Programming introduction

Fundamentals to programming I

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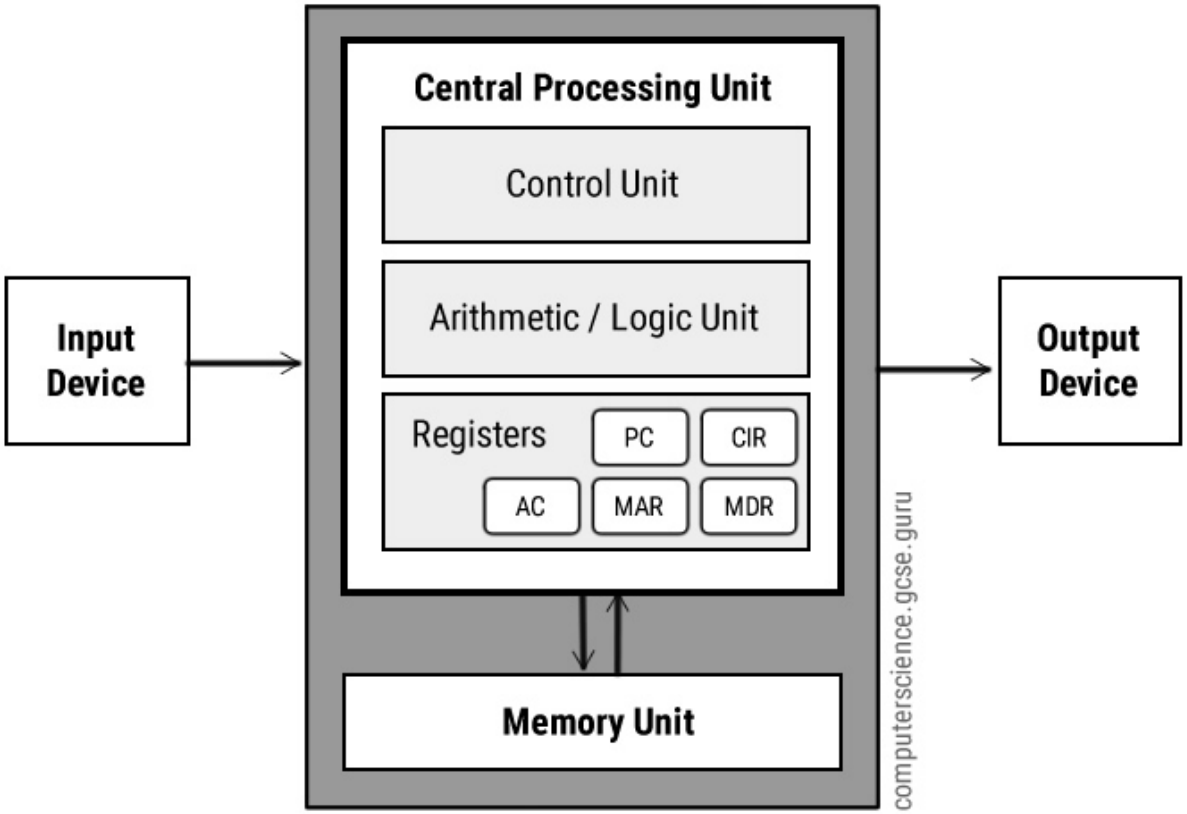
Content

Von Neumann Architecture

- John von Neumann (1945).
- Computer architecture design:
- Control Unit, Arithmetic and Logic Unit, Registers.
- Memory Unit.
- Inputs/Outputs Unit.

Von Neumann Architecture



HelloWorld!

Listing 1: HelloWorld.java

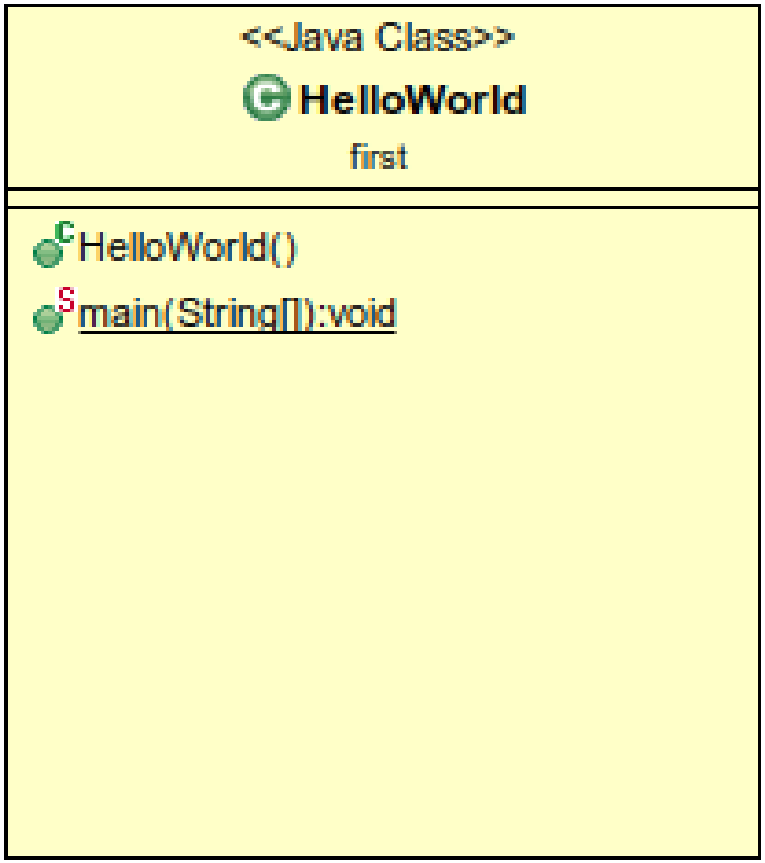
```
public class HelloWorld {

  public static void main(String[] args) {
    System.out.println("Hello world!");

  }

}
```

HelloWorld!

HelloWorld.java

```java
/* File name : HelloWorld.java */
package first;

/**
* <h1>Hello world!</h1>
* The HelloWorld program implements an application that
* simply prints a message the output on the screen(terminal).
* <p>
* <b>Note:</b> This is a first example in java with Eclipse IDE.
*
* @author  Richart Smith Escobedo Quispe
* @version 1.0
* @since   2020-04-01
*/
public class HelloWorld {

    /**
     * This is the main method which prints a message the output on the
     * screen.
     * @param args Unused.
     * @return Nothing.
     */
    public static void main(String[] args) {
        // Prints Hello, World! on standard output.
        System.out.println("Hello world!");

    }

}

```

HelloWorld!



Requirements

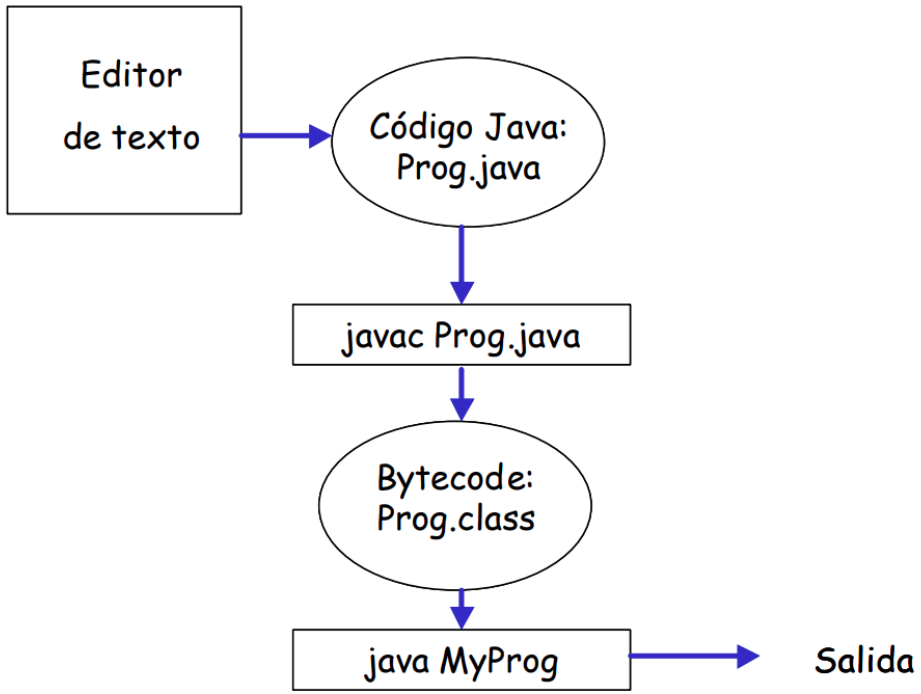
- JDK >=1.8
- MS Windows, MacOS, GNU/Linux: Oracle
  - jdk-8u261-windows-i586.exe
  - jdk-8u261-windows-x64.exe
  - jdk-8u261-macosx-x64.dmg
  - jdk-8u261-linux-x64.tar.gz (Optional)
- GNU/Linux: Ubuntu

Listing 2: openjdk-8-jdk

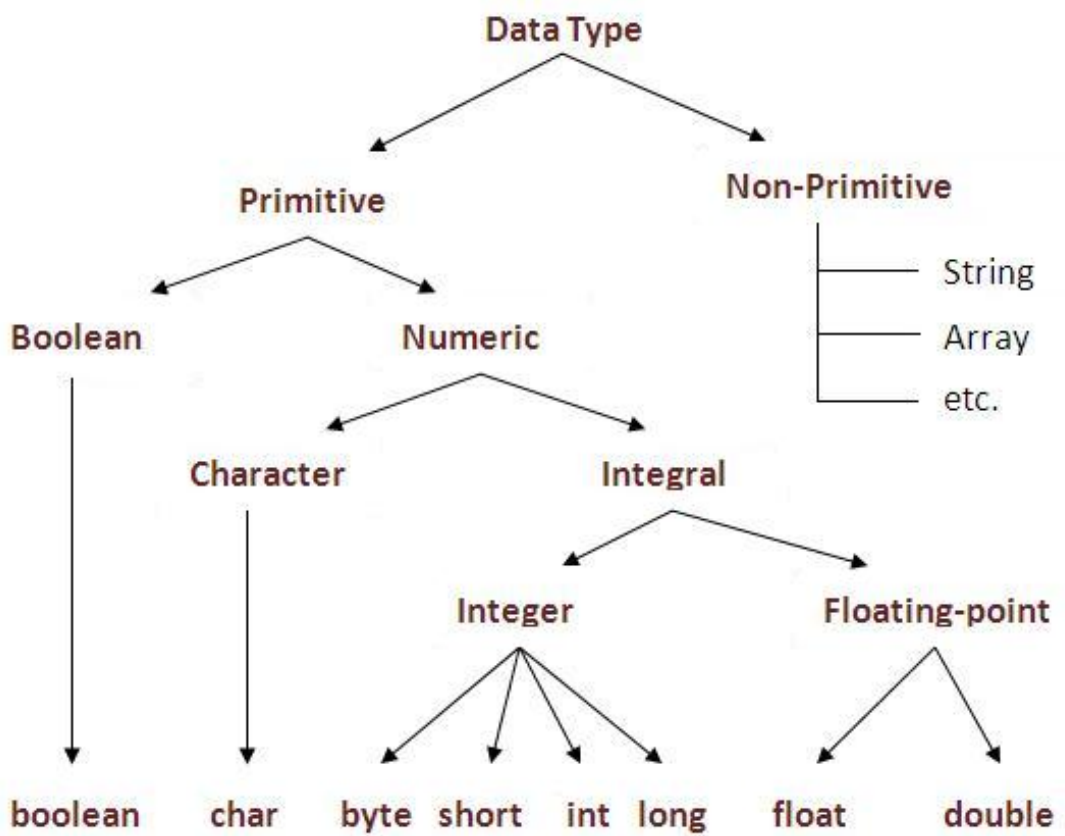
```
sudo apt-get install openjdk-8-jdk
```

Create and Run

Creación y ejecución de aplicaciones Java



Data types


Data Type
Primitive
Non-Primitive
String
Array
etc.
Boolean
Numeric
Character
Integral
Integer
Floating-point
boolean
char
byte
short
int
long
float
double

Overflow

Listing 3: Overflow.java

```
public class Overflow {

  public static void main(String[] args) {

    byte numberOne, numberTwo;

    numberOne = 127;
    numberTwo = (byte) (numberOne + 1);
    System.out.println(numberTwo);

  }

}
```

Program: Course.java

Listing 4: Course.java

```
public class Course {
  public static void main(String[] args) {
    final double LABORATORY_PERCENT = 0.4;
    String nameS;
    double laboratoryS, theoryS, finalS;
    nameS = args[0];
    laboratoryS = Double.parseDouble(args[1]);
    theoryS = Double.parseDouble(args[2]);
    finalS = (1-LABORATORY_PERCENT)*theoryS
        + LABORATORY_PERCENT*laboratoryS;

    System.out.println(nameS + " has obtain final score "
        + (short) finalS );
  }
}
```

References - Web pages

- https://elvex.ugr.es/decsai/java/
- https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html
- https://www.eclipse.org/downloads/packages/release/2020-06/r/eclipse-ide-enterprise-java-developers
- https://www.objectaid.com/home
- https://openjdk.java.net/install/index.html
- https://code.visualstudio.com/
- https://www.sublimetext.com/
- https://vimhelp.org/
- https://www.computerscience.gcse.guru/theory/von-neumann-architecture
- https://stackoverflow.com/questions/48304498/are-wrappers-of-a-primitive-type-primitives-types-too

References - Books

- Java Fundamentals: Programming Basics for Beginners (2018)
- Fundamentals of Java Programming (2018)
- Java for Absolute Beginners: Learn to Program the Fundamentals the Java 9+ Way (2018)
- Java Programming for Beginners: Learn the fundamentals of programming with Java (2017)

Thanks!... You must review javadoc