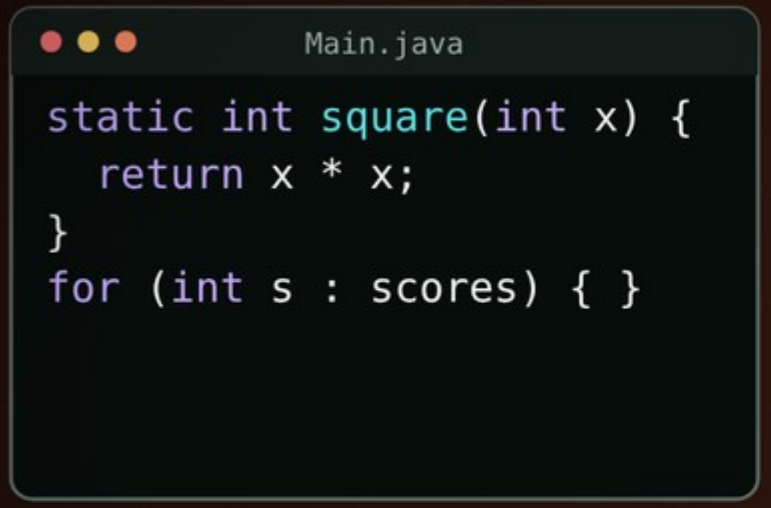
LESSON 4



Java

Methods & Arrays

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JAVA PROGRAMMING

LESSON 4

Methods and Arrays

Static methods, parameters, overloading, arrays and the enhanced for loop

Defining Methods

MathUtil.java

```
static int square(int x) {
    return x * x;
}
static void greet(String name) {
    System.out.println("Salaam, " + name);
}
square(7);        // 49
greet("Zahra");
```

- A method has a return type, a name and typed parameters. void means it returns nothing. …
- Give methods verb names that say what they do, like calculateAverage.

01

Pass by Value



- Java always passes a copy of the value. For primitives, the method gets its own copy of the …
- For objects, the copy is a reference, so the method can change the object's contents, but …

02

Overloading

Area.java

```
static double area(double r) {
    return Math.PI * r * r;            // circle
}
static double area(double w, double h) {
    return w * h;                      // rectangle
}
area(1.0);        // 3.14159...
area(3, 4);       // 12.0
```

- Several methods can share a name if their parameter lists differ. Java picks the right one …
- println itself is overloaded for int, double, String and more.

03

Arrays

Main.java

```
int[] scores = {90, 85, 77, 92};
scores.length   // 4
scores[4]       // exception!
```



- An array holds a fixed number of values of one type. Index from zero, and dot length gives …
- Going past the end throws ArrayIndexOutOfBoundsException instead of silently corrupting …

04

Enhanced for and Arrays Utilities

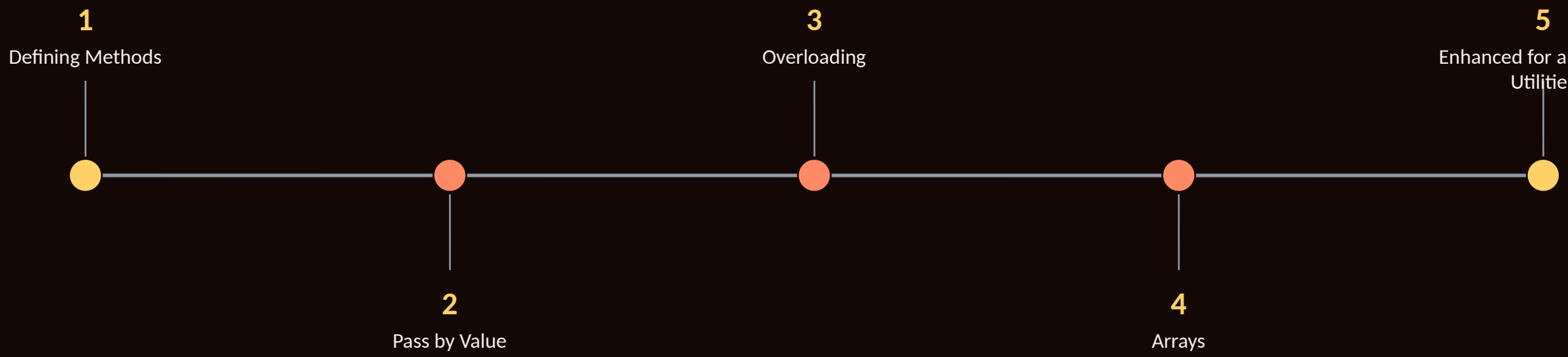
Scores.java

```
int total = 0;
for (int s : scores) {
    total += s;
}
Arrays.sort(scores);
System.out.println(Arrays.toString(scores));  // [77, 85, 90, 92]
int[][] grid = new int[3][3];
grid[1][1] = 5;
```

- The enhanced for loop visits every element without an index. The Arrays class sorts, …
- Two-dimensional arrays are arrays of arrays, useful for grids and tables.

05

Lesson Map


1
Defining Methods
2
Pass by Value
3
Overloading
4
Arrays
5
Enhanced for and Arrays Utilities

Sources and Further Reading

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Thank you for watching

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