

Day 1 Programming Exercises

Game Dev Camp

June 27, 2016

1 VARIABLES AND TYPES

1.1 *Using the Right Types*

Write a program that stores the following values with the right types:

1. 127
2. 127.0
3. "All generalizations are dangerous, even this one."
4. true

1.2 *This Then That*

You thought you had a favourite number, but now you're not so sure. Make a number called "myFavourite." Then change it to something else.

2 BASIC MATH

Here's a reminder of basic math in Java:

```
class Scratch {  
    public static void main(String[] args) {  
        int aNumber = 5;  
        aNumber = aNumber + 4;  
        // what is aNumber now?  
        aNumber = 3;  
        // what is aNumber now?  
  
        aNumber = 10;  
        aNumber = aNumber * 20;  
        aNumber = aNumber / 10;  
        // and how about now?  
    }  
}
```

Write a program that makes a number count down from 10 to 0 by reassigning the number.

3 IF STATEMENTS

```
class Scratch {
    public static void main(String[] args) {
        bool thisIsTrue = 19 > 18; // comparison as in math
        bool thisIsTrue = 18 < 19;
        bool thisIsTrue = 18 >= 18;
        bool thisIsTrue = 19 >= 18;

        int a;
        if (true)
        {
            a = 5; // this will always happen
        }
        if (false)
        {
            a = 6; // this will never happen
        }
        // so what's the value of a?

        int shipYPosition = 200;
        int asteroidYBoundary = 180;
        if (shipYPosition > asteroidYPosition)
            continue;
        else
            ship.moveUp(); // tell our ship to get out of the way!
    }
}
```

Your ship is 10 units tall. An asteroid is 40 units tall. Both a ship and an asteroid have a center, given to you as `shipYPosition` and `asteroidYPosition`. How would you tell a ship to dodge in the direction that requires the least movement? That is to say if the ship is a little lower than the asteroid, it should dodge beneath it. If the ship is a little higher than the asteroid, it should dodge above it. If it isn't going to hit the asteroid, the ship doesn't need to move.

4 PRINTING THINGS TO THE SCREEN

You can print things to the screen by doing the following:

```
class Scratch {
    public static void main(String[] args) {
        System.out.println("Hello World!");
        String a = "Hello!";
        System.out.println(a);
        int thisMightBe5 = 6;
        System.out.println("This might be five equals " + 6);
    }
}
```

```
        System.out.println("Oops, I lied!");  
    }  
}
```

Make another countdown from 10 to 0, but this time have it print to screen!