EECS1022 Programming for Mobile Computing (Winter 2021)

Q&A - Lectures W4

Monday, February 8

Is there a way to use debugger on a specific JUnit testcase?
I tried to put breakpoints on the case,
but when I run debugger it just runs a different case.

I understand the code of each Short-Circuit Evaluation
ex. (one using conjunction, the other disjunction) gives equivalent outputs but with different behaviour.
→ guard expressions.
However, I don't think I can adequately and concisely put into words my justification why I think so.
I can only think of following each program with specific ex. cases
(1. When x = 0, 2. when y/x > 2 and 3. when y/x <= 2) but I wonder if there's a better way.

Short-Circuit Evaluation: &&

Left Operand op1	Right Operand op2	op1 && op2
true	true	true
true	false	false
false	true	false
false	false	false

Test Inputs:

x = 0, y = 10

x = 5, y = 10

```
System.out.println("Enter x:");
int x = input.nextInt();
System.out.println("Enter y:");
int y = input.nextInt();
if(                                    ) {
    System.out.println("y / x is greater than 2");
}
else { /* !(x != 0 && y / x > 2) == (x == 0 || y / x <= 2) */
    if(x == 0) {
        System.out.println("Error: Division by Zero");
    }
    else {
        System.out.println("y / x is not greater than 2");
    }
}
```

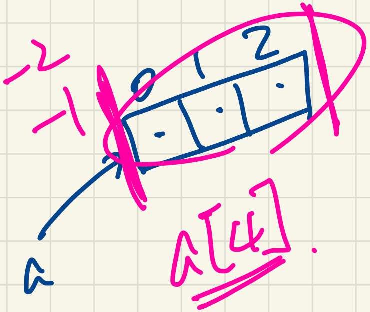
expression to guard.

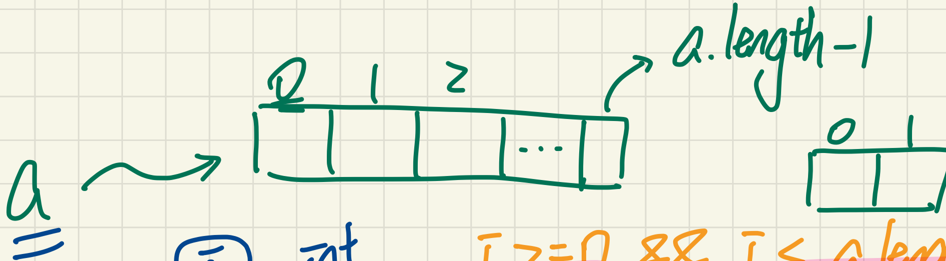
y / x > 2 && x != 0

(A) Any logical error?

(A2) Is SCE effective?

(B) Justify.





① i. int

Err: i>=0 && i< a.length && a[i]>0

Is SCE effective?

→ if (i >= 0 && a[i]>0 && i<a.length){

...

}

else{

...

}

② Test 2: 4

4>=0 && a[4]>0 && (T) 4<3 (F)

① Test 1: -2

-2>=0 (F) && a[-2]>0 && -2< a.length.

avoided

i >= 0 && i < a.length && a[i] > 0

discuss this Texture

while

i >= 0 || i < a.length || a[i] > 0

F F

Wrong i = a.length (too large)

T → go to the body of if

i negative :

F || F || ___ → crash

Common Errors: Ambiguous "else"

My question is, why is there an ambiguity?
First if has no {} so the first line is the only one belonging to it and else cannot be a nested conditional inside the first if?

```
if (x >= 0)
    if (x > 100) {
        System.out.println("x is larger than 100");
    }
else {
    System.out.println("x is negative");
}
```

Test Inputs:
x = 20

```
if (x >= 0)
    if (x > 100) {
        System.out.println("x is larger than 100");
    }
else {
    System.out.println("x is negative");
}
```

Test Inputs:
x = 20

```
if (x >= 0)
    if (x > 100) {
        System.out.println("x is larger than 100");
    }
else {
  System.out.println("x is negative");
}
```

if(x>=0) if(x>100){ - - - } else{ - - - }

if(x>=0) if(x>100){ - - - } else{ - - - }

Context-free grammar

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