

Using Methods

Writing your own methods

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Topics list

1. Quick Recap of method **terminology**:

- Return type
- Method names
- Parameter list

2. **Writing your own** methods:

- With no parameters
- With parameters
- That return data

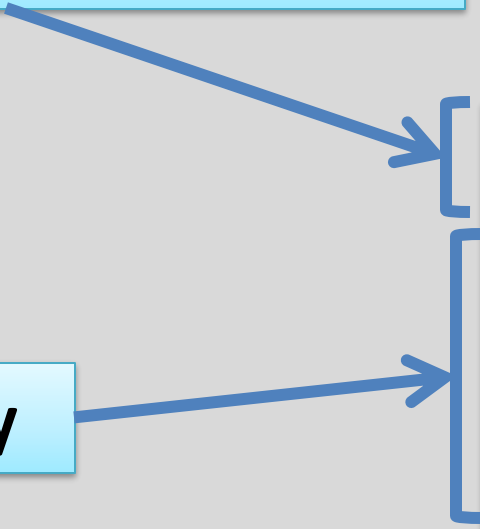
Recap: Methods in Processing

- A method is comprised of a **set of instructions that performs some task.**
- When we invoke **(call)** the method, it performs the task.
- Some methods we have used are:
 - **main** – (we write the code for main)
 - **print(), println()** – we call these methods

Recap: Method terminology

Method **signature** / header

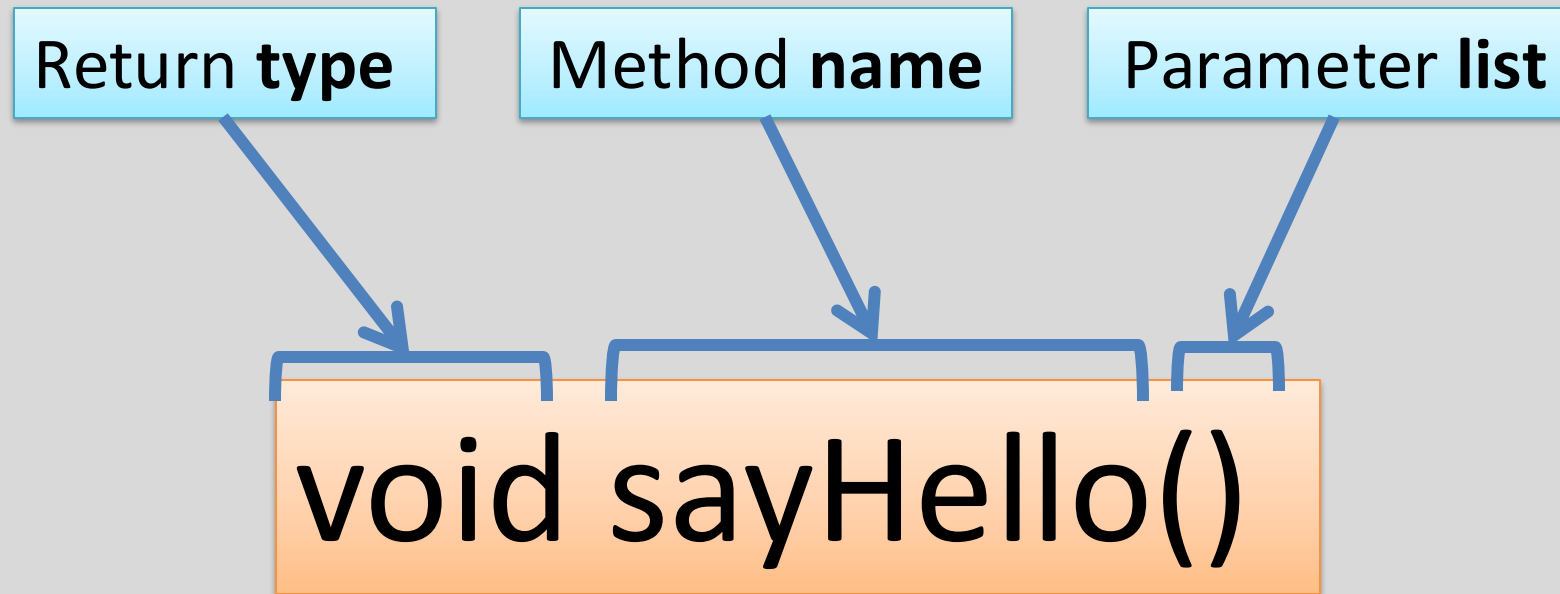
Method **body**



```
void sayHello()  
{  
    System.out.println("hello");  
}
```

The diagram illustrates the components of a Java method. A light blue box labeled 'Method signature / header' has an arrow pointing to the first line of the code example, 'void sayHello()'. Another light blue box labeled 'Method body' has an arrow pointing to the opening curly brace of the code example, '{'. The code example is contained within an orange box and shows a method named 'sayHello' that returns 'void' and prints 'hello' to the console.

Recap: Method signature




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2. **Writing your own** methods:

- 
- I. With no parameters
 - II. With parameters
 - III. That return data

Writing methods with NO parameters

```
Hello!
```

- Write a method that prints a hello message,
 - every time it is called (invoked) it will print the message.

Example 1

Hello!

Method definition

```
Driver x MethodExamples x
Compile Undo Cut Copy Paste Find... Close
1 public class MethodExamples
2 {
3     // 1. Method with NO parameter and NO return
4     public void sayHello(){
5         System.out.println("Hello!");
6     }
7 }
```

Create an instance of
the class

Method call

```
Driver x
Compile Undo Cut Copy Paste Find... Close
1 public class Driver
2 {
3     // main method to test all methods
4     public static void main(String[] args){
5         MethodExamples me = new MethodExamples();// create an object
6         // call method with no parameters, no return
7         me.sayHello();
8     }
9 }
```



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Writing methods with parameters

- Now update the code so that you can:

pass in a String to hold a name – this method will print a message using that name

```
Driver.main({ });  
Hello!  
Hello, Rory McIlroy, your age is 36 years old
```

Example 2

```
Driver.main({ });
```

Hello!

Hello, Rory McIlroy, your age is 36 years old

MethodExamples X

Compile

Undo

Cut

Copy

Paste

Find...

Close

```
1 public class MethodExamples
2 {
3     // 1. Method with NO parameter and NO return
4     public void sayHello(){
5         System.out.println("Hello!");
6     }
7     // 2. Method with PARAMETERS and NO return
8     public void greet(String name, int age){
9         System.out.println("Hello, " + name + ", your age is "
10             + age + " years old");
11     }
```

Driver X

Compile

Undo

Cut

Copy

Paste

Find...

Close

Source

```
1 public class Driver
2 {
3     // main method to test all methods
4     public static void main(String[] args){
5         MethodExamples me = new MethodExamples();// create an object
6         // 1.call method with no parameters, no return
7         me.sayHello();
8         // 2.call method with parameter / no return
9         me.greet("Rory McIlroy", 36);
10     }
11 }
```



Using Scanner

Example 3

```
Driver.main({ });
```

Hello!

Hello, Rory McIlroy, your age is 36 years old

Enter your name:

Calean Doris

Enter your age:

27

Hello, Calean Doris, your age is 27 years old

MethodExamples X

Compile

Undo

Cut

Copy

Paste

Find...

Close

```
1 public class MethodExamples
2 {
3     // 1. Method with NO parameter and NO return
4     public void sayHello(){
5         System.out.println("Hello!");
6     }
7     // 2. Method with PARAMETERS and NO return
8     public void greet(String name, int age){
```

Driver X

Compile

Undo

Cut

Copy

Paste

Find...

Close

Source Code

```
1 import java.util.Scanner;
2
3 public class Driver
4 {
5     // main method to test all methods
6     public static void main(String[] args){
7         Scanner input = new Scanner(System.in); // create the scanner object
8         MethodExamples me = new MethodExamples();// create the 'me' object.
9         // 1.call method with no parameters, no return
10        me.sayHello();
11        // 2.call method with parameter / no return
12        me.greet("Rory McIlroy", 36);
13        //3. call method using input data
14        System.out.println("Enter your name: ");
15        String name = input.nextLine();
16
17        System.out.println("Enter your age: ");
18        int age = input.nextInt();
19
20        me.greet(name, age);
21    }
```

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Writing methods that return data

- Write a method called **timesTwo**.
- This method should
 - take in one **int** parameter.
 - multiply this **int** by 2 and
 - **return** it back to where the **timesTwo** method was called from.
 - The returned value should be **printed to the console**.

Example 3.4

Alternative implementations of **timesTwo**:

```
int timesTwo(int val){  
    val = 2 * val;  
    return val;  
}
```

```
int timesTwo(int val){  
    val *= 2;  
    return val;  
}
```

```
int timesTwo(int val){  
    return val *= 2;  
}
```

```
public class MethodExamples { 2 usages  
    // 1 Method with NO parameters and NO return  
    public void sayHello() { 1 usage  
        System.out.println("Hello!");  
    }  
    // 2 Method with PARAMETERS and NO return  
    public void greet(String name, int age) { 1 usage  
        System.out.println("Hello, " + name + ", you are "  
            + age + " years old.");  
    }  
    // 3 Method with PARAMETERS and WITH return  
    public int timesTwo(int a) { 1 usage  
        return a * 2;  
    }  
}
```

```
public class Driver {  
    // Main method to test them all  
    public static void main(String[] args) {  
        MethodExamples me = new MethodExamples(); //create an object  
        // 1 Call method with no parameters / no return  
        me.sayHello();  
        // 2 Call method with parameter / no return  
        me.greet(name: "Mairead", age: 21);  
        // 3 Call method with parameters / with return  
        int sum = me.timesTwo(a: 5);  
        System.out.println("5 * 2 = " + sum);  
    }  
}
```

Questions?

