# Session Goals

- User should be able to write conditional statements in Java, focusing on their correct/incorrect syntax.
- User should be able to use relational operators inside conditional statements easily.
- User should understand the meaning/importance of syntax (curly braces, semicolons etc).
- User should be able to debug syntax errors on their own.
- User should be able to define functions with correct parameter types and return types.
- User should be able to call functions and store values returned from it in variables.
- User should be able to trace the flow of a function call/invocation.

Session 2

# Conditionals and Methods in Java

# Session Agenda

- Relational Operators
- Conditional Statements
- Functions (Definition, Invocation)
- Passing parameters to a function
- Returning values from a function
- Introduction to Crio Java Platform

# Comparison or Relational Operators

| Operators | Meaning | Example | Result |
|---|---|---|---|
| < | Less than | 5<2 | False |
| > | Greater than | 5>2 | True |
| <= | Less than or equal to | 5<=2 | False |
| >= | Greater than or equal to | 5>=2 | True |
| == | Equal to | 5==2 | False |
| ! = | Not equal to | 5! =2 | True |

**“==”** not to be mistaken with **“=”**

**Equal to**

**Variable assignment**

# The If-else statement

The if statement is used to specify a block of code to be executed if a condition is true.

The else statement to specify a block of code to be executed if the condition is false.

**Syntax**:

```
if (condition) {
  //  block of code to be executed if the condition is true
} else {
  //  block of code to be executed if the condition is false
}
```

**Example:**

```
if (hour < 18) {
  greeting = "Good day";
} else {
  greeting = "Good evening";
}
```

# Dry Run of If-Else Statement

Dry Run the code snippet below and guess the output -

```
int  n = 29;
if (n%2 == 0) {
   System.out. println(n + " is an even Number");
} else {
   System.out. println(n + " is an odd Number");
}
```

# Recap - 6 Step Strategy

1. ***Understand the problem*** *(ask questions and get clarity)*
2. ***Design test data/test cases*** *(input and expected output)*
3. ***Derive the solution - solve the problem*** *(write pseudo code)*
4. ***Test the solution*** *(against the test data/case - dry run)*
5. ***Write the program/code*** *(using Java here)*
6. ***Test the code*** *(syntax errors, run time errors, logical errors)*

# Activity: Find largest of two numbers

Write a java program to find the largest of takes two numbers a and b and parameters and return the largest one.

Link (Focus on writing the code and using “Run Code” to get output, there is no assessment yet!)

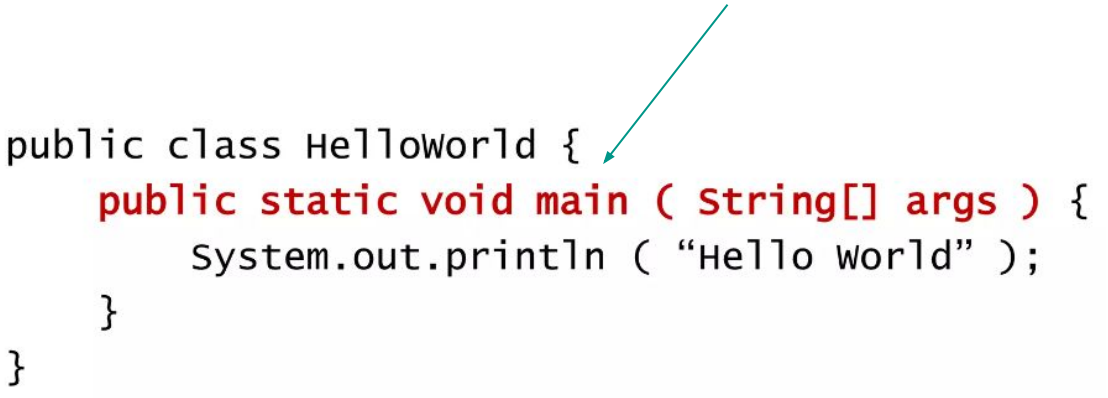
***What will be your approach to the problem? (Step 3)***

*Quickly put your answers in the chat!*

# Methods in Java

- In Java, a method is a block of code designed to perform a specific task. It's similar to a function in other programming languages.

**main** is a method here



# Methods Syntax in Java

**Access Specifier (public):** Determines who can access the method. public means any class can call the method.

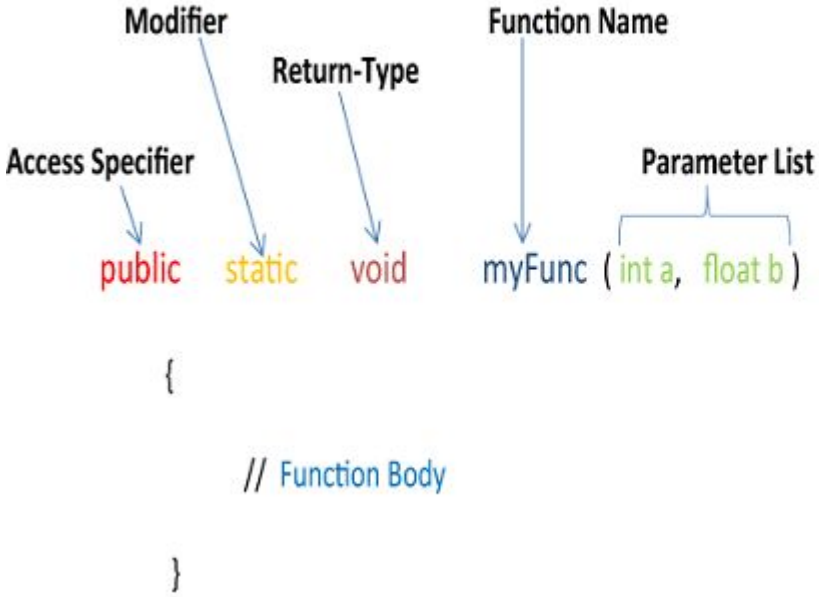
**Modifier (static):** Specifies additional information about the method. static means it belongs to the class, not instances of the class.

**Return-Type (void):** Indicates what type of value the method will return. void means it returns no value.

**Function Name (myFunc):** The identifier that is used to call the method. Should be descriptive of what the method does.

**Parameter List (int a, float b):** The input the method accepts, with types and variable names specified. Parameters are optional; a method can have none.

**Function Body:** The block of code that defines what the method does. It contains all the logic and statements.




**Note**: The void keyword specifies that a method should not have a return value.

# Function Definition and Invocation in Java

```java
public class Solution {
    // Method Definition
    public static void greet() {
        System.out.println("Hello There");
    }

    public static void main(String[] args) {
        // Calling a method/Invocation
        greet();
    }
}
```

- A method in Java is defined within a **class** and **begins with an access modifier**, followed by the **return type**, the **method name**, and a **pair of parentheses** which can contain **parameters**.
- The **body of function** is written within **{}**

# Activity: Printing name on console

Write a function which takes firstName and lastName as parameters and returns fullName and print it on console.

Link (Clear your code from last exercise)

***What will be your approach to the problem? (Step 3)***

*Quickly put your answers in the chat!*

# 5 minute break

# Java return keyword

```
public class Main {
  static int myMethod(int x) {
    return 5 + x;
  }

  public static void main(String[] args) {
    System.out.println(myMethod(3));
  }
}
// Outputs 8 (5 + 3)
```

The `return` keyword finishes the execution of a method, and can be used to return a value from a method.

# Activity: Square of a Number

Write a function to return the square of a number and print it on console.

Link (Clear your code from last exercise)

***What will be your approach to the problem? (Step 3)***

*Quickly put your answers in the chat!*

# Introduction to Crio IDE to write Java code with Assessment

Write a java program to find sum of two numbers.

Link

***What will be your approach to the problem? (Step 3)***

*Quickly put your answers in the chat!*

# Debrief: Methods/Functions

- A **method/function** is a **sub-program (block of code to perform a specific task)** that can be **executed as required** and **any number of times** within a larger program.
- The set of instructions that a function executes is called the **Function Definition.**
- Once you write a function, we can call that function into action by using its name - **Function Call** or **Function Invocation**.
- Inputs passed to the Function are called **Function Parameters**.
- Functions can be **parameterized** or **non-parameterized** functions.

One of the main purpose of function is **code Reusability.**

# Summary

- A method in Java is defined within a class and begins with an access modifier, followed by the return type, the method name, and a pair of parentheses which can contain parameters.
- Methods can receive input data through parameters when called.
- Methods can provide output values using the return statement.
- The void keyword specifies that a method should not have a return value.

# Quiz Time!

# Question 1

Which block is executed if the condition provided is true?

- if block
- else block

# Question 2

Parameters in a method are mandatory. True or False?

- True
- False

# Question 3

The ___ keyword finishes the execution of a method, and can be used to yield a value from a method

- break;
- continue;
- return;
- yield;

# Question 4

Which modifier is used to specify that the method will not yield a value at the end of execution?

- void
- static
- final
- abstract

# Thank you!