

0.

```
// constructs an empty list with the given capacity.  
// precondition: capacity >= 0  
public ArrayIntList(int capacity) {  
    if (capacity < 0) {  
        throw new IllegalArgumentException("capacity must not be negative");  
    }  
    elementData = new int[capacity];  
    size = 0;  
}
```

1.

```
public ArrayIntList runningTotal() {  
    ArrayIntList newList = new ArrayIntList();  
    System.out.println(newList);  
    int sum = 0;  
  
    for (int i = 0; i < this.size; i++) {  
        sum += this.get(i);  
        newList.add(sum);  
    }  
  
    return newList;  
}
```

```
week03 > lab > J RunningTotalList.java > ...  
1 package week03.lab;  
2  
3 Windsurf: Refactor | Explain  
4 public class RunningTotalList {  
5     Run | Debug | Windsurf: Refactor | Explain | Generate Javadoc | X  
6     public static void main(String[] args) {  
7         ArrayIntList list = new ArrayIntList();  
8         list.add(value: 2);  
9         list.add(value: 3);  
10        list.add(value: 5);  
11        list.add(value: 4);  
12        list.add(value: 7);  
13        list.add(value: 15);  
14        list.add(value: 20);  
15        list.add(value: 7);  
16        ArrayIntList list2 = list.runningTotal();  
17        System.out.println(list);  
18        System.out.println(list2);  
19    }  
20}
```

PROBLEMS 41 OUTPUT DEBUG CONSOLE TERMINAL TEST RESULTS PORTS GITLENS ⚙

- duey@MacBook-Air-Duy CS211 % /usr/bin/env /Library/Internet\ Plug-Ins/JavaAppletPlugin.cp /var/folders/w3/0x9k0j1s65gczs9x9ztnngbw0000gn/T/cp_b1gly17jggzf1hn5ifl2kq1xy.jar wee [2, 3, 5, 4, 7, 15, 20, 7]
[2, 5, 10, 14, 21, 36, 56, 63]
- duey@MacBook-Air-Duy CS211 %

2.

The screenshot shows two code editors side-by-side. The left editor contains `LongestSortedSequence.java` with the following code:

```
Windsurf: Refactor | Explain | Generate Javadoc | X
public int longestSortedSequence() {
    if (this.size == 0) {
        return 0;
    }

    int longest = 1;
    int count = 1;

    for (int i = 0; i < this.size -1; i++) {
        if (this.get(i) <= this.get(i + 1)) { // <= for duplicates
            count++;
        } else {
            if (count > longest) {
                longest = count;
            }
            count = 1;
        }
    }

    if (count > longest) {
        longest = count;
    }

    return longest;
}
```

The right editor contains `ArrayIntMain.java` with the following code:

```
week03 > lab > J ArrayIntMain.java > ArrayIntMain > main(String[])
1 package week03.lab;
2
3 Windsurf: Refactor | Explain
4 public class ArrayIntMain {
5     public static void main(String[] args) {
6         ArrayList<Integer> list = new ArrayList<Integer>();
7         list.add(value: 1);
8         list.add(value: 3);
9         list.add(value: 5);
10        list.add(value: 2);
11        list.add(value: 9);
12        list.add(value: 7);
13        list.add(-3);
14        list.add(value: 0);
15        list.add(value: 42);
16        list.add(value: 308);
17        list.add(value: 17);
18        System.out.println(list.longestSortedSequence());
19    }
}
```

Below the code editors are tabs for PROBLEMS (4), OUTPUT, DEBUG CONSOLE, TERMINAL, TEST RESULTS, and PORTS. The TERMINAL tab is selected, showing the command-line output:

```
duey@Mac CS211 % /usr/bin/env /Library/Internet\ Plug-Ins/JavaAppletPlug
ers/w3/0x9k0j1s65gczs9x9ztnngbw0000gn/T/cp_b1gly17jggzf1hn5ifl2kqlxy.
4
```

3.

The screenshot shows a code editor with the following code:

```
public void removeFront(int n) {
    // shift remaining elements to the left by n
    for (int i = 0; i < n; i++) {
        elementData[i] = elementData[i + n];
    }

    size -= n;
}
```

The screenshot shows a code editor with the following code:

```
Windsurf: Refactor | Explain
3 public class ArrayIntMain {
4     public static void main(String[] args) {
5         ArrayList<Integer> list = new ArrayList<Integer>();
6         list.add(value: 8);
7         list.add(value: 17);
8         list.add(value: 9);
9         list.add(value: 24);
10        list.add(value: 42);
11        list.add(value: 3);
12        list.add(value: 8);
13        System.out.println(list);
14        list.removeFront(n: 4);
15        System.out.println(list);
16
17    }
18
19 }
```

Below the code editor are tabs for PROBLEMS (4), OUTPUT, DEBUG CONSOLE, TERMINAL, TEST RESULTS, PORTS, and GITLENS. The TERMINAL tab is selected, showing the command-line output:

```
duey@MacBook-Air-Duy CS211 % /usr/bin/env /Library/Internet\ Plug-Ins/JavaAppletPlug
cp /var/folders/w3/0x9k0j1s65gczs9x9ztnngbw0000gn/T/cp_b1gly17jggzf1hn5ifl2kqlxy.jar v
[8, 17, 9, 24, 42, 3, 8]
[42, 3, 8]
duey@MacBook-Air-Duy CS211 %
```

4.

```
Windsurf: Refactor | Explain
public class ArrayIntMain {
    public static void main(String[] args) {
        ArrayIntList list = new ArrayIntList();
        list.add(value: 1);
        list.add(value: 3);
        list.add(value: 2);
        list.add(value: 7);
        list.mirror();
        System.out.println(list);
    }
}
```

PROBLEMS 41 OUTPUT DEBUG CONSOLE TERMINAL TEST RESULTS PORTS GITLENS

```
duey@MacBook-Air-Duy CS211 % /usr/bin/env /Library/Internet\ Plug-Ins/JavaAppletPlug
cp /var/folders/w3/0x9k0j1s65gczs9x9ztnngbw0000gn/T/cp_b1gly17jggzf1hn5ifl2kq1xy.jar
[1, 3, 2, 7, 2, 3, 1]
duey@MacBook-Air-Duy CS211 %
```

5.

```
// 5.
Windsurf: Refactor | Explain
public ArrayIntList fromCounts() {
    if (this.size / 2 == 1) {
        throw new IllegalArgumentException();
    }

    ArrayIntList newList = new ArrayIntList();

    for (int i = 0; i < this.size; i += 2) {
        if (this.get(i) < 0) {
            throw new IllegalArgumentException();
        }

        for (int j = 0; j < this.get(i); j++) {
            newList.add(this.get(i + 1));
        }
    }

    return newList;
}
```

```
public static void main(String[] args) {
    ArrayIntList list = new ArrayIntList();
    list.add(value: 5);
    list.add(value: 2);
    list.add(value: 2);
    list.add(-5);
    list.add(value: 4);
    list.add(value: 3);
    list.add(value: 2);
    list.add(value: 4);
    list.add(value: 1);
    list.add(value: 1);
    list.add(value: 0);
    list.add(value: 2);
    list.add(value: 17);
    ArrayIntList list2 = list.fromCounts();
    System.out.println(list2);
}

PROBLEMS 41 OUTPUT DEBUG CONSOLE TERMINAL TEST RESULTS PORTS GITLENS
```

```
duey@MacBook-Air-Duy CS211 % /usr/bin/env /Library/Internet\ Plug-Ins/JavaAppletPlug
cp /var/folders/w3/0x9k0j1s65gczs9x9ztnngbw0000gn/T/cp_b1gly17jggzf1hn5ifl2kq1xy.jar
[2, 2, 2, 2, -5, -5, 3, 3, 3, 3, 4, 4, 1, 0, 17, 17]
duey@MacBook-Air-Duy CS211 %
```