Lesson 5

Methods and CodingBat

Today's Lesson Plan

1. Methods Review
    a. Method Headers
    b. Parameters
    c. Return Values
    d. Calling Methods

What is a method?

A method is a group of code that performs a certain action.

Methods are used to keep code easy to read and increase efficiency.

For example, you can put code into a method and call that method whenever you need, instead of repeating your code.

Method Header

A method header is used to declare a new method. The first line of the sample method is the method header.

```
public int myAgeNextYear(int myAgeThisYear){

    return myAgeThisYear + 1;

}
```

Method headers are in the format:

Access modifier, return type, method name (parameters)

Method Header

access modifier return type method name parameters (optional)

```
public int ageNextYear(int ageThisYear) {
  return ageThisYear + 1;
}
```

body

Access Modifier

The two main types of access control are public and private.

Public: anyone can use the method

Private: only certain other methods can use the method

Parameters

Parameters are values that are passed into a function.

The **data type** (int) and **name** (age) of the variable should be put in between the parentheses after the method name in the method header.

The parameters are separated by commas.

```
public String getName(String name, int age)
```

The method can have as many parameters as you want.

Parameters Pt. 2

If the method is called without a parameter or with a different type, the compiler will return an error.

This is how you call it:

```
int age = 13;

String name = “John”;

getName(name, age);
```

Make sure to add all the parameters necessary.

Return Values

Return types indicate what will be returned after a method is run.

void - nothing is returned

int - an integer is returned

String - a String is returned etc.

```
public String sayHello(String name){
```

Return Values Pt. 2

Any type of variable can be returned from a method.

If what is returned is different from the return type, the compiler will return an error.

Calling Methods

Calling a method runs the code inside it. Assuming that these methods have already been written, this is how to call a method:

```
myMethod();
```

```
str.substring(1);
```
You can also assign the result of a method to a variable:

```
String s = str.substring(3,5);
```

Main Method

The main method is a special method that you must have in order to successfully run your other methods.

The main method gets the ball rolling, and calls other methods.

We should already be familiar with:

```
public static void main (String [] args){

}
```

You can use this exact format every time you write a main method.

Where to Put Your Code

```
1  class Main {
2
3      Define methods here
4
5    public static void main(String[] args) {
6      System.out.println("Hello world!");
7
8      Call methods here
9
10   }
11 }
```

Methods - Try It Out

Write the following code in the program to test out for methods:

```
public static String sayHello(){

    return “Hello World!”;

}
```

You can change the name of the method or the output of the code to understand it more.

Methods - Try it out

Write the following code in the program to test out for loops:

```
public static boolean practiceMethod(){
    int i = 4;
    if(i < 3) {
        return true;
    }
    return false;
}
```

CodingBat

Go to www.codingbat.com and start to work on these problems in

String 1

theEnd	withouEnd2	middleTwo
endsLy	nTwice	twoChar

Warmup 1

diff21 H	parrotTrouble H	makes10 H

Kahoot

Time for our Methods Kahoot! Try your best to answer every question! Please use your real names!

Link: https://play.kahoot.it/v2/?quizId=0a80758b-bf28-4ce4-b38b-de36622f4f8b