7.Functions/Methods

Sakib Abrar

CSE

Bangladesh University of Engineering & Technology

sakib.cghs@gmail.com

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Overview

What is a method?

Creating a method

Parameters and Arguments

Return values

Java Method Overloading

Complex methods

Function Excersise

What is a method?

- A method is a block of code which only runs when it is called.
- You can pass data, known as parameters, into a method.
- Methods are used to perform certain actions, and they are also known as functions.
- Why use methods? To reuse code: define the code once, and use it many times.

Creating a method

A method must be declared within a class. It is defined with the name of the method, followed by parentheses**()**. Java provides some pre-defined methods, such as **System.out.println()**, but you can also create your own methods to perform certain actions:

```
public class FunctionExamples {

    static void myMethod() {
        System.out.println("Hello this is my method.");
        System.out.println("I am Sakib Nice to meet you");
        int a = 20;
        int b = 30;
        System.out.println("The sum is : " + (a + b) );
    }

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

Parameters and Arguments

Information can be passed to methods as parameter. Parameters act as variables inside the method.

Parameters are specified after the method name, inside the parentheses. You can add as many parameters as you want, just separate them with a comma.

Parameters and Arguments

```
public class StringConstructors {

    static void myMethod(String fname) {
        System.out.println(fname + ", Welcome to the system
    }

    public static void main(String[] args) {
        myMethod("Liam");
        myMethod("Jenny");
        myMethod("Anja");
    }
}
```

Return values

The **void** keyword, used in the examples above, indicates that the method should not return a value. If you want the method to return a value.

You can use a primitive data type (such as **int**, **char**, etc.) instead of **void**, and use the **return** keyword inside the method.

You can also use object type as a return value which we will see later in OOP section.

Java Method Overloading

- With method overloading, multiple methods can have the same name with different parameters.
- Multiple methods can have the same name as long as the number and/or type of parameters are different.

```
public class FunctionExcersizes {
    static double profit(double invest) {
        return invest * 0.05;
    }

    static double profit(int invest) {
        return (double) invest * 0.055;
    }

    public static void main(String[] args) {
        System.out.println(profit(3000.75));
        System.out.println(profit(3100));
    }
}
```

Complex functions/methods

Complex methods may consist loops conditionals and other function call.

Don't be shy to try out any concepts you learned before inside a function.

Function Excersise

Write a java function to calculate the average cgpa of the whole class while taking the individual cgpas as function parameters (or perhaps as an array!).
Write seperate function to calculate individual cgpa and use that to calculate average cgpa of the whole class.

THE END