DSA

Java
- Printing
- Conditionals
- Looping

} If you are just starting out

Printing

```
System.out.println("Let's goooo...");
```

Output:

Let's goooo...

Anything provided here in double quotes (" ") will be printed as it is.

```
System.out.println("One");
System.out.println("2+3");
System.out.println("5<6");
```

Output:

One
2+3
5<6

println vs print

println → Prints the output and leaves the cursor in the next line. Next output hence will be printed from the next line.

print → Will leave the cursor in the same line.

Main.java

```java
public class Main {
    public static void main(String[] args) {
        System.out.println("Next output will be printed in nextline");
        System.out.println("This should be printed in nextline");
    }
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS C:\Users\jitma\OneDrive\Desktop\Temp> javac Main.java
PS C:\Users\jitma\OneDrive\Desktop\Temp> java Main
Next output will be printed in nextline
This should be printed in nextline
PS C:\Users\jitma\OneDrive\Desktop\Temp>
```

Main.java

```java
public class Main {
    public static void main(String[] args) {
        System.out.print("Next output will be printed in same line. ");
        System.out.print("This should be printed in same line");
    }
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS C:\Users\jitma\OneDrive\Desktop\Temp> javac Main.java
PS C:\Users\jitma\OneDrive\Desktop\Temp> java Main
Next output will be printed in same line. This should be printed in same line
PS C:\Users\jitma\OneDrive\Desktop\Temp>
```

Operators

Arithmetic Operators

Arithmetic operators are used to perform common mathematical operations.

Operator	Name	Description	Example
+	Addition	Adds together two values	x + y
-	Subtraction	Subtracts one value from another	x - y
*	Multiplication	Multiplies two values	x * y
/	Division	Divides one value by another	x / y
%	Modulus	Returns the division remainder	x % y

2 + 5 = 7
8 - 3 = 5
3 * 5 = 15
} same as common maths

5/3 [integer division will result in loss of decimal part)

5/3 = 1

Modulo operator → remainder when a is devided by b

Usage:

a %. b → returns remainder

10 %. 3 = 1

3 %. 3 = 0

5 %. 3 = 2

45 %. 100 = 45

452 %. 10 = 2

-28 %. 3 = -1

Comparison Operator

Operator	Name	Example
==	Equal to	x == y
!=	Not equal	x != y
>	Greater than	x > y
<	Less than	x < y
>=	Greater than or equal to	x >= y
<=	Less than or equal to	x <= y

a operator b → Produces binary output, true or false based on condⁿ.

Main.java

```java
public class Main {
    public static void main(String[] args) {
        System.out.println(3 < 4);
        System.out.println(5 <= 5);
        System.out.println((3 * 2) == 9);
        System.out.println(4 != (2 * 2));
        System.out.println(56 >= 12);
        System.out.println(45 != (45 % 100));
    }
}
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS C:\Users\jitma\OneDrive\Desktop\Temp> javac Main.java
PS C:\Users\jitma\OneDrive\Desktop\Temp> java Main
true
true
false
false
true
false
PS C:\Users\jitma\OneDrive\Desktop\Temp>
```

Variables

Why can't we just hardcode values?

↳ VARIABLES ARE CONTROLLABLE

Datatypes

byte, Short, int, long } 1, 3, 46, -72, 42976

boolean → true / false

Char → 'a', '7', '*', '$', '&'

float, double } 32.7 64.0 -9.8

↳ Different Size (You don't have to memorize that as of now)

Range is calculated using size of a particular datatype

$2^{bits} - 1$

Note: Concept of range will be covered again in depth later