Programming language
Java 01

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Preparation

Input	→	Process	→	Output

Given the following number series: 10, 5, 3, 8, 18, 55, 19, -10, -12, 8, -7, 30, 12, 18, 33, 34, 24

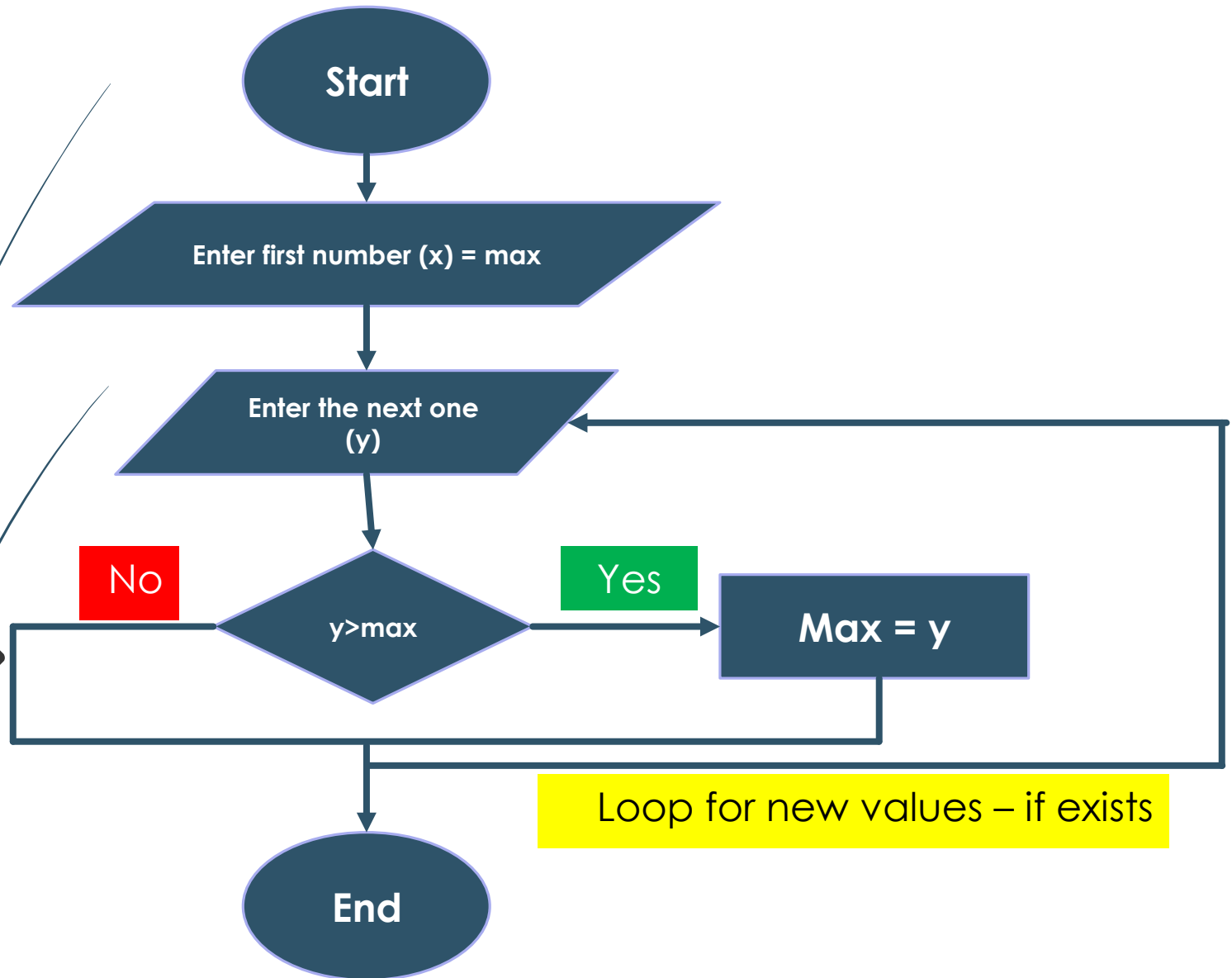What are the processes of getting:

- Maximum number

- Minimum number

- Cumulative sum

- Average

* Divide and conquer strategy

Algorithm

1. **Start the program**

2. **Enter the first number: x**

3. **While there is only a number, we assume that the number is the max number**

4. **Enter the next number: y**

5. **Check if y> max then the max will hold y (max=y)**

6. **Repeat steps (4,5) until reach the end of series**

7. **End the program**

Flowchart (Max number)

Start

Enter first number (x) = max

Enter the next one (y)

y>max

No

Yes

Max = y

Loop for new values – if exists

End

Introduction

➢ **What is programming language?**

Any set of rules that converts string or graphical program elements into various kinds of machine code output. Programming languages are one kind of computer language and are used in computer programming to implement algorithms.

| Text or graphical algorithm | → | High-level language | → | Machine language | → | Hardware |

Algorithm

- Write an algorithm that asks users to enter their grades in 5 courses, then print out the average.

- Write an algorithm that asks users to enter a series of numbers, then print out the sum of even and odd numbers.

- **Task**: Write an algorithm that asks users to enter a positive number between 100 and 200, then print out the 10% of its quarter.

Introduction

➢ **What is Java programming language?**

Java is a high-level, OOP, and general-purpose programming language intended to let programmers write once, run anywhere (WORA).
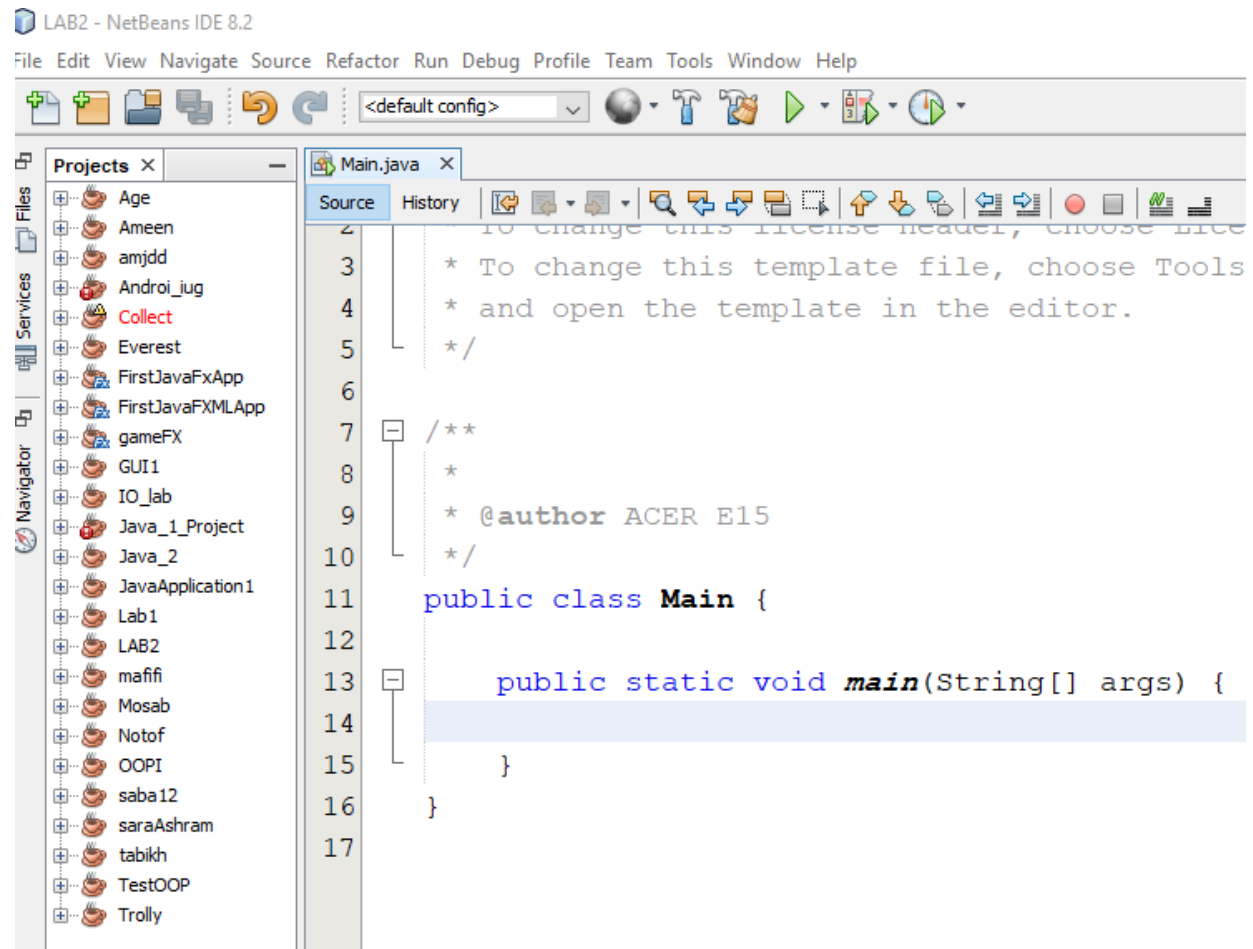
➢ **Why we prefer Java in higher education?**

- Platform independent programming language
- Almost entirely object-oriented
- Can used to develop standalone desktop apps, server apps and also mobile apps.
- Human-readable language
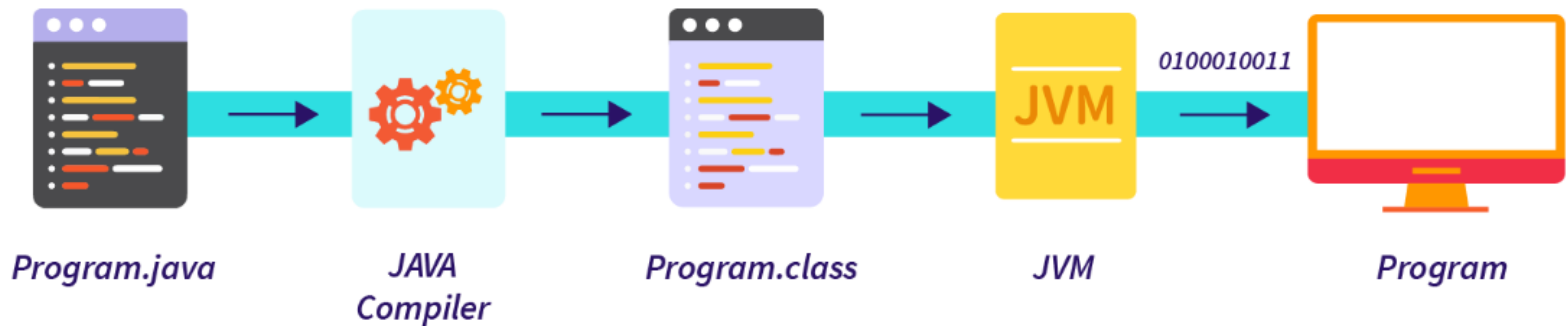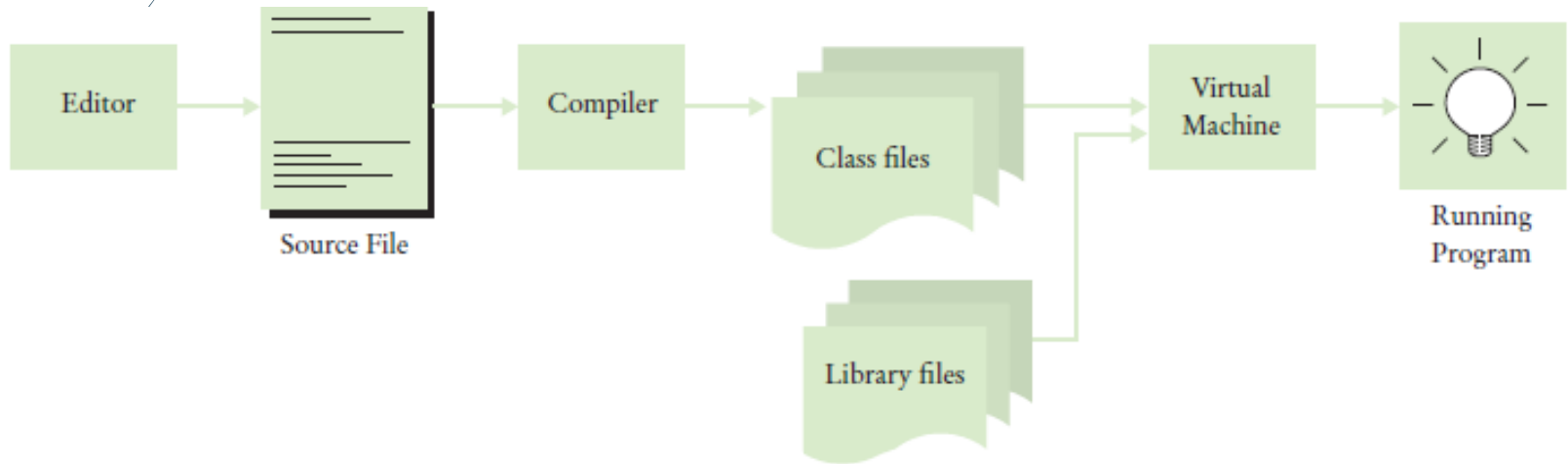- Easy to learn and to build logical mindset.

Java IDE

> ## Integrated Development Environment (IDE)

NetBeans IDE: one of the common IDE's used in Java development.

Java

> ## How does Java code running?

Editor → Source File → Compiler → Class files → Virtual Machine → Running Program

Library files

Program.java → JAVA Compiler → Program.class → JVM → 0100010011 → Program

First program

section_5/HelloPrinter.java

```java
1    public class HelloPrinter
2    {
3       public static void main(String[] args)
4       {
5          // Display a greeting in the console window
6
7          System.out.println("Hello, World!");
8       }
9    }
```

Every program contains at least one class. Choose a class name that describes the program action.

Every Java program contains a main method with this header.

```java
public class HelloPrinter
{
   public static void main(String[] args)
   {
      System.out.println("Hello, World!");
   }
}
```

The statements inside the main method are executed when the program runs.

Replace this statement when you write your own programs.

Each statement ends in a semicolon. See page 13.

Be sure to match the opening and closing braces.