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.

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();
```

Output:

```
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

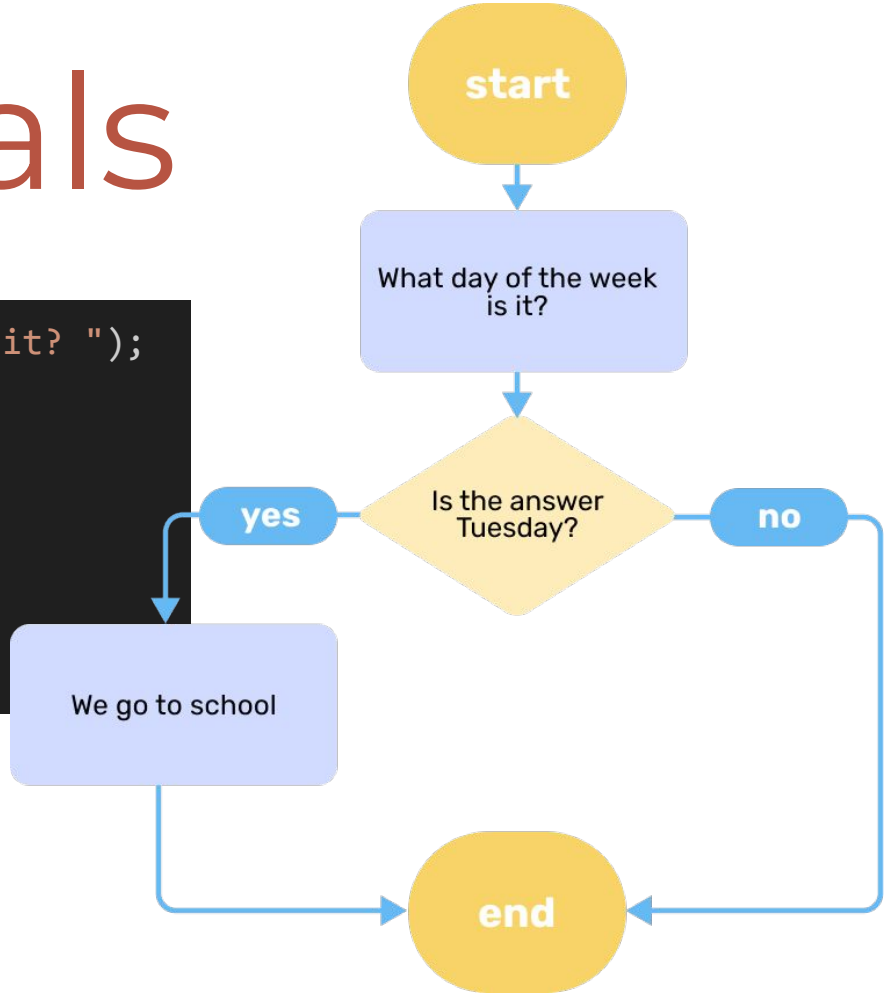
Values that are used multiple times or are significant.

```
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**

```java
int number = scanner.nextInt();

// Check if the number is positive, negative, or zero
if (number > 0) {
  System.out.println("The number is positive.");
} else if (number < 0) {
  System.out.println("The number is negative.");
} else {
  System.out.println("The number is zero.");
}
```

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 the value 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

```
String dayName;
switch (day) {
    case 1: dayName = "Monday";
    break;
    case 2: dayName = "Tuesday";
    break;
    case 3: dayName = "Wednesday";
    break;
    case 4: dayName = "Thursday";
    break;
    case 5: dayName = "Friday";
    break;
    case 6: dayName = "Saturday";
    break;
    case 7: dayName = "Sunday";
    break;
    default: dayName = "Invalid day";
    break;
}
```

Now YOUR TURN !

Let’s do exercises number 3

String operations

.toLowerCase()

```
String str = "HeLo";
String lowercase = str1.toLowerCase();
```

String operations

`.toUpperCase()`

```
String str = "HeLo";
String uppercase = str1.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.stratsWith("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
```