

Symptom: The behavior you see (terminal output, error messages, web page contents)
Bug: A flaw in a program that causes symptoms
Failure-inducing input: Data, values, or other input(s) that demonstrate a **bug's symptom(s)**
Definitions from John Regehr <https://blog.regehr.org/archives/199>

```
class MainExample1 {
    public static void main(String[] args) {
        int current = 0;
        while(current < args.length) {
            System.out.println(args[current]);
        } missing line of code to update "current"
    }
}

class MainExample2 {
    public static void main(String[] args) {
        int length = args.length;
        for(int i = 0; i < length; length += 1) {
            System.out.println(args[i]);
        }
    }
}
```

used wrong variable

```
$ javac Examples.java
$ java MainExample1 apple banana cranberry

apple
apple
apple
apple...

$ java MainExample2 apple banana cranberry

apple
apple
apple
apple...

*same input
*same symptom --> printing the same thing
*different bug
```

```
class EvensExample {
    static int sumEvenIndices(int[] nums) {
        int sum = 0;
        for(int i = 0; i < nums.length; i += 2) {
            sum += nums[i + 1];
        }
        return sum;
    }
}
```

*different input
*different symptoms
*one bug

What are two different **failure-inducing inputs** for sumEvenIndices that demonstrate **different** symptoms?

input: {7}	input: {1,2,3,4}
expect: 7	expect:4
actual:IndexOutOfBounds	actual:6

How many bugs are there?

1; sum+= nums[i+1] to sum+= nums[i]

```
class NumsExample {
    static double reciprocal(int n) {
        return 1 / n; bugs-->integer division
    }
    static double ratio(int n, int d) {
        return n / d;
    }
    static double formula(int a, int b, int c) {
        return ratio(a, b) * reciprocal(c);
    }
}
```

*different input
*same symptom
*different bug

What are two different **failure-inducing inputs** for formula that demonstrate **the same** symptom?

input: 1, 0, 2	input: 1, 2, 3	input: 1, 2, 1
expect: error	expect: 0.16	expect: 0.5
actual: error	actual: 0	actual: 0

input: 4, 2, 3
expect: 0.66
actual: 0

How many bugs are there?

2

Symptom: The behavior you see (terminal output, error messages, web page contents)
Bug: A flaw in a program that causes symptoms
Failure-inducing input: Data, values, or other input(s) that demonstrate a **bug's symptom(s)**

Consider the following EdStem posts.

What information could these students provide to help give an actionable answer?

What bugs are **possible** in each scenario? How could more information about input and symptoms help?

Anita Kwikansaur

★👁 10 views

15 min ago

The server from lab 2 isn't working, it just says class not found.

[Comment](#) [Edit](#) [Delete](#)

Given: symptom only

need to see inputs:

- pwd
- commands recently run
- current files w/ ls or EdStem file browser

Beto Ansame

★👁 15 views

2 hours ago

I don't understand quiz question 2 about the paths, I tested all the options myself to check them and it still says my answer is wrong. I said options 3, 4, 5, and 7 were right and that should be the answer but it's marked wrong.

[Comment](#) [Edit](#) [Delete](#)

Given: symptom only
similar to inputs to #1

Gemma Halp

★👁 2 views

10 hours ago

My images aren't rendering right on my lab report webpage, I just see this for all my images:



[Comment](#) [Edit](#) [Delete](#)

Given: symptom only

need to see code/markdown