Common Array Bugs
int sum = 0;
int numDays = console.nextInt();

int[] temperatures = new int[numDays];

for (int i = 0; i < numDays; i++) {
    temperatures[i] = console.nextInt();
    sum += temperatures[i];
}

double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i < temperatures.length; i++) {
    if (temperatures[i] > average) {
        aboveAvg++;
    }
}
```java
int sum = 0;
int numDays = console.nextInt();

int[] temperatures = new int[numDays];

for (int i = 0; i < numDays; i++) {
    temperatures[i] = console.nextInt();
    sum += temperatures[i];
}

double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i < temperatures.length; i++) {
    if (temperatures[i] > average) {
        aboveAvg++;
    }
}
```
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 1; i < temperatures.length; i++) {
  if (temperatures[i] > average) {
    aboveAvg++;
  }
}
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 1; i < temperatures.length; i++) {
    if (temperatures[i] > average) {
        aboveAvg++;
    }
}

Bug: missing some values, so our above average might not be correct

For loop bounds make the loop variable i that we are accessing in `temperatures[i]` go through the values 1, 2, ..., `temperatures.length - 2` so we miss index 0 (first element) and index `temperatures.length - 1` (last element) in the array `temperatures`

How could we fix this?
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i <= temperatures.length; i++) {
    if (temperatures[i] > average) {
        aboveAvg++;
    }
}
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i <= temperatures.length; i++) {  // Bug: accessing illegal index of the array
  if (temperatures[i] > average) {
    aboveAvg++;
  }
}

For loop bounds make the loop variable `i` that we are accessing in `temperatures[i]` go through the values 0, 1, 2, ..., `temperatures.length` so we attempt to access an invalid index `temperatures.length` (past the last element) in the array `temperatures`.

How could we fix this?
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i < temperatures.length; i++) {
    if (i > average) {
        aboveAvg++;
    }
}
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i < temperatures.length; i++) {
    if (i > average) {
        aboveAvg++;
    }
}

The loop variable represents which index we want to access, but we didn’t specify an array or index into it.
We aren’t actually looking at the elements in the `temperatures` array.

Bug: specifying index without specifying array

How could we fix this?
double average = 1.0 * sum / numDays;
int aboveAvg = 0;

for (int i = 0; i < temperatures.length; i++) {
    if (temperatures > average) {
        aboveAvg++;
    }
}
double average = 1.0 * sum / numDays;
int aboveAvg = 0;
for (int i = 0; i < temperatures.length; i++) {
    if (temperatures > average) {
        aboveAvg++;
    }
}

**Bug: specifying array without specifying index**

*temperatures* is the array we want to access but we didn’t specify which index we want to access. We are trying to compare the array itself to the double scalar *average* and aren’t actually looking at the elements in the *temperatures* array.

How could we fix this?