

DSA

Java

- ↳ Printing
- ↳ Conditionals
- ↳ Looping

} If you are just starting out

Printing

System.out.println("Let's gooo...");

Output:
Let's gooo...

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.



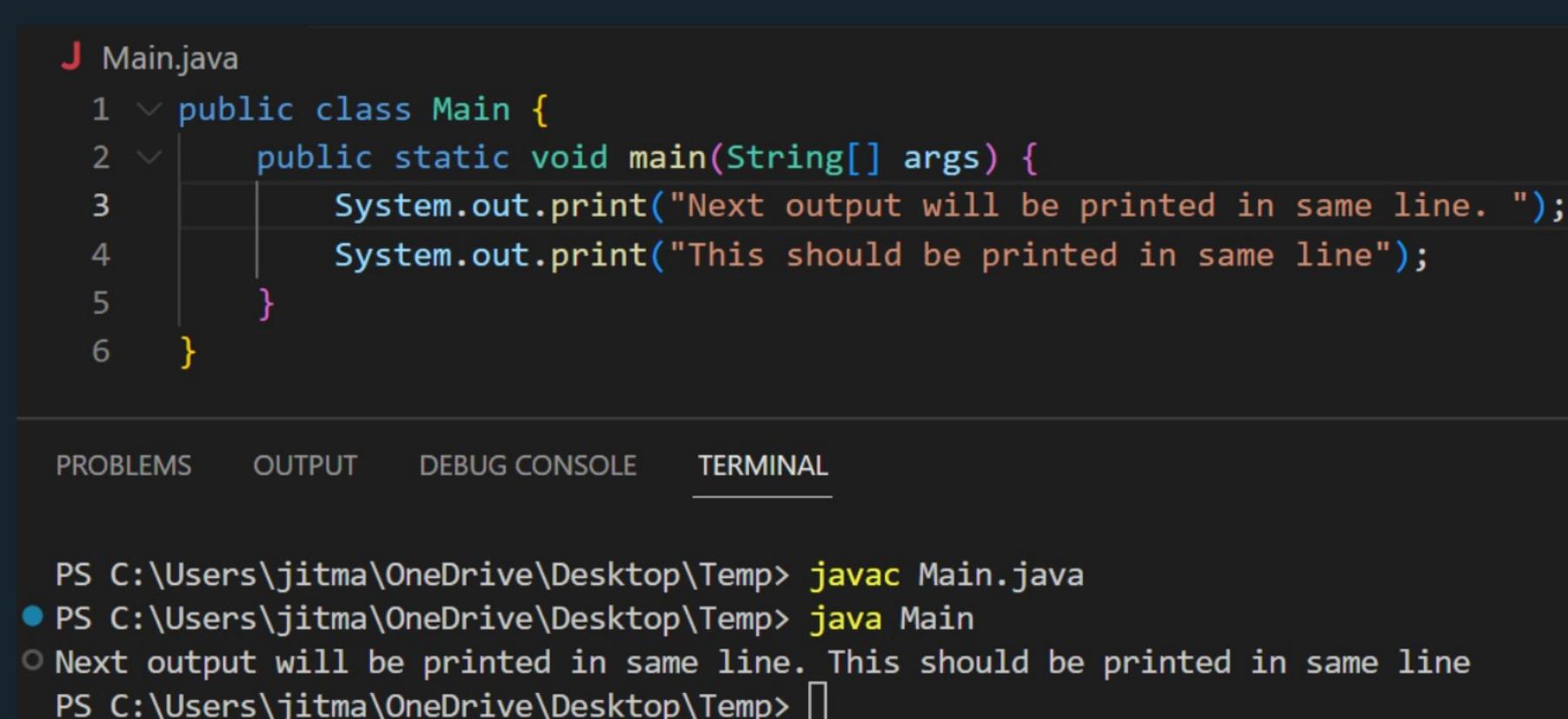
```

J Main.java X

J Main.java
1 public class Main {
2     public static void main(String[] args) {
3         System.out.println("Next output will be printed in newline");
4         System.out.println("This should be printed in newline");
5     }
6 }
```

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 newline
This should be printed in newline
- PS C:\Users\jitma\OneDrive\Desktop\Temp> []



```

J Main.java
1 public class Main {
2     public static void main(String[] args) {
3         System.out.print("Next output will be printed in same line. ");
4         System.out.print("This should be printed in same line");
5     }
6 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

- PS C:\Users\jitma\OneDrive\Desktop\Temp> `javac Main.java`
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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	$x \% y$

$$\begin{aligned} 2 + 5 &= 7 \\ 8 - 3 &= 5 \\ 3 * 5 &= 15 \end{aligned} \quad \left. \begin{array}{l} \text{Same as common maths} \\ \text{part) } \end{array} \right\}$$

$5/3$ [integer division will result in loss of decimal part)
 $5/3 = 1$
Modulo operator \rightarrow remainder when a is devideed by b

Usage:

$a \% b \rightarrow$ returns remainder

$$10 \% 3 = 1$$

$$3 \% 3 = 0$$

$$5 \% 3 = 2$$

$$46 \% 100 = 46$$

$$452 \% 10 = 2$$

$$-28 \% 3 = -1$$

Comparison Operator



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

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

J Main.java

```
1 public class Main {
2     public static void main(String[] args) {
3         System.out.println(3 < 4);
4         System.out.println(5 <= 5);
5         System.out.println((3 * 2) == 9);
6         System.out.println(4 != (2 * 2));
7         System.out.println(56 >= 12);
8         System.out.println(45 != (45 % 100));
9     }
10 }
```

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

Data types

byte }
short } 1, 3, 45, -72, 42976
int
long }

char → 'a', '7',
'*', '!', '&'

boolean → true/false

float } 32.7 64.0
double } -9.8

↳ Different size (you don't have to memorize that
as of now)

Range is calculated using size of a particular datatype

$$2^{\text{bits-1}} - 1$$

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

Variables

`int a = 5;` } Declaration and assignment
`int b = -4;` } -ment in the same line

`int c;` → Declaration

`c = 72;` → Assignment

`double x = 72.0;`

`x = 73.4;` ← value will be update

Main.java

```

1  public class Main {
2      public static void main(String[] args) {
3          int a = 6;
4          int b;
5          b = 32;
6          System.out.println(a);
7          System.out.println(b);
8      }
9 }
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

```

PS C:\Users\jitma\OneDrive\Desktop\Temp> javac Main.java
● PS C:\Users\jitma\OneDrive\Desktop\Temp> java Main
6
32
○ PS C:\Users\jitma\OneDrive\Desktop\Temp> 
```

Inputs

```
Scanner scn = new Scanner(System.in);
```

```
int a = scn.nextInt();
```

```
double d = scn.nextDouble();
```

↳ assignment operator

↳ right hand side will be resolved first

then it'll be saved in the variable on
the left hand side

J Main.java X

J Main.java

```
1 import java.util.*;
2 public class Main {
3     public static void main(String[] args) {
4         Scanner scn = new Scanner(System.in);
5         int a = scn.nextInt();
6         double b = scn.nextDouble();
7         System.out.println(a + b);
8     }
9 }
```

PROBLEMS

OUTPUT

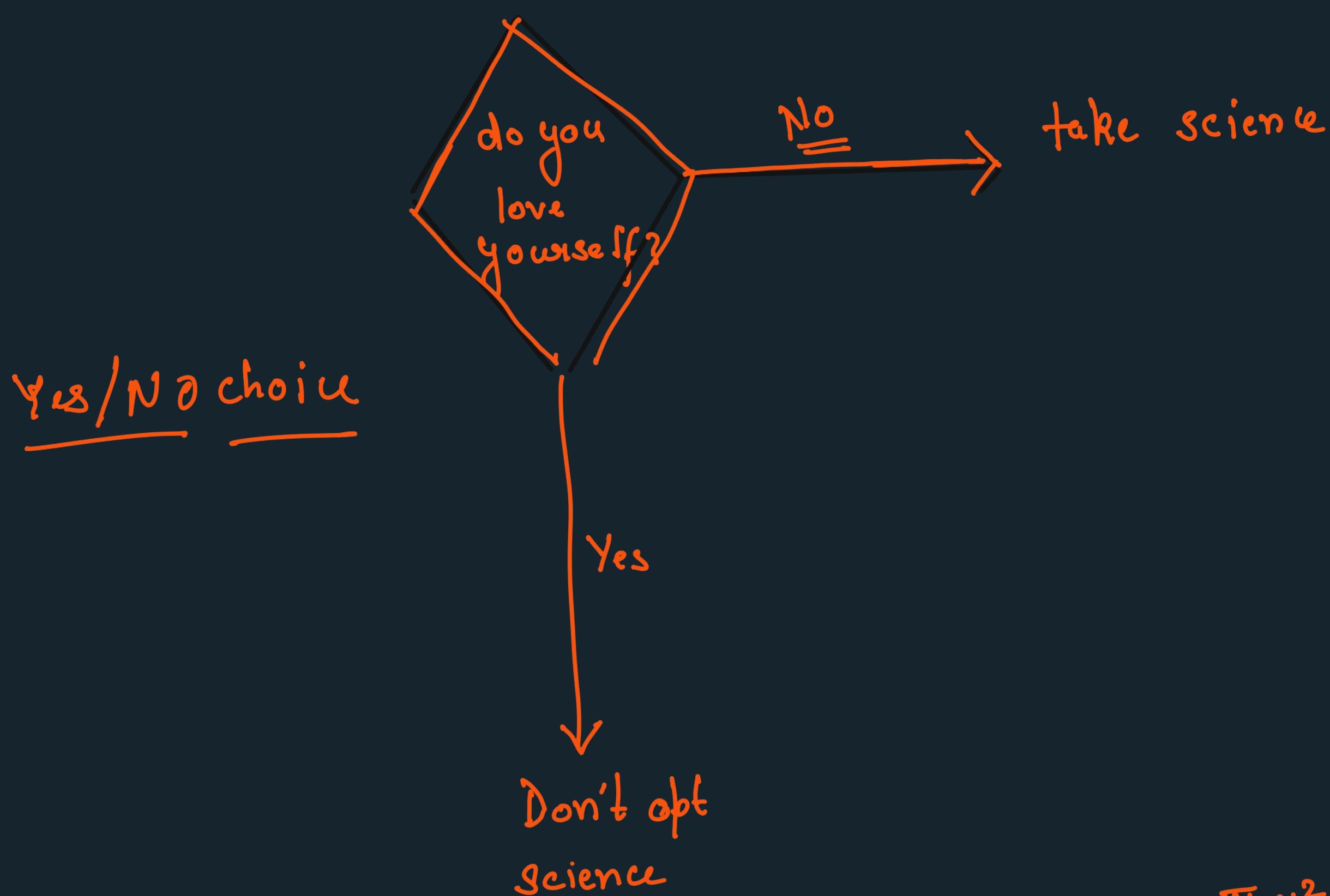
DEBUG CONSOLE

TERMINAL

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

● PS C:\Users\jitma\OneDrive\Desktop\Temp> java Main

Conditionals



$$\frac{\pi r^2}{L_s d/2}$$

