Lecture #3

Methods

Methods

```
public static void main(String[] arguments)
{
    System.out.println("hi");
}
```

Adding Methods

public static void ***NAME***() {

    STATEMENTS

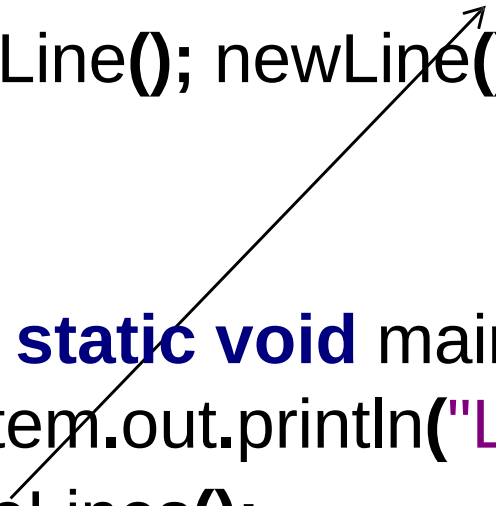
}

To call a method:

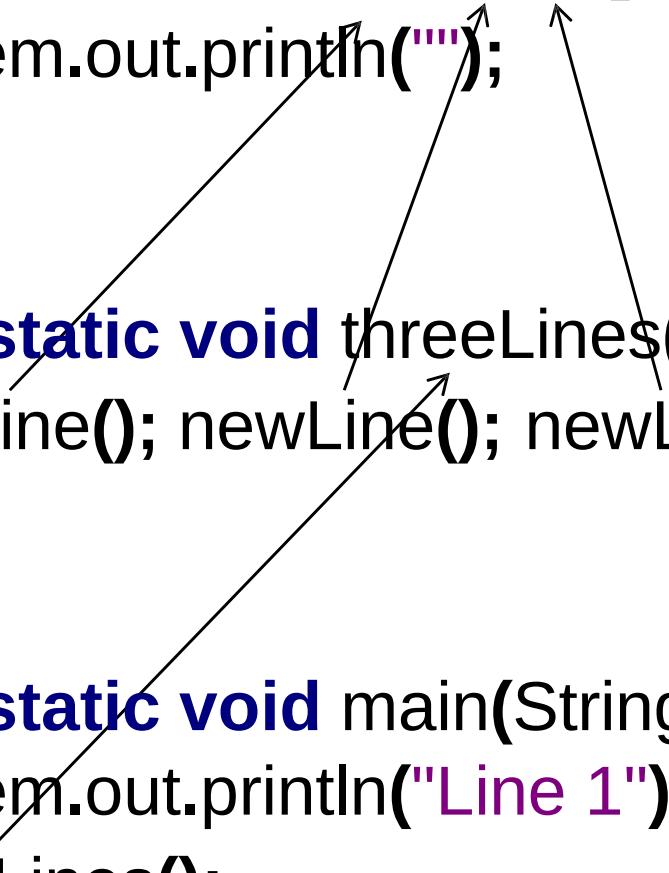
```
NAME();
```

```
class NewLine {
    public static void newLine() {
        System.out.println("");
    }

    public static void threeLines() {
        newLine(); newLine(); newLine();
    }

    public static void main(String[] arguments) {
        System.out.println("Line 1");
        threeLines();
        System.out.println("Line 2");
    }
}
```

```
class NewLine {
    public static void newLine() {
        System.out.println("");
    }

    public static void threeLines() {
        newLine(); newLine(); newLine();
    }

    public static void main(String[] arguments) {
        System.out.println("Line 1");
        threeLines();
        System.out.println("Line 2");
    }
}
```



```
class NewLine {
    public static void newLine() {
        System.out.println("");
    }

    public static void threeLines() {
        newLine(); newLine(); newLine();
    }

    public static void main(String[] arguments) {
        System.out.println("Line 1");
        threeLines();
        System.out.println("Line 2");
    }
}
```



Parameters

public static void ***NAME***(***TYPE NAME***) {

    STATEMENTS

}

To call:

```
NAME(EXPRESSION);
```

```
class Square {
    public static void printSquare(int x) {
        System.out.println(x*x);
    }

    public static void main(String[] arguments) {
        int value = 2;
        printSquare(value);
        printSquare(3);
        printSquare(value*2);
    }
}
```

```
class Square2 {
    public static void printSquare(int x) {
        System.out.println(x*x);
    }

    public static void main(String[] arguments) {
        printSquare("hello");
        printSquare(5.5);
    }
}
```

What's wrong here?

```
class Square3 {
    public static void printSquare(double x) {
        System.out.println(x*x);
    }

    public static void main(String[] arguments) {
        printSquare(5);
    }
}
```

What's wrong here?

Multiple Parameters

[…] ***NAME***(***TYPE NAME***, ***TYPE NAME***) {

    STATEMENTS

}

To call:

```
NAME(arg1, arg2);
```

```
class Multiply {
    public static void times (double a, double b) {
        System.out.println(a * b);
    }

    public static void main(String[] arguments) {
        times (2, 2);
        times (3, 4);
    }
}
```

Return Values

public static ***TYPE NAME***() {

    STATEMENTS

    return ***EXPRESSION;***

}

`void` means “no type”

```
class Square3 {
    public static void printSquare(double x) {
        System.out.println(x*x);
    }

    public static void main(String[] arguments) {
        printSquare(5);
    }
}
```

```
class Square4 {
    public static double square(double x) {
        return x*x;
    }

    public static void main(String[] arguments) {
        System.out.println(square(5));
        System.out.println(square(2));
    }
}
```

LAB#3-1

Create subtract, multiply and divide methods more and use them in the main method

```
public class Sum {
	static int sum(int a, int b) {
		return a+b;
	}
	public static void main(String[] args) {
		int a = sum(1,3);

		System.out.println(a);
	}
}
```

Methods: Building Blocks

- Big programs are built out of small methods
- Methods can be individually developed, tested and reused
- User of method does not need to know how it works
- In Computer Science, this is called “*abstraction*”

Questions?

These slides are from:

- **6.092 Introduction to Programming in Java, January (IAP) 2010, MIT OpenCourseWare http://ocw.mit.edu**