, 3, 16, 9, 12, 3, 13, 8, 16, 7,	10, 3, 16, 9, 12, 3, 13, 8, 16, 7,
9, 5, 6, 1, 9, 7, 8, 5, 8, 1, 7, 9,	12, 9, 15, 3, 12, 5, 10, 17, 7, 7, 6,	
8, 5, 8, 2, 9, 2, 4, 7, 4, 9, 7, 4,	9, 8, 11, 7, 8, 6, 15, 14, 12, 1, 9,	9, 8, 11, 7, 8, 6, 15, 14, 12, 1, 9,
7, 3, 6, 9, 9, 3, 0, 5, 1, 3, 3, 0,	13, 12, 8, 12, 10, 16, 15, 15, 13, 8,	13, 12, 8, 12, 10, 16, 15, 15, 13, 8,
5, 0, 1, 6, 2, 1, 3, 3, 6, 5, 4, 7, 2, 9, 4, 0, 4, 1, 7, 7, 8, 5, 1, 9,	11, 14, 2, 12, 12, 4, 10, 9, 12, 16, 5, 14, 11, 9, 4, 4, 7, 6, 9, 8, 2,	11, 14, 2, 12, 12, 4, 10, 9, 12, 16, 5, 14, 11, 9, 4, 4, 7, 6, 9, 8, 2,
4, 5, 7, 2, 8, 8, 3, 5, 4, 5, 4, 9,	10, 1, 3, 11, 10, 6, 6, 3, 9, 13, 10,	10, 1, 3, 11, 10, 6, 6, 3, 9, 13, 10,
8, 0, 5, 3, 2, 6, 4, 3, 5, 3, 3, 5,	15, 9, 11, 12, 2, 12, 7, 7, 11, 13,	15, 9, 11, 12, 2, 12, 7, 7, 11, 13,
3, 2, 4, 0, 0, 4, 2, 0, 7, 1, 1, 6,	13, 10, 14, 11, 10, 14, 8, 10, 15, 4,	13, 10, 14, 11, 10, 14, 8, 10, 15, 4,
0, 1, 4, 5, 6, 4, 7, 3, 9, 6, 3};	9, 7, 12, 10, 15, 8, 7, 10, 9, 6, 15,	9, 7, 12, 10, 15, 8, 7, 10, 9, 6, 15,
LLNode* head =	6, 6, 7, 9, 9, 8, 5, 6, 4, 4, 2, 6,	6, 6, 7, 9, 9, 8, 5, 6, 4, 4, 2, 6,
LLNode::createWithIterators(arr, arr		

Test	Expected	Got	
+ sizeof(arr) / sizeof(int));	11, 5, 14, 6, 5, 14, 2, 9, 4, 8, 10,	11, 5, 14, 6, 5, 14, 2, 9, 4, 8, 10,	
LLNode::printList(head);	13, 11, 5, 17, 6, 12]	13, 11, 5, 17, 6, 12]	
cout << "\n";			
LLNode* newhead =			
<pre>foldLinkedList(head);</pre>			
LLNode::printList(newhead);			
int arr[] = {6, 5, 8, 2, 3, 1, 3, 7,	[6, 5, 8, 2, 3, 1, 3, 7, 7, 9, 0, 4,	[6, 5, 8, 2, 3, 1, 3, 7, 7, 9, 0, 4,	
7, 9, 0, 4, 4, 8, 4, 2, 1, 9, 4, 3,	4, 8, 4, 2, 1, 9, 4, 3, 3, 6, 4, 4,	4, 8, 4, 2, 1, 9, 4, 3, 3, 6, 4, 4,	
3, 6, 4, 4, 2, 5, 3, 7, 1, 7, 7, 1,	2, 5, 3, 7, 1, 7, 7, 1, 4, 7, 7, 7,	2, 5, 3, 7, 1, 7, 7, 1, 4, 7, 7, 7,	
4, 7, 7, 7, 7, 0, 0, 8, 2, 9, 4, 9,	7, 0, 0, 8, 2, 9, 4, 9, 4, 9, 9, 6,	7, 0, 0, 8, 2, 9, 4, 9, 4, 9, 9, 6,	
4, 9, 9, 6, 3, 0, 5, 3, 3, 9, 2, 3,	3, 0, 5, 3, 3, 9, 2, 3, 2, 4, 8, 9,	3, 0, 5, 3, 3, 9, 2, 3, 2, 4, 8, 9,	
2, 4, 8, 9, 3, 1, 9, 2, 8, 3, 4, 7,	3, 1, 9, 2, 8, 3, 4, 7, 8, 5, 4, 3,	3, 1, 9, 2, 8, 3, 4, 7, 8, 5, 4, 3,	
8, 5, 4, 3, 1, 8, 8, 7, 3, 1, 7, 1,	1, 8, 8, 7, 3, 1, 7, 1, 9, 2, 8, 5,	1, 8, 8, 7, 3, 1, 7, 1, 9, 2, 8, 5,	
9, 2, 8, 5, 5, 3, 7, 1, 6, 6, 4, 2,	5, 3, 7, 1, 6, 6, 4, 2, 0, 6, 5, 1,	5, 3, 7, 1, 6, 6, 4, 2, 0, 6, 5, 1,	
0, 6, 5, 1, 2, 3, 5, 7, 1, 9, 1, 4,	2, 3, 5, 7, 1, 9, 1, 4, 8, 6, 1, 9,	2, 3, 5, 7, 1, 9, 1, 4, 8, 6, 1, 9,	
8, 6, 1, 9, 2, 8, 9, 8, 8, 7, 6, 0,	2, 8, 9, 8, 8, 7, 6, 0, 3, 9, 9, 7,	2, 8, 9, 8, 8, 7, 6, 0, 3, 9, 9, 7,	
3, 9, 9, 7, 1, 8, 3, 4, 9, 8, 4, 1,	1, 8, 3, 4, 9, 8, 4, 1, 8, 4, 3, 8,	1, 8, 3, 4, 9, 8, 4, 1, 8, 4, 3, 8,	
8, 4, 3, 8, 9, 0, 1, 1, 4, 6, 4, 7,	9, 0, 1, 1, 4, 6, 4, 7, 1, 9, 1, 5,	9, 0, 1, 1, 4, 6, 4, 7, 1, 9, 1, 5,	
1, 9, 1, 5, 4, 5, 9, 0, 2, 8, 5, 4,	4, 5, 9, 0, 2, 8, 5, 4, 1, 6, 3, 3,	4, 5, 9, 0, 2, 8, 5, 4, 1, 6, 3, 3,	
1, 6, 3, 3, 7, 8, 6, 5, 0, 3, 7, 7,	7, 8, 6, 5, 0, 3, 7, 7, 3, 9, 6, 4,	7, 8, 6, 5, 0, 3, 7, 7, 3, 9, 6, 4,	
3, 9, 6, 4, 3, 2, 7, 9, 9, 0, 9, 2,	3, 2, 7, 9, 9, 0, 9, 2, 2, 5, 1, 6,	3, 2, 7, 9, 9, 0, 9, 2, 2, 5, 1, 6,	
2, 5, 1, 6, 7, 4, 2, 0, 3, 7, 8, 8,	7, 4, 2, 0, 3, 7, 8, 8, 1, 6, 8, 0,	7, 4, 2, 0, 3, 7, 8, 8, 1, 6, 8, 0,	
1, 6, 8, 0, 2, 2, 3, 2, 7, 9, 1, 2,	2, 2, 3, 2, 7, 9, 1, 2, 8, 5, 4, 8,	2, 2, 3, 2, 7, 9, 1, 2, 8, 5, 4, 8,	
8, 5, 4, 8, 7, 1, 3, 1, 5, 8, 6, 8,	7, 1, 3, 1, 5, 8, 6, 8, 3, 4, 6, 9,	7, 1, 3, 1, 5, 8, 6, 8, 3, 4, 6, 9,	
3, 4, 6, 9, 9, 9, 2, 7, 1, 1, 2, 1,	9, 9, 2, 7, 1, 1, 2, 1, 9, 6, 7, 3,	9, 9, 2, 7, 1, 1, 2, 1, 9, 6, 7, 3,	
9, 6, 7, 3, 2, 4, 7, 0, 4, 4, 9, 8,	2, 4, 7, 0, 4, 4, 9, 8, 4, 6, 1, 7,	2, 4, 7, 0, 4, 4, 9, 8, 4, 6, 1, 7,	
4, 6, 1, 7, 2, 0, 8, 0, 1, 9, 8, 8,	2, 0, 8, 0, 1, 9, 8, 8, 6, 5, 7, 0,	2, 0, 8, 0, 1, 9, 8, 8, 6, 5, 7, 0,	
6, 5, 7, 0, 4, 8, 4, 9, 0, 2, 4, 0,	4, 8, 4, 9, 0, 2, 4, 0, 3, 6, 4, 6,	4, 8, 4, 9, 0, 2, 4, 0, 3, 6, 4, 6,	
3, 6, 4, 6, 5, 3, 6, 6, 1, 6, 7, 3, 0, 2, 7, 1, 4, 9, 0, 5, 4, 0, 3, 6,	5, 3, 6, 6, 1, 6, 7, 3, 0, 2, 7, 1, 4, 9, 0, 5, 4, 0, 3, 6, 0, 9, 6, 3,	5, 3, 6, 6, 1, 6, 7, 3, 0, 2, 7, 1, 4, 9, 0, 5, 4, 0, 3, 6, 0, 9, 6, 3,	
0, 9, 6, 3, 9, 4, 3, 9, 3, 6, 7, 6,	9, 4, 3, 9, 3, 6, 7, 6, 2, 9, 7, 7,	9, 4, 3, 9, 3, 6, 7, 6, 2, 9, 7, 7,	
2, 9, 7, 7, 9, 5, 1, 1, 6, 1, 3, 7,	9, 5, 1, 1, 6, 1, 3, 7, 9, 0, 1, 4,	9, 5, 1, 1, 6, 1, 3, 7, 9, 0, 1, 4,	
9, 0, 1, 4, 4, 4, 6, 6, 8, 5, 7, 1,	4, 4, 6, 6, 8, 5, 7, 1, 1, 5, 4, 6,	4, 4, 6, 6, 8, 5, 7, 1, 1, 5, 4, 6,	
1, 5, 4, 6, 7, 8, 6, 8, 5, 0, 6, 4,	7, 8, 6, 8, 5, 0, 6, 4, 1, 2, 1, 3,	7, 8, 6, 8, 5, 0, 6, 4, 1, 2, 1, 3,	
1, 2, 1, 3, 1, 5, 5, 5, 2, 3, 7, 7,	1, 5, 5, 5, 2, 3, 7, 7, 9, 6, 9, 0,	1, 5, 5, 5, 2, 3, 7, 7, 9, 6, 9, 0,	
9, 6, 9, 0, 4, 8, 1, 3, 2, 0, 0, 7,	4, 8, 1, 3, 2, 0, 0, 7, 6, 6, 1, 7,	4, 8, 1, 3, 2, 0, 0, 7, 6, 6, 1, 7,	
6, 6, 1, 7, 7, 3, 0, 9, 2, 8, 9, 5,	7, 3, 0, 9, 2, 8, 9, 5, 4, 7, 7, 3,	7, 3, 0, 9, 2, 8, 9, 5, 4, 7, 7, 3,	
4, 7, 7, 3, 6, 9, 1, 5, 6, 8, 2, 6,	6, 9, 1, 5, 6, 8, 2, 6, 5, 3, 1, 0,	6, 9, 1, 5, 6, 8, 2, 6, 5, 3, 1, 0,	
5, 3, 1, 0, 4, 3, 1, 3, 9, 4, 8, 5,	4, 3, 1, 3, 9, 4, 8, 5, 4, 7, 3, 5,	4, 3, 1, 3, 9, 4, 8, 5, 4, 7, 3, 5,	
4, 7, 3, 5, 4, 2, 0, 2, 0, 9, 0, 3,	4, 2, 0, 2, 0, 9, 0, 3, 2, 9, 8, 3,	4, 2, 0, 2, 0, 9, 0, 3, 2, 9, 8, 3,	
2, 9, 8, 3, 4, 1, 6, 8, 4, 5, 8, 0,	4, 1, 6, 8, 4, 5, 8, 0, 0, 2, 5, 5,	4, 1, 6, 8, 4, 5, 8, 0, 0, 2, 5, 5,	
0, 2, 5, 5, 7, 5, 5, 6, 7, 4, 7, 5,	7, 5, 5, 6, 7, 4, 7, 5, 0, 6, 4, 8,	7, 5, 5, 6, 7, 4, 7, 5, 0, 6, 4, 8,	
0, 6, 4, 8, 9, 2, 3, 8, 5, 2, 2, 5,	9, 2, 3, 8, 5, 2, 2, 5, 3, 2, 0, 4,	9, 2, 3, 8, 5, 2, 2, 5, 3, 2, 0, 4,	
3, 2, 0, 4, 8, 6, 2, 5, 9, 6, 8, 5,	8, 6, 2, 5, 9, 6, 8, 5, 1, 1, 2, 9,	8, 6, 2, 5, 9, 6, 8, 5, 1, 1, 2, 9,	
1, 1, 2, 9, 1, 1, 2, 3, 0, 4, 8, 1,	1, 1, 2, 3, 0, 4, 8, 1, 4, 3, 0, 0,	1, 1, 2, 3, 0, 4, 8, 1, 4, 3, 0, 0,	
4, 3, 0, 0, 2, 6, 8, 9, 8, 1, 6, 1,	2, 6, 8, 9, 8, 1, 6, 1, 8, 7, 8, 6,	2, 6, 8, 9, 8, 1, 6, 1, 8, 7, 8, 6,	
8, 7, 8, 6, 3, 4, 6, 3, 5, 5, 6, 5,	3, 4, 6, 3, 5, 5, 6, 5, 1, 7, 0, 5,	3, 4, 6, 3, 5, 5, 6, 5, 1, 7, 0, 5,	
1, 7, 0, 5, 6, 0, 5, 6, 0, 6, 3, 7,	6, 0, 5, 6, 0, 6, 3, 7, 8, 3, 2, 9,	6, 0, 5, 6, 0, 6, 3, 7, 8, 3, 2, 9,	
8, 3, 2, 9, 6, 7, 4, 2, 0, 5, 5, 1,	6, 7, 4, 2, 0, 5, 5, 1, 1, 1, 9, 4,	6, 7, 4, 2, 0, 5, 5, 1, 1, 1, 9, 4,	
1, 1, 9, 4, 0, 4, 3, 2, 6, 2, 3, 2, 5, 8, 6, 4, 4, 6, 9, 0, 6, 2, 9, 8,	0, 4, 3, 2, 6, 2, 3, 2, 5, 8, 6, 4, 4, 6, 9, 0, 6, 2, 9, 8, 8, 3, 3, 9,	0, 4, 3, 2, 6, 2, 3, 2, 5, 8, 6, 4, 4, 6, 9, 0, 6, 2, 9, 8, 8, 3, 3, 9,	
8, 3, 3, 9, 9, 6, 8, 5, 1, 6, 7, 6,	9, 6, 8, 5, 1, 6, 7, 6, 9, 5, 4, 8,	9, 6, 8, 5, 1, 6, 7, 6, 9, 5, 4, 8,	
9, 5, 4, 8, 0, 1, 7, 2, 8, 6, 6, 1,	0, 1, 7, 2, 8, 6, 6, 1, 7, 6, 1, 7,	0, 1, 7, 2, 8, 6, 6, 1, 7, 6, 1, 7,	
7, 6, 1, 7, 2, 6, 7, 7, 5, 3, 2, 6,	2, 6, 7, 7, 5, 3, 2, 6, 2, 5, 4, 8,	2, 6, 7, 7, 5, 3, 2, 6, 2, 5, 4, 8,	
2, 5, 4, 8, 3, 7, 6, 5, 1, 4, 4, 4,	3, 7, 6, 5, 1, 4, 4, 4, 6, 1, 9, 6,	3, 7, 6, 5, 1, 4, 4, 6, 1, 9, 6,	
6, 1, 9, 6, 1, 2, 7, 9, 9, 0, 3, 0,	1, 2, 7, 9, 9, 0, 3, 0, 7, 9, 0, 0,	1, 2, 7, 9, 9, 0, 3, 0, 7, 9, 0, 0,	
7, 9, 0, 0, 4, 0, 7, 0, 4, 1, 7, 0,	4, 0, 7, 0, 4, 1, 7, 0, 0, 8, 7, 0,	4, 0, 7, 0, 4, 1, 7, 0, 0, 8, 7, 0,	
0, 8, 7, 0, 5, 1, 3, 0, 4, 0, 5, 6,	5, 1, 3, 0, 4, 0, 5, 6, 3, 2, 4, 2,	5, 1, 3, 0, 4, 0, 5, 6, 3, 2, 4, 2,	
3, 2, 4, 2, 5, 8, 8, 8, 9, 6, 6, 1,	5, 8, 8, 8, 9, 6, 6, 1, 8, 0, 1, 3,	5, 8, 8, 8, 9, 6, 6, 1, 8, 0, 1, 3,	
8, 0, 1, 3, 8, 6, 6, 8, 0, 4, 6, 9,	8, 6, 6, 8, 0, 4, 6, 9, 8, 0, 7, 6,	8, 6, 6, 8, 0, 4, 6, 9, 8, 0, 7, 6,	
I .	I.		

7. - 7 7 (1)	Edu I. Oligiy Elimod Elot. / Mollipt Tovion		
	Test	Expected	Got
	8, 0, 7, 6, 7, 5, 8, 0, 4, 8, 7, 4,	7, 5, 8, 0, 4, 8, 7, 4, 1, 3, 6, 1,	7, 5, 8, 0, 4, 8, 7, 4, 1, 3, 6, 1,
	1, 3, 6, 1, 3, 8, 7, 6, 2, 2, 6, 9,	3, 8, 7, 6, 2, 2, 6, 9, 5, 7, 7, 4,	3, 8, 7, 6, 2, 2, 6, 9, 5, 7, 7, 4,
	5, 7, 7, 4, 7, 4, 0, 0, 1, 1, 0, 4,	7, 4, 0, 0, 1, 1, 0, 4, 9, 4, 9, 9,	7, 4, 0, 0, 1, 1, 0, 4, 9, 4, 9, 9,
	9, 4, 9, 9, 5, 3, 9, 7, 0, 8, 9, 0,	5, 3, 9, 7, 0, 8, 9, 0, 5, 9, 3, 2,	5, 3, 9, 7, 0, 8, 9, 0, 5, 9, 3, 2,
	5, 9, 3, 2, 1, 5, 4, 9, 8, 7, 4, 4,	1, 5, 4, 9, 8, 7, 4, 4, 5, 8, 0, 2,	1, 5, 4, 9, 8, 7, 4, 4, 5, 8, 0, 2,
	5, 8, 0, 2, 8, 8, 4, 3, 5, 4, 0, 7,	8, 8, 4, 3, 5, 4, 0, 7, 4, 4, 4, 1,	8, 8, 4, 3, 5, 4, 0, 7, 4, 4, 4, 1,
	4, 4, 4, 1, 0, 6, 3, 1, 8, 8, 4, 3,	0, 6, 3, 1, 8, 8, 4, 3, 9, 7, 1, 1,	0, 6, 3, 1, 8, 8, 4, 3, 9, 7, 1, 1,
	9, 7, 1, 1, 8, 0, 3, 9, 5, 3, 2, 3,	8, 0, 3, 9, 5, 3, 2, 3, 6, 0, 8, 4,	8, 0, 3, 9, 5, 3, 2, 3, 6, 0, 8, 4,
	6, 0, 8, 4, 8, 8, 5, 2, 8, 0, 5, 6,	8, 8, 5, 2, 8, 0, 5, 6, 4, 0, 6, 8,	8, 8, 5, 2, 8, 0, 5, 6, 4, 0, 6, 8,
	4, 0, 6, 8, 3, 3, 5, 7, 3, 5, 7, 5,	3, 3, 5, 7, 3, 5, 7, 5, 2, 6, 4, 1,	3, 3, 5, 7, 3, 5, 7, 5, 2, 6, 4, 1,
	2, 6, 4, 1, 1, 2, 4, 2, 8, 0, 0, 9,	1, 2, 4, 2, 8, 0, 0, 9, 4, 6, 1, 0,	1, 2, 4, 2, 8, 0, 0, 9, 4, 6, 1, 0,
	4, 6, 1, 0, 8, 1, 3, 2, 5, 8, 0, 0,	8, 1, 3, 2, 5, 8, 0, 0, 4, 1, 8, 9,	8, 1, 3, 2, 5, 8, 0, 0, 4, 1, 8, 9,
	4, 1, 8, 9, 8, 0, 4, 8, 6, 6, 3, 0,	8, 0, 4, 8, 6, 6, 3, 0, 4, 7, 5, 3,	8, 0, 4, 8, 6, 6, 3, 0, 4, 7, 5, 3,
	4, 7, 5, 3, 7, 5, 6, 0, 8, 1, 3, 8,	7, 5, 6, 0, 8, 1, 3, 8, 3, 5, 0, 1,	7, 5, 6, 0, 8, 1, 3, 8, 3, 5, 0, 1,
	3, 5, 0, 1, 2, 4, 9, 5, 0, 1, 1, 8,	2, 4, 9, 5, 0, 1, 1, 8, 3, 0, 9, 6,	2, 4, 9, 5, 0, 1, 1, 8, 3, 0, 9, 6,
	3, 0, 9, 6, 9, 1, 6, 5, 4, 9, 1, 0,	9, 1, 6, 5, 4, 9, 1, 0, 8, 5, 8, 1,	9, 1, 6, 5, 4, 9, 1, 0, 8, 5, 8, 1,
	8, 5, 8, 1, 8, 4, 5, 3, 6, 7, 9, 9,	8, 4, 5, 3, 6, 7, 9, 9, 4, 9, 2, 6,	8, 4, 5, 3, 6, 7, 9, 9, 4, 9, 2, 6,
	4, 9, 2, 6, 9, 5, 0, 8, 3, 7, 2, 2,	9, 5, 0, 8, 3, 7, 2, 2, 6, 0, 5, 8,	9, 5, 0, 8, 3, 7, 2, 2, 6, 0, 5, 8,
	6, 0, 5, 8, 8, 7, 7, 6, 2, 0, 4, 1,	8, 7, 7, 6, 2, 0, 4, 1, 9, 5, 4, 5,	8, 7, 7, 6, 2, 0, 4, 1, 9, 5, 4, 5,
	9, 5, 4, 5, 3, 8, 0, 4, 3, 4, 3, 7,	3, 8, 0, 4, 3, 4, 3, 7, 4, 2, 5, 1,	3, 8, 0, 4, 3, 4, 3, 7, 4, 2, 5, 1,
	4, 2, 5, 1, 1, 7, 0, 0, 6, 3, 3, 0,	1, 7, 0, 0, 6, 3, 3, 0, 5, 3, 5, 3,	1, 7, 0, 0, 6, 3, 3, 0, 5, 3, 5, 3,
	5, 3, 5, 3, 8, 9, 0, 6, 7, 2, 2, 0,	8, 9, 0, 6, 7, 2, 2, 0, 3, 4, 0, 3,	8, 9, 0, 6, 7, 2, 2, 0, 3, 4, 0, 3,
	3, 4, 0, 3, 0, 1, 3, 2, 9, 1, 6, 3,	0, 1, 3, 2, 9, 1, 6, 3, 4, 2, 4, 0,	0, 1, 3, 2, 9, 1, 6, 3, 4, 2, 4, 0,
	4, 2, 4, 0, 0, 8, 6, 5, 4, 3, 2, 9,	0, 8, 6, 5, 4, 3, 2, 9, 9, 7, 4, 6,	0, 8, 6, 5, 4, 3, 2, 9, 9, 7, 4, 6,
	9, 7, 4, 6, 1, 2, 5, 0, 6, 6, 5, 1, 1, 1, 3, 2, 3, 2, 5, 2, 1, 4, 2, 5,	1, 2, 5, 0, 6, 6, 5, 1, 1, 1, 3, 2, 3, 2, 5, 2, 1, 4, 2, 5, 7, 5, 3, 3,	1, 2, 5, 0, 6, 6, 5, 1, 1, 1, 3, 2, 3, 2, 5, 2, 1, 4, 2, 5, 7, 5, 3, 3,
	7, 5, 3, 3, 0, 8, 0, 7, 2, 5, 8, 8,	0, 8, 0, 7, 2, 5, 8, 8, 8, 6, 9, 6,	0, 8, 0, 7, 2, 5, 8, 8, 8, 6, 9, 6,
	8, 6, 9, 6, 3, 9, 0, 5, 1, 3, 1, 3,	3, 9, 0, 5, 1, 3, 1, 3, 3, 2, 8, 4,	3, 9, 0, 5, 1, 3, 1, 3, 3, 2, 8, 4,
	3, 2, 8, 4, 7, 5, 6, 5, 6, 8, 3, 7,	7, 5, 6, 5, 6, 8, 3, 7, 9, 7, 1, 9,	7, 5, 6, 5, 6, 8, 3, 7, 9, 7, 1, 9,
	9, 7, 1, 9, 5, 8, 4, 3, 5, 5, 8, 7,	5, 8, 4, 3, 5, 5, 8, 7, 4, 7, 6, 5,	5, 8, 4, 3, 5, 5, 8, 7, 4, 7, 6, 5,
	4, 7, 6, 5, 6, 7, 7, 9, 2, 4, 7, 5,	6, 7, 7, 9, 2, 4, 7, 5, 0, 9, 8, 1,	6, 7, 7, 9, 2, 4, 7, 5, 0, 9, 8, 1,
	0, 9, 8, 1, 5, 1, 6, 1, 2, 9, 1, 3,	5, 1, 6, 1, 2, 9, 1, 3, 5, 0, 7, 5,	5, 1, 6, 1, 2, 9, 1, 3, 5, 0, 7, 5,
	5, 0, 7, 5, 5, 0, 2, 4, 0, 3, 6, 9,	5, 0, 2, 4, 0, 3, 6, 9, 1, 4, 0, 3,	5, 0, 2, 4, 0, 3, 6, 9, 1, 4, 0, 3,
	1, 4, 0, 3, 3, 2, 3, 5, 3, 4, 2, 5,	3, 2, 3, 5, 3, 4, 2, 5, 7, 4, 4, 4,	3, 2, 3, 5, 3, 4, 2, 5, 7, 4, 4, 4,
	7, 4, 4, 4, 7, 2, 5, 6, 9, 1, 9, 0,	7, 2, 5, 6, 9, 1, 9, 0, 6, 3, 1, 2,	7, 2, 5, 6, 9, 1, 9, 0, 6, 3, 1, 2,
	6, 3, 1, 2, 6, 8, 9, 2, 5, 9, 9, 1,	6, 8, 9, 2, 5, 9, 9, 1, 4, 9, 0, 2,	6, 8, 9, 2, 5, 9, 9, 1, 4, 9, 0, 2,
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6, 2, 7, 7, 4, 2, 0, 1, 5, 2, 2, 6,	13, 5, 9, 10, 15, 8, 10, 8, 9, 5, 14,	
7, 2, 6, 0, 6, 3, 1, 3, 0, 4, 7, 5,	8, 8, 15, 12, 9, 3, 1, 7, 6, 9, 12,	8, 8, 15, 12, 9, 3, 1, 7, 6, 9, 12,
6, 5, 1, 9, 6, 8, 2, 5, 2, 7, 7, 8,	8, 7, 8, 2, 15, 3, 10, 12, 7, 6, 10,	8, 7, 8, 2, 15, 3, 10, 12, 7, 6, 10,
1, 8, 2, 8, 5, 3, 4, 8, 9, 4, 7, 8,	9, 12, 14, 4, 16, 13, 11, 2, 10, 8,	9, 12, 14, 4, 16, 13, 11, 2, 10, 8,
5, 8, 3, 9, 7, 4, 0, 2, 2, 1, 8, 3,	15, 14, 11, 4, 14, 3, 12, 10, 11, 6,	15, 14, 11, 4, 14, 3, 12, 10, 11, 6,
2, 6, 9, 9, 4, 1, 4, 7, 5, 0, 3, 0,	8, 18, 9, 11, 13, 6, 17, 4, 16, 11,	8, 18, 9, 11, 13, 6, 17, 4, 16, 11,
4, 2, 4, 2, 2, 4, 6, 0, 2, 9, 6, 2,	10, 4, 3, 3, 1, 17, 11, 5, 10, 17,	10, 4, 3, 3, 1, 17, 11, 5, 10, 17,
9, 1, 6, 3, 5, 5, 6, 7, 7, 8, 8, 0,	10, 8, 9, 13, 11, 8, 8, 4, 7, 13, 11,	
2, 6, 5, 1, 2, 7, 5, 3, 0, 0, 8, 4,	7, 2, 8, 11, 14, 8, 11, 17, 8, 11,	7, 2, 8, 11, 14, 8, 11, 17, 8, 11,
2, 0, 7, 7, 0, 4, 0, 3, 2, 8, 5, 7,	10, 7, 14, 7, 6, 14, 7, 14, 12, 11,	10, 7, 14, 7, 6, 14, 7, 14, 12, 11,
4, 7, 0, 0, 2, 2, 8, 9, 3, 2, 3, 9,	10, 1, 7, 12, 5, 3, 6, 13, 11, 4, 7,	10, 1, 7, 12, 5, 3, 6, 13, 11, 4, 7,
5, 5, 2, 0, 6, 6, 9, 9, 5, 8, 7, 3,	3, 13, 9, 10, 2, 16, 8, 7, 5, 3, 10,	3, 13, 9, 10, 2, 16, 8, 7, 5, 3, 10,
0, 7, 2, 2, 4, 9, 9, 3, 3, 0, 1, 5,	10, 16, 6, 10, 8, 12, 8, 7, 6, 5, 16,	10, 16, 6, 10, 8, 12, 8, 7, 6, 5, 16,
8, 4, 2, 9, 6, 5, 0, 7, 2, 5, 1, 2,	11, 12, 3, 6, 18, 13, 9, 4, 3, 8, 15,	
7, 4, 5, 1, 6, 8, 7, 5, 4, 9, 2, 6,	12, 12, 10, 8, 10, 9, 9, 16, 6, 11,	12, 12, 10, 8, 10, 9, 9, 16, 6, 11,
8, 4, 9, 6, 3, 3, 0, 1, 4, 4, 0};	8, 18, 11, 11, 3, 0, 8, 12, 15, 11,	8, 18, 11, 11, 3, 0, 8, 12, 15, 11,
LLNode* head =	6, 10, 13, 12, 1, 14, 5, 10, 3, 6,	6, 10, 13, 12, 1, 14, 5, 10, 3, 6,
LLNode::createWithIterators(arr, arr	11, 10, 8, 4, 10, 17, 8, 7, 8, 17, 6,	
+ sizeof(arr) / sizeof(int));	10, 8, 13, 16, 13, 6, 4, 3, 3, 12, 9,	10, 8, 13, 16, 13, 6, 4, 3, 3, 12, 9,
LLNode::printList(head);	6]	6]
cout << "\n";		
LLNode* newhead =		
<pre>foldLinkedList(head);</pre>		
LLNode::printList(newhead);		

Passed all tests! 🗸



```
Question 5
Correct
Mark 1.00 out of 1.00
```

Class LLNode representing a node of singly linked lists is declared as below:

```
class LLNode {
public:
    int val;
    LLNode* next;
    LLNode(); // Constructor: val = 0, next = nullptr
    LLNode(int val, LLNode* next); // Constructor with customized data
}
```

Given a singly linked list head node.

Your task is to implement a function with following prototype:

```
LLNode* replaceFirstGreater(LLNode* head);
```

The function returns head node of the singly linked list after replacing every node's value with the first greater node's value to its right. If a node doesn't have a next greater node, set its value to 0.

Note:

- The iostream and stack libraries have been included and namespace std is being used. No other libraries are allowed.
- The constructors and methods of class LLNode have been defined fully so you do not need to redefine them.
- You can write helper functions.

Answer: (penalty regime: 0 %)

```
using ptr = LLNode*;
    int sizeLL (LLNode* list);
 2
    LLNode* replaceFirstGreater(LLNode* head) {
 3 ▼
 4
        int size = sizeLL(head); //
        int* arr = new int [size];
 5
        ptr h = head;
 6
 7
        for (int i = 0;i < size; ++i, h = h->next )
 8
 9
             arr[i] = h->val;
10
        }
11
        stack<int> test;
12
        for (int i = 0; i < size-1; ++i)</pre>
13
14
             for (int j = i+1; j < size; ++j)</pre>
15
16
                 if(arr[j] > arr[i])
17
18
                     test.push(arr[j]);
19
                     break;
20
                 if (j == size -1) test.push(0);
21
22
             }
23
        }
                 . ...
```

Test	Expected	Got	

	Lub 1. Origiy Linkou List. / ittoriow			
	Test	Expected	Got	
~	<pre>int arr[] = {0, 3, 2, 1, 5}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = replaceFirstGreater(head); LLNode::printList(newhead);</pre>	[0, 3, 2, 1, 5] [3, 5, 5, 5, 0]	[0, 3, 2, 1, 5] [3, 5, 5, 5, 0]	~
*	<pre>int arr[] = {5, 4, 2, 8, 6, 7}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = replaceFirstGreater(head); LLNode::printList(newhead);</pre>	[5, 4, 2, 8, 6, 7] [8, 8, 8, 0, 7, 0]	[5, 4, 2, 8, 6, 7] [8, 8, 8, 0, 7, 0]	~
~	<pre>int arr[] = {}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = replaceFirstGreater(head); LLNode::printList(newhead);</pre>	[]	[]	~
*	<pre>int arr[] = {8, 3, 5, 0, 8, 7, 1, 6, 5, 4}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = replaceFirstGreater(head); LLNode::printList(newhead);</pre>	[8, 3, 5, 0, 8, 7, 1, 6, 5, 4] [0, 5, 8, 8, 0, 0, 6, 0, 0, 0]	[8, 3, 5, 0, 8, 7, 1, 6, 5, 4] [0, 5, 8, 8, 0, 0, 6, 0, 0, 0]	~
~	<pre>int arr[] = {8, 1, 8, 1, 6, 9, 7, 8, 4, 0, 7, 6, 1, 0, 3, 4, 3, 7, 3, 3, 5, 0, 3, 7, 3, 8, 4, 9, 9, 0, 9, 7, 2, 5, 2, 5, 0, 1, 7, 4, 9, 1, 2, 2, 4, 2, 9, 7, 0, 0, 7, 3, 8, 8, 1, 7, 7, 7, 8, 1, 0, 7, 6, 3, 7, 3, 0, 3, 0, 2, 2, 7, 7, 2, 2, 4, 5, 2, 2, 1, 1, 8, 6, 8, 1, 4, 7, 1, 5, 5, 7, 5, 5, 3, 0, 0, 5, 4, 1, 8, 4, 7, 1, 7, 8}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = replaceFirstGreater(head); LLNode::printList(newhead);</pre>	[8, 1, 8, 1, 6, 9, 7, 8, 4, 0, 7, 6, 1, 0, 3, 4, 3, 7, 3, 3, 5, 0, 3, 7, 3, 8, 4, 9, 9, 0, 9, 7, 2, 5, 2, 5, 0, 1, 7, 4, 9, 1, 2, 2, 4, 2, 9, 7, 0, 0, 7, 6, 3, 7, 3, 8, 8, 1, 7, 7, 7, 8, 1, 0, 7, 6, 3, 7, 3, 0, 3, 0, 2, 2, 7, 7, 2, 2, 4, 5, 2, 2, 1, 1, 8, 6, 8, 1, 4, 7, 1, 5, 5, 7, 5, 5, 3, 0, 0, 5, 4, 1, 8, 4, 7, 1, 7, 8] [9, 8, 9, 6, 9, 0, 8, 9, 7, 7, 8, 7, 3, 3, 4, 7, 7, 8, 5, 5, 7, 3, 7, 8, 8, 9, 9, 0, 0, 9, 0, 9, 5, 7, 5, 7, 1, 7, 9, 9, 0, 9, 0, 9, 5, 7, 5, 7, 1, 7, 9, 9, 0, 2, 4, 4, 9, 9, 0, 8, 7, 7, 8, 8, 0, 0, 7, 8, 8, 8, 0, 7, 7, 8, 7, 7, 8, 7, 3, 7, 2, 7, 7, 8, 8, 4, 4, 5, 8, 8, 8, 8, 8, 8, 8, 8, 8, 6, 4, 7, 8, 5, 7, 7, 8, 8, 8, 8, 5, 5, 5, 8, 8, 8, 0, 7, 8, 7, 8, 7, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	[8, 1, 8, 1, 6, 9, 7, 8, 4, 0, 7, 6, 1, 0, 3, 4, 3, 7, 3, 3, 5, 0, 3, 7, 3, 8, 4, 9, 9, 0, 9, 7, 2, 5, 2, 5, 0, 1, 7, 4, 9, 1, 2, 2, 4, 2, 9, 7, 0, 0, 7, 6, 3, 7, 3, 8, 8, 1, 7, 7, 7, 8, 1, 0, 7, 6, 3, 7, 3, 0, 3, 0, 2, 2, 7, 7, 2, 2, 4, 5, 2, 2, 1, 1, 8, 6, 8, 1, 4, 7, 1, 5, 5, 7, 5, 5, 3, 0, 0, 5, 4, 1, 8, 4, 7, 1, 7, 8] [9, 8, 9, 6, 9, 0, 8, 9, 7, 7, 8, 7, 3, 3, 4, 7, 7, 8, 5, 5, 7, 3, 7, 8, 8, 9, 9, 0, 9, 0, 9, 5, 7, 5, 7, 1, 7, 9, 9, 0, 9, 0, 9, 5, 7, 5, 7, 1, 7, 9, 9, 0, 2, 4, 4, 9, 9, 0, 8, 7, 7, 8, 8, 0, 0, 7, 8, 8, 8, 0, 7, 7, 8, 7, 7, 8, 7, 3, 7, 2, 7, 7, 8, 8, 4, 4, 5, 8, 8, 8, 8, 8, 8, 8, 8, 8, 6, 8, 0, 4, 7, 8, 5, 7, 7, 8, 8, 8, 8, 5, 5, 5, 8, 8, 8, 8, 0, 7, 8, 7, 8, 8, 8, 7, 7, 8, 8, 8, 8, 8, 8, 5, 5, 5, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	*
~	int arr[] = {1, 8, 9, 0, 6, 3, 5, 1, 0, 9, 0, 6, 9, 4, 8, 7, 9, 7, 1, 4,	[1, 8, 9, 0, 6, 3, 5, 1, 0, 9, 0, 6, 9, 4, 8, 7, 9, 7, 1, 4, 9, 4, 2, 6,	[1, 8, 9, 0, 6, 3, 5, 1, 0, 9, 0, 6, 9, 4, 8, 7, 9, 7, 1, 4, 9, 4, 2, 6,	~

Test	Expected	Got
9, 4, 2, 6, 0, 9, 6, 5, 1, 5, 6, 7,	0, 9, 6, 5, 1, 5, 6, 7, 0, 3, 3, 3,	0, 9, 6, 5, 1, 5, 6, 7, 0, 3, 3, 3,
0, 3, 3, 3, 4, 8, 3, 0, 6, 8, 1, 2,	4, 8, 3, 0, 6, 8, 1, 2, 2, 4, 7, 4,	4, 8, 3, 0, 6, 8, 1, 2, 2, 4, 7, 4,
2, 4, 7, 4, 3, 4, 5, 4, 2, 1, 7, 7,	3, 4, 5, 4, 2, 1, 7, 7, 7, 2, 2, 0,	3, 4, 5, 4, 2, 1, 7, 7, 7, 2, 2, 0,
7, 2, 2, 0, 0, 6, 8, 5, 2, 1, 1, 9,	0, 6, 8, 5, 2, 1, 1, 9, 3, 8, 1, 6,	0, 6, 8, 5, 2, 1, 1, 9, 3, 8, 1, 6,
3, 8, 1, 6, 5, 2, 6, 4, 2, 9, 6, 1,	5, 2, 6, 4, 2, 9, 6, 1, 8, 1, 9, 9,	5, 2, 6, 4, 2, 9, 6, 1, 8, 1, 9, 9,
8, 1, 9, 9, 3, 4, 7, 7, 3, 3, 5, 7,	3, 4, 7, 7, 3, 3, 5, 7, 7, 5, 9, 3,	3, 4, 7, 7, 3, 3, 5, 7, 7, 5, 9, 3,
7, 5, 9, 3, 5, 0, 1, 4, 2, 2, 5, 0,	5, 0, 1, 4, 2, 2, 5, 0, 7, 6, 5, 8,	5, 0, 1, 4, 2, 2, 5, 0, 7, 6, 5, 8,
7, 6, 5, 8, 8, 6, 7, 6, 5, 3, 3, 5,	8, 6, 7, 6, 5, 3, 3, 5, 3, 3, 2, 2,	8, 6, 7, 6, 5, 3, 3, 5, 3, 3, 2, 2,
3, 3, 2, 2, 6, 0, 5, 0, 3, 1, 5, 9,	6, 0, 5, 0, 3, 1, 5, 9, 9, 3, 6, 2,	6, 0, 5, 0, 3, 1, 5, 9, 9, 3, 6, 2,
9, 3, 6, 2, 6, 8, 5, 0, 4, 2, 8, 2,	6, 8, 5, 0, 4, 2, 8, 2, 3, 0, 3, 5,	6, 8, 5, 0, 4, 2, 8, 2, 3, 0, 3, 5,
3, 0, 3, 5, 5, 1, 1, 7, 3, 8, 0, 8,	5, 1, 1, 7, 3, 8, 0, 8, 1, 1, 9, 9,	5, 1, 1, 7, 3, 8, 0, 8, 1, 1, 9, 9,
1, 1, 9, 9, 1, 6, 5, 9, 2, 1, 2, 8,	1, 6, 5, 9, 2, 1, 2, 8, 9, 3, 8, 6,	1, 6, 5, 9, 2, 1, 2, 8, 9, 3, 8, 6,
9, 3, 8, 6, 7, 9, 1, 4, 9, 0, 6, 8,	7, 9, 1, 4, 9, 0, 6, 8, 1, 8, 5, 3,	7, 9, 1, 4, 9, 0, 6, 8, 1, 8, 5, 3,
1, 8, 5, 3, 2, 2, 1, 5, 0, 2, 7, 0,	2, 2, 1, 5, 0, 2, 7, 0, 0, 6, 9, 9,	2, 2, 1, 5, 0, 2, 7, 0, 0, 6, 9, 9,
0, 6, 9, 9, 9, 3, 6, 0, 4, 4, 0, 9,	9, 3, 6, 0, 4, 4, 0, 9, 9, 8, 0, 9,	9, 3, 6, 0, 4, 4, 0, 9, 9, 8, 0, 9,
9, 8, 0, 9, 7, 8, 3, 7, 1, 8, 7, 5,	7, 8, 3, 7, 1, 8, 7, 5, 7, 4, 2, 8,	7, 8, 3, 7, 1, 8, 7, 5, 7, 4, 2, 8,
7, 4, 2, 8, 2, 8, 5, 8, 1, 5, 6, 7,	2, 8, 5, 8, 1, 5, 6, 7, 1, 5, 2, 3,	2, 8, 5, 8, 1, 5, 6, 7, 1, 5, 2, 3,
1, 5, 2, 3, 8, 9, 1, 1, 4, 4, 3, 7,	8, 9, 1, 1, 4, 4, 3, 7, 3, 1, 4, 6,	8, 9, 1, 1, 4, 4, 3, 7, 3, 1, 4, 6,
3, 1, 4, 6, 0, 1, 0, 4, 9, 2, 1, 9,	0, 1, 0, 4, 9, 2, 1, 9, 5, 8, 5, 6,	0, 1, 0, 4, 9, 2, 1, 9, 5, 8, 5, 6,
5, 8, 5, 6, 1, 5, 5, 5, 5, 3, 5, 6,	1, 5, 5, 5, 5, 3, 5, 6, 0, 8, 5, 8,	1, 5, 5, 5, 5, 3, 5, 6, 0, 8, 5, 8,
0, 8, 5, 8, 4, 7, 8, 4, 7, 4, 2, 1,	4, 7, 8, 4, 7, 4, 2, 1, 6, 6, 6, 3,	4, 7, 8, 4, 7, 4, 2, 1, 6, 6, 6, 3,
6, 6, 6, 3, 6, 1, 8, 2, 7, 4, 9, 8,	6, 1, 8, 2, 7, 4, 9, 8, 9, 8, 2, 1,	6, 1, 8, 2, 7, 4, 9, 8, 9, 8, 2, 1,
9, 8, 2, 1, 4, 9, 3, 6, 3, 6, 2, 7,	4, 9, 3, 6, 3, 6, 2, 7, 6, 3, 5, 1,	4, 9, 3, 6, 3, 6, 2, 7, 6, 3, 5, 1,
6, 3, 5, 1, 6, 1, 3, 3, 1, 0, 3, 6,	6, 1, 3, 3, 1, 0, 3, 6, 7, 2, 7, 0,	6, 1, 3, 3, 1, 0, 3, 6, 7, 2, 7, 0,
7, 2, 7, 0, 9, 0, 2, 4, 4, 8, 1, 0,	9, 0, 2, 4, 4, 8, 1, 0, 4, 1, 6, 7,	9, 0, 2, 4, 4, 8, 1, 0, 4, 1, 6, 7,
4, 1, 6, 7, 7, 2, 6, 4, 4, 1, 8, 3,	7, 2, 6, 4, 4, 1, 8, 3, 7, 2, 5, 7,	7, 2, 6, 4, 4, 1, 8, 3, 7, 2, 5, 7,
7, 2, 5, 7, 2, 5, 7, 1, 3, 5, 8, 8,	2, 5, 7, 1, 3, 5, 8, 8, 2, 4, 8, 4,	2, 5, 7, 1, 3, 5, 8, 8, 2, 4, 8, 4,
2, 4, 8, 4, 8, 5, 6, 1, 1, 1, 2, 0,	8, 5, 6, 1, 1, 1, 2, 0, 1, 9, 9, 7,	8, 5, 6, 1, 1, 1, 2, 0, 1, 9, 9, 7,
1, 9, 9, 7, 7, 4, 8, 4, 6, 4, 5, 6,	7, 4, 8, 4, 6, 4, 5, 6, 8, 6, 6, 4,	7, 4, 8, 4, 6, 4, 5, 6, 8, 6, 6, 4,
8, 6, 6, 4, 5, 3, 1, 0, 8, 7, 2, 5,	5, 3, 1, 0, 8, 7, 2, 5, 6, 1, 7, 0,	5, 3, 1, 0, 8, 7, 2, 5, 6, 1, 7, 0,
6, 1, 7, 0, 6, 5, 9, 2, 1, 4, 9, 3,	6, 5, 9, 2, 1, 4, 9, 3, 8, 2, 3, 8,	6, 5, 9, 2, 1, 4, 9, 3, 8, 2, 3, 8,
8, 2, 3, 8, 3, 0, 5, 6, 0, 0, 4, 9,	3, 0, 5, 6, 0, 0, 4, 9, 8, 5, 8, 2,	3, 0, 5, 6, 0, 0, 4, 9, 8, 5, 8, 2,
8, 5, 8, 2, 9, 1, 9, 8, 7, 4, 5, 3,	9, 1, 9, 8, 7, 4, 5, 3, 1, 3, 3, 1,	9, 1, 9, 8, 7, 4, 5, 3, 1, 3, 3, 1,
1, 3, 3, 1, 0, 1, 2, 5, 6, 6, 6, 8,	0, 1, 2, 5, 6, 6, 6, 8, 7, 7, 4, 2,	0, 1, 2, 5, 6, 6, 6, 8, 7, 7, 4, 2,
7, 7, 4, 2, 5, 7, 1, 7, 2, 1, 2, 7,	5, 7, 1, 7, 2, 1, 2, 7, 8, 0, 1, 3,	5, 7, 1, 7, 2, 1, 2, 7, 8, 0, 1, 3,
8, 0, 1, 3, 8, 8, 4, 9, 1, 7, 8, 5,	8, 8, 4, 9, 1, 7, 8, 5, 0, 8, 0, 9,	8, 8, 4, 9, 1, 7, 8, 5, 0, 8, 0, 9,
0, 8, 0, 9, 2, 1, 2, 4, 0, 3, 8, 0,	2, 1, 2, 4, 0, 3, 8, 0, 9, 9, 2, 3,	2, 1, 2, 4, 0, 3, 8, 0, 9, 9, 2, 3,
9, 9, 2, 3, 0, 7, 9, 3, 7, 7, 6, 0,	0, 7, 9, 3, 7, 7, 6, 0, 4, 1, 3, 6,	0, 7, 9, 3, 7, 7, 6, 0, 4, 1, 3, 6,
4, 1, 3, 6, 9, 0, 5, 5, 8, 2, 0, 5,	9, 0, 5, 5, 8, 2, 0, 5, 1, 5, 3, 6,	9, 0, 5, 5, 8, 2, 0, 5, 1, 5, 3, 6,
1, 5, 3, 6, 9, 4, 8, 2, 6, 5, 1, 1};	9, 4, 8, 2, 6, 5, 1, 1]	9, 4, 8, 2, 6, 5, 1, 1]
LLNode* head =	[8, 9, 0, 6, 9, 5, 9, 9, 0, 6, 9,	[8, 9, 0, 6, 9, 5, 9, 9, 9, 0, 6, 9]
LLNode::createWithIterators(arr, arr	0, 8, 9, 9, 0, 9, 4, 9, 0, 6, 6, 9,	0, 8, 9, 9, 0, 9, 4, 9, 0, 6, 6, 9,
+ sizeof(arr) / sizeof(int));	9, 0, 7, 6, 5, 6, 7, 8, 3, 4, 4, 4,	9, 0, 7, 6, 5, 6, 7, 8, 3, 4, 4, 4,
LLNode::printList(head);	8, 9, 6, 6, 8, 9, 2, 4, 4, 7, 8, 5,	8, 9, 6, 6, 8, 9, 2, 4, 4, 7, 8, 5,
cout << "\n";	4, 5, 7, 7, 7, 8, 8, 8, 6, 6, 6,	
LLNode* newhead =		4, 5, 7, 7, 7, 8, 8, 8, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6,
replaceFirstGreater(head);	6, 8, 9, 9, 9, 9, 9, 0, 8, 9, 6, 9,	6, 8, 9, 9, 9, 9, 0, 8, 9, 6, 9,
<pre>LLNode::printList(newhead);</pre>	6, 6, 9, 9, 9, 0, 8, 8, 9, 9, 0, 0,	6, 6, 9, 9, 9, 0, 8, 8, 9, 9, 0, 0,
remodeprinceisc(newnead);	4, 7, 9, 9, 5, 5, 7, 9, 9, 9, 0, 5,	4, 7, 9, 9, 5, 5, 7, 9, 9, 9, 0, 5,
	7, 1, 4, 5, 5, 5, 7, 7, 8, 8, 8, 9,	7, 1, 4, 5, 5, 5, 7, 7, 8, 8, 8, 9,
	9, 7, 9, 9, 6, 5, 5, 6, 6, 6, 6, 6, 6,	9, 7, 9, 9, 6, 5, 5, 6, 6, 6, 6, 6, 6,
	9, 5, 9, 3, 5, 5, 9, 0, 0, 6, 8, 6,	9, 5, 9, 3, 5, 5, 9, 0, 0, 6, 8, 6,
	8, 9, 8, 4, 8, 8, 9, 3, 5, 3, 5, 7,	8, 9, 8, 4, 8, 8, 9, 3, 5, 3, 5, 7,
	7, 7, 7, 8, 8, 9, 8, 9, 9, 9, 0, 0,	7, 7, 7, 8, 8, 9, 8, 9, 9, 9, 0, 0,
	6, 9, 9, 0, 8, 2, 8, 9, 0, 8, 9, 7,	6, 9, 9, 0, 8, 2, 8, 9, 0, 8, 9, 7,
	9, 0, 4, 9, 0, 6, 8, 9, 8, 9, 7, 5,	9, 0, 4, 9, 0, 6, 8, 9, 8, 9, 7, 5,
	5, 5, 5, 7, 2, 7, 9, 6, 6, 9, 0, 0,	5, 5, 5, 7, 2, 7, 9, 6, 6, 9, 0, 0,
	0, 6, 9, 4, 9, 9, 9, 0, 0, 9, 9, 0,	0, 6, 9, 4, 9, 9, 9, 0, 0, 9, 9, 0,
	8, 9, 7, 8, 8, 9, 8, 7, 8, 8, 8, 9,	8, 9, 7, 8, 8, 9, 8, 7, 8, 8, 8, 9,
	8, 9, 8, 9, 5, 6, 7, 8, 5, 8, 3, 8,	8, 9, 8, 9, 5, 6, 7, 8, 5, 8, 3, 8,

/:4/ AI	WI	Lab 1: Singly Linked List: Attempt review		
	Test	Expected	Got	
		1, 4, 4, 9, 0, 9, 9, 0, 8, 9, 6, 8,	1, 4, 4, 9, 0, 9, 9, 0, 8, 9, 6, 8,	
		5, 6, 6, 6, 6, 5, 6, 8, 8, 9, 8, 9,	5, 6, 6, 6, 6, 5, 6, 8, 8, 9, 8, 9,	
		7, 8, 9, 7, 8, 6, 6, 6, 8, 8, 8, 6,	7, 8, 9, 7, 8, 6, 6, 8, 8, 8, 8, 6,	
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Test	Expected	Got
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LLNode* head =	5, 9, 9, 0, 0, 8, 9, 7, 7, 7, 9, 9,	5, 9, 9, 0, 0, 8, 9, 7, 7, 7, 9, 9,
LLNode::createWithIterators(arr, arr	0, 6, 9, 0, 6, 6, 8, 8, 2, 2, 4, 8,	0, 6, 9, 0, 6, 6, 8, 8, 2, 2, 4, 8,
+ sizeof(arr) / sizeof(int));	4, 4, 4, 4, 8, 9, 9, 7, 5, 5, 7, 9,	4, 4, 4, 4, 8, 9, 9, 7, 5, 5, 7, 9,
LLNode::printList(head);	9, 7, 7, 7, 9, 9, 9, 0, 0, 7, 5, 7,	9, 7, 7, 7, 9, 9, 9, 0, 0, 7, 5, 7,
cout << "\n";	7, 8, 7, 5, 7, 8, 4, 8, 9, 6, 6, 8,	7, 8, 7, 5, 7, 8, 4, 8, 9, 6, 6, 8,
LLNode* newhead =	8, 9, 0, 9, 0, 8, 8, 9, 7, 4, 5, 7,	8, 9, 0, 9, 0, 8, 8, 9, 7, 4, 5, 7,
replaceFirstGreater(head);	7, 7, 8, 8, 9, 9, 9, 9, 9, 0, 7, 5,	7, 7, 8, 8, 9, 9, 9, 9, 9, 0, 7, 5,
LLNode::printList(newhead);	7, 3, 7, 8, 8, 6, 6, 8, 8, 9, 9, 9,	7, 3, 7, 8, 8, 6, 6, 8, 8, 9, 9, 9,
	0, 6, 6, 6, 6, 6, 9, 4, 4, 5, 5, 9,	0, 6, 6, 6, 6, 6, 9, 4, 4, 5, 5, 9,
	2, 4, 4, 4, 5, 5, 5, 9, 5, 9, 9, 9,	2, 4, 4, 4, 5, 5, 5, 9, 5, 9, 9, 9,
	0, 9, 0, 8, 8, 9, 9, 9, 4, 5, 3, 5,	0, 9, 0, 8, 8, 9, 9, 9, 4, 5, 3, 5,
	5, 9, 9, 0, 0, 9, 9, 9, 0, 1, 4, 7,	5, 9, 9, 0, 0, 9, 9, 0, 1, 4, 7,

Test	Expected	Got
	9, 9, 0, 6, 9, 0, 7, 9, 9, 4, 5,	
	9, 0, 9, 0, 7, 3, 3, 6, 7, 7, 8,	
	8, 8, 9, 6, 6, 9, 9, 0, 8, 9, 9,	9, 8, 8, 9, 6, 6, 9, 9, 0, 8, 9, 9, 9,
	0, 8, 8, 9, 5, 7, 3, 7, 8, 8, 9,	7, 0, 8, 8, 9, 5, 7, 3, 7, 8, 8, 9, 7,
	8, 9, 9, 0, 9, 0, 8, 2, 3, 8, 8,	8, 9, 9, 0, 9, 0, 8, 2, 3, 8, 8, 9,
	9, 6, 9, 9, 9, 0, 9, 4, 4, 7, 7,	9, 6, 9, 9, 9, 0, 9, 4, 4, 7, 7, 9,
	9, 0, 4, 4, 9, 0, 8, 9, 8, 5, 8,	9, 0, 4, 4, 9, 0, 8, 9, 8, 5, 8, 9,
	9, 7, 7, 1, 7, 9, 3, 9, 9, 0, 8,	8, 9, 7, 7, 1, 7, 9, 3, 9, 9, 0, 8, 8,
	9, 6, 7, 9, 7, 7, 9, 9, 9, 0, 3,	
	7, 8, 9, 7, 8, 9, 8, 9, 5, 8, 8,	
	8, 9, 2, 9, 0, 9, 0, 0, 7, 8, 5,	
	5, 6, 3, 6, 8, 8, 9, 9, 0, 7, 8, 8, 9, 9, 9, 9, 5, 5, 6, 6, 4, 6,	
	0, 8, 2, 8, 9, 7, 7, 1, 7, 7, 7,	
	9, 9, 0, 8, 9, 0, 9, 9, 7, 7, 9,	
	9, 0, 5, 8, 4, 8, 2, 8, 9, 7, 8,	
	5, 5, 8, 8, 4, 8, 9, 9, 3, 5, 5,	
	3, 5, 9, 9, 0, 7, 7, 8, 6, 8, 8,	
	9, 6, 5, 6, 2, 4, 6, 6, 7, 4, 6,	
	6, 7, 7, 9, 0, 9, 6, 9, 0, 6, 9,	
	0, 4, 4, 5, 5, 6, 6, 6, 9, 6, 6,	9, 0, 4, 4, 5, 5, 6, 6, 6, 9, 6, 6, 9,
	5, 9, 9, 2, 9, 9, 0, 1, 8, 9, 5,	5, 9, 9, 2, 9, 9, 0, 1, 8, 9, 5, 5,
	6, 6, 6, 3, 6, 7, 7, 8, 8, 9, 8,	8, 6, 6, 6, 3, 6, 7, 7, 8, 8, 9, 8, 8,
	9, 5, 7, 7, 8, 4, 8, 9, 9, 0,	9, 5, 7, 7, 8, 4, 8, 9, 9, 0, 4,
	9, 3, 9, 0, 3, 3, 4, 4, 5, 2, 4,	
	5, 4, 4, 1, 1, 4, 5, 7, 9, 9, 0,	
	5, 7, 8, 5, 7, 7, 8, 6, 6, 8, 9,	
	8, 8, 9, 3, 6, 9, 6, 9, 9, 0, 5,	
	5, 5, 8, 9, 9, 9, 0, 9, 9, 4, 9,	
	6, 8, 3, 4, 6, 6, 4, 6, 6, 8, 8, 7, 8, 4, 6, 3, 6, 8, 9, 8, 8, 9,	
	8, 9, 8, 3, 5, 8, 9, 8, 4, 4, 8,	
	9, 9, 0, 6, 9, 0, 9, 9, 0, 8, 9,	
	3, 8, 9, 8, 9, 9, 9, 0, 2, 6, 9,	
	9, 5, 5, 9, 9, 2, 5, 9, 9, 0, 4,	1, 9, 5, 5, 9, 9, 2, 5, 9, 9, 0, 4, 1,
	2, 2, 4, 4, 6, 6, 3, 6, 9, 9, 0,	2, 2, 4, 4, 6, 6, 3, 6, 9, 9, 0, 6,
	9, 9, 9, 0, 5, 5, 5, 9, 0, 7, 7,	9, 9, 9, 0, 5, 5, 5, 9, 0, 7, 7, 9,
	0, 8, 8, 8, 9, 1, 8, 9, 8, 7,	2, 0, 8, 8, 8, 8, 9, 1, 8, 9, 8, 7, 2,
	7, 7, 8, 5, 7, 8, 6, 8, 9, 5, 5,	5, 7, 7, 8, 5, 7, 8, 6, 8, 9, 5, 5, 5,
	5, 9, 0, 9, 0, 4, 4, 9, 9, 9, 0,	9, 5, 9, 0, 9, 0, 4, 4, 9, 9, 9, 0, 9,
	4, 6, 3, 3, 6, 6, 9, 6, 6, 9, 9,	
	0, 5, 7, 7, 8, 9, 7, 6, 7, 7, 8,	
	5, 6, 6, 6, 7, 7, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	
	9, 3, 9, 3, 9, 9, 0, 5, 6, 6, 9, 6, 9, 9, 9, 0, 0, 5, 8, 8, 9, 9,	
	4, 5, 5, 9, 9, 0, 3, 9, 9, 0, 8,	
	7, 7, 8, 9, 9, 0, 9, 9, 9, 0,	
	0, 9, 9, 2, 2, 2, 9, 9, 9, 9, 0,	
	7, 7, 8, 8, 9, 9, 9, 0, 9, 0, 6,	8, 7, 7, 8, 8, 9, 9, 9, 0, 9, 0, 6, 8,
	4, 4, 5, 6, 6, 6, 6, 8, 8, 9,	4, 4, 5, 6, 6, 6, 6, 8, 8, 9, 4,
	7, 8, 8, 5, 3, 4, 5, 7, 7, 8, 4,	7, 8, 8, 5, 3, 4, 5, 7, 7, 8, 4, 4,
	4, 6, 6, 8, 8, 8, 8, 6, 6, 8, 8,	4, 6, 6, 8, 8, 8, 8, 6, 6, 8, 8, 8,
	8, 9, 3, 3, 7, 9, 4, 4, 4, 9, 9,	8, 9, 3, 3, 7, 9, 4, 4, 4, 9, 9, 0,
	8, 8, 9, 6, 7, 7, 8, 7, 7, 8, 9,	
	6, 7, 9, 9, 9, 5, 5, 9, 9, 9, 0,	
	0, 8, 9, 8, 5, 5, 8, 8, 4, 8, 9,	
	0, 7, 7, 8, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	
	0, 4, 5, 6, 6, 9, 0, 6, 9, 9, 0,	
	4, 9, 9, 9, 0, 8, 9, 7, 8, 9, 9,	
	9, 9, 9, 0, 7, 8, 1, 5, 5, 8, 8,	9, 9, 9, 9, 0, 7, 8, 1, 5, 5, 8, 8, 9,

		Lab 1. Olligiy Ellinod Elot. 7 tt		_
	Test	Expected	Got	
		2, 4, 8, 4, 8, 8, 9, 6, 7, 9, 6, 9,	2, 4, 8, 4, 8, 8, 9, 6, 7, 9, 6, 9,	
		9, 5, 6, 9, 4, 5, 4, 5, 9, 0, 9, 1,	9, 5, 6, 9, 4, 5, 4, 5, 9, 0, 9, 1,	
		9, 0, 9, 0, 7, 8, 8, 3, 4, 8, 9, 3, 3, 7, 3, 7, 7, 9, 2, 6, 9, 9, 0, 6,	9, 0, 9, 0, 7, 8, 8, 3, 4, 8, 9, 3, 3, 7, 3, 7, 7, 9, 2, 6, 9, 9, 0, 6,	
		9, 0, 8, 8, 8, 9, 8, 8, 9, 8, 8, 9,	9, 0, 8, 8, 8, 9, 8, 8, 9, 8, 8, 9,	
		3, 4, 9, 9, 0, 0, 9, 9, 8, 9, 9, 6,	3, 4, 9, 9, 0, 0, 9, 9, 8, 9, 9, 6,	
		7, 7, 7, 9, 0, 7, 8, 9, 8, 8, 8, 3,	7, 7, 7, 9, 0, 7, 8, 9, 8, 8, 8, 3,	
		3, 3, 8, 9, 8, 9, 7, 7, 8, 9, 9, 7,	3, 3, 8, 9, 8, 9, 7, 7, 8, 9, 9, 7,	
		7, 9, 7, 7, 7, 9, 6, 9, 9, 9, 0, 6,	7, 9, 7, 7, 7, 9, 6, 9, 9, 9, 0, 6,	
		6, 7, 5, 7, 8, 8, 0, 0, 0]	6, 7, 5, 7, 8, 8, 0, 0, 0]	
~	int arr[] = {9, 4, 4, 4, 4, 3, 6, 1,	[9, 4, 4, 4, 4, 3, 6, 1, 6, 9, 4, 9,	[9, 4, 4, 4, 4, 3, 6, 1, 6, 9, 4, 9,	
	6, 9, 4, 9, 0, 1, 0, 4, 5, 9, 8, 7,	0, 1, 0, 4, 5, 9, 8, 7, 3, 3, 6, 6,	0, 1, 0, 4, 5, 9, 8, 7, 3, 3, 6, 6,	
	3, 3, 6, 6, 0, 1, 6, 4, 3, 3, 4, 3,	0, 1, 6, 4, 3, 3, 4, 3, 7, 9, 4, 1,	0, 1, 6, 4, 3, 3, 4, 3, 7, 9, 4, 1,	
	7, 9, 4, 1, 0, 5, 1, 8, 0, 2, 6, 5,	0, 5, 1, 8, 0, 2, 6, 5, 4, 6, 7, 4,	0, 5, 1, 8, 0, 2, 6, 5, 4, 6, 7, 4,	
	4, 6, 7, 4, 4, 5, 3, 2, 0, 6, 1, 6,	4, 5, 3, 2, 0, 6, 1, 6, 6, 3, 7, 9,	4, 5, 3, 2, 0, 6, 1, 6, 6, 3, 7, 9,	
	6, 3, 7, 9, 1, 9, 9, 2, 9, 2, 0, 8,	1, 9, 9, 2, 9, 2, 0, 8, 8, 1, 1, 6,	1, 9, 9, 2, 9, 2, 0, 8, 8, 1, 1, 6,	
	8, 1, 1, 6, 1, 2, 9, 7, 5, 7, 5, 6, 0, 0, 7, 7, 4, 4, 2, 1, 0, 8, 9, 2,	1, 2, 9, 7, 5, 7, 5, 6, 0, 0, 7, 7, 4, 4, 2, 1, 0, 8, 9, 2, 3, 2, 8, 5,	1, 2, 9, 7, 5, 7, 5, 6, 0, 0, 7, 7, 4, 4, 2, 1, 0, 8, 9, 2, 3, 2, 8, 5,	
	3, 2, 8, 5, 4, 3, 2, 2, 3, 9, 8, 0,	4, 3, 2, 2, 3, 9, 8, 0, 9, 2, 4, 4,	4, 3, 2, 2, 3, 9, 8, 0, 9, 2, 4, 4,	
	9, 2, 4, 4, 9, 4, 5, 0, 4, 3, 3, 2,	9, 4, 5, 0, 4, 3, 3, 2, 3, 1, 7, 8,	9, 4, 5, 0, 4, 3, 3, 2, 3, 1, 7, 8,	
	3, 1, 7, 8, 4, 3, 9, 0, 9, 2, 6, 7,	4, 3, 9, 0, 9, 2, 6, 7, 5, 6, 7, 3,	4, 3, 9, 0, 9, 2, 6, 7, 5, 6, 7, 3,	
	5, 6, 7, 3, 9, 5, 6, 4, 9, 6, 3, 7,	9, 5, 6, 4, 9, 6, 3, 7, 4, 7, 3, 6,	9, 5, 6, 4, 9, 6, 3, 7, 4, 7, 3, 6,	
	4, 7, 3, 6, 7, 6, 8, 8, 2, 7, 9, 2,	7, 6, 8, 8, 2, 7, 9, 2, 9, 4, 3, 5,	7, 6, 8, 8, 2, 7, 9, 2, 9, 4, 3, 5,	
	9, 4, 3, 5, 7, 3, 7, 2, 1, 5, 0, 8,	7, 3, 7, 2, 1, 5, 0, 8, 1, 6, 8, 3,	7, 3, 7, 2, 1, 5, 0, 8, 1, 6, 8, 3,	
	1, 6, 8, 3, 3, 6, 6, 9, 0, 8, 7, 4,	3, 6, 6, 9, 0, 8, 7, 4, 2, 2, 5, 6,	3, 6, 6, 9, 0, 8, 7, 4, 2, 2, 5, 6,	
	2, 2, 5, 6, 8, 8, 8, 0, 2, 7, 5, 8, 0, 9, 7, 7, 6, 0, 9, 3, 6, 1, 3, 0,	8, 8, 8, 0, 2, 7, 5, 8, 0, 9, 7, 7, 6, 0, 9, 3, 6, 1, 3, 0, 8, 8, 1, 0,	8, 8, 8, 0, 2, 7, 5, 8, 0, 9, 7, 7, 6, 0, 9, 3, 6, 1, 3, 0, 8, 8, 1, 0,	
	8, 8, 1, 0, 5, 6, 2, 3, 2, 5, 2, 8,	5, 6, 2, 3, 2, 5, 2, 8, 9, 9, 9, 8,	5, 6, 2, 3, 2, 5, 2, 8, 9, 9, 9, 8,	
	9, 9, 9, 8, 0, 2, 8, 6, 7, 1, 9, 8,	0, 2, 8, 6, 7, 1, 9, 8, 4, 1, 6, 4,	0, 2, 8, 6, 7, 1, 9, 8, 4, 1, 6, 4,	
	4, 1, 6, 4, 2, 8, 1, 4, 7, 4, 3, 1,	2, 8, 1, 4, 7, 4, 3, 1, 2, 9, 1, 3,	2, 8, 1, 4, 7, 4, 3, 1, 2, 9, 1, 3,	
	2, 9, 1, 3, 9, 2, 6, 8, 6, 8, 6, 7,	9, 2, 6, 8, 6, 8, 6, 7, 5, 5, 4, 6,	9, 2, 6, 8, 6, 8, 6, 7, 5, 5, 4, 6,	
	5, 5, 4, 6, 2, 9, 1, 0, 0, 9, 2, 8,	2, 9, 1, 0, 0, 9, 2, 8, 6, 2, 4, 6,	2, 9, 1, 0, 0, 9, 2, 8, 6, 2, 4, 6,	
	6, 2, 4, 6, 4, 6, 0, 8, 6, 1, 3, 3,	4, 6, 0, 8, 6, 1, 3, 3, 3, 9, 3, 9,	4, 6, 0, 8, 6, 1, 3, 3, 3, 9, 3, 9,	
	3, 9, 3, 9, 5, 4, 9, 1, 1, 8, 7, 9,	5, 4, 9, 1, 1, 8, 7, 9, 0, 1, 7, 2,	5, 4, 9, 1, 1, 8, 7, 9, 0, 1, 7, 2,	
	0, 1, 7, 2, 1, 2, 1, 4, 1, 5, 2, 0, 0, 8, 2, 5, 8, 4, 7, 1, 9, 1, 9, 1,	1, 2, 1, 4, 1, 5, 2, 0, 0, 8, 2, 5, 8, 4, 7, 1, 9, 1, 9, 1, 3, 8, 3, 2,	1, 2, 1, 4, 1, 5, 2, 0, 0, 8, 2, 5, 8, 4, 7, 1, 9, 1, 9, 1, 3, 8, 3, 2,	
	3, 8, 3, 2, 3, 3, 8, 9, 4, 3, 4, 4,	3, 3, 8, 9, 4, 3, 4, 4, 5, 5, 1, 7,	3, 3, 8, 9, 4, 3, 4, 4, 5, 5, 1, 7,	
	5, 5, 1, 7, 8, 7, 6, 1, 2, 4, 6, 3,	8, 7, 6, 1, 2, 4, 6, 3, 0, 8, 3, 0,	8, 7, 6, 1, 2, 4, 6, 3, 0, 8, 3, 0,	
	0, 8, 3, 0, 4, 2, 3, 7, 7, 0, 4, 4,	4, 2, 3, 7, 7, 0, 4, 4, 4, 4, 3, 9,	4, 2, 3, 7, 7, 0, 4, 4, 4, 4, 3, 9,	
	4, 4, 3, 9, 0, 1, 8, 0, 9, 3, 7, 6,	0, 1, 8, 0, 9, 3, 7, 6, 5, 0, 8, 9,	0, 1, 8, 0, 9, 3, 7, 6, 5, 0, 8, 9,	
	5, 0, 8, 9, 6, 6, 1, 5, 6, 5, 7, 9,	6, 6, 1, 5, 6, 5, 7, 9, 8, 8, 9, 8,	6, 6, 1, 5, 6, 5, 7, 9, 8, 8, 9, 8,	
	8, 8, 9, 8, 5, 6, 2, 9, 3, 5, 3, 6,	5, 6, 2, 9, 3, 5, 3, 6, 1, 5, 7, 3,	5, 6, 2, 9, 3, 5, 3, 6, 1, 5, 7, 3,	
	1, 5, 7, 3, 4, 8, 3, 1, 0, 0, 8, 9,	4, 8, 3, 1, 0, 0, 8, 9, 6, 7, 5, 9,	4, 8, 3, 1, 0, 0, 8, 9, 6, 7, 5, 9,	
	6, 7, 5, 9, 3, 5, 3, 7, 2, 1, 1, 9,	3, 5, 3, 7, 2, 1, 1, 9, 0, 9, 6, 4,	3, 5, 3, 7, 2, 1, 1, 9, 0, 9, 6, 4,	
	0, 9, 6, 4, 8, 7, 4, 5, 8, 9, 6, 7, 0, 0, 8, 7, 8, 4, 3, 1, 6, 1, 0, 5,	8, 7, 4, 5, 8, 9, 6, 7, 0, 0, 8, 7, 8, 4, 3, 1, 6, 1, 0, 5, 8, 8, 4, 3,	8, 7, 4, 5, 8, 9, 6, 7, 0, 0, 8, 7, 8, 4, 3, 1, 6, 1, 0, 5, 8, 8, 4, 3,	
	8, 8, 4, 3, 7, 9, 0, 9, 1, 8, 6, 4,	7, 9, 0, 9, 1, 8, 6, 4, 3, 2, 2, 0,	7, 9, 0, 9, 1, 8, 6, 4, 3, 2, 2, 0,	
	3, 2, 2, 0, 5, 0, 2, 9, 8, 8, 0, 7,	5, 0, 2, 9, 8, 8, 0, 7, 2, 6, 9, 4,	5, 0, 2, 9, 8, 8, 0, 7, 2, 6, 9, 4,	
	2, 6, 9, 4, 8, 7, 3, 4, 8, 8, 7, 6,	8, 7, 3, 4, 8, 8, 7, 6, 5, 9, 0, 7,	8, 7, 3, 4, 8, 8, 7, 6, 5, 9, 0, 7,	
	5, 9, 0, 7, 0, 9, 2, 6, 6, 8, 0, 1,	0, 9, 2, 6, 6, 8, 0, 1, 3, 5, 5, 8,	0, 9, 2, 6, 6, 8, 0, 1, 3, 5, 5, 8,	
	3, 5, 5, 8, 3, 3, 9, 1, 1, 7, 1, 9,	3, 3, 9, 1, 1, 7, 1, 9, 8, 2, 6, 2,	3, 3, 9, 1, 1, 7, 1, 9, 8, 2, 6, 2,	
	8, 2, 6, 2, 1, 6, 6, 9, 1, 9, 7, 8,	1, 6, 6, 9, 1, 9, 7, 8, 9, 3, 5, 8,	1, 6, 6, 9, 1, 9, 7, 8, 9, 3, 5, 8,	
	9, 3, 5, 8, 1, 9, 2, 8, 3, 4, 1, 5,	1, 9, 2, 8, 3, 4, 1, 5, 1, 3, 2, 3,	1, 9, 2, 8, 3, 4, 1, 5, 1, 3, 2, 3,	
	1, 3, 2, 3, 3, 9, 4, 6, 6, 6, 7, 4, 0, 8, 9, 2, 7, 6, 2, 8, 7, 2, 3, 3,	3, 9, 4, 6, 6, 6, 7, 4, 0, 8, 9, 2, 7, 6, 2, 8, 7, 2, 3, 3, 2, 3, 6, 3,	3, 9, 4, 6, 6, 6, 7, 4, 0, 8, 9, 2, 7, 6, 2, 8, 7, 2, 3, 3, 2, 3, 6, 3,	
	2, 3, 6, 3, 5, 6, 0, 7, 3, 7, 9, 8,	5, 6, 0, 7, 3, 7, 9, 8, 4, 3, 3, 8,	5, 6, 0, 7, 3, 7, 9, 8, 4, 3, 3, 8,	
	4, 3, 3, 8, 6, 1, 0, 7, 2, 8, 7, 6,	6, 1, 0, 7, 2, 8, 7, 6, 6, 8, 3, 0,	6, 1, 0, 7, 2, 8, 7, 6, 6, 8, 3, 0,	
	6, 8, 3, 0, 5, 8, 1, 8, 5, 2, 5, 3,	5, 8, 1, 8, 5, 2, 5, 3, 9, 5, 0, 9,	5, 8, 1, 8, 5, 2, 5, 3, 9, 5, 0, 9,	
	9, 5, 0, 9, 7, 7, 0, 9, 0, 1, 4, 3,	7, 7, 0, 9, 0, 1, 4, 3, 8, 0, 0, 6,	7, 7, 0, 9, 0, 1, 4, 3, 8, 0, 0, 6,	
	8, 0, 0, 6, 3, 6, 4, 7, 5, 6, 9, 7,	3, 6, 4, 7, 5, 6, 9, 7, 4, 7, 7, 4,	3, 6, 4, 7, 5, 6, 9, 7, 4, 7, 7, 4,	

7.77	Edb 1. Oligiy Elinou Elot. Attompt roviow		
	Test	Expected	Got
	4, 7, 7, 4, 4, 6, 8, 2, 6, 3, 0, 8,	4, 6, 8, 2, 6, 3, 0, 8, 6, 1, 4, 0,	4, 6, 8, 2, 6, 3, 0, 8, 6, 1, 4, 0,
	6, 1, 4, 0, 9, 1, 9, 8, 4, 7, 6, 6,	9, 1, 9, 8, 4, 7, 6, 6, 3, 2, 0, 7,	9, 1, 9, 8, 4, 7, 6, 6, 3, 2, 0, 7,
	3, 2, 0, 7, 0, 2, 2, 2, 9, 1, 5, 4,	0, 2, 2, 2, 9, 1, 5, 4, 1, 0, 9, 3,	0, 2, 2, 2, 9, 1, 5, 4, 1, 0, 9, 3,
	1, 0, 9, 3, 5, 6, 7, 9, 9, 5, 3, 1,	5, 6, 7, 9, 9, 5, 3, 1, 3, 0, 8, 7,	5, 6, 7, 9, 9, 5, 3, 1, 3, 0, 8, 7,
	3, 0, 8, 7, 4, 7, 2, 8, 1, 6, 5, 9,	4, 7, 2, 8, 1, 6, 5, 9, 0, 6, 0, 8,	4, 7, 2, 8, 1, 6, 5, 9, 0, 6, 0, 8,
	0, 6, 0, 8, 8, 4, 6, 1, 5, 4, 8, 0,	8, 4, 6, 1, 5, 4, 8, 0, 5, 1, 5, 8,	8, 4, 6, 1, 5, 4, 8, 0, 5, 1, 5, 8,
	5, 1, 5, 8, 4, 3, 5, 7, 8, 5, 7, 1,	4, 3, 5, 7, 8, 5, 7, 1, 8, 0, 6, 5,	4, 3, 5, 7, 8, 5, 7, 1, 8, 0, 6, 5,
	8, 0, 6, 5, 8, 0, 2, 0, 2, 7, 6, 2,	8, 0, 2, 0, 2, 7, 6, 2, 3, 0, 2, 6,	8, 0, 2, 0, 2, 7, 6, 2, 3, 0, 2, 6,
	3, 0, 2, 6, 9, 8, 7, 3, 1, 4, 0, 4,	9, 8, 7, 3, 1, 4, 0, 4, 2, 1, 3, 2,	9, 8, 7, 3, 1, 4, 0, 4, 2, 1, 3, 2,
	2, 1, 3, 2, 0, 6, 2, 9, 3, 5, 6, 7,	0, 6, 2, 9, 3, 5, 6, 7, 6, 9, 6, 6,	0, 6, 2, 9, 3, 5, 6, 7, 6, 9, 6, 6,
	6, 9, 6, 6, 8, 1, 2, 7, 9, 4, 6, 7,	8, 1, 2, 7, 9, 4, 6, 7, 2, 6, 8, 4,	8, 1, 2, 7, 9, 4, 6, 7, 2, 6, 8, 4,
	2, 6, 8, 4, 5, 8, 4, 0, 1, 8, 7, 1,	5, 8, 4, 0, 1, 8, 7, 1, 1, 4, 7, 4,	5, 8, 4, 0, 1, 8, 7, 1, 1, 4, 7, 4,
	1, 4, 7, 4, 6, 2, 9, 5, 9, 9, 7, 9,	6, 2, 9, 5, 9, 9, 7, 9, 6, 1, 6, 8,	6, 2, 9, 5, 9, 9, 7, 9, 6, 1, 6, 8,
	6, 1, 6, 8, 1, 4, 2, 3, 4, 0, 6, 1,	1, 4, 2, 3, 4, 0, 6, 1, 1, 3, 6, 9,	1, 4, 2, 3, 4, 0, 6, 1, 1, 3, 6, 9,
	1, 3, 6, 9, 6, 4, 8, 9, 2, 5, 5, 5,	6, 4, 8, 9, 2, 5, 5, 5, 5, 5, 1, 7,	6, 4, 8, 9, 2, 5, 5, 5, 5, 5, 1, 7,
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Test	Expected	Got
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4, 0, 1, 2, 2, 3, 8, 9, 8, 0, 4, 7,	1, 9, 0, 7, 8, 8, 9, 7, 7, 8, 8, 9,	1, 9, 0, 7, 8, 8, 9, 7, 7, 8, 8, 9,
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1, 2, 6, 9, 5, 9, 1, 5, 1, 9};	9, 9, 0, 2, 5, 6, 6, 8, 8, 8, 9, 9,	9, 9, 0, 2, 5, 6, 6, 8, 8, 8, 9, 9,
LLNode* head =	9, 0, 9, 9, 0, 6, 6, 7, 6, 6, 7, 4,	9, 0, 9, 9, 0, 6, 6, 7, 6, 6, 7, 4,
LLNode::createWithIterators(arr, arr	6, 6, 4, 6, 6, 7, 5, 4, 5, 7, 7, 7,	6, 6, 4, 6, 6, 7, 5, 4, 5, 7, 7, 7,
+ sizeof(arr) / sizeof(int));	8, 5, 8, 9, 9, 9, 4, 2, 2, 4, 9, 9,	8, 5, 8, 9, 9, 9, 4, 2, 2, 4, 9, 9,
LLNode::printList(head);	9, 3, 9, 0, 9, 9, 0, 9, 0, 7, 8,	9, 3, 9, 0, 9, 9, 0, 9, 0, 7, 8,
cout << "\n";	8, 8, 9, 8, 9, 2, 6, 9, 0, 9, 0, 5,	8, 8, 9, 8, 9, 2, 6, 9, 0, 9, 0, 5,
LLNode* newhead =	9, 9, 0]	9, 9, 0]
replaceFirstGreater(head);		
LLNode::printList(newhead);		
int arr[] = {7, 0, 6, 1, 5, 4, 5, 3,	[7, 0, 6, 1, 5, 4, 5, 3, 8, 7, 3, 0,	[7, 0, 6, 1, 5, 4, 5, 3, 8, 7, 3, 0,
8, 7, 3, 0, 9, 4, 6, 2, 6, 2, 1, 2,	9, 4, 6, 2, 6, 2, 1, 2, 4, 6, 3, 5,	9, 4, 6, 2, 6, 2, 1, 2, 4, 6, 3, 5,
4, 6, 3, 5, 5, 0, 3, 2, 2, 7, 7, 4,	5, 0, 3, 2, 2, 7, 7, 4, 8, 5, 0, 7,	5, 0, 3, 2, 2, 7, 7, 4, 8, 5, 0, 7,
8, 5, 0, 7, 1, 4, 5, 2, 4, 9, 2, 3,	1, 4, 5, 2, 4, 9, 2, 3, 3, 9, 9, 1,	1, 4, 5, 2, 4, 9, 2, 3, 3, 9, 9, 1,
	0, 5, 8, 3, 4, 0, 5, 0, 2, 6, 0, 3,	0, 5, 8, 3, 4, 0, 5, 0, 2, 6, 0, 3,

7.77		Lab 1. Olingiy Elinkod Liot. 7kt	
	Test	Expected	Got
	2, 6, 0, 3, 1, 3, 8, 2, 9, 0, 7, 1,	1, 3, 8, 2, 9, 0, 7, 1, 3, 1, 2, 6,	1, 3, 8, 2, 9, 0, 7, 1, 3, 1, 2, 6,
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	1, 1, 0, 8, 9, 0, 6, 8, 7, 3, 8, 1,	9, 0, 6, 8, 7, 3, 8, 1, 1, 5, 2, 2,	9, 0, 6, 8, 7, 3, 8, 1, 1, 5, 2, 2,
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	7, 7, 6, 8, 8, 3, 4, 2, 8, 7, 5, 6,	8, 3, 4, 2, 8, 7, 5, 6, 2, 2, 5, 9,	8, 3, 4, 2, 8, 7, 5, 6, 2, 2, 5, 9,
	2, 2, 5, 9, 6, 8, 5, 0, 1, 8, 3, 1,	6, 8, 5, 0, 1, 8, 3, 1, 0, 0, 5, 0,	6, 8, 5, 0, 1, 8, 3, 1, 0, 0, 5, 0,
	0, 0, 5, 0, 3, 1, 9, 1, 9, 3, 7, 6,	3, 1, 9, 1, 9, 3, 7, 6, 5, 2, 8, 0,	3, 1, 9, 1, 9, 3, 7, 6, 5, 2, 8, 0,
	5, 2, 8, 0, 7, 4, 4, 8, 3, 9, 8, 7, 7, 5, 9, 6, 9, 4, 8, 7, 8, 4, 0, 2,	7, 4, 4, 8, 3, 9, 8, 7, 7, 5, 9, 6, 9, 4, 8, 7, 8, 4, 0, 2, 9, 0, 7, 5,	7, 4, 4, 8, 3, 9, 8, 7, 7, 5, 9, 6, 9, 4, 8, 7, 8, 4, 0, 2, 9, 0, 7, 5,
	9, 0, 7, 5, 1, 3, 5, 6, 8, 9, 3, 0,	1, 3, 5, 6, 8, 9, 3, 0, 5, 4, 2, 6,	1, 3, 5, 6, 8, 9, 3, 0, 5, 4, 2, 6,
	5, 4, 2, 6, 9, 6, 1, 2, 0, 9, 4, 9,	9, 6, 1, 2, 0, 9, 4, 9, 5, 7, 3, 8,	9, 6, 1, 2, 0, 9, 4, 9, 5, 7, 3, 8,
	5, 7, 3, 8, 8, 8, 3, 4, 8, 4, 7, 2,	8, 8, 3, 4, 8, 4, 7, 2, 6, 5, 8, 1,	8, 8, 3, 4, 8, 4, 7, 2, 6, 5, 8, 1,
	6, 5, 8, 1, 0, 4, 5, 3, 8, 1, 5, 9,	0, 4, 5, 3, 8, 1, 5, 9, 2, 0, 2, 4,	0, 4, 5, 3, 8, 1, 5, 9, 2, 0, 2, 4,
	2, 0, 2, 4, 3, 7, 8, 0, 0, 1, 8, 6,	3, 7, 8, 0, 0, 1, 8, 6, 1, 6, 3, 4,	3, 7, 8, 0, 0, 1, 8, 6, 1, 6, 3, 4,
	1, 6, 3, 4, 1, 1, 6, 5, 3, 5, 2, 3,	1, 1, 6, 5, 3, 5, 2, 3, 2, 5, 4, 7,	1, 1, 6, 5, 3, 5, 2, 3, 2, 5, 4, 7,
	2, 5, 4, 7, 5, 4, 1, 4, 5, 2, 9, 6,	5, 4, 1, 4, 5, 2, 9, 6, 3, 4, 1, 2,	5, 4, 1, 4, 5, 2, 9, 6, 3, 4, 1, 2,

7. 7 770		Lab 1. Olligiy Elillod Liot. 7tt	- I
	Test	Expected	Got
	3, 4, 1, 2, 7, 4, 5, 1, 9, 9, 1, 1,	7, 4, 5, 1, 9, 9, 1, 1, 4, 3, 8, 8,	7, 4, 5, 1, 9, 9, 1, 1, 4, 3, 8, 8,
	4, 3, 8, 8, 8, 3, 0, 3, 6, 1, 9, 6,	8, 3, 0, 3, 6, 1, 9, 6, 8, 7, 4, 1,	8, 3, 0, 3, 6, 1, 9, 6, 8, 7, 4, 1,
	8, 7, 4, 1, 9, 6, 6, 9, 8, 8, 5, 2,	9, 6, 6, 9, 8, 8, 5, 2, 9, 7, 9, 4,	9, 6, 6, 9, 8, 8, 5, 2, 9, 7, 9, 4,
	9, 7, 9, 4, 6, 7, 0, 7, 6, 3, 9, 2,	6, 7, 0, 7, 6, 3, 9, 2, 4, 2, 8, 9,	6, 7, 0, 7, 6, 3, 9, 2, 4, 2, 8, 9,
	4, 2, 8, 9, 2, 3, 2, 1, 0, 2, 4, 0,	2, 3, 2, 1, 0, 2, 4, 0, 7, 7, 4, 5,	2, 3, 2, 1, 0, 2, 4, 0, 7, 7, 4, 5,
	7, 7, 4, 5, 1, 8, 9, 3, 8, 6, 7, 7,	1, 8, 9, 3, 8, 6, 7, 7, 3, 3, 5, 4,	1, 8, 9, 3, 8, 6, 7, 7, 3, 3, 5, 4,
	3, 3, 5, 4, 8, 7, 3, 4, 7, 4, 4, 5, 1, 1, 1, 5, 0, 9, 6, 4, 5, 8, 9, 8,	8, 7, 3, 4, 7, 4, 4, 5, 1, 1, 1, 5, 0, 9, 6, 4, 5, 8, 9, 8, 7, 8, 6, 3,	8, 7, 3, 4, 7, 4, 4, 5, 1, 1, 1, 5, 0, 9, 6, 4, 5, 8, 9, 8, 7, 8, 6, 3,
	7, 8, 6, 3, 4, 8, 9, 5, 9, 1, 3, 0,	4, 8, 9, 5, 9, 1, 3, 0, 1, 0, 3, 9,	4, 8, 9, 5, 9, 1, 3, 0, 1, 0, 3, 9,
	1, 0, 3, 9, 6, 4, 4, 2, 4, 8, 8, 8,	6, 4, 4, 2, 4, 8, 8, 8, 6, 0, 1, 1,	6, 4, 4, 2, 4, 8, 8, 8, 6, 0, 1, 1,
	6, 0, 1, 1, 0, 9, 1, 9, 5, 7, 0, 9,	0, 9, 1, 9, 5, 7, 0, 9, 5, 8, 1, 0,	0, 9, 1, 9, 5, 7, 0, 9, 5, 8, 1, 0,
	5, 8, 1, 0, 9, 9, 1, 4, 5, 3, 9, 0,	9, 9, 1, 4, 5, 3, 9, 0, 6, 6, 3, 5,	9, 9, 1, 4, 5, 3, 9, 0, 6, 6, 3, 5,
	6, 6, 3, 5, 8, 0, 3, 8, 3, 9, 4, 8,	8, 0, 3, 8, 3, 9, 4, 8, 5, 7, 6, 6,	8, 0, 3, 8, 3, 9, 4, 8, 5, 7, 6, 6,
	5, 7, 6, 6, 5, 3, 7, 7, 3, 6, 2, 6,	5, 3, 7, 7, 3, 6, 2, 6, 0, 2, 9, 4,	5, 3, 7, 7, 3, 6, 2, 6, 0, 2, 9, 4,
	0, 2, 9, 4, 6, 0, 7, 6, 8, 1, 0, 3,	6, 0, 7, 6, 8, 1, 0, 3, 0, 3, 9, 0,	6, 0, 7, 6, 8, 1, 0, 3, 0, 3, 9, 0,
	0, 3, 9, 0, 5, 4, 3, 4, 2, 4, 5, 4,	5, 4, 3, 4, 2, 4, 5, 4, 3, 9, 4, 4,	5, 4, 3, 4, 2, 4, 5, 4, 3, 9, 4, 4,
	3, 9, 4, 4, 4, 4, 8, 0, 0, 7, 7,	4, 4, 4, 8, 0, 0, 7, 7, 0, 1, 7, 8,	4, 4, 4, 8, 0, 0, 7, 7, 0, 1, 7, 8,
	0, 1, 7, 8, 2, 5, 1, 7, 4, 3, 3, 6,	2, 5, 1, 7, 4, 3, 3, 6, 1, 8, 0, 4,	2, 5, 1, 7, 4, 3, 3, 6, 1, 8, 0, 4,
	1, 8, 0, 4, 7, 0, 6, 8, 3, 6, 1, 6,	7, 0, 6, 8, 3, 6, 1, 6, 4, 8, 1, 5,	7, 0, 6, 8, 3, 6, 1, 6, 4, 8, 1, 5,
	4, 8, 1, 5, 3, 0, 1, 7, 7, 8, 5, 8,	3, 0, 1, 7, 7, 8, 5, 8, 8, 2, 4, 7,	3, 0, 1, 7, 7, 8, 5, 8, 8, 2, 4, 7,
	8, 2, 4, 7, 4, 2, 2, 5, 2, 3, 2, 5,	4, 2, 2, 5, 2, 3, 2, 5, 5, 2, 7, 5,	4, 2, 2, 5, 2, 3, 2, 5, 5, 2, 7, 5,
	5, 2, 7, 5, 7, 9, 2, 2, 5, 8, 6, 9,	7, 9, 2, 2, 5, 8, 6, 9, 4, 9, 0, 3,	7, 9, 2, 2, 5, 8, 6, 9, 4, 9, 0, 3,
	4, 9, 0, 3, 9, 7, 2, 7, 9, 3, 9, 0,	9, 7, 2, 7, 9, 3, 9, 0, 7, 0, 6, 3,	9, 7, 2, 7, 9, 3, 9, 0, 7, 0, 6, 3,
	7, 0, 6, 3, 3, 6, 8, 1, 5, 0, 9, 4,	3, 6, 8, 1, 5, 0, 9, 4, 5, 1, 0, 1,	3, 6, 8, 1, 5, 0, 9, 4, 5, 1, 0, 1,
	5, 1, 0, 1, 3, 9, 6, 2, 2, 5, 6, 4,	3, 9, 6, 2, 2, 5, 6, 4, 6, 3, 7, 7,	3, 9, 6, 2, 2, 5, 6, 4, 6, 3, 7, 7,
	6, 3, 7, 7, 2, 9, 1, 5, 0, 0, 7, 6,	2, 9, 1, 5, 0, 0, 7, 6, 0, 4, 1, 3,	2, 9, 1, 5, 0, 0, 7, 6, 0, 4, 1, 3,
	0, 4, 1, 3, 0, 5, 3, 0, 5, 4, 1, 3,	0, 5, 3, 0, 5, 4, 1, 3, 1, 8, 6, 9,	0, 5, 3, 0, 5, 4, 1, 3, 1, 8, 6, 9,
	1, 8, 6, 9, 3, 9, 7, 7, 8, 2, 5, 5,	3, 9, 7, 7, 8, 2, 5, 5, 6, 0, 1, 8,	3, 9, 7, 7, 8, 2, 5, 5, 6, 0, 1, 8,
	6, 0, 1, 8, 2, 4, 8, 8, 3, 3, 5, 5,	2, 4, 8, 8, 3, 3, 5, 5, 2, 1, 9, 4,	2, 4, 8, 8, 3, 3, 5, 5, 2, 1, 9, 4,
	2, 1, 9, 4, 1, 1, 3, 7, 8, 7, 2, 8,	1, 1, 3, 7, 8, 7, 2, 8, 6, 2, 3, 3,	1, 1, 3, 7, 8, 7, 2, 8, 6, 2, 3, 3,
	6, 2, 3, 3, 3, 5, 0, 3, 3, 9, 0, 7,	3, 5, 0, 3, 3, 9, 0, 7, 1, 9, 3, 3,	3, 5, 0, 3, 3, 9, 0, 7, 1, 9, 3, 3,
	1, 9, 3, 3, 6, 5, 4, 1, 9, 3, 5, 8,	6, 5, 4, 1, 9, 3, 5, 8, 7, 7, 5, 3,	6, 5, 4, 1, 9, 3, 5, 8, 7, 7, 5, 3,
	7, 7, 5, 3, 9, 9, 6, 2, 6, 7, 4, 1,	9, 9, 6, 2, 6, 7, 4, 1, 2, 0, 6, 5,	9, 9, 6, 2, 6, 7, 4, 1, 2, 0, 6, 5,
	2, 0, 6, 5, 6, 0, 1, 1, 3, 4, 4, 0,	6, 0, 1, 1, 3, 4, 4, 0, 1, 2, 0, 8,	6, 0, 1, 1, 3, 4, 4, 0, 1, 2, 0, 8,
	1, 2, 0, 8, 5, 9, 4, 9, 4, 0, 9, 4,	5, 9, 4, 9, 4, 0, 9, 4, 6, 2, 8, 0,	5, 9, 4, 9, 4, 0, 9, 4, 6, 2, 8, 0,
	6, 2, 8, 0, 1, 9, 5, 4, 4, 4, 2, 9,	1, 9, 5, 4, 4, 4, 2, 9, 4, 5, 9, 9,	1, 9, 5, 4, 4, 4, 2, 9, 4, 5, 9, 9,
	4, 5, 9, 9, 4, 3, 6, 4, 0, 4, 1, 9,	4, 3, 6, 4, 0, 4, 1, 9, 0, 3, 0, 9,	4, 3, 6, 4, 0, 4, 1, 9, 0, 3, 0, 9,
	0, 3, 0, 9, 3, 9, 2, 6, 0, 6, 2, 9,	3, 9, 2, 6, 0, 6, 2, 9, 4, 6, 1, 2,	3, 9, 2, 6, 0, 6, 2, 9, 4, 6, 1, 2,
	4, 6, 1, 2, 5, 5, 5, 2, 7, 4, 1, 1,	5, 5, 5, 2, 7, 4, 1, 1, 0, 2, 1, 5,	5, 5, 5, 2, 7, 4, 1, 1, 0, 2, 1, 5,
	0, 2, 1, 5, 0, 0, 9, 1, 2, 7, 9, 4,	0, 0, 9, 1, 2, 7, 9, 4, 7, 2, 6, 6,	0, 0, 9, 1, 2, 7, 9, 4, 7, 2, 6, 6,
	7, 2, 6, 6, 7, 1, 8, 6, 0, 3, 9, 0,	7, 1, 8, 6, 0, 3, 9, 0, 4, 4, 2, 8,	7, 1, 8, 6, 0, 3, 9, 0, 4, 4, 2, 8,
	4, 4, 2, 8, 7, 5, 8, 9, 7, 0, 4, 2,	7, 5, 8, 9, 7, 0, 4, 2, 8, 2, 6, 1,	7, 5, 8, 9, 7, 0, 4, 2, 8, 2, 6, 1,
	8, 2, 6, 1, 9, 1, 7, 9, 2, 1, 9, 1,	9, 1, 7, 9, 2, 1, 9, 1, 3, 1, 8, 0,	9, 1, 7, 9, 2, 1, 9, 1, 3, 1, 8, 0,
	3, 1, 8, 0, 7, 0, 5, 7, 6, 3, 3, 1,	7, 0, 5, 7, 6, 3, 3, 1, 3, 6, 3, 6,	7, 0, 5, 7, 6, 3, 3, 1, 3, 6, 3, 6,
	3, 6, 3, 6, 7, 0, 1, 3, 9, 0, 4, 9,	7, 0, 1, 3, 9, 0, 4, 9, 9, 2, 5, 3,	7, 0, 1, 3, 9, 0, 4, 9, 9, 2, 5, 3,
	9, 2, 5, 3, 0, 1, 6, 6, 4, 1, 2,	0, 1, 6, 6, 4, 1, 2, 6, 3, 1, 7,	0, 1, 6, 6, 4, 1, 2, 6, 3, 1, 7,
	snip 0, 0, 3, 6, 3, 9, 9, 7,	snip 9, 9, 9, 0, 7, 8, 9, 6,	snip 9, 9, 9, 0, 7, 8, 9, 6,
	5, 9, 9, 7, 7, 6, 8, 1, 7, 8, 5, 2, 8, 9, 2, 6, 0, 8, 6, 4, 5, 4, 1, 6,	9, 9, 5, 9, 0, 7, 9, 6, 2, 2, 3, 6, 9, 0, 0, 8, 9, 8, 8, 9, 8, 9, 2, 7,	9, 9, 5, 9, 0, 7, 9, 6, 2, 2, 3, 6, 9, 0, 0, 8, 9, 8, 8, 9, 8, 9, 2, 7,
	1, 8, 1, 8, 3, 1, 7, 0, 3, 8, 4, 5,	8, 9, 0, 7, 7, 2, 7, 8, 9, 6, 6, 7,	8, 9, 0, 7, 7, 2, 7, 8, 9, 6, 6, 7,
	8, 4, 8, 1, 1, 2, 1, 9, 4, 2, 4, 7,	9, 5, 9, 0, 0, 5, 8, 8, 9, 9, 0, 4,	9, 5, 9, 0, 0, 5, 8, 8, 9, 9, 0, 4,
	4, 8, 7, 1, 7, 4, 9, 7, 1, 5, 4, 6,	7, 9, 5, 5, 6, 6, 6, 9, 3, 3, 3, 6,	7, 9, 5, 5, 6, 6, 6, 9, 3, 3, 3, 6,
	4, 9, 6, 8, 6, 8, 4, 2, 9, 2, 3, 7,	9, 9, 0, 0, 9, 9, 0, 0, 8, 8, 8, 9,	9, 9, 0, 0, 9, 9, 0, 0, 8, 8, 8, 9,
	0, 6, 4, 3, 8, 0, 8, 0, 0, 7, 9, 2,	7, 8, 9, 8, 8, 9, 0, 6, 8, 8, 9, 8,	7, 8, 9, 8, 8, 9, 0, 6, 8, 8, 9, 8,
	8, 7, 2, 7, 5, 3, 7, 8, 0, 9, 0, 9,	5, 6, 6, 6, 8, 8, 9, 8, 9, 7, 7, 8,	5, 6, 6, 6, 8, 8, 9, 8, 9, 7, 7, 8,
	6, 2, 5, 8, 6, 7, 3, 3, 5, 4, 0, 6,	3, 8, 9, 5, 8, 9, 8, 9, 2, 2, 9, 9,	3, 8, 9, 5, 8, 9, 8, 9, 2, 2, 9, 9,
	5, 0, 6, 3, 7, 6, 9, 7, 2, 4, 8, 6,	0, 7, 4, 7, 8, 8, 9, 9, 7, 9, 9, 0,	0, 7, 4, 7, 8, 8, 9, 9, 7, 9, 9, 0,
	8, 8, 6, 8, 0, 2, 6, 3, 2, 0, 3, 4,	9, 5, 6, 6, 9, 9, 0, 8, 9, 8, 9, 9,	9, 5, 6, 6, 9, 9, 0, 8, 9, 8, 9, 9,
	5, 7, 7, 2, 7, 2, 3, 1, 6, 1, 2, 8,	9, 0, 3, 7, 8, 6, 8, 8, 8, 9, 8, 9,	9, 0, 3, 7, 8, 6, 8, 8, 8, 9, 8, 9,
	4, 1, 9, 4, 7, 8, 7, 4, 3, 6, 1, 3,	7, 7, 9, 0, 8, 9, 8, 7, 8, 7, 7, 8,	7, 7, 9, 0, 8, 9, 8, 7, 8, 7, 7, 8,

7.77		Lab 1. Olingiy Elinkod Elot. 710	
	Test	Expected	Got
	8, 7, 4, 0, 2, 8, 2, 4, 7, 7, 6, 6,	9, 9, 0, 9, 0, 8, 5, 8, 9, 7, 9, 5,	9, 9, 0, 9, 0, 8, 5, 8, 9, 7, 9, 5,
	2, 3, 9, 5, 0, 7, 6, 0, 9, 1, 3, 1,	5, 6, 6, 6, 7, 6, 6, 7, 7, 9, 9, 0,	5, 6, 6, 6, 7, 6, 6, 7, 7, 9, 9, 0,
	6, 5, 8, 3, 9, 9, 8, 6, 1, 8, 2, 8,	8, 4, 8, 9, 8, 9, 9, 8, 9, 2, 6, 7,	8, 4, 8, 9, 8, 9, 9, 8, 9, 2, 6, 7,
	2, 9, 8, 6, 7, 8, 4, 5, 3, 6, 0, 1,	4, 3, 3, 4, 5, 7, 8, 8, 7, 8, 3, 6,	4, 3, 3, 4, 5, 7, 8, 8, 7, 8, 3, 6,
	9, 6, 2, 4, 0, 9, 0, 0, 9, 4, 9, 7,	6, 8, 2, 8, 9, 9, 9, 0, 7, 8, 9, 8,	6, 8, 2, 8, 9, 9, 9, 0, 7, 8, 9, 8,
	5, 3, 1, 1, 8, 4, 4, 1, 3, 0, 9, 3,	6, 6, 8, 3, 8, 9, 8, 8, 2, 8, 9, 4,	6, 6, 8, 3, 8, 9, 8, 8, 2, 8, 9, 4,
	7, 0, 6, 0, 3, 8, 6, 3, 1, 3, 6, 9,		
	0, 9, 7, 7, 5, 6, 8, 1, 6, 2, 1, 0,	7, 9, 9, 9, 9, 3, 9, 0, 7, 7, 9, 9, 9, 0, 3, 6, 6, 8, 8, 9, 9, 0, 0, 9,	7, 9, 9, 9, 9, 3, 9, 0, 7, 7, 9, 9, 9, 0, 3, 6, 6, 8, 8, 9, 9, 0, 0, 9,
	2, 4, 8, 5, 6, 6, 5, 1, 4, 3, 6, 4,	8, 8, 9, 8, 9, 9, 0, 9, 7, 8, 9, 5,	8, 8, 9, 8, 9, 9, 0, 9, 7, 8, 9, 5,
		6, 6, 9, 1, 9, 0, 9, 4, 9, 9, 0, 9,	6, 6, 9, 1, 9, 0, 9, 4, 9, 9, 0, 9,
	1, 7, 2, 4, 0, 6, 1, 3, 2, 8, 7, 5,	9, 0, 9, 0, 8, 8, 8, 8, 8, 9, 9, 9,	9, 0, 9, 0, 8, 8, 8, 8, 8, 9, 9, 9,
	7, 9, 5, 7, 0, 2, 2, 9, 2, 9, 0, 3,	3, 9, 9, 0, 7, 8, 6, 8, 3, 8, 9, 9,	3, 9, 9, 0, 7, 8, 6, 8, 3, 8, 9, 9,
	3, 7, 8, 2, 4, 6, 6, 3, 4, 3, 5, 4,	6, 3, 6, 9, 0, 9, 0, 8, 8, 6, 8, 9,	6, 3, 6, 9, 0, 9, 0, 8, 8, 6, 8, 9,
	8, 6, 9, 4, 0, 6, 9, 0, 8, 5, 3, 7,	6, 8, 4, 2, 2, 4, 8, 9, 6, 7, 7, 6,	6, 8, 4, 2, 2, 4, 8, 9, 6, 7, 7, 6,
	2, 8, 4, 1, 1, 6, 1, 3, 9, 1, 9, 6,	4, 6, 6, 7, 5, 5, 7, 5, 7, 7, 8, 4,	4, 6, 6, 7, 5, 5, 7, 5, 7, 7, 8, 4,
	4, 8, 1, 1, 7, 5, 9, 7, 9, 1, 0, 5,	7, 8, 8, 7, 7, 7, 8, 4, 6, 6, 8, 3,	7, 8, 8, 7, 7, 7, 8, 4, 6, 6, 8, 3,
	7, 4, 5, 4, 6, 4, 0, 3, 4, 6, 0, 6,	8, 8, 9, 9, 7, 9, 0, 7, 9, 2, 9, 9,	8, 8, 9, 9, 7, 9, 0, 7, 9, 2, 9, 9,
	1, 9, 9, 9, 3, 3, 7, 3, 8, 9, 7, 1,	0, 9, 0, 3, 7, 7, 8, 9, 4, 6, 8, 8,	0, 9, 0, 3, 7, 7, 8, 9, 4, 6, 8, 8,
	0, 2, 6, 4, 2, 6, 6, 4, 9, 1, 6, 5,	4, 5, 5, 8, 8, 9, 9, 0, 6, 6, 9, 0,	4, 5, 5, 8, 8, 9, 9, 0, 6, 6, 9, 0,
	7, 8, 7, 2, 5, 5, 8, 4, 6, 0, 7, 1,	8, 9, 7, 7, 8, 8, 9, 6, 6, 6, 9, 3,	8, 9, 7, 7, 8, 8, 9, 6, 6, 6, 9, 3,
	0, 7, 4, 0, 9, 7, 8, 5, 2, 7, 3, 1,	9, 0, 9, 0, 8, 8, 9, 7, 7, 9, 9, 0,	9, 0, 9, 0, 8, 8, 9, 7, 7, 9, 9, 0,
	4, 1, 5, 7, 6, 5, 2, 8, 8, 3, 4, 2,	9, 0, 5, 5, 7, 9, 5, 6, 6, 9, 6, 3,	9, 0, 5, 5, 7, 9, 5, 6, 6, 9, 6, 3,
	6, 9, 7, 3, 5, 9, 3, 0, 4, 1, 6, 5,	4, 6, 9, 6, 9, 9, 0, 0, 0, 7, 7, 8,	4, 6, 9, 6, 9, 9, 0, 0, 0, 7, 7, 8,
	9, 5, 4, 9, 9, 0, 6, 6, 0, 2, 1, 8,	8, 9, 0, 9, 2, 2, 6, 9, 6, 6, 9, 9,	8, 9, 0, 9, 2, 2, 6, 9, 6, 6, 9, 9,
	5, 8, 3, 7, 4, 7, 7, 1, 8, 6, 3, 3,	9, 0, 6, 7, 7, 8, 9, 8, 5, 8, 8, 9,	9, 0, 6, 7, 7, 8, 9, 8, 5, 8, 8, 9,
	2, 0, 3, 7, 5, 3, 5, 6, 3, 6, 3, 4,	6, 7, 7, 9, 7, 7, 9, 9, 9, 0, 8, 9,	6, 7, 7, 9, 7, 7, 9, 9, 9, 0, 8, 9,
	2, 9, 5, 0, 7, 4, 6, 3, 1, 3, 5, 2,	7, 7, 8, 4, 4, 5, 5, 7, 8, 8, 8, 8,	7, 7, 8, 4, 4, 5, 5, 7, 8, 8, 8, 8,
	6, 8, 1, 2, 0, 7, 3, 2, 5, 6, 8, 8,	9, 9, 4, 6, 6, 9, 0, 9, 5, 9, 0, 4,	9, 9, 4, 6, 6, 9, 0, 9, 5, 9, 0, 4,
	8, 1, 3, 9, 1, 8, 5, 4, 3, 6, 9, 3,	4, 6, 6, 9, 9, 0, 9, 9, 0, 0, 6, 8,	4, 6, 6, 9, 9, 0, 9, 9, 0, 0, 6, 8,
	0, 4, 4, 9, 7, 0, 4, 6, 9, 4, 9, 3,	8, 2, 8, 8, 9, 8, 9, 7, 8, 7, 8, 8,	8, 2, 8, 8, 9, 8, 9, 7, 8, 7, 8, 8,
	2, 3, 8, 0, 5, 3, 7, 1, 1, 7, 4, 5,	8, 9, 7, 7, 7, 3, 3, 7, 9, 6, 5, 6,	8, 9, 7, 7, 7, 3, 3, 7, 9, 6, 5, 6,
	2, 1, 6, 5, 9, 5, 0, 3, 0, 9, 4, 1,	9, 6, 9, 4, 9, 9, 0, 7, 7, 8, 6, 8,	9, 6, 9, 4, 9, 9, 0, 7, 7, 8, 6, 8,
	4, 8, 8, 5, 6, 9, 5, 4, 9, 2, 4, 7,	5, 3, 5, 6, 6, 8, 9, 2, 7, 7, 8, 5,	5, 3, 5, 6, 6, 8, 9, 2, 7, 7, 8, 5,
	7, 3, 2, 9, 3, 3, 5, 2, 2, 7, 9, 0,	5, 6, 8, 9, 9, 9, 3, 9, 0, 8, 9, 6,	5, 6, 8, 9, 9, 9, 3, 9, 0, 8, 9, 6,
	5, 0, 2, 1, 3, 9, 2, 9, 8, 0, 3, 1,	6, 6, 9, 0, 4, 4, 9, 9, 0, 9, 4, 6,	6, 6, 9, 0, 4, 4, 9, 9, 0, 9, 4, 6,
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	7, 5, 8, 2, 0, 4, 9, 8, 6, 4, 8, 8,	7, 7, 9, 0, 5, 9, 2, 3, 3, 9, 0, 9,	7, 7, 9, 0, 5, 9, 2, 3, 3, 9, 0, 9,
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Test	Expected	Got
1, 0, 0, 0, 8, 8, 0, 5, 2, 5, 8, 8,	0, 6, 8, 3, 8, 9, 8, 8, 9, 8, 8, 9,	0, 6, 8, 3, 8, 9, 8, 8, 9, 8, 8, 9,
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LLNode* head =	9, 9, 0, 8, 8, 9, 9, 8, 8, 8, 9, 0,	9, 9, 0, 8, 8, 9, 9, 8, 8, 8, 9, 0,
LLNode::createWithIterators(arr, arr	8, 5, 8, 9, 7, 8, 6, 7, 8, 8, 4, 4,	8, 5, 8, 9, 7, 8, 6, 7, 8, 8, 4, 4,
+ sizeof(arr) / sizeof(int));	8, 8, 3, 8, 9, 5, 8, 3, 5, 3, 5, 8,	8, 8, 3, 8, 9, 5, 8, 3, 5, 3, 5, 8,
LLNode::printList(head);	9, 9, 9, 0, 9, 0, 9, 5, 9, 9, 0, 0,	9, 9, 9, 0, 9, 0, 9, 5, 9, 9, 0, 0,
cout << "\n";	6, 6, 1, 1, 6, 0, 3, 4, 4, 4, 4, 6,	6, 6, 1, 1, 6, 0, 3, 4, 4, 4, 4, 6,
LLNode* newhead =	6, 0, 0]	6, 0, 0]
replaceFirstGreater(head);	0, 0, 0]	0, 0, 0]
, ,,		
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int arr[] = {3, 5, 1, 7, 7, 4, 0, 1,	[3, 5, 1, 7, 7, 4, 0, 1, 8, 6, 1, 4,	[3, 5, 1, 7, 7, 4, 0, 1, 8, 6, 1, 4,
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2, 0, 8, 6, 5, 2, 2, 0, 0, 9, 7, 2,	5, 2, 2, 0, 0, 9, 7, 2, 1, 5, 3, 4,	5, 2, 2, 0, 0, 9, 7, 2, 1, 5, 3, 4,
1, 5, 3, 4, 8, 4, 7, 1, 8, 1, 9, 7,	8, 4, 7, 1, 8, 1, 9, 7, 5, 2, 4, 4,	8, 4, 7, 1, 8, 1, 9, 7, 5, 2, 4, 4,
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7, 7, 0, 0, 7, 7, 9, 4, 1, 7, 3, 0,	7, 7, 9, 4, 1, 7, 3, 0, 4, 0, 6, 3,	7, 7, 9, 4, 1, 7, 3, 0, 4, 0, 6, 3,
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7. 7 770		Lab 1. Olingiy Elinkod Elot. 710	
	Test	Expected	Got
	9, 8, 9, 0, 6, 6, 5, 0, 9, 0, 2, 5,	6, 6, 5, 0, 9, 0, 2, 5, 9, 4, 7, 9,	6, 6, 5, 0, 9, 0, 2, 5, 9, 4, 7, 9,
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	8, 0, 3, 8, 4, 9, 3, 1, 4, 5, 4, 8,	4, 9, 3, 1, 4, 5, 4, 8, 6, 8, 4, 4,	4, 9, 3, 1, 4, 5, 4, 8, 6, 8, 4, 4,
	6, 8, 4, 4, 0, 7, 5, 5, 3, 2, 5, 9,	0, 7, 5, 5, 3, 2, 5, 9, 0, 5, 0, 8,	0, 7, 5, 5, 3, 2, 5, 9, 0, 5, 0, 8,
	0, 5, 0, 8, 6, 3, 6, 8, 1, 5, 2, 9,	6, 3, 6, 8, 1, 5, 2, 9, 9, 4, 9, 0,	6, 3, 6, 8, 1, 5, 2, 9, 9, 4, 9, 0,
	9, 4, 9, 0, 8, 3, 4, 5, 5, 1, 6, 7,	8, 3, 4, 5, 5, 1, 6, 7, 8, 3, 1, 5,	8, 3, 4, 5, 5, 1, 6, 7, 8, 3, 1, 5,
	8, 3, 1, 5, 5, 2, 4, 4, 0, 2, 8, 0,	5, 2, 4, 4, 0, 2, 8, 0, 9, 9, 4, 7,	5, 2, 4, 4, 0, 2, 8, 0, 9, 9, 4, 7,
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	9, 5, 6, 8, 6, 6, 4, 8, 3, 4, 1, 8,	6, 6, 4, 8, 3, 4, 1, 8, 8, 7, 9, 3,	6, 6, 4, 8, 3, 4, 1, 8, 8, 7, 9, 3,
	8, 7, 9, 3, 8, 1, 1, 8, 3, 8, 1, 8,	8, 1, 1, 8, 3, 8, 1, 8, 8, 7, 6, 5,	8, 1, 1, 8, 3, 8, 1, 8, 8, 7, 6, 5,
	8, 7, 6, 5, 9, 5, 9, 7, 6, 6, 3, 9,	9, 5, 9, 7, 6, 6, 3, 9, 6, 3, 8, 2,	9, 5, 9, 7, 6, 6, 3, 9, 6, 3, 8, 2,
	6, 3, 8, 2, 4, 8, 1, 7, 7, 3, 4, 2,	4, 8, 1, 7, 7, 3, 4, 2, 1, 2, 7, 2,	4, 8, 1, 7, 7, 3, 4, 2, 1, 2, 7, 2,
	1, 2, 7, 2, 7, 0, 5, 5, 6, 9, 7, 8,	7, 0, 5, 5, 6, 9, 7, 8, 0, 6, 5, 1,	7, 0, 5, 5, 6, 9, 7, 8, 0, 6, 5, 1,
	0, 6, 5, 1, 2, 3, 4, 9, 7, 9, 1, 1,	2, 3, 4, 9, 7, 9, 1, 1, 4, 5, 8, 4,	2, 3, 4, 9, 7, 9, 1, 1, 4, 5, 8, 4,
	4, 5, 8, 4, 8, 5, 6, 0, 8, 6, 8, 0,	8, 5, 6, 0, 8, 6, 8, 0, 6, 7, 0, 6,	8, 5, 6, 0, 8, 6, 8, 0, 6, 7, 0, 6,
	6, 7, 0, 6, 1, 1, 6, 8, 2, 9, 1, 5,	1, 1, 6, 8, 2, 9, 1, 5, 2, 9, 6, 9,	1, 1, 6, 8, 2, 9, 1, 5, 2, 9, 6, 9,
	2, 9, 6, 9, 1, 8, 0, 5, 2, 5, 6, 0, 2, 2, 7, 1, 1, 0, 3, 7, 0, 7, 5, 2,	1, 8, 0, 5, 2, 5, 6, 0, 2, 2, 7, 1, 1, 0, 3, 7, 0, 7, 5, 2, 8, 7, 0, 6,	1, 8, 0, 5, 2, 5, 6, 0, 2, 2, 7, 1, 1, 0, 3, 7, 0, 7, 5, 2, 8, 7, 0, 6,
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	2, 2, 0, 0, 4, 2, 0, 0, 3, 5, 8, 3,	4, 2, 0, 0, 3, 5, 8, 3, 1, 2, 2, 2,	4, 2, 0, 0, 3, 5, 8, 3, 1, 2, 2, 2,
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	4, 9, 3, 4, 7, 1, 5, 5, 2, 4, 2, 4,	7, 1, 5, 5, 2, 4, 2, 4, 1, 0, 8, 8,	7, 1, 5, 5, 2, 4, 2, 4, 1, 0, 8, 8,
	1, 0, 8, 8, 2, 3, 6, 8, 1, 2, 0, 0,	2, 3, 6, 8, 1, 2, 0, 0, 8, 7, 5, 7,	2, 3, 6, 8, 1, 2, 0, 0, 8, 7, 5, 7,
	8, 7, 5, 7, 4, 6, 4, 5, 2, 0, 3, 2,	4, 6, 4, 5, 2, 0, 3, 2, 9, 0, 2, 3,	4, 6, 4, 5, 2, 0, 3, 2, 9, 0, 2, 3,
	9, 0, 2, 3, 6, 0, 9, 8, 9, 2, 5, 5,	6, 0, 9, 8, 9, 2, 5, 5, 0, 1, 6, 8,	6, 0, 9, 8, 9, 2, 5, 5, 0, 1, 6, 8,
	0, 1, 6, 8, 9, 5, 2, 9, 3, 6, 5, 6,	9, 5, 2, 9, 3, 6, 5, 6, 5, 2, 9, 1,	9, 5, 2, 9, 3, 6, 5, 6, 5, 2, 9, 1,
	5, 2, 9, 1, 3, 0, 2, 4, 2, 3, 7, 8,	3, 0, 2, 4, 2, 3, 7, 8, 2, 0, 2, 5,	3, 0, 2, 4, 2, 3, 7, 8, 2, 0, 2, 5,
	2, 0, 2, 5, 4, 2, 0, 9, 9, 1, 0, 7,	4, 2, 0, 9, 9, 1, 0, 7, 1, 6, 7, 1,	4, 2, 0, 9, 9, 1, 0, 7, 1, 6, 7, 1,
	1, 6, 7, 1, 0, 8, 4, 2, 0, 9, 3, 8,	0, 8, 4, 2, 0, 9, 3, 8, 7, 6, 3, 5,	0, 8, 4, 2, 0, 9, 3, 8, 7, 6, 3, 5,
	7, 6, 3, 5, 4, 5, 3, 4, 8, 9, 2, 1,	4, 5, 3, 4, 8, 9, 2, 1, 7, 4, 2, 9,	4, 5, 3, 4, 8, 9, 2, 1, 7, 4, 2, 9,
	7, 4, 2, 9, 1, 3, 8, 9, 2, 9, 4, 7,	1, 3, 8, 9, 2, 9, 4, 7, 4, 9, 1, 9,	1, 3, 8, 9, 2, 9, 4, 7, 4, 9, 1, 9,
	4, 9, 1, 9, 4, 0, 9, 2, 8, 5, 2, 1,	4, 0, 9, 2, 8, 5, 2, 1, 6, 4, 1, 1,	4, 0, 9, 2, 8, 5, 2, 1, 6, 4, 1, 1,
	6, 4, 1, 1, 7, 3, 8, 4, 6, 3, 8, 8,	7, 3, 8, 4, 6, 3, 8, 8, 7, 6, 6, 4,	7, 3, 8, 4, 6, 3, 8, 8, 7, 6, 6, 4,
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	2, 6, 7, 0, 8, 5, 2, 3, 2, 0, 2, 2,	8, 5, 2, 3, 2, 0, 2, 2, 7, 6, 9, 2,	8, 5, 2, 3, 2, 0, 2, 2, 7, 6, 9, 2,
	7, 6, 9, 2, 2, 4, 9, 8, 8, 8, 2, 2,	2, 4, 9, 8, 8, 8, 2, 2, 6, 2, 7, 8,	2, 4, 9, 8, 8, 8, 2, 2, 6, 2, 7, 8,
	6, 2, 7, 8, 1, 1, 3, 6, 4, 5, 6, 7,	1, 1, 3, 6, 4, 5, 6, 7, 6, 6, 3, 1,	1, 1, 3, 6, 4, 5, 6, 7, 6, 6, 3, 1,
	6, 6, 3, 1, 5, 7, 3, 2, 6, 1, 3, 2,	5, 7, 3, 2, 6, 1, 3, 2, 1, 3, 0, 3,	5, 7, 3, 2, 6, 1, 3, 2, 1, 3, 0, 3,
	1, 3, 0, 3, 8, 7, 5, 9, 0, 9, 5, 8, 6, 3, 2, 6, 5, 3, 3, 9, 2, 5, 4, 4,	8, 7, 5, 9, 0, 9, 5, 8, 6, 3, 2, 6, 5, 3, 3, 9, 2, 5, 4, 4, 2, 6, 3, 7,	8, 7, 5, 9, 0, 9, 5, 8, 6, 3, 2, 6, 5, 3, 3, 9, 2, 5, 4, 4, 2, 6, 3, 7,
	2, 6, 3, 7, 2, 7, 7, 6, 6, 6, 5, 8,	2, 7, 7, 6, 6, 6, 5, 8, 4, 2, 5, 1,	2, 7, 7, 6, 6, 6, 5, 8, 4, 2, 5, 1,
	4, 2, 5, 1, 7, 3, 4, 1, 8, 5, 1, 6,	7, 3, 4, 1, 8, 5, 1, 6, 9, 0, 7, 8,	7, 3, 4, 1, 8, 5, 1, 6, 9, 0, 7, 8,
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	9, 6, 4, 0, 5, 8, 1, 0, 0, 2, 9, 9,	5, 8, 1, 0, 0, 2, 9, 9, 3, 4, 4, 9,	5, 8, 1, 0, 0, 2, 9, 9, 3, 4, 4, 9,
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7.77		Lab 1. Olingiy Elinkod Liot. 7kt	
	Test	Expected	Got
	1, 4, 4, 9, 2, 0, 2, 3, 3, 9, 6, 4,	2, 0, 2, 3, 3, 9, 6, 4, 3, 9, 4, 5,	2, 0, 2, 3, 3, 9, 6, 4, 3, 9, 4, 5,
	3, 9, 4, 5, 4, 3, 3, 8, 1, 5, 4, 9,	4, 3, 3, 8, 1, 5, 4, 9, 2, 2, 9, 0,	4, 3, 3, 8, 1, 5, 4, 9, 2, 2, 9, 0,
	2, 2, 9, 0, 8, 7, 1, 1, 5, 3, 5, 8,	8, 7, 1, 1, 5, 3, 5, 8, 1, 3, 5, 5,	8, 7, 1, 1, 5, 3, 5, 8, 1, 3, 5, 5,
	1, 3, 5, 5, 2, 1, 3, 6, 8, 8, 8, 5,	2, 1, 3, 6, 8, 8, 8, 5, 5, 3, 9, 5,	2, 1, 3, 6, 8, 8, 8, 5, 5, 3, 9, 5,
	5, 3, 9, 5, 0, 4, 8, 7, 0, 2, 0, 0,	0, 4, 8, 7, 0, 2, 0, 0, 3, 4, 0, 8,	0, 4, 8, 7, 0, 2, 0, 0, 3, 4, 0, 8,
	3, 4, 0, 8, 5, 6, 1, 0, 9, 1, 6, 8,	5, 6, 1, 0, 9, 1, 6, 8, 2, 6, 1, 8,	5, 6, 1, 0, 9, 1, 6, 8, 2, 6, 1, 8,
	2, 6, 1, 8, 5, 1, 9, 9, 8, 3, 4, 4,	5, 1, 9, 9, 8, 3, 4, 4, 4, 7, 1, 4,	5, 1, 9, 9, 8, 3, 4, 4, 4, 7, 1, 4,
	4, 7, 1, 4, 0, 6, 3, 1, 1, 8, 9, 5,	0, 6, 3, 1, 1, 8, 9, 5, 9, 8, 1, 2,	0, 6, 3, 1, 1, 8, 9, 5, 9, 8, 1, 2,
	9, 8, 1, 2, 4, 2, 6, 8, 6, 8, 6, 1,	4, 2, 6, 8, 6, 8, 6, 1, 6, 9, 0, 4,	4, 2, 6, 8, 6, 8, 6, 1, 6, 9, 0, 4,
	6, 9, 0, 4, 1, 8, 0, 2, 4, 5, 3, 5,	1, 8, 0, 2, 4, 5, 3, 5, 2, 0, 4, 9,	1, 8, 0, 2, 4, 5, 3, 5, 2, 0, 4, 9,
	2, 0, 4, 9, 7, 5, 4, 2, 1, 7, 8, 4,	7, 5, 4, 2, 1, 7, 8, 4, 9, 8, 0, 9,	7, 5, 4, 2, 1, 7, 8, 4, 9, 8, 0, 9,
	9, 8, 0, 9, 0, 3, 1, 4, 8, 4, 4, 7,	0, 3, 1, 4, 8, 4, 4, 7, 4, 0, 4, 1,	0, 3, 1, 4, 8, 4, 4, 7, 4, 0, 4, 1,
	4, 0, 4, 1, 8, 2, 2, 5, 6, 3, 7, 1,	8, 2, 2, 5, 6, 3, 7, 1, 9, 4, 6, 0,	8, 2, 2, 5, 6, 3, 7, 1, 9, 4, 6, 0,
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	7, 0, 3, 5, 9, 5, 2, 0, 7, 8, 1, 0,	9, 5, 2, 0, 7, 8, 1, 0, 9, 5, 7, 6,	9, 5, 2, 0, 7, 8, 1, 0, 9, 5, 7, 6,
	9, 5, 7, 6, 0, 8, 6, 0, 9, 9, 6, 5,	0, 8, 6, 0, 9, 9, 6, 5, 7, 0, 8, 2,	0, 8, 6, 0, 9, 9, 6, 5, 7, 0, 8, 2,
	7, 0, 8, 2, 1, 0, 3, 2, 1, 8, 0, 6,	1, 0, 3, 2, 1, 8, 0, 6, 2, 7, 6, 7,	1, 0, 3, 2, 1, 8, 0, 6, 2, 7, 6, 7,
	2, 7, 6, 7, 5, 3, 0, 0, 8, 2, 7, 2,	5, 3, 0, 0, 8, 2, 7, 2, 0, 1, 8, 7,	5, 3, 0, 0, 8, 2, 7, 2, 0, 1, 8, 7,
	0, 1, 8, 7, 4, 2, 6, 3, 4, 1, 9, 1,	4, 2, 6, 3, 4, 1, 9, 1, 0, 6, 9, 3,	4, 2, 6, 3, 4, 1, 9, 1, 0, 6, 9, 3,
	0, 6, 9, 3, 3, 5, 5, 3, 9, 8, 6, 0,	3, 5, 5, 3, 9, 8, 6, 0, 0, 0, 7, 8,	3, 5, 5, 3, 9, 8, 6, 0, 0, 0, 7, 8,
	0, 0, 7, 8, 2, 9, 5, 2, 1, 4, 2, 5,	2, 9, 5, 2, 1, 4, 2, 5, 2, 0, 8, 7,	2, 9, 5, 2, 1, 4, 2, 5, 2, 0, 8, 7,
	2, 0, 8, 7, 2, 0, 5, 6, 3, 6, 2, 8,	2, 0, 5, 6, 3, 6, 2, 8, 5, 1, 4, 7,	2, 0, 5, 6, 3, 6, 2, 8, 5, 1, 4, 7,
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	0, 5, 0, 5, 8, 5, 6, 3, 9, 9, 4, 0,	8, 5, 6, 3, 9, 9, 4, 0, 3, 6, 3, 7,	8, 5, 6, 3, 9, 9, 4, 0, 3, 6, 3, 7,
	3, 6, 3, 7, 6, 6, 7, 3, 5, 9, 5, 8,	6, 6, 7, 3, 5, 9, 5, 8, 6, 2, 7, 3,	6, 6, 7, 3, 5, 9, 5, 8, 6, 2, 7, 3,
	6, 2, 7, 3, 0, 8, 3, 3, 9, 5, 2,	0, 8, 3, 3, 9, 5, 2, 7, 9, 0, 8,	0, 8, 3, 3, 9, 5, 2, 7, 9, 0, 8,
	snip 8, 5, 2, 5, 7, 9, 9, 2,	snip 7, 5, 2, 4, 5, 5, 7, 7,	snip 7, 5, 2, 4, 5, 5, 7, 7,
	6, 7, 0, 2, 9, 0, 0, 4, 0, 9, 8, 9,	9, 2, 6, 6, 6, 9, 9, 9, 0, 6, 9, 0,	9, 2, 6, 6, 6, 9, 9, 9, 0, 6, 9, 0,
	4, 0, 5, 4, 9, 9, 5, 7, 3, 8, 9, 0,	7, 3, 7, 8, 8, 8, 9, 7, 7, 9, 7, 7,	7, 3, 7, 8, 8, 8, 9, 7, 7, 9, 7, 7,
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	5, 0, 3, 4, 8, 8, 9, 4, 1, 1, 7, 9,	9, 9, 0, 9, 0, 5, 5, 9, 9, 0, 0, 7,	9, 9, 0, 9, 0, 5, 5, 9, 9, 0, 0, 7,
	2, 0, 1, 4, 8, 2, 5, 4, 8, 8, 9, 0,	8, 8, 9, 0, 8, 9, 5, 6, 8, 8, 8, 8,	8, 8, 9, 0, 8, 9, 5, 6, 8, 8, 8, 8,
	8, 3, 5, 2, 6, 0, 1, 3, 2, 7, 4, 0,	9, 7, 8, 1, 2, 3, 3, 8, 9, 3, 4, 8,	9, 7, 8, 1, 2, 3, 3, 8, 9, 3, 4, 8,
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	2, 9, 1, 5, 5, 0, 2, 9, 2, 4, 3, 7,	0, 7, 9, 9, 7, 9, 9, 0, 9, 0, 8,	0, 7, 9, 9, 7, 9, 9, 0, 9, 0, 8,
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	7, 0, 0, 6, 7, 2, 3, 9, 9, 8, 4, 5,	7, 7, 7, 9, 0, 4, 1, 4, 8, 9, 5, 8,	7, 7, 7, 9, 0, 4, 1, 4, 8, 9, 5, 8,
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	0, 5, 1, 0, 0, 5, 4, 9, 8, 5, 8, 7,	7, 7, 8, 5, 3, 5, 8, 9, 5, 6, 9, 3,	7, 7, 8, 5, 3, 5, 8, 9, 5, 6, 9, 3,
	9, 9, 3, 5, 3, 8, 6, 2, 8, 5, 0, 2,	3, 9, 0, 9, 9, 9, 0, 5, 9, 9, 2, 9,	3, 9, 0, 9, 9, 9, 0, 5, 9, 9, 2, 9,
	3, 4, 5, 3, 6, 3, 6, 2, 7, 9, 3, 5,	0, 4, 7, 7, 8, 9, 8, 9, 8, 6, 7, 8,	0, 4, 7, 7, 8, 9, 8, 9, 8, 6, 7, 8,
	4, 8, 0, 1, 5, 5, 9, 5, 1, 5, 9, 8,	6, 8, 9, 7, 7, 9, 6, 6, 7, 9, 3, 9,	6, 8, 9, 7, 7, 9, 6, 6, 7, 9, 3, 9,
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	8, 9, 1, 9, 7, 1, 3, 2, 5, 5, 5, 9,	7, 7, 9, 9, 5, 5, 9, 5, 5, 5, 9, 9,	7, 7, 9, 9, 5, 5, 9, 5, 5, 5, 9, 9,
	3, 8, 1, 9, 4, 0, 7, 7, 6, 6, 3, 0,	0, 9, 8, 9, 9, 0, 0, 5, 8, 8, 9, 8,	0, 9, 8, 9, 9, 0, 0, 5, 8, 8, 9, 8,
	2, 6, 1, 2, 7, 8, 9, 4, 2, 6, 3, 1,	8, 9, 6, 2, 3, 4, 5, 6, 6, 7, 6, 7,	8, 9, 6, 2, 3, 4, 5, 6, 6, 7, 6, 7,
	1, 7, 3, 1, 4, 0, 3, 5, 7, 1, 8, 3,	7, 9, 0, 5, 8, 8, 9, 1, 5, 9, 9, 0,	7, 9, 0, 5, 8, 8, 9, 1, 5, 9, 9, 0,
	2, 1, 6, 3, 7, 6, 2, 9, 3, 2, 1, 6,	9, 5, 9, 0, 9, 8, 3, 3, 7, 8, 8, 8,	9, 5, 9, 0, 9, 8, 3, 3, 7, 8, 8, 8,
	2, 6, 1, 6, 3, 5, 8, 6, 1, 8, 5, 6,	3, 4, 8, 9, 8, 9, 0, 9, 0, 9, 3, 5,	3, 4, 8, 9, 8, 9, 0, 9, 0, 9, 3, 5,
	9, 7, 8, 1, 2, 1, 4, 5, 2, 1, 2, 3,	5, 9, 9, 9, 0, 8, 9, 9, 0, 7, 7, 8,	5, 9, 9, 9, 0, 8, 9, 9, 0, 7, 7, 8,
	3, 7, 6, 1, 9, 8, 0, 0, 7, 5, 9, 8,	8, 7, 7, 6, 2, 6, 7, 2, 7, 8, 9, 0,	8, 7, 7, 6, 2, 6, 7, 2, 7, 8, 9, 0,
	8, 0, 3, 6, 7, 7, 3, 6, 3, 8, 0, 1,	6, 6, 7, 7, 7, 7, 8, 4, 4, 5, 3, 5,	6, 6, 7, 7, 7, 8, 4, 4, 5, 3, 5,

Test	Expected	Got
4, 2, 7, 2, 8, 9, 8, 6, 2, 0, 1, 6,	7, 8, 8, 9, 6, 6, 6, 7, 7, 9, 9, 9,	7, 8, 8, 9, 6, 6, 6, 7, 7, 9, 9, 9,
9, 3, 8, 2, 1, 6, 9, 2, 6, 1, 5, 9,	0, 6, 6, 6, 8, 6, 8, 6, 8, 5, 8, 9,	0, 6, 6, 6, 8, 6, 8, 6, 8, 5, 8, 9,
8, 8, 4, 8, 4, 9, 8, 8, 2, 8, 1, 1,	8, 8, 9, 6, 9, 0, 8, 9, 2, 4, 4, 5,	8, 8, 9, 6, 9, 0, 8, 9, 2, 4, 4, 5,
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9, 7, 2, 8, 4, 0, 8, 3, 1, 9, 4, 9,	7, 9, 9, 0, 9, 9, 3, 6, 7, 8, 8, 6,	7, 9, 9, 0, 9, 9, 3, 6, 7, 8, 8, 6,
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Test	Expected	Got
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9, 6, 0, 4, 0, 2, 9, 0, 5, 2, 5, 0,	9, 9, 9, 0, 8, 8, 8, 9, 8, 8, 9, 4,	9, 9, 9, 0, 8, 8, 8, 9, 8, 8, 9, 4,
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6, 4, 7, 2, 1, 4, 2, 1, 5, 7, 0, 3,	7, 8, 8, 9, 9, 0, 9, 4, 9, 2, 9, 0,	7, 8, 8, 9, 9, 0, 9, 4, 9, 2, 9, 0,
1, 9, 0, 1, 0, 9, 4, 2, 2, 0};	5, 7, 5, 7, 4, 7, 8, 7, 8, 8, 8, 9,	5, 7, 5, 7, 4, 7, 8, 7, 8, 8, 8, 9,
LLNode* head =	0, 8, 9, 9, 9, 0, 3, 4, 3, 4, 4, 4,	0, 8, 9, 9, 9, 0, 3, 4, 3, 4, 4, 4,
LLNode::createWithIterators(arr, arr	4, 4, 5, 7, 8, 8, 8, 9, 6, 9, 9, 9,	4, 4, 5, 7, 8, 8, 8, 9, 6, 9, 9, 9,
<pre>+ sizeof(arr) / sizeof(int));</pre>	0, 8, 8, 9, 4, 7, 1, 7, 9, 5, 5, 7,	0, 8, 8, 9, 4, 7, 1, 7, 9, 5, 5, 7,
LLNode::printList(head);	7, 7, 9, 6, 6, 7, 7, 9, 4, 4, 5, 5,	7, 7, 9, 6, 6, 7, 7, 9, 4, 4, 5, 5,
cout << "\n";	5, 7, 9, 3, 9, 9, 0, 1, 9, 9, 0, 0,	5, 7, 9, 3, 9, 9, 0, 1, 9, 9, 0, 0,
LLNode* newhead =	0, 0, 0]	0, 0, 0]
<pre>replaceFirstGreater(head);</pre>		
<pre>LLNode::printList(newhead);</pre>		

Passed all tests! 🗸



Marks for this submission: 1.00/1.00.

```
Question 6
Correct
Mark 1.00 out of 1.00
```

Class LLNode representing a node of singly linked lists is declared as below:

```
class LLNode {
public:
    int val;
    LLNode* next;
    LLNode(); // Constructor: val = 0, next = nullptr
    LLNode(int val, LLNode* next); // Constructor with customized data
}
```

Given a singly linked list head node and a integer k.

Your task is to implement a function with following prototype:

```
LLNode* rotateLinkedList(LLNode* head, int k);
```

The function returns head node of the rotated singly linked list obtained after rotate the linked list to the right by k places.

Note:

- The iostream library has been used and namespace std is being used. No other libraries are allowed.
- The constructors and methods of class LLNode have been defined fully so you do not need to redefine them.
- You can write helper functions.

For example:

Test	Result
<pre>int arr[] = {2, 4, 6, 6, 3}; int k = 3;</pre>	[2, 4, 6, 6, 3] [6, 6, 3, 2, 4]
LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int));	[0, 0, 3, 2, 4]
<pre>LLNode::printList(head); cout << "\n";</pre>	
<pre>LLNode* newhead = rotateLinkedList(head, k); LLNode::printList(newhead);</pre>	

Answer: (penalty regime: 0 %)

Reset answer

```
using ptr = LLNode*;
 2
    int sizeLL (ptr list);
    LLNode* rotateLinkedList(LLNode* head, int k)
 3
 4 •
 5
        if (head == nullptr) return nullptr;
 6
        int size = sizeLL(head);
 7
        //cout << size << "\n";
 8
        if (k >= size)
 9 ,
10
             int* arr = new int[size];
11
            ptr h = head;
12
            ptr res = NULL;
            for (int i = 0 ; i < size; ++i, h = h->next )
13
14
15
                 arr[i] = h->val;
16
17
            for (int i = size-2; i >= 0; --i)
18
19
                 ptr newNode = new LLNode(arr[i]);
20
                 newNode->next = res;
21
                res = newNode;
22
                               . . . . . .
```

ptr newNode = new LLNode(arr[size-1]);

Expected Got Test ~ [2, 4, 6, 6, 3] [2, 4, 6, 6, 3] int $arr[] = \{2, 4, 6, 6, 3\};$ int k = 3; [6, 6, 3, 2, 4] [6, 6, 3, 2, 4] IINode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n";</pre> LLNode* newhead = rotateLinkedList(head, k); LLNode::printList(newhead); int arr[] = {}; [] [] int k = 2; [] [] LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = rotateLinkedList(head, k); LLNode::printList(newhead); int arr[] = {0, 4, 2, 5, 1, 0, 6, 4, [0, 4, 2, 5, 1, 0, 6, 4, 8, 6] [0, 4, 2, 5, 1, 0, 6, 4, 8, 6] 8, 6}; [6, 0, 4, 2, 5, 1, 0, 6, 4, 8] [6, 0, 4, 2, 5, 1, 0, 6, 4, 8] int k = 11; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; IINode* newhead = rotateLinkedList(head, k); LLNode::printList(newhead); [6, 1, 3, 2, 6, 0, 0, 0, 3, 3, 9, 8, [6, 1, 3, 2, 6, 0, 0, 0, 3, 3, 9, 8, 5, 6, 0, 7, 7, 8, 5, 7, 7, 9, 6, 3, 5, 6, 0, 7, 7, 8, 5, 7, 7, 9, 6, 3, 3, 3, 9, 8, 5, 6, 0, 7, 7, 8, 5, 7, 7, 9, 6, 3, 3, 0, 0, 8, 0, 0, 4, 9, 3, 0, 0, 8, 0, 0, 4, 9, 7, 1, 7, 2, 3, 0, 0, 8, 0, 0, 4, 9, 7, 1, 7, 2, 7, 1, 7, 2, 7, 5, 4, 4, 7, 5, 9, 2, 7, 5, 4, 4, 7, 5, 9, 2, 4, 5, 7, 9, 7, 5, 4, 4, 7, 5, 9, 2, 4, 5, 7, 9, 4, 5, 7, 9, 7, 9, 7, 2, 0, 6, 7, 6, 7, 9, 7, 2, 0, 6, 7, 6, 5, 1, 9, 7, 7, 9, 7, 2, 0, 6, 7, 6, 5, 1, 9, 7, 5, 1, 9, 7, 1, 2, 7, 8, 7, 5, 4, 7, 1, 2, 7, 8, 7, 5, 4, 7, 6, 9, 0, 2, 1, 2, 7, 8, 7, 5, 4, 7, 6, 9, 0, 2, 6, 9, 0, 2, 7, 0, 5, 5, 6, 8, 3, 1, 7, 0, 5, 5, 6, 8, 3, 1, 9, 3, 0, 1, 7, 0, 5, 5, 6, 8, 3, 1, 9, 3, 0, 1, 9, 3, 0, 1, 4, 6, 6, 9, 2, 2, 0, 6, 4, 6, 6, 9, 2, 2, 0, 6, 7, 4, 4, 6, 4, 6, 6, 9, 2, 2, 0, 6, 7, 4, 4, 6, 7, 4, 4, 6, 0, 7, 3, 5, 2, 9, 1, 0, 0, 7, 3, 5, 2, 9, 1, 0, 9] 0, 7, 3, 5, 2, 9, 1, 0, 9] 9}; [0, 2, 7, 0, 5, 5, 6, 8, 3, 1, 9, 3, [0, 2, 7, 0, 5, 5, 6, 8, 3, 1, 9, 3, int k = 35; 0, 1, 4, 6, 6, 9, 2, 2, 0, 6, 7, 4, 0, 1, 4, 6, 6, 9, 2, 2, 0, 6, 7, 4, LLNode* head = 4, 6, 0, 7, 3, 5, 2, 9, 1, 0, 9, 6, 4, 6, 0, 7, 3, 5, 2, 9, 1, 0, 9, 6, LLNode::createWithIterators(arr, arr 1, 3, 2, 6, 0, 0, 0, 3, 3, 9, 8, 5, 1, 3, 2, 6, 0, 0, 0, 3, 3, 9, 8, 5, + sizeof(arr) / sizeof(int)); 6, 0, 7, 7, 8, 5, 7, 7, 9, 6, 3, 3, 6, 0, 7, 7, 8, 5, 7, 7, 9, 6, 3, 3, LLNode::printList(head); 0, 0, 8, 0, 0, 4, 9, 7, 1, 7, 2, 7, 0, 0, 8, 0, 0, 4, 9, 7, 1, 7, 2, 7, cout << "\n";</pre> 5, 4, 4, 7, 5, 9, 2, 4, 5, 7, 9, 7, 5, 4, 4, 7, 5, 9, 2, 4, 5, 7, 9, 7, LLNode* newhead = 9, 7, 2, 0, 6, 7, 6, 5, 1, 9, 7, 1, 9, 7, 2, 0, 6, 7, 6, 5, 1, 9, 7, 1, rotateLinkedList(head, k); 2, 7, 8, 7, 5, 4, 7, 6, 9] 2, 7, 8, 7, 5, 4, 7, 6, 9] LLNode::printList(newhead); int arr[] = {9, 1, 7, 5, 8, 6, 2, 2, [9, 1, 7, 5, 8, 6, 2, 2, 2, 6, 0, 8, [9, 1, 7, 5, 8, 6, 2, 2, 2, 6, 0, 8, 2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3, 1, 9, 6, 8, 4, 8, 4, 3, 7, 0, 7, 8, 1, 9, 6, 8, 4, 8, 4, 3, 7, 0, 7, 8, 7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 3, 5, 9, 5, 3, 4, 7, 4, 3, 5, 2, 2, 7, 8, 9, 5, 3, 4, 7, 4, 3, 5, 2, 2, 7, 8, 2, 2, 7, 8, 9, 7, 1, 9, 9, 8, 3, 5, 9, 7, 1, 9, 9, 8, 3, 5, 7, 1, 6, 9, 9, 7, 1, 9, 9, 8, 3, 5, 7, 1, 6, 9,

Test	Expected	Got
7, 1, 6, 9, 1, 2, 0, 6, 8, 0, 4, 1,	1, 2, 0, 6, 8, 0, 4, 1, 6, 5, 8, 7,	1, 2, 0, 6, 8, 0, 4, 1, 6, 5, 8, 7,
6, 5, 8, 7, 6, 8, 0, 5, 7, 8, 8, 6,	6, 8, 0, 5, 7, 8, 8, 6, 7, 5, 8, 0,	6, 8, 0, 5, 7, 8, 8, 6, 7, 5, 8, 0,
7, 5, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4,	7, 6, 4, 9, 5, 9, 6, 4, 1, 5, 6, 2,	7, 6, 4, 9, 5, 9, 6, 4, 1, 5, 6, 2,
1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3,	2, 6, 7, 0, 3, 4, 2, 3, 9, 0, 9, 6,	2, 6, 7, 0, 3, 4, 2, 3, 9, 0, 9, 6,
9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0,	3, 6, 7, 5, 5, 5, 9, 0, 6, 1, 1, 5,	3, 6, 7, 5, 5, 5, 9, 0, 6, 1, 1, 5,
6, 1, 1, 5, 0, 9, 1, 1, 1, 0, 4, 6,	0, 9, 1, 1, 1, 0, 4, 6, 3, 3, 3, 5,	0, 9, 1, 1, 1, 0, 4, 6, 3, 3, 3, 5,
3, 3, 3, 5, 8, 7, 4, 7, 1, 7, 1, 8,	8, 7, 4, 7, 1, 7, 1, 8, 4, 2, 0, 1,	8, 7, 4, 7, 1, 7, 1, 8, 4, 2, 0, 1,
4, 2, 0, 1, 9, 0, 7, 9, 2, 8, 9, 2,	9, 0, 7, 9, 2, 8, 9, 2, 5, 3, 5, 9,	9, 0, 7, 9, 2, 8, 9, 2, 5, 3, 5, 9,
5, 3, 5, 9, 3, 2, 7, 3, 5, 9, 5, 5,	3, 2, 7, 3, 5, 9, 5, 5, 3, 2, 3, 9,	3, 2, 7, 3, 5, 9, 5, 5, 3, 2, 3, 9,
3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4,	4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7,	4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7,
5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1,	7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2,	7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2,
1, 6, 0, 2, 6, 0, 7, 5, 5, 0, 5, 2,	6, 0, 7, 5, 5, 0, 5, 2, 6, 9, 9, 9,	6, 0, 7, 5, 5, 0, 5, 2, 6, 9, 9, 9,
6, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4,	9, 2, 3, 0, 6, 8, 8, 4, 5, 6, 2, 8,	9, 2, 3, 0, 6, 8, 8, 4, 5, 6, 2, 8,
5, 6, 2, 8, 5, 9, 8, 3, 6, 8, 8, 6,	5, 9, 8, 3, 6, 8, 8, 6, 2, 1, 2, 1,	5, 9, 8, 3, 6, 8, 8, 6, 2, 1, 2, 1,
2, 1, 2, 1, 4, 6, 2, 0, 9, 3, 9, 6,	4, 6, 2, 0, 9, 3, 9, 6, 4, 2, 3, 6,	4, 6, 2, 0, 9, 3, 9, 6, 4, 2, 3, 6,
4, 2, 3, 6, 2, 0, 9, 8, 7, 0, 6, 0,	2, 0, 9, 8, 7, 0, 6, 0, 7, 0, 5, 9,	2, 0, 9, 8, 7, 0, 6, 0, 7, 0, 5, 9,
7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7,	4, 3, 7, 9, 7, 3, 5, 7, 0, 3, 1, 8,	4, 3, 7, 9, 7, 3, 5, 7, 0, 3, 1, 8,
0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6,		9, 9, 4, 0, 8, 6, 4, 6, 7, 3, 8, 1,
	9, 9, 4, 0, 8, 6, 4, 6, 7, 3, 8, 1,	
7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5,	2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 8,	2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 8,
8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3,	9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7,	9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7,
0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1,	1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8,	1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8,
2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1,	7, 1, 6, 9, 6, 2, 8, 1, 2, 0, 4, 3,	7, 1, 6, 9, 6, 2, 8, 1, 2, 0, 4, 3,
2, 0, 4, 3, 4, 6, 7, 1, 0, 7, 0, 7,	4, 6, 7, 1, 0, 7, 0, 7, 9, 4, 0, 1,	4, 6, 7, 1, 0, 7, 0, 7, 9, 4, 0, 1,
9, 4, 0, 1, 2, 3, 5, 6, 3, 5, 6, 7,	2, 3, 5, 6, 3, 5, 6, 7, 5, 4, 2, 4,	2, 3, 5, 6, 3, 5, 6, 7, 5, 4, 2, 4,
5, 4, 2, 4, 8, 2, 5, 8, 8, 6, 6, 2,	8, 2, 5, 8, 8, 6, 6, 2, 6, 6, 8, 1,	8, 2, 5, 8, 8, 6, 6, 2, 6, 6, 8, 1,
6, 6, 8, 1, 2, 2, 8, 0, 8, 9, 0, 7,	2, 2, 8, 0, 8, 9, 0, 7, 9, 0, 1, 6,	2, 2, 8, 0, 8, 9, 0, 7, 9, 0, 1, 6,
9, 0, 1, 6, 6, 3, 6, 5, 1, 5, 9, 0,	6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 3, 7,	6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 3, 7,
3, 7, 3, 7, 2, 0, 0, 2, 7, 5, 2, 9,	2, 0, 0, 2, 7, 5, 2, 9, 5, 5, 8, 1,	2, 0, 0, 2, 7, 5, 2, 9, 5, 5, 8, 1,
5, 5, 8, 1, 7, 7, 9, 7, 1, 1, 6, 4,	7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7,	7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7,
3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2,	9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9,	9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9,
1, 5, 3, 9, 7, 6, 9, 1, 3, 5, 5, 0,	7, 6, 9, 1, 3, 5, 5, 0, 6, 9, 4, 7,	7, 6, 9, 1, 3, 5, 5, 0, 6, 9, 4, 7,
6, 9, 4, 7, 1, 7, 2, 0, 4, 5, 8, 1,	1, 7, 2, 0, 4, 5, 8, 1, 6, 1, 0, 7,	1, 7, 2, 0, 4, 5, 8, 1, 6, 1, 0, 7,
6, 1, 0, 7, 2, 2, 6, 7, 4, 4, 9, 5,	2, 2, 6, 7, 4, 4, 9, 5, 4, 5, 2, 0,	2, 2, 6, 7, 4, 4, 9, 5, 4, 5, 2, 0,
4, 5, 2, 0, 8, 0, 5, 5, 1, 8, 9, 4,	8, 0, 5, 5, 1, 8, 9, 4, 5, 6, 1, 2,	8, 0, 5, 5, 1, 8, 9, 4, 5, 6, 1, 2,
5, 6, 1, 2, 0, 7, 0, 2, 1, 6, 8, 8,	0, 7, 0, 2, 1, 6, 8, 8, 7, 8, 7, 0,	0, 7, 0, 2, 1, 6, 8, 8, 7, 8, 7, 0,
7, 8, 7, 0, 1, 8, 5, 6, 5, 9, 2, 2,	1, 8, 5, 6, 5, 9, 2, 2, 9, 3, 6, 0,	1, 8, 5, 6, 5, 9, 2, 2, 9, 3, 6, 0,
9, 3, 6, 0, 1, 7, 9, 8, 1, 1, 5, 4,	1, 7, 9, 8, 1, 1, 5, 4, 5, 7, 5, 0,	1, 7, 9, 8, 1, 1, 5, 4, 5, 7, 5, 0,
5, 7, 5, 0, 2, 0, 4, 4, 8, 0, 7, 3};	2, 0, 4, 4, 8, 0, 7, 3]	2, 0, 4, 4, 8, 0, 7, 3]
int k = 196;	[6, 2, 8, 1, 2, 0, 4, 3, 4, 6, 7, 1,	[6, 2, 8, 1, 2, 0, 4, 3, 4, 6, 7, 1
LLNode* head =	0, 7, 0, 7, 9, 4, 0, 1, 2, 3, 5, 6,	0, 7, 0, 7, 9, 4, 0, 1, 2, 3, 5, 6,
LLNode::createWithIterators(arr, arr	3, 5, 6, 7, 5, 4, 2, 4, 8, 2, 5, 8,	3, 5, 6, 7, 5, 4, 2, 4, 8, 2, 5, 8,
<pre>+ sizeof(arr) / sizeof(int));</pre>	8, 6, 6, 2, 6, 6, 8, 1, 2, 2, 8, 0,	8, 6, 6, 2, 6, 6, 8, 1, 2, 2, 8, 0,
LLNode::printList(head);	8, 9, 0, 7, 9, 0, 1, 6, 6, 3, 6, 5,	8, 9, 0, 7, 9, 0, 1, 6, 6, 3, 6, 5,
cout << "\n";	1, 5, 9, 0, 3, 7, 3, 7, 2, 0, 0, 2,	1, 5, 9, 0, 3, 7, 3, 7, 2, 0, 0, 2,
LLNode* newhead =	7, 5, 2, 9, 5, 5, 8, 1, 7, 7, 9, 7,	7, 5, 2, 9, 5, 5, 8, 1, 7, 7, 9, 7,
<pre>rotateLinkedList(head, k);</pre>	1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9,	1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9,
LLNode::printList(newhead);	5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1,	5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1,
	3, 5, 5, 0, 6, 9, 4, 7, 1, 7, 2, 0,	3, 5, 5, 0, 6, 9, 4, 7, 1, 7, 2, 0,
	4, 5, 8, 1, 6, 1, 0, 7, 2, 2, 6, 7,	4, 5, 8, 1, 6, 1, 0, 7, 2, 2, 6, 7,
	4, 4, 9, 5, 4, 5, 2, 0, 8, 0, 5, 5,	4, 4, 9, 5, 4, 5, 2, 0, 8, 0, 5, 5,
	1, 8, 9, 4, 5, 6, 1, 2, 0, 7, 0, 2,	1, 8, 9, 4, 5, 6, 1, 2, 0, 7, 0, 2,
	1, 6, 8, 8, 7, 8, 7, 0, 1, 8, 5, 6,	1, 6, 8, 8, 7, 8, 7, 0, 1, 8, 5, 6,
	5, 9, 2, 2, 9, 3, 6, 0, 1, 7, 9, 8,	5, 9, 2, 2, 9, 3, 6, 0, 1, 7, 9, 8,
	1, 1, 5, 4, 5, 7, 5, 0, 2, 0, 4, 4,	1, 1, 5, 4, 5, 7, 5, 0, 2, 0, 4, 4,
	8, 0, 7, 3, 9, 1, 7, 5, 8, 6, 2, 2,	8, 0, 7, 3, 9, 1, 7, 5, 8, 6, 2, 2,
	2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3,	2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3,
	7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 3, 5,	7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 3, 5,
	2, 2, 7, 8, 9, 7, 1, 9, 9, 8, 3, 5,	2, 2, 7, 8, 9, 7, 1, 9, 9, 8, 3, 5,
	7, 1, 6, 9, 1, 2, 0, 6, 8, 0, 4, 1,	7, 1, 6, 9, 1, 2, 0, 6, 8, 0, 4, 1,

	Test	Expected	Got
		7, 5, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4,	7, 5, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4,
		1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3,	1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3,
		9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0,	9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0,
		6, 1, 1, 5, 0, 9, 1, 1, 1, 0, 4, 6,	6, 1, 1, 5, 0, 9, 1, 1, 1, 0, 4, 6,
		3, 3, 3, 5, 8, 7, 4, 7, 1, 7, 1, 8, 4, 2, 0, 1, 9, 0, 7, 9, 2, 8, 9, 2,	3, 3, 3, 5, 8, 7, 4, 7, 1, 7, 1, 8, 4, 2, 0, 1, 9, 0, 7, 9, 2, 8, 9, 2,
		5, 3, 5, 9, 3, 2, 7, 3, 5, 9, 5, 5,	5, 3, 5, 9, 3, 2, 7, 3, 5, 9, 5, 5,
		3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4,	3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4,
		5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1,	5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1,
		1, 6, 0, 2, 6, 0, 7, 5, 5, 0, 5, 2,	1, 6, 0, 2, 6, 0, 7, 5, 5, 0, 5, 2,
		6, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4,	6, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4,
		5, 6, 2, 8, 5, 9, 8, 3, 6, 8, 8, 6,	5, 6, 2, 8, 5, 9, 8, 3, 6, 8, 8, 6,
		2, 1, 2, 1, 4, 6, 2, 0, 9, 3, 9, 6, 4, 2, 3, 6, 2, 0, 9, 8, 7, 0, 6, 0,	2, 1, 2, 1, 4, 6, 2, 0, 9, 3, 9, 6, 4, 2, 3, 6, 2, 0, 9, 8, 7, 0, 6, 0,
		7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7,	7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7,
		0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6,	0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6,
		7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5,	7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5,
		8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3,	8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3,
		0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1,	0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1,
		2, 5, 6, 8, 7, 1, 6, 9]	2, 5, 6, 8, 7, 1, 6, 9]
~	int arr[] = {8, 0, 8, 8, 9, 3, 3, 5,	[8, 0, 8, 8, 9, 3, 3, 5, 4, 9, 7, 9,	[8, 0, 8, 8, 9, 3, 3, 5, 4, 9, 7, 9,
	4, 9, 7, 9, 5, 3, 8, 6, 1, 0, 6, 4,	5, 3, 8, 6, 1, 0, 6, 4, 5, 1, 1, 5,	5, 3, 8, 6, 1, 0, 6, 4, 5, 1, 1, 5,
	5, 1, 1, 5, 3, 8, 6, 1, 1, 1, 0, 1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7, 6,	3, 8, 6, 1, 1, 1, 0, 1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7, 6, 7, 7, 9, 5,	3, 8, 6, 1, 1, 1, 0, 1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7, 6, 7, 7, 9, 5,
	7, 7, 9, 5, 0, 9, 6, 3, 7, 6, 6, 4,	0, 9, 6, 3, 7, 6, 6, 4, 6, 2, 9, 1,	0, 9, 6, 3, 7, 6, 6, 4, 6, 2, 9, 1,
	6, 2, 9, 1, 5, 0, 8, 6, 0, 8, 6, 3,	5, 0, 8, 6, 0, 8, 6, 3, 0, 3, 6, 8,	5, 0, 8, 6, 0, 8, 6, 3, 0, 3, 6, 8,
	0, 3, 6, 8, 5, 0, 1, 9, 9, 6, 3, 3,	5, 0, 1, 9, 9, 6, 3, 3, 2, 9, 2, 0,	5, 0, 1, 9, 9, 6, 3, 3, 2, 9, 2, 0,
	2, 9, 2, 0, 0, 5, 0, 4, 6, 7, 2, 6,	0, 5, 0, 4, 6, 7, 2, 6, 5, 2, 8, 8,	0, 5, 0, 4, 6, 7, 2, 6, 5, 2, 8, 8,
	5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1, 5,	7, 1, 0, 9, 7, 7, 1, 5, 8, 7, 5, 7,	7, 1, 0, 9, 7, 7, 1, 5, 8, 7, 5, 7,
	8, 7, 5, 7, 8, 7, 8, 7, 1, 7, 9, 7,	8, 7, 8, 7, 1, 7, 9, 7, 1, 3, 0, 5,	8, 7, 8, 7, 1, 7, 9, 7, 1, 3, 0, 5,
	1, 3, 0, 5, 5, 1, 0, 2, 1, 0, 1, 5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8, 6,	5, 1, 0, 2, 1, 0, 1, 5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8, 6, 0, 0, 3, 6,	5, 1, 0, 2, 1, 0, 1, 5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8, 6, 0, 0, 3, 6,
	0, 0, 3, 6, 2, 3, 4, 9, 7, 4, 2, 2,	2, 3, 4, 9, 7, 4, 2, 2, 9, 7, 7, 4,	2, 3, 4, 9, 7, 4, 2, 2, 9, 7, 7, 4,
	9, 7, 7, 4, 9, 9, 7, 5, 6, 2, 4, 0,	9, 9, 7, 5, 6, 2, 4, 0, 1, 9, 9, 8,	9, 9, 7, 5, 6, 2, 4, 0, 1, 9, 9, 8,
	1, 9, 9, 8, 4, 6, 1, 2, 9, 6, 7, 9,	4, 6, 1, 2, 9, 6, 7, 9, 4, 7, 5, 2,	4, 6, 1, 2, 9, 6, 7, 9, 4, 7, 5, 2,
	4, 7, 5, 2, 9, 4, 2, 5, 9, 4, 1, 6,	9, 4, 2, 5, 9, 4, 1, 6, 0, 0, 5, 0,	9, 4, 2, 5, 9, 4, 1, 6, 0, 0, 5, 0,
	0, 0, 5, 0, 0, 6, 1, 7, 8, 6, 9, 5,	0, 6, 1, 7, 8, 6, 9, 5, 4, 7, 0, 5,	0, 6, 1, 7, 8, 6, 9, 5, 4, 7, 0, 5,
	4, 7, 0, 5, 3, 2, 4, 9, 9, 2, 3, 4,	3, 2, 4, 9, 9, 2, 3, 4, 4, 1, 8, 2,	3, 2, 4, 9, 9, 2, 3, 4, 4, 1, 8, 2,
	4, 1, 8, 2, 4, 4, 6, 2, 0, 5, 9, 4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1,	4, 4, 6, 2, 0, 5, 9, 4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1, 7, 7, 5, 4,	4, 4, 6, 2, 0, 5, 9, 4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1, 7, 7, 5, 4,
	7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9, 7,	5, 6, 2, 1, 7, 5, 9, 7, 4, 8, 4, 6,	5, 6, 2, 1, 7, 5, 9, 7, 4, 8, 4, 6,
	4, 8, 4, 6, 9, 3, 4, 4, 3, 7, 1, 3,	9, 3, 4, 4, 3, 7, 1, 3, 9, 3, 3, 7,	9, 3, 4, 4, 3, 7, 1, 3, 9, 3, 3, 7,
	9, 3, 3, 7, 9, 7, 9, 4, 6, 0, 5, 5,	9, 7, 9, 4, 6, 0, 5, 5, 5, 6, 2, 5,	9, 7, 9, 4, 6, 0, 5, 5, 5, 6, 2, 5,
	5, 6, 2, 5, 5, 9, 0, 2, 9, 0, 3, 8,	5, 9, 0, 2, 9, 0, 3, 8, 7, 6, 1, 0,	5, 9, 0, 2, 9, 0, 3, 8, 7, 6, 1, 0,
	7, 6, 1, 0, 4, 0, 7, 4, 2, 5, 0, 0,	4, 0, 7, 4, 2, 5, 0, 0, 6, 4, 3, 6,	4, 0, 7, 4, 2, 5, 0, 0, 6, 4, 3, 6,
	6, 4, 3, 6, 0, 9, 2, 4, 1, 0, 3, 8, 0, 1, 7, 3, 8, 9, 0, 5, 3, 2, 8, 4,	8, 9, 0, 5, 3, 2, 8, 4, 0, 4, 6, 9,	0, 9, 2, 4, 1, 0, 3, 8, 0, 1, 7, 3, 8, 9, 0, 5, 3, 2, 8, 4, 0, 4, 6, 9,
	0, 4, 6, 9, 8, 6, 5, 2, 7, 9, 0, 1,	8, 6, 5, 2, 7, 9, 0, 1, 7, 5, 5, 9,	8, 6, 5, 2, 7, 9, 0, 1, 7, 5, 5, 9,
	7, 5, 5, 9, 5, 6, 8, 2, 8, 6, 7, 4,	5, 6, 8, 2, 8, 6, 7, 4, 5, 9, 0, 2,	5, 6, 8, 2, 8, 6, 7, 4, 5, 9, 0, 2,
	5, 9, 0, 2, 6, 8, 4, 3, 5, 9, 9, 1,	6, 8, 4, 3, 5, 9, 9, 1, 0, 3, 2, 3,	6, 8, 4, 3, 5, 9, 9, 1, 0, 3, 2, 3,
	0, 3, 2, 3, 8, 1, 0, 5, 9, 6, 8, 9,	8, 1, 0, 5, 9, 6, 8, 9, 0, 9, 9, 4,	8, 1, 0, 5, 9, 6, 8, 9, 0, 9, 9, 4,
	0, 9, 9, 4, 7, 5, 1, 7, 0, 3, 8, 9,	7, 5, 1, 7, 0, 3, 8, 9, 9, 1, 0, 3,	7, 5, 1, 7, 0, 3, 8, 9, 9, 1, 0, 3,
	9, 1, 0, 3, 0, 4, 2, 6, 6, 9, 1, 2, 5, 2, 3, 5, 1, 5, 0, 1, 6, 4, 8, 8,	0, 4, 2, 6, 6, 9, 1, 2, 5, 2, 3, 5, 1, 5, 0, 1, 6, 4, 8, 8, 4, 9, 5, 6,	0, 4, 2, 6, 6, 9, 1, 2, 5, 2, 3, 5, 1, 5, 0, 1, 6, 4, 8, 8, 4, 9, 5, 6,
	4, 9, 5, 6, 5, 4, 2, 5, 9, 7, 3, 0,	5, 4, 2, 5, 9, 7, 3, 0, 6, 6, 8, 8,	5, 4, 2, 5, 9, 7, 3, 0, 6, 6, 8, 8,
	6, 6, 8, 8, 7, 1, 0, 5, 3, 5, 5, 9,	7, 1, 0, 5, 3, 5, 5, 9, 4, 8, 4, 6,	7, 1, 0, 5, 3, 5, 5, 9, 4, 8, 4, 6,
	4, 8, 4, 6, 9, 3, 8, 3, 4, 9, 6, 8,	9, 3, 8, 3, 4, 9, 6, 8, 9, 7, 3, 4,	9, 3, 8, 3, 4, 9, 6, 8, 9, 7, 3, 4,
	9, 7, 3, 4, 1, 0, 1, 2, 0, 0, 8, 1,	1, 0, 1, 2, 0, 0, 8, 1, 8, 5, 1, 5,	1, 0, 1, 2, 0, 0, 8, 1, 8, 5, 1, 5,
	8, 5, 1, 5, 1, 0, 1, 1, 4, 0, 8, 7,	1, 0, 1, 1, 4, 0, 8, 7, 2, 8, 0, 0,	1, 0, 1, 1, 4, 0, 8, 7, 2, 8, 0, 0,
	2, 8, 0, 0, 9, 6, 2, 1, 5, 1, 3, 4,	9, 6, 2, 1, 5, 1, 3, 4, 2, 5, 2, 0,	9, 6, 2, 1, 5, 1, 3, 4, 2, 5, 2, 0,

Test	Expected	Got
2, 5, 2, 0, 2, 5, 8, 1, 1, 6, 4, 6,	2, 5, 8, 1, 1, 6, 4, 6, 5, 8, 5, 9,	2, 5, 8, 1, 1, 6, 4, 6, 5, 8, 5, 9
5, 8, 5, 9, 5, 8, 1, 8, 5, 4, 2, 0,	5, 8, 1, 8, 5, 4, 2, 0, 5, 5, 0, 1,	5, 8, 1, 8, 5, 4, 2, 0, 5, 5, 0, 1,
5, 5, 0, 1, 9, 7, 1, 1, 7, 6, 1, 8,	9, 7, 1, 1, 7, 6, 1, 8, 8, 4, 6, 4,	9, 7, 1, 1, 7, 6, 1, 8, 8, 4, 6, 4,
8, 4, 6, 4, 4, 3, 1, 0, 3, 3, 7, 9,	4, 3, 1, 0, 3, 3, 7, 9, 7, 9, 5, 1,	4, 3, 1, 0, 3, 3, 7, 9, 7, 9, 5, 1,
7, 9, 5, 1, 5, 1, 5, 2, 0, 3, 1, 4,	5, 1, 5, 2, 0, 3, 1, 4, 9, 2, 6, 5,	5, 1, 5, 2, 0, 3, 1, 4, 9, 2, 6, 5,
9, 2, 6, 5, 3, 2, 7, 8, 1, 6, 7, 0,	3, 2, 7, 8, 1, 6, 7, 0, 2, 7, 6, 1,	3, 2, 7, 8, 1, 6, 7, 0, 2, 7, 6, 1,
2, 7, 6, 1, 5, 8, 3, 5, 0, 4, 7, 9,	5, 8, 3, 5, 0, 4, 7, 9, 8, 8, 2, 6,	5, 8, 3, 5, 0, 4, 7, 9, 8, 8, 2, 6,
8, 8, 2, 6, 9, 9, 7, 8, 3, 8, 8, 0,	9, 9, 7, 8, 3, 8, 8, 0, 8, 6, 4, 5,	9, 9, 7, 8, 3, 8, 8, 0, 8, 6, 4, 5,
8, 6, 4, 5, 7, 2, 0, 7, 3, 5, 5, 3,	7, 2, 0, 7, 3, 5, 5, 3, 5, 6, 2, 3,	7, 2, 0, 7, 3, 5, 5, 3, 5, 6, 2, 3,
5, 6, 2, 3, 3, 1, 2, 4, 4, 4, 5, 5,	3, 1, 2, 4, 4, 4, 5, 5, 4, 9, 7, 0,	3, 1, 2, 4, 4, 4, 5, 5, 4, 9, 7, 0,
4, 9, 7, 0, 8, 0, 4, 3, 0, 9, 7, 7,	8, 0, 4, 3, 0, 9, 7, 7, 8, 1, 3, 7,	8, 0, 4, 3, 0, 9, 7, 7, 8, 1, 3, 7,
8, 1, 3, 7, 1, 5, 4, 7, 6, 3, 8, 6,	1, 5, 4, 7, 6, 3, 8, 6, 7, 5, 4, 2,	1, 5, 4, 7, 6, 3, 8, 6, 7, 5, 4, 2,
7, 5, 4, 2, 0, 6, 7, 4, 7, 4, 6, 1,	0, 6, 7, 4, 7, 4, 6, 1, 3, 7, 2, 4,	0, 6, 7, 4, 7, 4, 6, 1, 3, 7, 2, 4,
3, 7, 2, 4, 4, 0, 1, 2, 9, 1, 9, 5,	4, 0, 1, 2, 9, 1, 9, 5, 7, 1, 7, 7,	4, 0, 1, 2, 9, 1, 9, 5, 7, 1, 7, 7,
7, 1, 7, 7, 3, 2, 9, 8, 2, 4, 4, 9,	3, 2, 9, 8, 2, 4, 4, 9, 0, 5, 6, 7,	3, 2, 9, 8, 2, 4, 4, 9, 0, 5, 6, 7,
0, 5, 6, 7, 9, 1, 8, 3, 8, 2, 3, 2,	9, 1, 8, 3, 8, 2, 3, 2, 4, 6, 2, 0,	9, 1, 8, 3, 8, 2, 3, 2, 4, 6, 2, 0,
4, 6, 2, 0, 7, 5, 9, 5, 2, 2, 6, 8,	7, 5, 9, 5, 2, 2, 6, 8, 6, 9, 9, 3,	7, 5, 9, 5, 2, 2, 6, 8, 6, 9, 9, 3,
6, 9, 9, 3, 0, 4, 1, 5, 2, 3, 9, 3,	0, 4, 1, 5, 2, 3, 9, 3, 9, 1, 7, 3,	0, 4, 1, 5, 2, 3, 9, 3, 9, 1, 7, 3,
9, 1, 7, 3, 1, 2, 8, 2, 0, 4, 1, 1,	1, 2, 8, 2, 0, 4, 1, 1, 8, 4, 8, 2,	1, 2, 8, 2, 0, 4, 1, 1, 8, 4, 8, 2,
8, 4, 8, 2, 0, 0, 6, 6, 5, 1, 3, 5,	0, 0, 6, 6, 5, 1, 3, 5, 0, 6, 1, 6,	0, 0, 6, 6, 5, 1, 3, 5, 0, 6, 1, 6,
0, 6, 1, 6, 1, 7, 9, 2, 3, 5, 2, 9,	1, 7, 9, 2, 3, 5, 2, 9, 6, 8, 3, 6,	1, 7, 9, 2, 3, 5, 2, 9, 6, 8, 3, 6,
6, 8, 3, 6, 9, 4, 1, 0, 8, 7, 2, 5,	9, 4, 1, 0, 8, 7, 2, 5, 7, 4, 4, 0,	9, 4, 1, 0, 8, 7, 2, 5, 7, 4, 4, 0,
7, 4, 4, 0, 2, 0, 6, 6, 4, 9, 1, 8,	2, 0, 6, 6, 4, 9, 1, 8, 1, 1, 8, 8,	2, 0, 6, 6, 4, 9, 1, 8, 1, 1, 8, 8,
1, 1, 8, 8, 3, 5, 2, 5, 5, 5, 1, 8,	3, 5, 2, 5, 5, 5, 1, 8, 3, 7, 8, 8,	3, 5, 2, 5, 5, 5, 1, 8, 3, 7, 8, 8,
3, 7, 8, 8, 1, 1, 5, 5, 1, 9, 7, 2,	1, 1, 5, 5, 1, 9, 7, 2, 2, 7, 2, 4,	1, 1, 5, 5, 1, 9, 7, 2, 2, 7, 2, 4,
2, 7, 2, 4, 4, 1, 0, 0, 0, 8, 7, 9,	4, 1, 0, 0, 0, 8, 7, 9, 4, 0, 0, 3,	4, 1, 0, 0, 0, 8, 7, 9, 4, 0, 0, 3,
4, 0, 0, 3, 5, 5, 1, 9, 5, 9, 3, 7,	5, 5, 1, 9, 5, 9, 3, 7, 5, 9, 0, 9,	5, 5, 1, 9, 5, 9, 3, 7, 5, 9, 0, 9,
5, 9, 0, 9, 8, 2, 7, 2, 0, 5, 2, 5,	8, 2, 7, 2, 0, 5, 2, 5, 1, 6, 0, 8,	8, 2, 7, 2, 0, 5, 2, 5, 1, 6, 0, 8,
1, 6, 0, 8, 5, 2, 4, 9, 0, 8, 3, 9,	5, 2, 4, 9, 0, 8, 3, 9, 1, 9, 9, 2,	5, 2, 4, 9, 0, 8, 3, 9, 1, 9, 9, 2,
1, 9, 9, 2, 5, 5, 3, 0, 5, 4, 4, 5,	5, 5, 3, 0, 5, 4, 4, 5, 3, 2, 0, 2,	5, 5, 3, 0, 5, 4, 4, 5, 3, 2, 0, 2,
3, 2, 0, 2, 4, 3, 5, 1, 9, 3, 0, 8,	4, 3, 5, 1, 9, 3, 0, 8, 1, 4, 4, 9,	4, 3, 5, 1, 9, 3, 0, 8, 1, 4, 4, 9,
1, 4, 4, 9, 9, 0, 9, 9, 1, 3, 0, 1,	9, 0, 9, 9, 1, 3, 0, 1, 1, 9, 6, 9,	9, 0, 9, 9, 1, 3, 0, 1, 1, 9, 6, 9,
1, 9, 6, 9, 2, 4, 4, 2, 5, 2, 3, 9,	2, 4, 4, 2, 5, 2, 3, 9, 6, 2, 3, 0,	2, 4, 4, 2, 5, 2, 3, 9, 6, 2, 3, 0,
6, 2, 3, 0, 8, 3, 2, 8, 8, 3, 0, 5,	8, 3, 2, 8, 8, 3, 0, 5, 1, 8, 8, 2,	8, 3, 2, 8, 8, 3, 0, 5, 1, 8, 8, 2,
1, 8, 8, 2, 9, 3, 7, 7, 4, 9, 6, 2,	9, 3, 7, 7, 4, 9, 6, 2, 0, 0, 6, 8,	9, 3, 7, 7, 4, 9, 6, 2, 0, 0, 6, 8,
0, 0, 6, 8, 4, 6, 7, 7, 8, 0, 7, 7,	4, 6, 7, 7, 8, 0, 7, 7, 5, 6, 5, 6,	4, 6, 7, 7, 8, 0, 7, 7, 5, 6, 5, 6,
5, 6, 5, 6, 2, 8, 3, 2, 7, 5, 7, 4,	2, 8, 3, 2, 7, 5, 7, 4, 0, 0, 2, 2,	2, 8, 3, 2, 7, 5, 7, 4, 0, 0, 2, 2,
0, 0, 2, 2, 6, 7, 8, 5, 9, 3, 3, 0,	6, 7, 8, 5, 9, 3, 3, 0, 6, 5, 4, 5,	6, 7, 8, 5, 9, 3, 3, 0, 6, 5, 4, 5,
6, 5, 4, 5, 9, 4, 1, 2, 9, 7, 6, 2,	9, 4, 1, 2, 9, 7, 6, 2, 0, 2, 3, 3,	9, 4, 1, 2, 9, 7, 6, 2, 0, 2, 3, 3,
0, 2, 3, 3, 8, 0, 1, 8, 4, 7, 1, 0,	8, 0, 1, 8, 4, 7, 1, 0, 6, 4, 1, 0,	8, 0, 1, 8, 4, 7, 1, 0, 6, 4, 1, 0,
6, 4, 1, 0, 4, 0, 4, 8, 9, 5, 1, 0,	4, 0, 4, 8, 9, 5, 1, 0, 5, 2, 4, 5,	4, 0, 4, 8, 9, 5, 1, 0, 5, 2, 4, 5,
5, 2, 4, 5, 6, 3, 5, 2, 2, 9, 6, 0,	6, 3, 5, 2, 2, 9, 6, 0, 2, 1, 2, 9,	6, 3, 5, 2, 2, 9, 6, 0, 2, 1, 2, 9,
2, 1, 2, 9, 7, 8, 3, 1, 6, 0, 2, 2,	7, 8, 3, 1, 6, 0, 2, 2, 7, 8, 9, 3,	7, 8, 3, 1, 6, 0, 2, 2, 7, 8, 9, 3,
7, 8, 9, 3, 4, 5, 7, 8, 4, 0, 7, 2,	4, 5, 7, 8, 4, 0, 7, 2, 8]	4, 5, 7, 8, 4, 0, 7, 2, 8]
8};	[6, 3, 8, 6, 7, 5, 4, 2, 0, 6, 7, 4,	[6, 3, 8, 6, 7, 5, 4, 2, 0, 6, 7, 4
int $k = 389$;	7, 4, 6, 1, 3, 7, 2, 4, 4, 0, 1, 2,	7, 4, 6, 1, 3, 7, 2, 4, 4, 0, 1, 2,
LLNode* head =	9, 1, 9, 5, 7, 1, 7, 7, 3, 2, 9, 8,	9, 1, 9, 5, 7, 1, 7, 7, 3, 2, 9, 8,
LLNode::createWithIterators(arr, arr	2, 4, 4, 9, 0, 5, 6, 7, 9, 1, 8, 3,	2, 4, 4, 9, 0, 5, 6, 7, 9, 1, 8, 3,
<pre>+ sizeof(arr) / sizeof(int));</pre>	8, 2, 3, 2, 4, 6, 2, 0, 7, 5, 9, 5,	8, 2, 3, 2, 4, 6, 2, 0, 7, 5, 9, 5,
LLNode::printList(head);	2, 2, 6, 8, 6, 9, 9, 3, 0, 4, 1, 5,	2, 2, 6, 8, 6, 9, 9, 3, 0, 4, 1, 5,
cout << "\n";	2, 3, 9, 3, 9, 1, 7, 3, 1, 2, 8, 2,	2, 3, 9, 3, 9, 1, 7, 3, 1, 2, 8, 2,
LLNode* newhead =	0, 4, 1, 1, 8, 4, 8, 2, 0, 0, 6, 6,	0, 4, 1, 1, 8, 4, 8, 2, 0, 0, 6, 6,
<pre>rotateLinkedList(head, k);</pre>	5, 1, 3, 5, 0, 6, 1, 6, 1, 7, 9, 2,	5, 1, 3, 5, 0, 6, 1, 6, 1, 7, 9, 2,
LLNode::printList(newhead);	3, 5, 2, 9, 6, 8, 3, 6, 9, 4, 1, 0,	3, 5, 2, 9, 6, 8, 3, 6, 9, 4, 1, 0,
	8, 7, 2, 5, 7, 4, 4, 0, 2, 0, 6, 6,	8, 7, 2, 5, 7, 4, 4, 0, 2, 0, 6, 6,
	4, 9, 1, 8, 1, 1, 8, 8, 3, 5, 2, 5,	4, 9, 1, 8, 1, 1, 8, 8, 3, 5, 2, 5,
	5, 5, 1, 8, 3, 7, 8, 8, 1, 1, 5, 5,	5, 5, 1, 8, 3, 7, 8, 8, 1, 1, 5, 5,
	1, 9, 7, 2, 2, 7, 2, 4, 4, 1, 0, 0,	1, 9, 7, 2, 2, 7, 2, 4, 4, 1, 0, 0,
	0, 8, 7, 9, 4, 0, 0, 3, 5, 5, 1, 9,	0, 8, 7, 9, 4, 0, 0, 3, 5, 5, 1, 9,
	1	1

. 77 7 41		Lab 1. Olligiy Ellikod Elot. Att	
	Test	Expected	Got
		0, 5, 2, 5, 1, 6, 0, 8, 5, 2, 4, 9,	0, 5, 2, 5, 1, 6, 0, 8, 5, 2, 4, 9,
		0, 8, 3, 9, 1, 9, 9, 2, 5, 5, 3, 0, 5, 4, 4, 5, 3, 2, 0, 2, 4, 3, 5, 1,	0, 8, 3, 9, 1, 9, 9, 2, 5, 5, 3, 0, 5, 4, 4, 5, 3, 2, 0, 2, 4, 3, 5, 1,
		9, 3, 0, 8, 1, 4, 4, 9, 9, 0, 9, 9,	9, 3, 0, 8, 1, 4, 4, 9, 9, 0, 9, 9,
		1, 3, 0, 1, 1, 9, 6, 9, 2, 4, 4, 2,	1, 3, 0, 1, 1, 9, 6, 9, 2, 4, 4, 2,
		5, 2, 3, 9, 6, 2, 3, 0, 8, 3, 2, 8,	5, 2, 3, 9, 6, 2, 3, 0, 8, 3, 2, 8,
		8, 3, 0, 5, 1, 8, 8, 2, 9, 3, 7, 7,	8, 3, 0, 5, 1, 8, 8, 2, 9, 3, 7, 7,
		4, 9, 6, 2, 0, 0, 6, 8, 4, 6, 7, 7,	4, 9, 6, 2, 0, 0, 6, 8, 4, 6, 7, 7,
		8, 0, 7, 7, 5, 6, 5, 6, 2, 8, 3, 2,	8, 0, 7, 7, 5, 6, 5, 6, 2, 8, 3, 2,
		7, 5, 7, 4, 0, 0, 2, 2, 6, 7, 8, 5, 9, 3, 3, 0, 6, 5, 4, 5, 9, 4, 1, 2,	7, 5, 7, 4, 0, 0, 2, 2, 6, 7, 8, 5, 9, 3, 3, 0, 6, 5, 4, 5, 9, 4, 1, 2,
		9, 7, 6, 2, 0, 2, 3, 3, 8, 0, 1, 8,	9, 7, 6, 2, 0, 2, 3, 3, 8, 0, 1, 8,
		4, 7, 1, 0, 6, 4, 1, 0, 4, 0, 4, 8,	4, 7, 1, 0, 6, 4, 1, 0, 4, 0, 4, 8,
		9, 5, 1, 0, 5, 2, 4, 5, 6, 3, 5, 2,	9, 5, 1, 0, 5, 2, 4, 5, 6, 3, 5, 2,
		2, 9, 6, 0, 2, 1, 2, 9, 7, 8, 3, 1,	2, 9, 6, 0, 2, 1, 2, 9, 7, 8, 3, 1,
		6, 0, 2, 2, 7, 8, 9, 3, 4, 5, 7, 8,	6, 0, 2, 2, 7, 8, 9, 3, 4, 5, 7, 8,
		4, 0, 7, 2, 8, 8, 0, 8, 8, 9, 3, 3, 5, 4, 9, 7, 9, 5, 3, 8, 6, 1, 0, 6,	4, 0, 7, 2, 8, 8, 0, 8, 8, 9, 3, 3, 5, 4, 9, 7, 9, 5, 3, 8, 6, 1, 0, 6,
		4, 5, 1, 1, 5, 3, 8, 6, 1, 1, 1, 0,	4, 5, 1, 1, 5, 3, 8, 6, 1, 1, 1, 0,
		1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7,	1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7,
		6, 7, 7, 9, 5, 0, 9, 6, 3, 7, 6, 6,	6, 7, 7, 9, 5, 0, 9, 6, 3, 7, 6, 6,
		4, 6, 2, 9, 1, 5, 0, 8, 6, 0, 8, 6,	4, 6, 2, 9, 1, 5, 0, 8, 6, 0, 8, 6,
		3, 0, 3, 6, 8, 5, 0, 1, 9, 9, 6, 3,	3, 0, 3, 6, 8, 5, 0, 1, 9, 9, 6, 3,
		3, 2, 9, 2, 0, 0, 5, 0, 4, 6, 7, 2, 6, 5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1,	3, 2, 9, 2, 0, 0, 5, 0, 4, 6, 7, 2, 6, 5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1,
		5, 8, 7, 5, 7, 8, 7, 8, 7, 1, 7, 9,	5, 8, 7, 5, 7, 8, 7, 8, 7, 1, 7, 9,
		7, 1, 3, 0, 5, 5, 1, 0, 2, 1, 0, 1,	7, 1, 3, 0, 5, 5, 1, 0, 2, 1, 0, 1,
		5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8,	5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8,
		6, 0, 0, 3, 6, 2, 3, 4, 9, 7, 4, 2,	6, 0, 0, 3, 6, 2, 3, 4, 9, 7, 4, 2,
		2, 9, 7, 7, 4, 9, 9, 7, 5, 6, 2, 4, 0, 1, 9, 9, 8, 4, 6, 1, 2, 9, 6, 7,	2, 9, 7, 7, 4, 9, 9, 7, 5, 6, 2, 4, 0, 1, 9, 9, 8, 4, 6, 1, 2, 9, 6, 7,
		9, 4, 7, 5, 2, 9, 4, 2, 5, 9, 4, 1,	9, 4, 7, 5, 2, 9, 4, 2, 5, 9, 4, 1,
		6, 0, 0, 5, 0, 0, 6, 1, 7, 8, 6, 9,	6, 0, 0, 5, 0, 0, 6, 1, 7, 8, 6, 9,
		5, 4, 7, 0, 5, 3, 2, 4, 9, 9, 2, 3,	5, 4, 7, 0, 5, 3, 2, 4, 9, 9, 2, 3,
		4, 4, 1, 8, 2, 4, 4, 6, 2, 0, 5, 9,	4, 4, 1, 8, 2, 4, 4, 6, 2, 0, 5, 9,
		4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1, 7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9,	4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1, 7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9,
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	Test	Expected	Got
		9, 7, 9, 5, 1, 5, 1, 5, 2, 0, 3, 1,	9, 7, 9, 5, 1, 5, 1, 5, 2, 0, 3, 1,
		4, 9, 2, 6, 5, 3, 2, 7, 8, 1, 6, 7,	4, 9, 2, 6, 5, 3, 2, 7, 8, 1, 6, 7,
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	8, 8, 0, 4, 9, 7, 4, 7, 6, 3, 4, 9,	9, 7, 4, 7, 6, 3, 4, 9, 9, 6, 4, 1,	9, 7, 4, 7, 6, 3, 4, 9, 9, 6, 4, 1,
	9, 6, 4, 1, 1, 4, 8, 8, 1, 6, 5, 2,	1, 4, 8, 8, 1, 6, 5, 2, 8, 5, 3, 9,	1, 4, 8, 8, 1, 6, 5, 2, 8, 5, 3, 9,
	8, 5, 3, 9, 0, 8, 9, 1, 6, 9, 3, 9,	0, 8, 9, 1, 6, 9, 3, 9, 6, 9, 9, 9,	0, 8, 9, 1, 6, 9, 3, 9, 6, 9, 9, 9,
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	8, 2, 1, 7, 7, 3, 3, 5, 6, 0, 5, 5,	7, 3, 3, 5, 6, 0, 5, 5, 6, 9, 7, 0,	7, 3, 3, 5, 6, 0, 5, 5, 6, 9, 7, 0,
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7 7 7 W	Lab 1. Singly Linkou List. Attempt Teview		
	Test	Expected	Got
	4, 2, 0, 6, 3, 8, 7, 4, 3, 8, 9, 8,	3, 8, 7, 4, 3, 8, 9, 8, 1, 1, 1, 6,	3, 8, 7, 4, 3, 8, 9, 8, 1, 1, 1, 6,
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	3, 3, 3, 8, 6, 1, 0, 7, 8, 2, 9, 0,	6, 1, 0, 7, 8, 2, 9, 0, 6, 3, 3, 5,	6, 1, 0, 7, 8, 2, 9, 0, 6, 3, 3, 5,
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	2, 0, 9, 1, 8, 1, 8, 4, 7, 3, 1, 1,	8, 1, 8, 4, 7, 3, 1, 1, 2, 3, 0, 4,	8, 1, 8, 4, 7, 3, 1, 1, 2, 3, 0, 4,
	2, 3, 0, 4, 7, 5, 4, 4, 3, 5, 4, 6,	7, 5, 4, 4, 3, 5, 4, 6, 6, 0, 3, 7,	7, 5, 4, 4, 3, 5, 4, 6, 6, 0, 3, 7,
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	1, 9, 0, 5, 6, 7, 7, 5, 4, 7, 3, 5,	6, 7, 7, 5, 4, 7, 3, 5, 0, 3, 2, 2,	6, 7, 7, 5, 4, 7, 3, 5, 0, 3, 2, 2,
	0, 3, 2, 2, 2, 9, 0, 0, 6, 1, 9, 1,	2, 9, 0, 0, 6, 1, 9, 1, 7, 1, 3, 4,	2, 9, 0, 0, 6, 1, 9, 1, 7, 1, 3, 4,
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	7, 2, 6, 8, 2, 8, 5, 0, 5, 6, 1, 7,	2, 8, 5, 0, 5, 6, 1, 7, 0, 3, 1, 5,	2, 8, 5, 0, 5, 6, 1, 7, 0, 3, 1, 5,
	0, 3, 1, 5, 4, 8, 3, 7, 8, 4, 1, 7,	4, 8, 3, 7, 8, 4, 1, 7, 1, 3, 3, 8,	4, 8, 3, 7, 8, 4, 1, 7, 1, 3, 3, 8,
	1, 3, 3, 8, 9, 0, 1, 4, 2, 1, 3, 8,	9, 0, 1, 4, 2, 1, 3, 8, 3, 0, 8, 9,	9, 0, 1, 4, 2, 1, 3, 8, 3, 0, 8, 9,
	3, 0, 8, 9, 1, 3, 3, 8, 4, 6, 3, 2,	1, 3, 3, 8, 4, 6, 3, 2, 8, 9, 1, 2,	1, 3, 3, 8, 4, 6, 3, 2, 8, 9, 1, 2,
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	5, 5, 1, 1, 3, 7, 8, 9, 6, 3, 0, 9,	3, 7, 8, 9, 6, 3, 0, 9, 7, 9, 6, 1,	3, 7, 8, 9, 6, 3, 0, 9, 7, 9, 6, 1,
	7, 9, 6, 1, 2, 7, 2, 1, 2, 8, 0, 1,	2, 7, 2, 1, 2, 8, 0, 1, 2, 7, 3, 4,	2, 7, 2, 1, 2, 8, 0, 1, 2, 7, 3, 4,
	2, 7, 3, 4, 3, 6, 8, 7, 1, 7, 6, 7,	3, 6, 8, 7, 1, 7, 6, 7, 9, 5, 7, 2,	3, 6, 8, 7, 1, 7, 6, 7, 9, 5, 7, 2,
	9, 5, 7, 2, 8, 1, 1, 8, 7, 4, 6, 5,	8, 1, 1, 8, 7, 4, 6, 5, 7, 7, 0, 3,	8, 1, 1, 8, 7, 4, 6, 5, 7, 7, 0, 3,
	7, 7, 0, 3, 8, 0, 5, 3, 6, 1, 0, 0,	8, 0, 5, 3, 6, 1, 0, 0, 5, 5, 9, 8,	8, 0, 5, 3, 6, 1, 0, 0, 5, 5, 9, 8,
	5, 5, 9, 8, 9, 2, 2, 0, 5, 0, 9, 4,	9, 2, 2, 0, 5, 0, 9, 4, 4, 6, 8, 5,	9, 2, 2, 0, 5, 0, 9, 4, 4, 6, 8, 5,
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	1, 5, 5, 8, 4, 5, 6, 4, 1, 1, 8, 0,	4, 5, 6, 4, 1, 1, 8, 0, 6, 8, 9, 4,	4, 5, 6, 4, 1, 1, 8, 0, 6, 8, 9, 4,
	6, 8, 9, 4, 8, 4, 2, 4, 0, 1, 3, 7,	8, 4, 2, 4, 0, 1, 3, 7, 6, 5, 7, 8,	8, 4, 2, 4, 0, 1, 3, 7, 6, 5, 7, 8,
	6, 5, 7, 8, 3, 6, 8, 7, 8, 3, 3, 8,	3, 6, 8, 7, 8, 3, 3, 8, 9, 9, 9, 1,	3, 6, 8, 7, 8, 3, 3, 8, 9, 9, 9, 1,
	9, 9, 9, 1, 0, 3, 0, 2, 0, 3, 7, 1,	0, 3, 0, 2, 0, 3, 7, 1, 2, 1, 1, 6,	0, 3, 0, 2, 0, 3, 7, 1, 2, 1, 1, 6,
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	4, 7, 7, 7, 0, 0, 4, 9, 7, 5, 8, 5,	0, 0, 4, 9, 7, 5, 8, 5, 5, 4, 5, 2,	0, 0, 4, 9, 7, 5, 8, 5, 5, 4, 5, 2,
	5, 4, 5, 2, 2, 4, 2, 0, 2, 5, 3, 1,	2, 4, 2, 0, 2, 5, 3, 1, 2, 3, 6, 8,	2, 4, 2, 0, 2, 5, 3, 1, 2, 3, 6, 8,
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	snip, 9, 9, 4, 2, 9, 7, 8, 4,	snip 7, 8, 2, 8, 6, 3, 4, 1,	snip 7, 8, 2, 8, 6, 3, 4, 1,

7 7 7 W	'	Edb 1. Omgry Emilion Elot. 7 to	ompt review
	Test	Expected	Got
	4, 9, 7, 4, 0, 8, 3, 2, 8, 0, 8, 7,	0, 2, 4, 7, 0, 2, 4, 8, 2, 6, 2, 1,	0, 2, 4, 7, 0, 2, 4, 8, 2, 6, 2, 1,
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	8, 4, 1, 6, 7, 6, 3, 4, 3, 5, 1, 8,	3, 0, 9, 3, 9, 6, 5, 3, 2, 8, 9, 0,	3, 0, 9, 3, 9, 6, 5, 3, 2, 8, 9, 0,
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	4, 4, 0, 9, 8, 6, 5, 1, 8, 3, 9, 9,	1, 3, 3, 4, 5, 0, 7, 1, 0, 9, 8, 7,	1, 3, 3, 4, 5, 0, 7, 1, 0, 9, 8, 7,
	4, 9, 5, 6, 2, 4, 8, 6, 7, 9, 2, 7,	0, 0, 8, 2, 5, 3, 2, 7, 4, 9, 0, 6,	0, 0, 8, 2, 5, 3, 2, 7, 4, 9, 0, 6,
	7, 5, 4, 6, 2, 0, 6, 2, 3, 7, 8, 8,	0, 7, 4, 7, 2, 8, 6, 3, 9, 7, 0, 6,	0, 7, 4, 7, 2, 8, 6, 3, 9, 7, 0, 6,
	0, 7, 8, 2, 9, 7, 2, 1, 4, 4, 8, 2,	3, 9, 6, 7, 7, 4, 6, 9, 7, 5, 9, 9,	3, 9, 6, 7, 7, 4, 6, 9, 7, 5, 9, 9,
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	7, 7, 5, 0, 9, 5, 0, 6, 2, 9, 0, 1,	7, 8, 0, 0, 7, 9, 1, 6, 0, 7, 1, 6,	7, 8, 0, 0, 7, 9, 1, 6, 0, 7, 1, 6,
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	1, 8, 1, 0, 1, 8, 7, 1, 0, 9, 1, 1, 5, 0, 8, 9, 0, 6, 4, 5, 2, 1, 8, 5,	5, 3, 7, 8, 8, 1, 4, 9, 0, 3, 9, 9,	5, 3, 7, 8, 8, 1, 4, 9, 0, 3, 9, 9,
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	0, 0, 8, 9, 6, 9, 3, 3, 9, 3, 3, 9,	3, 5, 3, 7, 3, 9, 2, 8, 8, 0, 6, 1,	3, 5, 3, 7, 3, 9, 2, 8, 8, 0, 6, 1,
	1, 3, 4, 9, 2, 6, 3, 0, 5, 3, 0, 5,	0, 2, 5, 3, 2, 1, 4, 4, 1, 6, 2, 8,	0, 2, 5, 3, 2, 1, 4, 4, 1, 6, 2, 8,
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	8, 2, 3, 8, 1, 6, 5, 8, 9, 7, 6, 2,	7, 4, 2, 1, 5, 5, 1, 4, 7, 7, 8, 6,	7, 4, 2, 1, 5, 5, 1, 4, 7, 7, 8, 6,
	5, 8, 6, 2, 2, 1, 1, 7, 9, 0, 9, 7,	3, 2, 4, 7, 4, 3, 5, 0, 4, 5, 5, 9,	3, 2, 4, 7, 4, 3, 5, 0, 4, 5, 5, 9,
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	8, 8, 9, 2, 9, 4, 3, 3, 0, 0, 6, 1,	4, 8, 3, 7, 2, 3, 3, 4, 5, 9, 0, 1,	4, 8, 3, 7, 2, 3, 3, 4, 5, 9, 0, 1,
	2, 3, 9, 2, 4, 9, 1, 9, 2, 0, 8, 9,	0, 8, 5, 1, 1, 7, 4, 8, 6, 1, 0, 9,	0, 8, 5, 1, 1, 7, 4, 8, 6, 1, 0, 9,
	0, 1, 0, 0, 6, 5, 7, 3, 9, 0, 2, 3,	5, 5, 3, 9, 8, 0, 0, 8, 1, 0, 8, 8,	5, 5, 3, 9, 8, 0, 0, 8, 1, 0, 8, 8,
	8, 3, 2, 9, 1, 3, 8, 2, 4, 5, 2, 5,	7, 3, 6, 2, 3, 0, 8, 2, 5, 2, 2, 3,	7, 3, 6, 2, 3, 0, 8, 2, 5, 2, 2, 3,
	6, 1, 4, 7, 1, 2, 2, 4, 2, 8, 2, 1,	3, 2, 2, 9, 4, 4, 4, 1, 0, 8, 3, 4,	3, 2, 2, 9, 4, 4, 4, 1, 0, 8, 3, 4,
	0, 5, 7, 7, 8, 5, 2, 2, 4, 4, 2, 6,	8, 9, 1, 1, 0, 8, 2, 6, 0, 9, 3, 5,	8, 9, 1, 1, 0, 8, 2, 6, 0, 9, 3, 5,
	6, 7, 3, 9, 1, 9, 2, 2, 1, 3, 4, 0, 7, 9, 2, 9, 1, 0, 4, 6, 9, 5, 0, 2,	6, 3, 8, 5, 4, 5, 8, 9, 0, 3, 9, 8, 9, 8, 3, 5, 4, 5, 4, 3, 8, 0, 3, 4,	6, 3, 8, 5, 4, 5, 8, 9, 0, 3, 9, 8, 9, 8, 3, 5, 4, 5, 4, 3, 8, 0, 3, 4,
	5, 8, 6, 8, 0, 6, 4, 6, 3, 5, 6, 2,	5, 1, 3, 4, 6, 7, 9, 6, 5, 4, 1, 1,	5, 1, 3, 4, 6, 7, 9, 6, 5, 4, 1, 1,
	1, 3, 5, 7, 7, 7, 8, 0, 4, 8, 6, 4,	6, 5, 2, 0, 7, 5, 3, 7, 5, 1, 4, 4,	6, 5, 2, 0, 7, 5, 3, 7, 5, 1, 4, 4,
	4, 6, 1, 6, 9, 0, 0, 8, 3, 6, 4, 1,	9, 6, 0, 7, 1, 7, 6, 6, 9, 5, 3, 9,	9, 6, 0, 7, 1, 7, 6, 6, 9, 5, 3, 9,
	8, 5, 9, 1, 4, 5, 1, 9, 4, 2, 3, 0,	2, 7, 6, 8, 5, 5, 3, 7, 2, 4, 7, 5,	2, 7, 6, 8, 5, 5, 3, 7, 2, 4, 7, 5,
	7, 8, 1, 0, 9, 8, 7, 5, 9, 3, 5, 7,	4, 0, 9, 4, 9, 3, 8, 6, 5, 5, 5, 8,	4, 0, 9, 4, 9, 3, 8, 6, 5, 5, 5, 8,
	6, 7, 3, 2, 4, 6, 2, 6, 8, 8, 7, 5,	2, 8, 8, 9, 5, 7, 4, 8, 4, 9, 3, 2,	2, 8, 8, 9, 5, 7, 4, 8, 4, 9, 3, 2,
	5, 4, 6, 4, 3, 4, 4, 4, 8, 7, 3, 4,	2, 6, 0, 6, 4, 4, 5, 9, 4, 5, 9, 4,	2, 6, 0, 6, 4, 4, 5, 9, 4, 5, 9, 4,

Test	Expected	Got
1, 3, 8, 1, 4, 4, 7, 8, 6, 9, 6, 8,	3, 6, 5, 1, 1, 6, 2, 9, 1, 1, 0, 6,	3, 6, 5, 1, 1, 6, 2, 9, 1, 1, 0, 6,
2, 4, 6, 7, 5, 0, 6, 1, 0, 9, 7, 7,	0, 5, 5, 8, 5, 7, 4, 9, 6, 3, 5, 7,	0, 5, 5, 8, 5, 7, 4, 9, 6, 3, 5, 7,
8, 0, 0, 3, 4, 9, 4, 6, 6, 8, 7, 2,	8, 1, 8, 7, 4, 2, 1, 7, 0, 5, 3, 5,	8, 1, 8, 7, 4, 2, 1, 7, 0, 5, 3, 5,
4, 4, 4, 9, 3, 2, 1, 3, 6, 1, 1, 6,	4, 7, 3, 7, 3, 9, 2, 3, 0, 5, 1, 9,	4, 7, 3, 7, 3, 9, 2, 3, 0, 5, 1, 9,
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8, 3, 2, 0, 9, 8, 9, 7, 5, 9, 9, 0,	1, 9, 3, 1, 0, 7, 0, 8, 5, 8, 0, 8,	1, 9, 3, 1, 0, 7, 0, 8, 5, 8, 0, 8,
8, 8, 4, 2, 0, 2, 6, 4, 6, 2, 2, 1,	5, 6, 5, 4, 4, 2, 1, 6, 5, 5, 4, 7,	5, 6, 5, 4, 4, 2, 1, 6, 5, 5, 4, 7,
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1, 6, 8, 5, 1, 4, 7, 5, 2, 7, 8, 2,	5, 4, 7, 7, 0, 9, 1, 5, 4, 4, 1, 9,	5, 4, 7, 7, 0, 9, 1, 5, 4, 4, 1, 9,
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0, 5, 6, 4, 6, 9, 8, 5, 5, 5, 9, 1,	0, 5, 1, 8, 3, 6, 7, 2, 7, 7, 0, 3,	0, 5, 1, 8, 3, 6, 7, 2, 7, 7, 0, 3,
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7, 7, 3, 4, 7, 6, 8, 9, 9, 0, 5, 7,	0, 4, 9, 8, 1, 2, 4, 9, 6, 3, 3, 2,	0, 4, 9, 8, 1, 2, 4, 9, 6, 3, 3, 2,
5, 0, 6, 2, 4, 4, 3, 7, 4, 1, 7, 4,	7, 2, 8, 2, 1, 0, 5, 1, 7, 1, 2, 7,	7, 2, 8, 2, 1, 0, 5, 1, 7, 1, 2, 7,
6, 8, 1, 2, 9, 9, 3, 7, 7, 6, 7, 2,	1, 5, 4, 2, 5, 4, 3, 0, 2, 9, 3, 9,	1, 5, 4, 2, 5, 4, 3, 0, 2, 9, 3, 9,
8, 5, 2, 8, 4, 2, 9, 6, 5, 4, 1, 3,	5, 9, 4, 4, 1, 5, 1, 7, 5, 6, 3, 2,	5, 9, 4, 4, 1, 5, 1, 7, 5, 6, 3, 2,
7, 8, 4, 4, 7, 0, 2, 2, 2, 0, 2, 4,	2, 8, 1, 8, 7, 0, 6, 7, 3, 4, 7, 4,	2, 8, 1, 8, 7, 0, 6, 7, 3, 4, 7, 4,
9, 5, 3, 1, 1, 1, 3, 6, 2, 3, 2, 4,	1, 2, 9, 8, 8, 1, 7, 2, 2, 8, 3, 9,	1, 2, 9, 8, 8, 1, 7, 2, 2, 8, 3, 9,
0, 3, 0, 0, 0, 9, 6, 7, 5, 6, 7, 8,	9, 8, 8, 4, 8, 4, 6, 4, 1, 7, 3, 8,	9, 8, 8, 4, 8, 4, 6, 4, 1, 7, 3, 8,
1, 9, 1, 2, 4, 2, 4, 3, 3, 1, 0, 5,	4, 3, 1, 6, 4, 6, 1, 0, 1, 3, 8, 4,	4, 3, 1, 6, 4, 6, 1, 0, 1, 3, 8, 4,
8, 6, 7, 6, 1, 4, 7, 5, 4, 4, 0, 6,	3, 0, 7, 8, 1, 2, 6, 8, 4, 7, 4, 8,	3, 0, 7, 8, 1, 2, 6, 8, 4, 7, 4, 8,
7, 1, 8, 9, 9, 9, 8, 8, 6, 4, 6, 8,	8, 9, 3, 6, 6, 9, 4, 2, 4, 7, 3, 2,	8, 9, 3, 6, 6, 9, 4, 2, 4, 7, 3, 2,
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0, 5, 7, 2, 3, 1, 9, 7, 1, 7, 0, 3,	4, 0, 2, 4, 0, 7, 8, 0, 5, 9, 2, 9,	4, 0, 2, 4, 0, 7, 8, 0, 5, 9, 2, 9,
9, 5, 7, 2, 1, 5, 6, 1, 5, 3, 8, 0,	5, 3, 3, 5, 0, 9, 8, 7, 5, 9, 5,	5, 3, 3, 3, 5, 0, 9, 8, 7, 5, 9, 5,
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0, 5, 5, 8, 8, 2, 6, 6, 7, 7, 9, 5,	8, 4, 4, 9, 7, 4, 0, 8, 3, 2, 8, 0,	8, 4, 4, 9, 7, 4, 0, 8, 3, 2, 8, 0,
6, 4, 2, 3, 3, 0, 5, 8, 4, 7, 1, 5,	8, 7, 1, 9, 4, 2, 5, 1, 2, 3, 9, 1,	8, 7, 1, 9, 4, 2, 5, 1, 2, 3, 9, 1,
2, 3, 4, 3, 8, 6, 4, 0, 9, 8, 3, 8,	2, 6, 0, 5, 0, 9, 1, 6, 7, 6, 6, 6,	2, 6, 0, 5, 0, 9, 1, 6, 7, 6, 6, 6,
4, 3, 7, 9, 4, 3, 1, 7, 8, 6, 5, 8,	1, 3, 8, 4, 1, 6, 7, 6, 3, 4, 3, 5,	1, 3, 8, 4, 1, 6, 7, 6, 3, 4, 3, 5,
5, 6, 4, 0, 6, 6, 2, 9, 3, 9, 8, 5,	1, 8, 0, 8, 2, 7, 2, 9, 4, 4, 5, 7,	1, 8, 0, 8, 2, 7, 2, 9, 4, 4, 5, 7,
4, 7, 3, 7, 8, 9, 7, 9, 5, 3, 2, 4,	0, 7, 6, 5, 3, 4, 1, 0, 4, 8, 2, 2,	0, 7, 6, 5, 3, 4, 1, 0, 4, 8, 2, 2,
1, 2, 2, 9, 1, 9, 0, 4, 3, 6, 1, 6,	0, 6, 4, 4, 0, 9, 8, 6, 5, 1, 8, 3,	0, 6, 4, 4, 0, 9, 8, 6, 5, 1, 8, 3,
1, 1, 5, 2, 8, 6, 0, 9, 0, 6, 9, 0,	9, 9, 4, 9, 5, 6, 2, 4, 8, 6, 7, 9,	9, 9, 4, 9, 5, 6, 2, 4, 8, 6, 7, 9,
3, 0, 9, 8, 7, 3, 3, 1, 0, 7, 2, 1,	2, 7, 7, 5, 4, 6, 2, 0, 6, 2, 3, 7,	2, 7, 7, 5, 4, 6, 2, 0, 6, 2, 3, 7,
3, 3, 7, 7, 6, 9, 1, 3, 8, 5, 6, 2,	8, 8, 0, 7, 8, 2, 9, 7, 2, 1, 4, 4,	8, 8, 0, 7, 8, 2, 9, 7, 2, 1, 4, 4,
8, 8, 3, 7, 3, 4, 7, 6, 6, 8, 5, 1,	8, 2, 0, 1, 9, 6, 5, 7, 5, 9, 6, 4,	8, 2, 0, 1, 9, 6, 5, 7, 5, 9, 6, 4,
	4, 0, 7, 9, 7, 0, 9, 1, 6, 5, 2, 6,	4, 0, 7, 9, 7, 0, 9, 1, 6, 5, 2, 6,
7, 8, 1, 5, 3, 7, 9, 6, 3, 8, 4, 8, 0, 4, 7, 7, 2, 9, 2, 6, 2, 8, 7, 7,	2, 1, 7, 7, 5, 0, 9, 5, 0, 6, 2, 9,	2, 1, 7, 7, 5, 0, 9, 5, 0, 6, 2, 9,
5, 9, 4, 4, 3, 0, 6, 2, 2, 6, 5, 4,	0, 1, 4, 5, 4, 5, 7, 8, 9, 6, 7, 7,	0, 1, 4, 5, 4, 5, 7, 8, 9, 6, 7, 7,
4, 7, 8, 0, 7, 5, 8, 5, 6, 7, 2, 5,	4, 2, 7, 1, 0, 9, 2, 0, 8, 2, 9, 2,	4, 2, 7, 1, 0, 9, 2, 0, 8, 2, 9, 2,
3, 4, 6, 4, 4};	9, 1, 4, 7, 2, 6, 6, 7, 4, 4, 4, 8,	9, 1, 4, 7, 2, 6, 6, 7, 4, 4, 4, 8,
int k = 1000;	5, 3, 7, 2, 7, 5, 2, 3, 0, 7, 5, 9,	5, 3, 7, 2, 7, 5, 2, 3, 0, 7, 5, 9,
LLNode* head =	8, 1, 2, 8, 1, 4, 0, 4, 7, 0, 0, 3,	8, 1, 2, 8, 1, 4, 0, 4, 7, 0, 0, 3,
LLNode::createWithIterators(arr, arr	7, 0, 6, 6, 3, 3, 7, 0, 4, 7, 4, 3,	7, 0, 6, 6, 3, 3, 7, 0, 4, 7, 4, 3,
+ sizeof(arr) / sizeof(int));		
LLNode::printList(head);	9, 3, 2, 1, 2, 1, 9, 4, 1, 3, 9, 7,	9, 3, 2, 1, 2, 1, 9, 4, 1, 3, 9, 7,
<pre>cout << "\n";</pre>	6, 1, 4, 2, 5, 0, 1, 8, 7, 4, 2, 6,	6, 1, 4, 2, 5, 0, 1, 8, 7, 4, 2, 6,
LLNode* newhead =	7, 1, 8]	7, 1, 8]
rotateLinkedList(head, k);		
LLNode::printList(newhead);		
int arr[] = {2, 2, 6, 2, 6, 9, 8, 0,	[2, 2, 6, 2, 6, 9, 8, 0, 5, 7, 5, 2,	[2, 2, 6, 2, 6, 9, 8, 0, 5, 7, 5, 2,
5, 7, 5, 2, 0, 3, 3, 5, 1, 0, 6, 0,	0, 3, 3, 5, 1, 0, 6, 0, 0, 4, 3, 8,	0, 3, 3, 5, 1, 0, 6, 0, 0, 4, 3, 8,
0, 4, 3, 8, 1, 0, 7, 7, 9, 8, 7, 8,	1, 0, 7, 7, 9, 8, 7, 8, 5, 5, 2, 4,	1, 0, 7, 7, 9, 8, 7, 8, 5, 5, 2, 4,
5, 5, 2, 4, 4, 6, 1, 2, 8, 5, 8, 1,	4, 6, 1, 2, 8, 5, 8, 1, 6, 3, 0, 6,	4, 6, 1, 2, 8, 5, 8, 1, 6, 3, 0, 6,
6, 3, 0, 6, 8, 7, 4, 0, 2, 2, 5, 6,	8, 7, 4, 0, 2, 2, 5, 6, 7, 3, 3, 2,	8, 7, 4, 0, 2, 2, 5, 6, 7, 3, 3, 2,

7.77		Eas 1. Olingiy Elinted Elst. 7tt	Simple Fortiers
	Test	Expected	Got
	8, 2, 7, 2, 2, 6, 1, 0, 4, 2, 2, 7,	2, 6, 1, 0, 4, 2, 2, 7, 6, 8, 5, 5,	2, 6, 1, 0, 4, 2, 2, 7, 6, 8, 5, 5,
	6, 8, 5, 5, 7, 7, 7, 7, 0, 0, 6, 6,	7, 7, 7, 7, 0, 0, 6, 6, 6, 2, 7, 0,	7, 7, 7, 7, 0, 0, 6, 6, 6, 2, 7, 0,
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	4, 6, 2, 5, 1, 3, 1, 7, 2, 0, 9, 8,	1, 3, 1, 7, 2, 0, 9, 8, 4, 8, 5, 3,	1, 3, 1, 7, 2, 0, 9, 8, 4, 8, 5, 3,
	4, 8, 5, 3, 7, 8, 8, 7, 1, 5, 4, 1,	7, 8, 8, 7, 1, 5, 4, 1, 5, 1, 1, 5,	7, 8, 8, 7, 1, 5, 4, 1, 5, 1, 1, 5,
	5, 1, 1, 5, 8, 4, 2, 2, 6, 0, 7, 8,	8, 4, 2, 2, 6, 0, 7, 8, 6, 7, 9, 9,	8, 4, 2, 2, 6, 0, 7, 8, 6, 7, 9, 9,
	6, 7, 9, 9, 0, 5, 6, 1, 4, 9, 9, 0,	0, 5, 6, 1, 4, 9, 9, 0, 3, 2, 6, 5,	0, 5, 6, 1, 4, 9, 9, 0, 3, 2, 6, 5,
	3, 2, 6, 5, 6, 1, 7, 8, 8, 9, 0, 0,	6, 1, 7, 8, 8, 9, 0, 0, 2, 6, 9, 3,	6, 1, 7, 8, 8, 9, 0, 0, 2, 6, 9, 3,
	2, 6, 9, 3, 7, 3, 7, 4, 9, 1, 9, 2,	7, 3, 7, 4, 9, 1, 9, 2, 7, 8, 2, 8,	7, 3, 7, 4, 9, 1, 9, 2, 7, 8, 2, 8,
	7, 8, 2, 8, 2, 7, 7, 9, 1, 4, 4, 0,	2, 7, 7, 9, 1, 4, 4, 0, 4, 7, 8, 1,	2, 7, 7, 9, 1, 4, 4, 0, 4, 7, 8, 1,
	4, 7, 8, 1, 3, 4, 5, 5, 1, 7, 3, 3,	3, 4, 5, 5, 1, 7, 3, 3, 4, 5, 8, 5,	3, 4, 5, 5, 1, 7, 3, 3, 4, 5, 8, 5,
	4, 5, 8, 5, 8, 3, 5, 8, 2, 6, 1, 2,	8, 3, 5, 8, 2, 6, 1, 2, 1, 9, 4, 0,	8, 3, 5, 8, 2, 6, 1, 2, 1, 9, 4, 0,
	1, 9, 4, 0, 7, 4, 7, 0, 1, 5, 6, 8,	7, 4, 7, 0, 1, 5, 6, 8, 8, 3, 1, 7,	7, 4, 7, 0, 1, 5, 6, 8, 8, 3, 1, 7,
	8, 3, 1, 7, 4, 0, 9, 6, 2, 9, 6, 9,	4, 0, 9, 6, 2, 9, 6, 9, 6, 7, 6, 0,	4, 0, 9, 6, 2, 9, 6, 9, 6, 7, 6, 0,
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	3, 8, 7, 5, 0, 4, 0, 5, 2, 6, 2, 4,	0, 4, 0, 5, 2, 6, 2, 4, 2, 9, 8, 7,	0, 4, 0, 5, 2, 6, 2, 4, 2, 9, 8, 7,
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	3, 2, 1, 0, 8, 1, 2, 2, 0, 2, 1, 1,	8, 1, 2, 2, 0, 2, 1, 1, 3, 9, 4, 2,	8, 1, 2, 2, 0, 2, 1, 1, 3, 9, 4, 2,
	3, 9, 4, 2, 4, 6, 3, 0, 1, 0, 1, 9,	4, 6, 3, 0, 1, 0, 1, 9, 3, 0, 8, 6,	4, 6, 3, 0, 1, 0, 1, 9, 3, 0, 8, 6,
	3, 0, 8, 6, 5, 7, 9, 3, 2, 0, 8, 0,	5, 7, 9, 3, 2, 0, 8, 0, 6, 8, 0, 5,	5, 7, 9, 3, 2, 0, 8, 0, 6, 8, 0, 5,
	6, 8, 0, 5, 1, 7, 6, 9, 8, 0, 7, 1,	1, 7, 6, 9, 8, 0, 7, 1, 6, 6, 3, 1,	1, 7, 6, 9, 8, 0, 7, 1, 6, 6, 3, 1,
	6, 6, 3, 1, 2, 3, 1, 5, 6, 2, 9, 3,	2, 3, 1, 5, 6, 2, 9, 3, 2, 3, 0, 5,	2, 3, 1, 5, 6, 2, 9, 3, 2, 3, 0, 5,
	2, 3, 0, 5, 5, 1, 6, 3, 6, 2, 4, 7,	5, 1, 6, 3, 6, 2, 4, 7, 6, 5, 7, 4,	5, 1, 6, 3, 6, 2, 4, 7, 6, 5, 7, 4,
	6, 5, 7, 4, 5, 1, 9, 8, 6, 2, 0, 1,	5, 1, 9, 8, 6, 2, 0, 1, 9, 3, 6, 5,	5, 1, 9, 8, 6, 2, 0, 1, 9, 3, 6, 5,
	9, 3, 6, 5, 0, 3, 4, 5, 6, 2, 5, 6,	0, 3, 4, 5, 6, 2, 5, 6, 9, 9, 0, 3,	0, 3, 4, 5, 6, 2, 5, 6, 9, 9, 0, 3,
	9, 9, 0, 3, 7, 0, 8, 8, 0, 3, 0, 4,	7, 0, 8, 8, 0, 3, 0, 4, 2, 7, 0, 9,	7, 0, 8, 8, 0, 3, 0, 4, 2, 7, 0, 9,
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	1, 1, 5, 8, 0, 0, 0, 2, 3, 2, 0, 1,	0, 0, 0, 2, 3, 2, 0, 1, 3, 3, 6, 4,	0, 0, 0, 2, 3, 2, 0, 1, 3, 3, 6, 4,
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	9, 4, 5, 5, 3, 4, 2, 7, 8, 3, 6, 7,	3, 4, 2, 7, 8, 3, 6, 7, 0, 2, 4, 7,	3, 4, 2, 7, 8, 3, 6, 7, 0, 2, 4, 7,
	0, 2, 4, 7, 0, 6, 9, 9, 1, 8, 3, 4,	0, 6, 9, 9, 1, 8, 3, 4, 0, 7, 6, 5,	0, 6, 9, 9, 1, 8, 3, 4, 0, 7, 6, 5,
	0, 7, 6, 5, 2, 8, 0, 7, 7, 7, 7, 2,	2, 8, 0, 7, 7, 7, 7, 2, 4, 9, 3, 3,	2, 8, 0, 7, 7, 7, 7, 2, 4, 9, 3, 3,
	4, 9, 3, 3, 5, 0, 1, 2, 8, 7, 1, 0,	5, 0, 1, 2, 8, 7, 1, 0, 3, 5, 0, 4,	5, 0, 1, 2, 8, 7, 1, 0, 3, 5, 0, 4,
	3, 5, 0, 4, 6, 5, 2, 0, 0, 5, 7, 0,	6, 5, 2, 0, 0, 5, 7, 0, 4, 6, 4, 2,	6, 5, 2, 0, 0, 5, 7, 0, 4, 6, 4, 2,
	4, 6, 4, 2, 9, 4, 8, 6, 7, 1, 3, 2,	9, 4, 8, 6, 7, 1, 3, 2, 1, 4, 8, 8,	9, 4, 8, 6, 7, 1, 3, 2, 1, 4, 8, 8,
	1, 4, 8, 8, 1, 1, 6, 1, 6, 3, 0, 9,	1, 1, 6, 1, 6, 3, 0, 9, 2, 5, 1, 8,	1, 1, 6, 1, 6, 3, 0, 9, 2, 5, 1, 8,
	2, 5, 1, 8, 8, 2, 9, 4, 0, 0, 1, 8,	8, 2, 9, 4, 0, 0, 1, 8, 4, 0, 4, 2,	8, 2, 9, 4, 0, 0, 1, 8, 4, 0, 4, 2,
	4, 0, 4, 2, 6, 0, 2, 8, 0, 2, 8, 4,	6, 0, 2, 8, 0, 2, 8, 4, 5, 6, 1, 5,	6, 0, 2, 8, 0, 2, 8, 4, 5, 6, 1, 5,
	5, 6, 1, 5, 8, 7, 3, 8, 0, 9, 9, 3,	8, 7, 3, 8, 0, 9, 9, 3, 5, 4, 8, 2,	8, 7, 3, 8, 0, 9, 9, 3, 5, 4, 8, 2,
	5, 4, 8, 2, 6, 1, 7, 8, 1, 8, 0, 2,	6, 1, 7, 8, 1, 8, 0, 2, 4, 3, 6, 4,	6, 1, 7, 8, 1, 8, 0, 2, 4, 3, 6, 4,
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	4, 6, 0, 5, 4, 9, 1, 3, 8, 8, 2, 6,	4, 9, 1, 3, 8, 8, 2, 6, 4, 0, 0, 1,	4, 9, 1, 3, 8, 8, 2, 6, 4, 0, 0, 1,
	4, 0, 0, 1, 0, 8, 6, 0, 0, 9, 3, 3,	0, 8, 6, 0, 0, 9, 3, 3, 2, 1, 3, 4,	0, 8, 6, 0, 0, 9, 3, 3, 2, 1, 3, 4,
	2, 1, 3, 4, 0, 7, 1, 0, 2, 3, 1, 2,	0, 7, 1, 0, 2, 3, 1, 2, 3, 4, 6, 1,	0, 7, 1, 0, 2, 3, 1, 2, 3, 4, 6, 1,
	3, 4, 6, 1, 5, 7, 3, 6, 3, 2, 2, 4,	5, 7, 3, 6, 3, 2, 2, 4, 4, 0, 8, 1,	5, 7, 3, 6, 3, 2, 2, 4, 4, 0, 8, 1,
	4, 0, 8, 1, 6, 8, 1, 4, 2, 9, 6, 2,		
	7, 9, 6, 8, 0, 2, 7, 6, 8, 3, 9, 1,	6, 8, 1, 4, 2, 9, 6, 2, 7, 9, 6, 8, 0, 2, 7, 6, 8, 3, 9, 1, 1, 3, 3, 0,	6, 8, 1, 4, 2, 9, 6, 2, 7, 9, 6, 8, 0, 2, 7, 6, 8, 3, 9, 1, 1, 3, 3, 0,
	1, 3, 3, 0, 3, 4, 9, 3, 4, 2, 7, 7,	3, 4, 9, 3, 4, 2, 7, 7, 2, 5, 1, 4,	3, 4, 9, 3, 4, 2, 7, 7, 2, 5, 1, 4,
	2, 5, 1, 4, 8, 0, 4, 0, 7, 2, 8, 8,	8, 0, 4, 0, 7, 2, 8, 8, 7, 1, 4, 8,	8, 0, 4, 0, 7, 2, 8, 8, 7, 1, 4, 8,
	7, 1, 4, 8, 6, 6, 6, 3, 2, 1, 9, 5,	6, 6, 6, 3, 2, 1, 9, 5, 9, 6, 7, 4, 1 6 3 6 3 8 3 6 0 0 2 7	6, 6, 6, 3, 2, 1, 9, 5, 9, 6, 7, 4,
	9, 6, 7, 4, 1, 6, 3, 6, 3, 8, 3, 6,	1, 6, 3, 6, 3, 8, 3, 6, 0, 0, 2, 7,	1, 6, 3, 6, 3, 8, 3, 6, 0, 0, 2, 7,
	8, 9, 6, 0, 4, 2, 0, 8, 2, 8, 8, 7,	3, 9, 4, 2, 1, 6, 4, 6, 8, 9, 6, 0, 4, 2, 0, 8, 2, 8, 8, 7, 0, 4, 4, 9,	3, 9, 4, 2, 1, 6, 4, 6, 8, 9, 6, 0, 4, 2, 0, 8, 2, 8, 8, 7, 0, 4, 4, 9,
	0, 4, 4, 9, 3, 4, 2, 9, 1, 0, 1, 0,	3, 4, 2, 9, 1, 0, 1, 0, 4, 5, 6, 7,	3, 4, 2, 9, 1, 0, 1, 0, 4, 5, 6, 7,

Test	Expected	Got
4, 5, 6, 7, 7, 1, 5, 4, 1, 3, 7, 8,	7, 1, 5, 4, 1, 3, 7, 8, 0, 8, 8, 6,	7, 1, 5, 4, 1, 3, 7, 8, 0, 8, 8, 6,
0, 8, 8, 6, 1, 1, 1, 0, 6, 8, 8, 4,	1, 1, 1, 0, 6, 8, 8, 4, 1, 8, 0, 4,	1, 1, 1, 0, 6, 8, 8, 4, 1, 8, 0, 4,
1, 8, 0, 4, 1, 2, 1, 1, 6, 3, 5, 8,	1, 2, 1, 1, 6, 3, 5, 8, 2, 0, 5, 6,	1, 2, 1, 1, 6, 3, 5, 8, 2, 0, 5, 6,
2, 0, 5, 6, 8, 5, 9, 5, 1, 0, 0, 6,	8, 5, 9, 5, 1, 0, 0, 6, 7, 6, 0, 0,	8, 5, 9, 5, 1, 0, 0, 6, 7, 6, 0, 0,
7, 6, 0, 0, 0, 4, 9, 6, 0, 4, 8, 2,	0, 4, 9, 6, 0, 4, 8, 2, 9, 1, 3, 8,	0, 4, 9, 6, 0, 4, 8, 2, 9, 1, 3, 8,
9, 1, 3, 8, 2, 5, 5, 3, 9, 1, 6, 1,	2, 5, 5, 3, 9, 1, 6, 1, 8, 8, 4, 8,	2, 5, 5, 3, 9, 1, 6, 1, 8, 8, 4, 8,
8, 8, 4, 8, 8, 0, 8, 9, 9, 3, 7, 7,	8, 0, 8, 9, 9, 3, 7, 7, 6, 0, 8, 1,	8, 0, 8, 9, 9, 3, 7, 7, 6, 0, 8, 1,
6, 0, 8, 1, 9, 1, 0, 3, 5, 4, 9, 1,	9, 1, 0, 3, 5, 4, 9, 1, 5, 6, 8, 6,	9, 1, 0, 3, 5, 4, 9, 1, 5, 6, 8, 6,
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2, 7, 8, 0, 9, 3, 4, 3, 2, 9, 8, 7,	9, 3, 4, 3, 2, 9, 8, 7, 2, 5, 4, 0,	9, 3, 4, 3, 2, 9, 8, 7, 2, 5, 4, 0,
2, 5, 4, 0, 4, 8, 5, 3, 9, 3, 9, 6,	4, 8, 5, 3, 9, 3, 9, 6, 2, 7, 1, 7,	4, 8, 5, 3, 9, 3, 9, 6, 2, 7, 1, 7,
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9, 4, 4, 7, 0, 3, 6, 0, 0, 7, 8, 0,	0, 3, 6, 0, 0, 7, 8, 0, 4, 5, 7, 7,	0, 3, 6, 0, 0, 7, 8, 0, 4, 5, 7, 7,
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2, 1, 3, 0, 2, 7, 9, 8, 8, 5, 4, 4,	2, 7, 9, 8, 8, 5, 4, 4, 2, 6, 5, 4,	2, 7, 9, 8, 8, 5, 4, 4, 2, 6, 5, 4,
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4, 9, 7, 1, 6, 8, 4, 9, 8, 3, 4, 0,	0, 3, 2, 5, 9, 0, 5, 9, 7, 1, 1, 9,	0, 3, 2, 5, 9, 0, 5, 9, 7, 1, 1, 9,
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	Test	Expected	Got
	9, 9, 7, 2, 1, 3, 3, 3, 2, 2, 5, 9,	0, 6, 6, 5, 5, 4, 5, 7, 9, 3, 5, 3,	0, 6, 6, 5, 5, 4, 5, 7, 9, 3, 5, 3,
	0, 7, 0, 0, 1, 0, 6, 2, 1, 1, 9, 4,	1, 6, 9, 0, 9, 5, 8, 8, 4, 6, 0, 9,	1, 6, 9, 0, 9, 5, 8, 8, 4, 6, 0, 9,
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	2, 4, 0, 0, 7, 5, 7, 1, 9, 5, 7, 7,	6, 5, 4, 9, 2, 4, 2, 3, 1, 8, 6, 8,	6, 5, 4, 9, 2, 4, 2, 3, 1, 8, 6, 8,
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	8, 4, 1, 1, 8, 1, 0, 2, 4, 6, 3, 0,	7, 2, 3, 5, 3, 4, 7, 2, 8, 5, 6, 9,	7, 2, 3, 5, 3, 4, 7, 2, 8, 5, 6, 9,
	8, 9, 1, 6, 6, 2, 3, 6, 6, 3, 9, 8,	7, 1, 4, 0, 0, 3, 6, 3, 0, 4, 4, 0,	7, 1, 4, 0, 0, 3, 6, 3, 0, 4, 4, 0,
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	5, 4, 3, 6, 2, 3, 5, 3, 4, 1, 3, 1,	2, 5, 3, 3, 8, 7, 9, 3, 9, 5, 9, 0,	2, 5, 3, 3, 8, 7, 9, 3, 9, 5, 9, 0,
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	7, 7, 8, 5, 5, 4, 3, 7, 1, 1, 6, 3,	1, 1, 0, 4, 6, 3, 8, 6, 9, 3, 9, 5,	1, 1, 0, 4, 6, 3, 8, 6, 9, 3, 9, 5,
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	2, 9, 0, 4, 2, 7, 9, 6, 9, 9, 1, 5,	2, 3, 4, 0, 5, 9, 1, 7, 2, 9, 8, 2,	2, 3, 4, 0, 5, 9, 1, 7, 2, 9, 8, 2,
	9, 4, 1, 4, 5, 5, 1, 0, 1, 3, 9, 6,	0, 7, 0, 9, 0, 2, 6, 6, 8, 5, 5, 6,	0, 7, 0, 9, 0, 2, 6, 6, 8, 5, 5, 6,
	0, 4, 5, 5, 7, 1, 7, 1, 4, 5, 6, 1,	0, 1, 8, 0, 9, 2, 4, 9, 8, 3, 6, 3,	0, 1, 8, 0, 9, 2, 4, 9, 8, 3, 6, 3,
	7, 3, 9, 0, 9, 5, 9, 5, 6, 2, 0, 7,	9, 2, 2, 6, 5, 7, 3, 5, 0, 6, 6, 8,	9, 2, 2, 6, 5, 7, 3, 5, 0, 6, 6, 8,
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	1, 8, 6, 7, 7, 8, 3, 9, 0, 0, 6, 0,	4, 6, 3, 6, 5, 2, 6, 2, 0, 7, 4, 1,	4, 6, 3, 6, 5, 2, 6, 2, 0, 7, 4, 1,
	0, 6, 8, 6, 9, 6, 1, 3, 1, 7, 5, 3,	2, 7, 3, 4, 4, 9, 3, 9, 2, 9, 1, 3,	2, 7, 3, 4, 4, 9, 3, 9, 2, 9, 1, 3,
	5, 8, 3, 5, 8, 6, 1, 5, 6, 2, 2, 4,	0, 4, 1, 0, 2, 4, 9, 3, 3, 1, 3, 0,	0, 4, 1, 0, 2, 4, 9, 3, 3, 1, 3, 0,
	6, 0, 2, 6, 7, 8, 0, 5, 9, 5, 1, 1,	8, 8, 7, 4, 5, 9, 9, 9, 6, 6, 4, 4,	8, 8, 7, 4, 5, 9, 9, 9, 6, 6, 4, 4,
	2, 3, 4, 7, 5, 7, 0, 8, 2, 4, 4, 0,	2, 5, 0, 1, 0, 8, 9, 0, 4, 8, 5, 6,	2, 5, 0, 1, 0, 8, 9, 0, 4, 8, 5, 6,
	1, 8, 8, 3, 1, 6, 4, 2, 8, 3, 8, 6, 0, 7, 4, 9, 8, 2, 2, 5, 8, 7, 2, 7,	8, 1, 0, 9, 1, 8, 2, 6, 1, 0, 9, 9, 2, 5, 9, 4, 1, 7, 5, 6, 5, 4, 3, 9,	8, 1, 0, 9, 1, 8, 2, 6, 1, 0, 9, 9, 2, 5, 9, 4, 1, 7, 5, 6, 5, 4, 3, 9,
	4, 3, 5, 2, 8, 3, 2, 9, 5, 1, 5, 1,	3, 9, 4, 1, 6, 7, 6, 3, 1, 6, 6, 5,	3, 9, 4, 1, 6, 7, 6, 3, 1, 6, 6, 5,
	7, 7, 3, 5, 2, 1, 8, 1, 0, 5, 0, 2,	2, 5, 9, 7, 6, 9, 3, 3, 1, 2, 5, 0,	2, 5, 9, 7, 6, 9, 3, 3, 1, 2, 5, 0,
	0, 6, 3, 0, 4, 3, 7, 3, 5, 7, 6, 6,	2, 5, 6, 7, 2, 3, 0, 7, 9, 0, 2, 2,	2, 5, 6, 7, 2, 3, 0, 7, 9, 0, 2, 2,
	0, 8, 2, 7, 1, 3, 4, 6, 8, 8, 2, 8,	9, 5, 9, 1, 9, 6, 1, 7, 4, 1, 6, 7,	9, 5, 9, 1, 9, 6, 1, 7, 4, 1, 6, 7,
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Test	Expected	Got
4, 7, 6, 2, 0, 0, 0, 7, 6, 9, 2, 4,	0, 5, 9, 8, 1, 2, 2, 5, 6, 3, 3, 4,	0, 5, 9, 8, 1, 2, 2, 5, 6, 3, 3, 4,
7, 3, 1, 1, 7, 0, 3, 4, 5, 6, 9, 0,	8, 8, 1, 0, 5, 2, 7, 1, 6, 7, 3, 1,	8, 8, 1, 0, 5, 2, 7, 1, 6, 7, 3, 1,
5, 5, 9, 5, 1, 1, 3, 5, 5, 0, 9, 9,	1, 8, 9, 7, 6, 3, 3, 4, 0, 0, 9, 2,	1, 8, 9, 7, 6, 3, 3, 4, 0, 0, 9, 2,
6, 4, 7, 3, 9, 3, 5, 1, 2, 1, 0, 8,	6, 2, 4, 2, 2, 1, 3, 6, 6, 6, 8, 5,	6, 2, 4, 2, 2, 1, 3, 6, 6, 6, 8, 5,
1, 7, 9, 8, 8, 3, 7, 0, 8, 0, 8, 2,	8, 8, 1, 3, 6, 9, 6, 5, 2, 3, 0, 2,	8, 8, 1, 3, 6, 9, 6, 5, 2, 3, 0, 2,
9, 9, 1, 0, 8, 2, 9, 7, 2, 1, 1, 7,	2, 1, 0, 1, 9, 1, 4, 4, 9, 3, 2, 3,	2, 1, 0, 1, 9, 1, 4, 4, 9, 3, 2, 3,
6, 1, 4, 6, 2, 0, 7, 1, 7, 7, 4, 8,	4, 0, 3, 4, 5, 8, 3, 6, 3, 5, 6, 8,	4, 0, 3, 4, 5, 8, 3, 6, 3, 5, 6, 8,
8, 0, 8, 7, 5, 7, 0, 3, 1, 5, 3, 8,	4, 1, 1, 5, 1, 2, 8, 2, 5, 0, 2, 8,	4, 1, 1, 5, 1, 2, 8, 2, 5, 0, 2, 8,
8, 5, 7, 6, 5, 0, 1, 7, 0, 0, 9, 6,	9, 1, 2, 5, 4, 9, 2, 7, 0, 5, 1, 5,	9, 1, 2, 5, 4, 9, 2, 7, 0, 5, 1, 5,
4, 7, 2, 2, 4, 2, 5, 7, 8, 9, 3, 0,	6, 2, 2, 9, 3, 9, 3, 9, 6, 9, 8, 3,	6, 2, 2, 9, 3, 9, 3, 9, 6, 9, 8, 3,
1, 3, 9, 7, 4, 7, 9, 7, 0, 6, 1, 2,	3, 1, 8, 8, 5, 4, 3, 5, 7, 5, 8, 5,	3, 1, 8, 8, 5, 4, 3, 5, 7, 5, 8, 5,
9, 8, 3, 9, 5, 5, 7, 9, 7, 0, 0, 3,	5, 8, 0, 2, 5, 4, 0, 7, 8, 9, 0, 2,	5, 8, 0, 2, 5, 4, 0, 7, 8, 9, 0, 2,
6, 4, 7, 0, 1, 3, 4, 0, 5, 0, 2, 8,	6, 4, 4, 2, 3, 8, 3, 0, 3, 8, 4, 2,	6, 4, 4, 2, 3, 8, 3, 0, 3, 8, 4, 2,
7, 9, 6, 1, 0, 8, 2, 4, 7, 2, 0, 7,	6, 6, 6, 4, 2, 3, 0, 2, 6, 9, 2, 8,	6, 6, 6, 4, 2, 3, 0, 2, 6, 9, 2, 8,
0, 8, 4, 1, 7, 6, 8, 9, 7, 2, 4, 9,	3, 8, 0, 6, 8, 3, 5, 0, 9, 6, 0, 7,	3, 8, 0, 6, 8, 3, 5, 0, 9, 6, 0, 7,
1, 3, 7, 9, 8, 6, 0, 4, 3, 2, 6, 9,	2, 5, 0, 3, 2, 8, 8, 2, 5, 5, 3, 6,	2, 5, 0, 3, 2, 8, 8, 2, 5, 5, 3, 6,
3, 0, 8, 0, 0, 2, 4, 4, 9, 3, 4, 9,	9, 4, 9, 2, 2, 9, 6, 6, 7, 5, 7, 4,	9, 4, 9, 2, 2, 9, 6, 6, 7, 5, 7, 4,
1, 4, 2, 2, 9, 5, 7, 8, 9, 7, 0, 9,	6, 9, 8, 9, 7, 9, 2, 7, 0, 4, 9, 0,	6, 9, 8, 9, 7, 9, 2, 7, 0, 4, 9, 0,
5, 4, 7, 2, 1, 3, 3, 2, 7, 6, 0, 0,	6, 2, 8, 1, 3, 0, 3, 4, 7, 0, 7, 2,	6, 2, 8, 1, 3, 0, 3, 4, 7, 0, 7, 2,
1, 2, 7, 3, 2, 8, 7, 1, 0, 6, 8, 8,	1, 7, 4, 2, 0, 6, 5, 6, 3, 6, 6, 9,	1, 7, 4, 2, 0, 6, 5, 6, 3, 6, 6, 9,
8, 2, 8, 9, 5, 6, 5, 0, 5, 9, 7, 2,	1, 3, 0, 8, 4, 9, 7, 1, 6, 8, 4, 9,	1, 3, 0, 8, 4, 9, 7, 1, 6, 8, 4, 9,
2, 3, 9, 3, 1, 8, 6, 9, 1, 1, 4, 9,	8, 3, 4, 0, 2, 2, 4, 6, 2, 7, 9, 0,	8, 3, 4, 0, 2, 2, 4, 6, 2, 7, 9, 0,
0, 9, 1, 3, 1, 9, 1, 0, 5, 3, 6, 9,	3, 8, 0, 6, 0, 6, 7, 7, 9, 6, 0, 4,	3, 8, 0, 6, 0, 6, 7, 7, 9, 6, 0, 4,
0, 3, 6, 5, 6, 1, 0, 7, 4, 2, 3, 3,	7, 8, 4, 4, 2, 7, 0, 0, 8, 0, 8, 8,	7, 8, 4, 4, 2, 7, 0, 0, 8, 0, 8, 8,
1, 4, 7, 3, 8, 2, 5, 6, 8, 4, 8, 6,	5, 7, 6, 2, 8, 5, 5, 3, 7, 1, 2, 8,	5, 7, 6, 2, 8, 5, 5, 3, 7, 1, 2, 8,
7, 4, 8, 3, 7, 4, 7, 1, 4, 0, 3, 8,	8, 4, 1, 8, 1, 8, 7, 8, 4, 0, 1, 6,	8, 4, 1, 8, 1, 8, 7, 8, 4, 0, 1, 6,
1, 0, 2, 3, 4, 9, 1, 5, 0, 6, 3, 4,		
	3, 0, 2, 3, 6, 0, 8, 2, 0, 7, 8, 7,	3, 0, 2, 3, 6, 0, 8, 2, 0, 7, 8, 7,
9, 4, 3, 3, 6, 3, 6, 8, 1, 9, 7, 4,	1, 3, 3, 5, 0, 0, 1, 5, 2, 7, 5, 2,	1, 3, 3, 5, 0, 0, 1, 5, 2, 7, 5, 2,
5, 7, 4, 9, 5, 0, 9, 7, 4, 1, 8, 0,	5, 1, 6, 4, 9, 9, 7, 2, 1, 3, 3, 3,	5, 1, 6, 4, 9, 9, 7, 2, 1, 3, 3, 3,
7, 5, 0, 2, 7, 8, 0, 9, 4, 5, 2, 0, 9, 6, 4, 7, 0};	2, 2, 5, 9, 0, 7, 0, 0, 1, 0, 6, 2,	2, 2, 5, 9, 0, 7, 0, 0, 1, 0, 6, 2,
int k = 990;	1, 1, 9, 4, 3, 3, 4, 9, 9, 5, 7, 2,	1, 1, 9, 4, 3, 3, 4, 9, 9, 5, 7, 2,
LLNode* head =	3, 7, 8, 4, 2, 4, 0, 0, 7, 5, 7, 1, 9, 5, 7, 7, 6, 0, 6, 7, 8, 5, 9, 9,	3, 7, 8, 4, 2, 4, 0, 0, 7, 5, 7, 1, 9, 5, 7, 7, 6, 0, 6, 7, 8, 5, 9, 9,
LLNode::createWithIterators(arr, arr	4, 9, 2, 6, 8, 4, 1, 1, 8, 1, 0, 2,	4, 9, 2, 6, 8, 4, 1, 1, 8, 1, 0, 2,
+ sizeof(arr) / sizeof(int));	4, 6, 3, 0, 8, 9, 1, 6, 6, 2, 3, 6,	4, 6, 3, 0, 8, 9, 1, 6, 6, 2, 3, 6,
LLNode::printList(head);	6, 3, 9, 8, 7, 5, 5, 8, 3, 8, 4, 1,	6, 3, 9, 8, 7, 5, 5, 8, 3, 8, 4, 1,
cout << "\n";	6, 6, 6]	6, 6, 6]
LLNode* newhead =	0, 0, 0]	0, 0, 0]
rotateLinkedList(head, k);		
LLNode::printList(newhead);		
Linoueprintlist(newneau),		
int arr[] = {9, 9, 7, 1, 0, 8, 1, 7,	[9, 9, 7, 1, 0, 8, 1, 7, 1, 6, 9, 1,	[9, 9, 7, 1, 0, 8, 1, 7, 1, 6, 9, 1,
1, 6, 9, 1, 8, 4, 3, 4, 8, 5, 7, 0,	8, 4, 3, 4, 8, 5, 7, 0, 0, 0, 2, 1,	8, 4, 3, 4, 8, 5, 7, 0, 0, 0, 2, 1,
0, 0, 2, 1, 9, 5, 5, 3, 3, 4, 2, 0,	9, 5, 5, 3, 3, 4, 2, 0, 1, 4, 6, 2,	9, 5, 5, 3, 3, 4, 2, 0, 1, 4, 6, 2,
1, 4, 6, 2, 9, 0, 9, 9, 0, 2, 7, 3,	9, 0, 9, 9, 0, 2, 7, 3, 5, 9, 8, 2,	9, 0, 9, 9, 0, 2, 7, 3, 5, 9, 8, 2,
5, 9, 8, 2, 5, 4, 3, 4, 6, 3, 8, 1,	5, 4, 3, 4, 6, 3, 8, 1, 2, 0, 3, 3,	5, 4, 3, 4, 6, 3, 8, 1, 2, 0, 3, 3,
2, 0, 3, 3, 9, 6, 3, 4, 5, 4, 9, 3,	9, 6, 3, 4, 5, 4, 9, 3, 6, 5, 2, 5,	9, 6, 3, 4, 5, 4, 9, 3, 6, 5, 2, 5,
6, 5, 2, 5, 0, 1, 3, 3, 0, 5, 9, 2,	0, 1, 3, 3, 0, 5, 9, 2, 6, 5, 4, 9,	0, 1, 3, 3, 0, 5, 9, 2, 6, 5, 4, 9,
6, 5, 4, 9, 6, 4, 7, 5, 0, 3, 4, 3,	6, 4, 7, 5, 0, 3, 4, 3, 9, 2, 7, 5,	6, 4, 7, 5, 0, 3, 4, 3, 9, 2, 7, 5,
9, 2, 7, 5, 5, 5, 2, 7, 5, 3, 4, 9,	5, 5, 2, 7, 5, 3, 4, 9, 3, 5, 1, 1,	5, 5, 2, 7, 5, 3, 4, 9, 3, 5, 1, 1,
3, 5, 1, 1, 4, 1, 9, 9, 0, 8, 4, 6,	4, 1, 9, 9, 0, 8, 4, 6, 4, 2, 1, 0,	4, 1, 9, 9, 0, 8, 4, 6, 4, 2, 1, 0,
4, 2, 1, 0, 5, 4, 0, 4, 4, 0, 0, 8,	5, 4, 0, 4, 4, 0, 0, 8, 4, 5, 3, 7,	5, 4, 0, 4, 4, 0, 0, 8, 4, 5, 3, 7,
4, 5, 3, 7, 0, 7, 1, 6, 0, 2, 8, 6,	0, 7, 1, 6, 0, 2, 8, 6, 8, 1, 6, 5,	0, 7, 1, 6, 0, 2, 8, 6, 8, 1, 6, 5,
8, 1, 6, 5, 6, 5, 7, 7, 8, 1, 7, 3,	6, 5, 7, 7, 8, 1, 7, 3, 1, 7, 1, 9,	6, 5, 7, 7, 8, 1, 7, 3, 1, 7, 1, 9,
1, 7, 1, 9, 2, 4, 6, 2, 1, 8, 8, 4,	2, 4, 6, 2, 1, 8, 8, 4, 0, 9, 0, 8,	2, 4, 6, 2, 1, 8, 8, 4, 0, 9, 0, 8,
0, 9, 0, 8, 8, 6, 6, 8, 8, 2, 2, 1,	8, 6, 6, 8, 8, 2, 2, 1, 2, 2, 8, 7,	8, 6, 6, 8, 8, 2, 2, 1, 2, 2, 8, 7,
2, 2, 8, 7, 8, 4, 3, 6, 4, 1, 0, 9,	8, 4, 3, 6, 4, 1, 0, 9, 1, 4, 0, 6,	8, 4, 3, 6, 4, 1, 0, 9, 1, 4, 0, 6,
1, 4, 0, 6, 1, 6, 1, 7, 6, 1, 9, 6,	1, 6, 1, 7, 6, 1, 9, 6, 5, 5, 9, 4,	1, 6, 1, 7, 6, 1, 9, 6, 5, 5, 9, 4,
5, 5, 9, 4, 7, 8, 8, 5, 4, 9, 2, 7,	7, 8, 8, 5, 4, 9, 2, 7, 1, 1, 6, 9,	7, 8, 8, 5, 4, 9, 2, 7, 1, 1, 6, 9,
	6, 9, 8, 7, 8, 8, 0, 3, 0, 8, 6, 0,	6, 9, 8, 7, 8, 8, 0, 3, 0, 8, 6, 0,
1, 1, 6, 9, 6, 9, 8, 7, 8, 8, 0, 3,		

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	Test	Expected	Got
	8, 6, 3, 0, 3, 9, 5, 2, 4, 2, 4, 1,	3, 9, 5, 2, 4, 2, 4, 1, 4, 1, 3, 7,	3, 9, 5, 2, 4, 2, 4, 1, 4, 1, 3, 7,
	4, 1, 3, 7, 4, 0, 0, 1, 2, 8, 4, 8,	4, 0, 0, 1, 2, 8, 4, 8, 1, 1, 6, 3,	4, 0, 0, 1, 2, 8, 4, 8, 1, 1, 6, 3,
	1, 1, 6, 3, 8, 9, 7, 7, 5, 8, 1, 8,	8, 9, 7, 7, 5, 8, 1, 8, 3, 4, 9, 5,	8, 9, 7, 7, 5, 8, 1, 8, 3, 4, 9, 5,
	3, 4, 9, 5, 5, 1, 3, 4, 9, 2, 3, 8,	5, 1, 3, 4, 9, 2, 3, 8, 9, 1, 9, 7,	5, 1, 3, 4, 9, 2, 3, 8, 9, 1, 9, 7,
	9, 1, 9, 7, 5, 7, 0, 0, 4, 9, 8, 9,	5, 7, 0, 0, 4, 9, 8, 9, 4, 3, 2, 4,	5, 7, 0, 0, 4, 9, 8, 9, 4, 3, 2, 4,
	4, 3, 2, 4, 9, 3, 4, 5, 6, 8, 6, 7,	9, 3, 4, 5, 6, 8, 6, 7, 9, 0, 4, 5,	9, 3, 4, 5, 6, 8, 6, 7, 9, 0, 4, 5,
	9, 0, 4, 5, 6, 2, 4, 8, 4, 5, 2, 5,	6, 2, 4, 8, 4, 5, 2, 5, 7, 4, 5, 3,	6, 2, 4, 8, 4, 5, 2, 5, 7, 4, 5, 3,
	7, 4, 5, 3, 1, 5, 2, 7, 9, 7, 8, 1,	1, 5, 2, 7, 9, 7, 8, 1, 2, 7, 0, 5,	1, 5, 2, 7, 9, 7, 8, 1, 2, 7, 0, 5,
	2, 7, 0, 5, 4, 9, 5, 8, 3, 9, 3, 9,	4, 9, 5, 8, 3, 9, 3, 9, 5, 9, 9, 6,	4, 9, 5, 8, 3, 9, 3, 9, 5, 9, 9, 6,
	5, 9, 9, 6, 6, 8, 9, 6, 8, 5, 5, 4,	6, 8, 9, 6, 8, 5, 5, 4, 1, 1, 6, 4,	6, 8, 9, 6, 8, 5, 5, 4, 1, 1, 6, 4,
	1, 1, 6, 4, 5, 9, 7, 5, 5, 0, 7, 7,	5, 9, 7, 5, 5, 0, 7, 7, 8, 3, 0, 1,	5, 9, 7, 5, 5, 0, 7, 7, 8, 3, 0, 1,
	8, 3, 0, 1, 1, 9, 8, 5, 0, 7, 1, 2,	1, 9, 8, 5, 0, 7, 1, 2, 5, 8, 2, 2,	1, 9, 8, 5, 0, 7, 1, 2, 5, 8, 2, 2,
	5, 8, 2, 2, 4, 8, 5, 6, 5, 1, 5, 8,	4, 8, 5, 6, 5, 1, 5, 8, 6, 3, 9, 2,	4, 8, 5, 6, 5, 1, 5, 8, 6, 3, 9, 2,
	6, 3, 9, 2, 7, 0, 3, 5, 3, 2, 1, 0,	7, 0, 3, 5, 3, 2, 1, 0, 8, 4, 0, 8,	7, 0, 3, 5, 3, 2, 1, 0, 8, 4, 0, 8,
	8, 4, 0, 8, 8, 0, 7, 5, 6, 3, 7, 4,	8, 0, 7, 5, 6, 3, 7, 4, 5, 2, 7, 6,	8, 0, 7, 5, 6, 3, 7, 4, 5, 2, 7, 6,
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	1, 6, 8, 9, 1, 7, 7, 0, 5, 3, 3, 5,	1, 7, 7, 0, 5, 3, 3, 5, 4, 1, 0, 5,	1, 7, 7, 0, 5, 3, 3, 5, 4, 1, 0, 5,
	4, 1, 0, 5, 2, 3, 3, 2, 3, 8, 3, 9,	2, 3, 3, 2, 3, 8, 3, 9, 1, 6, 8, 3,	2, 3, 3, 2, 3, 8, 3, 9, 1, 6, 8, 3,
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	5, 0, 7, 8, 7, 4, 3, 0, 4, 2, 3, 1,	7, 4, 3, 0, 4, 2, 3, 1, 5, 0, 1, 8,	7, 4, 3, 0, 4, 2, 3, 1, 5, 0, 1, 8,
	5, 0, 1, 8, 5, 0, 5, 3, 6, 9, 2, 7,	5, 0, 5, 3, 6, 9, 2, 7, 6, 7, 2, 5,	5, 0, 5, 3, 6, 9, 2, 7, 6, 7, 2, 5,
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	8, 1, 7, 3, 9, 9, 3, 0, 3, 4, 5, 2,	9, 9, 3, 0, 3, 4, 5, 2, 4, 5, 9, 2,	9, 9, 3, 0, 3, 4, 5, 2, 4, 5, 9, 2,
	4, 5, 9, 2, 0, 0, 0, 9, 7, 5, 7, 1,	0, 0, 0, 9, 7, 5, 7, 1, 7, 6, 4, 2,	0, 0, 0, 9, 7, 5, 7, 1, 7, 6, 4, 2,
	7, 6, 4, 2, 3, 3, 5, 9, 6, 6, 1, 3,	3, 3, 5, 9, 6, 6, 1, 3, 9, 0, 5, 3,	3, 3, 5, 9, 6, 6, 1, 3, 9, 0, 5, 3,
	9, 0, 5, 3, 5, 6, 6, 7, 0, 6, 4, 1,	5, 6, 6, 7, 0, 6, 4, 1, 1, 5, 8, 4,	5, 6, 6, 7, 0, 6, 4, 1, 1, 5, 8, 4,
	1, 5, 8, 4, 8, 0, 5, 9, 9, 6, 7, 7,	8, 0, 5, 9, 9, 6, 7, 7, 9, 5, 8, 8,	8, 0, 5, 9, 9, 6, 7, 7, 9, 5, 8, 8,
	9, 5, 8, 8, 2, 5, 7, 9, 4, 1, 9, 2, 2, 5, 4, 0, 3, 3, 2, 4, 9, 2, 0, 2,	2, 5, 7, 9, 4, 1, 9, 2, 2, 5, 4, 0, 3, 3, 2, 4, 9, 2, 0, 2, 0, 0, 5, 9,	2, 5, 7, 9, 4, 1, 9, 2, 2, 5, 4, 0, 3, 3, 2, 4, 9, 2, 0, 2, 0, 0, 5, 9,
	0, 0, 5, 9, 9, 3, 9, 3, 3, 4, 9, 8,	9, 3, 9, 3, 3, 4, 9, 8, 3, 6, 4, 3,	9, 3, 9, 3, 3, 4, 9, 8, 3, 6, 4, 3,
	3, 6, 4, 3, 8, 8, 1, 4, 2, 9, 1, 2,	8, 8, 1, 4, 2, 9, 1, 2, 5, 6, 3, 4,	8, 8, 1, 4, 2, 9, 1, 2, 5, 6, 3, 4,
	5, 6, 3, 4, 1, 5, 9, 0, 1, 7, 2, 5,	1, 5, 9, 0, 1, 7, 2, 5, 5, 6, 1, 7,	1, 5, 9, 0, 1, 7, 2, 5, 5, 6, 1, 7,
	5, 6, 1, 7, 1, 0, 7, 4, 0, 5, 1, 3,	1, 0, 7, 4, 0, 5, 1, 3, 9, 7, 7, 4,	1, 0, 7, 4, 0, 5, 1, 3, 9, 7, 7, 4,
	9, 7, 7, 4, 4, 5, 6, 0, 0, 6, 2, 2,	4, 5, 6, 0, 0, 6, 2, 2, 4, 8, 2, 5,	4, 5, 6, 0, 0, 6, 2, 2, 4, 8, 2, 5,
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	7, 7, 0, 2, 8, 4, 2, 2, 7, 6, 8, 5,	8, 4, 2, 2, 7, 6, 8, 5, 0, 9, 5, 0,	8, 4, 2, 2, 7, 6, 8, 5, 0, 9, 5, 0,
	0, 9, 5, 0, 0, 0, 9, 9, 5, 3, 7, 2,	0, 0, 9, 9, 5, 3, 7, 2, 0, 8, 9, 4,	0, 0, 9, 9, 5, 3, 7, 2, 0, 8, 9, 4,
	0, 8, 9, 4, 5, 0, 5, 9, 2, 6, 2, 5,	5, 0, 5, 9, 2, 6, 2, 5, 3, 3, 5, 2,	5, 0, 5, 9, 2, 6, 2, 5, 3, 3, 5, 2,
	3, 3, 5, 2, 2, 8, 3, 0, 3, 9, 7, 8,	2, 8, 3, 0, 3, 9, 7, 8, 3, 2, 8, 6,	2, 8, 3, 0, 3, 9, 7, 8, 3, 2, 8, 6,
	3, 2, 8, 6, 9, 6, 6, 6, 5, 1, 7, 3, 3, 7, 1, 9, 3, 5, 1, 4, 3, 4, 2, 0,	9, 6, 6, 6, 5, 1, 7, 3, 3, 7, 1, 9, 3, 5, 1, 4, 3, 4, 2, 0, 2, 0, 1, 0,	9, 6, 6, 6, 5, 1, 7, 3, 3, 7, 1, 9, 3, 5, 1, 4, 3, 4, 2, 0, 2, 0, 1, 0,
	2, 0, 1, 0, 2, 1, 6, 3, 2, 9, 8, 3,	2, 1, 6, 3, 2, 9, 8, 3, 2, 1, 7, 1,	2, 1, 6, 3, 2, 9, 8, 3, 2, 1, 7, 1,
	2, 1, 7, 1, 8, 0, 7, 2, 4, 6, 4, 1,	8, 0, 7, 2, 4, 6, 4, 1, 6, 5, 6, 8,	8, 0, 7, 2, 4, 6, 4, 1, 6, 5, 6, 8,
	6, 5, 6, 8, 5, 4, 5, 5, 4, 0, 6, 8,	5, 4, 5, 5, 4, 0, 6, 8, 5, 1, 2, 5,	5, 4, 5, 5, 4, 0, 6, 8, 5, 1, 2, 5,
	5, 1, 2, 5, 0, 5, 9, 3, 8, 1, 7, 8,	0, 5, 9, 3, 8, 1, 7, 8, 5, 6, 9, 5,	0, 5, 9, 3, 8, 1, 7, 8, 5, 6, 9, 5,
	5, 6, 9, 5, 6, 1, 1, 0, 6, 1, 8, 0,	6, 1, 1, 0, 6, 1, 8, 0, 4, 7, 5, 4,	6, 1, 1, 0, 6, 1, 8, 0, 4, 7, 5, 4,
	4, 7, 5, 4, 9, 7, 5, 1, 7, 7, 2, 7,	9, 7, 5, 1, 7, 7, 2, 7, 8, 4, 6, 0,	9, 7, 5, 1, 7, 7, 2, 7, 8, 4, 6, 0,
	8, 4, 6, 0, 2, 6, 4, 9, 5, 0, 1, 1,	2, 6, 4, 9, 5, 0, 1, 1, 2, 0, 2, 8,	2, 6, 4, 9, 5, 0, 1, 1, 2, 0, 2, 8,
	2, 0, 2, 8, 4, 7, 2, 9, 2, 3, 3, 2,	4, 7, 2, 9, 2, 3, 3, 2, 2, 3, 2, 0,	4, 7, 2, 9, 2, 3, 3, 2, 2, 3, 2, 0,
	2, 3, 2, 0, 0, 1, 8, 6, 4, 0, 1, 3,	0, 1, 8, 6, 4, 0, 1, 3, 7, 8, 4, 6,	0, 1, 8, 6, 4, 0, 1, 3, 7, 8, 4, 6,
	7, 8, 4, 6, 7, 2, 0, 3, 5, 3, 1, 8,	7, 2, 0, 3, 5, 3, 1, 8, 8, 9, 3, 2,	7, 2, 0, 3, 5, 3, 1, 8, 8, 9, 3, 2,
	8, 9, 3, 2, 8, 8, 3, 7, 5, 2, 9, 3, 7, 5, 4, 7, 4, 9, 2, 6, 9, 9, 2, 8,	8, 8, 3, 7, 5, 2, 9, 3, 7, 5, 4, 7, 4, 9, 2, 6, 9, 9, 2, 8, 3, 6, 7, 9,	8, 8, 3, 7, 5, 2, 9, 3, 7, 5, 4, 7, 4, 9, 2, 6, 9, 9, 2, 8, 3, 6, 7, 9,
	3, 6, 7, 9, 6, 9, 6, 6, 1, 5, 0, 7,	6, 9, 6, 6, 1, 5, 0, 7, 5, 6, 7, 2,	6, 9, 6, 6, 1, 5, 0, 7, 5, 6, 7, 2,
	5, 6, 7, 2, 2, 7, 3, 7, 5, 4, 1, 5,	2, 7, 3, 7, 5, 4, 1, 5, 9, 3, 6, 5,	2, 7, 3, 7, 5, 4, 1, 5, 9, 3, 6, 5,
	9, 3, 6, 5, 9, 3, 9, 4, 0, 9, 2, 0,	9, 3, 9, 4, 0, 9, 2, 0, 9, 0, 4, 9,	9, 3, 9, 4, 0, 9, 2, 0, 9, 0, 4, 9,
	9, 0, 4, 9, 2, 3, 0, 9, 1, 7, 1, 7,	2, 3, 0, 9, 1, 7, 1, 7, 6, 2, 2, 7,	2, 3, 0, 9, 1, 7, 1, 7, 6, 2, 2, 7,
	6, 2, 2, 7, 3, 0, 7, 8, 6, 0, 7, 8,	3, 0, 7, 8, 6, 0, 7, 8, 8, 6, 3, 1,	3, 0, 7, 8, 6, 0, 7, 8, 8, 6, 3, 1,

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	Test	Expected	Got
	8, 6, 3, 1, 9, 6, 3, 2, 2, 1, 4, 1,	9, 6, 3, 2, 2, 1, 4, 1, 9, 6, 6, 6,	9, 6, 3, 2, 2, 1, 4, 1, 9, 6, 6, 6,
	9, 6, 6, 6, 7, 7, 2, 1, 8, 8, 6, 8,	7, 7, 2, 1, 8, 8, 6, 8, 3, 5, 6, 3,	7, 7, 2, 1, 8, 8, 6, 8, 3, 5, 6, 3,
	3, 5, 6, 3, 2, 1, 3, 8, 0, 4, 2, 0,	2, 1, 3, 8, 0, 4, 2, 0, 6, 5, 1, 6,	2, 1, 3, 8, 0, 4, 2, 0, 6, 5, 1, 6,
	6, 5, 1, 6, 9, 5, 2, 1, 7, 4, 1, 0,	9, 5, 2, 1, 7, 4, 1, 0, 0, 7, 0, 0,	9, 5, 2, 1, 7, 4, 1, 0, 0, 7, 0, 0,
	0, 7, 0, 0, 7, 3, 8, 7, 9, 9, 3, 0,	7, 3, 8, 7, 9, 9, 3, 0, 3, 2, 3, 3,	7, 3, 8, 7, 9, 9, 3, 0, 3, 2, 3, 3,
	3, 2, 3, 3, 5, 8, 5, 1, 9, 9, 6, 4,	5, 8, 5, 1, 9, 9, 6, 4, 0, 0, 0, 8,	5, 8, 5, 1, 9, 9, 6, 4, 0, 0, 0, 8,
	0, 0, 0, 8, 1, 4, 9, 6, 2, 0, 5, 9,	1, 4, 9, 6, 2, 0, 5, 9, 5, 8, 0, 3,	1, 4, 9, 6, 2, 0, 5, 9, 5, 8, 0, 3,
	5, 8, 0, 3, 9, 2, 2, 4, 3, 4, 9, 5,	9, 2, 2, 4, 3, 4, 9, 5, 2, 6, 0, 4,	9, 2, 2, 4, 3, 4, 9, 5, 2, 6, 0, 4,
	2, 6, 0, 4, 5, 4, 0, 5, 5, 4, 6, 6,	5, 4, 0, 5, 5, 4, 6, 6, 3, 8, 2, 7,	5, 4, 0, 5, 5, 4, 6, 6, 3, 8, 2, 7,
	3, 8, 2, 7, 8, 0, 2, 5, 4, 5, 6, 3,	8, 0, 2, 5, 4, 5, 6, 3, 3, 6, 8, 1,	8, 0, 2, 5, 4, 5, 6, 3, 3, 6, 8, 1,
	3, 6, 8, 1, 0, 6, 1, 5, 7, 2, 9, 3,	0, 6, 1, 5, 7, 2, 9, 3, 1, 8, 3, 0,	0, 6, 1, 5, 7, 2, 9, 3, 1, 8, 3, 0,
	1, 8, 3, 0, 8, 8, 3, 2, 1, 7, 5, 5,	8, 8, 3, 2, 1, 7, 5, 5, 6, 0, 6, 8,	8, 8, 3, 2, 1, 7, 5, 5, 6, 0, 6, 8,
	6, 0, 6, 8, 2, 6, 9, 7, 5, 1, 1, 6,	2, 6, 9, 7, 5, 1, 1, 6, 0, 6, 2, 1,	2, 6, 9, 7, 5, 1, 1, 6, 0, 6, 2, 1,
	0, 6, 2, 1, 4, 5, 8, 7, 4, 3, 4, 6,	4, 5, 8, 7, 4, 3, 4, 6, 7, 9, 9, 8,	4, 5, 8, 7, 4, 3, 4, 6, 7, 9, 9, 8,
	7, 9, 9, 8, 2, 5, 9, 6, 5, 0, 3, 2,	2, 5, 9, 6, 5, 0, 3, 2, 5, 7, 7, 4,	2, 5, 9, 6, 5, 0, 3, 2, 5, 7, 7, 4,
	5, 7, 7, 4, 0, 8, 3, 4, 3, 2, 3, 0,	0, 8, 3, 4, 3, 2, 3, 0, 5, 6, 0, 2,	0, 8, 3, 4, 3, 2, 3, 0, 5, 6, 0, 2,
	5, 6, 0, 2, 5, 7, 0, 4, 2, 3, 0, 9,	5, 7, 0, 4, 2, 3, 0, 9, 1, 9, 3, 7,	5, 7, 0, 4, 2, 3, 0, 9, 1, 9, 3, 7,
	1, 9, 3, 7, 8, 4, 7, 0, 9, 8, 7, 3,	8, 4, 7, 0, 9, 8, 7, 3, 7, 5, 1, 7,	8, 4, 7, 0, 9, 8, 7, 3, 7, 5, 1, 7,
	7, 5, 1, 7, 7, 4, 4, 1, 7, 8, 4, 0,	7, 4, 4, 1, 7, 8, 4, 0, 6, 4, 9, 5,	7, 4, 4, 1, 7, 8, 4, 0, 6, 4, 9, 5,
	6, 4, 9, 5, 4, 5, 3, 7, 3, 3, 7, 2,	4, 5, 3, 7, 3, 3, 7, 2, 1, 6, 3, 4,	4, 5, 3, 7, 3, 3, 7, 2, 1, 6, 3, 4,
	1, 6, 3, 4, 6, 3, 1, 5, 9, 7, 3, 6,	6, 3, 1, 5, 9, 7, 3, 6, 2, 0, 9, 7,	6, 3, 1, 5, 9, 7, 3, 6, 2, 0, 9, 7,
	2, 0, 9, 7, 0, 0, 3, 1, 5, 6, 3, 8,	0, 0, 3, 1, 5, 6, 3, 8, 2, 1, 6, 3,	0, 0, 3, 1, 5, 6, 3, 8, 2, 1, 6, 3,
	2, 1, 6, 3, 4, 8, 9, 2, 3, 5, 9, 1,	4, 8, 9, 2, 3, 5, 9, 1, 4, 6, 9, 5,	4, 8, 9, 2, 3, 5, 9, 1, 4, 6, 9, 5,
	4, 6, 9, 5, 8, 6, 6, 3, 4, 7, 2, 3,	8, 6, 6, 3, 4, 7, 2, 3, 7, 0, 2, 2,	8, 6, 6, 3, 4, 7, 2, 3, 7, 0, 2, 2,
	7, 0, 2, 2, 7, 6, 8, 9, 9, 7, 2, 0,	7, 6, 8, 9, 9, 7, 2, 0, 9, 0, 3, 9,	7, 6, 8, 9, 9, 7, 2, 0, 9, 0, 3, 9,
	9, 0, 3, 9, 6, 5, 9, 4, 3, 6, 8, 4,	6, 5, 9, 4, 3, 6, 8, 4, 3, 1, 0, 7,	6, 5, 9, 4, 3, 6, 8, 4, 3, 1, 0, 7,
	3, 1, 0, 7, 2, 7, 3, 9, 3, 2, 0, 1,	2, 7, 3, 9, 3, 2, 0, 1, 9, 2, 3, 9,	2, 7, 3, 9, 3, 2, 0, 1, 9, 2, 3, 9,
	9, 2, 3, 9, 1, 3, 3, 6, 5, 6, 5, 5,	1, 3, 3, 6, 5, 6, 5, 5, 5, 9, 1, 4,	1, 3, 3, 6, 5, 6, 5, 5, 5, 9, 1, 4,
	5, 9, 1, 4, 6, 5, 4, 3, 2, 8, 7, 0,	6, 5, 4, 3, 2, 8, 7, 0, 1, 4, 4, 8,	6, 5, 4, 3, 2, 8, 7, 0, 1, 4, 4, 8,
	1, 4, 4, 8, 9, 7, 4, 1, 1, 9, 4, 1,	9, 7, 4, 1, 1, 9, 4, 1, 0, 9, 5, 8,	9, 7, 4, 1, 1, 9, 4, 1, 0, 9, 5, 8,
	0, 9, 5, 8, 6, 6, 9, 1, 5, 6, 0,	6, 6, 9, 1, 5, 6, 0, 8, 0, 3, 3,	6, 6, 9, 1, 5, 6, 0, 8, 0, 3, 3,
	snip 9, 5, 6, 1, 4, 6, 9, 4,	snip 3, 0, 7, 6, 6, 4, 1, 7,	snip 3, 0, 7, 6, 6, 4, 1, 7,
	3, 9, 1, 1, 9, 6, 7, 6, 3, 5, 9, 1,	5, 1, 2, 9, 2, 6, 3, 8, 7, 6, 7, 2,	5, 1, 2, 9, 2, 6, 3, 8, 7, 6, 7, 2,
	7, 4, 9, 6, 9, 4, 1, 6, 9, 3, 3, 6,	9, 1, 3, 0, 2, 5, 8, 1, 1, 8, 9, 9,	9, 1, 3, 0, 2, 5, 8, 1, 1, 8, 9, 9,
	1, 2, 4, 0, 2, 5, 7, 3, 0, 3, 5, 8,	7, 5, 9, 9, 4, 7, 5, 1, 5, 2, 0, 0,	7, 5, 9, 9, 4, 7, 5, 1, 5, 2, 0, 0,
	8, 4, 6, 4, 2, 8, 0, 5, 9, 1, 2, 2,	5, 9, 8, 0, 4, 1, 1, 1, 6, 7, 5, 6,	5, 9, 8, 0, 4, 1, 1, 1, 6, 7, 5, 6, 3, 4, 0, 5, 9, 8, 4, 0, 9, 8, 8, 8,
	8, 0, 3, 0, 7, 8, 1, 8, 3, 5, 2, 1, 5, 0, 4, 0, 1, 5, 7, 4, 7, 0, 7, 2,	3, 4, 0, 5, 9, 8, 4, 0, 9, 8, 8, 8, 2, 3, 7, 5, 5, 5, 5, 7, 2, 6, 1, 0,	2, 3, 7, 5, 5, 5, 5, 7, 2, 6, 1, 0,
	9, 9, 4, 7, 9, 1, 7, 2, 9, 3, 7, 6,	2, 3, 1, 1, 9, 5, 1, 4, 5, 9, 1, 9,	2, 3, 1, 1, 9, 5, 1, 4, 5, 9, 1, 9,
	0, 5, 2, 5, 0, 3, 4, 0, 7, 0, 0, 8,	6, 5, 1, 7, 4, 1, 3, 0, 7, 6, 6, 3,	6, 5, 1, 7, 4, 1, 3, 0, 7, 6, 6, 3,
	6, 3, 3, 0, 9, 6, 7, 2, 3, 5, 9, 7,	8, 8, 9, 3, 8, 6, 5, 4, 1, 7, 3, 5,	8, 8, 9, 3, 8, 6, 5, 4, 1, 7, 3, 5,
	2, 4, 3, 4, 1, 2, 1, 4, 7, 7, 9, 1,	8, 0, 9, 8, 5, 3, 2, 6, 4, 4, 1, 6,	8, 0, 9, 8, 5, 3, 2, 6, 4, 4, 1, 6,
	1, 3, 0, 5, 5, 1, 4, 5, 4, 5, 1, 8,	3, 1, 5, 9, 9, 7, 9, 4, 4, 2, 8, 3,	3, 1, 5, 9, 9, 7, 9, 4, 4, 2, 8, 3,
	0, 2, 7, 4, 2, 4, 2, 9, 6, 6, 4, 6,	6, 0, 9, 8, 5, 1, 2, 3, 3, 7, 5, 7,	6, 0, 9, 8, 5, 1, 2, 3, 3, 7, 5, 7,
	7, 9, 5, 6, 8, 4, 8, 9, 0, 2, 2, 4,	0, 1, 2, 8, 3, 4, 4, 9, 3, 0, 2, 7,	0, 1, 2, 8, 3, 4, 4, 9, 3, 0, 2, 7,
	2, 5, 2, 2, 0, 3, 5, 4, 5, 1, 9, 7,	3, 2, 6, 4, 5, 3, 4, 9, 7, 1, 5, 8,	3, 2, 6, 4, 5, 3, 4, 9, 7, 1, 5, 8,
	6, 7, 5, 0, 4, 2, 7, 5, 2, 3, 0, 4,	7, 9, 9, 1, 7, 3, 1, 3, 5, 4, 4, 5,	7, 9, 9, 1, 7, 3, 1, 3, 5, 4, 4, 5,
	1, 6, 4, 3, 8, 2, 2, 0, 9, 6, 7, 1,	4, 4, 8, 2, 1, 0, 5, 2, 3, 8, 2, 9,	4, 4, 8, 2, 1, 0, 5, 2, 3, 8, 2, 9,
	1, 0, 8, 5, 5, 0, 6, 3, 7, 0, 0, 2,	2, 4, 3, 3, 7, 8, 1, 5, 5, 0, 4, 5,	2, 4, 3, 3, 7, 8, 1, 5, 5, 0, 4, 5,
	3, 5, 8, 9, 9, 6, 8, 7, 5, 1, 2, 5,	2, 7, 7, 0, 8, 0, 4, 1, 9, 2, 0, 1,	2, 7, 7, 0, 8, 0, 4, 1, 9, 2, 0, 1,
	0, 5, 8, 8, 1, 8, 6, 0, 0, 4, 0, 1,	6, 3, 9, 8, 3, 8, 3, 7, 1, 2, 5, 9,	6, 3, 9, 8, 3, 8, 3, 7, 1, 2, 5, 9,
	3, 0, 2, 9, 1, 4, 9, 7, 2, 4, 8, 5,	1, 2, 9, 7, 4, 2, 4, 5, 5, 7, 9, 6,	1, 2, 9, 7, 4, 2, 4, 5, 5, 7, 9, 6,
	0, 5, 4, 9, 4, 1, 6, 8, 9, 0, 8, 0,	9, 0, 6, 8, 0, 5, 3, 9, 1, 9, 9, 5,	9, 0, 6, 8, 0, 5, 3, 9, 1, 9, 9, 5,
	0, 1, 7, 0, 4, 7, 2, 4, 2, 6, 5, 3,	6, 1, 0, 6, 2, 0, 8, 1, 1, 2, 3, 5,	6, 1, 0, 6, 2, 0, 8, 1, 1, 2, 3, 5,
	1, 4, 3, 8, 8, 9, 7, 7, 6, 9, 5, 0,	6, 8, 6, 6, 4, 8, 7, 5, 4, 2, 7, 6,	6, 8, 6, 6, 4, 8, 7, 5, 4, 2, 7, 6,
	7, 2, 4, 6, 4, 6, 0, 8, 9, 1, 2, 7,	8, 0, 9, 2, 9, 5, 3, 3, 0, 6, 4, 8,	8, 0, 9, 2, 9, 5, 3, 3, 0, 6, 4, 8,
	6, 8, 1, 3, 2, 4, 1, 9, 3, 8, 4, 2,	8, 1, 6, 0, 5, 8, 6, 6, 1, 1, 0, 3,	8, 1, 6, 0, 5, 8, 6, 6, 1, 1, 0, 3,
	6, 2, 5, 7, 8, 2, 7, 5, 7, 2, 2, 5,	7, 4, 3, 0, 0, 3, 4, 0, 7, 0, 7, 1,	7, 4, 3, 0, 0, 3, 4, 0, 7, 0, 7, 1,
	6, 6, 3, 0, 6, 8, 3, 6, 8, 6, 1, 8,	3, 7, 5, 7, 5, 8, 9, 3, 5, 8, 8, 8,	3, 7, 5, 7, 5, 8, 9, 3, 5, 8, 8, 8,
	0, 2, 8, 4, 4, 9, 1, 9, 3, 4, 6, 0,	4, 5, 1, 2, 8, 6, 9, 6, 9, 2, 7, 6,	4, 5, 1, 2, 8, 6, 9, 6, 9, 2, 7, 6,

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	Test	Expected	Got
	3, 3, 0, 6, 7, 1, 4, 6, 4, 2, 3, 5,	9, 9, 4, 0, 8, 0, 4, 3, 5, 2, 0, 3,	9, 9, 4, 0, 8, 0, 4, 3, 5, 2, 0, 3,
	5, 2, 6, 5, 9, 5, 0, 5, 6, 3, 2, 8,	2, 6, 5, 8, 5, 2, 9, 8, 6, 9, 8, 1,	2, 6, 5, 8, 5, 2, 9, 8, 6, 9, 8, 1,
	1, 9, 7, 7, 4, 0, 7, 2, 4, 5, 5, 6,	7, 4, 9, 0, 2, 6, 8, 1, 9, 9, 1, 3,	7, 4, 9, 0, 2, 6, 8, 1, 9, 9, 1, 3,
	2, 3, 9, 9, 7, 8, 7, 2, 1, 3, 6, 4,	4, 5, 4, 1, 1, 7, 5, 2, 0, 4, 3, 5,	4, 5, 4, 1, 1, 7, 5, 2, 0, 4, 3, 5,
	3, 2, 7, 3, 7, 6, 2, 5, 1, 7, 4, 7,	3, 1, 4, 0, 7, 7, 9, 1, 8, 6, 3, 9,	3, 1, 4, 0, 7, 7, 9, 1, 8, 6, 3, 9,
	2, 3, 4, 5, 2, 2, 9, 8, 3, 3, 0, 2,	0, 7, 7, 4, 7, 4, 3, 8, 2, 6, 4, 0,	0, 7, 7, 4, 7, 4, 3, 8, 2, 6, 4, 0,
	8, 8, 6, 3, 7, 3, 0, 4, 8, 6, 1, 1,	5, 8, 8, 7, 2, 7, 3, 2, 3, 8, 7, 1,	5, 8, 8, 7, 2, 7, 3, 2, 3, 8, 7, 1,
	1, 2, 2, 7, 3, 2, 0, 7, 1, 9, 4, 8,	3, 3, 7, 2, 2, 1, 6, 3, 4, 6, 5, 3,	3, 3, 7, 2, 2, 1, 6, 3, 4, 6, 5, 3,
	0, 3, 4, 7, 3, 4, 3, 8, 1, 2, 2, 6,	4, 0, 2, 1, 2, 5, 1, 2, 6, 9, 6, 8,	4, 0, 2, 1, 2, 5, 1, 2, 6, 9, 6, 8,
	3, 2, 8, 1, 1, 7, 6, 5, 3, 5, 7, 5,	0, 9, 7, 7, 8, 8, 6, 9, 7, 8, 1, 5,	0, 9, 7, 7, 8, 8, 6, 9, 7, 8, 1, 5,
	6, 6, 7, 9, 8, 4, 8, 4, 0, 1, 1, 7,	3, 3, 8, 8, 4, 7, 6, 2, 2, 7, 0, 6,	3, 3, 8, 8, 4, 7, 6, 2, 2, 7, 0, 6,
	0, 5, 5, 7, 3, 0, 9, 3, 3, 5, 9, 7,	8, 1, 5, 2, 5, 6, 2, 1, 2, 4, 9, 2,	8, 1, 5, 2, 5, 6, 2, 1, 2, 4, 9, 2,
	1, 1, 3, 9, 6, 7, 8, 4, 7, 4, 5, 5,	6, 0, 2, 8, 0, 9, 9, 4, 7, 5, 4, 6,	6, 0, 2, 8, 0, 9, 9, 4, 7, 5, 4, 6,
	8, 0, 6, 2, 7, 4, 6, 0, 3, 0, 4, 6,	6, 5, 2, 3, 9, 2, 7, 0, 6, 7, 1, 5,	6, 5, 2, 3, 9, 2, 7, 0, 6, 7, 1, 5,
	5, 8, 0, 3, 4, 7, 9, 3, 8, 5, 2, 1,	4, 9, 8, 3, 2, 1, 4, 7, 9, 9, 6, 9,	4, 9, 8, 3, 2, 1, 4, 7, 9, 9, 6, 9,
	6, 0, 9, 0, 4, 7, 9, 2, 0, 7, 2, 5,	6, 6, 6, 0, 9, 8, 5, 7, 3, 4, 8, 0,	6, 6, 6, 0, 9, 8, 5, 7, 3, 4, 8, 0,
	6, 4, 9, 4, 1, 0, 8, 5, 6, 2, 0, 8,	4, 1, 1, 0, 9, 8, 4, 1, 7, 3, 1, 1,	4, 1, 1, 0, 9, 8, 4, 1, 7, 3, 1, 1,
	0, 1, 4, 9, 0, 2, 3, 8, 3, 2, 4, 3,	2, 5, 4, 4, 6, 2, 7, 4, 5, 8, 5, 3,	2, 5, 4, 4, 6, 2, 7, 4, 5, 8, 5, 3,
	0, 1, 0, 5, 3, 3, 2, 2, 8, 6, 0, 1,	0, 7, 1, 7, 3, 8, 5, 1, 1, 7, 2, 2,	0, 7, 1, 7, 3, 8, 5, 1, 1, 7, 2, 2,
	1, 3, 1, 6, 1, 0, 3, 0, 6, 3, 8, 1,	4, 3, 4, 5, 4, 3, 0, 3, 7, 2, 0, 9,	4, 3, 4, 5, 4, 3, 0, 3, 7, 2, 0, 9,
	0, 1, 0, 2, 2, 7, 1, 1, 1, 4, 6, 2,	3, 4, 2, 4, 3, 5, 7, 8, 4, 7, 4, 9,	3, 4, 2, 4, 3, 5, 7, 8, 4, 7, 4, 9,
	2, 0, 8, 6, 6, 5, 9, 1, 0, 3, 1, 8,	5, 6, 4, 5, 0, 5, 2, 9, 6, 9, 3, 5,	5, 6, 4, 5, 0, 5, 2, 9, 6, 9, 3, 5,
	2, 9, 2, 0, 8, 5, 2, 2, 6, 1, 1, 5,	6, 9, 9, 0, 5, 2, 1, 0, 4, 6, 1, 1,	6, 9, 9, 0, 5, 2, 1, 0, 4, 6, 1, 1,
	3, 1, 0, 3, 3, 1, 8, 7, 8, 4, 1, 0,	7, 8, 8, 5, 3, 5, 8, 1, 1, 2, 6, 8,	7, 8, 8, 5, 3, 5, 8, 1, 1, 2, 6, 8,
	1, 4, 2, 6, 5, 6, 9, 1, 8, 2, 1, 8,	1, 8, 2, 3, 9, 3, 0, 5, 8, 0, 0, 6,	1, 8, 2, 3, 9, 3, 0, 5, 8, 0, 0, 6,
	6, 0, 0, 2, 5, 6, 6, 6, 5, 6, 0, 2,	2, 4, 0, 2, 6, 2, 2, 8, 7, 1, 8, 6,	2, 4, 0, 2, 6, 2, 2, 8, 7, 1, 8, 6,
	3, 2, 0, 4, 5, 3, 8, 5, 2, 1, 1, 1,	8, 2, 7, 9, 3, 6, 3, 5, 7, 1, 7, 0,	8, 2, 7, 9, 3, 6, 3, 5, 7, 1, 7, 0,
	7, 1, 3, 6, 7, 6, 0, 9, 3, 5, 3, 6,	8, 6, 6, 6, 5, 2, 6, 3, 2, 6, 3, 5,	8, 6, 6, 6, 5, 2, 6, 3, 2, 6, 3, 5,
	5, 4, 8, 9, 9, 0, 9, 6, 8, 9, 6, 2,	6, 5, 2, 3, 1, 7, 0, 2, 3, 2, 3, 3,	6, 5, 2, 3, 1, 7, 0, 2, 3, 2, 3, 3,
	6, 2, 3, 5, 0, 7, 3, 5, 1, 8, 6, 9,	0, 6, 1, 5, 1, 1, 0, 2, 1, 7, 8, 8,	0, 6, 1, 5, 1, 1, 0, 2, 1, 7, 8, 8,
	4, 5, 9, 6, 8, 6, 1, 2, 0, 6, 5, 1, 0, 8, 5, 5, 6, 6, 8, 5, 0, 4, 5, 4,	6, 7, 2, 9, 6, 1, 0, 1, 2, 5, 0, 0,	6, 7, 2, 9, 6, 1, 0, 1, 2, 5, 0, 0,
	0, 5, 6, 4, 0, 5, 5, 0, 1, 1, 6, 2,	6, 5, 7, 7, 4, 6, 4, 7, 4, 1, 5, 6, 3, 1, 7, 5, 6, 4, 4, 2, 8, 5, 7, 6,	6, 5, 7, 7, 4, 6, 4, 7, 4, 1, 5, 6, 3, 1, 7, 5, 6, 4, 4, 2, 8, 5, 7, 6,
	9, 6, 1, 4, 0, 9, 8, 6, 7, 3, 0, 3,	2, 8, 1, 2, 2, 0, 8, 9, 3, 5, 6, 4,	2, 8, 1, 2, 2, 0, 8, 9, 3, 5, 6, 4,
	7, 2, 8, 5, 6, 0, 8, 4, 2, 9, 9, 4,	3, 4, 0, 9, 7, 7, 0, 0, 9, 8, 8, 9,	3, 4, 0, 9, 7, 7, 0, 0, 9, 8, 8, 9,
	8, 7, 8, 4, 7, 1, 3, 7, 0, 8, 3, 9,	6, 4, 6, 6, 4, 8, 0, 8, 2, 8, 0, 0,	6, 4, 6, 6, 4, 8, 0, 8, 2, 8, 0, 0,
	3, 1, 0, 8, 7, 8, 4, 5, 2, 7, 4, 9,	4, 1, 3, 0, 2, 9, 7, 3, 3, 0, 5, 9,	4, 1, 3, 0, 2, 9, 7, 3, 3, 0, 5, 9,
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	7, 6, 8, 7, 6, 0, 1, 3, 6, 1, 3, 6,	7, 5, 9, 1, 9, 6, 5, 3, 4, 5, 3, 6,	7, 5, 9, 1, 9, 6, 5, 3, 4, 5, 3, 6,
	5, 1, 7, 1, 7, 6, 3, 6, 8, 0, 5, 4,	1, 0, 4, 3, 0, 9, 3, 8, 8, 9, 7, 3,	1, 0, 4, 3, 0, 9, 3, 8, 8, 9, 7, 3,
	2, 2, 2, 8, 3, 9, 8, 7, 8, 5, 2, 6,	0, 4, 2, 4, 9, 7, 4, 3, 2, 2, 8, 9,	0, 4, 2, 4, 9, 7, 4, 3, 2, 2, 8, 9,
	5, 3, 2, 1, 0, 8, 7, 4, 4, 8, 9, 7,	2, 5, 0, 9, 3, 2, 1, 9, 3, 2, 3, 2,	2, 5, 0, 9, 3, 2, 1, 9, 3, 2, 3, 2,
	9, 4, 1, 4, 6, 5, 3, 2, 8, 6, 8, 8,	8, 0, 2, 5, 1, 6, 8, 3, 1, 7, 8, 2,	8, 0, 2, 5, 1, 6, 8, 3, 1, 7, 8, 2,
	2, 0, 1, 5, 3, 8, 5, 9, 8, 0, 3, 5,	6, 2, 0, 2, 7, 2, 6, 7, 3, 6, 1, 5,	6, 2, 0, 2, 7, 2, 6, 7, 3, 6, 1, 5,
	8, 4, 6, 5, 0, 4, 0, 6, 6, 0, 1, 5,	6, 3, 0, 4, 6, 4, 4, 2, 4, 1, 6, 0,	6, 3, 0, 4, 6, 4, 4, 2, 4, 1, 6, 0,
	0, 2, 4, 6, 8, 9, 7, 9, 4, 3, 9, 3,	5, 5, 9, 3, 8, 4, 3, 4, 9, 6, 2, 0,	5, 5, 9, 3, 8, 4, 3, 4, 9, 6, 2, 0,
	6, 9, 3, 7, 2, 3, 2, 5, 8, 8, 0, 5,	4, 6, 0, 5, 0, 9, 0, 9, 7, 6, 8, 7,	4, 6, 0, 5, 0, 9, 0, 9, 7, 6, 8, 7,
	2, 4, 2, 9, 2, 6, 4, 4, 1, 2, 1, 6,	0, 7, 3, 6, 1, 8, 4, 2, 8, 7, 0, 2,	0, 7, 3, 6, 1, 8, 4, 2, 8, 7, 0, 2,
	7, 3, 7, 1, 7, 8, 9, 7, 6, 2, 8, 7,	5, 4, 0, 5, 7, 4, 8, 5, 1, 2, 2, 1,	5, 4, 0, 5, 7, 4, 8, 5, 1, 2, 2, 1,
	8, 3, 2, 6, 3, 7, 0, 2, 5, 5, 1, 4,	6, 5, 0, 9, 4, 6, 2, 7, 7, 4, 2, 9,	6, 5, 0, 9, 4, 6, 2, 7, 7, 4, 2, 9,
	1, 6, 2, 9, 5, 9, 4, 3, 2, 8, 7, 4,	7, 6, 7, 5, 0, 5, 5, 2, 8, 8, 8, 8,	7, 6, 7, 5, 0, 5, 5, 2, 8, 8, 8, 8,
	8, 5, 1, 2, 9, 5, 0, 7, 3, 1, 7, 0,	2, 0, 6, 2, 1, 8, 9, 5, 1, 2, 8, 1,	2, 0, 6, 2, 1, 8, 9, 5, 1, 2, 8, 1,
	8, 3, 6, 5, 8, 5, 2, 7, 5, 0, 3, 0,	5, 5, 7, 2, 8, 6, 1, 9, 6, 9, 4, 1,	5, 5, 7, 2, 8, 6, 1, 9, 6, 9, 4, 1,
	7, 3, 0, 6, 1, 5, 5, 5, 1, 5, 8, 2,	0, 0, 9, 4, 1, 1, 3, 9, 8, 1, 0, 4,	0, 0, 9, 4, 1, 1, 3, 9, 8, 1, 0, 4,
	3, 2, 3, 6, 0, 1, 5, 1, 2, 2, 3, 6, 0, 4, 1, 9, 1, 4, 1, 7, 6, 4, 6, 6,	3, 2, 6, 5, 9, 8, 3, 7, 9, 4, 0, 6, 8, 8, 4, 1, 5, 0, 5, 6, 3, 3, 1, 0,	3, 2, 6, 5, 9, 8, 3, 7, 9, 4, 0, 6, 8, 8, 4, 1, 5, 0, 5, 6, 3, 3, 1, 0,
	5, 7, 5, 4, 1, 1, 0, 4, 7, 6, 1, 6,	9, 3, 7, 6, 8, 7, 8, 1, 1, 0, 3, 1,	9, 3, 7, 6, 8, 7, 8, 1, 1, 0, 3, 1,
	8, 9, 6, 3, 2, 1, 5, 1, 0, 2, 8, 6,	8, 9, 7, 9, 1, 8, 5, 8, 3, 3, 0, 7,	8, 9, 7, 9, 1, 8, 5, 8, 3, 3, 0, 7,
	6, 6, 2, 3, 5, 2, 6, 7, 1, 9, 9, 2,	2, 3, 8, 9, 5, 0, 9, 4, 7, 7, 5, 6,	2, 3, 8, 9, 5, 0, 9, 4, 7, 7, 5, 6,
	2, 6, 5, 8, 0, 4, 3, 1, 9, 6, 8, 7,	2, 2, 2, 6, 5, 3, 1, 9, 5, 1, 4, 7,	2, 2, 2, 6, 5, 3, 1, 9, 5, 1, 4, 7,
	, , , , , , , -, -, , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,	

Test	Expected	Got
4, 0, 3, 3, 7, 1, 3, 0, 2, 9, 1, 5,	7, 4, 6, 6, 1, 6, 0, 6, 3, 8, 0, 4,	7, 4, 6, 6, 1, 6, 0, 6, 3, 8, 0, 4,
7, 7, 6, 7, 8, 4, 5, 7, 5, 5, 5, 4,	2, 2, 0, 5, 3, 9, 8, 7, 6, 3, 5, 1,	2, 2, 0, 5, 3, 9, 8, 7, 6, 3, 5, 1,
9, 7, 2, 6, 6, 5, 3, 2, 1, 1, 9, 8,	9, 4, 5, 0, 7, 9, 1, 9, 1, 3, 6, 3,	9, 4, 5, 0, 7, 9, 1, 9, 1, 3, 6, 3,
9, 1, 6, 7, 8, 4, 6, 1, 7, 5, 1, 9,	2, 3, 9, 2, 5, 6, 0, 2, 7, 2, 7, 9,	2, 3, 9, 2, 5, 6, 0, 2, 7, 2, 7, 9,
3, 0, 5, 1, 1, 4, 2, 5, 1, 5, 2, 7,	1, 5, 1, 4, 3, 9, 8, 6, 2, 1, 9, 0,	1, 5, 1, 4, 3, 9, 8, 6, 2, 1, 9, 0,
4, 7, 9, 8, 9, 2, 0, 2, 9, 9, 6, 8,	2, 8, 1, 9, 3, 5, 2, 7, 7, 9, 9, 9,	2, 8, 1, 9, 3, 5, 2, 7, 7, 9, 9, 9,
4, 0, 9, 5, 6, 0, 8, 7, 1, 3, 1, 3,	6, 6, 6, 7, 6, 1, 2, 7, 6, 4, 0, 9,	6, 6, 6, 7, 6, 1, 2, 7, 6, 4, 0, 9,
1, 7, 3, 5, 2, 7, 2, 4, 2, 4, 4, 3,	5, 6, 7, 5, 1, 3, 7, 7, 8, 1, 6, 8,	5, 6, 7, 5, 1, 3, 7, 7, 8, 1, 6, 8,
7, 0, 8, 2, 1, 2, 0, 5, 6, 3, 6, 9,	4, 5, 4, 7, 2, 4, 0, 1, 4, 8, 1, 2,	4, 5, 4, 7, 2, 4, 0, 1, 4, 8, 1, 2,
6, 4, 7, 1, 7, 2, 1, 7, 6, 7, 0, 1,	3, 0, 8, 8, 0, 5, 0, 5, 8, 4, 7, 8,	3, 0, 8, 8, 0, 5, 0, 5, 8, 4, 7, 8,
6, 8, 6, 5, 1, 6, 0, 8, 5, 7, 4, 9,	7, 0, 0, 0, 5, 0, 1, 0, 0, 1, 5, 5,	7, 0, 0, 0, 5, 0, 1, 0, 0, 1, 5, 5,
5, 9, 2, 6, 4, 9, 3, 4, 4, 6, 7, 6,	1, 4, 5, 7, 6, 8, 4, 9, 9, 6, 5, 6,	1, 4, 5, 7, 6, 8, 4, 9, 9, 6, 5, 6,
6, 6, 5, 0, 4, 9, 4, 3, 9, 2, 6, 3,	5, 2, 9, 2, 7, 6, 3, 5, 5, 0, 5, 9,	5, 2, 9, 2, 7, 6, 3, 5, 5, 0, 5, 9,
0, 7, 6, 5, 6, 8, 8, 7, 6, 4, 5, 1,	0, 4, 7, 1, 7, 9, 8, 1, 5, 5, 1, 5,	0, 4, 7, 1, 7, 9, 8, 1, 5, 5, 1, 5,
8, 1, 4, 4, 3, 5, 6, 2, 2, 8, 8, 8,	4, 5, 9, 6, 6, 8, 8, 7, 0, 7, 2, 4,	4, 5, 9, 6, 6, 8, 8, 7, 0, 7, 2, 4,
0, 5, 8, 9, 0, 9, 0, 7, 0, 2, 6, 2,	4, 4, 3, 1, 4, 5, 9, 8, 0, 8, 4, 9,	4, 4, 3, 1, 4, 5, 9, 8, 0, 8, 4, 9,
3, 8, 1, 6, 5};	2, 4, 1, 9, 9, 1, 9, 5, 3, 3, 1, 9,	2, 4, 1, 9, 9, 1, 9, 5, 3, 3, 1, 9,
int k = 11111;	2, 6, 0, 3, 3, 3, 0, 3, 9, 1, 2, 4,	2, 6, 0, 3, 3, 3, 0, 3, 9, 1, 2, 4,
LLNode* head =	5, 3, 5, 7, 9, 7, 7, 4, 6, 9, 7, 5,	5, 3, 5, 7, 9, 7, 7, 4, 6, 9, 7, 5,
LLNode::createWithIterators(arr, arr	9, 9, 5, 2, 5, 9, 7, 0, 4, 3, 1, 4,	9, 9, 5, 2, 5, 9, 7, 0, 4, 3, 1, 4,
+ sizeof(arr) / sizeof(int));	3, 6, 1, 8, 5, 8, 8, 3, 7, 1, 5, 3,	3, 6, 1, 8, 5, 8, 8, 3, 7, 1, 5, 3,
LLNode::printList(head);	5, 0, 3, 4, 3, 7, 9, 6, 9, 6, 9, 6,	5, 0, 3, 4, 3, 7, 9, 6, 9, 6, 9, 6,
cout << "\n";	6, 4, 7]	6, 4, 7]
LLNode* newhead =	0, 4, 7]	0, 4, 7]
rotateLinkedList(head, k);		
LLNode::printList(newhead);		
Eliouepi interse(newicau);		
int arr[] = {4, 3, 0, 1, 8, 3, 3, 8,	[4, 3, 0, 1, 8, 3, 3, 8, 6, 8, 6, 6,	[4, 3, 0, 1, 8, 3, 3, 8, 6, 8, 6, 6,
6, 8, 6, 6, 4, 4, 9, 4, 6, 0, 6, 5,	4, 4, 9, 4, 6, 0, 6, 5, 2, 2, 9, 9,	4, 4, 9, 4, 6, 0, 6, 5, 2, 2, 9, 9,
2, 2, 9, 9, 1, 6, 2, 8, 1, 5, 8, 6,	1, 6, 2, 8, 1, 5, 8, 6, 5, 4, 0, 9,	1, 6, 2, 8, 1, 5, 8, 6, 5, 4, 0, 9,
5, 4, 0, 9, 9, 6, 2, 8, 1, 7, 2, 6,	9, 6, 2, 8, 1, 7, 2, 6, 4, 9, 8, 1,	9, 6, 2, 8, 1, 7, 2, 6, 4, 9, 8, 1,
4, 9, 8, 1, 7, 6, 6, 2, 4, 5, 5, 0,	7, 6, 6, 2, 4, 5, 5, 0, 6, 8, 9, 3,	7, 6, 6, 2, 4, 5, 5, 0, 6, 8, 9, 3,
6, 8, 9, 3, 6, 2, 7, 3, 0, 2, 6, 8,	6, 2, 7, 3, 0, 2, 6, 8, 9, 9, 6, 8,	6, 2, 7, 3, 0, 2, 6, 8, 9, 9, 6, 8,
9, 9, 6, 8, 2, 5, 0, 8, 0, 9, 7, 5,	2, 5, 0, 8, 0, 9, 7, 5, 6, 4, 5, 3,	2, 5, 0, 8, 0, 9, 7, 5, 6, 4, 5, 3,
6, 4, 5, 3, 1, 5, 5, 1, 4, 4, 9, 1,	1, 5, 5, 1, 4, 4, 9, 1, 0, 2, 3, 5,	1, 5, 5, 1, 4, 4, 9, 1, 0, 2, 3, 5,
0, 2, 3, 5, 4, 9, 3, 2, 2, 3, 9, 7,	4, 9, 3, 2, 2, 3, 9, 7, 8, 6, 7, 7,	4, 9, 3, 2, 2, 3, 9, 7, 8, 6, 7, 7,
8, 6, 7, 7, 4, 4, 8, 0, 6, 6, 2, 5,	4, 4, 8, 0, 6, 6, 2, 5, 8, 7, 6, 8,	4, 4, 8, 0, 6, 6, 2, 5, 8, 7, 6, 8,
8, 7, 6, 8, 7, 1, 7, 6, 1, 9, 2, 0,	7, 1, 7, 6, 1, 9, 2, 0, 3, 7, 1, 0,	7, 1, 7, 6, 1, 9, 2, 0, 3, 7, 1, 0,
3, 7, 1, 0, 0, 4, 5, 4, 4, 2, 9, 4,	0, 4, 5, 4, 4, 2, 9, 4, 6, 4, 5, 0,	0, 4, 5, 4, 4, 2, 9, 4, 6, 4, 5, 0,
6, 4, 5, 0, 8, 3, 9, 8, 2, 4, 9, 2,	8, 3, 9, 8, 2, 4, 9, 2, 4, 2, 6, 5,	8, 3, 9, 8, 2, 4, 9, 2, 4, 2, 6, 5,
4, 2, 6, 5, 2, 3, 5, 3, 8, 7, 6, 1,	2, 3, 5, 3, 8, 7, 6, 1, 2, 7, 9, 8,	2, 3, 5, 3, 8, 7, 6, 1, 2, 7, 9, 8,
2, 7, 9, 8, 7, 4, 8, 5, 4, 3, 1, 6,	7, 4, 8, 5, 4, 3, 1, 6, 0, 6, 6, 9,	7, 4, 8, 5, 4, 3, 1, 6, 0, 6, 6, 9,
0, 6, 6, 9, 4, 0, 4, 0, 0, 7, 8, 9,	4, 0, 4, 0, 0, 7, 8, 9, 4, 6, 7, 4,	4, 0, 4, 0, 0, 7, 8, 9, 4, 6, 7, 4,
4, 6, 7, 4, 3, 3, 7, 8, 7, 5, 7, 7,	3, 3, 7, 8, 7, 5, 7, 7, 9, 6, 1, 9,	3, 3, 7, 8, 7, 5, 7, 7, 9, 6, 1, 9,
9, 6, 1, 9, 4, 4, 1, 0, 9, 1, 2, 4,	4, 4, 1, 0, 9, 1, 2, 4, 8, 3, 1, 1,	4, 4, 1, 0, 9, 1, 2, 4, 8, 3, 1, 1,
8, 3, 1, 1, 7, 1, 7, 5, 5, 7, 1, 1,	7, 1, 7, 5, 5, 7, 1, 1, 1, 0, 0, 6,	7, 1, 7, 5, 5, 7, 1, 1, 1, 0, 0, 6,
1, 0, 0, 6, 7, 2, 3, 6, 6, 1, 4, 6,	7, 2, 3, 6, 6, 1, 4, 6, 8, 9, 7, 0,	7, 2, 3, 6, 6, 1, 4, 6, 8, 9, 7, 0,
8, 9, 7, 0, 8, 7, 8, 8, 0, 9, 0, 0,	8, 7, 8, 8, 0, 9, 0, 0, 2, 0, 5, 4,	8, 7, 8, 8, 0, 9, 0, 0, 2, 0, 5, 4,
2, 0, 5, 4, 6, 2, 3, 2, 1, 7, 5, 5,	6, 2, 3, 2, 1, 7, 5, 5, 7, 6, 3, 4,	6, 2, 3, 2, 1, 7, 5, 5, 7, 6, 3, 4,
7, 6, 3, 4, 2, 0, 1, 7, 7, 0, 5, 9,	2, 0, 1, 7, 7, 0, 5, 9, 3, 0, 6, 6,	2, 0, 1, 7, 7, 0, 5, 9, 3, 0, 6, 6,
3, 0, 6, 6, 1, 0, 2, 1, 6, 2, 4, 9,	1, 0, 2, 1, 6, 2, 4, 9, 8, 5, 4, 5,	1, 0, 2, 1, 6, 2, 4, 9, 8, 5, 4, 5,
8, 5, 4, 5, 3, 2, 9, 9, 8, 4, 0, 0,	3, 2, 9, 9, 8, 4, 0, 0, 7, 3, 1, 2,	3, 2, 9, 9, 8, 4, 0, 0, 7, 3, 1, 2,
7, 3, 1, 2, 0, 3, 8, 1, 2, 0, 6, 9,	0, 3, 8, 1, 2, 0, 6, 9, 0, 7, 7, 8,	0, 3, 8, 1, 2, 0, 6, 9, 0, 7, 7, 8,
0, 7, 7, 8, 4, 3, 1, 9, 5, 2, 4, 1,	4, 3, 1, 9, 5, 2, 4, 1, 6, 5, 4, 7,	4, 3, 1, 9, 5, 2, 4, 1, 6, 5, 4, 7,
6, 5, 4, 7, 8, 4, 7, 5, 9, 6, 9, 4,	8, 4, 7, 5, 9, 6, 9, 4, 4, 8, 4, 7,	8, 4, 7, 5, 9, 6, 9, 4, 4, 8, 4, 7,
4, 8, 4, 7, 2, 7, 2, 4, 6, 1, 9, 1,	2, 7, 2, 4, 6, 1, 9, 1, 4, 5, 9, 3,	2, 7, 2, 4, 6, 1, 9, 1, 4, 5, 9, 3,
4, 5, 9, 3, 9, 5, 3, 3, 1, 9, 7, 9,	9, 5, 3, 3, 1, 9, 7, 9, 1, 1, 4, 4,	9, 5, 3, 3, 1, 9, 7, 9, 1, 1, 4, 4,
, _, _, _, _, _, _, _, _, _, _, _, _, _,		8, 7, 1, 6, 5, 5, 5, 2, 0, 3, 4, 8,
	18. /. 1. 6. 5. 5. 5. 7. 0 3 4 ×	, _ , . , _ , ~ , ~ , ~ , ~ , ~ , ~ , ~ , ~ , ~
1, 1, 4, 4, 8, 7, 1, 6, 5, 5, 5, 2,	8, 7, 1, 6, 5, 5, 5, 2, 0, 3, 4, 8,	
1, 1, 4, 4, 8, 7, 1, 6, 5, 5, 5, 2, 0, 3, 4, 8, 1, 8, 7, 1, 6, 0, 2, 5,	1, 8, 7, 1, 6, 0, 2, 5, 7, 8, 0, 2,	1, 8, 7, 1, 6, 0, 2, 5, 7, 8, 0, 2,
1, 1, 4, 4, 8, 7, 1, 6, 5, 5, 5, 2,		

777 N		Eds 1. Olligiy Elillod Elst. 7tt	
	Test	Expected	Got
	2, 5, 5, 9, 3, 2, 6, 6, 6, 7, 9, 0,	3, 2, 6, 6, 6, 7, 9, 0, 0, 1, 7, 5,	3, 2, 6, 6, 6, 7, 9, 0, 0, 1, 7, 5,
	0, 1, 7, 5, 8, 9, 4, 1, 7, 0, 1, 2,	8, 9, 4, 1, 7, 0, 1, 2, 7, 5, 3, 7,	8, 9, 4, 1, 7, 0, 1, 2, 7, 5, 3, 7,
	7, 5, 3, 7, 3, 9, 6, 4, 6, 8, 4, 0,	3, 9, 6, 4, 6, 8, 4, 0, 2, 4, 7, 9,	3, 9, 6, 4, 6, 8, 4, 0, 2, 4, 7, 9,
	2, 4, 7, 9, 0, 2, 0, 0, 0, 2, 5, 5,	0, 2, 0, 0, 0, 2, 5, 5, 2, 1, 2, 6,	0, 2, 0, 0, 0, 2, 5, 5, 2, 1, 2, 6,
	2, 1, 2, 6, 2, 1, 5, 5, 0, 0, 0, 8,	2, 1, 5, 5, 0, 0, 0, 8, 8, 8, 1, 5,	2, 1, 5, 5, 0, 0, 0, 8, 8, 8, 1, 5,
	8, 8, 1, 5, 3, 7, 7, 9, 9, 4, 6, 7,	3, 7, 7, 9, 9, 4, 6, 7, 0, 2, 3, 7,	3, 7, 7, 9, 9, 4, 6, 7, 0, 2, 3, 7,
	0, 2, 3, 7, 8, 8, 0, 9, 5, 9, 1, 0,	8, 8, 0, 9, 5, 9, 1, 0, 6, 1, 1, 5,	8, 8, 0, 9, 5, 9, 1, 0, 6, 1, 1, 5,
	6, 1, 1, 5, 2, 8, 8, 3, 2, 7, 4, 2,	2, 8, 8, 3, 2, 7, 4, 2, 1, 2, 9, 8,	2, 8, 8, 3, 2, 7, 4, 2, 1, 2, 9, 8,
	1, 2, 9, 8, 7, 7, 4, 5, 7, 7, 1, 4,	7, 7, 4, 5, 7, 7, 1, 4, 0, 5, 6, 9,	7, 7, 4, 5, 7, 7, 1, 4, 0, 5, 6, 9,
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2, 3, 0, 7, 5, 8, 6, 6, 7, 9, 0, 8,	4, 6, 1, 6, 5, 8, 4, 1, 2, 8, 5, 7,	4, 6, 1, 6, 5, 8, 4, 1, 2, 8, 5, 7,
6, 3, 3, 2, 4, 8, 6, 3, 4, 1, 2, 1,	6, 7, 8, 5, 5, 7, 5, 4, 1, 4, 1, 8,	6, 7, 8, 5, 5, 7, 5, 4, 1, 4, 1, 8,
0, 6, 1, 9, 6, 0, 7, 0, 3, 6, 4, 5,	5, 8, 0, 2, 1, 1, 7, 2, 3, 4, 6, 3,	5, 8, 0, 2, 1, 1, 7, 2, 3, 4, 6, 3,
7, 9, 8, 6, 6, 6, 8, 7, 3, 9, 6, 3,	3, 5, 5, 5, 4, 1, 2, 3, 1, 6, 5, 5,	3, 5, 5, 5, 4, 1, 2, 3, 1, 6, 5, 5,
4, 8, 8, 3, 0, 3, 3, 7, 3, 7, 6, 0,	9, 6, 9, 0, 1, 5, 6, 8, 8, 5, 5, 9,	9, 6, 9, 0, 1, 5, 6, 8, 8, 5, 5, 9,
1, 4, 4, 2, 1, 1, 2, 7, 0, 5, 6, 9,	0, 1, 8, 4, 5, 8, 6, 4, 5, 1, 4, 0,	0, 1, 8, 4, 5, 8, 6, 4, 5, 1, 4, 0,

7.77		Eds 1. Olligiy Elillod Elst. 7tt	
	Test	Expected	Got
	1, 9, 4, 5, 1, 7, 0, 2, 6, 9, 2, 0,	1, 0, 2, 2, 6, 7, 9, 0, 7, 0, 5, 0,	1, 0, 2, 2, 6, 7, 9, 0, 7, 0, 5, 0,
	0, 6, 5, 8, 3, 4, 1, 8, 3, 4, 6, 7,	4, 0, 1, 4, 0, 1, 0, 9, 9, 9, 1, 9,	4, 0, 1, 4, 0, 1, 0, 9, 9, 9, 1, 9,
	4, 9, 1, 4, 4, 1, 8, 0, 7, 3, 2, 0,	7, 1, 5, 9, 2, 9, 9, 7, 0, 6, 0, 5,	7, 1, 5, 9, 2, 9, 9, 7, 0, 6, 0, 5,
	1, 6, 6, 9, 1, 4, 5, 6, 1, 7, 0, 6,	5, 9, 7, 6, 4, 0, 4, 4, 4, 1, 5, 6,	5, 9, 7, 6, 4, 0, 4, 4, 4, 1, 5, 6,
	8, 0, 2, 9, 0, 3, 3, 9, 3, 9, 5, 8,	9, 3, 1, 8, 3, 0, 0, 4, 5, 6, 3, 6,	9, 3, 1, 8, 3, 0, 0, 4, 5, 6, 3, 6,
	6, 9, 1, 2, 6, 1, 8, 8, 9, 6, 4, 6,	9, 2, 1, 0, 4, 6, 3, 6, 5, 9, 0, 5,	9, 2, 1, 0, 4, 6, 3, 6, 5, 9, 0, 5,
	8, 2, 9, 3, 0, 5, 4, 8, 6, 3, 0, 2,	5, 8, 4, 0, 2, 4, 3, 5, 2, 9, 3, 9,	5, 8, 4, 0, 2, 4, 3, 5, 2, 9, 3, 9,
	7, 9, 9, 9, 4, 1, 7, 1, 0, 8, 0, 1,	9, 6, 4, 1, 1, 2, 9, 1, 8, 4, 3, 9,	9, 6, 4, 1, 1, 2, 9, 1, 8, 4, 3, 9,
	4, 1, 6, 8, 5, 3, 4, 2, 6, 9, 3, 3,	7, 6, 9, 4, 3, 5, 3, 7, 0, 7, 7, 9,	7, 6, 9, 4, 3, 5, 3, 7, 0, 7, 7, 9,
	7, 7, 1, 0, 2, 5, 9, 7, 5, 5, 8, 3,	4, 8, 7, 5, 7, 2, 6, 1, 6, 6, 2, 2,	4, 8, 7, 5, 7, 2, 6, 1, 6, 6, 2, 2,
	2, 1, 0, 6, 5, 5, 9, 7, 4, 9, 8, 0,	2, 6, 4, 5, 1, 4, 5, 6, 5, 7, 5, 5,	2, 6, 4, 5, 1, 4, 5, 6, 5, 7, 5, 5,
	4, 5, 8, 3, 4, 2, 8, 8, 0, 5, 1, 8,	9, 7, 8, 6, 1, 1, 8, 1, 2, 8, 9, 4,	9, 7, 8, 6, 1, 1, 8, 1, 2, 8, 9, 4,
	8, 9, 0, 0, 9, 0, 2, 3, 2, 5, 8, 3,	8, 3, 0, 6, 9, 1, 6, 7, 7, 1, 6, 6,	8, 3, 0, 6, 9, 1, 6, 7, 7, 1, 6, 6,
	7, 8, 0, 6, 5, 3, 5, 9, 6, 8, 6, 6,	6, 7, 4, 3, 2, 9, 2, 5, 5, 8, 9, 4,	6, 7, 4, 3, 2, 9, 2, 5, 5, 8, 9, 4,
	0, 6, 3, 8, 0, 3, 4, 9, 7, 0, 9, 0,	7, 5, 0, 1, 9, 2, 0, 0, 8, 9, 0, 8,	7, 5, 0, 1, 9, 2, 0, 0, 8, 9, 0, 8,
	4, 6, 3, 6, 1, 1, 5, 8, 7, 8, 2, 1,	7, 8, 3, 6, 6, 2, 6, 5, 2, 0, 5, 6,	7, 8, 3, 6, 6, 2, 6, 5, 2, 0, 5, 6,
	1, 2, 7, 1, 2, 8, 7, 5, 1, 7, 9, 3,	1, 9, 2, 1, 7, 2, 7, 1, 6, 5, 4, 3,	1, 9, 2, 1, 7, 2, 7, 1, 6, 5, 4, 3,
	7, 0, 0, 3, 8, 0, 7, 9, 6, 8, 7, 4,	1, 0, 3, 4, 1, 1, 3, 4, 9, 8, 1, 6,	1, 0, 3, 4, 1, 1, 3, 4, 9, 8, 1, 6,
	0, 3, 0, 5, 8, 6, 4, 2, 0, 0, 8, 0,	9, 4, 7, 1, 8, 4, 4, 9, 4, 3, 4, 0,	9, 4, 7, 1, 8, 4, 4, 9, 4, 3, 4, 0,
	7, 8, 0, 2, 7, 8, 4, 0, 6, 5, 9, 2,	6, 0, 5, 9, 4, 4, 2, 8, 4, 3, 5, 8,	6, 0, 5, 9, 4, 4, 2, 8, 4, 3, 5, 8,
	2, 8, 4, 5, 6, 0, 1, 5, 2, 6, 2, 3,	7, 4, 1, 7, 4, 6, 3, 1, 5, 6, 4, 2,	7, 4, 1, 7, 4, 6, 3, 1, 5, 6, 4, 2,
	4, 2, 6, 7, 1, 1, 2, 7, 2, 3, 9, 2,	6, 4, 6, 1, 1, 2, 3, 4, 5, 6, 5, 3,	6, 4, 6, 1, 1, 2, 3, 4, 5, 6, 5, 3,
	2, 2, 1, 6, 5, 0, 0, 8, 2, 1, 8, 9,	8, 1, 8, 8, 9, 5, 4, 3, 3, 5, 4, 3,	8, 1, 8, 8, 9, 5, 4, 3, 3, 5, 4, 3,
	8, 5, 1, 2, 0, 7, 1, 7, 4, 3, 7, 7,	7, 7, 0, 2, 8, 2, 5, 0, 4, 1, 6, 0,	7, 7, 0, 2, 8, 2, 5, 0, 4, 1, 6, 0,
	2, 6, 7, 2, 4, 4, 9, 3, 9, 5, 3, 0,	9, 5, 5, 6, 3, 8, 4, 9, 8, 8, 0, 9,	9, 5, 5, 6, 3, 8, 4, 9, 8, 8, 0, 9,
	0, 2, 7, 4, 9, 3, 9, 9, 6, 2, 8, 0,	6, 3, 8, 8, 2, 4, 1, 5, 2, 1, 2, 3,	6, 3, 8, 8, 2, 4, 1, 5, 2, 1, 2, 3,
	4, 9, 6, 3, 0, 2, 5, 2, 2, 6, 3, 6,	4, 1, 2, 9, 4, 8, 6, 6, 9, 9, 0, 8,	4, 1, 2, 9, 4, 8, 6, 6, 9, 9, 0, 8,
	0, 3, 4, 3, 9, 0, 6, 4, 3, 0, 3, 5,	5, 8, 5, 0, 2, 4, 8, 8, 6, 4, 9, 5,	5, 8, 5, 0, 2, 4, 8, 8, 6, 4, 9, 5,
	8, 9, 5, 6, 5, 1, 7, 0, 1, 0, 9, 7,	5, 8, 9, 1, 5, 7, 8, 5, 5, 4, 0, 3,	5, 8, 9, 1, 5, 7, 8, 5, 5, 4, 0, 3,
	9, 5, 0, 3, 4, 3, 4, 1, 1, 2, 0, 1, 0, 7, 7, 5, 0, 3, 3, 7, 1, 0, 7, 4,	3, 2, 2, 3, 5, 1, 1, 6, 4, 4, 9, 3, 7, 3, 6, 0, 9, 3, 3, 4, 4, 7, 9, 9,	3, 2, 2, 3, 5, 1, 1, 6, 4, 4, 9, 3, 7, 3, 6, 0, 9, 3, 3, 4, 4, 7, 9, 9,
	2, 5, 4, 9, 4, 3, 4, 9, 3, 6, 8, 6,	8, 0, 1, 2, 4, 6, 6, 1, 9, 7, 5, 3,	8, 0, 1, 2, 4, 6, 6, 1, 9, 7, 5, 3,
	3, 5, 9, 5, 9, 6, 9, 7, 2, 1, 6, 5,	1, 6, 3, 6, 3, 3, 8, 1, 3, 4, 7, 9,	1, 6, 3, 6, 3, 3, 8, 1, 3, 4, 7, 9,
	4, 5, 3, 8, 3, 2, 0, 1, 8, 1, 9, 4,	7, 3, 4, 3, 7, 1, 4, 9, 8, 3, 6, 2,	7, 3, 4, 3, 7, 1, 4, 9, 8, 3, 6, 2,
	6, 2, 3, 6, 5, 8, 3, 5, 8, 3, 3, 1,	2, 8, 9, 5, 6, 6, 6, 2, 2, 9, 5, 8,	2, 8, 9, 5, 6, 6, 6, 2, 2, 9, 5, 8,
	9, 0, 9, 1, 6, 1, 9, 2, 6, 4, 7, 6,	3, 2, 0, 9, 1, 9, 4, 4, 1, 7, 6, 4,	3, 2, 0, 9, 1, 9, 4, 4, 1, 7, 6, 4,
	0, 2, 8, 0, 8, 7, 7, 4, 8, 4, 8, 5,	0, 1, 4, 3, 8, 7, 1, 4, 1, 4, 1, 0,	0, 1, 4, 3, 8, 7, 1, 4, 1, 4, 1, 0,
	4, 4, 5, 9, 6, 3, 6, 1, 0, 7, 2, 8,	1, 0, 4, 6, 0, 8, 6, 0, 5, 8, 8, 9,	1, 0, 4, 6, 0, 8, 6, 0, 5, 8, 8, 9,
	2, 9, 8, 7, 9, 1, 8, 4, 7, 5, 2, 1,	9, 7, 6, 7, 5, 8, 3, 2, 3, 2, 7, 3,	9, 7, 6, 7, 5, 8, 3, 2, 3, 2, 7, 3,
	4, 4, 3, 2, 3, 8, 3, 0, 5, 1, 2, 4,	8, 3, 6, 2, 3, 3, 1, 4, 3, 4, 1, 5,	8, 3, 6, 2, 3, 3, 1, 4, 3, 4, 1, 5,
	2, 1, 3, 9, 9, 8, 2, 2, 5, 6, 2, 4,	5, 8, 0, 2, 1, 5, 7, 0, 7, 1, 9, 2,	5, 8, 0, 2, 1, 5, 7, 0, 7, 1, 9, 2,
	1, 7, 0, 1, 6, 1, 0, 9, 4, 7, 9, 9,	6, 6, 7, 6, 9, 0, 6, 3, 0, 0, 8, 1,	6, 6, 7, 6, 9, 0, 6, 3, 0, 0, 8, 1,
	8, 8, 8, 9, 3, 5, 7, 7, 2, 5, 0, 3,	2, 5, 4, 2, 6, 5, 3, 8, 5, 8, 3, 0,	2, 5, 4, 2, 6, 5, 3, 8, 5, 8, 3, 0,
	9, 9, 4, 2, 5, 0, 9, 9, 9, 5, 0, 7,	9, 8, 0, 1, 4, 4, 7, 9, 4, 2, 9, 6,	9, 8, 0, 1, 4, 4, 7, 9, 4, 2, 9, 6,
	9, 2, 2, 6, 3, 4, 6, 1, 6, 9, 6, 6,	2, 3, 4, 4, 4, 5, 0, 1, 7, 9, 2, 6,	2, 3, 4, 4, 4, 5, 0, 1, 7, 9, 2, 6,
	2, 0, 8, 0, 7, 0, 7, 8, 7, 0, 2, 8,	0, 4, 2, 5, 1, 3, 6, 9, 6, 8, 9, 0,	0, 4, 2, 5, 1, 3, 6, 9, 6, 8, 9, 0,
	6, 0, 4, 8, 6, 7, 8, 0, 2, 5, 0, 2,	2, 5, 5, 8, 3, 2, 4, 9, 2, 4, 6, 8,	2, 5, 5, 8, 3, 2, 4, 9, 2, 4, 6, 8,
	5, 4, 4, 8, 2, 7, 9, 8, 1, 2, 4, 5,	1, 9, 4, 9, 5, 5, 7, 4, 3, 2, 4, 1,	1, 9, 4, 9, 5, 5, 7, 4, 3, 2, 4, 1,
	4, 5, 6, 7, 6, 2, 0, 2, 5, 9, 5, 0,	8, 0, 2, 3, 8, 0, 1, 6, 3, 6, 2, 5,	8, 0, 2, 3, 8, 0, 1, 6, 3, 6, 2, 5,
	5, 4, 3, 6, 2, 5, 0, 4, 5, 9, 7, 4,	6, 0, 3, 1, 7, 7, 4, 6, 5, 6, 3, 7,	6, 0, 3, 1, 7, 7, 4, 6, 5, 6, 3, 7,
	4, 5, 0, 3, 7, 5, 4, 5, 0, 0, 5, 2,	1, 4, 0, 9, 3, 2, 7, 3, 1, 2, 3, 7,	1, 4, 0, 9, 3, 2, 7, 3, 1, 2, 3, 7,
	0, 8, 0, 3, 5, 2, 9, 8, 5, 6, 3, 0,	9, 5, 4, 1, 6, 6, 5, 6, 7, 7, 2, 4,	9, 5, 4, 1, 6, 6, 5, 6, 7, 7, 2, 4,
	3, 5, 6, 2, 2, 8, 1, 4, 9, 8, 8, 7, 7, 1, 4, 8, 2, 1, 3, 9, 8, 8, 0, 5,	6, 9, 8, 1, 6, 3, 8, 5, 2, 9, 8, 5, 8, 5, 7, 1, 5, 0, 0, 8, 2, 1, 9, 7,	6, 9, 8, 1, 6, 3, 8, 5, 2, 9, 8, 5, 8, 5, 7, 1, 5, 0, 0, 8, 2, 1, 9, 7,
	0, 5, 2, 4, 0, 4, 6, 0, 8, 5, 7, 2,	2, 9, 3, 7, 6, 2, 5, 2, 7, 3, 4, 3,	2, 9, 3, 7, 6, 2, 5, 2, 7, 3, 4, 3,
	9, 6, 4, 2, 0, 0, 7, 7, 1, 2, 4, 4,	7, 5, 3, 9, 9, 9, 3, 7, 6, 5, 6, 9,	7, 5, 3, 9, 9, 9, 3, 7, 6, 5, 6, 9,
	3, 6, 2, 0, 2, 9, 8, 0, 8, 0, 2, 2,	9, 2, 0, 8, 1, 9, 1, 8, 8, 8, 6, 9,	9, 2, 0, 8, 1, 9, 1, 8, 8, 8, 6, 9,
	5, 3, 2, 2, 8, 5, 7, 5, 5, 7, 4, 2,	2, 3, 3, 5, 2, 8, 0, 0, 3, 5, 5, 1,	2, 3, 3, 5, 2, 8, 0, 0, 3, 5, 5, 1,
	4, 2, 9, 4, 1, 4, 1, 8, 8, 4, 1, 0,	3, 3, 2, 1, 7, 7, 2, 2, 0, 5, 9, 5,	3, 3, 2, 1, 7, 7, 2, 2, 0, 5, 9, 5,
	3, 4, 0, 5, 8, 8, 4, 4, 2, 7, 0, 3,	6, 7, 8, 5, 9, 5, 8, 6, 7, 0, 9, 9,	6, 7, 8, 5, 9, 5, 8, 6, 7, 0, 9, 9,
	· · · · · ·	· · · · · · · · ·	

Test	Expected	Got
1, 3, 3, 1, 4, 4, 1, 7, 4, 9, 3, 2,	6, 3, 8, 1, 4, 8, 7, 2, 1, 1, 2, 0,	6, 3, 8, 1, 4, 8, 7, 2, 1, 1, 2, 0,
3, 7, 0, 8, 1, 9, 7, 2, 1, 9, 3, 7,	3, 6, 7, 3, 5, 9, 2, 2, 2, 2, 7, 8,	3, 6, 7, 3, 5, 9, 2, 2, 2, 2, 7, 8,
6, 0, 5, 1, 4};	2, 5, 8, 8, 7, 0, 0, 3, 4, 1, 5, 9,	2, 5, 8, 8, 7, 0, 0, 3, 4, 1, 5, 9,
int k = 5555;	6, 3, 7, 6, 6, 8, 1, 8, 0, 3, 1, 2,	6, 3, 7, 6, 6, 8, 1, 8, 0, 3, 1, 2,
LLNode* head =	9, 6, 0, 2, 2, 2, 4, 0, 0, 5, 1, 1,	9, 6, 0, 2, 2, 2, 4, 0, 0, 5, 1, 1,
LLNode::createWithIterators(arr, arr	3, 3, 8, 3, 4, 7, 6, 0, 3, 3, 4, 8,	3, 3, 8, 3, 4, 7, 6, 0, 3, 3, 4, 8,
+ sizeof(arr) / sizeof(int));	4, 0, 8, 1, 1, 3, 4, 8, 4, 3, 1, 5,	4, 0, 8, 1, 1, 3, 4, 8, 4, 3, 1, 5,
LLNode::printList(head);	2, 2, 4, 0, 2, 9, 5, 7, 7, 2, 1, 0,	2, 2, 4, 0, 2, 9, 5, 7, 7, 2, 1, 0,
cout << "\n";	6, 9, 6]	6, 9, 6]
LLNode* newhead =		
rotateLinkedList(head, k);		
LLNode::printList(newhead);		

Passed all tests! 🗸

Correct

Marks for this submission: 1.00/1.00.

```
Question 7
Correct
Mark 1.00 out of 1.00
```

Class LLNode representing a node of singly linked lists is declared as below:

```
class LLNode {
public:
    int val;
    LLNode* next;
    LLNode(); // Constructor: val = 0, next = nullptr
    LLNode(int val, LLNode* next); // Constructor with customized data
}
```

Given a singly linked list head node.

Your task is to implement a function with following prototype:

```
LLNode* reverseLinkedList(LLNode* head);
```

The function returns head node of the reversed singly linked list.

Note:

- The iostream library has been included and namespace std is being used. No other libraries are allowed.
- The constructors and methods of class LLNode have been defined fully so you do not need to redefine them.
- You can write helper functions.

For example:

Test	Result
int arr[] = {13, 88, 60, 7, 192};	[13, 88, 60, 7, 192]
LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int));	[192, 7, 60, 88, 13]
LLNode::printList(head);	
cout << "\n";	
LLNode* newhead = reverseLinkedList(head);	
LLNode::printList(newhead);	
newhead->clear();	

Answer: (penalty regime: 0 %)

Reset answer

```
1 LLNode* reverseLinkedList(LLNode* head) {
 2
         LLNode* res = NULL;
 3
        while (head)
 4
        {
 5
            LLNode* newnode = new LLNode(head->val,NULL);
 6
            newnode->next = res;
 7
            res = newnode;
 8
            head = head->next;
 9
10
        return res;
11
```

	Test	Expected	Got	
~	<pre>int arr[] = {13, 88, 60, 7, 192}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = reverseLinkedList(head); LLNode::printList(newhead); newhead->clear();</pre>	[13, 88, 60, 7, 192] [192, 7, 60, 88, 13]	[13, 88, 60, 7, 192] [192, 7, 60, 88, 13]	~
*	<pre>int arr[] = {}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = reverseLinkedList(head); LLNode::printList(newhead); newhead->clear();</pre>			~
*	<pre>int arr[] = {31, 22, 46, 152, 14, 87, 196, 97, 5, 93}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = reverseLinkedList(head); LLNode::printList(newhead); newhead->clear();</pre>	[31, 22, 46, 152, 14, 87, 196, 97, 5, 93] [93, 5, 97, 196, 87, 14, 152, 46, 22, 31]	[31, 22, 46, 152, 14, 87, 196, 97, 5, 93] [93, 5, 97, 196, 87, 14, 152, 46, 22, 31]	~
~	<pre>int arr[] = {115, 59, 178, 39, 109, 18, 154, 106, 94, 174, 51, 33, 132, 195, 161, 37, 61, 107, 120, 190}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = reverseLinkedList(head); LLNode::printList(newhead); newhead->clear();</pre>	[115, 59, 178, 39, 109, 18, 154, 106, 94, 174, 51, 33, 132, 195, 161, 37, 61, 107, 120, 190] [190, 120, 107, 61, 37, 161, 195, 132, 33, 51, 174, 94, 106, 154, 18, 109, 39, 178, 59, 115]	[115, 59, 178, 39, 109, 18, 154, 106, 94, 174, 51, 33, 132, 195, 161, 37, 61, 107, 120, 190] [190, 120, 107, 61, 37, 161, 195, 132, 33, 51, 174, 94, 106, 154, 18, 109, 39, 178, 59, 115]	~

Expected [104, 50, 154, 40, 15, 171, 56, 114,

int arr[] = {104, 50, 154, 40, 15, 171, 56, 114, 67, 90, 46, 179, 152, 177, 139, 45, 18, 55, 38, 158, 8, 157, 143, 37, 16, 83, 173, 82, 156, 51, 124, 25, 68, 51, 194, 105, 44, 17, 97, 0, 150, 66, 71, 81, 11, 180, 148, 160, 127, 93, 108, 13, 122, 172, 39, 88, 62, 38, 61, 156, 45, 131, 69, 191, 123, 42, 103, 56, 69, 138, 185, 162, 192, 147, 71, 80, 12, 36, 191, 121, 194, 86, 92, 183, 164, 97, 185, 130, 29, 174, 112, 194, 185, 132, 27, 197, 158, 151, 51, 174}; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n";

LLNode* newhead =

newhead->clear();

~

reverseLinkedList(head);

LLNode::printList(newhead);

67, 90, 46, 179, 152, 177, 139, 45, 18, 55, 38, 158, 8, 157, 143, 37, 16, 83, 173, 82, 156, 51, 124, 25, 68, 51, 194, 105, 44, 17, 97, 0, 150, 66, 71, 81, 11, 180, 148, 160, 127, 93, 108, 13, 122, 172, 39, 88, 62, 38, 61, 156, 45, 131, 69, 191, 123, 42, 103, 56, 69, 138, 185, 162, 192, 147, 71, 80, 12, 36, 191, 121, 194, 86, 92, 183, 164, 97, 185, 130, 29, 174, 112, 194, 185, 132, 27, 197, 158, 151, 51, 1741 [174, 51, 151, 158, 197, 27, 132, 185, 194, 112, 174, 29, 130, 185, 97, 164, 183, 92, 86, 194, 121, 191, 36, 12, 80, 71, 147, 192, 162, 185, 138, 69, 56, 103, 42, 123, 191, 69, 131, 45, 156, 61, 38, 62, 88, 39, 172, 122, 13, 108, 93, 127, 160, 148, 180, 11, 81, 71, 66, 150, 0, 97, 17, 44, 105, 194, 51, 68, 25, 124, 51, 156, 82, 173, 83, 16, 37, 143, 157, 8, 158, 38, 55, 18, 45, 139, 177, 152,

179, 46, 90, 67, 114, 56, 171, 15,

40, 154, 50, 104]

[104, 50, 154, 40, 15, 171, 56, 114, 67, 90, 46, 179, 152, 177, 139, 45, 18, 55, 38, 158, 8, 157, 143, 37, 16, 83, 173, 82, 156, 51, 124, 25, 68, 51, 194, 105, 44, 17, 97, 0, 150, 66, 71, 81, 11, 180, 148, 160, 127, 93, 108, 13, 122, 172, 39, 88, 62, 38, 61, 156, 45, 131, 69, 191, 123, 42, 103, 56, 69, 138, 185, 162, 192, 147, 71, 80, 12, 36, 191, 121, 194, 86, 92, 183, 164, 97, 185, 130, 29, 174, 112, 194, 185, 132, 27, 197, 158, 151, 51, 1741 [174, 51, 151, 158, 197, 27, 132, 185, 194, 112, 174, 29, 130, 185, 97, 164, 183, 92, 86, 194, 121, 191, 36, 12, 80, 71, 147, 192, 162, 185, 138, 69, 56, 103, 42, 123, 191, 69, 131, 45, 156, 61, 38, 62, 88, 39, 172, 122, 13, 108, 93, 127, 160, 148, 180, 11, 81, 71, 66, 150, 0, 97, 17, 44, 105, 194, 51, 68, 25, 124, 51, 156, 82, 173, 83, 16, 37, 143, 157, 8, 158, 38, 55, 18, 45, 139, 177, 152, 179, 46, 90, 67, 114, 56, 171, 15, 40, 154, 50, 104]

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	185, 116, 165, 33, 104, 140, 29, 41,	185, 116, 165, 33, 104, 140, 29, 41,
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	170, 136, 164, 17, 153, 186, 83, 122,	170, 136, 164, 17, 153, 186, 83, 122,
	16, 175, 178, 124, 43, 107, 111, 20,	16, 175, 178, 124, 43, 107, 111, 20,
	166, 146, 57, 168, 191, 164, 75, 127,	166, 146, 57, 168, 191, 164, 75, 127,
	99, 107, 142, 126, 115, 84, 66, 85,	99, 107, 142, 126, 115, 84, 66, 85,
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	46, 45, 46, 129, 32, 127, 36, 28, 46,	46, 45, 46, 129, 32, 127, 36, 28, 46,
	188, 7, 77, 41, 52, 76, 23, 198, 157,	188, 7, 77, 41, 52, 76, 23, 198, 157,
	79, 25, 129, 13, 148, 185, 109, 82,	79, 25, 129, 13, 148, 185, 109, 82,
	25, 64, 138, 128, 83, 119, 134, 178,	25, 64, 138, 128, 83, 119, 134, 178,
	158, 26, 136, 180, 74, 180, 2, 0, 10,	158, 26, 136, 180, 74, 180, 2, 0, 10,
	155, 85, 56, 47, 125, 26, 99, 166,	155, 85, 56, 47, 125, 26, 99, 166,
	82, 110, 131, 31, 84, 183, 198, 135,	82, 110, 131, 31, 84, 183, 198, 135,
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	188, 7, 145, 55, 22, 22, 183, 113,	188, 7, 145, 55, 22, 22, 183, 113,
	186, 19, 155, 175, 3, 59, 79, 0, 155,	186, 19, 155, 175, 3, 59, 79, 0, 155,
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	142, 186, 124, 108, 166, 92, 88, 198,	142, 186, 124, 108, 166, 92, 88, 198,
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	Test	Expected	Got	
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		111, 161, 78, 60, 18, 185, 39, 84,	111, 161, 78, 60, 18, 185, 39, 84,	
		174, 188, 58, 59, 43, 166, 66, 52,	174, 188, 58, 59, 43, 166, 66, 52,	
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84. 33, 78, 47, 50, 45, 118, 22, 25, 48, 93, 123, 167, 158, 84, 73, 93, 127, 190, 159, 69, 128, 68, 59, 116, 77, 137, 160, 99, 95, 16, 90, 120, 162, 125, 156, 130, 59, 185, 176, 102, 176, 58, 183, 179, 40, 138, 41, 53, 69, 95, 103, 16, 103, 163, 126, 98, 83, 21, 39, 38, 75, 192, 134, 102, 104, 74, 31, 113, 61, 55, 40, 70, 190, 119, 195, 104, 152, 118, 138, 146, 147, 194, 120, 37, 166, 194, 181, 7, 146, 149, 2, 118, 81, 9, 6, 182, 96, 37, 136, 135, 171, 169, 143, 106, 16, 92, 94, 117, 63, 86, 131, 101, 64, 39, 51, 4, 190, 136, 150, 116, 74, 193, 49, 170, 50, 146, 123, 102, 172, 6, 119, 139, 182, 37, 180, 114, 72, 9, 10, 35, 12, 139, 22, 38, 116, 95, 87, 166, 157, 101, 66, 88, 99, 81, 163, 196, 30, 149, 173, 161, 195, 54, 116, 141, 165, 100, 153, 117, 141, 54, 85, 81, 56, 174, 114, 100, 32, 176, 78, 11, 30, 193, 97, 12, 150, 85, 49, 73, 147, 33, 44, 181, 85, 171, 151, 70, 72, 135, 28, 99, 32, 91, 184, 120, 25, 85, 182, 192, 195, 115, 150, 67, 46, 156, 147, 0, 82, 61, 68, 19, 107, 38, 64, 43, 27, 30, 95, 22, 64, 44, 14, 102, 79, 168, 91, 24, 65, 97, 171, 169, 190, 193, 161, 36, 159, 126, 23, 19, 48, 113, 193, 26, 125, 76, 160, 50, 36, 184, 181, 4, 148, 37, 119, 155, 84, 46, 46, 104, 64, 139, 193, 16, 23, 168, 45, 161, 128, 175, 70, 197, 126, 130, 91, 94, 98, 155, 165, 98, 48, 71, 89, 97, 108, 80, 23, 181, 7, 3, 137, 112, 20, 2, 167, 173, 136, 90, 194, 160, 130, 175, 169, 183, 159, 78, 113, 93, 160, 83, 15, 141, 136, 109, 187, 52, 73, 47, 5, 26, 135, 32, 75, 10, 47, 141, 79, 71, 192, 181, 122, 57, 147, 62, 101, 121, 112, 78, 162, 42, 34, 101, 14, 185, 195, 1, 194, 134, 186, 73, 186, 90, 84, 46, 126, 163, 0, 14, 87, 31, 120, 19, 92, 118, 77, 36, 21, 138, 19, 195, 95, 123, 45, 111, 106, 198, 17, 194, 55, 142, 63, 189, 55, 102, 198, 99, 104, 150, 48, 108, 16, 196, 175, 195, 119, 12, 96, 98, 120, 27, 71, 147, 88, 1, 35, 154, 67, 37, 187, 90, 163, 21, 105, 165, 2, 14, 86, 1, 114, 81, 102, 79, 98, 7, 141, 117, 44, 190, 123, 182, 157, 132, 20, 64, 5, 11, 187, 167, 112, 118, 88, 136, 164, 19, 151, 0, 187, 65, 179, 6, 43, 148, 154, 111, 197, 119, 131, 73, 123, 1, 54, 185, 93, 156, 83, 129, 62, 161, 133, 84, 58, 144, 128, 196, 58, 95, 89,

Expected

40, 109, 86, 105, 125, 20, 91, 46, 185, 11, 103, 137, 130, 169, 146, 170, 139, 2, 104, 157, 119, 85, 109, 142, 185, 71, 150, 158, 122, 190, 26, 133, 186, 89, 17, 33, 114, 135, 19, 23, 0, 173, 28, 176, 133, 125, 63, 174, 124, 12, 57, 24, 3, 11, 174, 99, 167, 193, 129, 51, 42, 184, 152, 193, 192, 182, 166, 77, 147, 45, 61, 159, 75, 6, 83, 81, 186, 98, 92, 136, 38, 130, 40, 132, 111, 145, 174, 84, 100, 199, 176, 126, 185, 199, 57, 94, 12, 164, 189, 22, 8, 48, 120, 110, 48, 158, 17, 61, 64, 146, 72, 55, 81, 63, 4, 160, 174, 69, 78, 117, 28, 139, 118, 59, 169, 87, 60, 157, 64, 37, 32, 27, 169, 4, 139, 188, 92, 23, 192, 60, 39, 5, 68, 160, 82, 99, 132, 105, 80, 169, 46, 198, 169, 115, 2, 53, 157, 26, 9, 172, 99, 156, 71, 36, 83, 191, 21, 86, 17, 108, 18, 145, 42, 19, 51, 132, 155, 50, 192, 152, 0, 59, 89, 128, 27, 196, 160, 44, 149, 105, 24, 18, 137, 121, 22, 151, 111, 109, 111, 86, 30, 159, 59, 135, 6, 185, 40, 147, 27, 188, 33, 165, 14, 82, 95, 28, 97, 87, 65, 79, 146, 52, 152, 80, 130, 173, 54, 5, 77, 109, 128, 51, 148, 63, 185, 93, 153, 55, 33, 189, 50, 88, 174, 153, 58, 64, 49, 105, 117, 122, 91, 110, 130, 108, 74, 69, 197, 120, 110, 78, 124, 23, 153, 70, 91, 4, 150, 28, 163, 125, 89, 163, 16, 24, 15, 28, 115, 44, 94, 24, 85, 71, 0, 35, 5, 95, 125, 18, 99, 35, 47, 185, 118, 99, 161, 119, 10, 134, 17, 156, 134, 11, 61, 101, 117, 99, 4, 46, 163, 46, 71, 176, 10, 68, 160, 19, 165, 54, 177, 87, 28, 188, 167, 118, 73, 33, 88, 133, 99, 37, 163, 132, 17, 178, 63, 18, 48, 153, 198, 133, 160, 174, 115, 106, 68, 179, 17, 41, 184, 137, 22, 123, 152, 149, 48, 142, 62, 73, 102, 137, 52, 161, 171, 52, 147, 136, 6, 163, 10, 154, 196, 28, 19, 149, 186, 53, 170, 2, 165, 82, 64, 17, 53, 198, 135, 189, 49, 97, 5, 147, 60, 82, 198, 122, 41, 85, 117, 15, 26, 168, 172, 71, 15, 169, 172, 73, 44, 178, 134, 35, 108, 1, 51, 12, 21, 10, 48, 139, 139, 94, 14, 0, 153, 73, 73, 0, 149, 111, 103, 125, 92, 24, 3, 38, 110, 77, 75, 131, 106, 33, 110, 109, 92, 28, 49, 124, 38, 12, 132, 137, 197, 190, 17, 22, 62, 141, 13, 107, 48, 113, 169, 92, 163, 115, 50, 56, 185, 7, 63, 59, 187, 193, 155, 183, 111, 67, 84, 104, 81, 151, 131, 14,

40, 109, 86, 105, 125, 20, 91, 46, 185, 11, 103, 137, 130, 169, 146, 170, 139, 2, 104, 157, 119, 85, 109, 142, 185, 71, 150, 158, 122, 190, 26, 133, 186, 89, 17, 33, 114, 135, 19, 23, 0, 173, 28, 176, 133, 125, 63, 174, 124, 12, 57, 24, 3, 11, 174, 99, 167, 193, 129, 51, 42, 184, 152, 193, 192, 182, 166, 77, 147, 45, 61, 159, 75, 6, 83, 81, 186, 98, 92, 136, 38, 130, 40, 132, 111, 145, 174, 84, 100, 199, 176, 126, 185, 199, 57, 94, 12, 164, 189, 22, 8, 48, 120, 110, 48, 158, 17, 61, 64, 146, 72, 55, 81, 182, 149, 184, 91, 175, 122, 144, 23, 182, 149, 184, 91, 175, 122, 144, 23, 63, 4, 160, 174, 69, 78, 117, 28, 139, 118, 59, 169, 87, 60, 157, 64, 37, 32, 27, 169, 4, 139, 188, 92, 23, 192, 60, 39, 5, 68, 160, 82, 99, 132, 105, 80, 169, 46, 198, 169, 115, 2, 53, 157, 26, 9, 172, 99, 156, 71, 36, 83, 191, 21, 86, 17, 108, 18, 145, 42, 19, 51, 132, 155, 50, 192, 152, 0, 59, 89, 128, 27, 196, 160, 44, 149, 105, 24, 18, 137, 121, 22, 151, 111, 109, 111, 86, 30, 159, 59, 135, 6, 185, 40, 147, 27, 188, 33, 165, 14, 82, 95, 28, 97, 87, 65, 79, 146, 52, 152, 80, 130, 173, 54, 5, 77, 109, 128, 51, 148, 63, 185, 93, 153, 55, 33, 189, 50, 88, 174, 153, 58, 64, 49, 105, 117, 122, 91, 110, 130, 108, 74, 69, 197, 120, 110, 78, 124, 23, 153, 70, 91, 4, 150, 28, 163, 125, 89, 163, 16, 24, 15, 28, 115, 44, 94, 24, 85, 71, 0, 35, 5, 95, 125, 18, 99, 35, 47, 185, 118, 99, 161, 119, 10, 134, 17, 156, 134, 11, 61, 101, 117, 99, 4, 46, 163, 46, 71, 176, 10, 68, 160, 19, 165, 54, 177, 87, 28, 188, 167, 118, 73, 33, 88, 133, 99, 37, 163, 132, 17, 178, 63, 18, 48, 153, 198, 133, 160, 174, 115, 106, 68, 179, 17, 41, 184, 137, 22, 123, 152, 149, 48, 142, 62, 73, 102, 137, 52, 161, 171, 52, 147, 136, 6, 163, 10, 154, 196, 28, 19, 149, 186, 53, 170, 2, 165, 82, 64, 17, 53, 198, 135, 189, 49, 97, 5, 147, 60, 82, 198, 122, 41, 85, 117, 15, 26, 168, 172, 71, 15, 169, 172, 73, 44, 178, 134, 35, 108, 1, 51, 12, 21, 10, 48, 139, 139, 94, 14, 0, 153, 73, 73, 0, 149, 111, 103, 125, 92, 24, 3, 38, 110, 77, 75, 131, 106, 33, 110, 109, 92, 28, 49, 124, 38, 12, 132, 137, 197, 190, 17, 22, 62, 141, 13, 107, 48, 113, 169, 92, 163, 115, 50, 56, 185, 7, 63, 59, 187, 193, 155, 183, 111, 67, 84, 104, 81, 151, 131, 14,

	I	
Test	Expected	Got
158, 76, 88, 5, 188, 5, 80, 173, 156,	15, 177, 197, 190, 65, 143, 25, 156,	15, 177, 197, 190, 65, 143, 25, 156,
48, 85, 184, 166, 100, 176, 33, 140,	137, 116, 98, 90, 127, 114, 88, 189,	137, 116, 98, 90, 127, 114, 88, 189,
96, 27, 66, 69, 194, 37, 146, 107,	88, 23, 65, 106, 95, 27, 93, 155, 4,	88, 23, 65, 106, 95, 27, 93, 155, 4,
161, 11, 11, 150, 135, 145, 183, 135,	199, 99, 151, 53, 192, 125, 2, 98,	199, 99, 151, 53, 192, 125, 2, 98,
3, 106, 124, 34, 158, 149, 37, 134,	158, 155, 129, 100, 55, 119, 89, 128,	158, 155, 129, 100, 55, 119, 89, 128,
61, 112, 100, 54, 70, 81, 181, 141,	88, 60, 145, 169, 85, 132, 70, 76,	88, 60, 145, 169, 85, 132, 70, 76,
134, 130, 44, 30, 26, 29, 145, 2, 45,	167, 25, 70, 199, 190, 52, 184, 188,	167, 25, 70, 199, 190, 52, 184, 188,
9, 138, 158, 97, 43, 10, 195, 106,	144, 53, 147, 50, 162, 130, 197, 125,	144, 53, 147, 50, 162, 130, 197, 125,
32, 121, 111, 55, 98, 141, 93, 74,	173, 147, 45, 71, 180, 173, 83, 174,	173, 147, 45, 71, 180, 173, 83, 174,
33, 111, 105, 18, 124, 128, 86, 79,	68, 77, 96, 199, 115, 167, 193, 156,	68, 77, 96, 199, 115, 167, 193, 156,
41, 14, 75, 198, 33, 162, 171, 101,	148, 175, 33, 98, 99, 96, 62, 54,	148, 175, 33, 98, 99, 96, 62, 54,
111, 100, 132, 42, 98, 25, 98, 23,	125, 131, 155, 64, 179, 66, 63, 192,	125, 131, 155, 64, 179, 66, 63, 192,
169, 140, 109, 96, 111, 18, 81, 0,	7, 149, 60, 136, 78, 172, 115, 10,	7, 149, 60, 136, 78, 172, 115, 10,
104, 74, 37, 81, 90, 21, 166, 106,	168, 158, 63, 28, 117, 81, 24, 40,	168, 158, 63, 28, 117, 81, 24, 40,
191, 170, 44, 6, 90, 174, 44, 195,	89, 67, 57, 184, 89, 160, 13, 10, 15,	89, 67, 57, 184, 89, 160, 13, 10, 15,
88, 154, 64, 112, 33, 61, 141, 98,	37, 23, 152, 147, 188, 96, 99, 116,	37, 23, 152, 147, 188, 96, 99, 116,
14, 91, 59, 137, 150, 118, 114, 55,	88, 13, 121, 167, 67, 24, 180, 45,	88, 13, 121, 167, 67, 24, 180, 45,
36, 108, 83, 144};	199, 86, 85, 58, 98, 121, 25, 148,	199, 86, 85, 58, 98, 121, 25, 148,
LLNode* head =	172, 24, 146, 193, 149, 61, 72, 117,	172, 24, 146, 193, 149, 61, 72, 117,
LLNode::createWithIterators(arr, arr	59, 79, 162, 100, 89, 88, 167, 99,	59, 79, 162, 100, 89, 88, 167, 99,
<pre>+ sizeof(arr) / sizeof(int));</pre>	14, 55, 178, 20, 116, 49, 173, 27,	14, 55, 178, 20, 116, 49, 173, 27,
<pre>LLNode::printList(head);</pre>	183, 117, 4, 99, 145, 46, 46, 61,	183, 117, 4, 99, 145, 46, 46, 61,
cout << "\n";	116, 125, 31, 195, 103, 30, 137, 184,	116, 125, 31, 195, 103, 30, 137, 184,
LLNode* newhead =	36, 67, 68]	36, 67, 68]
<pre>reverseLinkedList(head);</pre>		
<pre>LLNode::printList(newhead);</pre>		
<pre>newhead->clear();</pre>		

Passed all tests! 🗸

Correct

Marks for this submission: 1.00/1.00.

```
Question 8
Partially correct
Mark 0.20 out of 1.00
```

Polynomials is an important application of arrays and linked lists. A polynomial is composed of different terms where each of them holds a coefficient and an exponent. A polynomial p(x) is the expression in variable x which is in the form $(a_nx^n + a_{n-1}x^{n-1} + + a_1x + a_0)$, where a_n , a_{n-1} ,, a_0 fall in the category of real numbers and 'n' is the non-negative integer, which is called the degree of polynomial.

Example: $10x^2 + 26x$, here 10 and 26 are coefficients and 2, 1 is its exponential value.

Points to keep in Mind while working with Polynomials:

- The sign of each coefficient and exponent is stored within the coefficient and the exponent itself.
- The storage allocation for each term in the polynomial must be done in descending order of their exponent.

In this question, complete SLinkedList class is included. You should use this class to complete your Polynomial class with initialized frame as following. This task is implement insertTerm to insert a term into a polynomial.

```
class Polynomial;
class Term {
private:
    double coeff;
    int exp;
    friend class Polynomial;
public:
    Term(double coeff = 0.0, int exp = 0) {
    constructor
        this->coeff = coeff;
        this->exp = exp;
    }
   bool operator==(const Term& rhs) const {
        return this->coeff == rhs.coeff && this->exp == rhs.exp; bằng nhau khi cả hệ số tự do lẫn số mũ bằng nhau
    }
    friend ostream & operator<<(ostream &os, const Term& term) {</pre>
        cout << endl:
        cout << "Term: " << "(" << term.coeff << " " << term.exp << ")";</pre>
        return os;
    }
};
class Polynomial {
private:
    SLinkedList<Term>* terms;
public:
    Polynomial() {
        this->terms = new SLinkedList<Term>();
    }
   ~Polynomial() {
        this->terms->clear();
   void insertTerm(const Term& term);
    void insertTerm(double coeff, int exp);
    void print() {
        SLinkedList<Term>::Iterator it;
        cout << "[";
        for (it = this->terms->begin(); it != this->terms->end(); it++) {
            cout << (*it);
        }
        cout << endl << "]";</pre>
    }
```

For example:

Test	Result
Polynomial *poly = new Polynomial();	[
poly->insertTerm(6.0, 2);	Term: (10 5)
poly->insertTerm(4.0, 5);	Term: (4 3)
<pre>poly->insertTerm(4.0, 3);</pre>	Term: (6 2)
poly->insertTerm(6.0, 5);	Term: (-1 0)
poly->insertTerm(-1.0, 0);]
poly->insertTerm(-6.0, 6);	
poly->insertTerm(6.0, 6);	
poly->print();	
int n = 5;	[
int coeff[] = { 1, 2, 3, 4, 5 };	Term: (5 5)
int exp[] = { 1, 2, 3, 4, 5 };	Term: (4 4)
	Term: (3 3)
Polynomial p1;	Term: (2 2)
for (int i = 0; i < n; ++i)	Term: (1 1)
<pre>p1.insertTerm(coeff[i], exp[i]);</pre>]
p1.print();	

Answer: (penalty regime: 0, 0, 0, 5, 10 %)

Reset answer

	Test	Expected	Got	
×	Polynomial *poly = new Polynomial();	[[×
	<pre>poly->insertTerm(6.0, 2);</pre>	Term: (10 5)]	
	<pre>poly->insertTerm(4.0, 5);</pre>	Term: (4 3)		
	<pre>poly->insertTerm(4.0, 3);</pre>	Term: (6 2)		
	<pre>poly->insertTerm(6.0, 5);</pre>	Term: (-1 0)		
	<pre>poly->insertTerm(-1.0, 0);</pre>]		
	<pre>poly->insertTerm(-6.0, 6);</pre>			
	<pre>poly->insertTerm(6.0, 6);</pre>			
	<pre>poly->print();</pre>			
×	int n = 5;	[[×
	int coeff[] = { 1, 2, 3, 4, 5 };	Term: (5 5)]	
	int exp[] = { 1, 2, 3, 4, 5 };	Term: (4 4)		
		Term: (3 3)		
	Polynomial p1;	Term: (2 2)		
	for (int i = 0; i < n; ++i)	Term: (1 1)		
	<pre>p1.insertTerm(coeff[i], exp[i]);</pre>]		
	p1.print();			

Some hidden test cases failed, too.

Show differences

Partially correct

Marks for this submission: 0.20/1.00.

Question 9	
Incorrect	
Mark 0.00 out of 1.00	

Implement Iterator class in class SLinkedList.

<u>Note</u>: Iterator is a concept of repetitive elements on sequence structures. Iterator is implemented in class vector, list in STL container in C++ (https://www.geeksforgeeks.org/iterators-c-stl/). Your task is to implement the simple same class with iterator in C++ STL container.

Please read example and testcase carefully.

```
template <class T>
class SLinkedList
public:
    class Iterator; //forward declaration
                   //forward declaration
    class Node;
protected:
   Node *head;
    Node *tail;
    int count;
public:
    SLinkedList() : head(NULL), tail(NULL), count(0){};
   ~SLinkedList();
    void add(const T &e);
    void add(int index, const T &e);
    T removeAt(int index);
    bool removeItem(const T &removeItem);
    bool empty();
    int size();
    void clear();
   T get(int index);
    void set(int index, const T &e);
    int indexOf(const T &item);
    bool contains(const T &item);
    string toString();
    SLinkedList(const SLinkedList &list)
    {
        this->count = 0;
        this->head = NULL;
        this->tail = NULL;
    }
    Iterator begin()
    {
        return Iterator(this, true);
    }
    Iterator end()
    {
        return Iterator(this, false);
    }
public:
    class Node
    private:
        T data;
        Node *next;
        friend class SLinkedList<T>;
    public:
        Node()
        {
            next = 0;
        }
        Node(Node *next)
            this->next = next;
        }
        Node(T data, Node *next = NULL)
            this->data = data;
            this->next = next;
        }
    };
```

```
{
private:
    SLinkedList<T> *pList;
    Node *current;
    int index; // corresponding with current node
public:
    Iterator(SLinkedList<T> *pList, bool begin);
    Iterator & operator=(const Iterator & iterator);
    void set(const T &e);
    T &operator*();
    bool operator!=(const Iterator &iterator);
    // Prefix ++ overload
    Iterator &operator++();
    // Postfix ++ overload
    Iterator operator++(int);
};
```

For example:

Test	Result
SLinkedList <int> list;</int>	
<pre>int size = 10; for(int idx=0; idx < size; idx++){ list.add(idx);</pre>	
}	
<pre>SLinkedList<int>::Iterator it; int expvalue = 0; for(it = list.begin(); it != list.end(); it++){</int></pre>	
assert(*it == expvalue); expvalue += 1;	
}	
SLinkedList <int> list;</int>	
<pre>int size = 10; for(int idx=0; idx < size; idx++){ list.add(idx); }</pre>	
SLinkedList <int>::Iterator it;</int>	
<pre>int expvalue = 0; for(it = list.begin(); it != list.end(); ++it){ assert(*it == expvalue);</pre>	
expvalue += 1; }	

Answer: (penalty regime: 0, 0, 0, 5, 10 %)

Reset answer

```
* * Otherwise set to NULL (index = -1)
10
            * begin = false:
            * * Always set current to NULL
11
            * * Set index to pList's size if pList is not NULL, otherwise 0
12
13
14
15
16
    template <class T>
    typename SLinkedList<T>:::Iterator& SLinkedList<T>::Iterator::operator=(c
17
18 ▼ {
19 •
20
            Assignment operator
21
             * Set this current, index, pList to iterator corresponding eleme
22
23
24
25
    template <class T>
    void SLinkedList<T>::Iterator::remove()
26
27 •
    {
28
29
            Remove a node which is pointed by current
30
            * After remove current points to the previous node of this posit
            * If remove at front, current points to previous "node" of head
31
32
            * Exception: throw std::out_of_range("Segmentation fault!") if r
33
34
35
    template <class T>
36
37
    void SLinkedList<T>::Iterator::set(const T& e)
38 ▼
    {
39
40
            Set the new value for current node
41
            * Exception: throw std::out of range("Segmentation fault!") if c
42
43
44
    template <class T>
45
46
    T& SLinkedList<T>::Iterator::operator*()
47 •
48
            Get data stored in current node
49
            * Exception: throw std::out_of_range("Segmentation fault!") if c
50
51
52
53
54
    template <class T>
    bool SLinkedList<T>::Iterator::operator!=(const Iterator& iterator)
55
56
    {
57 •
            Operator not equals
58
59
            * Returns false if two iterators points the same node and index
60
61
62
    // Prefix ++ overload
63
    template <class T>
64
    typename SLinkedList<T>::Iterator& SLinkedList<T>::Iterator::operator++(
65 ▼ {
66 ₹
```

Syntax Error(s)

```
__tester__.cpp: In member function 'bool SLinkedList<T>::Iterator::operator!=(const SLinkedList<T>::Iterator&)':
__tester__.cpp:406:1: error: no return statement in function returning non-void [-Werror=return-type]
__tester__.cpp: In instantiation of 'SLinkedList<T>::Iterator& SLinkedList<T>::Iterator::operator=(const
SLinkedList<T>::Iterator&) [with T = int]':
__tester__.cpp:442:21: required from here
_tester__.cpp:368:1: error: no return statement in function returning non-void [-Werror=return-type]
_tester__.cpp: In instantiation of 'SLinkedList<T>::Iterator SLinkedList<T>::Iterator::operator++(int) [with T = int]':
__tester__.cpp:442:44: required from here
_tester_.cpp:428:1: error: no return statement in function returning non-void [-Werror=return-type]
}
__tester__.cpp: In instantiation of 'T& SLinkedList<T>::Iterator::operator*() [with T = int]':
__tester__.cpp:443:5: required from here
__tester__.cpp:397:1: error: no return statement in function returning non-void [-Werror=return-type]
__tester__.cpp: In instantiation of 'SLinkedList<T>::Iterator& SLinkedList<T>::Iterator::operator++() [with T = int]':
__tester__.cpp:458:44: required from here
_tester__.cpp:417:1: error: no return statement in function returning non-void [-Werror=return-type]
cc1plus: all warnings being treated as errors
```

Incorrect

Marks for this submission: 0.00/1.00.

```
Question 10
Correct
Mark 1.00 out of 1.00
```

Class LinkedList is used to represent single linked list, described as the following:

```
class LinkedList {
  public:
     class Node;
  private:
     Node* head;
     Node* tail;
     int size;
  public:
     class Node {
        private:
          int value;
          Node* next;
          friend class LinkedList;
        public:
          Node() {
             this->next = NULL;
          }
          Node(Node* node) {
             this->value = node->value;
             this->next = node->next;
          }
          Node(int value, Node* next = NULL) {
             this->value = value;
             this->next = next;
          }
     };
     LinkedList(): head(NULL), tail(NULL), size(0) {};
     void partition(int k);
};
```

In this class; head, tail and size are the pointers of the first element, the last element and size of linked list.

Request: Implement function

void LinkedList::partition(int k);

To rearrange elements in this linked list by this way: split all elements of this linked list to 3 groups include: group I (the value of each element is smaller than k), group II (the value of each element is equal to k) and group III (the value of each element is larger than k); after that, move group I to the head of linked list, group II is after group I and group III is after group II. Note that the orders of the elements of each group are unchanged.

Example:

```
- The given linked list: 10->55->45->42->50
```

- k=<mark>45</mark>

In this case, group I includes elements with value 10 and 42, group II includes elements with 45 and group III includes elements with value 55 and 50. Rearrange by above way, this linked list will become 10->42->45->55->50 (the orders of th elements in each group is unchanged: 10 before 42 and 55 before 50).

Note: In this exercise, libraries iostream, sstream and using namespace std; have been used. You can add other functions for your answer, but you are not allowed to add other libraries.

For example:

Test	Result
<pre>LinkedList* 11 = new LinkedList();</pre>	[20,30,10,40,45,60,55]
l1->add(20); l1->add(30); l1->add(10); l1->add(60); l1->add(40); l1->add(45); l1->add(55);	
l1->partition(45);	
<pre>cout << l1->toString() << "\n";</pre>	

Answer: (penalty regime: 0 %)

Reset answer

```
1 void LinkedList::partition(int k) {
    Node* h = head; //
 2
 3
        int size = this->size;
        int* arr = new int[size];
 4
        int move = 0;
 5
        for (h = head; h != NULL; h= h->next)
 6
 7 .
 8
            if (h->value < k) {arr[move] = h->value; ++move;}
 9
        for (h = head; h != NULL; h= h->next)
10
11 1
        {
            if (h->value == k) {arr[move] = h->value; ++move;}
12
13
14
        for (h = head; h != NULL; h= h->next)
15
        {
            if (h->value > k) {arr[move] = h->value; ++move;}
16
17
        }
        int i = 0;
18
19
        for (h = head; h != NULL; h= h->next)
20 •
            h->value = arr[i];
21
22
            ++i;
23
24
        tail->value = arr[size-1];
25
        delete[] arr;
26
        return;
27
28
```

	Test	Expected	Got	
~	LinkedList* 11 = new LinkedList();	[20,30,10,40,45,60,55]	[20,30,10,40,45,60,55]	~
	l1->add(20); l1->add(30); l1->add(10); l1->add(60); l1->add(40); l1-			
	>add(45); l1->add(55);			
	l1->partition(45);			
	<pre>cout << 11->toString() << "\n";</pre>			

Passed all tests! 🗸

Correct

Marks for this submission: 1.00/1.00.

```
Question 11
Partially correct
Mark 0.40 out of 1.00
```

- Class LinkedList is used to represent single linked list, described as the following:

```
class LinkedList {
    public:
        class Node;
    private:
        Node* head;
        Node* tail;
        int size;
    public:
        class Node {
            private:
                int value;
                Node* next;
                friend class LinkedList;
            public:
                Node() {
                    this->next = NULL;
                }
                Node(Node* node) {
                    this->value = node->value;
                    this->next = node->next;
                }
                Node(int value, Node* next = NULL) {
                    this->value = value;
                    this->next = next;
                }
        };
        LinkedList(): head(NULL), tail(NULL), size(0) {};
        void replace(LinkedList* linked_list, int low, int high);
};
```

- In this class; head, tail and size are the pointers of the first element, the last element and size of linked list.
- Request: Implement function 'replace(LinkedList* linked_list, int low, int high)' (low <= high and high >= 0) to delete all elements from position low to position high in the linked list (head's position is 0). After that, add linked_list to this linked list in the position after position (low 1) (if low 1 < 0, the head of this linked list will become the head of linked_list.

(If high >= size, delete all elements from low position to the last position of this linked list. If low < 0, delete all elements from the first position of this linked list to high position)

- Example:
- + The given linked list: 10->20->30->40->50
- + The linked list: 55->45->42
- + low=1, high=3

In this case, delete all elements from position 1 (value 20) to position 3 (value 40). After that, add linked_list to this linked list to the position after position 0 (value 10), therefore, this linked list will become: 10->55->45->42->50.

Note: In this exercise, library 'iostream' and 'sstream' and 'using namespace std;' has been used. You can add other functions, however, you are not allowed to add other libraries.

For example:

Test	Result
LinkedList* l1 = new LinkedList();	[55,45,42,40,50]
<pre>LinkedList* 12 = new LinkedList();</pre>	
l1->add(10); l1->add(20); l1->add(30); l1->add(40); l1->add(50);	
12->add(55); 12->add(45); 12->add(42);	
l1->replace(l2, -1, 2);	
cout << 11->toString() << "\n";	

Answer: (penalty regime: 0 %)

Reset answer

```
1
    void LinkedList::replace(LinkedList* linked_list, int low, int high) {
 3
    if (linked_list == NULL) return;
 4
        int size2 = 0;
        int size1 = this->size;
 5
 6
        Node* h = linked_list->head;
           int cnt = 0;
 8
        while (h)
 9
        {
10
            ++cnt;
11
            h = h->next;
12
        }
13
        size2 = cnt;
14
         Node* store = NULL;
15
        int storepos = 0;
16
        int* replace = new int [size2];
17
        int* original = new int [size1];
18
        int* res = new int [size1+size2];
19
        Node* h2 = linked_list->head;
        Node* h1 = head;
20
21
        int res_size = 0;
22
        for (int i = 0; i < size2; ++i, h2 = h2->next) replace[i] = h2->valu
        for (int i = 0; i < size1; ++i, h1 = h1->next) original[i] = h1->val
23
24
        if (low < 0) // truong hop low < 0, ta thay bat dau tu head.</pre>
25
            for (int i = 0; i < size2; ++i) res[i] = replace[i]; // lay gia
26
27
            if (size2 <= size1) // thay the phan gia tri ma list 2 ko cover</pre>
28
29
                 for (int i = size2; i < size1; ++i) res[i] = original[i];</pre>
30
                res_size = size1;
31
            else if (size2 > size1) res_size = size2; // res = FULL list 2.
32
33
            if (size2 <= size1) //</pre>
34
35
                 int i = 0;
                for (h1 = head; h1 != NULL; h1 = h1->next)
36
37
38
                     h1->value = res[i];
39
                     ++i;
40
41
            delete[] replace;
42
            delete[] original;
43
            delete[] res;
44
            return;
45
            }
46
            else
47
48
                 int i = 0;
49
                for (h1 = head; h1 != NULL; h1 = h1->next)
50
51
                     if (h1 ->next == NULL && h1 != NULL) store = h1;
                     h1->value = rec[il·
52
53
```

	Test	Expected	Got	
~	LinkedList* 11 = new LinkedList();	[55,45,42,40,50]	[55,45,42,40,50]	~
	<pre>LinkedList* 12 = new LinkedList();</pre>			
	l1->add(10); l1->add(20); l1->add(30); l1->add(40); l1->add(50);			
	12->add(55); 12->add(45); 12->add(42);			
	l1->replace(l2, -1, 2);			
	cout << l1->toString() << "\n";			

Your code failed one or more hidden tests.

Partially correct

Marks for this submission: 0.40/1.00.

```
Question 12
Incorrect
Mark 0.00 out of 1.00
```

Class Train represents to a train, described as the following:

```
class Train {
  public:
     class TrainCar;
  private:
     TrainCar* head;
     TrainCar* tail;
     int size;
  public:
     class TrainCar {
       private:
          int remainingSpace;
          TrainCar* next;
          friend class Train:
        public:
          TrainCar() {this->next = NULL;}
          TrainCar(int remainingSpace, TrainCar* next = NULL) {
             this->remainingSpace = remainingSpace;
             this->next = next;
          }
     };
     Train() {
       this->head = new TrainCar(0);
       this->tail = this->head;
       this->size = 1;
     }
     int allocate(int containerSize);
     int totalRemainingSpace();
};
```

In this class:

- head is head of train (cannot contain container, index=0).
- tail is the last traincar of the train.
- size is the number of traincars the train has (include the head of train).

Each traincar (except head of train) can contains an amount of mass. Each traincar includes remainingSpace representing its current ability of containing and next presenting the next traincar (the head of train is the first traincar).

Load the containers into the traincars of the train following these rules:

- Each container can be loaded into only one traincar.
- With a container with mass M, we must load it into the traincar having current ability of containing >= M and it is the smallest (if more than one traincar satisfying, choose the traincar with the smallest index). After that, we must update its current ability of containing.

Request: Implement functions

 $int\ Train:: allocate (int\ container Size);\ int\ Train:: total Remaining Space ();$

where:

- Function allocate implements for loading the container with mass containerSize into the train. Return the result is the index of the traincar used for loading this container (if can) and return -1 (if cannot load).
- Function totalRemainingSpace implements for calculating the sum of the mass the train can contains. Return the result is the sum of the mass the train can contains currently.

Example:

- N(M) represents that the traincar with index N can contain mass of M.
- Train:

```
0(0)->1(200)->2(400)->3(300)->4(600)->5(500)->6(100)
```

- Implement allocate(390): the result is 2, update train:

```
0(0)->1(200)->2(10)->3(300)->4(600)->5(500)->6(100)
```

- Implement allocate(590): the result is 4, update train:

```
0(0)->1(200)->2(10)->3(300)->4(10)->5(500)->6(100)
```

- Implement totalRemainingSpace(): the result is 1120.
- Implement allocate(510): the result is -1.
- Implement allocate(10): the result is 2, update train:

```
0(0)->1(200)->2(0)->3(300)->4(10)->5(500)->6(100)
```

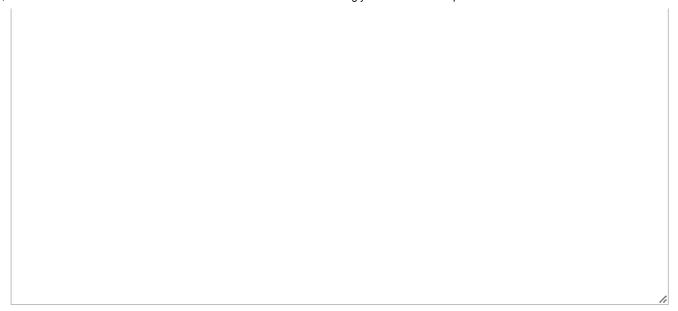
Note: In this exercise, libraries iostream and using namespace std; have been used. You can add other functions for your answer, but you are not allowed to add other libraries.

For example:

Test	Result
<pre>Train* t = new Train();</pre>	2
t->add(200); t->add(400); t->add(300); ; t->add(600); t->add(500);	4
t->add(100);	1120
<pre>cout << t->allocate(390) << "\n";</pre>	-1
<pre>cout << t->allocate(590) << "\n";</pre>	2
<pre>cout << t->totalRemainingSpace() << "\n";</pre>	→
<pre>cout << t->allocate(510) << "\n";</pre>	
<pre>cout << t->allocate(10) << "\n";</pre>	

Answer: (penalty regime: 0 %)

Reset answer



Syntax Error(s)

```
__tester__.cpp: In member function 'int Train::allocate(int)':
   __tester__.cpp:61:1: error: no return statement in function returning non-void [-Werror=return-type]
}
^
__tester__.cpp: In member function 'int Train::totalRemainingSpace()':
   __tester__.cpp:65:1: error: no return statement in function returning non-void [-Werror=return-type]
}
^
cc1plus: all warnings being treated as errors
```

Incorrect

Marks for this submission: 0.00/1.00.

■ Lab 1: Array List

Jump to...

Lab 2: Preparation ▶