

Welcome to the **Java** **Course**

Module 1 – Day 02

Content of the course

- Introduction to programming
 - Basic programming concepts
 - Variables and Data Types
 - **Conditionals**
 - Loops
 - Control Structures
 - Introduction to algorithms
- Day 1
- Day 2
- Day 3
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Project Students - Step 1

The program should print the requested information plus the student's age.

Output:

For now, we don't take month and day into account for the calculation.

To get the current year:

```
LocalDate today = LocalDate.now();  
int currentYear = today.getYear();
```

```
Enter first name: Ana  
Enter last name: Gaggero  
Enter birthday (day of month): 22  
Enter birth month: 10  
Enter birth year: 1982  
Enter course registered: Java
```

```
Student Name: Ana Gaggero  
Date of Birth: 22/10/1982  
Age: 42  
Course Registered: Java
```

Project Tic Tac Toe - Step 1

- Ask the names of both players
- Print the board before the first move

```
What is your name Player 1? Ana
What is your name Player 2? Juan

Ana will be X and Juan will be O

 1 | 2 | 3
 4 | 5 | 6
 7 | 8 | 9
```

CONSTANT

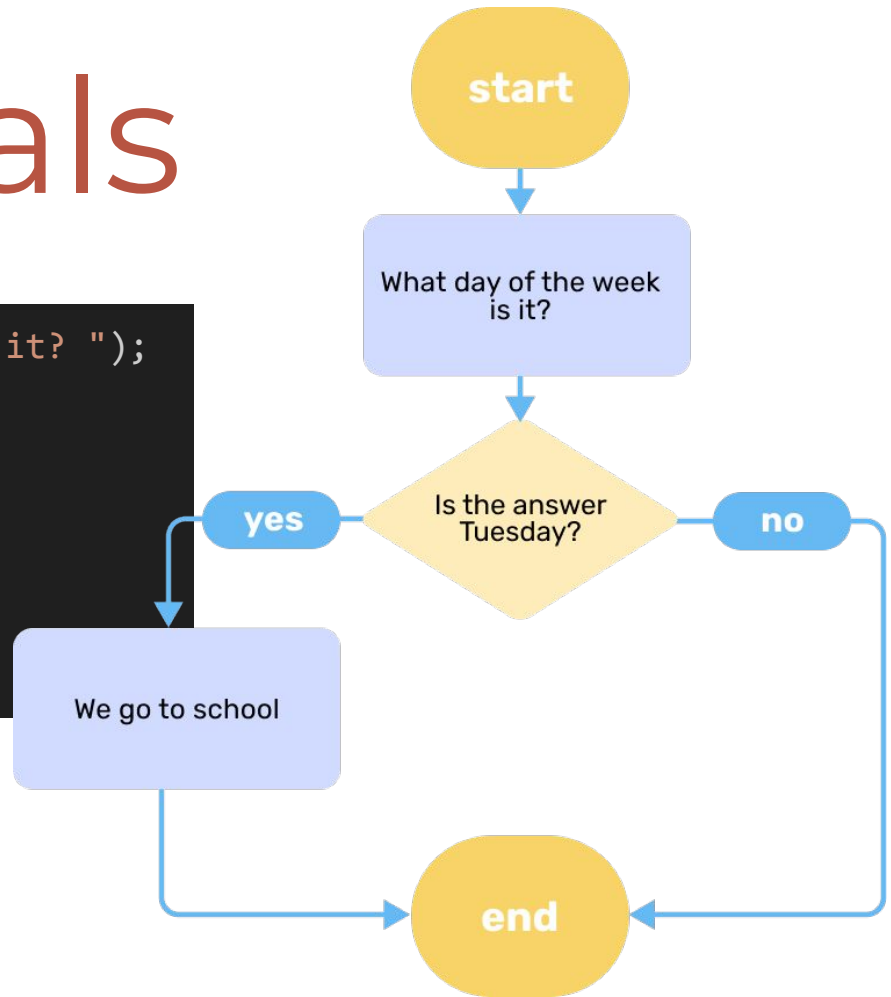
Values that are used multiple times or are significant.

```
1 final int MAX_STUDENTS = 50;
```

Conditionals

Conditionals

```
System.out.print("What day of the week is it? ");  
Scanner scanner = new Scanner(System.in);  
String day = scanner.nextLine();  
if (day.equals("Tuesday")) {  
    System.out.println("We go to school");  
}
```



Conditionals

When you want to verify a statement, you can use **if** **else**

```
1 int number = scanner.nextInt();  
2  
3 // Check if the number is positive, negative, or zero  
4 if (number > 0) {  
5     System.out.println("The number is positive.");  
6 } else if (number < 0) {  
7     System.out.println("The number is negative.");  
8 } else {  
9     System.out.println("The number is zero.");  
10 }
```


Comparison operators

<

Less than

>

Greater than

<=

Less than or equal to

>=

Greater than or equal to

==

Equality

!=

Inequality

Conditional exercises

What is the output?

```
1 int a = 6, b = 2, c = 5;  
2 if (a < b * c) {  
3     System.out.print("Hello");  
4     System.out.print(" There");  
5 }
```

Conditional exercises

Hello There

```
1 int a = 6, b = 2, c = 5;
2 if (a < b * c) {
3     System.out.print("Hello");
4     System.out.print(" There");
5 }
```

Conditional exercises

What is the output?

```
1 int a = 6, b = 2, c = 5;  
2 if (a > b * c)  
3     System.out.print("Hello");  
4     System.out.print(" There");
```

Conditional exercises

There

```
1 int a = 6, b = 2, c = 5;  
2 if (a > b * c)  
3     System.out.print("Hello");  
4     System.out.print(" There");
```

Now YOUR TURN !

Let's do exercises number 1

Nested Conditionals

```
1 // Check age group
2 if (age < 18) {
3     System.out.println("You are a minor.");
4 } else {
5     if (age < 65) {
6         System.out.println("You are an adult.");
7     } else {
8         System.out.println("You are a senior.");
9     }
10 }
```

Now YOUR TURN !

Let's do exercises number 2

Switch

Often we want to execute a different portion of code according to a specific value. Of course we can check the value using **if-else**, but if we want only check the value, that can be multiple options, the best choice is **switch**.

Switch

Using **switch** we can check a value and execute the correct portion of code according to the case we have:

```
switch(value) {  
    case 1: // Code to be executed  
}
```

Switch

```
1 String dayName;
2 switch (day) {
3     case 1: dayName = "Monday";
4     break;
5     case 2: dayName = "Tuesday";
6     break;
7     case 3: dayName = "Wednesday";
8     break;
9     case 4: dayName = "Thursday";
10    break;
11    case 5: dayName = "Friday";
12    break;
13    case 6: dayName = "Saturday";
14    break;
15    case 7: dayName = "Sunday";
16    break;
17    default: dayName = "Invalid day";
18    break;
19 }
```

Now YOUR TURN !

Let's do exercises number 3

String operations

.toLowerCase()

```
String str = "HeLo";  
String lowercase = str.toLowerCase();
```

String operations

.toUpperCase()

```
String str = "HeLo";  
String uppercase = str.toUpperCase();
```

String operations

.equals()

```
String str1 = "HeLo";  
String str2 = "Hello";  
  
if (str1.equals(str2)  
    System.out.println(str1 + " equals " + str2);  
else  
    System.out.println(str1 + " is not equal to " + str2);  
  
// the result is false
```

String operations

`.equalsIgnoreCase()`

```
String str1 = "HeLo";  
String str2 = "Hello";  
  
if (str1.equalsIgnoreCase(str2)  
    System.out.println(str1 + " equals " + str2);  
else  
    System.out.println(str1 + " is not equal to " + str2);
```


String operations

.contains()

```
String str = "HeLo";

if (str.contains("H"))
    System.out.println(str + " contains H");
else
    System.out.println(str + " does not contain H ");

// The result is true
```

String operations

.startsWith()

```
String str = "HeLo";

if (str.startsWith("H"))
    System.out.println(str + " starts with H");
else
    System.out.println(str + " does not start with H ");

// The result is true
```

String operations

`.endsWith()`

```
String str = "HeLo";

if (str.endsWith("H"))
    System.out.println(str + " ends with H");
else
    System.out.println(str + " does not end with H ");

// The result is false
```

String operations

.length()

```
String str = "This is my string.";
System.out.println("The string is " + str.length() +
    " characters long.");
```

Now YOUR TURN !

Let's do exercises number 4

Project Students - Step 2

- If the user enters a birth year in the future, request the birth year again.
- Fix the program to take into account the birth day and month to calculate the student's age.
- Update the date of birth to be displayed using the name of the month.

Project Students - Step 2

```
Enter first name: Ana  
Enter last name: Gaggero  
Enter birthday (day of month): 22  
Enter birth month: 10  
Enter birth year: 1982  
Enter course registered: Java
```

```
Student Name: Ana Gaggero  
Date of Birth: 22 October 1982  
Age: 41  
Course Registered: Java
```

Project Tic Tac Toe - Step 2

After printing the board, ask the first player to choose a move, then print the board again with the player's choice marked with an X

```
What is your name Player 1? Ana  
What is your name Player 2? Juan
```

```
Ana will be X and Juan will be O
```

```
1 | 2 | 3  
4 | 5 | 6  
7 | 8 | 9
```

```
Ana choose your move: 5
```

```
1 | 2 | 3  
4 | X | 6  
7 | 8 | 9
```