Trạng thái	Đã xong
Bắt đầu vào lúc	Thứ Hai, 30 tháng 9 2024, 11:47 AM
Kết thúc lúc	Thứ Hai, 30 tháng 9 2024, 12:21 PM
Thời gian thực hiện	34 phút 17 giây
Điểm	8,00/8,00
Điểm	10.00 trên 10.00 (100 %)

```
Câu hởi 1
Đúng
Đạt điểm 1,00 trên 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
protected:
   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>	
<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, ... %)

Reset answer

```
template <class T>
 1
    void SLinkedList<T>::add(const T& e) {
 2 •
3
        /* Insert an element into the end of the list. */
 4
        Node *pNew = new Node(e);
 5
        if(this->count == 0){
 6
            head = pNew;
            tail = pNew;
7
8 •
        } else {
9
            tail->next = pNew;
10
            tail = pNew;
11
12
        count += 1;
13
14
15
    template<class T>
16 void SLinkedList<T>::add(int index, const T& e) {
17
        /* Insert an element into the list at given index. */
18 •
        if(index < 0 || index > this->count){
19
            throw std::out_of_range("Index is out of range");
20
21
        Node *pNew = new Node(e);
22 -
        if(index == 0){
23
            pNew->next = head;
24
            head = pNew;
25
            if(this->count == 0){
26
                tail = pNew;
27
            }
28
        } else {
29
            Node *pre = head;
30 -
            for(int i = 0; i < index - 1; i++){</pre>
31
                pre = pre->next;
32
33
            pNew->next = pre->next;
34
            pre->next = pNew;
35
            if(pNew->next == nullptr){
36
                tail = pNew;
37
38
39
        this->count += 1;
40
41
42
    template<class T>
43 •
    int SLinkedList<T>::size() {
44
        /* Return the length (size) of list */
45
        return this->count;
46
47
```

	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>			

Passed all tests! 🗸



Marks for this submission: 1,00/1,00.

```
Câu hởi 2
Đúng
Đạt điểm 1,00 trên 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();
           get(int index);
   void
          set(int index, T e);
    int
           indexOf(T item);
          contains(T item);
   bool
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
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);</pre>	
<pre>cout << list.toString();</pre>	

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

Reset answer

```
template<class T>
 2 •
    T SLinkedList<T>::get(int index) {
        /* Give the data of the element at given index in the list. */
3
        if(index < 0 || index >= this->count){
4
5
            throw std::out_of_range("Index is out of range");
 6
7
        Node *tmp = head;
8 ,
        for(int i = 0; i < index; i++){</pre>
9
            tmp = tmp->next;
10
11
        return tmp->data;
12
13
    template <class T>
14
15 void SLinkedList<T>::set(int index, const T& e) {
16
        /* Assign new value for element at given index in the list */
17
        if(index < 0 || index >= this->count){
18
            throw std::out_of_range("Index is out of range");
19
20
        Node *tmp = head;
21
        for(int i = 0; i < index; i++){</pre>
22
            tmp = tmp->next;
23
24
        tmp->data = e;
25
26
27
    template<class T>
28 bool SLinkedList<T>::empty() {
29
        /* Check if the list is empty or not. */
30
        return this->count == 0;
31
32
33
    template<class T>
34
    int SLinkedList<T>::indexOf(const T& item) {
35
        /* Return the first index wheter item appears in list, otherwise return -1 */
36
        Node *tmp = head;
37
        for(int i = 0; i < this->count; i++){
38
            if(tmp->data == item) return i;
39
            tmp = tmp->next;
40
        }
        return -1;
```

```
template<class T>
bool SLinkedList<T>::contains(const T& item) {
    /* Check if item appears in the list */
    return this->indexOf(item) != -1;
}
```

	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.get(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! 🗸



Marks for this submission: 1,00/1,00.

```
Câu hởi 3
Đúng
Đạt điểm 1,00 trên 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();
   void
           clear();
            get(int index);
           set(int index, T e);
   void
   int
           indexOf(T item);
   bool
           contains(T item);
           removeAt(int index);
    Τ
   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:

 \wedge

	I
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>	
<pre>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]
<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); }</pre>	
assert(list.removeItem(9));	
<pre>cout << list.toString();</pre>	

Answer: (penalty regime: 0 %)

Reset answer

```
template <class T>
 2
   T SLinkedList<T>::removeAt(int index)
3 ▼ {
 4
        /* Remove element at index and return removed value */
5 🔻
        if(index < 0 || index >= this->count){
6
            throw std::out_of_range("Index is out of range");
7
8
        Node *current = head;
9
        T value;
10
        if(index == 0){
11
            value = current->data;
12
            head = current->next;
13
            if(head == nullptr) tail = nullptr;
14
            delete current;
15
        } else {
16
            Node *pre = nullptr;
17
            for(int i = 0; i < index; i++){</pre>
18
                pre = current;
19
                current = current->next;
20
21
            value = current->data;
22
            pre->next = current->next;
23
            if(current == tail) tail = pre;
24
            delete current;
25
26
        this->count -= 1;
27
        return value;
28
29
30
    template <class T>
31
    bool SLinkedList<T>::removeItem(const T& item)
32 •
        /* Remove the first apperance of item in list and return true, otherwise return false */
33
34
        Node *tmp = head;
        for(int i = 0; i < this->count; i++){
35 •
36 ▼
            if(tmp->data == item){
```

```
37
                this->removeAt(i);
                return true;
38
39
            }
40
            tmp = tmp->next;
41
42
        return false;
43
44
45
    template<class T>
46 •
    void SLinkedList<T>::clear(){
47
        /* Remove all elements in list */
48
        Node *tmp = head;
49 -
        while(tmp != nullptr){
50
            Node *nextNode = tmp->next;
51
            delete tmp;
52
            tmp = nextNode;
53
54
        head = nullptr;
55
        tail = nullptr;
56
        this->count = 0;
    }
57
58
59
```

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

Passed all tests! 🗸

Đúng

Marks for this submission: 1,00/1,00.

```
Câu hỏi 4
Đúng
Đạt điểm 1,00 trên 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]
<pre>LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int));</pre>	[192, 7, 60, 88, 13]
LLNode::printList(head);	
cout << "\n";	
<pre>LLNode* newhead = reverseLinkedList(head);</pre>	
LLNode::printList(newhead);	
newhead->clear();	

Answer: (penalty regime: 0 %)

Reset answer

```
1 LLNode* reverseLinkedList(LLNode* head) {
 2
        LLNode *pre = nullptr;
        LLNode *current = head;
3
4
        LLNode *next = nullptr;
5 🔻
        while(current != nullptr){
 6
            next = current->next;
7
            current->next = pre;
8
            pre = current;
9
            current = next;
10
11
        return pre;
12
```

	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]	~

https://lms.hcmut.edu.vn/mod/quiz/review.php?attempt=4245659&cmid=415063

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, 143, 166, 127, 197, 198, 130, 29, 174, 112, 194, 185, 132, 27, 197, 158, 151, 51, 174}; LINode: printList(newhead); cout < "\n"; LINode::printList(newhead); cout < "\n"; newhead->clear(); (104, 50, 154, 40, 15, 171, 56, 114, 67, 90, 46, 179, 51, 143, 37, 166, 114, 67, 90, 46, 179, 51, 143, 37, 166, 114, 67, 90, 46, 179, 152, 177, 139, 45, 18, 55, 18, 45, 139, 177, 152, 179, 183, 154, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 179, 91, 144, 169, 127, 91, 144, 179, 91, 144, 149, 179, 184, 184, 184, 184, 184, 184, 184, 184		Test	Expected	Got	
56, 14, 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, 159, 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, 154, 154, 154, 154, 154, 154, 154, 154		1631	Lxpecieu	901	
158, 8, 157, 143, 37, 16, 83, 173, 82, 156, 51, 124, 25, 68, 51, 194, 195, 44, 17, 97, 0, 150, 66, 71, 81, 11, 180, 148, 160, 127, 93, 188, 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, 186, 92, 183, 179, 185, 130, 29, 174, 112, 194, 185, 132, 27, 197, 158, 151, 51, 174);	/	int arr[] = {104, 50, 154, 40, 15, 171, 56, 114,	[104, 50, 154, 40, 15, 171,	[104, 50, 154, 40, 15, 171,	~
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, 182, 192, 144, 17, 97, 0, 159, 66, 71, 44, 17, 97, 0, 159, 66, 71, 147, 71, 80, 12, 36, 191, 121, 194, 86, 92, 183, 164, 97, 185, 151, 174); LLNode::printList(head); Cout < "\n"; LLNode::printList(newhead); 121, 194, 86, 92, 183, 185, 132, 27, 197, 188, 151, 194, 108, 188, 185, 132, 27, 197, 188, 151, 151, 174]; LLNode::printList(newhead); 121, 194, 86, 92, 183, 164, 197, 185, 130, 29, 174, 112, 194, 86, 92, 183, 164, 197, 185, 130, 29, 174, 112, 194, 86, 92, 183, 164, 197, 185, 130, 29, 174, 112, 194, 86, 92, 183, 164, 197, 185, 130, 29, 174, 112, 194, 86, 92, 183, 164, 197, 185, 130, 29, 174, 112, 194, 86, 92, 183, 164, 197, 185, 131, 194, 185, 132, 27, 197, 185, 151, 151, 158, 197, 27, 132, 185, 194, 112, 194, 185, 132, 27, 197, 188, 194, 112, 194, 185, 132, 27, 197, 188, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 132, 194, 112, 194, 185, 134, 194, 114, 194, 185, 134, 194, 114, 194, 185, 134, 194, 114, 194, 185, 134, 194, 114, 194, 185, 134, 194, 194, 194, 194, 195, 194, 194, 194, 194, 194, 195, 194, 194, 194, 194, 195, 194, 51, 68, 25, 124, 51, 156, 82, 173, 83, 16, 37, 143, 157, 8, 158, 8, 157, 143, 37, 166, 83, 173, 82, 156, 51, 124, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 195, 194, 194, 194, 195, 194, 194, 195, 194, 194, 194, 195, 194, 194, 194, 194, 195, 194, 194, 194, 194, 195, 194, 194, 194, 194, 194, 194, 194, 194		67, 90, 46, 179, 152, 177, 139, 45, 18, 55, 38,	56, 114, 67, 90, 46, 179,	56, 114, 67, 90, 46, 179,	
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Expected 103, 121, 84, 35, 111, 52, 104, 43, 78, 108, 108, 6, 160, 171, 7, 180, 158, 127, 48, 98, 129, 157, 127, 7, 102, 94, 155, 37, 83, 65, 142, 82, 33, 194, 150, 31, 10, 121, 156, 113, 61, 142, 42, 22, 183, 108, 49, 146, 172, 123, 145, 131, 175, 26, 20, 153, 78, 76, 85, 3, 42, 107, 5, 78, 61, 195, 47, 47, 93, 24, 173, 186, 112, 66, 1, 28, 40, 72, 56, 198, 105, 67, 44, 75, 152, 69, 162, 100, 127, 89, 20, 1, 70, 148, 15, 172, 140, 132, 79, 193, 79, 136, 89, 80, 40, 89, 161, 158, 82, 0, 150, 104, 12, 88, 19, 113, 141, 36, 143, 127, 40, 44, 183, 17, 64, 188, 162, 171, 126, 158, 14, 54, 72, 26, 57, 129, 124, 26, 194, 84, 86, 187, 97, 183, 86, 129, 1 ...snip..., 129, 86, 183, 97, 187, 86, 84, 194, 26, 124, 129, 57, 26, 72, 54, 14, 158, 126, 171, 162, 188, 64, 17, 183, 44, 40, 127, 143, 36, 141, 113, 19, 88, 12, 104, 150, 0, 82, 158, 161, 89, 40, 80, 89, 136, 79, 193, 79, 132, 140, 172, 15, 148, 70, 1, 20, 89, 127, 100, 162, 69, 152, 75, 44, 67, 105, 198, 56, 72, 40, 28, 1, 66, 112, 186, 173, 24, 93, 47, 47, 195, 61, 78, 5, 107, 42, 3, 85, 76, 78, 153, 20, 26, 175, 131, 145, 123, 172, 146, 49, 108, 183, 22, 42, 142, 61, 113, 156, 121, 10, 31, 150, 194, 33, 82, 142, 65, 83, 37, 155, 94, 102, 7, 127, 157, 129, 98, 48, 127, 158, 180, 7, 171, 160, 6, 108, 108, 78, 43, 104, 52, 111, 35, 84, 121, 103, 56, 112, 87, 154, 120, 71, 142, 111, 4, 2, 133, 127, 32, 51, 127, 150, 84, 196, 53, 42, 146, 191, 4, 132, 145, 64, 72, 4, 145, 177, 16, 96, 63, 21, 60, 70, 36, 7, 164, 128, 104, 117, 123, 104, 189, 80, 52, 141, 129, 127, 11, 126, 115, 147, 182, 198, 74, 196, 29, 152, 186, 157, 128, 43, 185, 188, 136, 7, 40, 5, 185, 145, 61, 192, 190, 85, 64, 65, 5, 67, 109, 95, 91, 164, 153, 0, 3, 125, 40,

103, 121, 84, 35, 111, 52, 104, 43, 78, 108, 108, 6, 160, 171, 7, 180, 158, 127, 48, 98, 129, 157, 127, 7, 102, 94, 155, 37, 83, 65, 142, 82, 33, 194, 150, 31, 10, 121, 156, 113, 61, 142, 42, 22, 183, 108, 49, 146, 172, 123, 145, 131, 175, 26, 20, 153, 78, 76, 85, 3, 42, 107, 5, 78, 61, 195, 47, 47, 93, 24, 173, 186, 112, 66, 1, 28, 40, 72, 56, 198, 105, 67, 44, 75, 152, 69, 162, 100, 127, 89, 20, 1, 70, 148, 15, 172, 140, 132, 79, 193, 79, 136, 89, 80, 40, 89, 161, 158, 82, 0, 150, 104, 12, 88, 19, 113, 141, 36, 143, 127, 40, 44, 183, 17, 64, 188, 162, 171, 126, 158, 14, 54, 72, 26, 57, 129, 124, 26, 194, 84, 86, 187, 97, 183, 86, 129, 1 ...snip..., 129, 86, 183, 97, 187, 86, 84, 194, 26, 124, 129, 57, 26, 72, 54, 14, 158, 126, 171, 162, 188, 64, 17, 183, 44, 40, 127, 143, 36, 141, 113, 19, 88, 12, 104, 150, 0, 82, 158, 161, 89, 40, 80, 89, 136, 79, 193, 79, 132, 140, 172, 15, 148, 70, 1, 20, 89, 127, 100, 162, 69, 152, 75, 44, 67, 105, 198, 56, 72, 40, 28, 1, 66, 112, 186, 173, 24, 93, 47, 47, 195, 61, 78, 5, 107, 42, 3, 85, 76, 78, 153, 20, 26, 175, 131, 145, 123, 172, 146, 49, 108, 183, 22, 42, 142, 61, 113, 156, 121, 10, 31, 150, 194, 33, 82, 142, 65, 83, 37, 155, 94, 102, 7, 127, 157, 129, 98, 48, 127, 158, 180, 7, 171, 160, 6, 108, 108, 78, 43, 104, 52, 111, 35, 84, 121, 103, 56, 112, 87, 154, 120, 71, 142, 111, 4, 2, 133, 127, 32, 51, 127, 150, 84, 196, 53, 42, 146, 191, 4, 132, 145, 64, 72, 4, 145, 177, 16, 96, 63, 21, 60, 70, 36, 7, 164, 128, 104, 117, 123, 104, 189, 80, 52, 141, 129, 127, 11, 126, 115, 147, 182, 198, 74, 196, 29, 152, 186, 157, 128, 43, 185, 188, 136, 7, 40, 5, 185, 145, 61, 192, 190, 85, 64, 65, 5, 67, 109, 95, 91, 164, 153, 0, 3, 125, 40,

Test	Expected	Got	
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	158, 187, 197, 170, 103,	158, 187, 197, 170, 103,	
	166, 110, 40, 67, 36, 71, 106, 168, 169, 72, 123, 95, 21, 82, 121, 57, 129, 23,	166, 110, 40, 67, 36, 71, 106, 168, 169, 72, 123, 95, 21, 82, 121, 57, 129, 23,	
	183, 60, 92, 0, 37, 38,	183, 60, 92, 0, 37, 38,	
	166, 46, 75, 58, 124, 67, 139, 130, 165, 99, 127, 68,	166, 46, 75, 58, 124, 67, 139, 130, 165, 99, 127, 68,	
	180, 14, 12, 192, 46, 184, 132, 169, 15, 11, 89, 156,	180, 14, 12, 192, 46, 184, 132, 169, 15, 11, 89, 156,	
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	180, 133, 89, 139, 89, 102,	180, 133, 89, 139, 89, 102,	
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	154, 137, 136, 91, 66, 54,	154, 137, 136, 91, 66, 54,	
	115, 86, 75, 30, 102, 100, 158, 100, 27, 18, 68, 59,	115, 86, 75, 30, 102, 100, 158, 100, 27, 18, 68, 59,	
	76, 143, 16, 26, 145, 24,	76, 143, 16, 26, 145, 24,	
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	187, 84, 147, 77, 31, 74,	187, 84, 147, 77, 31, 74,	
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	112, 194, 54, 188, 69, 129,	112, 194, 54, 188, 69, 129,	
	160, 39, 164, 138, 101, 28, 135, 15, 147, 183, 69, 145,	160, 39, 164, 138, 101, 28, 135, 15, 147, 183, 69, 145,	
	161, 111, 5, 43, 150, 117,	161, 111, 5, 43, 150, 117,	
	5, 61, 5, 158, 155, 179, 95, 190, 122, 142, 40, 78,	5, 61, 5, 158, 155, 179, 95, 190, 122, 142, 40, 78,	
	177, 121, 38, 192, 153, 175, 199, 25, 165, 100, 59,	177, 121, 38, 192, 153, 175, 199, 25, 165, 100, 59,	
	127, 23, 122, 138, 21, 72,	127, 23, 122, 138, 21, 72,	
	38, 6, 19, 96, 195, 124, 169, 119, 134, 175, 174,	38, 6, 19, 96, 195, 124, 169, 119, 134, 175, 174,	
	74, 146, 125, 109, 169, 78,	74, 146, 125, 109, 169, 78,	
	190, 145, 193, 116, 186, 153, 173, 67, 34, 118, 194,	190, 145, 193, 116, 186, 153, 173, 67, 34, 118, 194,	
	40, 41, 155, 131, 114, 20,	40, 41, 155, 131, 114, 20,	
	132, 138, 28, 55, 51, 192, 143, 50, 32, 31, 24, 61,	132, 138, 28, 55, 51, 192, 143, 50, 32, 31, 24, 61,	
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	171, 144, 12, 139, 151, 45, 176, 9, 62, 164, 31, 9,	171, 144, 12, 139, 151, 45, 176, 9, 62, 164, 31, 9,	
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	64, 55, 78, 192, 165, 179,	64, 55, 78, 192, 165, 179,	
	49, 193, 112, 10, 111, 88, 147, 40, 85, 19, 83, 20,	49, 193, 112, 10, 111, 88, 147, 40, 85, 19, 83, 20,	
	10, 153, 81, 65, 46, 18,	10, 153, 81, 65, 46, 18,	
	90, 96, 3, 43, 198, 156, 91, 41, 110, 150, 154, 181,	90, 96, 3, 43, 198, 156, 91, 41, 110, 150, 154, 181,	
	161, 75, 45, 120, 176, 196,	161, 75, 45, 120, 176, 196,	
	122, 112, 192, 45, 122, 82, 112, 105, 28, 192, 188,	122, 112, 192, 45, 122, 82, 112, 105, 28, 192, 188,	
	109, 76, 14, 57, 162, 36,	109, 76, 14, 57, 162, 36,	
	73, 161, 7, 176, 0, 177, 55, 144, 14, 128, 40, 90,	73, 161, 7, 176, 0, 177, 55, 144, 14, 128, 40, 90,	
	143, 59, 53, 102, 194, 71,	143, 59, 53, 102, 194, 71,	
	37, 110, 126, 111, 180, 181, 177, 110, 136, 30,	37, 110, 126, 111, 180, 181, 177, 110, 136, 30,	
	198, 46, 192, 16, 53, 130,	198, 46, 192, 16, 53, 130,	

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Test	Expected	Got
Test	Expected 17, 1, 152, 145, 145, 49, 164, 148, 41, 32, 5, 161, 125, 178, 94, 24, 70, 65, 40, 174, 3, 3, 66, 56, 68, 102, 177, 26, 0, 97, 80, 121, 48, 13, 162, 93, 164, 76, 38, 19, 189, 48, 171, 17, 60, 62, 45, 75, 18, 100, 0, 70, 168, 80, 187, 186, 80, 51, 112, 101, 164, 79, 89, 133, 14, 188, 85, 175, 120, 49, 189, 126, 182, 40, 1, 69, 2, 42, 55, 103, 0, 22, 5, 199, 129, 140, 45, 44, 156, 94, 154, 79, 194, 104, 25, 24, 178, 31, 34, 109, 85, 136, 40, 140, 99, 43, 6, 91, 31, 183, 3, 174, 119, 199, 48, 0, 80, 189, 88, 198, 136, 110, 80, 103, 4, 94, 72, 0, 115, 173, 113, 120, 100, 82, 192, 191, 68, 14, 26, 28, 187, 28, 10, 102, 97, 127, 8, 51, 108, 77, 131, 95, 68, 139, 57, 23, 33, 17, 21, 190, 123, 142, 81, 136, 67, 110, 116, 53, 97, 43, 191, 64, 183, 2, 107, 128, 101, 31, 94, 62, 132,	Got 17, 1, 152, 145, 145, 49, 164, 148, 41, 32, 5, 161, 125, 178, 94, 24, 70, 65, 40, 174, 3, 3, 66, 56, 68, 102, 177, 26, 0, 97, 80, 121, 48, 13, 162, 93, 164, 76, 38, 19, 189, 48, 171, 17, 60, 62, 45, 75, 18, 100, 0, 70, 168, 80, 187, 186, 80, 51, 112, 101, 164, 79, 89, 133, 14, 188, 85, 175, 120, 49, 189, 126, 182, 40, 1, 69, 2, 42, 55, 103, 0, 22, 5, 199, 129, 140, 45, 44, 156, 94, 154, 79, 194, 104, 25, 24, 178, 31, 34, 109, 85, 136, 40, 140, 99, 43, 6, 91, 31, 183, 3, 174, 119, 199, 48, 0, 80, 189, 88, 198, 136, 110, 80, 103, 4, 94, 72, 0, 115, 173, 113, 120, 100, 82, 192, 191, 68, 14, 26, 28, 187, 28, 10, 102, 97, 127, 8, 51, 108, 77, 131, 95, 68, 139, 57, 23, 33, 17, 21, 190, 123, 142, 81, 136, 67, 110, 116, 53, 97, 43, 191, 64, 183, 2, 107, 128, 101, 31, 94, 62, 132,
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		30, 77, 182, 99, 192, 16,	30, 77, 182, 99, 192, 16,
		135, 98, 95, 81, 142, 167,	135, 98, 95, 81, 142, 167,
		82, 175, 159, 109, 91, 91,	82, 175, 159, 109, 91, 91,
		108, 70, 112, 22, 124, 13,	108, 70, 112, 22, 124, 13,
		171, 76, 14, 18, 29, 74,	171, 76, 14, 18, 29, 74,
		93, 63, 31, 131, 175, 162,	93, 63, 31, 131, 175, 162,
		66, 57, 106, 156, 17, 146,	66, 57, 106, 156, 17, 146,
		39, 17, 116, 40, 138, 25,	39, 17, 116, 40, 138, 25,
		158, 102, 137, 151, 122,	158, 102, 137, 151, 122,
		111, 172, 175, 10, 129,	111, 172, 175, 10, 129,
		157, 61, 57, 98, 153, 123,	157, 61, 57, 98, 153, 123,
		138, 25, 117, 58, 73, 136,	138, 25, 117, 58, 73, 136,
		173, 165, 50, 112, 75, 171, 160, 189, 164, 179, 47,	173, 165, 50, 112, 75, 171, 160, 189, 164, 179, 47,
		172, 183, 188, 164, 106,	172, 183, 188, 164, 106,
		137, 173, 140, 102, 195,	137, 173, 140, 102, 195,
		178, 3, 194, 158, 89, 96,	178, 3, 194, 158, 89, 96,
		37, 10, 100, 109, 133, 57,	37, 10, 100, 109, 133, 57,
		102, 75, 131, 34, 115, 135,	102, 75, 131, 34, 115, 135,
		119, 196, 187, 110, 109,	119, 196, 187, 110, 109,
		159, 79, 184, 95, 122, 111,	159, 79, 184, 95, 122, 111,
		99, 29, 41, 59, 117, 115,	99, 29, 41, 59, 117, 115,
		39, 121, 63, 106, 75, 173,	39, 121, 63, 106, 75, 173,
		7, 176, 54, 159, 85, 156,	7, 176, 54, 159, 85, 156,
		125, 2, 57, 4, 66, 185, 84,	125, 2, 57, 4, 66, 185, 84,
		114, 65, 94, 197, 175, 176,	114, 65, 94, 197, 175, 176,
		173, 69, 142, 167, 158,	173, 69, 142, 167, 158,
		118, 91, 65, 130, 152, 61,	118, 91, 65, 130, 152, 61,
		27, 96, 93, 2, 195, 152,	27, 96, 93, 2, 195, 152,
		23, 162, 115, 127, 78, 198,	23, 162, 115, 127, 78, 198,
		183, 28, 151, 18, 28, 138,	183, 28, 151, 18, 28, 138,
		178, 57, 123, 135, 52, 31,	178, 57, 123, 135, 52, 31,
		100, 4, 86, 133, 183, 149,	100, 4, 86, 133, 183, 149,
		187, 168, 104, 28, 64, 26,	187, 168, 104, 28, 64, 26,
		193, 145, 80, 53, 125, 116,	193, 145, 80, 53, 125, 116,
		79, 197, 195, 93, 144, 13,	79, 197, 195, 93, 144, 13,
		65, 19, 177, 61, 122, 20,	65, 19, 177, 61, 122, 20,
		199, 50, 57, 93, 4, 158,	199, 50, 57, 93, 4, 158,
		175, 99, 9, 146, 66, 160,	175, 99, 9, 146, 66, 160,
		81, 8, 160, 57, 130, 134,	81, 8, 160, 57, 130, 134,
		139, 135, 74, 112, 189,	139, 135, 74, 112, 189,
		108, 48, 52, 183, 17, 33,	108, 48, 52, 183, 17, 33,
		187, 77, 110, 173, 46, 150,	187, 77, 110, 173, 46, 150,
		57, 186, 32, 1, 82, 40,	57, 186, 32, 1, 82, 40,
		147, 2, 189, 70, 21, 55,	147, 2, 189, 70, 21, 55,
		97, 164, 196, 124, 185,	97, 164, 196, 124, 185,
		144, 63, 30, 89, 157, 150,	144, 63, 30, 89, 157, 150,
		79, 76, 58, 180, 134, 171,	79, 76, 58, 180, 134, 171,
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		63, 58, 154, 116, 88, 115,	63, 58, 154, 116, 88, 115,
		89, 48, 174, 89, 86, 31,	89, 48, 174, 89, 86, 31,
		145, 138, 170, 114, 86, 4,	145, 138, 170, 114, 86, 4,
		121, 115, 176, 83, 124, 95, 74, 20, 111, 35, 125, 129	121, 115, 176, 83, 124, 95, 74, 20, 111, 35, 125, 129
		74, 20, 111, 35, 125, 129,	74, 20, 111, 35, 125, 129,
		195, 109, 198, 173, 6, 60,	195, 109, 198, 173, 6, 60,
		155, 74, 160, 49, 190, 113, 15, 55, 185, 34, 127, 42,	155, 74, 160, 49, 190, 113, 15, 55, 185, 34, 127, 42,
		35, 109, 67, 52, 19, 159,	35, 109, 67, 52, 19, 159,
		7, 133, 124, 32, 50, 163,	7, 133, 124, 32, 50, 163,
		48, 85, 111, 199, 88, 57,	48, 85, 111, 199, 88, 57,
		163, 147, 164, 137, 77, 33,	163, 147, 164, 137, 77, 33,
		79, 33, 25, 117, 21, 184,	79, 33, 25, 117, 21, 184,
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		158, 70, 128, 75, 106, 128,	158, 70, 128, 75, 106, 128,

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	33, 109, 147, 180, 1, 179,	33, 109, 147, 180, 1, 179,	
	21, 128, 147, 41, 162, 82,	21, 128, 147, 41, 162, 82,	
	126, 15, 96, 136, 99, 24,	126, 15, 96, 136, 99, 24,	
	189, 102, 9, 30, 123, 199,	189, 102, 9, 30, 123, 199,	
	32, 135, 14, 182, 9, 135,	32, 135, 14, 182, 9, 135,	
	52, 61, 4, 23, 85, 29, 10,	52, 61, 4, 23, 85, 29, 10,	
	70, 61, 192, 125, 199, 22,	70, 61, 192, 125, 199, 22,	
	51, 29, 91, 98, 159, 5,	51, 29, 91, 98, 159, 5,	
	177, 176, 170, 119, 66, 21,	177, 176, 170, 119, 66, 21,	
	129, 156, 130, 78, 152,	129, 156, 130, 78, 152,	
	103, 91, 51, 157, 155, 27,	103, 91, 51, 157, 155, 27,	
	15, 154, 146, 106, 7, 170,	15, 154, 146, 106, 7, 170,	
		81, 141, 39, 29, 73, 70,	
	81, 141, 39, 29, 73, 70,		
	188, 62, 160, 7, 166, 77,	188, 62, 160, 7, 166, 77,	
	96, 35, 125, 33, 166, 95,	96, 35, 125, 33, 166, 95,	
	111, 40, 30, 186, 31, 33,	111, 40, 30, 186, 31, 33,	
	94, 129, 48, 105, 114, 198,	94, 129, 48, 105, 114, 198,	
	171, 141, 79, 113, 134, 0,	171, 141, 79, 113, 134, 0,	
	42, 135, 39, 21, 130, 106,	42, 135, 39, 21, 130, 106,	
	96, 111, 179, 104, 52, 94,	96, 111, 179, 104, 52, 94,	
	38, 9, 178, 180, 127, 11,	38, 9, 178, 180, 127, 11,	
	87, 65, 45, 104, 49, 44,	87, 65, 45, 104, 49, 44,	
	120, 170, 138, 3, 103, 93,	120, 170, 138, 3, 103, 93,	
	19, 84, 88, 118, 98, 36,	19, 84, 88, 118, 98, 36,	
	28, 194, 166, 199, 74, 186,	28, 194, 166, 199, 74, 186,	
	121, 90, 28, 77, 70, 13,	121, 90, 28, 77, 70, 13,	
	192, 102, 188, 173, 81, 16,	192, 102, 188, 173, 81, 16,	
	146, 97, 70, 23, 164, 170,	146, 97, 70, 23, 164, 170,	
	49, 48, 61, 40, 195, 59,	49, 48, 61, 40, 195, 59,	
	190, 122, 118, 120, 191,	190, 122, 118, 120, 191,	
	39, 84, 104, 93, 179, 40,	39, 84, 104, 93, 179, 40,	
	69, 100, 147, 59, 140, 77,	69, 100, 147, 59, 140, 77,	
	36, 88, 97, 18, 160, 66, 4,	36, 88, 97, 18, 160, 66, 4,	
	48, 115, 197, 146, 53, 29,	48, 115, 197, 146, 53, 29,	
	11, 47, 43, 185, 49, 59,	11, 47, 43, 185, 49, 59,	
	84, 61, 82, 58, 39, 74,	84, 61, 82, 58, 39, 74,	
	194, 112, 171, 30, 126,	194, 112, 171, 30, 126,	
	116, 35, 119, 4, 4, 73,	116, 35, 119, 4, 4, 73,	
	171, 78, 1, 31, 126, 75,	171, 78, 1, 31, 126, 75,	
	148, 10, 115, 152, 145,	148, 10, 115, 152, 145,	
	128, 15, 179, 51, 181, 34,	128, 15, 179, 51, 181, 34,	
	98, 64, 0, 143, 162, 198,	98, 64, 0, 143, 162, 198,	
	180, 141, 59, 134, 21, 38,	180, 141, 59, 134, 21, 38,	
	115, 120, 73, 32, 72, 119,	115, 120, 73, 32, 72, 119,	
	24, 179, 27, 5, 173, 98,	24, 179, 27, 5, 173, 98,	
	98, 162, 22, 21, 86, 161]	98, 162, 22, 21, 86, 161]	
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29, 143, 160, 82, 122, 66, 20, 52, 86, 149, 16, 136, 165, 131, 93, 0, 180, 157, 12, 172, 93, 122, 199, 45, 95, 156, 31, 94, 186, 5, 136, 32, 169, 42, 114, 174, 88, 79, 170, 38, 160, 195, 120, 185, 65, 14, 97, 132, 160, 40, 128, 0, 18, 99, 49, 159, 87, 11, 167, 49, 97, 61, 175, 158, 183, 134, 99, 108, 54, 173, 67, 67, 71, 20, 81, 119, 135, 107, 148, 6, 11, 38, 104, 131, 90, 89, 12, 106, 111, 136, 44, 181, 167, 75, 168, 46, 176, 34, 164, 134, 107, 181, 177, 141, 147, 136, 52, 107, 30, 37, 157, 174, 108, 90, 187, 13, 125, 172, 7, 13, 48, 52, 198, 177, 26, 9, 34, 56, 91, 166, 187, 130, 55, 94, 178, 10, 1 ...snip..., 10, 178, 94, 55, 130, 187, 166, 91, 56, 34, 9, 26, 177, 198, 52, 48, 13, 7, 172, 125, 13, 187, 90, 108, 174, 157, 37, 30, 107, 52, 136, 147, 141, 177, 181, 107, 134, 164, 34, 176, 46, 168, 75, 167, 181, 44, 136, 111, 106, 12, 89, 90, 131, 104, 38, 11, 6, 148, 107, 135, 119, 81, 20, 71, 67, 67, 173, 54, 108, 99, 134, 183, 158, 175, 61, 97, 49, 167, 11, 87, 159, 49, 99, 18, 0, 128, 40, 160, 132, 97, 14, 65, 185, 120, 195, 160, 38, 170, 79, 88, 174, 114, 42, 169, 32, 136, 5, 186, 94, 31, 156, 95, 45, 199, 122, 93, 172, 12, 157, 180, 0, 93, 131, 165, 136, 16, 149, 86, 52, 20, 66, 122, 82, 160, 143, 29, 60, 179, 149, 87, 100, 68, 132, 32, 58, 52, 111, 92, 103, 138, 199, 39, 82, 134, 92, 171, 75, 16, 112, 32, 29, 171, 198, 60, 90, 53, 68, 36, 121, 112, 93, 51, 155, 7, 41, 97, 142, 122, 41, 14, 185, 91, 149, 144, 97, 5, 96, 74, 107, 98, 62, 150, 179, 53, 100, 61, 92, 8, 193, 165, 17, 96, 196, 180, 114, 110, 101, 67, 35, 64, 184, 148, 145, 119, 7, 176, 191, 75, 167, 59, 40, 109, 86, 105, 125, 20, 91, 46, 185, 11, 103, 137, 130, 169, 146, 170, 139, 2, 104, 157,

Test	Expected	Got	
	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,	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,	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, 63, 4, 160, 174, 69, 78, 117, 28,	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, 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,	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,	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,	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,	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,	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,	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,	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,	
		21, 3, 21, 00, 02, 130,	

J/2-			
	Test	Expected	Got
		122, 41, 85, 117, 15, 26,	122, 41, 85, 117, 15, 26,
		168, 172, 71, 15, 169, 172,	168, 172, 71, 15, 169, 172,
		73, 44, 178, 134, 35, 108,	73, 44, 178, 134, 35, 108,
		1, 51, 12, 21, 10, 48, 139,	1, 51, 12, 21, 10, 48, 139,
		139, 94, 14, 0, 153, 73,	139, 94, 14, 0, 153, 73,
		73, 0, 149, 111, 103, 125,	73, 0, 149, 111, 103, 125,
		92, 24, 3, 38, 110, 77, 75,	92, 24, 3, 38, 110, 77, 75,
		131, 106, 33, 110, 109, 92,	131, 106, 33, 110, 109, 92,
		28, 49, 124, 38, 12, 132,	28, 49, 124, 38, 12, 132,
		137, 197, 190, 17, 22, 62,	137, 197, 190, 17, 22, 62,
		141, 13, 107, 48, 113, 169,	141, 13, 107, 48, 113, 169,
		92, 163, 115, 50, 56, 185,	92, 163, 115, 50, 56, 185,
		7, 63, 59, 187, 193, 155,	7, 63, 59, 187, 193, 155,
		183, 111, 67, 84, 104, 81,	183, 111, 67, 84, 104, 81,
		151, 131, 14, 15, 177, 197,	151, 131, 14, 15, 177, 197,
		190, 65, 143, 25, 156, 137,	190, 65, 143, 25, 156, 137,
		116, 98, 90, 127, 114, 88,	116, 98, 90, 127, 114, 88,
		189, 88, 23, 65, 106, 95,	189, 88, 23, 65, 106, 95,
		27, 93, 155, 4, 199, 99,	27, 93, 155, 4, 199, 99,
		151, 53, 192, 125, 2, 98,	151, 53, 192, 125, 2, 98,
		158, 155, 129, 100, 55,	158, 155, 129, 100, 55,
		119, 89, 128, 88, 60, 145,	119, 89, 128, 88, 60, 145,
		169, 85, 132, 70, 76, 167,	169, 85, 132, 70, 76, 167,
		25, 70, 199, 190, 52, 184,	25, 70, 199, 190, 52, 184,
		188, 144, 53, 147, 50, 162,	188, 144, 53, 147, 50, 162,
		130, 197, 125, 173, 147,	130, 197, 125, 173, 147,
		45, 71, 180, 173, 83, 174,	45, 71, 180, 173, 83, 174,
		68, 77, 96, 199, 115, 167,	68, 77, 96, 199, 115, 167,
		193, 156, 148, 175, 33, 98,	193, 156, 148, 175, 33, 98,
		99, 96, 62, 54, 125, 131,	99, 96, 62, 54, 125, 131,
		155, 64, 179, 66, 63, 192, 7, 149, 60, 136, 78, 172	155, 64, 179, 66, 63, 192, 7, 149, 60, 136, 78, 172
		7, 149, 60, 136, 78, 172,	7, 149, 60, 136, 78, 172,
		115, 10, 168, 158, 63, 28, 117, 81, 24, 40, 89, 67,	115, 10, 168, 158, 63, 28, 117, 81, 24, 40, 89, 67,
		57, 184, 89, 160, 13, 10,	57, 184, 89, 160, 13, 10,
		15, 37, 23, 152, 147, 188,	15, 37, 23, 152, 147, 188,
		96, 99, 116, 88, 13, 121,	96, 99, 116, 88, 13, 121,
		167, 67, 24, 180, 45, 199,	167, 67, 24, 180, 45, 199,
		86, 85, 58, 98, 121, 25,	86, 85, 58, 98, 121, 25,
		148, 172, 24, 146, 193,	148, 172, 24, 146, 193,
		149, 61, 72, 117, 59, 79,	149, 61, 72, 117, 59, 79,
		162, 100, 89, 88, 167, 99,	162, 100, 89, 88, 167, 99,
		14, 55, 178, 20, 116, 49,	14, 55, 178, 20, 116, 49,
		173, 27, 183, 117, 4, 99,	173, 27, 183, 117, 4, 99,
		145, 46, 46, 61, 116, 125,	145, 46, 46, 61, 116, 125,
		31, 195, 103, 30, 137, 184,	31, 195, 103, 30, 137, 184,
		36, 67, 68]	36, 67, 68]
		<u> </u>	· -

Passed all tests! 🗸



Marks for this submission: 1,00/1,00.

Câu hỏi **5**

Đúng

Không chấm điểm

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

Answer:

```
template <class T>
   SLinkedList<T>::Iterator::Iterator(SLinkedList<T>* pList, bool begin)
 2
3 ▼ {
 4
        this->pList = pList;
 5 •
            this->current = (pList != nullptr) ? pList->head : nullptr;
 6
 7
            this->index = (pList != nullptr) ? 0 : -1;
 8 •
        } else {
 9
            this->current = nullptr;
10
            this->index = (pList != nullptr) ? pList->count : 0;
11
12
13
14
    template <class T>
15
    typename SLinkedList<T>::Iterator& SLinkedList<T>::Iterator::operator=(const Iterator& iterator)
```

```
17
        this->pList = iterator.pList;
18
        this->current = iterator.current;
        this->index = iterator.index;
19
        return *this;
20
21
22
23
    template <class T>
24
    void SLinkedList<T>::Iterator::remove()
25 ▼ {
26 •
        if(this->current == nullptr){
27
            throw std::out_of_range("Segmentation fault!");
28
29
        if(this->current == this->pList->head){
            Node *tmp = this->pList->head;
30
            this->pList->head = tmp->next;
31
            delete tmp;
32
33 •
            if(this->pList->head == nullptr){
34
                this->pList->tail = nullptr;
35
36
            this->current = nullptr;
37
            this->index = -1;
38 •
        } else {
39
            Node *pre = this->pList->head;
40
            for(int i = 0; i < this -> index - 1; i++){
41
                pre = pre->next;
42
43
            pre->next = this->current->next;
44
            if(this->current == this->pList->tail){
45
                this->pList->tail = pre;
46
47
            delete this->current;
48
            this->current = pre;
49
            --this->index;
50
51
        this->pList->count --;
52
53
54
    template <class T>
55
    void SLinkedList<T>::Iterator::set(const T& e)
56 ▼ {
57 🔻
        if(this->current == nullptr){
58
            throw std::out_of_range("Segmentation fault!");
59
60
        this->current->data = e;
61
    }
62
```

```
Test

V SLinkedList<int> list;

int size = 10;
  for(int idx=0; idx < size; idx++){
    list.add(idx);
}

SLinkedList<int>::Iterator it;
  int expvalue = 0;
  for(it = list.begin(); it != list.end(); it++){
    assert(*it == expvalue);
    expvalue += 1;
}
```

```
Test

V SLinkedList<int> list;

int size = 10;
for(int idx=0; idx < size; idx++){
    list.add(idx);
}

SLinkedList<int>::Iterator it;
int expvalue = 0;
for(it = list.begin(); it != list.end(); ++it){
    assert(*it == expvalue);
    expvalue += 1;
}
```

```
Câu hởi ố
Đúng
Đạt điểm 1,00 trên 1,00
```

Class LLNode is used to store a node in a singly linked list, described on the following:

```
class LLNode {
   public:
     int val;
     LLNode* next;
     LLNode();
     LLNode(int val, LLNode* next);
}
```

Where val is the value of node, next is the pointer to the next node.

Request: Implement function:

```
LLNode* addLinkedList(LLNode* 10, LLNode* 11);
```

Where 10, 11 are two linked lists represented positive integers, each node is a digit, the head is the least significant digit (the value of each node is between 0 and 9, the length of each linked list is between 0 and 100000). This function returns the linked list representing the sum of the two integers.

Example:

Given 10 = [2, 3] (representing 32) and 11 = [1, 8] (representing 81). The result would be 10 = [3, 1, 1] (representing 32 + 81 = 113).

Note:

In this exercise, the libraries iostream, string, cstring, climits, utility, vector, list, stack, queue, map, unordered_map, set, unordered_set, functional, algorithm has been included and namespace std are used. You can write helper functions and classes. Importing other libraries is allowed, but not encouraged, and may result in unexpected errors.

For example:

Test	Result
int arr1[] = {2, 9};	[2, 4, 1]
int arr2[] = {0, 5};	
<pre>LLNode* head1 = LLNode::createWithIterators(arr1, arr1 + sizeof(arr1) / sizeof(int));</pre>	
<pre>LLNode* head2 = LLNode::createWithIterators(arr2, arr2 + sizeof(arr2) / sizeof(int));</pre>	
<pre>LLNode* newhead = addLinkedList(head1, head2);</pre>	
LLNode::printList(newhead);	
head1->clear();	
head2->clear();	
<pre>newhead->clear();</pre>	

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

```
1 - LLNode* addLinkedList(LLNode* 10, LLNode* 11) {
        LLNode *result = nullptr;
        LLNode *tail = nullptr;
 3
 4
        int carry = 0;
 5 •
        while(10 != nullptr || 11 != nullptr){
 6
            int val0 = (10 != nullptr) ? 10->val : 0;
 7
            int val1 = (l1 != nullptr) ? l1->val : 0;
 8
            int total = val0 + val1 + carry;
 9
            carry = total / 10;
            total %= 10;
10
11
12
            LLNode *newNode = new LLNode(total);
13
            if(result == nullptr) result = newNode;
14
            else tail->next = newNode;
15
            tail = newNode;
```

```
it(10 != nullptr) 10 = 10->next;
            if(l1 != nullptr) l1 = l1->next;
17
18
        }
19 🔻
        if(carry > 0){
20
            LLNode *newNode = new LLNode (carry);
21
            tail->next = newNode;
22
            tail = newNode;
23
24
        return result;
25
```

	Test	Expected	Got	
~	<pre>int arr1[] = {2, 9}; int arr2[] = {0, 5}; LLNode* head1 = LLNode::createWithIterators(arr1, arr1 + sizeof(arr1) / sizeof(int)); LLNode* head2 = LLNode::createWithIterators(arr2, arr2 + sizeof(arr2) / sizeof(int)); LLNode* newhead = addLinkedList(head1, head2); LLNode::printList(newhead); head1->clear(); head2->clear(); newhead->clear();</pre>	[2, 4, 1]	[2, 4, 1]	~

Đúng

```
Câu hỏi 7
Đúng
Đạt điểm 1,00 trên 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; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = rotateLinkedList(head, k); LLNode::printList(newhead);</pre>	[2, 4, 6, 6, 3] [6, 6, 3, 2, 4]

Answer: (penalty regime: 0 %)

```
1 \ LLNode* rotateLinkedList(LLNode* head, int k) {
 2
        if(!head || head->next == nullptr || k == 0) return head;
        LLNode *tail = head;
3
4
        int length = 1;
5 🔻
        while(tail->next){
            tail = tail->next;
 6
7
            length += 1;
8
9
        k %= length;
10
        if(k == 0) return head;
        LLNode *tmp = head;
11
12
        for(int i = 0; i < length - k - 1; i++){</pre>
13
            tmp = tmp->next;
14
15
        LLNode *newHead = tmp->next;
16
        tmp->next = nullptr;
17
        tail->next = head;
18
        tail = tmp;
19
        return newHead;
20
```

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

https://lms.hcmut.edu.vn/mod/quiz/review.php?attempt=4245659&cmid=415063

T1	Even a ala al	Cal	
IEST	Expected	GOT	
Int arr[] = {9, 1, 7, 5, 8, 6, 2, 2, 2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3, 7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 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, 6, 5, 8, 7, 6, 8, 0, 5, 7, 8, 8, 6, 7, 5, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4, 1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3, 9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0, 6, 1, 1, 5, 0, 9, 1, 1, 10, 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, 5, 3, 5, 9, 3, 2, 7, 3, 5, 9, 5, 5, 3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2, 6, 0, 7, 5, 5, 0, 5, 2, 6, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4, 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, 7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7, 0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6, 7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 1, 5, 6, 9, 7, 5, 8, 6, 5, 9, 2, 8, 8, 6, 6, 2, 6, 6, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 1, 5, 6, 5, 7, 5, 5, 8, 1, 7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1, 3, 5, 5, 0, 6, 9, 4, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1, 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, 4, 9, 5, 4, 5, 2, 0, 8, 0, 5, 5, 1, 8, 9, 4, 5, 6, 1, 2, 0, 7, 5, 2, 9, 5, 5, 8, 1, 7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1, 3, 5, 5, 6, 5, 5, 2, 2, 9, 3, 6, 6, 9, 4, 7, 9, 1, 1, 5, 4, 5, 7, 5, 0, 2, 0, 4, 4, 8, 0, 7, 3}; int k = 196; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode* newhead = rotateLinkedList(head, k);	Expected [9, 1, 7, 5, 8, 6, 2, 2, 2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3, 7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 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, 6, 5, 8, 7, 6, 8, 0, 5, 7, 8, 8, 6, 7, 5, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4, 1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3, 9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0, 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, 5, 3, 5, 9, 3, 2, 7, 3, 5, 9, 5, 5, 3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2, 6, 0, 7, 5, 5, 5, 0, 5, 2, 6, 9, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4, 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, 7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7, 0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6, 7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 2, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	[9, 1, 7, 5, 8, 6, 2, 2, 2, 2, 6, 0, 8, 1, 9, 6, 8, 4, 8, 4, 3, 7, 0, 7, 8, 9, 5, 3, 4, 7, 4, 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, 6, 5, 8, 7, 6, 8, 0, 7, 6, 4, 9, 5, 9, 6, 4, 1, 5, 6, 2, 2, 6, 7, 0, 3, 4, 2, 3, 9, 0, 9, 6, 3, 6, 7, 5, 5, 5, 9, 0, 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, 5, 3, 5, 9, 3, 2, 7, 3, 5, 5, 9, 5, 5, 3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2, 6, 0, 7, 5, 5, 5, 9, 9, 3, 2, 7, 5, 5, 5, 9, 9, 3, 2, 7, 3, 5, 9, 5, 5, 3, 2, 3, 9, 4, 1, 6, 1, 8, 3, 1, 4, 5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2, 6, 0, 7, 5, 5, 0, 5, 2, 6, 9, 9, 9, 9, 9, 2, 3, 0, 6, 8, 8, 4, 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, 7, 0, 5, 9, 4, 3, 7, 9, 7, 3, 5, 7, 0, 3, 1, 8, 9, 9, 4, 0, 8, 6, 4, 6, 7, 3, 8, 1, 2, 1, 5, 4, 9, 5, 9, 5, 8, 6, 6, 2, 6, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 1, 2, 1, 2, 1, 2, 1, 3, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 2, 8, 0, 8, 9, 0, 7, 9, 9, 1, 6, 6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 1, 7, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 9, 9, 7, 9, 9, 1, 6, 6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1, 5, 3, 9, 7, 6, 9, 1, 3, 5, 5, 9, 5, 5, 8, 1, 6, 1, 0, 7, 2, 2, 6, 7, 4, 4, 9, 5, 4,	
9, 3, 6, 0, 1, 7, 9, 8, 1, 1, 5, 4, 5, 7, 5, 0, 2, 0, 4, 4, 8, 0, 7, 3}; int k = 196; LLNode* head = LLNode::createWithIterators(arr, arr + sizeof(arr) / sizeof(int)); LLNode::printList(head); cout << "\n"; LLNode* newhead = rotateLinkedList(head, k);	9, 5, 8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 0, 4, 3, 4, 6, 7, 1, 0, 7, 0, 7, 9, 4, 0, 1, 2, 3, 5, 6, 3, 5, 6, 7, 5, 4, 2, 4, 8, 2, 5, 8, 8, 6, 6, 2, 6, 6, 8, 1, 2, 2, 8, 0, 8, 9, 0, 7, 9, 0, 1, 6, 6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 3, 7, 2, 0, 0, 2, 7, 5, 2, 9, 5, 5, 8, 1, 7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1,	9, 5, 8, 6, 6, 8, 9, 4, 4, 0, 6, 4, 5, 3, 0, 3, 9, 7, 1, 7, 2, 5, 0, 1, 9, 1, 2, 5, 6, 8, 7, 1, 6, 9, 6, 2, 8, 1, 2, 0, 7, 9, 4, 0, 1, 2, 3, 5, 6, 3, 5, 6, 7, 5, 4, 2, 4, 8, 2, 5, 8, 8, 6, 6, 2, 6, 6, 8, 1, 2, 2, 8, 0, 8, 9, 0, 7, 9, 0, 1, 6, 6, 3, 6, 5, 1, 5, 9, 0, 3, 7, 3, 7, 2, 0, 0, 2, 7, 5, 2, 9, 5, 5, 8, 1, 7, 7, 9, 7, 1, 1, 6, 4, 3, 8, 0, 7, 9, 1, 0, 9, 5, 2, 7, 2, 1,	
	5, 0, 6, 9, 4, 7, 1, 7, 2, 0, 4, 5, 8, 1, 6, 1, 0, 7,	5, 0, 6, 9, 4, 7, 1, 7, 2, 0, 4, 5, 8, 1, 6, 1, 0, 7,	

24	Singly Linked List: Xem lại lần làm thứ	BIC-EING
Test	Expected	Got
	7, 5, 2, 9, 5, 5, 8, 1, 7,	7, 5, 2, 9, 5, 5, 8, 1, 7,
	7, 9, 7, 1, 1, 6, 4, 3, 8,	7, 9, 7, 1, 1, 6, 4, 3, 8,
	0, 7, 9, 1, 0, 9, 5, 2, 7,	0, 7, 9, 1, 0, 9, 5, 2, 7,
	2, 1, 5, 3, 9, 7, 6, 9, 1,	2, 1, 5, 3, 9, 7, 6, 9, 1,
	3, 5, 5, 0, 6, 9, 4, 7, 1,	3, 5, 5, 0, 6, 9, 4, 7, 1,
	7, 2, 0, 4, 5, 8, 1, 6, 1,	7, 2, 0, 4, 5, 8, 1, 6, 1,
	0, 7, 2, 2, 6, 7, 4, 4, 9,	0, 7, 2, 2, 6, 7, 4, 4, 9,
	5, 4, 5, 2, 0, 8, 0, 5, 5,	5, 4, 5, 2, 0, 8, 0, 5, 5,
	1, 8, 9, 4, 5, 6, 1, 2, 0,	
	7, 0, 2, 1, 6, 8, 8, 7, 8,	7, 0, 2, 1, 6, 8, 8, 7, 8,
	7, 0, 1, 8, 5, 6, 5, 9, 2,	
	2, 9, 3, 6, 0, 1, 7, 9, 8,	2, 9, 3, 6, 0, 1, 7, 9, 8,
	1, 1, 5, 4, 5, 7, 5, 0, 2,	1, 1, 5, 4, 5, 7, 5, 0, 2,
	0, 4, 4, 8, 0, 7, 3, 9, 1,	
	7, 5, 8, 6, 2, 2, 2, 6, 0,	
	8, 1, 9, 6, 8, 4, 8, 4, 3,	
	7, 0, 7, 8, 9, 5, 3, 4, 7,	
	4, 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,	
	6, 5, 8, 7, 6, 8, 0, 5, 7,	
	8, 8, 6, 7, 5, 8, 0, 7, 6,	
	4, 9, 5, 9, 6, 4, 1, 5, 6,	
	2, 2, 6, 7, 0, 3, 4, 2, 3,	
	9, 0, 9, 6, 3, 6, 7, 5, 5,	
	5, 9, 0, 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, 5, 3, 5, 9, 3, 2,	
	7, 3, 5, 9, 5, 5, 3, 2, 3,	
	9, 4, 1, 6, 1, 8, 3, 1, 4,	
	5, 2, 5, 7, 7, 0, 9, 6, 6, 4, 8, 1, 1, 6, 0, 2, 6, 0,	
	7, 5, 5, 0, 5, 2, 6, 9, 9,	
	9, 9, 2, 3, 0, 6, 8, 8, 4,	
	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,	
	7, 0, 5, 9, 4, 3, 7, 9, 7,	
	3, 5, 7, 0, 3, 1, 8, 9, 9,	
	4, 0, 8, 6, 4, 6, 7, 3, 8,	
	1, 2, 1, 5, 4, 9, 5, 9, 5,	
	8, 6, 6, 8, 9, 4, 4, 0, 6,	
	4, 5, 3, 0, 3, 9, 7, 1, 7,	
	2, 5, 0, 1, 9, 1, 2, 5, 6,	
	8, 7, 1, 6, 9]	8, 7, 1, 6, 9]
	2, 7, 2, 0, 2]	-, -, -, -, -,

Ongry Enlied Elst. Acting land and pre-two				(-LIVIO	
		Test	Expected	Got	
	~	int arr[] = {8, 0, 8, 8, 9, 3, 3, 5, 4, 9, 7, 9,	[8, 0, 8, 8, 9, 3, 3, 5, 4,	[8, 0, 8, 8, 9, 3, 3, 5, 4,	~
		5, 3, 8, 6, 1, 0, 6, 4, 5, 1, 1, 5, 3, 8, 6, 1, 1, 1, 0, 1, 4, 9, 0, 1, 8, 0, 2, 7, 1, 5, 7, 6,	9, 7, 9, 5, 3, 8, 6, 1, 0, 6, 4, 5, 1, 1, 5, 3, 8, 6,	9, 7, 9, 5, 3, 8, 6, 1, 0, 6, 4, 5, 1, 1, 5, 3, 8, 6,	
		7, 7, 9, 5, 0, 9, 6, 3, 7, 6, 6, 4, 6, 2, 9, 1,	1, 1, 1, 0, 1, 4, 9, 0, 1,	1, 1, 1, 0, 1, 4, 9, 0, 1,	
		5, 0, 8, 6, 0, 8, 6, 3, 0, 3, 6, 8, 5, 0, 1, 9,	8, 0, 2, 7, 1, 5, 7, 6, 7,	8, 0, 2, 7, 1, 5, 7, 6, 7,	
		9, 6, 3, 3, 2, 9, 2, 0, 0, 5, 0, 4, 6, 7, 2, 6,	7, 9, 5, 0, 9, 6, 3, 7, 6,	7, 9, 5, 0, 9, 6, 3, 7, 6,	
		5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1, 5, 8, 7, 5, 7,	6, 4, 6, 2, 9, 1, 5, 0, 8,	6, 4, 6, 2, 9, 1, 5, 0, 8,	
		8, 7, 8, 7, 1, 7, 9, 7, 1, 3, 0, 5, 5, 1, 0, 2,	6, 0, 8, 6, 3, 0, 3, 6, 8,	6, 0, 8, 6, 3, 0, 3, 6, 8,	
		1, 0, 1, 5, 3, 7, 7, 9, 6, 1, 6, 4, 8, 9, 8, 6,	5, 0, 1, 9, 9, 6, 3, 3, 2,	5, 0, 1, 9, 9, 6, 3, 3, 2,	
		0, 0, 3, 6, 2, 3, 4, 9, 7, 4, 2, 2, 9, 7, 7, 4,	9, 2, 0, 0, 5, 0, 4, 6, 7,	9, 2, 0, 0, 5, 0, 4, 6, 7,	
		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, 6,	2, 6, 5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1, 5, 8, 7, 5, 7,	2, 6, 5, 2, 8, 8, 7, 1, 0, 9, 7, 7, 1, 5, 8, 7, 5, 7,	
		0, 0, 5, 0, 0, 6, 1, 7, 8, 6, 9, 5, 4, 7, 0, 5,	8, 7, 8, 7, 1, 7, 9, 7, 1,	8, 7, 8, 7, 1, 7, 9, 7, 1,	
		3, 2, 4, 9, 9, 2, 3, 4, 4, 1, 8, 2, 4, 4, 6, 2,	3, 0, 5, 5, 1, 0, 2, 1, 0,	3, 0, 5, 5, 1, 0, 2, 1, 0,	
		0, 5, 9, 4, 5, 8, 1, 8, 4, 7, 5, 4, 9, 7, 3, 1,	1, 5, 3, 7, 7, 9, 6, 1, 6,	1, 5, 3, 7, 7, 9, 6, 1, 6,	
		7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9, 7, 4, 8, 4, 6,	4, 8, 9, 8, 6, 0, 0, 3, 6,	4, 8, 9, 8, 6, 0, 0, 3, 6,	
		9, 3, 4, 4, 3, 7, 1, 3, 9, 3, 3, 7, 9, 7, 9, 4,	2, 3, 4, 9, 7, 4, 2, 2, 9,	2, 3, 4, 9, 7, 4, 2, 2, 9,	
		6, 0, 5, 5, 5, 6, 2, 5, 5, 9, 0, 2, 9, 0, 3, 8,	7, 7, 4, 9, 9, 7, 5, 6, 2,	7, 7, 4, 9, 9, 7, 5, 6, 2,	
		7, 6, 1, 0, 4, 0, 7, 4, 2, 5, 0, 0, 6, 4, 3, 6,	4, 0, 1, 9, 9, 8, 4, 6, 1,	4, 0, 1, 9, 9, 8, 4, 6, 1,	
		0, 9, 2, 4, 1, 0, 3, 8, 0, 1, 7, 3, 8, 9, 0, 5, 3, 2, 8, 4, 0, 4, 6, 9, 8, 6, 5, 2, 7, 9, 0, 1,	2, 9, 6, 7, 9, 4, 7, 5, 2, 9, 4, 2, 5, 9, 4, 1, 6, 0,	2, 9, 6, 7, 9, 4, 7, 5, 2, 9, 4, 2, 5, 9, 4, 1, 6, 0,	
		7, 5, 5, 9, 5, 6, 8, 2, 8, 6, 7, 4, 5, 9, 0, 2,	0, 5, 0, 0, 6, 1, 7, 8, 6,	0, 5, 0, 0, 6, 1, 7, 8, 6,	
		6, 8, 4, 3, 5, 9, 9, 1, 0, 3, 2, 3, 8, 1, 0, 5,	9, 5, 4, 7, 0, 5, 3, 2, 4,	9, 5, 4, 7, 0, 5, 3, 2, 4,	
		9, 6, 8, 9, 0, 9, 9, 4, 7, 5, 1, 7, 0, 3, 8, 9,	9, 9, 2, 3, 4, 4, 1, 8, 2,	9, 9, 2, 3, 4, 4, 1, 8, 2,	
		9, 1, 0, 3, 0, 4, 2, 6, 6, 9, 1, 2, 5, 2, 3, 5,	4, 4, 6, 2, 0, 5, 9, 4, 5,	4, 4, 6, 2, 0, 5, 9, 4, 5,	
		1, 5, 0, 1, 6, 4, 8, 8, 4, 9, 5, 6, 5, 4, 2, 5,	8, 1, 8, 4, 7, 5, 4, 9, 7,	8, 1, 8, 4, 7, 5, 4, 9, 7,	
		9, 7, 3, 0, 6, 6, 8, 8, 7, 1, 0, 5, 3, 5, 5, 9,	3, 1, 7, 7, 5, 4, 5, 6, 2,	3, 1, 7, 7, 5, 4, 5, 6, 2,	
		4, 8, 4, 6, 9, 3, 8, 3, 4, 9, 6, 8, 9, 7, 3, 4,	1, 7, 5, 9, 7, 4, 8, 4, 6,	1, 7, 5, 9, 7, 4, 8, 4, 6,	
		1, 0, 1, 2, 0, 0, 8, 1, 8, 5, 1, 5, 1, 0, 1, 1,	9, 3, 4, 4, 3, 7, 1, 3, 9,	9, 3, 4, 4, 3, 7, 1, 3, 9,	
		4, 0, 8, 7, 2, 8, 0, 0, 9, 6, 2, 1, 5, 1, 3, 4, 2, 5, 2, 0, 2, 5, 8, 1, 1, 6, 4, 6, 5, 8, 5, 9,	3, 3, 7, 9, 7, 9, 4, 6, 0, 5, 5, 5, 6, 2, 5, 5, 9, 0,	3, 3, 7, 9, 7, 9, 4, 6, 0, 5, 5, 5, 6, 2, 5, 5, 9, 0,	
		5, 8, 1, 8, 5, 4, 2, 0, 5, 5, 0, 1, 9, 7, 1, 1,	2, 9, 0, 3, 8, 7, 6, 1, 0,	2, 9, 0, 3, 8, 7, 6, 1, 0,	
		7, 6, 1, 8, 8, 4, 6, 4, 4, 3, 1, 0, 3, 3, 7, 9,	4, 0, 7, 4, 2, 5, 0, 0, 6,	4, 0, 7, 4, 2, 5, 0, 0, 6,	
		7, 9, 5, 1, 5, 1, 5, 2, 0, 3, 1, 4, 9, 2, 6, 5,	4, 3, 6, 0, 9, 2, 4, 1, 0,	4, 3, 6, 0, 9, 2, 4, 1, 0,	
		3, 2, 7, 8, 1, 6, 7, 0, 2, 7, 6, 1, 5, 8, 3, 5,	3, 8, 0, 1, 7, 3, 8, 9, 0,	3, 8, 0, 1, 7, 3, 8, 9, 0,	
		0, 4, 7, 9, 8, 8, 2, 6, 9, 9, 7, 8, 3, 8, 8, 0,	5, 3, 2, 8, 4, 0, 4, 6, 9,	5, 3, 2, 8, 4, 0, 4, 6, 9,	
		8, 6, 4, 5, 7, 2, 0, 7, 3, 5, 5, 3, 5, 6, 2, 3,	8, 6, 5, 2, 7, 9, 0, 1, 7,	8, 6, 5, 2, 7, 9, 0, 1, 7,	
		3, 1, 2, 4, 4, 4, 5, 5, 4, 9, 7, 0, 8, 0, 4, 3,	5, 5, 9, 5, 6, 8, 2, 8, 6,	5, 5, 9, 5, 6, 8, 2, 8, 6,	
		0, 9, 7, 7, 8, 1, 3, 7, 1, 5, 4, 7, 6, 3, 8, 6, 7, 5, 4, 2, 0, 6, 7, 4, 7, 4, 6, 1, 3, 7, 2, 4,	7, 4, 5, 9, 0, 2, 6, 8, 4, 3, 5, 9, 9, 1, 0, 3, 2, 3,	7, 4, 5, 9, 0, 2, 6, 8, 4, 3, 5, 9, 9, 1, 0, 3, 2, 3,	
		4, 0, 1, 2, 9, 1, 9, 5, 7, 1, 7, 7, 3, 2, 9, 8,	8, 1, 0, 5, 9, 6, 8, 9, 0,	8, 1, 0, 5, 9, 6, 8, 9, 0,	
		2, 4, 4, 9, 0, 5, 6, 7, 9, 1, 8, 3, 8, 2, 3, 2,	9, 9, 4, 7, 5, 1, 7, 0, 3,	9, 9, 4, 7, 5, 1, 7, 0, 3,	
		4, 6, 2, 0, 7, 5, 9, 5, 2, 2, 6, 8, 6, 9, 9, 3,	8, 9, 9, 1, 0, 3, 0, 4, 2,	8, 9, 9, 1, 0, 3, 0, 4, 2,	
		0, 4, 1, 5, 2, 3, 9, 3, 9, 1, 7, 3, 1, 2, 8, 2,	6, 6, 9, 1, 2, 5, 2, 3, 5,	6, 6, 9, 1, 2, 5, 2, 3, 5,	
		0, 4, 1, 1, 8, 4, 8, 2, 0, 0, 6, 6, 5, 1, 3, 5,	1, 5, 0, 1, 6, 4, 8, 8, 4,	1, 5, 0, 1, 6, 4, 8, 8, 4,	
		0, 6, 1, 6, 1, 7, 9, 2, 3, 5, 2, 9, 6, 8, 3, 6,	9, 5, 6, 5, 4, 2, 5, 9, 7,	9, 5, 6, 5, 4, 2, 5, 9, 7,	
		9, 4, 1, 0, 8, 7, 2, 5, 7, 4, 4, 0, 2, 0, 6, 6,	3, 0, 6, 6, 8, 8, 7, 1, 0,	3, 0, 6, 6, 8, 8, 7, 1, 0,	
		4, 9, 1, 8, 1, 1, 8, 8, 3, 5, 2, 5, 5, 5, 1, 8, 3, 7, 8, 8, 1, 1, 5, 5, 1, 9, 7, 2, 2, 7, 2, 4,	5, 3, 5, 5, 9, 4, 8, 4, 6, 9, 3, 8, 3, 4, 9, 6, 8, 9,	5, 3, 5, 5, 9, 4, 8, 4, 6, 9, 3, 8, 3, 4, 9, 6, 8, 9,	
		4, 1, 0, 0, 0, 8, 7, 9, 4, 0, 0, 3, 5, 5, 1, 9,	7, 3, 4, 1, 0, 1, 2, 0, 0,	7, 3, 4, 1, 0, 1, 2, 0, 0,	
		5, 9, 3, 7, 5, 9, 0, 9, 8, 2, 7, 2, 0, 5, 2, 5,	8, 1, 8, 5, 1, 5, 1, 0, 1,	8, 1, 8, 5, 1, 5, 1, 0, 1,	
		1, 6, 0, 8, 5, 2, 4, 9, 0, 8, 3, 9, 1, 9, 9, 2,	1, 4, 0, 8, 7, 2, 8, 0, 0,	1, 4, 0, 8, 7, 2, 8, 0, 0,	
		5, 5, 3, 0, 5, 4, 4, 5, 3, 2, 0, 2, 4, 3, 5, 1,	9, 6, 2, 1, 5, 1, 3, 4, 2,	9, 6, 2, 1, 5, 1, 3, 4, 2,	
		9, 3, 0, 8, 1, 4, 4, 9, 9, 0, 9, 9, 1, 3, 0, 1,	5, 2, 0, 2, 5, 8, 1, 1, 6,	5, 2, 0, 2, 5, 8, 1, 1, 6,	
		1, 9, 6, 9, 2, 4, 4, 2, 5, 2, 3, 9, 6, 2, 3, 0,	4, 6, 5, 8, 5, 9, 5, 8, 1,	4, 6, 5, 8, 5, 9, 5, 8, 1,	
		8, 3, 2, 8, 8, 3, 0, 5, 1, 8, 8, 2, 9, 3, 7, 7,	8, 5, 4, 2, 0, 5, 5, 0, 1,	8, 5, 4, 2, 0, 5, 5, 0, 1,	
		4, 9, 6, 2, 0, 0, 6, 8, 4, 6, 7, 7, 8, 0, 7, 7,	9, 7, 1, 1, 7, 6, 1, 8, 8,	9, 7, 1, 1, 7, 6, 1, 8, 8,	
		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,	4, 6, 4, 4, 3, 1, 0, 3, 3, 7, 9, 7, 9, 5, 1, 5, 1, 5,	4, 6, 4, 4, 3, 1, 0, 3, 3, 7, 9, 7, 9, 5, 1, 5, 1, 5,	
		9, 7, 6, 2, 0, 2, 3, 3, 8, 0, 1, 8, 4, 7, 1, 0,	2, 0, 3, 1, 4, 9, 2, 6, 5,	2, 0, 3, 1, 4, 9, 2, 6, 5,	
		6, 4, 1, 0, 4, 0, 4, 8, 9, 5, 1, 0, 5, 2, 4, 5,	3, 2, 7, 8, 1, 6, 7, 0, 2,	3, 2, 7, 8, 1, 6, 7, 0, 2,	
		6, 3, 5, 2, 2, 9, 6, 0, 2, 1, 2, 9, 7, 8, 3, 1,	7, 6, 1, 5, 8, 3, 5, 0, 4,	7, 6, 1, 5, 8, 3, 5, 0, 4,	
		6, 0, 2, 2, 7, 8, 9, 3, 4, 5, 7, 8, 4, 0, 7, 2,	7, 9, 8, 8, 2, 6, 9, 9, 7,	7, 9, 8, 8, 2, 6, 9, 9, 7,	
		8};	8, 3, 8, 8, 0, 8, 6, 4, 5,	8, 3, 8, 8, 0, 8, 6, 4, 5,	
			I	I .	1

10/24 Singly Linked List: Xem lại lần làm thứ BK-LMS			
	Test	Expected	Got
	<pre>int k = 389; LLNode* head = LLNode::createWithIterators(arr,</pre>	7, 2, 0, 7, 3, 5, 5, 3, 5, 6, 2, 3, 3, 1, 2, 4, 4, 4,	7, 2, 0, 7, 3, 5, 5, 3, 5, 6, 2, 3, 3, 1, 2, 4, 4, 4,
	arr + sizeof(arr) / sizeof(int));	5, 5, 4, 9, 7, 0, 8, 0, 4,	5, 5, 4, 9, 7, 0, 8, 0, 4,
	LLNode::printList(head);	3, 0, 9, 7, 7, 8, 1, 3, 7,	3, 0, 9, 7, 7, 8, 1, 3, 7,
	<pre>cout << "\n";</pre>	1, 5, 4, 7, 6, 3, 8, 6, 7,	1, 5, 4, 7, 6, 3, 8, 6, 7,
	<pre>LLNode* newhead = rotateLinkedList(head, k);</pre>	5, 4, 2, 0, 6, 7, 4, 7, 4,	5, 4, 2, 0, 6, 7, 4, 7, 4,
	LLNode::printList(newhead);	6, 1, 3, 7, 2, 4, 4, 0, 1,	6, 1, 3, 7, 2, 4, 4, 0, 1,
		2, 9, 1, 9, 5, 7, 1, 7, 7, 3, 2, 9, 8, 2, 4, 4, 9, 0,	2, 9, 1, 9, 5, 7, 1, 7, 7, 3, 2, 9, 8, 2, 4, 4, 9, 0,
		5, 6, 7, 9, 1, 8, 3, 8, 2,	5, 6, 7, 9, 1, 8, 3, 8, 2,
		3, 2, 4, 6, 2, 0, 7, 5, 9,	3, 2, 4, 6, 2, 0, 7, 5, 9,
		5, 2, 2, 6, 8, 6, 9, 9, 3,	5, 2, 2, 6, 8, 6, 9, 9, 3,
		0, 4, 1, 5, 2, 3, 9, 3, 9,	0, 4, 1, 5, 2, 3, 9, 3, 9,
		1, 7, 3, 1, 2, 8, 2, 0, 4, 1, 1, 8, 4, 8, 2, 0, 0, 6,	1, 7, 3, 1, 2, 8, 2, 0, 4, 1, 1, 8, 4, 8, 2, 0, 0, 6,
		6, 5, 1, 3, 5, 0, 6, 1, 6,	6, 5, 1, 3, 5, 0, 6, 1, 6,
		1, 7, 9, 2, 3, 5, 2, 9, 6,	1, 7, 9, 2, 3, 5, 2, 9, 6,
		8, 3, 6, 9, 4, 1, 0, 8, 7,	8, 3, 6, 9, 4, 1, 0, 8, 7,
		2, 5, 7, 4, 4, 0, 2, 0, 6,	2, 5, 7, 4, 4, 0, 2, 0, 6,
		6, 4, 9, 1, 8, 1, 1, 8, 8,	6, 4, 9, 1, 8, 1, 1, 8, 8,
		3, 5, 2, 5, 5, 5, 1, 8, 3, 7, 8, 8, 1, 1, 5, 5, 1, 9,	3, 5, 2, 5, 5, 5, 1, 8, 3, 7, 8, 8, 1, 1, 5, 5, 1, 9,
		7, 2, 2, 7, 2, 4, 4, 1, 0,	7, 2, 2, 7, 2, 4, 4, 1, 0,
		0, 0, 8, 7, 9, 4, 0, 0, 3,	0, 0, 8, 7, 9, 4, 0, 0, 3,
		5, 5, 1, 9, 5, 9, 3, 7, 5,	5, 5, 1, 9, 5, 9, 3, 7, 5,
		9, 0, 9, 8, 2, 7, 2, 0, 5,	9, 0, 9, 8, 2, 7, 2, 0, 5,
		2, 5, 1, 6, 0, 8, 5, 2, 4, 9, 0, 8, 3, 9, 1, 9, 9, 2,	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,	5, 5, 3, 0, 5, 4, 4, 5, 3,
		2, 0, 2, 4, 3, 5, 1, 9, 3,	2, 0, 2, 4, 3, 5, 1, 9, 3,
		0, 8, 1, 4, 4, 9, 9, 0, 9,	0, 8, 1, 4, 4, 9, 9, 0, 9,
		9, 1, 3, 0, 1, 1, 9, 6, 9,	9, 1, 3, 0, 1, 1, 9, 6, 9,
		2, 4, 4, 2, 5, 2, 3, 9, 6, 2, 3, 0, 8, 3, 2, 8, 8, 3,	2, 4, 4, 2, 5, 2, 3, 9, 6, 2, 3, 0, 8, 3, 2, 8, 8, 3,
		0, 5, 1, 8, 8, 2, 9, 3, 7,	0, 5, 1, 8, 8, 2, 9, 3, 7,
		7, 4, 9, 6, 2, 0, 0, 6, 8,	7, 4, 9, 6, 2, 0, 0, 6, 8,
		4, 6, 7, 7, 8, 0, 7, 7, 5,	4, 6, 7, 7, 8, 0, 7, 7, 5,
		6, 5, 6, 2, 8, 3, 2, 7, 5, 7, 4, 0, 0, 2, 2, 6, 7, 8,	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,	5, 9, 3, 3, 0, 6, 5, 4, 5,
		9, 4, 1, 2, 9, 7, 6, 2, 0,	9, 4, 1, 2, 9, 7, 6, 2, 0,
		2, 3, 3, 8, 0, 1, 8, 4, 7,	2, 3, 3, 8, 0, 1, 8, 4, 7,
		1, 0, 6, 4, 1, 0, 4, 0, 4,	1, 0, 6, 4, 1, 0, 4, 0, 4,
		8, 9, 5, 1, 0, 5, 2, 4, 5, 6, 3, 5, 2, 2, 9, 6, 0, 2,	8, 9, 5, 1, 0, 5, 2, 4, 5, 6, 3, 5, 2, 2, 9, 6, 0, 2,
		1, 2, 9, 7, 8, 3, 1, 6, 0,	1, 2, 9, 7, 8, 3, 1, 6, 0,
		2, 2, 7, 8, 9, 3, 4, 5, 7,	2, 2, 7, 8, 9, 3, 4, 5, 7,
		8, 4, 0, 7, 2, 8]	8, 4, 0, 7, 2, 8]
		[6, 3, 8, 6, 7, 5, 4, 2, 0, 6, 7, 4, 7, 4, 6, 1, 3, 7,	[6, 3, 8, 6, 7, 5, 4, 2, 0, 6, 7, 4, 7, 4, 6, 1, 3, 7,
		2, 4, 4, 0, 1, 2, 9, 1, 9,	2, 4, 4, 0, 1, 2, 9, 1, 9,
		5, 7, 1, 7, 7, 3, 2, 9, 8,	5, 7, 1, 7, 7, 3, 2, 9, 8,
		2, 4, 4, 9, 0, 5, 6, 7, 9,	2, 4, 4, 9, 0, 5, 6, 7, 9,
		1, 8, 3, 8, 2, 3, 2, 4, 6,	1, 8, 3, 8, 2, 3, 2, 4, 6,
		2, 0, 7, 5, 9, 5, 2, 2, 6, 8, 6, 9, 9, 3, 0, 4, 1, 5,	2, 0, 7, 5, 9, 5, 2, 2, 6, 8, 6, 9, 9, 3, 0, 4, 1, 5,
		2, 3, 9, 3, 9, 1, 7, 3, 1,	2, 3, 9, 3, 9, 1, 7, 3, 1,
		2, 8, 2, 0, 4, 1, 1, 8, 4,	2, 8, 2, 0, 4, 1, 1, 8, 4,
		8, 2, 0, 0, 6, 6, 5, 1, 3,	8, 2, 0, 0, 6, 6, 5, 1, 3,
		5, 0, 6, 1, 6, 1, 7, 9, 2,	5, 0, 6, 1, 6, 1, 7, 9, 2,
		3, 5, 2, 9, 6, 8, 3, 6, 9, 4, 1, 0, 8, 7, 2, 5, 7, 4,	3, 5, 2, 9, 6, 8, 3, 6, 9, 4, 1, 0, 8, 7, 2, 5, 7, 4,
		4, 0, 2, 0, 6, 6, 4, 9, 1,	4, 0, 2, 0, 6, 6, 4, 9, 1,
		8, 1, 1, 8, 8, 3, 5, 2, 5,	8, 1, 1, 8, 8, 3, 5, 2, 5,

/ 10	/24	Singly Li	nked List. Aem iại iam iam thư Đi	V-LIVIS
		Test	Expected	Got
			5, 5, 1, 8, 3, 7, 8, 8, 1,	5, 5, 1, 8, 3, 7, 8, 8, 1,
			1, 5, 5, 1, 9, 7, 2, 2, 7,	1, 5, 5, 1, 9, 7, 2, 2, 7,
			2, 4, 4, 1, 0, 0, 0, 8, 7,	2, 4, 4, 1, 0, 0, 0, 8, 7,
			9, 4, 0, 0, 3, 5, 5, 1, 9,	9, 4, 0, 0, 3, 5, 5, 1, 9,
			5, 9, 3, 7, 5, 9, 0, 9, 8,	5, 9, 3, 7, 5, 9, 0, 9, 8,
			2, 7, 2, 0, 5, 2, 5, 1, 6,	2, 7, 2, 0, 5, 2, 5, 1, 6,
			0, 8, 5, 2, 4, 9, 0, 8, 3, 9, 1, 9, 9, 2, 5, 5, 3, 0,	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,	5, 4, 4, 5, 3, 2, 0, 2, 4,
			3, 5, 1, 9, 3, 0, 8, 1, 4,	3, 5, 1, 9, 3, 0, 8, 1, 4,
			4, 9, 9, 0, 9, 9, 1, 3, 0,	4, 9, 9, 0, 9, 9, 1, 3, 0,
			1, 1, 9, 6, 9, 2, 4, 4, 2,	1, 1, 9, 6, 9, 2, 4, 4, 2,
			5, 2, 3, 9, 6, 2, 3, 0, 8,	5, 2, 3, 9, 6, 2, 3, 0, 8,
			3, 2, 8, 8, 3, 0, 5, 1, 8,	3, 2, 8, 8, 3, 0, 5, 1, 8,
			8, 2, 9, 3, 7, 7, 4, 9, 6,	8, 2, 9, 3, 7, 7, 4, 9, 6,
			2, 0, 0, 6, 8, 4, 6, 7, 7, 8, 0, 7, 7, 5, 6, 5, 6, 2,	2, 0, 0, 6, 8, 4, 6, 7, 7,
			8, 3, 2, 7, 5, 7, 4, 0, 0,	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,	2, 2, 6, 7, 8, 5, 9, 3, 3,
			0, 6, 5, 4, 5, 9, 4, 1, 2,	0, 6, 5, 4, 5, 9, 4, 1, 2,
				9, 7, 6, 2, 0, 2, 3, 3, 8,
			0, 1, 8, 4, 7, 1, 0, 6, 4,	0, 1, 8, 4, 7, 1, 0, 6, 4,
			1, 0, 4, 0, 4, 8, 9, 5, 1,	1, 0, 4, 0, 4, 8, 9, 5, 1,
			0, 5, 2, 4, 5, 6, 3, 5, 2,	0, 5, 2, 4, 5, 6, 3, 5, 2,
			2, 9, 6, 0, 2, 1, 2, 9, 7,	2, 9, 6, 0, 2, 1, 2, 9, 7,
			8, 3, 1, 6, 0, 2, 2, 7, 8,	8, 3, 1, 6, 0, 2, 2, 7, 8,
			9, 3, 4, 5, 7, 8, 4, 0, 7, 2, 8, 8, 0, 8, 8, 9, 3, 3,	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,	5, 4, 9, 7, 9, 5, 3, 8, 6,
			1, 0, 6, 4, 5, 1, 1, 5, 3,	1, 0, 6, 4, 5, 1, 1, 5, 3,
			8, 6, 1, 1, 1, 0, 1, 4, 9,	8, 6, 1, 1, 1, 0, 1, 4, 9,
			0, 1, 8, 0, 2, 7, 1, 5, 7,	0, 1, 8, 0, 2, 7, 1, 5, 7,
			6, 7, 7, 9, 5, 0, 9, 6, 3,	6, 7, 7, 9, 5, 0, 9, 6, 3,
			7, 6, 6, 4, 6, 2, 9, 1, 5,	7, 6, 6, 4, 6, 2, 9, 1, 5,
			0, 8, 6, 0, 8, 6, 3, 0, 3,	0, 8, 6, 0, 8, 6, 3, 0, 3,
			6, 8, 5, 0, 1, 9, 9, 6, 3, 3, 2, 9, 2, 0, 0, 5, 0, 4,	6, 8, 5, 0, 1, 9, 9, 6, 3,
			6, 7, 2, 6, 5, 2, 8, 8, 7,	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,	1, 0, 9, 7, 7, 1, 5, 8, 7,
			5, 7, 8, 7, 8, 7, 1, 7, 9,	5, 7, 8, 7, 8, 7, 1, 7, 9,
			7, 1, 3, 0, 5, 5, 1, 0, 2,	7, 1, 3, 0, 5, 5, 1, 0, 2,
			1, 0, 1, 5, 3, 7, 7, 9, 6,	1, 0, 1, 5, 3, 7, 7, 9, 6,
			1, 6, 4, 8, 9, 8, 6, 0, 0,	1, 6, 4, 8, 9, 8, 6, 0, 0,
			3, 6, 2, 3, 4, 9, 7, 4, 2,	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,	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,	6, 1, 2, 9, 6, 7, 9, 4, 7,
			5, 2, 9, 4, 2, 5, 9, 4, 1,	5, 2, 9, 4, 2, 5, 9, 4, 1,
			6, 0, 0, 5, 0, 0, 6, 1, 7,	6, 0, 0, 5, 0, 0, 6, 1, 7,
			8, 6, 9, 5, 4, 7, 0, 5, 3,	8, 6, 9, 5, 4, 7, 0, 5, 3,
			2, 4, 9, 9, 2, 3, 4, 4, 1,	2, 4, 9, 9, 2, 3, 4, 4, 1,
			8, 2, 4, 4, 6, 2, 0, 5, 9,	8, 2, 4, 4, 6, 2, 0, 5, 9,
			4, 5, 8, 1, 8, 4, 7, 5, 4,	4, 5, 8, 1, 8, 4, 7, 5, 4,
			9, 7, 3, 1, 7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9, 7, 4, 8,	9, 7, 3, 1, 7, 7, 5, 4, 5, 6, 2, 1, 7, 5, 9, 7, 4, 8,
			4, 6, 9, 3, 4, 4, 3, 7, 1,	4, 6, 9, 3, 4, 4, 3, 7, 1,
			3, 9, 3, 3, 7, 9, 7, 9, 4,	3, 9, 3, 3, 7, 9, 7, 9, 4,
			6, 0, 5, 5, 5, 6, 2, 5, 5,	6, 0, 5, 5, 5, 6, 2, 5, 5,
			9, 0, 2, 9, 0, 3, 8, 7, 6,	9, 0, 2, 9, 0, 3, 8, 7, 6,
			1, 0, 4, 0, 7, 4, 2, 5, 0,	1, 0, 4, 0, 7, 4, 2, 5, 0,
			0, 6, 4, 3, 6, 0, 9, 2, 4,	0, 6, 4, 3, 6, 0, 9, 2, 4,
			1, 0, 3, 8, 0, 1, 7, 3, 8,	1, 0, 3, 8, 0, 1, 7, 3, 8,
			9, 0, 5, 3, 2, 8, 4, 0, 4, 6, 9, 8, 6, 5, 2, 7, 9, 0,	9, 0, 5, 3, 2, 8, 4, 0, 4, 6, 9, 8, 6, 5, 2, 7, 9, 0,
			0, 2, 0, 0, 2, 2, 7, 2, 0,	, 2, 2, 0, 2, 2, 7, 2, 0,

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

Oligiy Eliked Elst. Adılı işirları alırı tılu Bit-Eliko				
	Test	Expected	Got	
~	int arr[] = {3, 1, 6, 8, 6, 6, 1, 5, 7, 1, 7, 6,	[3, 1, 6, 8, 6, 6, 1, 5, 7,	[3, 1, 6, 8, 6, 6, 1, 5, 7,	~
	7, 1, 9, 6, 8, 9, 7, 6, 4, 0, 3, 8, 9, 4, 7, 1, 1, 6, 9, 3, 8, 8, 0, 4, 9, 7, 4, 7, 6, 3, 4, 9,	1, 7, 6, 7, 1, 9, 6, 8, 9, 7, 6, 4, 0, 3, 8, 9, 4, 7,	1, 7, 6, 7, 1, 9, 6, 8, 9, 7, 6, 4, 0, 3, 8, 9, 4, 7,	
	9, 6, 4, 1, 1, 4, 8, 8, 1, 6, 5, 2, 8, 5, 3, 9,	1, 1, 6, 9, 3, 8, 8, 0, 4,	1, 1, 6, 9, 3, 8, 8, 0, 4,	
	0, 8, 9, 1, 6, 9, 3, 9, 6, 9, 9, 9, 3, 8, 8, 3,	9, 7, 4, 7, 6, 3, 4, 9, 9,	9, 7, 4, 7, 6, 3, 4, 9, 9,	
	0, 7, 8, 9, 1, 9, 2, 5, 6, 4, 3, 1, 9, 1, 0, 0,	6, 4, 1, 1, 4, 8, 8, 1, 6,	6, 4, 1, 1, 4, 8, 8, 1, 6,	
	8, 2, 1, 7, 7, 3, 3, 5, 6, 0, 5, 5, 6, 9, 7, 0,	5, 2, 8, 5, 3, 9, 0, 8, 9,	5, 2, 8, 5, 3, 9, 0, 8, 9,	
	9, 4, 5, 8, 6, 5, 1, 3, 4, 7, 4, 4, 6, 6, 9, 8,	1, 6, 9, 3, 9, 6, 9, 9, 9,	1, 6, 9, 3, 9, 6, 9, 9, 9,	
	2, 4, 1, 0, 6, 0, 6, 0, 6, 2, 4, 5, 6, 5, 6, 2,	3, 8, 8, 3, 0, 7, 8, 9, 1,	3, 8, 8, 3, 0, 7, 8, 9, 1,	
	1, 1, 6, 4, 0, 6, 8, 7, 3, 9, 6, 2, 6, 9, 3, 6,	9, 2, 5, 6, 4, 3, 1, 9, 1,	9, 2, 5, 6, 4, 3, 1, 9, 1,	
	0, 6, 2, 2, 3, 5, 0, 5, 6, 5, 1, 4, 0, 8, 9, 4,	0, 0, 8, 2, 1, 7, 7, 3, 3,	0, 0, 8, 2, 1, 7, 7, 3, 3,	
	3, 1, 9, 6, 3, 0, 0, 2, 0, 8, 8, 2, 1, 1, 8, 0,	5, 6, 0, 5, 5, 6, 9, 7, 0,	5, 6, 0, 5, 5, 6, 9, 7, 0,	
	0, 9, 2, 9, 7, 3, 3, 9, 8, 6, 4, 7, 7, 4, 7, 4,	9, 4, 5, 8, 6, 5, 1, 3, 4,	9, 4, 5, 8, 6, 5, 1, 3, 4,	
	8, 3, 9, 3, 0, 7, 0, 2, 0, 6, 4, 1, 2, 2, 1, 4, 4, 7, 7, 0, 9, 4, 4, 6, 3, 8, 6, 4, 2, 8, 2, 8,	7, 4, 4, 6, 6, 9, 8, 2, 4, 1, 0, 6, 0, 6, 0, 6, 2, 4,	7, 4, 4, 6, 6, 9, 8, 2, 4, 1, 0, 6, 0, 6, 0, 6, 2, 4,	
	9, 1, 7, 1, 4, 2, 9, 7, 8, 3, 4, 5, 7, 5, 0, 0,	5, 6, 5, 6, 2, 1, 1, 6, 4,	5, 6, 5, 6, 2, 1, 1, 6, 4,	
	1, 8, 9, 7, 8, 1, 4, 2, 9, 3, 9, 1, 4, 2, 1, 1,	0, 6, 8, 7, 3, 9, 6, 2, 6,	0, 6, 8, 7, 3, 9, 6, 2, 6,	
	3, 6, 1, 4, 2, 1, 5, 9, 9, 9, 2, 0, 3, 2, 5, 7,	9, 3, 6, 0, 6, 2, 2, 3, 5,	9, 3, 6, 0, 6, 2, 2, 3, 5,	
	5, 4, 8, 0, 1, 7, 5, 2, 5, 2, 2, 1, 2, 8, 2, 9,	0, 5, 6, 5, 1, 4, 0, 8, 9,	0, 5, 6, 5, 1, 4, 0, 8, 9,	
	7, 7, 7, 6, 6, 8, 3, 8, 2, 0, 8, 1, 9, 1, 6, 8,	4, 3, 1, 9, 6, 3, 0, 0, 2,	4, 3, 1, 9, 6, 3, 0, 0, 2,	
	6, 6, 6, 4, 3, 0, 6, 8, 7, 0, 5, 0, 0, 2, 8, 6,	0, 8, 8, 2, 1, 1, 8, 0, 0,	0, 8, 8, 2, 1, 1, 8, 0, 0,	
	7, 0, 4, 0, 3, 1, 9, 9, 4, 6, 7, 0, 8, 4, 1, 0,	9, 2, 9, 7, 3, 3, 9, 8, 6,	9, 2, 9, 7, 3, 3, 9, 8, 6,	
	8, 0, 7, 7, 1, 0, 7, 2, 5, 7, 5, 2, 9, 5, 3, 1,	4, 7, 7, 4, 7, 4, 8, 3, 9,	4, 7, 7, 4, 7, 4, 8, 3, 9,	
	8, 2, 8, 3, 4, 9, 3, 9, 3, 5, 6, 9, 9, 0, 9, 6, 3, 7, 8, 6, 1, 2, 2, 3, 8, 2, 4, 5, 0, 5, 8, 3,	3, 0, 7, 0, 2, 0, 6, 4, 1, 2, 2, 1, 4, 4, 7, 7, 0, 9,	3, 0, 7, 0, 2, 0, 6, 4, 1, 2, 2, 1, 4, 4, 7, 7, 0, 9,	
	2, 8, 6, 9, 0, 5, 7, 4, 2, 2, 9, 9, 2, 7, 0, 5,	4, 4, 6, 3, 8, 6, 4, 2, 8,	4, 4, 6, 3, 8, 6, 4, 2, 8,	
	0, 8, 7, 1, 6, 3, 3, 7, 9, 9, 9, 8, 6, 9, 9, 8,	2, 8, 9, 1, 7, 1, 4, 2, 9,	2, 8, 9, 1, 7, 1, 4, 2, 9,	
	9, 2, 8, 6, 4, 2, 1, 6, 6, 0, 9, 8, 2, 1, 9, 4,	7, 8, 3, 4, 5, 7, 5, 0, 0,	7, 8, 3, 4, 5, 7, 5, 0, 0,	
	7, 7, 9, 6, 7, 0, 6, 6, 6, 7, 0, 2, 6, 2, 3, 4,	1, 8, 9, 7, 8, 1, 4, 2, 9,	1, 8, 9, 7, 8, 1, 4, 2, 9,	
	0, 8, 1, 8, 4, 8, 3, 8, 6, 8, 6, 5, 9, 5, 9, 8,	3, 9, 1, 4, 2, 1, 1, 3, 6,	3, 9, 1, 4, 2, 1, 1, 3, 6,	
	9, 1, 1, 6, 7, 6, 1, 1, 3, 9, 3, 4, 1, 6, 8, 5,	1, 4, 2, 1, 5, 9, 9, 9, 2,	1, 4, 2, 1, 5, 9, 9, 9, 2,	
	6, 9, 9, 0, 9, 7, 3, 4, 7, 4, 0, 6, 6, 0, 6, 6, 6, 3, 1, 9, 3, 9, 1, 2, 0, 3, 5, 4, 5, 8, 2, 0, 5,	0, 3, 2, 5, 7, 5, 4, 8, 0, 1, 7, 5, 2, 5, 2, 2, 1, 2,	0, 3, 2, 5, 7, 5, 4, 8, 0, 1, 7, 5, 2, 5, 2, 2, 1, 2,	
	3, 2, 2, 0, 9, 8, 3, 8, 0, 6, 3, 3, 5, 6, 8, 6,	8, 2, 9, 7, 7, 7, 6, 6, 8,	8, 2, 9, 7, 7, 7, 6, 6, 8,	
	2, 9, 9, 1, 0, 9, 6, 4, 6, 4, 1, 6, 5, 7, 1, 2,	3, 8, 2, 0, 8, 1, 9, 1, 6,	3, 8, 2, 0, 8, 1, 9, 1, 6,	
	2, 8, 6, 6, 8, 2, 0, 3, 4, 7, 7, 3, 3, 2, 3, 4,	8, 6, 6, 6, 4, 3, 0, 6, 8,	8, 6, 6, 6, 4, 3, 0, 6, 8,	
	5, 2, 8, 7, 1, 7, 7, 7, 9, 7, 0, 4, 7, 9, 5, 2,	7, 0, 5, 0, 0, 2, 8, 6, 7,	7, 0, 5, 0, 0, 2, 8, 6, 7,	
	7, 5, 6, 1, 5, 3, 4, 3, 8, 8, 3, 8, 9, 9, 3, 7,	0, 4, 0, 3, 1, 9, 9, 4, 6,	0, 4, 0, 3, 1, 9, 9, 4, 6,	
	7, 7, 9, 3, 7, 8, 6, 5, 7, 2, 9, 4, 0, 9, 6, 0, 4, 2, 0, 6, 3, 8, 7, 4, 3, 8, 9, 8, 1, 1, 1, 6,	7, 0, 8, 4, 1, 0, 8, 0, 7,	7, 0, 8, 4, 1, 0, 8, 0, 7,	
	9, 8, 4, 5, 2, 8, 2, 3, 3, 6, 5, 5, 8, 2, 6, 5,	7, 1, 0, 7, 2, 5, 7, 5, 2, 9, 5, 3, 1, 8, 2, 8, 3, 4,	7, 1, 0, 7, 2, 5, 7, 5, 2, 9, 5, 3, 1, 8, 2, 8, 3, 4,	
	0, 4, 9, 9, 7, 6, 3, 1, 7, 5, 0, 0, 4, 9, 6, 0,	9, 3, 9, 3, 5, 6, 9, 9, 0,	9, 3, 9, 3, 5, 6, 9, 9, 0,	
	4, 6, 0, 8, 5, 6, 5, 3, 8, 0, 4, 5, 6, 2, 8, 6,	9, 6, 3, 7, 8, 6, 1, 2, 2,	9, 6, 3, 7, 8, 6, 1, 2, 2,	
	0, 3, 9, 6, 2, 1, 4, 7, 3, 3, 3, 8, 6, 1, 0, 7,	3, 8, 2, 4, 5, 0, 5, 8, 3,	3, 8, 2, 4, 5, 0, 5, 8, 3,	
	8, 2, 9, 0, 6, 3, 3, 5, 5, 0, 8, 4, 7, 4, 4, 5,	2, 8, 6, 9, 0, 5, 7, 4, 2,	2, 8, 6, 9, 0, 5, 7, 4, 2,	
	9, 2, 7, 7, 8, 8, 8, 0, 8, 8, 0, 4, 8, 4, 4, 7,	2, 9, 9, 2, 7, 0, 5, 0, 8,	2, 9, 9, 2, 7, 0, 5, 0, 8,	
	6, 2, 5, 2, 7, 3, 7, 0, 9, 8, 1, 5, 0, 3, 8, 4,	7, 1, 6, 3, 3, 7, 9, 9, 9,	7, 1, 6, 3, 3, 7, 9, 9, 9,	
	0, 7, 5, 0, 5, 4, 5, 4, 9, 6, 3, 5, 8, 1, 0, 8, 0, 8, 2, 6, 5, 3, 4, 8, 8, 9, 5, 3, 8, 1, 0, 2,	8, 6, 9, 9, 8, 9, 2, 8, 6, 4, 2, 1, 6, 6, 0, 9, 8, 2,	8, 6, 9, 9, 8, 9, 2, 8, 6,	
	9, 9, 9, 1, 0, 1, 4, 9, 7, 1, 8, 4, 5, 2, 6, 2,	1, 9, 4, 7, 7, 9, 6, 7, 0,	4, 2, 1, 6, 6, 0, 9, 8, 2, 1, 9, 4, 7, 7, 9, 6, 7, 0,	
	4, 1, 6, 4, 7, 4, 0, 3, 3, 2, 4, 7, 9, 0, 6, 2,	6, 6, 6, 7, 0, 2, 6, 2, 3,	6, 6, 6, 7, 0, 2, 6, 2, 3,	
	2, 7, 4, 6, 7, 2, 5, 7, 7, 5, 7, 5, 4, 8, 4, 1,	4, 0, 8, 1, 8, 4, 8, 3, 8,	4, 0, 8, 1, 8, 4, 8, 3, 8,	
	7, 4, 5, 9, 9, 8, 8, 4, 5, 6, 6, 3, 3, 7, 6, 1,	6, 8, 6, 5, 9, 5, 9, 8, 9,	6, 8, 6, 5, 9, 5, 9, 8, 9,	
	6, 7, 9, 9, 5, 4, 0, 7, 0, 4, 5, 8, 2, 8, 8, 1,	1, 1, 6, 7, 6, 1, 1, 3, 9,	1, 1, 6, 7, 6, 1, 1, 3, 9,	
	2, 0, 9, 1, 8, 1, 8, 4, 7, 3, 1, 1, 2, 3, 0, 4,	3, 4, 1, 6, 8, 5, 6, 9, 9,	3, 4, 1, 6, 8, 5, 6, 9, 9,	
	7, 5, 4, 4, 3, 5, 4, 6, 6, 0, 3, 7, 4, 4, 5, 7,	0, 9, 7, 3, 4, 7, 4, 0, 6,	0, 9, 7, 3, 4, 7, 4, 0, 6,	
	7, 3, 9, 1, 8, 0, 0, 5, 0, 9, 8, 3, 3, 3, 6, 6, 6, 6, 2, 5, 8, 1, 5, 2, 8, 2, 1, 4, 6, 2, 5, 8,	6, 0, 6, 6, 3, 1, 9, 3, 9, 1, 2, 0, 3, 5, 4, 5, 8, 2,	6, 0, 6, 6, 3, 1, 9, 3, 9, 1, 2, 0, 3, 5, 4, 5, 8, 2,	
	2, 9, 3, 9, 4, 8, 2, 1, 3, 6, 7, 9, 3, 9, 3, 6,	0, 5, 3, 2, 2, 0, 9, 8, 3,	0, 5, 3, 2, 2, 0, 9, 8, 3,	
	8, 8, 7, 1, 5, 3, 7, 1, 3, 7, 0, 1, 7, 0, 9, 6,	8, 0, 6, 3, 3, 5, 6, 8, 6,	8, 0, 6, 3, 3, 5, 6, 8, 6,	
	2, 8, 0, 1, 8, 6, 6, 4, 5, 1, 3, 3, 9, 1, 1, 9,	2, 9, 9, 1, 0, 9, 6, 4, 6,	2, 9, 9, 1, 0, 9, 6, 4, 6,	
	6, 9, 9, 5, 2, 2, 2, 2, 8, 2, 4, 4, 1, 9, 8, 3,	4, 1, 6, 5, 7, 1, 2, 2, 8,	4, 1, 6, 5, 7, 1, 2, 2, 8,	
	7, 4, 3, 4, 3, 5, 2, 8, 4, 0, 9, 9, 0, 5, 6, 0,	6, 6, 8, 2, 0, 3, 4, 7, 7,	6, 6, 8, 2, 0, 3, 4, 7, 7,	
	1, 9, 0, 5, 6, 7, 7, 5, 4, 7, 3, 5, 0, 3, 2, 2,	3, 3, 2, 3, 4, 5, 2, 8, 7,	3, 3, 2, 3, 4, 5, 2, 8, 7,	

10/24 Singly Linked List: Xem lại lần làm thứ BK-LMS			K-LMS
	Test	Expected	Got
	2, 9, 0, 0, 6, 1, 9, 1, 7, 1, 3, 4, 6, 9, 6, 1,	1, 7, 7, 7, 9, 7, 0, 4, 7,	1, 7, 7, 7, 9, 7, 0, 4, 7,
	3, 7, 4, 5, 7, 2, 6, 8, 2, 8, 5, 0, 5, 6, 1, 7, 0, 3, 1, 5, 4, 8, 3, 7, 8, 4, 1, 7, 1, 3, 3, 8,	9, 5, 2, 7, 5, 6, 1, 5, 3, 4, 3, 8, 8, 3, 8, 9, 9, 3,	9, 5, 2, 7, 5, 6, 1, 5, 3, 4, 3, 8, 8, 3, 8, 9, 9, 3,
	9, 0, 1, 4, 2, 1, 3, 8, 3, 0, 8, 9, 1, 3, 3, 8,	7, 7, 7, 9, 3, 7, 8, 6, 5,	7, 7, 7, 9, 3, 7, 8, 6, 5,
	4, 6, 3, 2, 8, 9, 1, 2, 3, 8, 4, 4, 6, 1, 9, 9,	7, 2, 9, 4, 0, 9, 6, 0, 4,	7, 2, 9, 4, 0, 9, 6, 0, 4,
	1, 0, 1, 0, 7, 8, 7, 5, 8, 2, 4, 3, 1, 0, 0, 8,	2, 0, 6, 3, 8, 7, 4, 3, 8,	2, 0, 6, 3, 8, 7, 4, 3, 8,
	1, 2, 9, 7, 4, 7, 4, 6, 5, 5, 1, 1, 3, 7, 8, 9,	9, 8, 1, 1, 1, 6, 9, 8, 4,	9, 8, 1, 1, 1, 6, 9, 8, 4,
	6, 3, 0, 9, 7, 9, 6, 1, 2, 7, 2, 1, 2, 8, 0, 1,	5, 2, 8, 2, 3, 3, 6, 5, 5,	5, 2, 8, 2, 3, 3, 6, 5, 5,
	2, 7, 3, 4, 3, 6, 8, 7, 1, 7, 6, 7, 9, 5, 7, 2, 8, 1, 1, 8, 7, 4, 6, 5, 7, 7, 0, 3, 8, 0, 5, 3,	8, 2, 6, 5, 0, 4, 9, 9, 7, 6, 3, 1, 7, 5, 0, 0, 4, 9,	8, 2, 6, 5, 0, 4, 9, 9, 7, 6, 3, 1, 7, 5, 0, 0, 4, 9,
	6, 1, 0, 0, 5, 5, 9, 8, 9, 2, 2, 0, 5, 0, 9, 4,	6, 0, 4, 6, 0, 8, 5, 6, 5,	6, 0, 4, 6, 0, 8, 5, 6, 5,
	4, 6, 8, 5, 9, 7, 1, 4, 6, 4, 5, 1, 5, 2, 2, 7,	3, 8, 0, 4, 5, 6, 2, 8, 6,	3, 8, 0, 4, 5, 6, 2, 8, 6,
	3, 6, 4, 9, 2, 9, 7, 8, 1, 5, 5, 8, 4, 5, 6, 4,	0, 3, 9, 6, 2, 1, 4, 7, 3,	0, 3, 9, 6, 2, 1, 4, 7, 3,
	1, 1, 8, 0, 6, 8, 9, 4, 8, 4, 2, 4, 0, 1, 3, 7,	3, 3, 8, 6, 1, 0, 7, 8, 2,	3, 3, 8, 6, 1, 0, 7, 8, 2,
	6, 5, 7, 8, 3, 6, 8, 7, 8, 3, 3, 8, 9, 9, 9, 1,	9, 0, 6, 3, 3, 5, 5, 0, 8,	9, 0, 6, 3, 3, 5, 5, 0, 8,
	0, 3, 0, 2, 0, 3, 7, 1, 2, 1, 1, 6, 5, 0, 2, 6, 8, 7, 5, 0, 7, 1, 7, 7, 0, 5, 2, 2, 2, 8, 6, 9,	4, 7, 4, 4, 5, 9, 2, 7, 7, 8, 8, 8, 0, 8, 8, 0, 4, 8,	4, 7, 4, 4, 5, 9, 2, 7, 7, 8, 8, 8, 0, 8, 8, 0, 4, 8,
	4, 7, 7, 7, 0, 0, 4, 9, 7, 5, 8, 5, 5, 4, 5, 2,	4, 4, 7, 6, 2, 5, 2, 7, 3,	4, 4, 7, 6, 2, 5, 2, 7, 3,
	2, 4, 2, 0, 2, 5, 3, 1, 2, 3, 6, 8, 0, 0, 3, 4,	7, 0, 9, 8, 1, 5, 0, 3, 8,	7, 0, 9, 8, 1, 5, 0, 3, 8,
	5, 2, 8,snip, 9, 9, 4, 2, 9, 7, 8, 4, 4,	4, 0, 7, 5, 0, 5, 4, 5, 4,	4, 0, 7, 5, 0, 5, 4, 5, 4,
	9, 7, 4, 0, 8, 3, 2, 8, 0, 8, 7, 1, 9, 4, 2, 5,	9, 6, 3, 5, 8, 1, 0, 8, 0,	9, 6, 3, 5, 8, 1, 0, 8, 0,
	1, 2, 3, 9, 1, 2, 6, 0, 5, 0, 9, 1, 6, 7, 6, 6,	8, 2, 6, 5, 3, 4, 8, 8, 9,	8, 2, 6, 5, 3, 4, 8, 8, 9,
	6, 1, 3, 8, 4, 1, 6, 7, 6, 3, 4, 3, 5, 1, 8, 0, 8, 2, 7, 2, 9, 4, 4, 5, 7, 0, 7, 6, 5, 3, 4, 1,	5, 3, 8, 1, 0, 2, 9, 9, 9, 1, 0, 1, 4, 9, 7, 1, 8, 4,	5, 3, 8, 1, 0, 2, 9, 9, 9, 1, 0, 1, 4, 9, 7, 1, 8, 4,
	0, 4, 8, 2, 2, 0, 6, 4, 4, 0, 9, 8, 6, 5, 1, 8,	5, 2, 6, 2, 4, 1, 6, 4, 7,	5, 2, 6, 2, 4, 1, 6, 4, 7,
	3, 9, 9, 4, 9, 5, 6, 2, 4, 8, 6, 7, 9, 2, 7, 7,	4, 0, 3, 3, 2, 4, 7, 9, 0,	4, 0, 3, 3, 2, 4, 7, 9, 0,
	5, 4, 6, 2, 0, 6, 2, 3, 7, 8, 8, 0, 7, 8, 2, 9,	6, 2, 2, 7, 4, 6, 7, 2, 5,	6, 2, 2, 7, 4, 6, 7, 2, 5,
	7, 2, 1, 4, 4, 8, 2, 0, 1, 9, 6, 5, 7, 5, 9, 6,	7, 7, 5, 7, 5, 4, 8, 4, 1,	7, 7, 5, 7, 5, 4, 8, 4, 1,
	4, 4, 0, 7, 9, 7, 0, 9, 1, 6, 5, 2, 6, 2, 1, 7,	7, 4, 5, 9, 9, 8, 8, 4, 5,	7, 4, 5, 9, 9, 8, 8, 4, 5,
	7, 5, 0, 9, 5, 0, 6, 2, 9, 0, 1, 4, 5, 4, 5, 7, 8, 9, 6, 7, 7, 4, 2, 7, 1, 0, 9, 2, 0, 8, 2, 9,	6, 6, 3, 3, 7, 6, 1, 6, 7, 9, 9, 5, 4, 0, 7, 0, 4, 5,	6, 6, 3, 3, 7, 6, 1, 6, 7, 9, 9, 5, 4, 0, 7, 0, 4, 5,
	2, 9, 1, 4, 7, 2, 6, 6, 7, 4, 4, 4, 8, 5, 3, 7,	8, 2, 8, 8, 1, 2, 0, 9, 1,	8, 2, 8, 8, 1, 2, 0, 9, 1,
	2, 7, 5, 2, 3, 0, 7, 5, 9, 8, 1, 2, 8, 1, 4, 0,	8, 1, 8, 4, 7, 3, 1, 1, 2,	8, 1, 8, 4, 7, 3, 1, 1, 2,
	4, 7, 0, 0, 3, 7, 0, 6, 6, 3, 3, 7, 0, 4, 7, 4,	3, 0, 4, 7, 5, 4, 4, 3, 5,	3, 0, 4, 7, 5, 4, 4, 3, 5,
	3, 9, 3, 2, 1, 2, 1, 9, 4, 1, 3, 9, 7, 6, 1, 4,	4, 6, 6, 0, 3, 7, 4, 4, 5,	4, 6, 6, 0, 3, 7, 4, 4, 5,
	2, 5, 0, 1, 8, 7, 4, 2, 6, 7, 1, 8, 8, 6, 7, 4, 0, 9, 5, 6, 2, 8, 5, 4, 8, 1, 6, 7, 2, 4, 5, 1,	7, 7, 3, 9, 1, 8, 0, 0, 5, 0, 9, 8, 3, 3, 3, 6, 6, 6,	7, 7, 3, 9, 1, 8, 0, 0, 5, 0, 9, 8, 3, 3, 3, 6, 6, 6,
	9, 7, 9, 9, 5, 2, 7, 3, 2, 2, 5, 8, 2, 2, 3, 9,	6, 2, 5, 8, 1, 5, 2, 8, 2,	6, 2, 5, 8, 1, 5, 2, 8, 2,
	6, 2, 1, 7, 7, 4, 8, 6, 3, 4, 8, 4, 9, 7, 8, 4,	1, 4, 6, 2, 5, 8, 2, 9, 3,	1, 4, 6, 2, 5, 8, 2, 9, 3,
	8, 2, 5, 8, 0, 5, 5, 7, 0, 0, 5, 3, 7, 0, 9, 1,	9, 4, 8, 2, 1, 3, 6, 7, 9,	9, 4, 8, 2, 1, 3, 6, 7, 9,
	5, 1, 1, 5, 3, 0, 4, 5, 7, 8, 1, 3, 9, 5, 7, 1,	3, 9, 3, 6, 8, 8, 7, 1, 5,	3, 9, 3, 6, 8, 8, 7, 1, 5,
	8, 1, 0, 1, 8, 7, 1, 0, 9, 1, 1, 5, 0, 8, 9, 0,	3, 7, 1, 3, 7, 0, 1, 7, 0,	3, 7, 1, 3, 7, 0, 1, 7, 0,
	6, 4, 5, 2, 1, 8, 5, 6, 7, 6, 7, 3, 0, 1, 6, 8, 6, 5, 4, 6, 4, 6, 8, 7, 3, 9, 3, 2, 4, 2, 8, 0,	9, 6, 2, 8, 0, 1, 8, 6, 6, 4, 5, 1, 3, 3, 9, 1, 1, 9,	9, 6, 2, 8, 0, 1, 8, 6, 6, 4, 5, 1, 3, 3, 9, 1, 1, 9,
	3, 8, 3, 8, 7, 6, 1, 7, 5, 2, 2, 0, 0, 8, 9, 6,	6, 9, 9, 5, 2, 2, 2, 2, 8,	6, 9, 9, 5, 2, 2, 2, 8,
	9, 3, 3, 9, 3, 3, 9, 1, 3, 4, 9, 2, 6, 3, 0, 5,	2, 4, 4, 1, 9, 8, 3, 7, 4,	2, 4, 4, 1, 9, 8, 3, 7, 4,
	3, 0, 5, 8, 6, 0, 6, 7, 4, 3, 0, 2, 0, 2, 3, 7,	3, 4, 3, 5, 2, 8, 4, 0, 9,	3, 4, 3, 5, 2, 8, 4, 0, 9,
	8, 1, 1, 3, 8, 7, 9, 4, 6, 2, 0, 4, 6, 1, 9, 7,	9, 0, 5, 6, 0, 1, 9, 0, 5,	9, 0, 5, 6, 0, 1, 9, 0, 5,
	8, 0, 3, 2, 5, 0, 2, 4, 1, 0, 4, 5, 2, 8, 8, 5,	6, 7, 7, 5, 4, 7, 3, 5, 0,	6, 7, 7, 5, 4, 7, 3, 5, 0,
	8, 3, 4, 9, 4, 6, 8, 2, 2, 8, 1, 1, 1, 6, 9, 6, 1, 3, 6, 4, 9, 4, 5, 4, 0, 4, 2, 9, 6, 5, 2, 3,	3, 2, 2, 2, 9, 0, 0, 6, 1, 9, 1, 7, 1, 3, 4, 6, 9, 6,	3, 2, 2, 2, 9, 0, 0, 6, 1, 9, 1, 7, 1, 3, 4, 6, 9, 6,
	3, 6, 3, 5, 8, 6, 3, 8, 2, 3, 8, 1, 6, 5, 8, 9,	1, 3, 7, 4, 5, 7, 2, 6, 8,	1, 3, 7, 4, 5, 7, 2, 6, 8,
	7, 6, 2, 5, 8, 6, 2, 2, 1, 1, 7, 9, 0, 9, 7, 2,	2, 8, 5, 0, 5, 6, 1, 7, 0,	2, 8, 5, 0, 5, 6, 1, 7, 0,
	4, 3, 4, 1, 4, 0, 4, 4, 6, 8, 6, 8, 8, 9, 2, 9,	3, 1, 5, 4, 8, 3, 7, 8, 4,	3, 1, 5, 4, 8, 3, 7, 8, 4,
	4, 3, 3, 0, 0, 6, 1, 2, 3, 9, 2, 4, 9, 1, 9, 2,	1, 7, 1, 3, 3, 8, 9, 0, 1,	1, 7, 1, 3, 3, 8, 9, 0, 1,
	0, 8, 9, 0, 1, 0, 0, 6, 5, 7, 3, 9, 0, 2, 3, 8, 3, 2, 9, 1, 3, 8, 2, 4, 5, 2, 5, 6, 1, 4, 7, 1,	4, 2, 1, 3, 8, 3, 0, 8, 9, 1, 3, 3, 8, 4, 6, 3, 2, 8,	4, 2, 1, 3, 8, 3, 0, 8, 9, 1, 3, 3, 8, 4, 6, 3, 2, 8,
	2, 2, 4, 2, 8, 2, 1, 0, 5, 7, 7, 8, 5, 2, 2, 4,	9, 1, 2, 3, 8, 4, 4, 6, 1,	9, 1, 2, 3, 8, 4, 4, 6, 1,
	4, 2, 6, 6, 7, 3, 9, 1, 9, 2, 2, 1, 3, 4, 0, 7,	9, 9, 1, 0, 1, 0, 7, 8, 7,	9, 9, 1, 0, 1, 0, 7, 8, 7,
	9, 2, 9, 1, 0, 4, 6, 9, 5, 0, 2, 5, 8, 6, 8, 0,	5, 8, 2, 4, 3, 1, 0, 0, 8,	5, 8, 2, 4, 3, 1, 0, 0, 8,
	6, 4, 6, 3, 5, 6, 2, 1, 3, 5, 7, 7, 7, 8, 0, 4,	1, 2, 9, 7, 4, 7, 4, 6, 5,	1, 2, 9, 7, 4, 7, 4, 6, 5,
	8, 6, 4, 4, 6, 1, 6, 9, 0, 0, 8, 3, 6, 4, 1, 8, 5, 9, 1, 4, 5, 1, 9, 4, 2, 3, 0, 7, 8, 1, 0, 9,	5, 1, 1, 3, 7, 8, 9, 6, 3, 0, 9, 7, 9, 6, 1, 2, 7, 2,	5, 1, 1, 3, 7, 8, 9, 6, 3, 0, 9, 7, 9, 6, 1, 2, 7, 2,
	8, 7, 5, 9, 3, 5, 7, 6, 7, 3, 2, 4, 6, 2, 6, 8,	1, 2, 8, 0, 1, 2, 7, 3, 4,	1, 2, 8, 0, 1, 2, 7, 3, 4,

Singly Linked List. Aem ian iam thu BK-Livis			
Test		Expected	Got
8, 7, 5, 5, 4, 6, 4, 3, 4, 4, 4,	3, 7, 3, 4, 1,	3, 6, 8, 7, 1, 7, 6, 7, 9,	3, 6, 8, 7, 1, 7, 6, 7, 9,
3, 8, 1, 4, 4, 7, 8, 6, 9, 6, 8,	2, 4, 6, 7, 5,	5, 7, 2, 8, 1, 1, 8, 7, 4,	5, 7, 2, 8, 1, 1, 8, 7, 4,
0, 6, 1, 0, 9, 7, 7, 8, 0, 0, 3,	1, 9, 4, 6, 6,	6, 5, 7, 7, 0, 3, 8, 0, 5,	6, 5, 7, 7, 0, 3, 8, 0, 5,
8, 7, 2, 4, 4, 4, 9, 3, 2, 1, 3,	5, 1, 1, 6, 1,	3, 6, 1, 0, 0, 5, 5, 9, 8,	3, 6, 1, 0, 0, 5, 5, 9, 8,
9, 2, 5, 7, 7, 3, 5, 8, 5, 4, 9, 3	l, 1, 5, 6, 2,	9, 2, 2, 0, 5, 0, 9, 4, 4,	9, 2, 2, 0, 5, 0, 9, 4, 4,
0, 4, 2, 3, 6, 3, 9, 8, 5, 4, 8,	5, 9, 6, 5, 8,	6, 8, 5, 9, 7, 1, 4, 6, 4,	6, 8, 5, 9, 7, 1, 4, 6, 4,
2, 0, 8, 8, 3, 2, 0, 9, 8, 9, 7,		5, 1, 5, 2, 2, 7, 3, 6, 4,	5, 1, 5, 2, 2, 7, 3, 6, 4,
8, 4, 2, 0, 2, 6, 4, 6, 2, 2, 1,		9, 2, 9, 7, 8, 1, 5, 5, 8,	9, 2, 9, 7, 8, 1, 5, 5, 8,
7, 4, 7, 5, 8, 6, 5, 1, 6, 8, 5, 1		4, 5, 6, 4, 1, 1, 8, 0, 6,	4, 5, 6, 4, 1, 1, 8, 0, 6,
7, 8, 2, 5, 5, 3, 5, 2, 5, 4, 6, 8		8, 9, 4, 8, 4, 2, 4, 0, 1,	8, 9, 4, 8, 4, 2, 4, 0, 1,
5, 6, 4, 6, 9, 8, 5, 5, 5, 9, 1,		3, 7, 6, 5, 7, 8, 3, 6, 8,	3, 7, 6, 5, 7, 8, 3, 6, 8,
8, 9, 6, 6, 2, 8, 1, 6, 1, 2, 5, 4 6, 2, 3, 7, 7, 3, 4, 7, 6, 8, 9, 9		7, 8, 3, 3, 8, 9, 9, 9, 1, 0, 3, 0, 2, 0, 3, 7, 1, 2,	7, 8, 3, 3, 8, 9, 9, 9, 1, 0, 3, 0, 2, 0, 3, 7, 1, 2,
0, 6, 2, 4, 4, 3, 7, 4, 1, 7, 4,		1, 1, 6, 5, 0, 2, 6, 8, 7,	1, 1, 6, 5, 0, 2, 6, 8, 7,
9, 3, 7, 7, 6, 7, 2, 8, 5, 2, 8,		5, 0, 7, 1, 7, 7, 0, 5, 2,	5, 0, 7, 1, 7, 7, 0, 5, 2,
4, 1, 3, 7, 8, 4, 4, 7, 0, 2, 2, 2		2, 2, 8, 6, 9, 4, 7, 7, 7,	2, 2, 8, 6, 9, 4, 7, 7, 7,
5, 3, 1, 1, 1, 3, 6, 2, 3, 2, 4, (0, 3, 0, 0, 0,	0, 0, 4, 9, 7, 5, 8, 5, 5,	0, 0, 4, 9, 7, 5, 8, 5, 5,
9, 6, 7, 5, 6, 7, 8, 1, 9, 1, 2,	1, 2, 4, 3, 3,	4, 5, 2, 2, 4, 2, 0, 2, 5,	4, 5, 2, 2, 4, 2, 0, 2, 5,
1, 0, 5, 8, 6, 7, 6, 1, 4, 7, 5,	1, 4, 0, 6, 7,	3, 1, 2, 3, 6, 8, 0, 0, 3,	3, 1, 2, 3, 6, 8, 0, 0, 3,
1, 8, 9, 9, 9, 8, 8, 6, 4, 6, 8,	1, 2, 2, 7, 9,	4, 5, 2, 8, 6, 8, 9, 2,	4, 5, 2, 8, 6, 8, 9, 2,
6, 8, 6, 4, 9, 2, 3, 0, 5, 7, 2,	3, 1, 9, 7, 1,	snip 7, 8, 2, 8, 6,	snip 7, 8, 2, 8, 6,
7, 0, 3, 9, 5, 7, 2, 1, 5, 6, 1,	5, 3, 8, 0, 1,	3, 4, 1, 0, 2, 4, 7, 0, 2,	3, 4, 1, 0, 2, 4, 7, 0, 2,
1, 0, 6, 1, 5, 1, 5, 5, 9, 8, 9, 0	9, 5, 5, 8, 8,	4, 8, 2, 6, 2, 1, 0, 5, 1,	4, 8, 2, 6, 2, 1, 0, 5, 1,
2, 6, 6, 7, 7, 9, 5, 6, 4, 2, 3, 3		5, 0, 6, 1, 0, 9, 8, 6, 9,	5, 0, 6, 1, 0, 9, 8, 6, 9,
7, 1, 5, 2, 3, 4, 3, 8, 6, 4, 0, 9		5, 7, 5, 3, 6, 0, 5, 9, 0,	5, 7, 5, 3, 6, 0, 5, 9, 0,
3, 7, 9, 4, 3, 1, 7, 8, 6, 5, 8, 9		9, 9, 0, 3, 0, 9, 3, 9, 6,	9, 9, 0, 3, 0, 9, 3, 9, 6,
6, 2, 9, 3, 9, 8, 5, 4, 7, 3, 7, 8		5, 3, 2, 8, 9, 0, 0, 7, 5,	5, 3, 2, 8, 9, 0, 0, 7, 5,
3, 2, 4, 1, 2, 2, 9, 1, 9, 0, 4, 1 1, 5, 2, 8, 6, 0, 9, 0, 6, 9, 0, 1		1, 1, 2, 1, 4, 0, 2, 0, 7, 1, 4, 5, 5, 6, 2, 6, 1, 0,	1, 1, 2, 1, 4, 0, 2, 0, 7, 1, 4, 5, 5, 6, 2, 6, 1, 0,
3, 3, 1, 0, 7, 2, 1, 3, 3, 7, 7, 0		4, 0, 7, 1, 3, 3, 4, 5, 0,	4, 0, 7, 1, 3, 3, 4, 5, 0,
5, 6, 2, 8, 8, 3, 7, 3, 4, 7, 6, (7, 1, 0, 9, 8, 7, 0, 0, 8,	7, 1, 0, 9, 8, 7, 0, 0, 8,
8, 1, 5, 3, 7, 9, 6, 3, 8, 4, 8, (2, 5, 3, 2, 7, 4, 9, 0, 6,	2, 5, 3, 2, 7, 4, 9, 0, 6,
9, 2, 6, 2, 8, 7, 7, 5, 9, 4, 4,	3, 0, 6, 2, 2,	0, 7, 4, 7, 2, 8, 6, 3, 9,	0, 7, 4, 7, 2, 8, 6, 3, 9,
6, 5, 4, 4, 7, 8, 0, 7, 5, 8, 5,	5, 7, 2, 5, 3,	7, 0, 6, 3, 9, 6, 7, 7, 4,	7, 0, 6, 3, 9, 6, 7, 7, 4,
4, 6, 4, 4};		6, 9, 7, 5, 9, 9, 4, 8, 3,	6, 9, 7, 5, 9, 9, 4, 8, 3,
int k = 1000;		3, 6, 6, 6, 7, 5, 4, 7, 0,	3, 6, 6, 6, 7, 5, 4, 7, 0,
LLNode* head = LLNode::createWith	Iterators(arr,	6, 2, 9, 7, 4, 2, 3, 9, 3,	6, 2, 9, 7, 4, 2, 3, 9, 3,
<pre>arr + sizeof(arr) / sizeof(int));</pre>		9, 6, 0, 7, 8, 0, 0, 7, 9,	9, 6, 0, 7, 8, 0, 0, 7, 9,
LLNode::printList(head);		1, 6, 0, 7, 1, 6, 1, 0, 9,	1, 6, 0, 7, 1, 6, 1, 0, 9,
<pre>cout << "\n"; LLNode* newhead = rotateLinkedLis</pre>	-(hoad k).	1, 0, 9, 1, 8, 3, 6, 8, 1,	1, 0, 9, 1, 8, 3, 6, 8, 1,
LLNode::printList(newhead);	L(Ileau, K),	2, 8, 5, 9, 7, 1, 1, 5, 4, 5, 7, 5, 9, 4, 9, 5, 4, 2,	2, 8, 5, 9, 7, 1, 1, 5, 4, 5, 7, 5, 9, 4, 9, 5, 4, 2,
		4, 4, 1, 1, 3, 1, 9, 8, 6,	4, 4, 1, 1, 3, 1, 9, 8, 6,
		4, 1, 2, 2, 4, 2, 9, 8, 2,	4, 1, 2, 2, 4, 2, 9, 8, 2,
		4, 9, 0, 3, 6, 1, 1, 8, 4,	4, 9, 0, 3, 6, 1, 1, 8, 4,
		2, 0, 7, 6, 7, 3, 9, 7, 0,	2, 0, 7, 6, 7, 3, 9, 7, 0,
		9, 8, 6, 0, 5, 1, 8, 0, 2,	9, 8, 6, 0, 5, 1, 8, 0, 2,
		9, 5, 5, 8, 5, 3, 9, 8, 7,	9, 5, 5, 8, 5, 3, 9, 8, 7,
		0, 4, 8, 2, 2, 6, 8, 4, 1,	0, 4, 8, 2, 2, 6, 8, 4, 1,
		4, 7, 2, 2, 1, 0, 6, 4, 8,	4, 7, 2, 2, 1, 0, 6, 4, 8,
		9, 5, 1, 0, 2, 6, 3, 9, 1,	9, 5, 1, 0, 2, 6, 3, 9, 1,
		2, 0, 1, 3, 6, 4, 7, 0, 0,	2, 0, 1, 3, 6, 4, 7, 0, 0,
		5, 6, 7, 3, 2, 6, 8, 8, 5,	5, 6, 7, 3, 2, 6, 8, 8, 5,
		4, 8, 4, 5, 0, 2, 8, 1, 2, 9, 9, 5, 1, 4, 8, 8, 1, 3,	4, 8, 4, 5, 0, 2, 8, 1, 2, 9, 9, 5, 1, 4, 8, 8, 1, 3,
		9, 2, 8, 6, 1, 0, 8, 7, 3,	9, 2, 8, 6, 1, 0, 8, 7, 3,
		7, 3, 6, 9, 7, 1, 7, 9, 3,	7, 3, 6, 9, 7, 1, 7, 9, 3,
		3, 8, 7, 9, 1, 9, 1, 9, 4,	3, 8, 7, 9, 1, 9, 1, 9, 4,
		1, 1, 0, 3, 6, 7, 5, 3, 7,	1, 1, 0, 3, 6, 7, 5, 3, 7,
		8, 8, 1, 4, 9, 0, 3, 9, 9,	8, 8, 1, 4, 9, 0, 3, 9, 9,
		6, 4, 8, 2, 6, 7, 9, 0, 3,	6, 4, 8, 2, 6, 7, 9, 0, 3,
		9, 0, 6, 8, 9, 2, 1, 2, 5,	9, 0, 6, 8, 9, 2, 1, 2, 5,
		0, 8, 8, 4, 5, 6, 3, 7, 5,	0, 8, 8, 4, 5, 6, 3, 7, 5,
		2, 0, 0, 2, 1, 2, 4, 7, 8,	2, 0, 0, 2, 1, 2, 4, 7, 8,
			ı İ

/10	1/24	Singly Li	nked List: Xem lại lần lầm thứ Bi	K-LMS
		Test	Expected	Got
			3, 0, 8, 2, 1, 4, 5, 1, 7,	3, 0, 8, 2, 1, 4, 5, 1, 7,
			6, 4, 1, 3, 5, 3, 7, 3, 9,	6, 4, 1, 3, 5, 3, 7, 3, 9,
			2, 8, 8, 0, 6, 1, 0, 2, 5,	2, 8, 8, 0, 6, 1, 0, 2, 5,
			3, 2, 1, 4, 4, 1, 6, 2, 8,	3, 2, 1, 4, 4, 1, 6, 2, 8,
			7, 2, 8, 1, 4, 7, 0, 6, 0, 5, 5, 0, 9, 6, 0, 6, 8, 6,	7, 2, 8, 1, 4, 7, 0, 6, 0, 5, 5, 0, 9, 6, 0, 6, 8, 6,
			7, 7, 3, 9, 0, 2, 9, 0, 6,	7, 7, 3, 9, 0, 2, 9, 0, 6,
			7, 4, 7, 3, 3, 1, 1, 3, 7,	7, 4, 7, 3, 3, 1, 1, 3, 7,
			0, 3, 2, 4, 1, 6, 4, 2, 9,	0, 3, 2, 4, 1, 6, 4, 2, 9,
			3, 8, 3, 1, 3, 4, 8, 4, 3,	3, 8, 3, 1, 3, 4, 8, 4, 3,
			6, 3, 4, 6, 7, 8, 3, 0, 7,	6, 3, 4, 6, 7, 8, 3, 0, 7,
			2, 3, 3, 9, 6, 8, 3, 0, 3,	2, 3, 3, 9, 6, 8, 3, 0, 3,
			1, 2, 2, 7, 7, 1, 9, 7, 8,	1, 2, 2, 7, 7, 1, 9, 7, 8,
			0, 6, 1, 7, 4, 2, 1, 5, 5, 1, 4, 7, 7, 8, 6, 3, 2, 4,	0, 6, 1, 7, 4, 2, 1, 5, 5, 1, 4, 7, 7, 8, 6, 3, 2, 4,
			7, 4, 3, 5, 0, 4, 5, 5, 9,	7, 4, 3, 5, 0, 4, 5, 5, 9,
			4, 1, 2, 0, 4, 6, 3, 3, 2,	4, 1, 2, 0, 4, 6, 3, 3, 2,
			9, 4, 1, 4, 8, 3, 7, 2, 3,	9, 4, 1, 4, 8, 3, 7, 2, 3,
			3, 4, 5, 9, 0, 1, 0, 8, 5,	3, 4, 5, 9, 0, 1, 0, 8, 5,
			1, 1, 7, 4, 8, 6, 1, 0, 9,	1, 1, 7, 4, 8, 6, 1, 0, 9,
			5, 5, 3, 9, 8, 0, 0, 8, 1,	5, 5, 3, 9, 8, 0, 0, 8, 1,
			0, 8, 8, 7, 3, 6, 2, 3, 0,	0, 8, 8, 7, 3, 6, 2, 3, 0,
			8, 2, 5, 2, 2, 3, 3, 2, 2, 9, 4, 4, 4, 1, 0, 8, 3, 4,	8, 2, 5, 2, 2, 3, 3, 2, 2, 9, 4, 4, 4, 1, 0, 8, 3, 4,
			8, 9, 1, 1, 0, 8, 2, 6, 0,	8, 9, 1, 1, 0, 8, 2, 6, 0,
			9, 3, 5, 6, 3, 8, 5, 4, 5,	9, 3, 5, 6, 3, 8, 5, 4, 5,
			8, 9, 0, 3, 9, 8, 9, 8, 3,	8, 9, 0, 3, 9, 8, 9, 8, 3,
			5, 4, 5, 4, 3, 8, 0, 3, 4,	5, 4, 5, 4, 3, 8, 0, 3, 4,
			5, 1, 3, 4, 6, 7, 9, 6, 5,	5, 1, 3, 4, 6, 7, 9, 6, 5,
			4, 1, 1, 6, 5, 2, 0, 7, 5,	4, 1, 1, 6, 5, 2, 0, 7, 5,
			3, 7, 5, 1, 4, 4, 9, 6, 0,	3, 7, 5, 1, 4, 4, 9, 6, 0,
			7, 1, 7, 6, 6, 9, 5, 3, 9, 2, 7, 6, 8, 5, 5, 3, 7, 2,	7, 1, 7, 6, 6, 9, 5, 3, 9, 2, 7, 6, 8, 5, 5, 3, 7, 2,
			4, 7, 5, 4, 0, 9, 4, 9, 3,	4, 7, 5, 4, 0, 9, 4, 9, 3,
				8, 6, 5, 5, 5, 8, 2, 8, 8,
			9, 5, 7, 4, 8, 4, 9, 3, 2,	9, 5, 7, 4, 8, 4, 9, 3, 2,
			2, 6, 0, 6, 4, 4, 5, 9, 4,	2, 6, 0, 6, 4, 4, 5, 9, 4,
			5, 9, 4, 3, 6, 5, 1, 1, 6,	5, 9, 4, 3, 6, 5, 1, 1, 6,
			2, 9, 1, 1, 0, 6, 0, 5, 5,	2, 9, 1, 1, 0, 6, 0, 5, 5,
			8, 5, 7, 4, 9, 6, 3, 5, 7,	8, 5, 7, 4, 9, 6, 3, 5, 7,
			8, 1, 8, 7, 4, 2, 1, 7, 0, 5, 3, 5, 4, 7, 3, 7, 3, 9,	8, 1, 8, 7, 4, 2, 1, 7, 0, 5, 3, 5, 4, 7, 3, 7, 3, 9,
			2, 3, 0, 5, 1, 9, 9, 1, 3,	2, 3, 0, 5, 1, 9, 9, 1, 3,
			0, 0, 8, 8, 5, 3, 0, 0, 7,	0, 0, 8, 8, 5, 3, 0, 0, 7,
			8, 1, 0, 7, 5, 2, 4, 9, 8,	8, 1, 0, 7, 5, 2, 4, 9, 8,
			6, 0, 3, 2, 6, 4, 0, 5, 1,	6, 0, 3, 2, 6, 4, 0, 5, 1,
			4, 2, 5, 6, 9, 2, 1, 9, 3,	4, 2, 5, 6, 9, 2, 1, 9, 3,
				1, 0, 7, 0, 8, 5, 8, 0, 8,
			5, 6, 5, 4, 4, 2, 1, 6, 5,	5, 6, 5, 4, 4, 2, 1, 6, 5,
			5, 4, 7, 0, 3, 6, 2, 0, 8, 8, 6, 3, 1, 7, 0, 5, 4, 7,	5, 4, 7, 0, 3, 6, 2, 0, 8, 8, 6, 3, 1, 7, 0, 5, 4, 7,
				7, 0, 9, 1, 5, 4, 4, 1, 9,
			3, 7, 9, 9, 3, 2, 8, 5, 4,	3, 7, 9, 9, 3, 2, 8, 5, 4,
				9, 2, 2, 0, 5, 1, 8, 3, 6,
			7, 2, 7, 7, 0, 3, 5, 2, 6,	7, 2, 7, 7, 0, 3, 5, 2, 6,
			8, 4, 6, 2, 7, 0, 1, 5, 3,	8, 4, 6, 2, 7, 0, 1, 5, 3,
			2, 0, 3, 2, 6, 9, 2, 5, 8,	2, 0, 3, 2, 6, 9, 2, 5, 8,
			3, 6, 3, 0, 4, 9, 8, 1, 2, 4, 9, 6, 3, 3, 2, 7, 2, 8,	3, 6, 3, 0, 4, 9, 8, 1, 2, 4, 9, 6, 3, 3, 2, 7, 2, 8,
			2, 1, 0, 5, 1, 7, 1, 2, 7,	2, 1, 0, 5, 1, 7, 1, 2, 7,
				1, 5, 4, 2, 5, 4, 3, 0, 2,
			9, 3, 9, 5, 9, 4, 4, 1, 5,	9, 3, 9, 5, 9, 4, 4, 1, 5,
			1, 7, 5, 6, 3, 2, 2, 8, 1,	1, 7, 5, 6, 3, 2, 2, 8, 1,
			8, 7, 0, 6, 7, 3, 4, 7, 4,	8, 7, 0, 6, 7, 3, 4, 7, 4,
	1			

10/24 Singiy Linked List: Xem iại ian iam thư BK-Lins			K-LIVIS
	Test	Expected	Got
		1, 2, 9, 8, 8, 1, 7, 2, 2,	1, 2, 9, 8, 8, 1, 7, 2, 2,
		8, 3, 9, 9, 8, 8, 4, 8, 4,	8, 3, 9, 9, 8, 8, 4, 8, 4,
		6, 4, 1, 7, 3, 8, 4, 3, 1,	6, 4, 1, 7, 3, 8, 4, 3, 1,
		6, 4, 6, 1, 0, 1, 3, 8, 4,	6, 4, 6, 1, 0, 1, 3, 8, 4,
		3, 0, 7, 8, 1, 2, 6, 8, 4,	3, 0, 7, 8, 1, 2, 6, 8, 4,
		7, 4, 8, 8, 9, 3, 6, 6, 9,	7, 4, 8, 8, 9, 3, 6, 6, 9,
		4, 2, 4, 7, 3, 2, 3, 1, 6,	4, 2, 4, 7, 3, 2, 3, 1, 6,
		7, 0, 2, 4, 7, 9, 0, 0, 0,	7, 0, 2, 4, 7, 9, 0, 0, 0,
		4, 0, 2, 4, 0, 7, 8, 0, 5,	4, 0, 2, 4, 0, 7, 8, 0, 5,
		9, 2, 9, 5, 3, 3, 3, 5, 0,	9, 2, 9, 5, 3, 3, 5, 0,
		9, 8, 7, 5, 9, 5, 0, 1, 2,	9, 8, 7, 5, 9, 5, 0, 1, 2,
		4, 7, 4, 9, 9, 4, 2, 9, 7,	4, 7, 4, 9, 9, 4, 2, 9, 7,
		8, 4, 4, 9, 7, 4, 0, 8, 3,	8, 4, 4, 9, 7, 4, 0, 8, 3,
		2, 8, 0, 8, 7, 1, 9, 4, 2,	2, 8, 0, 8, 7, 1, 9, 4, 2,
		5, 1, 2, 3, 9, 1, 2, 6, 0,	5, 1, 2, 3, 9, 1, 2, 6, 0,
		5, 0, 9, 1, 6, 7, 6, 6, 6,	5, 0, 9, 1, 6, 7, 6, 6, 6,
		1, 3, 8, 4, 1, 6, 7, 6, 3,	1, 3, 8, 4, 1, 6, 7, 6, 3,
		4, 3, 5, 1, 8, 0, 8, 2, 7,	4, 3, 5, 1, 8, 0, 8, 2, 7,
		2, 9, 4, 4, 5, 7, 0, 7, 6,	2, 9, 4, 4, 5, 7, 0, 7, 6,
		5, 3, 4, 1, 0, 4, 8, 2, 2,	5, 3, 4, 1, 0, 4, 8, 2, 2,
		0, 6, 4, 4, 0, 9, 8, 6, 5,	0, 6, 4, 4, 0, 9, 8, 6, 5,
		1, 8, 3, 9, 9, 4, 9, 5, 6,	1, 8, 3, 9, 9, 4, 9, 5, 6,
		2, 4, 8, 6, 7, 9, 2, 7, 7,	2, 4, 8, 6, 7, 9, 2, 7, 7,
		5, 4, 6, 2, 0, 6, 2, 3, 7, 8, 8, 0, 7, 8, 2, 9, 7, 2,	5, 4, 6, 2, 0, 6, 2, 3, 7, 8, 8, 0, 7, 8, 2, 9, 7, 2,
		1, 4, 4, 8, 2, 0, 1, 9, 6,	1, 4, 4, 8, 2, 0, 1, 9, 6,
		5, 7, 5, 9, 6, 4, 4, 0, 7,	5, 7, 5, 9, 6, 4, 4, 0, 7,
		9, 7, 0, 9, 1, 6, 5, 2, 6,	9, 7, 0, 9, 1, 6, 5, 2, 6,
		2, 1, 7, 7, 5, 0, 9, 5, 0,	2, 1, 7, 7, 5, 0, 9, 5, 0,
		6, 2, 9, 0, 1, 4, 5, 4, 5,	6, 2, 9, 0, 1, 4, 5, 4, 5,
		7, 8, 9, 6, 7, 7, 4, 2, 7,	7, 8, 9, 6, 7, 7, 4, 2, 7,
		1, 0, 9, 2, 0, 8, 2, 9, 2,	1, 0, 9, 2, 0, 8, 2, 9, 2,
		9, 1, 4, 7, 2, 6, 6, 7, 4,	9, 1, 4, 7, 2, 6, 6, 7, 4,
		4, 4, 8, 5, 3, 7, 2, 7, 5,	4, 4, 8, 5, 3, 7, 2, 7, 5,
		2, 3, 0, 7, 5, 9, 8, 1, 2,	2, 3, 0, 7, 5, 9, 8, 1, 2,
		8, 1, 4, 0, 4, 7, 0, 0, 3,	8, 1, 4, 0, 4, 7, 0, 0, 3,
		7, 0, 6, 6, 3, 3, 7, 0, 4,	7, 0, 6, 6, 3, 3, 7, 0, 4,
		7, 4, 3, 9, 3, 2, 1, 2, 1,	7, 4, 3, 9, 3, 2, 1, 2, 1,
		9, 4, 1, 3, 9, 7, 6, 1, 4,	9, 4, 1, 3, 9, 7, 6, 1, 4,
		2, 5, 0, 1, 8, 7, 4, 2, 6,	2, 5, 0, 1, 8, 7, 4, 2, 6,
		7, 1, 8]	7, 1, 8]

Oligiy Elikod Elst. Acim şirlam am ulu Bit-Eliko			IX-EINIO	I
	Test	Expected	Got	
~	int arr[] = {2, 2, 6, 2, 6, 9, 8, 0, 5, 7, 5, 2,	[2, 2, 6, 2, 6, 9, 8, 0, 5,	[2, 2, 6, 2, 6, 9, 8, 0, 5,	~
	0, 3, 3, 5, 1, 0, 6, 0, 0, 4, 3, 8, 1, 0, 7, 7, 9, 8, 7, 8, 5, 5, 2, 4, 4, 6, 1, 2, 8, 5, 8, 1,	7, 5, 2, 0, 3, 3, 5, 1, 0, 6, 0, 0, 4, 3, 8, 1, 0, 7,	7, 5, 2, 0, 3, 3, 5, 1, 0, 6, 0, 0, 4, 3, 8, 1, 0, 7,	
	6, 3, 0, 6, 8, 7, 4, 0, 2, 2, 5, 6, 7, 3, 3, 2,	7, 9, 8, 7, 8, 5, 5, 2, 4,	7, 9, 8, 7, 8, 5, 5, 2, 4,	
	5, 7, 0, 2, 2, 9, 8, 5, 8, 2, 7, 2, 2, 6, 1, 0,	4, 6, 1, 2, 8, 5, 8, 1, 6,	4, 6, 1, 2, 8, 5, 8, 1, 6,	
	4, 2, 2, 7, 6, 8, 5, 5, 7, 7, 7, 7, 0, 0, 6, 6,	3, 0, 6, 8, 7, 4, 0, 2, 2,	3, 0, 6, 8, 7, 4, 0, 2, 2,	
	6, 2, 7, 0, 9, 8, 7, 2, 9, 3, 0, 0, 4, 6, 2, 5,	5, 6, 7, 3, 3, 2, 5, 7, 0,	5, 6, 7, 3, 3, 2, 5, 7, 0,	
	1, 3, 1, 7, 2, 0, 9, 8, 4, 8, 5, 3, 7, 8, 8, 7, 1, 5, 4, 1, 5, 1, 1, 5, 8, 4, 2, 2, 6, 0, 7, 8,	2, 2, 9, 8, 5, 8, 2, 7, 2, 2, 6, 1, 0, 4, 2, 2, 7, 6,	2, 2, 9, 8, 5, 8, 2, 7, 2, 2, 6, 1, 0, 4, 2, 2, 7, 6,	
	6, 7, 9, 9, 0, 5, 6, 1, 4, 9, 9, 0, 3, 2, 6, 5,	8, 5, 5, 7, 7, 7, 7, 0, 0,	8, 5, 5, 7, 7, 7, 7, 0, 0,	
	6, 1, 7, 8, 8, 9, 0, 0, 2, 6, 9, 3, 7, 3, 7, 4,	6, 6, 6, 2, 7, 0, 9, 8, 7,	6, 6, 6, 2, 7, 0, 9, 8, 7,	
	9, 1, 9, 2, 7, 8, 2, 8, 2, 7, 7, 9, 1, 4, 4, 0,	2, 9, 3, 0, 0, 4, 6, 2, 5,	2, 9, 3, 0, 0, 4, 6, 2, 5,	
	4, 7, 8, 1, 3, 4, 5, 5, 1, 7, 3, 3, 4, 5, 8, 5,	1, 3, 1, 7, 2, 0, 9, 8, 4,	1, 3, 1, 7, 2, 0, 9, 8, 4,	
	8, 3, 5, 8, 2, 6, 1, 2, 1, 9, 4, 0, 7, 4, 7, 0, 1, 5, 6, 8, 8, 3, 1, 7, 4, 0, 9, 6, 2, 9, 6, 9,	8, 5, 3, 7, 8, 8, 7, 1, 5, 4, 1, 5, 1, 1, 5, 8, 4, 2,	8, 5, 3, 7, 8, 8, 7, 1, 5, 4, 1, 5, 1, 1, 5, 8, 4, 2,	
	6, 7, 6, 0, 1, 7, 6, 7, 4, 7, 9, 1, 0, 4, 7, 3,	2, 6, 0, 7, 8, 6, 7, 9, 9,	2, 6, 0, 7, 8, 6, 7, 9, 9,	
	0, 6, 5, 2, 6, 7, 4, 8, 4, 3, 7, 3, 2, 0, 1, 9,	0, 5, 6, 1, 4, 9, 9, 0, 3,	0, 5, 6, 1, 4, 9, 9, 0, 3,	
	7, 8, 8, 8, 3, 8, 7, 5, 0, 4, 0, 5, 2, 6, 2, 4,	2, 6, 5, 6, 1, 7, 8, 8, 9,	2, 6, 5, 6, 1, 7, 8, 8, 9,	
	2, 9, 8, 7, 0, 2, 9, 4, 0, 7, 4, 8, 3, 2, 1, 0,	0, 0, 2, 6, 9, 3, 7, 3, 7,	0, 0, 2, 6, 9, 3, 7, 3, 7,	
	8, 1, 2, 2, 0, 2, 1, 1, 3, 9, 4, 2, 4, 6, 3, 0, 1, 0, 1, 9, 3, 0, 8, 6, 5, 7, 9, 3, 2, 0, 8, 0,	4, 9, 1, 9, 2, 7, 8, 2, 8, 2, 7, 7, 9, 1, 4, 4, 0, 4,	4, 9, 1, 9, 2, 7, 8, 2, 8, 2, 7, 7, 9, 1, 4, 4, 0, 4,	
	6, 8, 0, 5, 1, 7, 6, 9, 8, 0, 7, 1, 6, 6, 3, 1,	7, 8, 1, 3, 4, 5, 5, 1, 7,	7, 8, 1, 3, 4, 5, 5, 1, 7,	
	2, 3, 1, 5, 6, 2, 9, 3, 2, 3, 0, 5, 5, 1, 6, 3,	3, 3, 4, 5, 8, 5, 8, 3, 5,	3, 3, 4, 5, 8, 5, 8, 3, 5,	
	6, 2, 4, 7, 6, 5, 7, 4, 5, 1, 9, 8, 6, 2, 0, 1,	8, 2, 6, 1, 2, 1, 9, 4, 0,	8, 2, 6, 1, 2, 1, 9, 4, 0,	
	9, 3, 6, 5, 0, 3, 4, 5, 6, 2, 5, 6, 9, 9, 0, 3,	7, 4, 7, 0, 1, 5, 6, 8, 8,	7, 4, 7, 0, 1, 5, 6, 8, 8,	
	7, 0, 8, 8, 0, 3, 0, 4, 2, 7, 0, 9, 0, 6, 3, 9,	3, 1, 7, 4, 0, 9, 6, 2, 9,	3, 1, 7, 4, 0, 9, 6, 2, 9,	
	9, 5, 8, 9, 6, 2, 3, 0, 7, 1, 8, 9, 7, 5, 2, 4, 0, 0, 8, 4, 4, 4, 9, 9, 4, 7, 6, 1, 9, 1, 0, 9,	6, 9, 6, 7, 6, 0, 1, 7, 6, 7, 4, 7, 9, 1, 0, 4, 7, 3,	6, 9, 6, 7, 6, 0, 1, 7, 6, 7, 4, 7, 9, 1, 0, 4, 7, 3,	
	8, 0, 6, 4, 4, 0, 6, 1, 8, 6, 3, 0, 2, 6, 6, 3,	0, 6, 5, 2, 6, 7, 4, 8, 4,	0, 6, 5, 2, 6, 7, 4, 8, 4,	
	0, 3, 3, 2, 1, 1, 5, 8, 0, 0, 0, 2, 3, 2, 0, 1,	3, 7, 3, 2, 0, 1, 9, 7, 8,	3, 7, 3, 2, 0, 1, 9, 7, 8,	
	3, 3, 6, 4, 9, 9, 7, 0, 5, 4, 5, 5, 9, 4, 5, 5,	8, 8, 3, 8, 7, 5, 0, 4, 0,	8, 8, 3, 8, 7, 5, 0, 4, 0,	
	3, 4, 2, 7, 8, 3, 6, 7, 0, 2, 4, 7, 0, 6, 9, 9,	5, 2, 6, 2, 4, 2, 9, 8, 7,	5, 2, 6, 2, 4, 2, 9, 8, 7,	
	1, 8, 3, 4, 0, 7, 6, 5, 2, 8, 0, 7, 7, 7, 7, 2, 4, 9, 3, 3, 5, 0, 1, 2, 8, 7, 1, 0, 3, 5, 0, 4,	0, 2, 9, 4, 0, 7, 4, 8, 3, 2, 1, 0, 8, 1, 2, 2, 0, 2,	0, 2, 9, 4, 0, 7, 4, 8, 3, 2, 1, 0, 8, 1, 2, 2, 0, 2,	
	6, 5, 2, 0, 0, 5, 7, 0, 4, 6, 4, 2, 9, 4, 8, 6,	1, 1, 3, 9, 4, 2, 4, 6, 3,	1, 1, 3, 9, 4, 2, 4, 6, 3,	
	7, 1, 3, 2, 1, 4, 8, 8, 1, 1, 6, 1, 6, 3, 0, 9,	0, 1, 0, 1, 9, 3, 0, 8, 6,	0, 1, 0, 1, 9, 3, 0, 8, 6,	
	2, 5, 1, 8, 8, 2, 9, 4, 0, 0, 1, 8, 4, 0, 4, 2,	5, 7, 9, 3, 2, 0, 8, 0, 6,	5, 7, 9, 3, 2, 0, 8, 0, 6,	
	6, 0, 2, 8, 0, 2, 8, 4, 5, 6, 1, 5, 8, 7, 3, 8,	8, 0, 5, 1, 7, 6, 9, 8, 0,	8, 0, 5, 1, 7, 6, 9, 8, 0,	
	0, 9, 9, 3, 5, 4, 8, 2, 6, 1, 7, 8, 1, 8, 0, 2, 4, 3, 6, 4, 3, 5, 7, 7, 5, 8, 0, 8, 4, 6, 0, 5,	7, 1, 6, 6, 3, 1, 2, 3, 1, 5, 6, 2, 9, 3, 2, 3, 0, 5,	7, 1, 6, 6, 3, 1, 2, 3, 1, 5, 6, 2, 9, 3, 2, 3, 0, 5,	
	4, 9, 1, 3, 8, 8, 2, 6, 4, 0, 0, 1, 0, 8, 6, 0,	5, 1, 6, 3, 6, 2, 4, 7, 6,	5, 1, 6, 3, 6, 2, 4, 7, 6,	
	0, 9, 3, 3, 2, 1, 3, 4, 0, 7, 1, 0, 2, 3, 1, 2,	5, 7, 4, 5, 1, 9, 8, 6, 2,	5, 7, 4, 5, 1, 9, 8, 6, 2,	
	3, 4, 6, 1, 5, 7, 3, 6, 3, 2, 2, 4, 4, 0, 8, 1,	0, 1, 9, 3, 6, 5, 0, 3, 4,	0, 1, 9, 3, 6, 5, 0, 3, 4,	
	6, 8, 1, 4, 2, 9, 6, 2, 7, 9, 6, 8, 0, 2, 7, 6,	5, 6, 2, 5, 6, 9, 9, 0, 3,	5, 6, 2, 5, 6, 9, 9, 0, 3,	
	8, 3, 9, 1, 1, 3, 3, 0, 3, 4, 9, 3, 4, 2, 7, 7, 2, 5, 1, 4, 8, 0, 4, 0, 7, 2, 8, 8, 7, 1, 4, 8,	7, 0, 8, 8, 0, 3, 0, 4, 2, 7, 0, 9, 0, 6, 3, 9, 9, 5,	7, 0, 8, 8, 0, 3, 0, 4, 2, 7, 0, 9, 0, 6, 3, 9, 9, 5,	
	6, 6, 6, 3, 2, 1, 9, 5, 9, 6, 7, 4, 1, 6, 3, 6,	8, 9, 6, 2, 3, 0, 7, 1, 8,	8, 9, 6, 2, 3, 0, 7, 1, 8,	
	3, 8, 3, 6, 0, 0, 2, 7, 3, 9, 4, 2, 1, 6, 4, 6,	9, 7, 5, 2, 4, 0, 0, 8, 4,	9, 7, 5, 2, 4, 0, 0, 8, 4,	
	8, 9, 6, 0, 4, 2, 0, 8, 2, 8, 8, 7, 0, 4, 4, 9,	4, 4, 9, 9, 4, 7, 6, 1, 9,	4, 4, 9, 9, 4, 7, 6, 1, 9,	
	3, 4, 2, 9, 1, 0, 1, 0, 4, 5, 6, 7, 7, 1, 5, 4,	1, 0, 9, 8, 0, 6, 4, 4, 0,	1, 0, 9, 8, 0, 6, 4, 4, 0,	
	1, 3, 7, 8, 0, 8, 8, 6, 1, 1, 1, 0, 6, 8, 8, 4, 1, 8, 0, 4, 1, 2, 1, 1, 6, 3, 5, 8, 2, 0, 5, 6,	6, 1, 8, 6, 3, 0, 2, 6, 6, 3, 0, 3, 3, 2, 1, 1, 5, 8,	6, 1, 8, 6, 3, 0, 2, 6, 6, 3, 0, 3, 3, 2, 1, 1, 5, 8,	
	8, 5, 9, 5, 1, 0, 0, 6, 7, 6, 0, 0, 0, 4, 9, 6,	0, 0, 0, 2, 3, 2, 0, 1, 3,	0, 0, 0, 2, 3, 2, 0, 1, 3,	
	0, 4, 8, 2, 9, 1, 3, 8, 2, 5, 5, 3, 9, 1, 6, 1,	3, 6, 4, 9, 9, 7, 0, 5, 4,	3, 6, 4, 9, 9, 7, 0, 5, 4,	
	8, 8, 4, 8, 8, 0, 8, 9, 9, 3, 7, 7, 6, 0, 8, 1,	5, 5, 9, 4, 5, 5, 3, 4, 2,	5, 5, 9, 4, 5, 5, 3, 4, 2,	
	9, 1, 0, 3, 5, 4, 9, 1, 5, 6, 8, 6, 3, 4, 6, 3,	7, 8, 3, 6, 7, 0, 2, 4, 7,	7, 8, 3, 6, 7, 0, 2, 4, 7,	
	3, 3, 8, 1, 6, 5, 0, 8, 4, 1, 6, 9, 1, 8, 0, 5,	0, 6, 9, 9, 1, 8, 3, 4, 0,	0, 6, 9, 9, 1, 8, 3, 4, 0,	
	5, 8, 6, 1, 8, 7, 7, 9, 6, 8, 4, 7, 5, 5, 0, 8, 8, 2, 1, 6, 3, 0, 2, 8, 9, 7, 7, 6, 5, 8, 3, 3,	7, 6, 5, 2, 8, 0, 7, 7, 7, 7, 7, 2, 4, 9, 3, 3, 5, 0, 1,	7, 6, 5, 2, 8, 0, 7, 7, 7, 7, 7, 2, 4, 9, 3, 3, 5, 0, 1,	
	9, 3, 9, 5, 1, 7, 1, 1, 8, 1, 7, 8, 6, 1, 0, 3,	2, 8, 7, 1, 0, 3, 5, 0, 4,	2, 8, 7, 1, 0, 3, 5, 0, 4,	
	4, 1, 7, 0, 4, 1, 6, 2, 2, 1, 7, 7, 0, 0, 2, 5,	6, 5, 2, 0, 0, 5, 7, 0, 4,	6, 5, 2, 0, 0, 5, 7, 0, 4,	
	4, 9, 8, 1, 3, 1, 1, 3, 2, 7, 8, 0, 9, 3, 4, 3,	6, 4, 2, 9, 4, 8, 6, 7, 1,	6, 4, 2, 9, 4, 8, 6, 7, 1,	
	2, 9, 8, 7, 2, 5, 4, 0, 4, 8, 5, 3, 9, 3, 9, 6,	3, 2, 1, 4, 8, 8, 1, 1, 6,	3, 2, 1, 4, 8, 8, 1, 1, 6,	
	2, 7, 1, 7, 7, 5, 6, 1, 7, 7, 7, 8, 4, 6, 0, 2,	1, 6, 3, 0, 9, 2, 5, 1, 8,	1, 6, 3, 0, 9, 2, 5, 1, 8,	

10/24	10/24 Singly Linked List. Aem iair am thu DK-Livis			
	Test	Expected	Got	
	3, 5, 8, 0, 1, 4, 9, 6, 1, 7, 5, 3, 3, 8, 2, 6,	8, 2, 9, 4, 0, 0, 1, 8, 4,	8, 2, 9, 4, 0, 0, 1, 8, 4,	
	2, 7, 3, 0, 1, 3, 8, 7, 0, 9, 7, 4, 4, 4, 6, 0,	0, 4, 2, 6, 0, 2, 8, 0, 2,	0, 4, 2, 6, 0, 2, 8, 0, 2,	
	8, 2, 6, 9, 9, 5, 3, 7, 9, 4, 8, 8, 6, 1, 7, 9,	8, 4, 5, 6, 1, 5, 8, 7, 3,	8, 4, 5, 6, 1, 5, 8, 7, 3,	
	4, 8, 0, 0, 2, 5, 8, 6, 3, 3, 1, 2, 5, 5, 2, 9,	8, 0, 9, 9, 3, 5, 4, 8, 2,	8, 0, 9, 9, 3, 5, 4, 8, 2,	
	4, 8, 8, 6, 9, 1, 3, 9, 5, 3, 0, 7, 2, 1, 2, 4,	6, 1, 7, 8, 1, 8, 0, 2, 4,	6, 1, 7, 8, 1, 8, 0, 2, 4,	
	4, 6, 0, 2, 8, 7, 1, 6, 7, 4, 5, 1, 9, 4, 4, 7,	3, 6, 4, 3, 5, 7, 7, 5, 8,	3, 6, 4, 3, 5, 7, 7, 5, 8,	
	0, 3, 6, 0, 0, 7, 8, 0, 4, 5, 7, 7, 6, 5, 0, 3,	0, 8, 4, 6, 0, 5, 4, 9, 1,	0, 8, 4, 6, 0, 5, 4, 9, 1,	
	1, 0, 7, 0, 5, 0, 3, 1, 2, 1, 9, 3, 4, 4, 0, 0, 2, 9, 6, 3, 8, 9, 6, 7, 6, 9, 5, 3, 2, 1, 3, 0,	3, 8, 8, 2, 6, 4, 0, 0, 1,	3, 8, 8, 2, 6, 4, 0, 0, 1, 0, 8, 6, 0, 0, 9, 3, 3, 2,	
	2, 7, 9, 8, 8, 5, 4, 4, 2, 6, 5, 4, 2, 0, 0, 2,	0, 8, 6, 0, 0, 9, 3, 3, 2, 1, 3, 4, 0, 7, 1, 0, 2, 3,	1, 3, 4, 0, 7, 1, 0, 2, 3,	
	7, 8, 8, 7, 9, 7, 9, 8, 8, 2, 6, 0, 9, 0, 2, 6,	1, 2, 3, 4, 6, 1, 5, 7, 3,	1, 2, 3, 4, 6, 1, 5, 7, 3,	
	1, 9, 2, 9, 2, 5, 8, 6, 8, 0, 1, 5, 0, 6, 9, 7,	6, 3, 2, 2, 4, 4, 0, 8, 1,	6, 3, 2, 2, 4, 4, 0, 8, 1,	
	7, 2, 1, 5, 6, 1, 7, 0, 0, 7, 0, 0, 2, 8, 3, 3,	6, 8, 1, 4, 2, 9, 6, 2, 7,	6, 8, 1, 4, 2, 9, 6, 2, 7,	
	2, 9, 8, 9, 8, 9, 9, 1, 7, 6, 2, 5, 1, 2, 5, 7,	9, 6, 8, 0, 2, 7, 6, 8, 3,	9, 6, 8, 0, 2, 7, 6, 8, 3,	
	0, 8, 2, 8, 7, 7, 6, 1, 2, 8, 2, 5, 8, 0, 5, 7,	9, 1, 1, 3, 3, 0, 3, 4, 9,	9, 1, 1, 3, 3, 0, 3, 4, 9,	
	0, 7, 0, 2, 5, 5, 0, 3, 1, 8, 5, 7, 6, 8, 0, 0,	3, 4, 2, 7, 7, 2, 5, 1, 4,	3, 4, 2, 7, 7, 2, 5, 1, 4,	
	5, 1, 9, 0, 1, 3, 3, 5, 5, 0, 6, 8, 5, 4, 7,	8, 0, 4, 0, 7, 2, 8, 8, 7,	8, 0, 4, 0, 7, 2, 8, 8, 7,	
	7, 8, 0, 3, 5, 9, 2, 8, 7, 8, 4, 5, 7, 6, 4, 9,	1, 4, 8, 6, 6, 6, 3, 2, 1,	1, 4, 8, 6, 6, 6, 3, 2, 1,	
	7, 6, 1, 1, 1, 6, 0, 1, 0, 7, 5, 1, 9, 9, 2, 7,	9, 5, 9, 6, 7, 4, 1, 6, 3,	9, 5, 9, 6, 7, 4, 1, 6, 3,	
	4, 9, 9,snip 2, 6, 9, 2, 8, 3, 8, 0, 6, 8, 3, 5, 0, 9, 6, 0, 7, 2, 5, 0, 3, 2, 8, 8, 2,	6, 3, 8, 3, 6, 0, 0, 2, 7, 3, 9, 4, 2, 1, 6, 4, 6, 8,	6, 3, 8, 3, 6, 0, 0, 2, 7, 3, 9, 4, 2, 1, 6, 4, 6, 8,	
	5, 5, 3, 6, 9, 4, 9, 2, 2, 9, 6, 6, 7, 5, 7, 4,	9, 6, 0, 4, 2, 0, 8, 2, 8,	9, 6, 0, 4, 2, 0, 8, 2, 8,	
	6, 9, 8, 9, 7, 9, 2, 7, 0, 4, 9, 0, 6, 2, 8, 1,	8, 7, 0, 4, 4, 9, 3, 4, 2,	8, 7, 0, 4, 4, 9, 3, 4, 2,	
	3, 0, 3, 4, 7, 0, 7, 2, 1, 7, 4, 2, 0, 6, 5, 6,	9, 1, 0, 1, 0, 4, 5, 6, 7,	9, 1, 0, 1, 0, 4, 5, 6, 7,	
	3, 6, 6, 9, 1, 3, 0, 8, 4, 9, 7, 1, 6, 8, 4, 9,	7, 1, 5, 4, 1, 3, 7, 8, 0,	7, 1, 5, 4, 1, 3, 7, 8, 0,	
	8, 3, 4, 0, 2, 2, 4, 6, 2, 7, 9, 0, 3, 8, 0, 6,	8, 8, 6, 1, 1, 1, 0, 6, 8,	8, 8, 6, 1, 1, 1, 0, 6, 8,	
	0, 6, 7, 7, 9, 6, 0, 4, 7, 8, 4, 4, 2, 7, 0, 0,	8, 4, 1, 8, 0, 4, 1, 2, 1,	8, 4, 1, 8, 0, 4, 1, 2, 1,	
	8, 0, 8, 8, 5, 7, 6, 2, 8, 5, 5, 3, 7, 1, 2, 8,	1, 6, 3, 5, 8, 2, 0, 5, 6,	1, 6, 3, 5, 8, 2, 0, 5, 6,	
	8, 4, 1, 8, 1, 8, 7, 8, 4, 0, 1, 6, 3, 0, 2, 3,	8, 5, 9, 5, 1, 0, 0, 6, 7,	8, 5, 9, 5, 1, 0, 0, 6, 7,	
	6, 0, 8, 2, 0, 7, 8, 7, 1, 3, 3, 5, 0, 0, 1, 5,	6, 0, 0, 0, 4, 9, 6, 0, 4,	6, 0, 0, 0, 4, 9, 6, 0, 4,	
	2, 7, 5, 2, 5, 1, 6, 4, 9, 9, 7, 2, 1, 3, 3, 3, 2, 2, 5, 9, 0, 7, 0, 0, 1, 0, 6, 2, 1, 1, 9, 4,	8, 2, 9, 1, 3, 8, 2, 5, 5, 3, 9, 1, 6, 1, 8, 8, 4, 8,	8, 2, 9, 1, 3, 8, 2, 5, 5, 3, 9, 1, 6, 1, 8, 8, 4, 8,	
	3, 3, 4, 9, 9, 5, 7, 2, 3, 7, 8, 4, 2, 4, 0, 0,	8, 0, 8, 9, 9, 3, 7, 7, 6,	8, 0, 8, 9, 9, 3, 7, 7, 6,	
	7, 5, 7, 1, 9, 5, 7, 7, 6, 0, 6, 7, 8, 5, 9, 9,	0, 8, 1, 9, 1, 0, 3, 5, 4,	0, 8, 1, 9, 1, 0, 3, 5, 4,	
	4, 9, 2, 6, 8, 4, 1, 1, 8, 1, 0, 2, 4, 6, 3, 0,	9, 1, 5, 6, 8, 6, 3, 4, 6,	9, 1, 5, 6, 8, 6, 3, 4, 6,	
	8, 9, 1, 6, 6, 2, 3, 6, 6, 3, 9, 8, 7, 5, 5, 8,	3, 3, 3, 8, 1, 6, 5, 0, 8,	3, 3, 3, 8, 1, 6, 5, 0, 8,	
	3, 8, 4, 1, 6, 6, 6, 3, 5, 4, 3, 6, 2, 3, 5, 3,	4, 1, 6, 9, 1, 8, 0, 5, 5,	4, 1, 6, 9, 1, 8, 0, 5, 5,	
	4, 1, 3, 1, 0, 1, 9, 7, 8, 7, 2, 8, 5, 6, 5, 6,	8, 6, 1, 8, 7, 7, 9, 6, 8,	8, 6, 1, 8, 7, 7, 9, 6, 8,	
	3, 6, 4, 8, 0, 0, 6, 7, 2, 4, 5, 5, 2, 9, 6, 7,	4, 7, 5, 5, 0, 8, 8, 2, 1,	4, 7, 5, 5, 0, 8, 8, 2, 1,	
	0, 8, 7, 9, 1, 8, 9, 6, 7, 7, 8, 5, 5, 4, 3, 7,	6, 3, 0, 2, 8, 9, 7, 7, 6,	6, 3, 0, 2, 8, 9, 7, 7, 6,	
	1, 1, 6, 3, 0, 9, 7, 7, 8, 7, 1, 5, 8, 6, 0, 1, 4, 6, 1, 6, 4, 2, 1, 3, 0, 9, 5, 3, 2, 3, 5, 1,	5, 8, 3, 3, 9, 3, 9, 5, 1, 7, 1, 1, 8, 1, 7, 8, 6, 1,	5, 8, 3, 3, 9, 3, 9, 5, 1, 7, 1, 1, 8, 1, 7, 8, 6, 1,	
	6, 0, 4, 5, 0, 9, 5, 3, 2, 6, 4, 0, 4, 5, 1, 4,	0, 3, 4, 1, 7, 0, 4, 1, 6,	0, 3, 4, 1, 7, 0, 4, 1, 6,	
	7, 5, 1, 6, 9, 6, 6, 0, 3, 1, 6, 9, 9, 6, 5, 1,	2, 2, 1, 7, 7, 0, 0, 2, 5,	2, 2, 1, 7, 7, 0, 0, 2, 5,	
	3, 6, 4, 7, 3, 9, 6, 6, 8, 8, 2, 9, 1, 0, 8, 6,	4, 9, 8, 1, 3, 1, 1, 3, 2,	4, 9, 8, 1, 3, 1, 1, 3, 2,	
	7, 4, 1, 6, 1, 4, 7, 3, 5, 3, 1, 3, 8, 0, 1, 9,	7, 8, 0, 9, 3, 4, 3, 2, 9,	7, 8, 0, 9, 3, 4, 3, 2, 9,	
	7, 6, 4, 9, 8, 6, 0, 0, 3, 6, 0, 0, 3, 4, 7, 5,	8, 7, 2, 5, 4, 0, 4, 8, 5,	8, 7, 2, 5, 4, 0, 4, 8, 5,	
	5, 8, 5, 2, 4, 5, 2, 4, 5, 4, 8, 6, 9, 2, 4, 9,	3, 9, 3, 9, 6, 2, 7, 1, 7,	3, 9, 3, 9, 6, 2, 7, 1, 7,	
	7, 4, 6, 1, 3, 0, 8, 6, 1, 1, 2, 6, 8, 4, 9, 4,	7, 5, 6, 1, 7, 7, 7, 8, 4,	7, 5, 6, 1, 7, 7, 7, 8, 4,	
	3, 6, 5, 0, 3, 6, 4, 1, 8, 7, 7, 2, 3, 6, 2, 8, 4, 3, 1, 7, 8, 2, 4, 0, 7, 7, 4, 9, 8, 5, 8, 1,	6, 0, 2, 3, 5, 8, 0, 1, 4, 9, 6, 1, 7, 5, 3, 3, 8, 2,	6, 0, 2, 3, 5, 8, 0, 1, 4, 9, 6, 1, 7, 5, 3, 3, 8, 2,	
	0, 0, 9, 6, 3, 1, 5, 9, 9, 3, 2, 7, 8, 7, 1, 8,	6, 2, 7, 3, 0, 1, 3, 8, 7,	6, 2, 7, 3, 0, 1, 3, 8, 7,	
	1, 2, 7, 4, 2, 4, 9, 2, 3, 8, 8, 5, 0, 1, 3, 0,	0, 9, 7, 4, 4, 4, 6, 0, 8,	0, 9, 7, 4, 4, 4, 6, 0, 8,	
	3, 8, 6, 5, 1, 8, 1, 3, 8, 6, 5, 6, 5, 4, 8, 3,	2, 6, 9, 9, 5, 3, 7, 9, 4,	2, 6, 9, 9, 5, 3, 7, 9, 4,	
	2, 3, 5, 0, 1, 9, 0, 9, 2, 3, 5, 3, 0, 4, 0, 8,	8, 8, 6, 1, 7, 9, 4, 8, 0,	8, 8, 6, 1, 7, 9, 4, 8, 0,	
	3, 4, 2, 6, 4, 4, 6, 1, 4, 0, 6, 9, 7, 7, 7, 6,	0, 2, 5, 8, 6, 3, 3, 1, 2,	0, 2, 5, 8, 6, 3, 3, 1, 2,	
	6, 1, 6, 1, 8, 2, 3, 9, 5, 7, 3, 9, 9, 6, 7, 9,	5, 5, 2, 9, 4, 8, 8, 6, 9,	5, 5, 2, 9, 4, 8, 8, 6, 9,	
	3, 6, 7, 7, 9, 2, 0, 7, 1, 6, 7, 8, 3, 8, 8, 4,	1, 3, 9, 5, 3, 0, 7, 2, 1,	1, 3, 9, 5, 3, 0, 7, 2, 1,	
	6, 8, 0, 4, 2, 9, 0, 4, 2, 7, 9, 6, 9, 9, 1, 5,	2, 4, 4, 6, 0, 2, 8, 7, 1,	2, 4, 4, 6, 0, 2, 8, 7, 1,	
	9, 4, 1, 4, 5, 5, 1, 0, 1, 3, 9, 6, 0, 4, 5, 5,	6, 7, 4, 5, 1, 9, 4, 4, 7,	6, 7, 4, 5, 1, 9, 4, 4, 7,	
	7, 1, 7, 1, 4, 5, 6, 1, 7, 3, 9, 0, 9, 5, 9, 5, 6, 2, 0, 7, 4, 0, 1, 6, 7, 3, 2, 7, 0, 6, 3, 1,	0, 3, 6, 0, 0, 7, 8, 0, 4, 5, 7, 7, 6, 5, 0, 3, 1, 0,	0, 3, 6, 0, 0, 7, 8, 0, 4, 5, 7, 7, 6, 5, 0, 3, 1, 0,	
	4, 3, 4, 3, 9, 9, 6, 0, 7, 9, 4, 3, 8, 1, 5, 4,	7, 0, 5, 0, 3, 1, 2, 1, 9,	7, 0, 5, 0, 3, 1, 2, 1, 9,	
	3, 2, 3, 1, 9, 9, 2, 1, 6, 9, 8, 1, 6, 2, 8, 4,	3, 4, 4, 0, 0, 2, 9, 6, 3,	3, 4, 4, 0, 0, 2, 9, 6, 3,	

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

/ 10)/ 2 4	Singly Li	nked List. Aem iai ian iam thư Đi	√-LIVIo
		Test	Expected	Got
			2, 1, 9, 4, 8, 9, 8, 9, 1,	2, 1, 9, 4, 8, 9, 8, 9, 1,
			1, 5, 7, 8, 0, 0, 1, 1, 2,	1, 5, 7, 8, 0, 0, 1, 1, 2,
			7, 8, 9, 7, 2, 3, 2, 8, 9,	7, 8, 9, 7, 2, 3, 2, 8, 9,
			5, 1, 8, 9, 9, 5, 2, 2, 0,	5, 1, 8, 9, 9, 5, 2, 2, 0,
			6, 5, 6, 9, 5, 2, 6, 2, 3,	6, 5, 6, 9, 5, 2, 6, 2, 3,
			7, 4, 2, 6, 1, 9, 8, 0, 0,	7, 4, 2, 6, 1, 9, 8, 0, 0,
			4, 7, 2, 1, 6, 1, 8, 6, 7,	4, 7, 2, 1, 6, 1, 8, 6, 7,
			1, 2, 6, 1, 4, 1, 6, 2, 1,	1, 2, 6, 1, 4, 1, 6, 2, 1,
			9, 5, 0, 0, 4, 6, 2, 5, 3,	9, 5, 0, 0, 4, 6, 2, 5, 3,
			3, 0, 5, 0, 2, 2, 7, 6, 1,	3, 0, 5, 0, 2, 2, 7, 6, 1,
			1, 3, 9, 5, 6, 0, 3, 4, 2,	1, 3, 9, 5, 6, 0, 3, 4, 2,
			8, 3, 7, 2, 9, 6, 1, 8, 3,	8, 3, 7, 2, 9, 6, 1, 8, 3,
			1, 3, 8, 5, 1, 9, 0, 0, 4,	1, 3, 8, 5, 1, 9, 0, 0, 4,
			3, 4, 6, 4, 6, 7, 8, 5, 2, 5, 6, 1, 6, 8, 5, 2, 1, 1,	3, 4, 6, 4, 6, 7, 8, 5, 2,
			0, 4, 7, 0, 4, 9, 1, 4, 2,	5, 6, 1, 6, 8, 5, 2, 1, 1, 0, 4, 7, 0, 4, 9, 1, 4, 2,
			1, 4, 4, 5, 7, 2, 1, 2, 5,	1, 4, 4, 5, 7, 2, 1, 2, 5,
			3, 8, 0, 6, 6, 0, 5, 2, 7,	3, 8, 0, 6, 6, 0, 5, 2, 7,
			5, 7, 5, 7, 9, 0, 8, 3, 3,	5, 7, 5, 7, 9, 0, 8, 3, 3,
			4, 0, 3, 8, 4, 1, 4, 0, 8,	4, 0, 3, 8, 4, 1, 4, 0, 8,
			4, 8, 3, 1, 2, 5, 6, 8, 2,	4, 8, 3, 1, 2, 5, 6, 8, 2,
			9, 2, 6, 5, 5, 5, 1, 0, 5,	9, 2, 6, 5, 5, 5, 1, 0, 5,
			1, 9, 6, 2, 2, 3, 0, 7, 6,	1, 9, 6, 2, 2, 3, 0, 7, 6,
			8, 7, 7, 8, 2, 0, 9, 3, 1,	8, 7, 7, 8, 2, 0, 9, 3, 1,
			5, 3, 1, 4, 6, 7, 5, 9, 9,	5, 3, 1, 4, 6, 7, 5, 9, 9,
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			1, 7, 2, 9, 8, 2, 0, 7, 0,	1, 7, 2, 9, 8, 2, 0, 7, 0,
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			0, 1, 8, 0, 9, 2, 4, 9, 8,	0, 1, 8, 0, 9, 2, 4, 9, 8,
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			3, 5, 0, 6, 6, 8, 4, 6, 7,	3, 5, 0, 6, 6, 8, 4, 6, 7,
			8, 6, 9, 4, 1, 3, 2, 1, 8,	8, 6, 9, 4, 1, 3, 2, 1, 8,
			0, 0, 7, 2, 1, 5, 3, 4, 3,	0, 0, 7, 2, 1, 5, 3, 4, 3,
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			5, 1, 4, 4, 6, 3, 6, 5, 2,	5, 1, 4, 4, 6, 3, 6, 5, 2,
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			1, 0, 8, 9, 0, 4, 8, 5, 6,	1, 0, 8, 9, 0, 4, 8, 5, 6,
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			6, 5, 2, 3, 0, 2, 2, 1, 0,	6, 5, 2, 3, 0, 2, 2, 1, 0,
			1, 9, 1, 4, 4, 9, 3, 2, 3,	1, 9, 1, 4, 4, 9, 3, 2, 3,

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

Oling	ry Elinea Elst. Xelli işi lalı lalı tıla B	K EIVIO
Test	Expected	Got
6, 5, 1, 0, 8, 5, 5, 6, 6, 8, 5, 0, 4, 5, 4, 0	5, 7, 0, 4, 2, 3, 0, 9, 1,	5, 7, 0, 4, 2, 3, 0, 9, 1,
5, 6, 4, 0, 5, 5, 0, 1, 1, 6, 2, 9, 6, 1, 4, 0		9, 3, 7, 8, 4, 7, 0, 9, 8,
9, 8, 6, 7, 3, 0, 3, 7, 2, 8, 5, 6, 0, 8, 4, 2		7, 3, 7, 5, 1, 7, 7, 4, 4,
9, 9, 4, 8, 7, 8, 4, 7, 1, 3, 7, 0, 8, 3, 9, 3		1, 7, 8, 4, 0, 6, 4, 9, 5,
1, 0, 8, 7, 8, 4, 5, 2, 7, 4, 9, 9, 6, 0, 0, 9		4, 5, 3, 7, 3, 3, 7, 2, 1,
2, 3, 2, 2, 3, 3, 5, 7, 6, 8, 7, 6, 0, 1, 3, 6		6, 3, 4, 6, 3, 1, 5, 9, 7,
1, 3, 6, 5, 1, 7, 1, 7, 6, 3, 6, 8, 0, 5, 4, 2		3, 6, 2, 0, 9, 7, 0, 0, 3,
2, 2, 8, 3, 9, 8, 7, 8, 5, 2, 6, 5, 3, 2, 1, 0		1, 5, 6, 3, 8, 2, 1, 6, 3,
8, 7, 4, 4, 8, 9, 7, 9, 4, 1, 4, 6, 5, 3, 2, 8		4, 8, 9, 2, 3, 5, 9, 1, 4,
6, 8, 8, 2, 0, 1, 5, 3, 8, 5, 9, 8, 0, 3, 5, 8		6, 9, 5, 8, 6, 6, 3, 4, 7,
4, 6, 5, 0, 4, 0, 6, 6, 0, 1, 5, 0, 2, 4, 6, 8		2, 3, 7, 0, 2, 2, 7, 6, 8,
9, 7, 9, 4, 3, 9, 3, 6, 9, 3, 7, 2, 3, 2, 5, 8		9, 9, 7, 2, 0, 9, 0, 3, 9,
8, 0, 5, 2, 4, 2, 9, 2, 6, 4, 4, 1, 2, 1, 6, 7		6, 5, 9, 4, 3, 6, 8, 4, 3,
3, 7, 1, 7, 8, 9, 7, 6, 2, 8, 7, 8, 3, 2, 6, 3		1, 0, 7, 2, 7, 3, 9, 3, 2,
7, 0, 2, 5, 5, 1, 4, 1, 6, 2, 9, 5, 9, 4, 3, 2		0, 1, 9, 2, 3, 9, 1, 3, 3,
8, 7, 4, 8, 5, 1, 2, 9, 5, 0, 7, 3, 1, 7, 0, 8		6, 5, 6, 5, 5, 5, 9, 1, 4,
3, 6, 5, 8, 5, 2, 7, 5, 0, 3, 0, 7, 3, 0, 6, 1	6, 5, 4, 3, 2, 8, 7, 0, 1,	6, 5, 4, 3, 2, 8, 7, 0, 1,
5, 5, 5, 1, 5, 8, 2, 3, 2, 3, 6, 0, 1, 5, 1, 2	4, 4, 8, 9, 7, 4, 1, 1, 9,	4, 4, 8, 9, 7, 4, 1, 1, 9,
2, 3, 6, 0, 4, 1, 9, 1, 4, 1, 7, 6, 4, 6, 6, 5		4, 1, 0, 9, 5, 8, 6, 6, 9,
7, 5, 4, 1, 1, 0, 4, 7, 6, 1, 6, 8, 9, 6, 3, 2		1, 5, 6, 0, 8, 0, 3, 3,
1, 5, 1, 0, 2, 8, 6, 6, 6, 2, 3, 5, 2, 6, 7, 1		snip 3, 0, 7, 6, 6,
9, 9, 2, 2, 6, 5, 8, 0, 4, 3, 1, 9, 6, 8, 7, 4		4, 1, 7, 5, 1, 2, 9, 2, 6,
0, 3, 3, 7, 1, 3, 0, 2, 9, 1, 5, 7, 7, 6, 7, 8		3, 8, 7, 6, 7, 2, 9, 1, 3,
4, 5, 7, 5, 5, 5, 4, 9, 7, 2, 6, 6, 5, 3, 2, 1		0, 2, 5, 8, 1, 1, 8, 9, 9,
1, 9, 8, 9, 1, 6, 7, 8, 4, 6, 1, 7, 5, 1, 9, 3		7, 5, 9, 9, 4, 7, 5, 1, 5,
0, 5, 1, 1, 4, 2, 5, 1, 5, 2, 7, 4, 7, 9, 8, 9		2, 0, 0, 5, 9, 8, 0, 4, 1,
2, 0, 2, 9, 9, 6, 8, 4, 0, 9, 5, 6, 0, 8, 7, 1	1, 1, 6, 7, 5, 6, 3, 4, 0,	1, 1, 6, 7, 5, 6, 3, 4, 0,
3, 1, 3, 1, 7, 3, 5, 2, 7, 2, 4, 2, 4, 4, 3, 7		5, 9, 8, 4, 0, 9, 8, 8, 8,
0, 8, 2, 1, 2, 0, 5, 6, 3, 6, 9, 6, 4, 7, 1, 7		2, 3, 7, 5, 5, 5, 5, 7, 2,
2, 1, 7, 6, 7, 0, 1, 6, 8, 6, 5, 1, 6, 0, 8, 5	6, 1, 0, 2, 3, 1, 1, 9, 5,	6, 1, 0, 2, 3, 1, 1, 9, 5,
7, 4, 9, 5, 9, 2, 6, 4, 9, 3, 4, 4, 6, 7, 6, 6	1, 4, 5, 9, 1, 9, 6, 5, 1,	1, 4, 5, 9, 1, 9, 6, 5, 1,
6, 5, 0, 4, 9, 4, 3, 9, 2, 6, 3, 0, 7, 6, 5, 6		7, 4, 1, 3, 0, 7, 6, 6, 3,
8, 8, 7, 6, 4, 5, 1, 8, 1, 4, 4, 3, 5, 6, 2, 2		8, 8, 9, 3, 8, 6, 5, 4, 1,
8, 8, 8, 0, 5, 8, 9, 0, 9, 0, 7, 0, 2, 6, 2, 3		7, 3, 5, 8, 0, 9, 8, 5, 3,
8, 1, 6, 5};	2, 6, 4, 4, 1, 6, 3, 1, 5,	2, 6, 4, 4, 1, 6, 3, 1, 5,
int k = 11111;	9, 9, 7, 9, 4, 4, 2, 8, 3,	9, 9, 7, 9, 4, 4, 2, 8, 3,
LLNode* head = LLNode::createWithIterators(arr	6, 0, 9, 8, 5, 1, 2, 3, 3,	6, 0, 9, 8, 5, 1, 2, 3, 3,
<pre>arr + sizeof(arr) / sizeof(int));</pre>	7, 5, 7, 0, 1, 2, 8, 3, 4,	7, 5, 7, 0, 1, 2, 8, 3, 4,
LLNode::printList(head);	4, 9, 3, 0, 2, 7, 3, 2, 6,	4, 9, 3, 0, 2, 7, 3, 2, 6,
cout << "\n";	4, 5, 3, 4, 9, 7, 1, 5, 8,	4, 5, 3, 4, 9, 7, 1, 5, 8,
<pre>LLNode* newhead = rotateLinkedList(head, k);</pre>	7, 9, 9, 1, 7, 3, 1, 3, 5,	7, 9, 9, 1, 7, 3, 1, 3, 5,
LLNode::printList(newhead);	4, 4, 5, 4, 4, 8, 2, 1, 0,	4, 4, 5, 4, 4, 8, 2, 1, 0,
	5, 2, 3, 8, 2, 9, 2, 4, 3,	5, 2, 3, 8, 2, 9, 2, 4, 3,
	3, 7, 8, 1, 5, 5, 0, 4, 5,	3, 7, 8, 1, 5, 5, 0, 4, 5,
	2, 7, 7, 0, 8, 0, 4, 1, 9,	2, 7, 7, 0, 8, 0, 4, 1, 9,
	2, 0, 1, 6, 3, 9, 8, 3, 8,	2, 0, 1, 6, 3, 9, 8, 3, 8,
	3, 7, 1, 2, 5, 9, 1, 2, 9,	3, 7, 1, 2, 5, 9, 1, 2, 9,
	7, 4, 2, 4, 5, 5, 7, 9, 6,	7, 4, 2, 4, 5, 5, 7, 9, 6,
	9, 0, 6, 8, 0, 5, 3, 9, 1,	9, 0, 6, 8, 0, 5, 3, 9, 1,
	9, 9, 5, 6, 1, 0, 6, 2, 0,	9, 9, 5, 6, 1, 0, 6, 2, 0,
	8, 1, 1, 2, 3, 5, 6, 8, 6,	8, 1, 1, 2, 3, 5, 6, 8, 6,
	6, 4, 8, 7, 5, 4, 2, 7, 6,	6, 4, 8, 7, 5, 4, 2, 7, 6,
	8, 0, 9, 2, 9, 5, 3, 3, 0,	8, 0, 9, 2, 9, 5, 3, 3, 0,
	6, 4, 8, 8, 1, 6, 0, 5, 8,	6, 4, 8, 8, 1, 6, 0, 5, 8,
	6, 6, 1, 1, 0, 3, 7, 4, 3,	6, 6, 1, 1, 0, 3, 7, 4, 3,
	0, 0, 3, 4, 0, 7, 0, 7, 1,	0, 0, 3, 4, 0, 7, 0, 7, 1,
	3, 7, 5, 7, 5, 8, 9, 3, 5,	3, 7, 5, 7, 5, 8, 9, 3, 5,
	8, 8, 8, 4, 5, 1, 2, 8, 6,	8, 8, 8, 4, 5, 1, 2, 8, 6,
	9, 6, 9, 2, 7, 6, 9, 9, 4,	9, 6, 9, 2, 7, 6, 9, 9, 4,
	0, 8, 0, 4, 3, 5, 2, 0, 3,	0, 8, 0, 4, 3, 5, 2, 0, 3,
	2, 6, 5, 8, 5, 2, 9, 8, 6,	2, 6, 5, 8, 5, 2, 9, 8, 6,
	9, 8, 1, 7, 4, 9, 0, 2, 6,	9, 8, 1, 7, 4, 9, 0, 2, 6,
	8, 1, 9, 9, 1, 3, 4, 5, 4,	8, 1, 9, 9, 1, 3, 4, 5, 4,
	1, 1, 7, 5, 2, 0, 4, 3, 5,	1, 1, 7, 5, 2, 0, 4, 3, 5,

10/24		Francisco Aemi i ami ami mor Di	
	Test	Expected	Got
		3, 1, 4, 0, 7, 7, 9, 1, 8,	3, 1, 4, 0, 7, 7, 9, 1, 8,
		6, 3, 9, 0, 7, 7, 4, 7, 4, 3, 8, 2, 6, 4, 0, 5, 8, 8,	6, 3, 9, 0, 7, 7, 4, 7, 4, 3, 8, 2, 6, 4, 0, 5, 8, 8,
		7, 2, 7, 3, 2, 3, 8, 7, 1,	7, 2, 7, 3, 2, 3, 8, 7, 1,
		3, 3, 7, 2, 2, 1, 6, 3, 4,	3, 3, 7, 2, 2, 1, 6, 3, 4,
		6, 5, 3, 4, 0, 2, 1, 2, 5,	6, 5, 3, 4, 0, 2, 1, 2, 5,
		1, 2, 6, 9, 6, 8, 0, 9, 7,	1, 2, 6, 9, 6, 8, 0, 9, 7,
		7, 8, 8, 6, 9, 7, 8, 1, 5, 3, 3, 8, 8, 4, 7, 6, 2, 2,	7, 8, 8, 6, 9, 7, 8, 1, 5, 3, 3, 8, 8, 4, 7, 6, 2, 2,
		7, 0, 6, 8, 1, 5, 2, 5, 6,	7, 0, 6, 8, 1, 5, 2, 5, 6,
		2, 1, 2, 4, 9, 2, 6, 0, 2,	2, 1, 2, 4, 9, 2, 6, 0, 2,
		8, 0, 9, 9, 4, 7, 5, 4, 6,	8, 0, 9, 9, 4, 7, 5, 4, 6,
		6, 5, 2, 3, 9, 2, 7, 0, 6,	6, 5, 2, 3, 9, 2, 7, 0, 6,
		7, 1, 5, 4, 9, 8, 3, 2, 1, 4, 7, 9, 9, 6, 9, 6, 6, 6,	7, 1, 5, 4, 9, 8, 3, 2, 1, 4, 7, 9, 9, 6, 9, 6, 6, 6,
		0, 9, 8, 5, 7, 3, 4, 8, 0,	0, 9, 8, 5, 7, 3, 4, 8, 0,
		4, 1, 1, 0, 9, 8, 4, 1, 7,	4, 1, 1, 0, 9, 8, 4, 1, 7,
		3, 1, 1, 2, 5, 4, 4, 6, 2,	3, 1, 1, 2, 5, 4, 4, 6, 2,
		7, 4, 5, 8, 5, 3, 0, 7, 1,	7, 4, 5, 8, 5, 3, 0, 7, 1,
		7, 3, 8, 5, 1, 1, 7, 2, 2, 4, 3, 4, 5, 4, 3, 0, 3, 7,	7, 3, 8, 5, 1, 1, 7, 2, 2, 4, 3, 4, 5, 4, 3, 0, 3, 7,
		2, 0, 9, 3, 4, 2, 4, 3, 5,	2, 0, 9, 3, 4, 2, 4, 3, 5,
		7, 8, 4, 7, 4, 9, 5, 6, 4,	7, 8, 4, 7, 4, 9, 5, 6, 4,
		5, 0, 5, 2, 9, 6, 9, 3, 5,	5, 0, 5, 2, 9, 6, 9, 3, 5,
		6, 9, 9, 0, 5, 2, 1, 0, 4,	6, 9, 9, 0, 5, 2, 1, 0, 4,
		6, 1, 1, 7, 8, 8, 5, 3, 5,	6, 1, 1, 7, 8, 8, 5, 3, 5,
		8, 1, 1, 2, 6, 8, 1, 8, 2, 3, 9, 3, 0, 5, 8, 0, 0, 6,	8, 1, 1, 2, 6, 8, 1, 8, 2, 3, 9, 3, 0, 5, 8, 0, 0, 6,
		2, 4, 0, 2, 6, 2, 2, 8, 7,	2, 4, 0, 2, 6, 2, 2, 8, 7,
		1, 8, 6, 8, 2, 7, 9, 3, 6,	1, 8, 6, 8, 2, 7, 9, 3, 6,
		3, 5, 7, 1, 7, 0, 8, 6, 6,	3, 5, 7, 1, 7, 0, 8, 6, 6,
		6, 5, 2, 6, 3, 2, 6, 3, 5,	6, 5, 2, 6, 3, 2, 6, 3, 5,
		6, 5, 2, 3, 1, 7, 0, 2, 3, 2, 3, 3, 0, 6, 1, 5, 1, 1,	6, 5, 2, 3, 1, 7, 0, 2, 3, 2, 3, 3, 0, 6, 1, 5, 1, 1,
		0, 2, 1, 7, 8, 8, 6, 7, 2,	0, 2, 1, 7, 8, 8, 6, 7, 2,
		9, 6, 1, 0, 1, 2, 5, 0, 0,	9, 6, 1, 0, 1, 2, 5, 0, 0,
		6, 5, 7, 7, 4, 6, 4, 7, 4,	6, 5, 7, 7, 4, 6, 4, 7, 4,
		1, 5, 6, 3, 1, 7, 5, 6, 4,	1, 5, 6, 3, 1, 7, 5, 6, 4,
		4, 2, 8, 5, 7, 6, 2, 8, 1, 2, 2, 0, 8, 9, 3, 5, 6, 4,	4, 2, 8, 5, 7, 6, 2, 8, 1, 2, 2, 0, 8, 9, 3, 5, 6, 4,
		3, 4, 0, 9, 7, 7, 0, 0, 9,	3, 4, 0, 9, 7, 7, 0, 0, 9,
		8, 8, 9, 6, 4, 6, 6, 4, 8,	8, 8, 9, 6, 4, 6, 6, 4, 8,
		0, 8, 2, 8, 0, 0, 4, 1, 3,	0, 8, 2, 8, 0, 0, 4, 1, 3,
		0, 2, 9, 7, 3, 3, 0, 5, 9,	0, 2, 9, 7, 3, 3, 0, 5, 9,
		0, 1, 4, 7, 1, 6, 4, 4, 1, 4, 8, 9, 7, 5, 9, 1, 9, 6,	0, 1, 4, 7, 1, 6, 4, 4, 1, 4, 8, 9, 7, 5, 9, 1, 9, 6,
		5, 3, 4, 5, 3, 6, 1, 0, 4,	5, 3, 4, 5, 3, 6, 1, 0, 4,
		3, 0, 9, 3, 8, 8, 9, 7, 3,	3, 0, 9, 3, 8, 8, 9, 7, 3,
		0, 4, 2, 4, 9, 7, 4, 3, 2,	0, 4, 2, 4, 9, 7, 4, 3, 2,
		2, 8, 9, 2, 5, 0, 9, 3, 2,	2, 8, 9, 2, 5, 0, 9, 3, 2,
		1, 9, 3, 2, 3, 2, 8, 0, 2, 5, 1, 6, 8, 3, 1, 7, 8, 2,	1, 9, 3, 2, 3, 2, 8, 0, 2, 5, 1, 6, 8, 3, 1, 7, 8, 2,
		6, 2, 0, 2, 7, 2, 6, 7, 3,	6, 2, 0, 2, 7, 2, 6, 7, 3,
		6, 1, 5, 6, 3, 0, 4, 6, 4,	6, 1, 5, 6, 3, 0, 4, 6, 4,
		4, 2, 4, 1, 6, 0, 5, 5, 9,	4, 2, 4, 1, 6, 0, 5, 5, 9,
		3, 8, 4, 3, 4, 9, 6, 2, 0,	3, 8, 4, 3, 4, 9, 6, 2, 0,
		4, 6, 0, 5, 0, 9, 0, 9, 7, 6, 8, 7, 0, 7, 3, 6, 1, 8,	4, 6, 0, 5, 0, 9, 0, 9, 7, 6, 8, 7, 0, 7, 3, 6, 1, 8,
		4, 2, 8, 7, 0, 2, 5, 4, 0,	4, 2, 8, 7, 0, 2, 5, 4, 0,
		5, 7, 4, 8, 5, 1, 2, 2, 1,	5, 7, 4, 8, 5, 1, 2, 2, 1,
		6, 5, 0, 9, 4, 6, 2, 7, 7,	6, 5, 0, 9, 4, 6, 2, 7, 7,
		4, 2, 9, 7, 6, 7, 5, 0, 5,	4, 2, 9, 7, 6, 7, 5, 0, 5,
		5, 2, 8, 8, 8, 8, 2, 0, 6,	5, 2, 8, 8, 8, 8, 2, 0, 6,
		2, 1, 8, 9, 5, 1, 2, 8, 1,	2, 1, 8, 9, 5, 1, 2, 8, 1,

0/24	Singly Linked List: Xem iại ian iam thứ BK-Linis			
Test	t	Expected	Got	
		5, 5, 7, 2, 8, 6, 1, 9, 6,	5, 5, 7, 2, 8, 6, 1, 9, 6,	
		9, 4, 1, 0, 0, 9, 4, 1, 1,	9, 4, 1, 0, 0, 9, 4, 1, 1,	
		3, 9, 8, 1, 0, 4, 3, 2, 6,	3, 9, 8, 1, 0, 4, 3, 2, 6,	
		5, 9, 8, 3, 7, 9, 4, 0, 6,	5, 9, 8, 3, 7, 9, 4, 0, 6,	
		8, 8, 4, 1, 5, 0, 5, 6, 3,	8, 8, 4, 1, 5, 0, 5, 6, 3,	
		3, 1, 0, 9, 3, 7, 6, 8, 7,	3, 1, 0, 9, 3, 7, 6, 8, 7,	
		8, 1, 1, 0, 3, 1, 8, 9, 7,	8, 1, 1, 0, 3, 1, 8, 9, 7,	
		9, 1, 8, 5, 8, 3, 3, 0, 7,	9, 1, 8, 5, 8, 3, 3, 0, 7,	
		2, 3, 8, 9, 5, 0, 9, 4, 7,	2, 3, 8, 9, 5, 0, 9, 4, 7,	
		7, 5, 6, 2, 2, 2, 6, 5, 3,	7, 5, 6, 2, 2, 2, 6, 5, 3,	
		1, 9, 5, 1, 4, 7, 7, 4, 6,	1, 9, 5, 1, 4, 7, 7, 4, 6,	
		6, 1, 6, 0, 6, 3, 8, 0, 4,	6, 1, 6, 0, 6, 3, 8, 0, 4,	
		2, 2, 0, 5, 3, 9, 8, 7, 6,	2, 2, 0, 5, 3, 9, 8, 7, 6,	
		3, 5, 1, 9, 4, 5, 0, 7, 9,	3, 5, 1, 9, 4, 5, 0, 7, 9,	
		1, 9, 1, 3, 6, 3, 2, 3, 9,	1, 9, 1, 3, 6, 3, 2, 3, 9,	
		2, 5, 6, 0, 2, 7, 2, 7, 9,	2, 5, 6, 0, 2, 7, 2, 7, 9,	
		1, 5, 1, 4, 3, 9, 8, 6, 2,	1, 5, 1, 4, 3, 9, 8, 6, 2,	
		1, 9, 0, 2, 8, 1, 9, 3, 5,	1, 9, 0, 2, 8, 1, 9, 3, 5,	
		2, 7, 7, 9, 9, 9, 6, 6, 6,	2, 7, 7, 9, 9, 9, 6, 6, 6,	
		7, 6, 1, 2, 7, 6, 4, 0, 9,	7, 6, 1, 2, 7, 6, 4, 0, 9,	
		5, 6, 7, 5, 1, 3, 7, 7, 8, 1, 6, 8, 4, 5, 4, 7, 2, 4,	5, 6, 7, 5, 1, 3, 7, 7, 8,	
		0, 1, 4, 8, 1, 2, 3, 0, 8,	1, 6, 8, 4, 5, 4, 7, 2, 4, 0, 1, 4, 8, 1, 2, 3, 0, 8,	
		8, 0, 5, 0, 5, 8, 4, 7, 8,	8, 0, 5, 0, 5, 8, 4, 7, 8,	
		7, 0, 0, 0, 5, 0, 1, 0, 0,	7, 0, 0, 0, 5, 0, 1, 0, 0,	
		1, 5, 5, 1, 4, 5, 7, 6, 8,	1, 5, 5, 1, 4, 5, 7, 6, 8,	
		4, 9, 9, 6, 5, 6, 5, 2, 9,	4, 9, 9, 6, 5, 6, 5, 2, 9,	
		2, 7, 6, 3, 5, 5, 0, 5, 9,	2, 7, 6, 3, 5, 5, 0, 5, 9,	
		0, 4, 7, 1, 7, 9, 8, 1, 5,	0, 4, 7, 1, 7, 9, 8, 1, 5,	
		5, 1, 5, 4, 5, 9, 6, 6, 8,	5, 1, 5, 4, 5, 9, 6, 6, 8,	
		8, 7, 0, 7, 2, 4, 4, 4, 3,	8, 7, 0, 7, 2, 4, 4, 4, 3,	
		1, 4, 5, 9, 8, 0, 8, 4, 9,	1, 4, 5, 9, 8, 0, 8, 4, 9,	
		2, 4, 1, 9, 9, 1, 9, 5, 3,	2, 4, 1, 9, 9, 1, 9, 5, 3,	
		3, 1, 9, 2, 6, 0, 3, 3, 3,	3, 1, 9, 2, 6, 0, 3, 3, 3,	
		0, 3, 9, 1, 2, 4, 5, 3, 5,	0, 3, 9, 1, 2, 4, 5, 3, 5,	
		7, 9, 7, 7, 4, 6, 9, 7, 5,	7, 9, 7, 7, 4, 6, 9, 7, 5,	
		9, 9, 5, 2, 5, 9, 7, 0, 4,	9, 9, 5, 2, 5, 9, 7, 0, 4,	
		3, 1, 4, 3, 6, 1, 8, 5, 8,	3, 1, 4, 3, 6, 1, 8, 5, 8,	
		8, 3, 7, 1, 5, 3, 5, 0, 3,	8, 3, 7, 1, 5, 3, 5, 0, 3,	
		4, 3, 7, 9, 6, 9, 6, 9, 6,	4, 3, 7, 9, 6, 9, 6, 9, 6,	
		6, 4, 7]	6, 4, 7]	
		<u> </u>		

10/24	Test	Expected	Got	
		_		_
~	int arr[] = {4, 3, 0, 1, 8, 3, 3, 8, 6, 8, 6, 6, 4, 4, 9, 4, 6, 0, 6, 5, 2, 2, 9, 9, 1, 6, 2, 8,	[4, 3, 0, 1, 8, 3, 3, 8, 6, 8, 6, 6, 4, 4, 9, 4, 6, 0,	[4, 3, 0, 1, 8, 3, 3, 8, 6, 8, 6, 6, 4, 4, 9, 4, 6, 0,	~
	1, 5, 8, 6, 5, 4, 0, 9, 9, 6, 2, 8, 1, 7, 2, 6,	6, 5, 2, 2, 9, 9, 1, 6, 2,	6, 5, 2, 2, 9, 9, 1, 6, 2,	
	4, 9, 8, 1, 7, 6, 6, 2, 4, 5, 5, 0, 6, 8, 9, 3,	8, 1, 5, 8, 6, 5, 4, 0, 9,	8, 1, 5, 8, 6, 5, 4, 0, 9,	
	6, 2, 7, 3, 0, 2, 6, 8, 9, 9, 6, 8, 2, 5, 0, 8,	9, 6, 2, 8, 1, 7, 2, 6, 4,	9, 6, 2, 8, 1, 7, 2, 6, 4,	
	0, 9, 7, 5, 6, 4, 5, 3, 1, 5, 5, 1, 4, 4, 9, 1,	9, 8, 1, 7, 6, 6, 2, 4, 5,	9, 8, 1, 7, 6, 6, 2, 4, 5,	
	0, 2, 3, 5, 4, 9, 3, 2, 2, 3, 9, 7, 8, 6, 7, 7,	5, 0, 6, 8, 9, 3, 6, 2, 7,	5, 0, 6, 8, 9, 3, 6, 2, 7,	
	4, 4, 8, 0, 6, 6, 2, 5, 8, 7, 6, 8, 7, 1, 7, 6, 1, 9, 2, 0, 3, 7, 1, 0, 0, 4, 5, 4, 4, 2, 9, 4,	3, 0, 2, 6, 8, 9, 9, 6, 8, 2, 5, 0, 8, 0, 9, 7, 5, 6,	3, 0, 2, 6, 8, 9, 9, 6, 8, 2, 5, 0, 8, 0, 9, 7, 5, 6,	
	6, 4, 5, 0, 8, 3, 9, 8, 2, 4, 9, 2, 4, 2, 6, 5,	4, 5, 3, 1, 5, 5, 1, 4, 4,	4, 5, 3, 1, 5, 5, 1, 4, 4,	
	2, 3, 5, 3, 8, 7, 6, 1, 2, 7, 9, 8, 7, 4, 8, 5,	9, 1, 0, 2, 3, 5, 4, 9, 3,	9, 1, 0, 2, 3, 5, 4, 9, 3,	
	4, 3, 1, 6, 0, 6, 6, 9, 4, 0, 4, 0, 0, 7, 8, 9,	2, 2, 3, 9, 7, 8, 6, 7, 7,	2, 2, 3, 9, 7, 8, 6, 7, 7,	
	4, 6, 7, 4, 3, 3, 7, 8, 7, 5, 7, 7, 9, 6, 1, 9,	4, 4, 8, 0, 6, 6, 2, 5, 8,	4, 4, 8, 0, 6, 6, 2, 5, 8,	
	4, 4, 1, 0, 9, 1, 2, 4, 8, 3, 1, 1, 7, 1, 7, 5, 5, 7, 1, 1, 1, 0, 0, 6, 7, 2, 3, 6, 6, 1, 4, 6,	7, 6, 8, 7, 1, 7, 6, 1, 9, 2, 0, 3, 7, 1, 0, 0, 4, 5,	7, 6, 8, 7, 1, 7, 6, 1, 9, 2, 0, 3, 7, 1, 0, 0, 4, 5,	
	8, 9, 7, 0, 8, 7, 8, 8, 0, 9, 0, 0, 2, 0, 5, 4,	4, 4, 2, 9, 4, 6, 4, 5, 0,	4, 4, 2, 9, 4, 6, 4, 5, 0,	
	6, 2, 3, 2, 1, 7, 5, 5, 7, 6, 3, 4, 2, 0, 1, 7,	8, 3, 9, 8, 2, 4, 9, 2, 4,	8, 3, 9, 8, 2, 4, 9, 2, 4,	
	7, 0, 5, 9, 3, 0, 6, 6, 1, 0, 2, 1, 6, 2, 4, 9,	2, 6, 5, 2, 3, 5, 3, 8, 7,	2, 6, 5, 2, 3, 5, 3, 8, 7,	
	8, 5, 4, 5, 3, 2, 9, 9, 8, 4, 0, 0, 7, 3, 1, 2,	6, 1, 2, 7, 9, 8, 7, 4, 8,	6, 1, 2, 7, 9, 8, 7, 4, 8,	
	0, 3, 8, 1, 2, 0, 6, 9, 0, 7, 7, 8, 4, 3, 1, 9, 5, 2, 4, 1, 6, 5, 4, 7, 8, 4, 7, 5, 9, 6, 9, 4,	5, 4, 3, 1, 6, 0, 6, 6, 9, 4, 0, 4, 0, 0, 7, 8, 9, 4,	5, 4, 3, 1, 6, 0, 6, 6, 9, 4, 0, 4, 0, 0, 7, 8, 9, 4,	
	4, 8, 4, 7, 2, 7, 2, 4, 6, 1, 9, 1, 4, 5, 9, 3,	6, 7, 4, 3, 3, 7, 8, 7, 5,	6, 7, 4, 3, 3, 7, 8, 7, 5,	
	9, 5, 3, 3, 1, 9, 7, 9, 1, 1, 4, 4, 8, 7, 1, 6,	7, 7, 9, 6, 1, 9, 4, 4, 1,	7, 7, 9, 6, 1, 9, 4, 4, 1,	
	5, 5, 5, 2, 0, 3, 4, 8, 1, 8, 7, 1, 6, 0, 2, 5,	0, 9, 1, 2, 4, 8, 3, 1, 1,	0, 9, 1, 2, 4, 8, 3, 1, 1,	
	7, 8, 0, 2, 2, 5, 8, 0, 4, 3, 1, 8, 2, 2, 7, 9,	7, 1, 7, 5, 5, 7, 1, 1, 1,	7, 1, 7, 5, 5, 7, 1, 1, 1,	
	1, 0, 0, 9, 1, 7, 4, 6, 2, 5, 5, 9, 3, 2, 6, 6, 6, 7, 9, 0, 0, 1, 7, 5, 8, 9, 4, 1, 7, 0, 1, 2,	0, 0, 6, 7, 2, 3, 6, 6, 1, 4, 6, 8, 9, 7, 0, 8, 7, 8,	0, 0, 6, 7, 2, 3, 6, 6, 1, 4, 6, 8, 9, 7, 0, 8, 7, 8,	
	7, 5, 3, 7, 3, 9, 6, 4, 6, 8, 4, 0, 2, 4, 7, 9,	8, 0, 9, 0, 0, 2, 0, 5, 4,	8, 0, 9, 0, 0, 2, 0, 5, 4,	
	0, 2, 0, 0, 0, 2, 5, 5, 2, 1, 2, 6, 2, 1, 5, 5,	6, 2, 3, 2, 1, 7, 5, 5, 7,	6, 2, 3, 2, 1, 7, 5, 5, 7,	
	0, 0, 0, 8, 8, 8, 1, 5, 3, 7, 7, 9, 9, 4, 6, 7,	6, 3, 4, 2, 0, 1, 7, 7, 0,	6, 3, 4, 2, 0, 1, 7, 7, 0,	
	0, 2, 3, 7, 8, 8, 0, 9, 5, 9, 1, 0, 6, 1, 1, 5,	5, 9, 3, 0, 6, 6, 1, 0, 2,	5, 9, 3, 0, 6, 6, 1, 0, 2,	
	2, 8, 8, 3, 2, 7, 4, 2, 1, 2, 9, 8, 7, 7, 4, 5, 7, 7, 1, 4, 0, 5, 6, 9, 1, 1, 1, 4, 0, 8, 5, 0,	1, 6, 2, 4, 9, 8, 5, 4, 5, 3, 2, 9, 9, 8, 4, 0, 0, 7,	1, 6, 2, 4, 9, 8, 5, 4, 5, 3, 2, 9, 9, 8, 4, 0, 0, 7,	
	0, 3, 7, 5, 1, 0, 8, 6, 3, 4, 0, 1, 1, 8, 3, 8,	3, 1, 2, 0, 3, 8, 1, 2, 0,	3, 1, 2, 0, 3, 8, 1, 2, 0,	
	6, 9, 5, 8, 5, 7, 2, 2, 2, 8, 7, 3, 2, 2, 0, 5,	6, 9, 0, 7, 7, 8, 4, 3, 1,	6, 9, 0, 7, 7, 8, 4, 3, 1,	
	5, 1, 9, 5, 5, 5, 7, 0, 0, 9, 2, 9, 7, 4, 3, 9,	9, 5, 2, 4, 1, 6, 5, 4, 7,	9, 5, 2, 4, 1, 6, 5, 4, 7,	
	5, 6, 9, 5, 2, 4, 3, 8, 3, 0, 2, 6, 8, 9, 9, 8, 5, 0, 3, 1, 8, 2, 5, 1, 4, 2, 5, 4, 6, 0, 8, 0,	8, 4, 7, 5, 9, 6, 9, 4, 4, 8, 4, 7, 2, 7, 2, 4, 6, 1,	8, 4, 7, 5, 9, 6, 9, 4, 4, 8, 4, 7, 2, 7, 2, 4, 6, 1,	
	6, 8, 5, 8, 0, 6, 5, 0, 9, 4, 2, 4, 3, 7, 7, 8,	9, 1, 4, 5, 9, 3, 9, 5, 3,	9, 1, 4, 5, 9, 3, 9, 5, 3,	
	7, 8, 8, 5, 4, 7, 7, 2, 2, 9, 0, 5, 9, 0, 7, 4,	3, 1, 9, 7, 9, 1, 1, 4, 4,	3, 1, 9, 7, 9, 1, 1, 4, 4,	
	9, 7, 5, 3, 2, 3, 6, 2, 8, 3, 9, 6, 8, 4, 8, 6,	8, 7, 1, 6, 5, 5, 5, 2, 0,	8, 7, 1, 6, 5, 5, 5, 2, 0,	
	8, 7, 4, 3, 3, 7, 4, 6, 9, 9, 0, 1, 2, 7, 6, 7,	3, 4, 8, 1, 8, 7, 1, 6, 0,	3, 4, 8, 1, 8, 7, 1, 6, 0,	
	2, 1, 4, 0, 2, 7, 4, 1, 5, 3, 8, 3, 2, 6, 9, 8, 8, 9, 7, 1, 6, 9, 9, 6, 9, 4, 2, 1, 6, 2, 5, 4,	2, 5, 7, 8, 0, 2, 2, 5, 8, 0, 4, 3, 1, 8, 2, 2, 7, 9,	2, 5, 7, 8, 0, 2, 2, 5, 8, 0, 4, 3, 1, 8, 2, 2, 7, 9,	
	5, 9, 6, 2, 6, 3, 5, 6, 3, 6, 5, 1, 3, 4, 2, 9,	1, 0, 0, 9, 1, 7, 4, 6, 2,	1, 0, 0, 9, 1, 7, 4, 6, 2,	
	8, 5, 6, 8, 6, 5, 8, 4, 1, 2, 0, 2, 8, 3, 7, 1,	5, 5, 9, 3, 2, 6, 6, 6, 7,	5, 5, 9, 3, 2, 6, 6, 6, 7,	
	1, 2, 1, 9, 7, 5, 8, 9, 8, 8, 6, 5, 6, 2, 7, 7,	9, 0, 0, 1, 7, 5, 8, 9, 4,	9, 0, 0, 1, 7, 5, 8, 9, 4,	
	7, 5, 1, 8, 4, 6, 5, 7, 8, 7, 9, 7, 6, 9, 5, 8,	1, 7, 0, 1, 2, 7, 5, 3, 7,	1, 7, 0, 1, 2, 7, 5, 3, 7,	
	1, 8, 8, 1, 8, 4, 2, 1, 1, 1, 5, 2, 4, 7, 5, 5, 1, 3, 0, 4, 6, 4, 0, 0, 2, 7, 7, 7, 2, 6, 7, 5,	3, 9, 6, 4, 6, 8, 4, 0, 2, 4, 7, 9, 0, 2, 0, 0, 0, 2,	3, 9, 6, 4, 6, 8, 4, 0, 2, 4, 7, 9, 0, 2, 0, 0, 0, 2,	
	4, 8, 8, 8, 5, 5, 6, 9, 9, 7, 7, 7, 8, 6, 9,	5, 5, 2, 1, 2, 6, 2, 1, 5,	5, 5, 2, 1, 2, 6, 2, 1, 5,	
	4, 6, 3, 0, 4, 3, 3, 6, 2, 5, 8, 2, 1, 2, 9, 7,	5, 0, 0, 0, 8, 8, 8, 1, 5,	5, 0, 0, 0, 8, 8, 8, 1, 5,	
	0, 2, 1, 5, 9, 0, 7, 3, 2, 8, 9, 3, 4, 4, 6, 8,	3, 7, 7, 9, 9, 4, 6, 7, 0,	3, 7, 7, 9, 9, 4, 6, 7, 0,	
	7, 7, 1, 0, 7, 1, 8, 6, 7, 9, 9, 5, 2, 7, 2, 0,	2, 3, 7, 8, 8, 0, 9, 5, 9,	2, 3, 7, 8, 8, 0, 9, 5, 9,	
	3, 4, 5, 0, 7, 9, 6, 2, 3, 3, 9, 5, 9, 4, 1, 9, 9, 7, 5, 1, 2, 7, 5, 4, 7, 1, 8, 1, 2, 7, 8, 4,	1, 0, 6, 1, 1, 5, 2, 8, 8, 3, 2, 7, 4, 2, 1, 2, 9, 8,	1, 0, 6, 1, 1, 5, 2, 8, 8, 3, 2, 7, 4, 2, 1, 2, 9, 8,	
	8, 8, 1, 8, 9, 1, 1, 2, 1, 0, 5, 2, 0, 4, 8, 5,	7, 7, 4, 5, 7, 7, 1, 4, 0,	7, 7, 4, 5, 7, 7, 1, 4, 0,	
	9, 7, 5, 0, 8, 5, 8, 9, 3, 8, 9, 1, 8, 9, 3, 9,	5, 6, 9, 1, 1, 1, 4, 0, 8,	5, 6, 9, 1, 1, 1, 4, 0, 8,	
	6, 3, 3, 7, 0, 1, 3, 8, 4, 1, 9, 8, 6, 5, 6, 5,	5, 0, 0, 3, 7, 5, 1, 0, 8,	5, 0, 0, 3, 7, 5, 1, 0, 8,	
	2, 5, 1, 1, 2, 0, 9, 3, 9, 6, 2, 4, 0, 3, 1, 8,	6, 3, 4, 0, 1, 1, 8, 3, 8,	6, 3, 4, 0, 1, 1, 8, 3, 8,	
	6, 3, 7, 0, 9, 7, 4, 1, 4, 6, 4, 2, 1, 5, 1, 3, 8, 3, 5, 4, 8, 2, 0, 1, 0, 8, 4, 1, 2, 2, 7, 2,	6, 9, 5, 8, 5, 7, 2, 2, 2, 8, 7, 3, 2, 2, 0, 5, 5, 1,	6, 9, 5, 8, 5, 7, 2, 2, 2, 8, 7, 3, 2, 2, 0, 5, 5, 1,	
	2, 3, 1, 8, 2, 8, 2, 4, 6, 5, 4, 1, 5, 9, 3, 8,	9, 5, 5, 5, 7, 0, 0, 9, 2,	9, 5, 5, 5, 7, 0, 0, 9, 2,	
	1, 4, 8, 8, 8, 8, 5, 5, 5, 1, 2, 1, 3, 7, 8, 2,	9, 7, 4, 3, 9, 5, 6, 9, 5,	9, 7, 4, 3, 9, 5, 6, 9, 5,	
- 1		I	I	I

10/2	Singly Linked List: Xem lại lần làm thứ BK-LMS				
	Test	Expected	Got		
	2, 8, 0, 6, 1, 0, 7, 5, 9, 6, 9, 6, 2, 9, 8, 6, 8, 0, 2, 9, 3, 0, 8, 8, 6, 9, 4, 0, 8, 4, 0, 5,	2, 4, 3, 8, 3, 0, 2, 6, 8, 9, 9, 8, 5, 0, 3, 1, 8, 2,	2, 4, 3, 8, 3, 0, 2, 6, 8, 9, 9, 8, 5, 0, 3, 1, 8, 2,		
	6, 4, 1, 3, 1, 9, 4, 3, 2, 1, 6, 4, 9, 2, 7, 4,	5, 1, 4, 2, 5, 4, 6, 0, 8,	5, 1, 4, 2, 5, 4, 6, 0, 8,		
	6, 0, 1, 2, 6, 8, 0, 9, 8, 3, 0, 7, 3, 9, 7, 1,	0, 6, 8, 5, 8, 0, 6, 5, 0,	0, 6, 8, 5, 8, 0, 6, 5, 0,		
	6, 2, 2, 0, 7, 5, 3, 4, 1, 9, 4, 0, 9, 2, 7, 8,	9, 4, 2, 4, 3, 7, 7, 8, 7,	9, 4, 2, 4, 3, 7, 7, 8, 7,		
	7, 1, 6, 2, 9, 8, 8, 1, 5, 3, 0, 4, 3, 0, 1, 6, 2, 5, 1, 9, 8, 4, 4, 9, 9, 0, 5, 9, 0, 4, 1, 3,	8, 8, 5, 4, 7, 7, 2, 2, 9, 0, 5, 9, 0, 7, 4, 9, 7, 5,	8, 8, 5, 4, 7, 7, 2, 2, 9, 0, 5, 9, 0, 7, 4, 9, 7, 5,		
	8, 2, 1, 4, 1, 4, 8, 9, 2, 2, 9, 1, 1, 7, 3, 9,	3, 2, 3, 6, 2, 8, 3, 9, 6,	3, 2, 3, 6, 2, 8, 3, 9, 6,		
	6, 2, 6, 3, 8, 9, 0, 2, 7, 9, 5, 6, 2, 0, 4, 0,	8, 4, 8, 6, 8, 7, 4, 3, 3,	8, 4, 8, 6, 8, 7, 4, 3, 3,		
	4, 2, 7, 1, 4, 3, 0, 7, 0, 2, 0, 9, 3, 9, 5, 2,	7, 4, 6, 9, 9, 0, 1, 2, 7,	7, 4, 6, 9, 9, 0, 1, 2, 7,		
	2, 8, 4, 2, 0, 0, 5, 8, 7, 5, 3, 6, 7, 7, 1, 5, 3, 3, 9, 4, 9, 1, 3, 8, 5, 8, 1, 1, 9, 8, 1, 0,	6, 7, 2, 1, 4, 0, 2, 7, 4, 1, 5, 3, 8, 3, 2, 6, 9, 8,	6, 7, 2, 1, 4, 0, 2, 7, 4, 1, 5, 3, 8, 3, 2, 6, 9, 8,		
	4, 9, 4, 6, 5, 4, 8, 4, 4, 3, 1, 6, 5, 7, 5,	8, 9, 7, 1, 6, 9, 9, 6, 9,	8, 9, 7, 1, 6, 9, 9, 6, 9,		
	3, 4, 2, 4, 9, 1, 1, 8, 4, 7, 4, 0, 6, 2, 2, 0,	4, 2, 1, 6, 2, 5, 4, 5, 9,	4, 2, 1, 6, 2, 5, 4, 5, 9,		
	0, 2, 8, 6, 7, 5, 6, 0, 4, 6, 1, 2, 1, 3, 7, 4,	6, 2, 6, 3, 5, 6, 3, 6, 5,	6, 2, 6, 3, 5, 6, 3, 6, 5,		
	5, 3, 8, 3, 0, 3, 0, 5, 2, 0, 9, 7, 3, 0, 5, 1,	1, 3, 4, 2, 9, 8, 5, 6, 8,	1, 3, 4, 2, 9, 8, 5, 6, 8,		
	8, 5, 2, 9, 7, 4, 0, 9, 8, 5, 1, 0, 8, 1, 8, 1, 3, 9, 1, 8, 7, 2, 6, 0, 9, 0, 5, 2, 3, 6, 0, 6,	6, 5, 8, 4, 1, 2, 0, 2, 8, 3, 7, 1, 1, 2, 1, 9, 7, 5,	6, 5, 8, 4, 1, 2, 0, 2, 8, 3, 7, 1, 1, 2, 1, 9, 7, 5,		
	0, 6, 6, 8, 7, 3, 6, 3, 8, 3, 0, 4, 6, 5, 6, 4,	8, 9, 8, 8, 6, 5, 6, 2, 7,	8, 9, 8, 8, 6, 5, 6, 2, 7,		
	3, 4, 7,snip, 7, 9, 4, 4, 8, 0, 3, 8, 2,	7, 7, 5, 1, 8, 4, 6, 5, 7,	7, 7, 5, 1, 8, 4, 6, 5, 7,		
	8, 0, 0, 0, 5, 3, 1, 1, 5, 7, 4, 7, 4, 6, 2, 2,	8, 7, 9, 7, 6, 9, 5, 8, 1,	8, 7, 9, 7, 6, 9, 5, 8, 1,		
	3, 4, 5, 7, 2, 8, 2, 6, 2, 7, 9, 8, 1, 0, 7, 0, 8, 1, 4, 1, 3, 1, 5, 7, 0, 5, 2, 7, 1, 6, 9, 6,	8, 8, 1, 8, 4, 2, 1, 1, 1, 5, 2, 4, 7, 5, 5, 1, 3, 0,	8, 8, 1, 8, 4, 2, 1, 1, 1, 5, 2, 4, 7, 5, 5, 1, 3, 0,		
	6, 9, 6, 0, 3, 2, 3, 9, 1, 6, 0, 7, 1, 9, 4, 6,	4, 6, 4, 0, 0, 2, 7, 7, 7,	4, 6, 4, 0, 0, 2, 7, 7, 7,		
	1, 7, 3, 8, 0, 0, 9, 6, 8, 3, 2, 5, 5, 1, 9, 2,	2, 6, 7, 5, 4, 8, 8, 8, 5,	2, 6, 7, 5, 4, 8, 8, 8, 5,		
	8, 7, 0, 8, 7, 2, 3, 7, 2, 9, 9, 7, 5, 1, 9, 4,	5, 5, 6, 9, 9, 7, 7, 7, 8,	5, 5, 6, 9, 9, 7, 7, 7, 8,		
	3, 6, 5, 2, 1, 0, 0, 7, 0, 5, 4, 4, 5, 1, 7, 7,	6, 9, 4, 6, 3, 0, 4, 3, 3,	6, 9, 4, 6, 3, 0, 4, 3, 3,		
	7, 8, 8, 0, 3, 8, 6, 1, 8, 4, 8, 9, 7, 7, 1, 9, 5, 8, 3, 4, 8, 5, 1, 8, 5, 9, 4, 5, 8, 0, 6, 6,	6, 2, 5, 8, 2, 1, 2, 9, 7, 0, 2, 1, 5, 9, 0, 7, 3, 2,	6, 2, 5, 8, 2, 1, 2, 9, 7, 0, 2, 1, 5, 9, 0, 7, 3, 2,		
	7, 4, 8, 7, 5, 6, 4, 0, 6, 2, 3, 5, 0, 8, 5, 9,	8, 9, 3, 4, 4, 6, 8, 7, 7,	8, 9, 3, 4, 4, 6, 8, 7, 7,		
	4, 3, 1, 1, 5, 9, 3, 4, 5, 2, 5, 9, 7, 8, 2, 2,	1, 0, 7, 1, 8, 6, 7, 9, 9,	1, 0, 7, 1, 8, 6, 7, 9, 9,		
	7, 9, 4, 8, 0, 6, 3, 7, 6, 3, 7, 7, 5, 1, 3, 1,	5, 2, 7, 2, 0, 3, 4, 5, 0,	5, 2, 7, 2, 0, 3, 4, 5, 0,		
	4, 3, 0, 7, 3, 8, 0, 4, 6, 6, 1, 6, 2, 6, 9, 0, 1, 3, 7, 0, 3, 2, 8, 6, 3, 2, 5, 8, 8, 2, 5, 1,	7, 9, 6, 2, 3, 3, 9, 5, 9, 4, 1, 9, 9, 7, 5, 1, 2, 7,	7, 9, 6, 2, 3, 3, 9, 5, 9, 4, 1, 9, 9, 7, 5, 1, 2, 7,		
	2, 2, 6, 3, 5, 9, 4, 9, 1, 3, 8, 3, 5, 2, 5, 1,	5, 4, 7, 1, 8, 1, 2, 7, 8,	5, 4, 7, 1, 8, 1, 2, 7, 8,		
	6, 7, 7, 3, 8, 7, 4, 6, 9, 6, 3, 3, 9, 6, 6, 0,	4, 8, 8, 1, 8, 9, 1, 1, 2,	4, 8, 8, 1, 8, 9, 1, 1, 2,		
	7, 6, 1, 2, 2, 2, 6, 0, 3, 5, 9, 6, 1, 3, 9, 8,	1, 0, 5, 2, 0, 4, 8, 5, 9,	1, 0, 5, 2, 0, 4, 8, 5, 9,		
	7, 2, 8, 0, 9, 3, 5, 2, 7, 9, 3, 5, 5, 3, 8, 7, 1, 4, 0, 3, 2, 8, 0, 4, 4, 8, 0, 7, 7, 2, 3, 1,	7, 5, 0, 8, 5, 8, 9, 3, 8, 9, 1, 8, 9, 3, 9, 6, 3, 3,	7, 5, 0, 8, 5, 8, 9, 3, 8, 9, 1, 8, 9, 3, 9, 6, 3, 3,		
	4, 8, 5, 5, 3, 2, 9, 3, 6, 9, 3, 1, 5, 5, 5, 1,	7, 0, 1, 3, 8, 4, 1, 9, 8,	7, 0, 1, 3, 8, 4, 1, 9, 8,		
	6, 0, 5, 5, 9, 8, 0, 6, 9, 8, 6, 7, 5, 5, 7, 1,	6, 5, 6, 5, 2, 5, 1, 1, 2,	6, 5, 6, 5, 2, 5, 1, 1, 2,		
	2, 8, 2, 7, 2, 4, 9, 7, 0, 9, 8, 7, 2, 2, 0, 5,	0, 9, 3, 9, 6, 2, 4, 0, 3,	0, 9, 3, 9, 6, 2, 4, 0, 3,		
	5, 8, 4, 9, 1, 6, 7, 8, 3, 3, 7, 3, 6, 2, 2, 2, 8, 4, 0, 6, 4, 7, 5, 4, 5, 4, 6, 5, 7, 8, 7, 8,	1, 8, 6, 3, 7, 0, 9, 7, 4, 1, 4, 6, 4, 2, 1, 5, 1, 3,	1, 8, 6, 3, 7, 0, 9, 7, 4, 1, 4, 6, 4, 2, 1, 5, 1, 3,		
	1, 6, 0, 4, 4, 8, 9, 1, 2, 2, 3, 8, 9, 9, 4, 0,	8, 3, 5, 4, 8, 2, 0, 1, 0,	8, 3, 5, 4, 8, 2, 0, 1, 0,		
	1, 4, 3, 5, 7, 3, 1, 4, 6, 4, 9, 3, 2, 1, 0, 1,	8, 4, 1, 2, 2, 7, 2, 2, 3,	8, 4, 1, 2, 2, 7, 2, 2, 3,		
	5, 0, 7, 2, 2, 1, 7, 1, 6, 7, 5, 5, 8, 0, 6, 2,	1, 8, 2, 8, 2, 4, 6, 5, 4,	1, 8, 2, 8, 2, 4, 6, 5, 4,		
	3, 0, 7, 5, 8, 6, 6, 7, 9, 0, 8, 6, 3, 3, 2, 4,	1, 5, 9, 3, 8, 1, 4, 8, 8, 8, 8, 5, 5, 5, 1, 2, 1, 3,	1, 5, 9, 3, 8, 1, 4, 8, 8,		
	8, 6, 3, 4, 1, 2, 1, 0, 6, 1, 9, 6, 0, 7, 0, 3, 6, 4, 5, 7, 9, 8, 6, 6, 6, 8, 7, 3, 9, 6, 3, 4,	7, 8, 2, 2, 8, 0, 6, 1, 0,	8, 8, 5, 5, 5, 1, 2, 1, 3, 7, 8, 2, 2, 8, 0, 6, 1, 0,		
	8, 8, 3, 0, 3, 3, 7, 3, 7, 6, 0, 1, 4, 4, 2, 1,	7, 5, 9, 6, 9, 6, 2, 9, 8,	7, 5, 9, 6, 9, 6, 2, 9, 8,		
	1, 2, 7, 0, 5, 6, 9, 1, 9, 4, 5, 1, 7, 0, 2, 6,	6, 8, 0, 2, 9, 3, 0, 8, 8,	6, 8, 0, 2, 9, 3, 0, 8, 8,		
	9, 2, 0, 0, 6, 5, 8, 3, 4, 1, 8, 3, 4, 6, 7, 4,	6, 9, 4, 0, 8, 4, 0, 5, 6,	6, 9, 4, 0, 8, 4, 0, 5, 6,		
	9, 1, 4, 4, 1, 8, 0, 7, 3, 2, 0, 1, 6, 6, 9, 1, 4, 5, 6, 1, 7, 0, 6, 8, 0, 2, 9, 0, 3, 3, 9, 3,	4, 1, 3, 1, 9, 4, 3, 2, 1, 6, 4, 9, 2, 7, 4, 6, 0, 1,	4, 1, 3, 1, 9, 4, 3, 2, 1, 6, 4, 9, 2, 7, 4, 6, 0, 1,		
	9, 5, 8, 6, 9, 1, 2, 6, 1, 8, 8, 9, 6, 4, 6, 8,	2, 6, 8, 0, 9, 8, 3, 0, 7,	2, 6, 8, 0, 9, 8, 3, 0, 7,		
	2, 9, 3, 0, 5, 4, 8, 6, 3, 0, 2, 7, 9, 9, 9, 4,	3, 9, 7, 1, 6, 2, 2, 0, 7,	3, 9, 7, 1, 6, 2, 2, 0, 7,		
	1, 7, 1, 0, 8, 0, 1, 4, 1, 6, 8, 5, 3, 4, 2, 6,	5, 3, 4, 1, 9, 4, 0, 9, 2,	5, 3, 4, 1, 9, 4, 0, 9, 2,		
	9, 3, 3, 7, 7, 1, 0, 2, 5, 9, 7, 5, 5, 8, 3, 2, 1, 0, 6, 5, 5, 9, 7, 4, 9, 8, 0, 4, 5, 8, 3, 4,	7, 8, 7, 1, 6, 2, 9, 8, 8, 1, 5, 3, 0, 4, 3, 0, 1, 6,	7, 8, 7, 1, 6, 2, 9, 8, 8, 1, 5, 3, 0, 4, 3, 0, 1, 6,		
	2, 8, 8, 0, 5, 1, 8, 8, 9, 0, 0, 9, 0, 2, 3, 2,	2, 5, 1, 9, 8, 4, 4, 9, 9,	2, 5, 1, 9, 8, 4, 4, 9, 9,		
	5, 8, 3, 7, 8, 0, 6, 5, 3, 5, 9, 6, 8, 6, 6, 0,	0, 5, 9, 0, 4, 1, 3, 8, 2,	0, 5, 9, 0, 4, 1, 3, 8, 2,		
	6, 3, 8, 0, 3, 4, 9, 7, 0, 9, 0, 4, 6, 3, 6, 1,	1, 4, 1, 4, 8, 9, 2, 2, 9,	1, 4, 1, 4, 8, 9, 2, 2, 9,		
	1, 5, 8, 7, 8, 2, 1, 1, 2, 7, 1, 2, 8, 7, 5, 1,	1, 1, 7, 3, 9, 6, 2, 6, 3,	1, 1, 7, 3, 9, 6, 2, 6, 3,		
- 1	· ·		ı I		

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

110	J/24	Singly Li	nked List. Aem iại iam iam thư Đr	V-LIVIS
		Test	Expected	Got
			9, 8, 5, 6, 1, 3, 6, 1, 1,	9, 8, 5, 6, 1, 3, 6, 1, 1,
			7, 0, 4, 5, 7, 6, 2, 8, 8,	7, 0, 4, 5, 7, 6, 2, 8, 8,
			2, 7, 7, 1, 4, 4, 3, 7, 9,	2, 7, 7, 1, 4, 4, 3, 7, 9,
			0, 1, 6, 0, 3, 1, 2, 6, 8,	0, 1, 6, 0, 3, 1, 2, 6, 8,
			2, 2, 1, 1, 0, 6, 9, 1, 4,	2, 2, 1, 1, 0, 6, 9, 1, 4,
			7, 4, 3, 4, 6, 1, 6, 5, 8,	7, 4, 3, 4, 6, 1, 6, 5, 8,
			4, 1, 2, 8, 5, 7, 6, 7, 8,	4, 1, 2, 8, 5, 7, 6, 7, 8,
			5, 5, 7, 5, 4, 1, 4, 1, 8, 5, 8, 0, 2, 1, 1, 7, 2, 3,	5, 5, 7, 5, 4, 1, 4, 1, 8, 5, 8, 0, 2, 1, 1, 7, 2, 3,
			4, 6, 3, 3, 5, 5, 5, 4, 1,	4, 6, 3, 3, 5, 5, 5, 4, 1,
			2, 3, 1, 6, 5, 5, 9, 6, 9,	2, 3, 1, 6, 5, 5, 9, 6, 9,
			0, 1, 5, 6, 8, 8, 5, 5, 9,	0, 1, 5, 6, 8, 8, 5, 5, 9,
			0, 1, 8, 4, 5, 8, 6, 4, 5,	0, 1, 8, 4, 5, 8, 6, 4, 5,
			1, 4, 0, 1, 0, 2, 2, 6, 7,	1, 4, 0, 1, 0, 2, 2, 6, 7,
			9, 0, 7, 0, 5, 0, 4, 0, 1,	9, 0, 7, 0, 5, 0, 4, 0, 1,
			4, 0, 1, 0, 9, 9, 9, 1, 9,	4, 0, 1, 0, 9, 9, 9, 1, 9,
			7, 1, 5, 9, 2, 9, 9, 7, 0,	7, 1, 5, 9, 2, 9, 9, 7, 0,
			6, 0, 5, 5, 9, 7, 6, 4, 0, 4, 4, 4, 1, 5, 6, 9, 3, 1,	6, 0, 5, 5, 9, 7, 6, 4, 0, 4, 4, 4, 1, 5, 6, 9, 3, 1,
			8, 3, 0, 0, 4, 5, 6, 3, 6,	8, 3, 0, 0, 4, 5, 6, 3, 6,
			9, 2, 1, 0, 4, 6, 3, 6, 5,	9, 2, 1, 0, 4, 6, 3, 6, 5,
			9, 0, 5, 5, 8, 4, 0, 2, 4,	9, 0, 5, 5, 8, 4, 0, 2, 4,
			3, 5, 2, 9, 3, 9, 9, 6, 4,	3, 5, 2, 9, 3, 9, 9, 6, 4,
			1, 1, 2, 9, 1, 8, 4, 3, 9,	1, 1, 2, 9, 1, 8, 4, 3, 9,
			7, 6, 9, 4, 3, 5, 3, 7, 0,	7, 6, 9, 4, 3, 5, 3, 7, 0,
			7, 7, 9, 4, 8, 7, 5, 7, 2,	7, 7, 9, 4, 8, 7, 5, 7, 2,
			6, 1, 6, 6, 2, 2, 2, 6, 4, 5, 1, 4, 5, 6, 5, 7, 5, 5,	6, 1, 6, 6, 2, 2, 2, 6, 4, 5, 1, 4, 5, 6, 5, 7, 5, 5,
			9, 7, 8, 6, 1, 1, 8, 1, 2,	9, 7, 8, 6, 1, 1, 8, 1, 2,
			8, 9, 4, 8, 3, 0, 6, 9, 1,	8, 9, 4, 8, 3, 0, 6, 9, 1,
			6, 7, 7, 1, 6, 6, 6, 7, 4,	6, 7, 7, 1, 6, 6, 6, 7, 4,
			3, 2, 9, 2, 5, 5, 8, 9, 4,	3, 2, 9, 2, 5, 5, 8, 9, 4,
			7, 5, 0, 1, 9, 2, 0, 0, 8,	7, 5, 0, 1, 9, 2, 0, 0, 8,
			9, 0, 8, 7, 8, 3, 6, 6, 2,	9, 0, 8, 7, 8, 3, 6, 6, 2,
			6, 5, 2, 0, 5, 6, 1, 9, 2, 1, 7, 2, 7, 1, 6, 5, 4, 3,	6, 5, 2, 0, 5, 6, 1, 9, 2, 1, 7, 2, 7, 1, 6, 5, 4, 3,
			1, 0, 3, 4, 1, 1, 3, 4, 9,	1, 0, 3, 4, 1, 1, 3, 4, 9,
			8, 1, 6, 9, 4, 7, 1, 8, 4,	8, 1, 6, 9, 4, 7, 1, 8, 4,
			4, 9, 4, 3, 4, 0, 6, 0, 5,	4, 9, 4, 3, 4, 0, 6, 0, 5,
			9, 4, 4, 2, 8, 4, 3, 5, 8,	9, 4, 4, 2, 8, 4, 3, 5, 8,
			7, 4, 1, 7, 4, 6, 3, 1, 5,	7, 4, 1, 7, 4, 6, 3, 1, 5,
			6, 4, 2, 6, 4, 6, 1, 1, 2,	6, 4, 2, 6, 4, 6, 1, 1, 2,
			3, 4, 5, 6, 5, 3, 8, 1, 8,	3, 4, 5, 6, 5, 3, 8, 1, 8,
			8, 9, 5, 4, 3, 3, 5, 4, 3, 7, 7, 0, 2, 8, 2, 5, 0, 4,	8, 9, 5, 4, 3, 3, 5, 4, 3, 7, 7, 0, 2, 8, 2, 5, 0, 4,
			1, 6, 0, 9, 5, 5, 6, 3, 8,	1, 6, 0, 9, 5, 5, 6, 3, 8,
			4, 9, 8, 8, 0, 9, 6, 3, 8,	4, 9, 8, 8, 0, 9, 6, 3, 8,
			8, 2, 4, 1, 5, 2, 1, 2, 3,	8, 2, 4, 1, 5, 2, 1, 2, 3,
			4, 1, 2, 9, 4, 8, 6, 6, 9,	4, 1, 2, 9, 4, 8, 6, 6, 9,
			9, 0, 8, 5, 8, 5, 0, 2, 4,	9, 0, 8, 5, 8, 5, 0, 2, 4,
			8, 8, 6, 4, 9, 5, 5, 8, 9, 1, 5, 7, 8, 5, 5, 4, 0, 3,	8, 8, 6, 4, 9, 5, 5, 8, 9, 1, 5, 7, 8, 5, 5, 4, 0, 3,
			3, 2, 2, 3, 5, 1, 1, 6, 4,	3, 2, 2, 3, 5, 1, 1, 6, 4,
			4, 9, 3, 7, 3, 6, 0, 9, 3,	4, 9, 3, 7, 3, 6, 0, 9, 3,
			3, 4, 4, 7, 9, 9, 8, 0, 1,	3, 4, 4, 7, 9, 9, 8, 0, 1,
			2, 4, 6, 6, 1, 9, 7, 5, 3,	2, 4, 6, 6, 1, 9, 7, 5, 3,
			1, 6, 3, 6, 3, 3, 8, 1, 3,	1, 6, 3, 6, 3, 3, 8, 1, 3,
			4, 7, 9, 7, 3, 4, 3, 7, 1, 4, 9, 8, 3, 6, 2, 2, 8, 9,	4, 7, 9, 7, 3, 4, 3, 7, 1, 4, 9, 8, 3, 6, 2, 2, 8, 9,
			5, 6, 6, 6, 2, 2, 9, 5, 8,	5, 6, 6, 6, 2, 2, 9, 5, 8,
			3, 2, 0, 9, 1, 9, 4, 4, 1,	3, 2, 0, 9, 1, 9, 4, 4, 1,
			7, 6, 4, 0, 1, 4, 3, 8, 7,	7, 6, 4, 0, 1, 4, 3, 8, 7,
			1, 4, 1, 4, 1, 0, 1, 0, 4,	1, 4, 1, 4, 1, 0, 1, 0, 4,
			6, 0, 8, 6, 0, 5, 8, 8, 9,	6, 0, 8, 6, 0, 5, 8, 8, 9,
	1			1

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



```
Câu hỏi 8
Đúng
Đạt điểm 1,00 trên 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=45

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

Answer: (penalty regime: 0 %)

```
1 void LinkedList::partition(int k) {
 2
        Node *lessHead = nullptr, *lessTail = nullptr;
        Node *equalHead = nullptr, *equalTail = nullptr;
 3
 4
        Node *greaterHead = nullptr, *greaterTail = nullptr;
 5
        Node *current = head;
 6
 7 •
        while(current != nullptr){
            if(current->value < k){</pre>
 8
 9 •
                if(lessHead == nullptr){
10
                     lessHead = current;
11
                     lessTail = current;
12
                } else {
13
                     lessTail->next = current;
14
                     lessTail = current;
15
16
            } else if(current->value == k){
17
                if(equalHead == nullptr){
18
                     equalHead = current;
19
                     equalTail = current;
                 } else {
20.
21
                     equalTail->next = current;
22
                     equalTail = current;
23
                }
24
            } else {
25
                if(greaterHead == nullptr){
26
                     greaterHead = current;
27
                     greaterTail = current;
28
                 } else {
29
                     greaterTail->next = current;
30
                     greaterTail = current;
31
                 }
32
            }
33
            current = current->next;
34
        if(lessHead != nullptr){
35
36
            head = lessHead;
37
            if(equalHead != nullptr){
38
                lessTail->next = equalHead;
                if(greaterHead != nullptr){
39
40
                     equalTail->next = greaterHead;
41
                     tail = greaterTail;
42
                } else tail = equalTail;
43
            } else {
44
                if(greaterHead != nullptr){
45
                     lessTail->next = greaterHead;
46
                     tail = greaterTail;
47
                 } else tail = lessTail;
48
            }
        } else if(equalHead != nullptr){
```

```
50
            head = equalHead;
51 •
            if(greaterHead != nullptr){
                equalTail->next = greaterHead;
52
53
                tail = greaterTail;
54
            } else tail = equalTail;
55 •
        } else if(greaterHead != nullptr){
56
            head = greaterHead;
            tail = greaterTail;
57
58
59 ,
        if(tail != nullptr){
60
            tail->next = nullptr;
61
62
```

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



```
Câu hỏi 9
Đúng
Đạt điểm 1,00 trên 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;
nublic:
    Term(double coeff = 0.0, int exp = 0) {
        this->coeff = coeff;
        this->exp = exp;
    }
    bool operator==(const Term& rhs) const {
        return this->coeff == rhs.coeff && this->exp == rhs.exp;
    friend ostream & operator<<(ostream &os, const Term& term) {</pre>
        cout << endl;</pre>
        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 << "]";
    }
};
```

For example:

Test	Result
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>]
poly->insertTerm(-6.0, 6);	
<pre>poly->insertTerm(6.0, 6);</pre>	
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 %)

```
1 void Polynomial::insertTerm(const Term& term) {
        if(term.coeff == 0) return;
 2
 3
        SLinkedList<Term>::Iterator it = this->terms->begin();
 4
        SLinkedList<Term>::Iterator pre = this->terms->begin();
 5
        int index = 0;
        while(it != this->terms->end()){
 6
 7
            Term current = *it;
 8
            if(current.exp == term.exp){
 9
                current.coeff += term.coeff;
10
                if(current.coeff == 0){
11
                     this->terms->removeAt(index);
                 } else {
12 •
13
                     *it = current;
14
                 }
15
                return;
16
17
            if(current.exp < term.exp){</pre>
                this->terms->add(index, term);
18
19
                return;
20
21
            index += 1;
22
            pre = it;
23
            ++it;
24
25
        this->terms->add(term);
26
    }
27
28 void Polynomial::insertTerm(double coeff, int exp) {
29
        Term newTerm(coeff, exp);
30
        insertTerm(newTerm);
31
```

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

Đúng