

Solution to CSE143X Section #10 Problems

1. One possible solution appears below.

```
public boolean hasTwoConsecutive() {
    if (front == null || front.next == null) {
        return false;
    }
    ListNode current = front;
    while (current.next != null) {
        if (current.data + 1 == current.next.data) {
            return true;
        }
        current = current.next;
    }
    return false;
}
```

2. One possible solution appears below.

```
public int deleteBack() {
    if (front == null) {
        throw new IllegalStateException("empty list");
    }
    int result;
    if (front.next == null) {
        result = front.data;
        front = null;
    } else {
        ListNode current = front;
        while (current.next.next != null) {
            current = current.next;
        }
        result = current.next.data;
        current.next = null;
    }
    return result;
}
```

3. One possible solution appears below.

```
public void reverse3() {
    if (front != null && front.next != null && front.next.next != null) {
        ListNode temp = front;
        front = front.next.next;
        ListNode temp2 = front.next;
        front.next = temp.next;
        temp.next.next = temp;
        temp.next = temp2;
        while (temp.next != null && temp.next.next != null &&
            temp.next.next.next != null) {
            temp2 = temp.next;
            temp.next = temp.next.next.next;
            temp = temp2;
            temp2 = temp.next.next.next;
            temp.next.next.next = temp.next;
            temp.next.next = temp;
            temp.next = temp2;
        }
    }
}
```

4. One possible solution appears below.

```

public void removeAll(int value) {
    while (front != null && front.data == value) {
        front = front.next;
    }
    if (front != null) {
        ListNode current = front;
        while (current.next != null)
            if (current.next.data == value) {
                current.next = current.next.next;
            } else {
                current = current.next;
            }
    }
}

```

5. One possible solution appears below.

```

public LinkedList removeEvens() {
    LinkedList result = new LinkedList();
    if (front != null) {
        result.front = front;
        front = front.next;
        ListNode current = front;
        ListNode resultLast = result.front;
        while (current != null && current.next != null) {
            resultLast.next = current.next;
            resultLast = current.next;
            current.next = current.next.next;
            current = current.next;
        }
        resultLast.next = null;
    }
    return result;
}

```

6. One possible solution appears below.

```

public void doubleList() {
    if (front != null) {
        ListNode half2 = new ListNode(front.data);
        ListNode back = half2;
        ListNode current = front;
        while (current.next != null) {
            current = current.next;
            back.next = new ListNode(current.data);
            back = back.next;
        }
        current.next = half2;
    }
}

```

7. One possible solution appears below.

```

public void reverse() {
    ListNode current = front;
    ListNode previous = null;
    while (current != null) {
        ListNode nextNode = current.next;
        current.next = previous;
        previous = current;
        current = nextNode;
    }
    front = previous;
}

```