

Solution to CSE143 Section #5 Problems

1. Basic list manipulation.

before	after	code
p->[1]->[2]->[3] q	p->[1]->[2] q->[3]	q = p.next.next; p.next.next = null;
p->[1]->[2] q->[3]	p->[2] q->[3]->[1]	q.next = p; p = p.next; q.next.next = null;
p->[1]->[2] q->[3]	p q->[1]->[2]->[3]	p.next.next = q; q = p; p = null;
p->[1]->[2] q->[3]	p->[1]->[3]->[2] q	q.next = p.next; p.next = q; q = null;
p->[1]->[2] q->[3]->[4]	p->[1]->[3]->[4]->[2] q	q.next.next = p.next; p.next = q; q = null;
p->[5]->[4]->[3]	p->[4]->[3]->[5]	p.next.next.next = p; p = p.next; p.next.next.next = null;
p->[1]->[2] q->[3]	p->[3]->[1]->[2] q	q.next = p; p = q; q = null;

2. Intermediate list manipulation.

before	after	code
p->[1]->[2] q->[3]->[4]	p->[1]->[3]->[2]->[4] q	p.next.next = q.next; q.next = p.next; p.next = q; q = null;
p->[1] q->[2]->[3]	p->[3] q->[1]->[2]	p.next = q; q = p; p = p.next.next; q.next.next = null;
p->[1]->[2]	p->[2]->[4]	p.next.next = q.next; q.next = p;

q->[3]->[4]	q->[3]->[1]	p = p.next; q.next.next = null;
p->[1]->[2]->[3]	p->[2]	q = p; p = p.next;
q	q->[1]->[3]	q.next = q.next.next; p.next = null;
p->[5]->[4]->[3]	p->[4]->[5]->[3]	ListNode temp = p; p = p.next; temp.next = p.next; p.next = temp;

3. List manipulation involving construction.

before	after	code
p->[1]->[2]	p->[1]->[2]->[3]	p.next.next = new ListNode(3, null);
p->[1]->[2]	p->[3]->[1]->[2]	p = new ListNode(3, p);
p->[1]->[2]	p->[1]->[3]->[2]	p.next = new ListNode(3, p.next);

4. Advanced list manipulation.

before	after	code
p->[5]->[4]->[3]	p->[3]->[4]->[5]	ListNode temp = p.next.next; temp.next = p.next; p.next.next = p; p.next.next.next = null; p = temp;
p->[1]->[2]	p->[3]->[2]->[1]	p.next.next = p; ListNode temp = q.next;
q->[3]->[4]	q->[4]	q.next = p.next; p.next = null; p = q; q = temp;
p->[1]->[2]	p->[1]->[3]->[5]	ListNode temp = p.next;
q->[3]->[4]->[5]	q->[2]->[4]	p.next = q; temp.next = q.next; q.next = q.next.next; q = temp;

		q.next.next = null;
p->[1]->[2]->[3]	p->[2]->[1]->[4]	p.next.next.next = q.next;
q->[4]->[5]	q->[3]->[5]	ListNode temp = q;
		q = p.next.next;
		p.next.next = p;
		p = p.next;
		p.next.next = temp;
		temp.next = null;
p->[1]->[2]->[3]	p->[5]->[4]->[3]->[2]	q.next.next = q;
q->[4]->[5]	q->[1]	q = q.next;
		q.next.next = p.next.next;
		p.next.next.next = p.next;
		p.next.next = null;
		p.next = null;
		ListNode temp = q;
		q = p;
		p = temp;