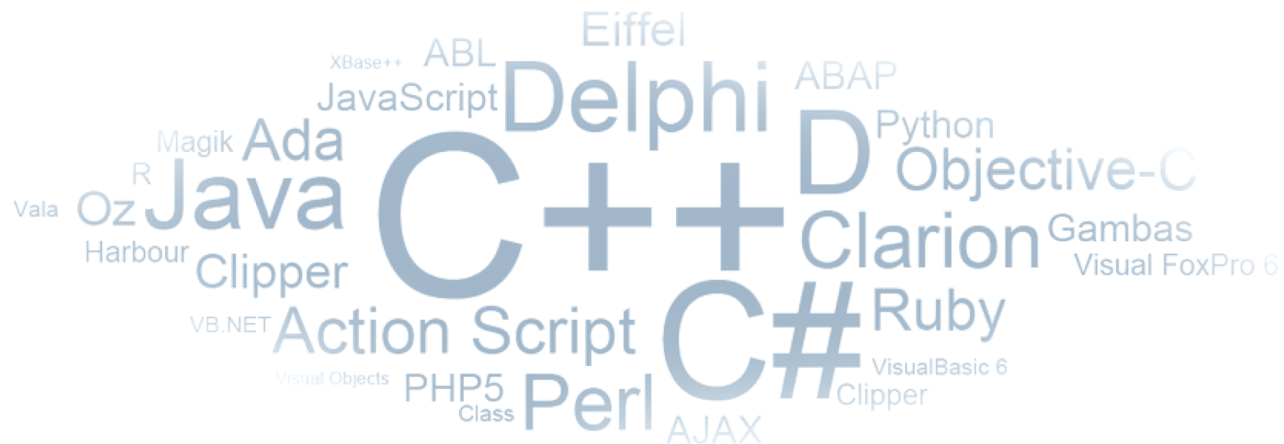


CIS 351-Data Structure-Advanced Loop

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Infinite Loops

```
int x = 3;
while(x > 0)
{
    System.out.println("x
    is greater than 0");
}
```

What is wrong with this code?

- The above loop will not end, which is called “*infinite loop*”
- In order for a `while` loop to end, the condition must become false.
- The variable `x` never gets decremented so it will always be greater than 0.
- Care must be taken to set the condition to false somewhere in the loop so the loop will end.

Infinite Loops

- Adding the **x--** inside the while loop, in the previous code fixes the problem.
- This version of the loop decrements x during each iteration:

```
int x = 3;
while(x > 0)
{
    System.out.println("x is greater than 0");
    x--;
}
```

Prints “x is greater than 0” **3** times

How do you deal with invalid input?

People make mistakes, sometimes on purpose!

Example 1

Option #1: Consume bad input, use min/max value

```
if (keyboard.hasNextInt()) {  
    operand1 = keyboard.nextInt();  
} else {  
    badValue = keyboard.next();  
    System.err.println("Bad value " + badValue);  
    operand1 = Integer.MAX_VALUE;  
}
```

Example 2

Option #2: Print error message and terminate program

```
public static void checkQuestion(String question) {  
    if (question.length() > 60) {  
        System.err.print("Your question is too long. ");  
        System.err.print("Be more concise.\nGoodbye\n");  
        System.exit(1);  
    }  
}
```

Example 3

Option #3: Ignore input and use some default value

```
System.out.print("Type the balance: ");  
if (keyboard.hasNextDouble()) {  
    priorBalance = keyboard.nextDouble();  
} else {  
    keyboard.next();  
    priorBalance = 0;  
}
```

Example 4

Option #4: Repeat the input until success

```
boolean okay;  
do {  
    System.out.print("Type the balance: ");  
    if (keyboard.hasNextDouble()) {  
        balance = keyboard.nextDouble();  
        okay = true;  
    } else {  
        keyboard.next();  
        okay = false;  
    }  
} while (!okay);
```