

# Dynamic Method Selection

[Here is a video walkthrough of the solution.](#)

Modify the code below so that the max method of DMSList works properly. Assume all numbers inserted into DMSList are positive, and we only insert using insertFront. You may not change anything in the given code. You may only fill in blanks. You may not need all blanks. (Spring '16, MT1)

```
1 public class DMSList {
2     private IntNode sentinel;
3     public DMSList() {
4         sentinel = new IntNode(-1000, _____);
5     }
6     public class IntNode {
7         public int item;
8         public IntNode next;
9         public IntNode(int i, IntNode h) {
10            item = i;
11            next = h;
12        }
13        public int max() {
14            return Math.max(item, next.max());
15        }
16    }
17    public _____ {
18
19    _____
20
21    _____
22
23    _____
24
25    _____
26
27    _____
28
29    _____
30
31    _____
32
33    _____
34    }
35    /* Returns 0 if list is empty. Otherwise, returns the max element. */
36    public int max() {
37        return sentinel.next.max();
38    }
39    public void insertFront(int x) { sentinel.next = new IntNode(x, sentinel.next); }
```

40 }

**Solution:**

```
1 public class DMSList {
2     private IntNode sentinel;
3     public DMSList() {
4         sentinel = new IntNode(-1000, new LastIntNode());
5     }
6     public class IntNode {
7         public int item;
8         public IntNode next;
9         public IntNode(int i, IntNode h) {
10            item = i;
11            next = h;
12        }
13        public int max() {
14            return Math.max(item, next.max());
15        }
16    }
17    public class LastIntNode extends IntNode {
18        public LastIntNode() {
19            super(0, null);
20        }
21        @Override
22        public int max() {
23            return 0;
24        }
25    }
26    /* Returns 0 if list is empty. Otherwise, returns the max element. */
27    public int max() {
28        return sentinel.next.max();
29    }
30    public void insertFront(int x) {
31        sentinel.next = new IntNode(x, sentinel.next);
32    }
33 }
```