

CSE143 Section #10 Solutions

1.	Method Call	Output Produced
	mystery(2);	2+
	mystery(5);	52+-
	mystery(7);	731---
	mystery(18);	8942++-+
	mystery(21);	1052+-+-

2. One possible solution appears below.

```
public String undouble(String s) {
    if (s.length() < 2) {
        return s;
    } else if (s.charAt(0) == s.charAt(1)) {
        return s.charAt(0) + undouble(s.substring(2));
    } else {
        return s.charAt(0) + undouble(s.substring(1));
    }
}
```

3. One possible solution appears below.

```
public static Map<Integer, String> byAge(Map<String, Integer> ages,
                                       int min, int max) {
    Map<Integer, String> result = new TreeMap<>();
    for (String name : ages.keySet()) {
        int age = ages.get(name);
        if (min <= age && age <= max) {
            if (result.containsKey(age)) {
                result.put(age, result.get(age) + " and " + name);
            } else {
                result.put(age, name);
            }
        }
    }
    return result;
}
```

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

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

5. One possible solution appears below.

```
public void removeMax() {
    if (size == 0) {
        throw new IllegalStateException();
    }
    int max = 0;
    for (int i = 1; i < size; i++) {
        if (elementData[i] > elementData[max]) {
            max = i;
        }
    }
    for (int i = max; i < size - 1; i++) {
        elementData[i] = elementData[i + 1];
    }
    size--;
}
```

6. One possible solution appears below.

```
public void makePalindrome(Stack<Integer> s) {
    Queue<Integer> q = new LinkedList<>();
    while (!s.isEmpty()) {
        q.add(s.pop());
    }
    for (int i = 0; i < q.size(); i++) {
        int n = q.remove();
        q.add(n);
        s.push(n);
    }
    int oldSize = q.size();
    for (int i = 0; i < oldSize; i++) {
        int n1 = q.remove();
        int n2 = s.pop();
        if (n1 == n2) {
            q.add(n1);
        }
    }
    while (!q.isEmpty()) {
        s.push(q.remove());
    }
}
```