

Object Oriented Programming

Java: Introduction

Bikash Karmokar
Lecturer,
Department of CSE,
Bangladesh University

What is Java

“A simple, **object-oriented**, **distributed**, **interpreted**, **robust**, **secure**, **architecture-neutral**, **portable**, **high performance**, **multithreaded**, and **dynamic** language”
-- Sun

Write once run Anywhere

What is Java

Object–Oriented :

- No free functions,
- All code belong to some class.
- Classes are in turn arranged in a hierarchy or package structure.

Distributed

- Fully supports IPv4, with structures to support IPv6.
- Includes support for “Applets”: small programs embedded in HTML documents.

What is Java

Interpreted

- The program are compiled into Java Virtual Machine (JVM) code called bytecode
- Each bytecode instruction is translated into machine code at the time of execution. (Penalty : Speed)

What is Java

Robust

- Java is simple–no pointers/stack concerns.
- Inbound checking at runtime of array pointers, no memory corruption and cryptic error messages.
- Exception handling: try/catch/finally series allows for simplified error recovery
- Strongly typed language: many errors caught during compilation.

What is Java

Secure

- Byte-code verification on loading (not just compilation).
- Applet code runs in 'sandbox', with significant restrictions
- Security is enforced by the SecurityManager class.
- Work around for applet security restrictions include digitally signing code, and Servlets

Java vs. C++

Java does not support:

- pointer to avoid unauthorized access of memory locations.
- structure, union and preprocessor.
- operator overloading.
- default argument.
- multiple inheritance.
- unsigned integer.

?

Is C++ pure object oriented programming language ?

No.

C++ supports object oriented concept.

Java is pure object oriented programming language.
All code belong to some class.

Hello world program: C++

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```


```
    cout << "Hello world!" << endl;
```

```
    return 0;
```

```
}
```

Hello world program: Java

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



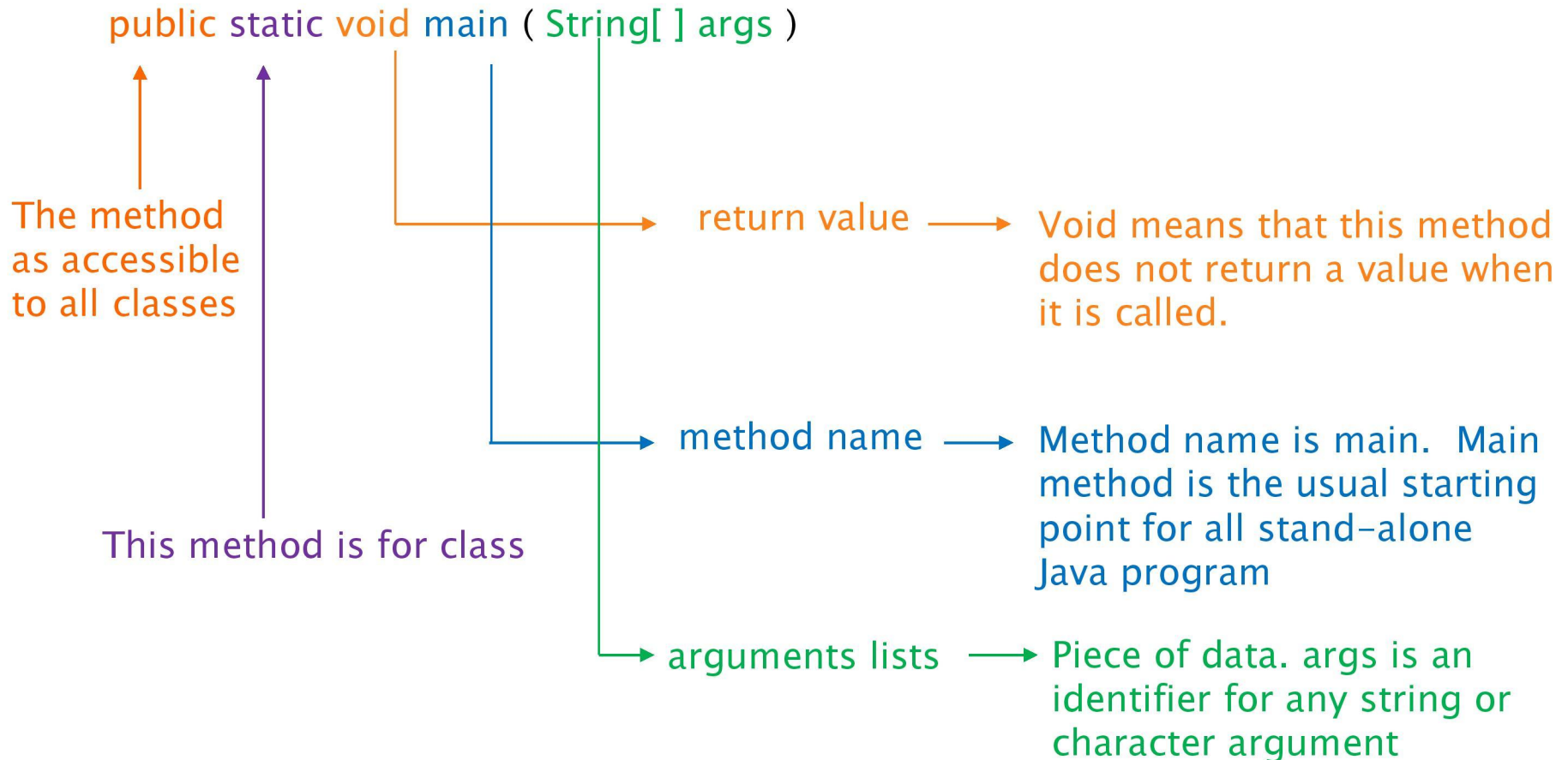
HelloWorld.java

javac



HelloWorld.class

The main Method



So now:



Reference:

Java : The Complete Reference
Seventh Edition
Herbert Schildt

Thank You