

Session 01

Introduction to JAVA

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What is Java?

An island

- Largest island of the equatorial archipelago of Indonesia
- Famous for beaches and coffee

A language

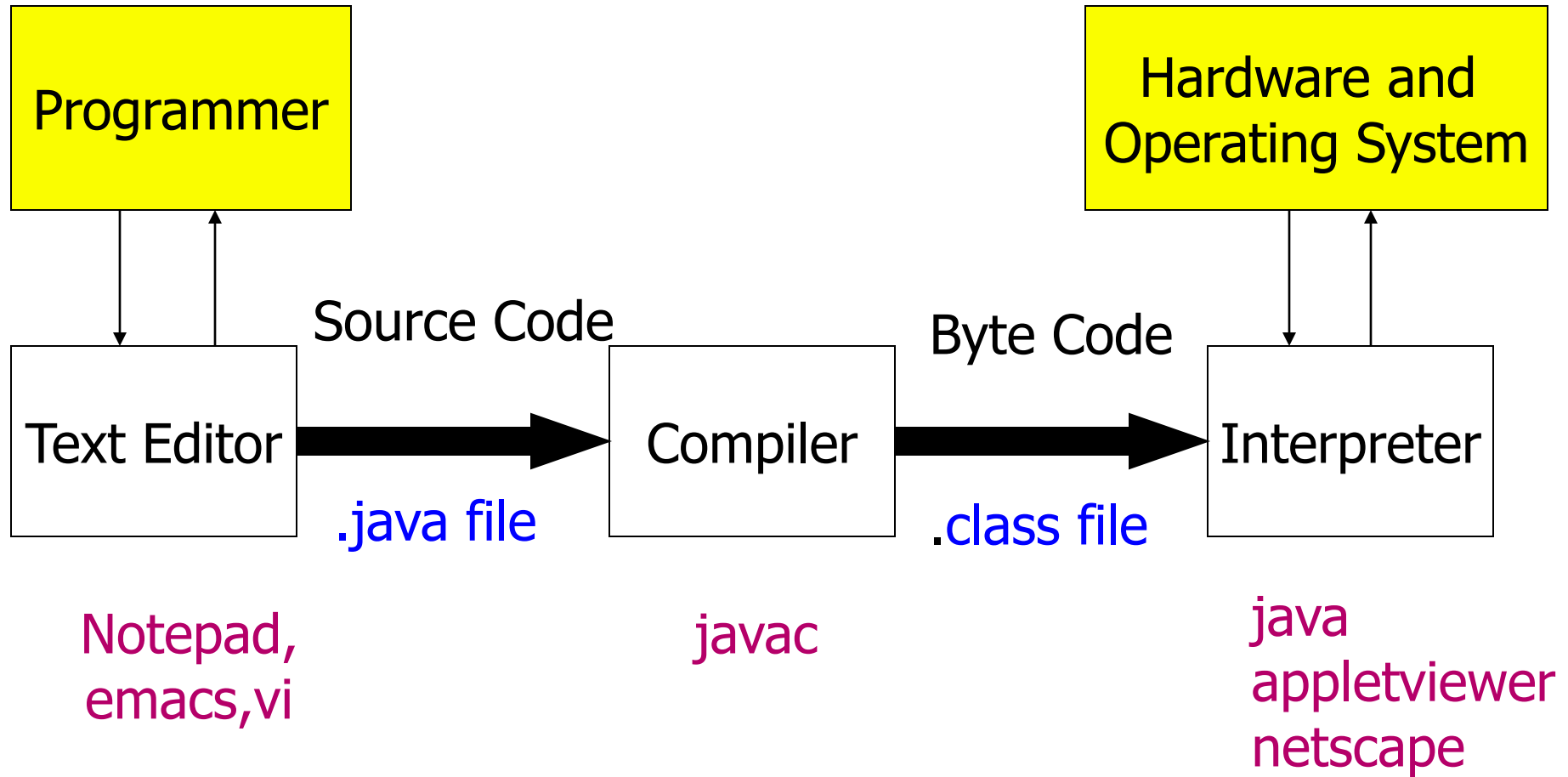
- Developed by Sun
- Open specification



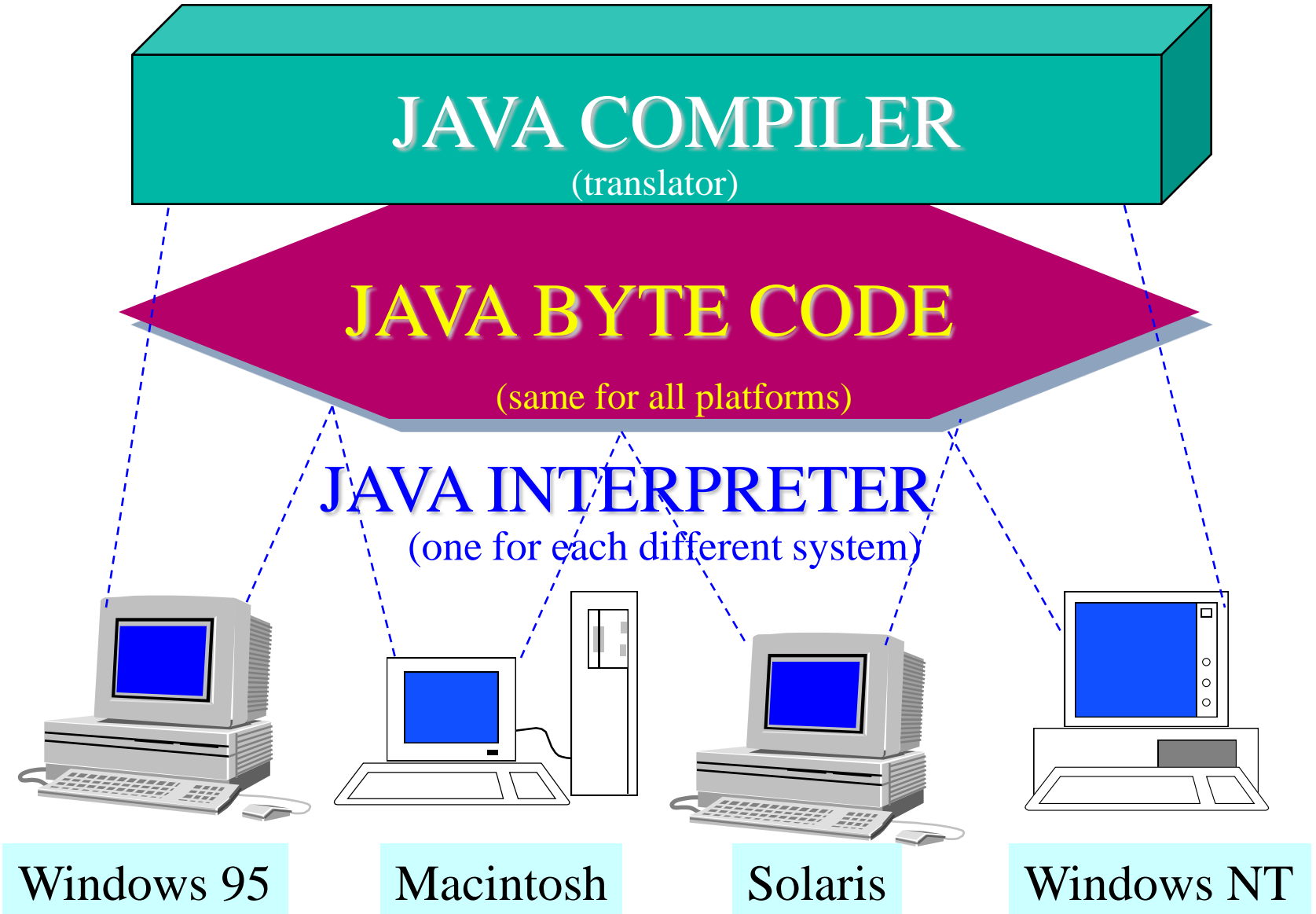
The History of Java Technology

- Java - The new programming language developed by Sun Microsystems in 1991.
- Originally called Oak by James Gosling, one of the inventors of the Java Language.
- Java Authors: James Gosling, Arthur Van , and others
- Originally created for consumer electronics (TV, VCR, Freeze, Washing Machine, Mobile Phone).
- Java - CPU Independent language

Java is Compiled and Interpreted



Total Platform Independence



Rich Class Environment

- Core Classes

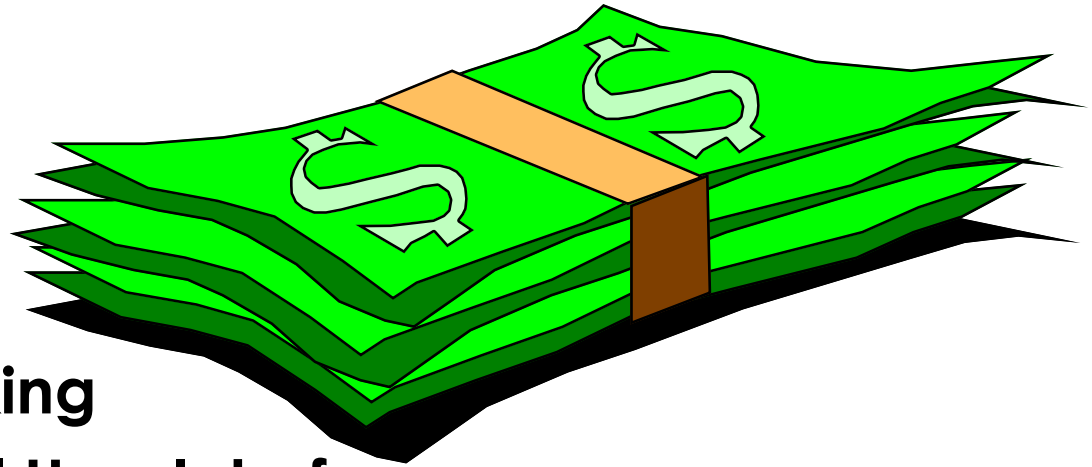
language

Utilities

Input/Output

Low-Level Networking

Abstract Graphical User Interface



- Internet Classes

TCP/IP Networking

WWW and HTML

Distributed Programs

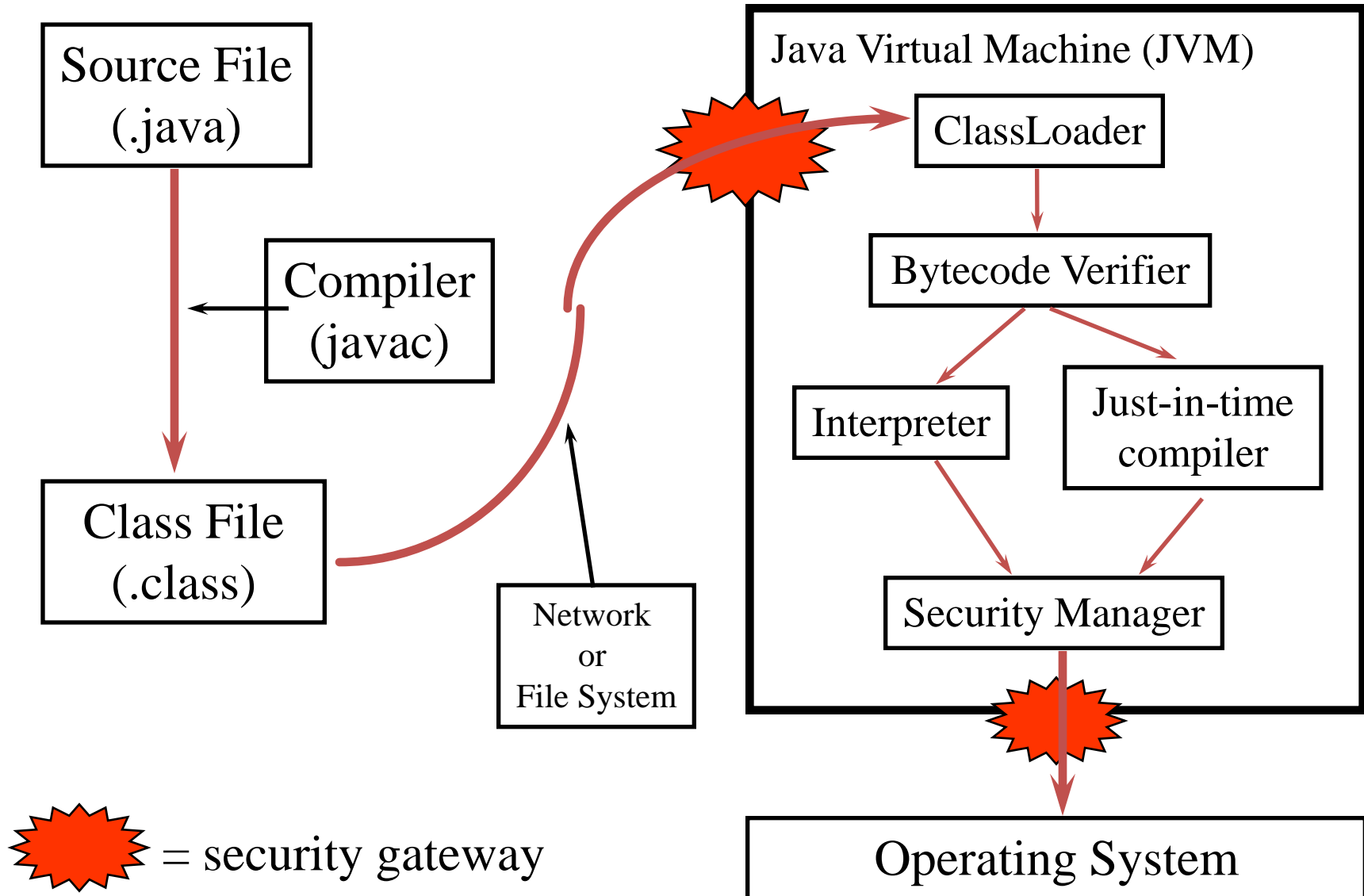
Java Applications

- We can develop two types of Java programs:
 - Stand-alone applications

Application- A stand-alone program that can be invoked from command line . A program that has a “main” method
 - Web applications (applets)

Applet- A program embedded in a web page , to be run when the page is browsed . A program that contains no “main” method
- **Application** –Executed by the Java interpreter.
- **Applet**- Java enabled web browser.

Java Class Lifecycle



Let us Try Out

Building your first Java Program



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

Program Processing

- Compilation

```
# javac HelloWorld.java
```

results in HelloWorld.class

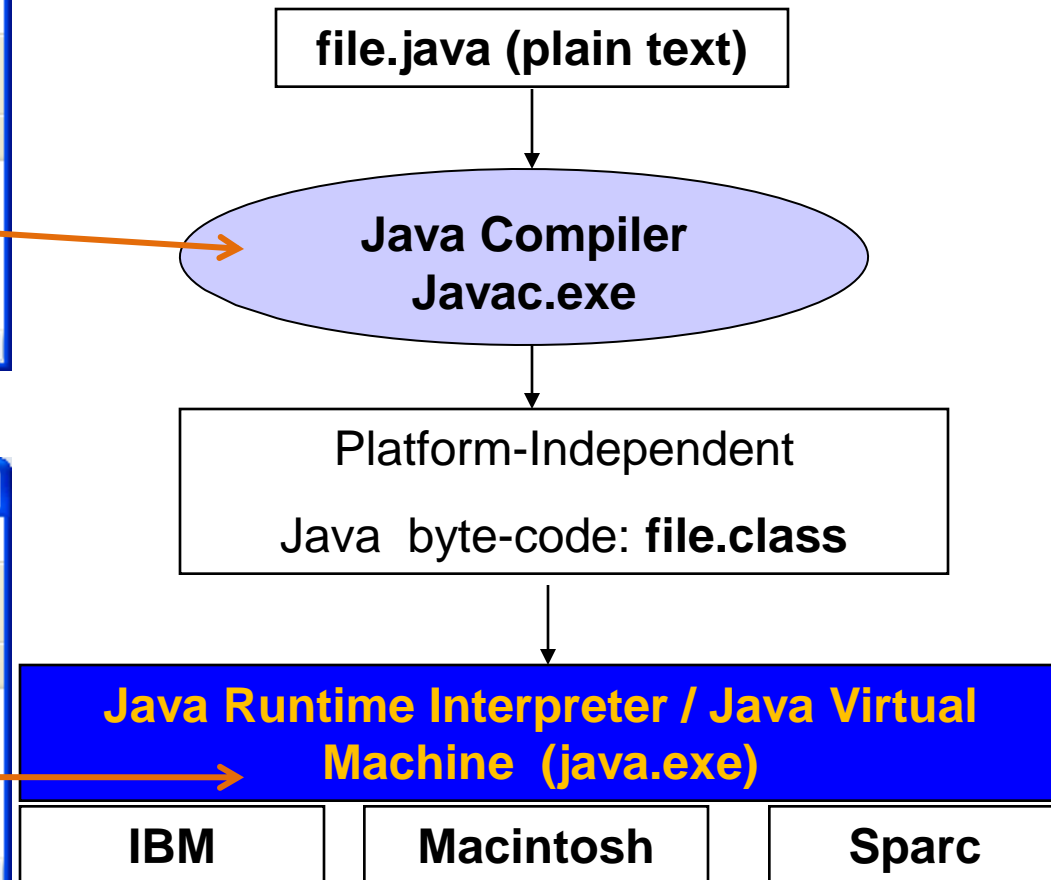
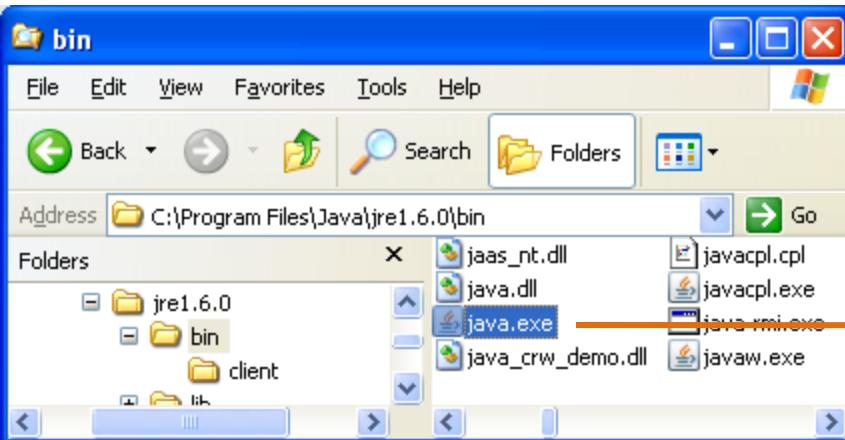
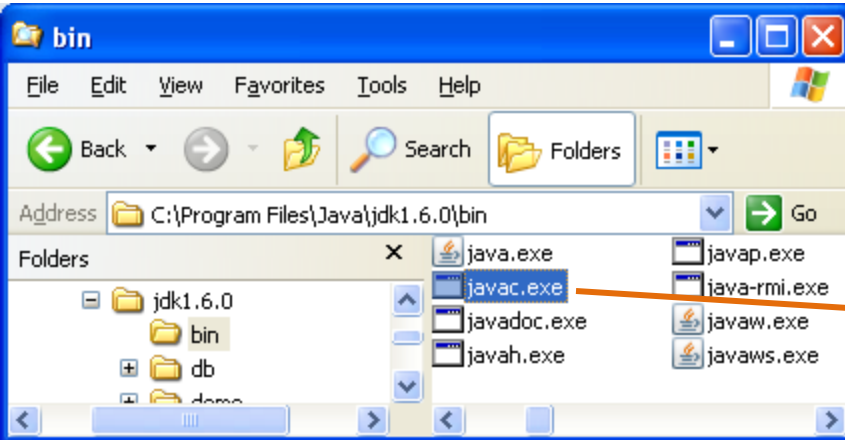
- Execution

```
# java HelloWorld
```

Hello World

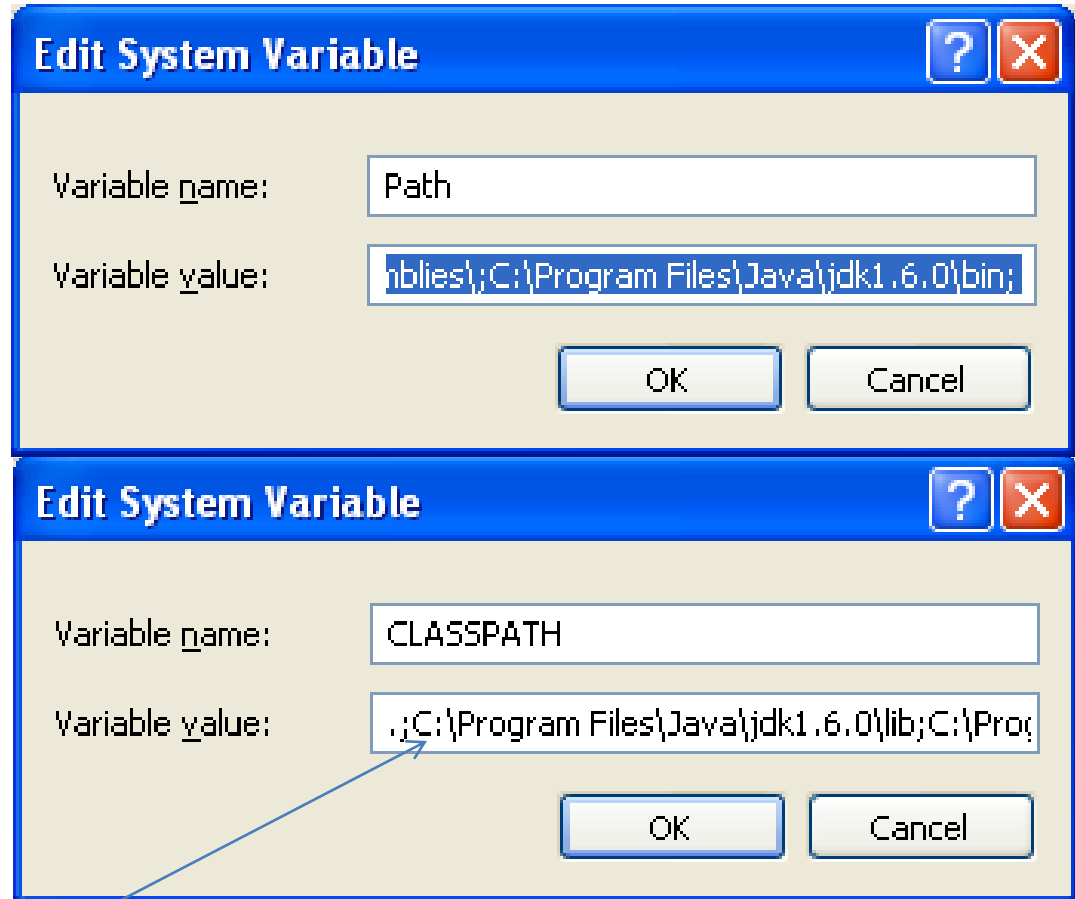
```
#
```

How can Java support platform-independence?



Set up Environment Variables

- After installing JavaSE (Java Development Kit Standard Edition), environment variables should be setup to point to the folder in which JavaSE is installed.
- Steps: My Computer/ Properties/ Advanced/Environment Variables/System Variables/ Path/ Edit
- **Why?**



The point at the beginning of the CLASSPATH means that classes will be searched first in the current working folder.

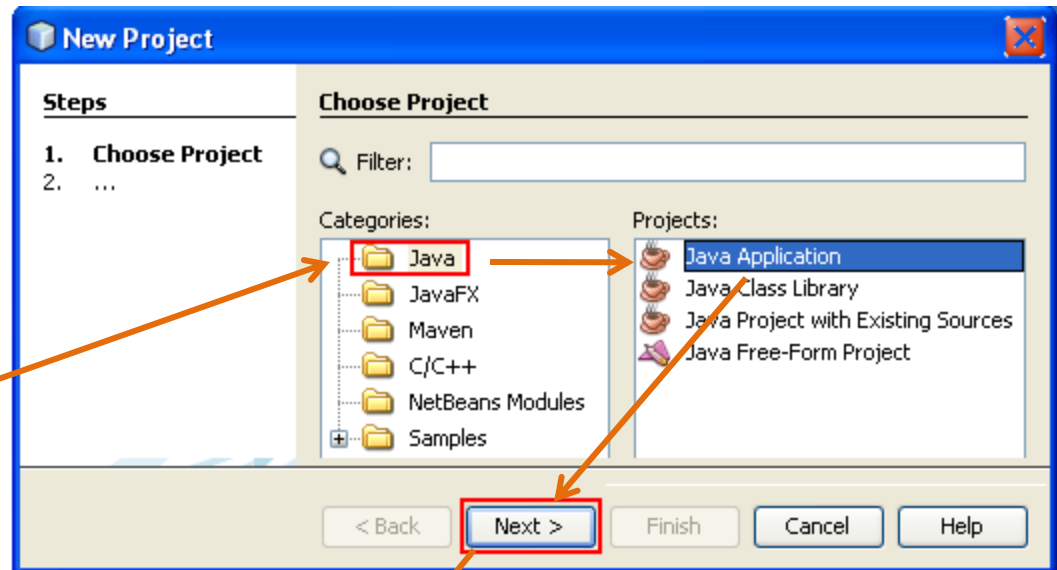
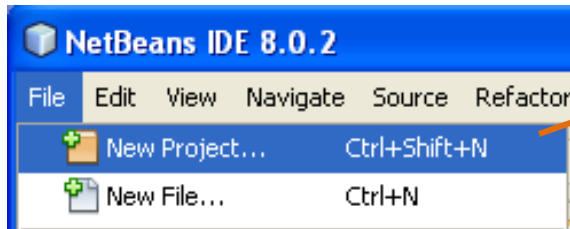
The first Java program in the NetBeans

This program will show the string “Hello World” to the screen.

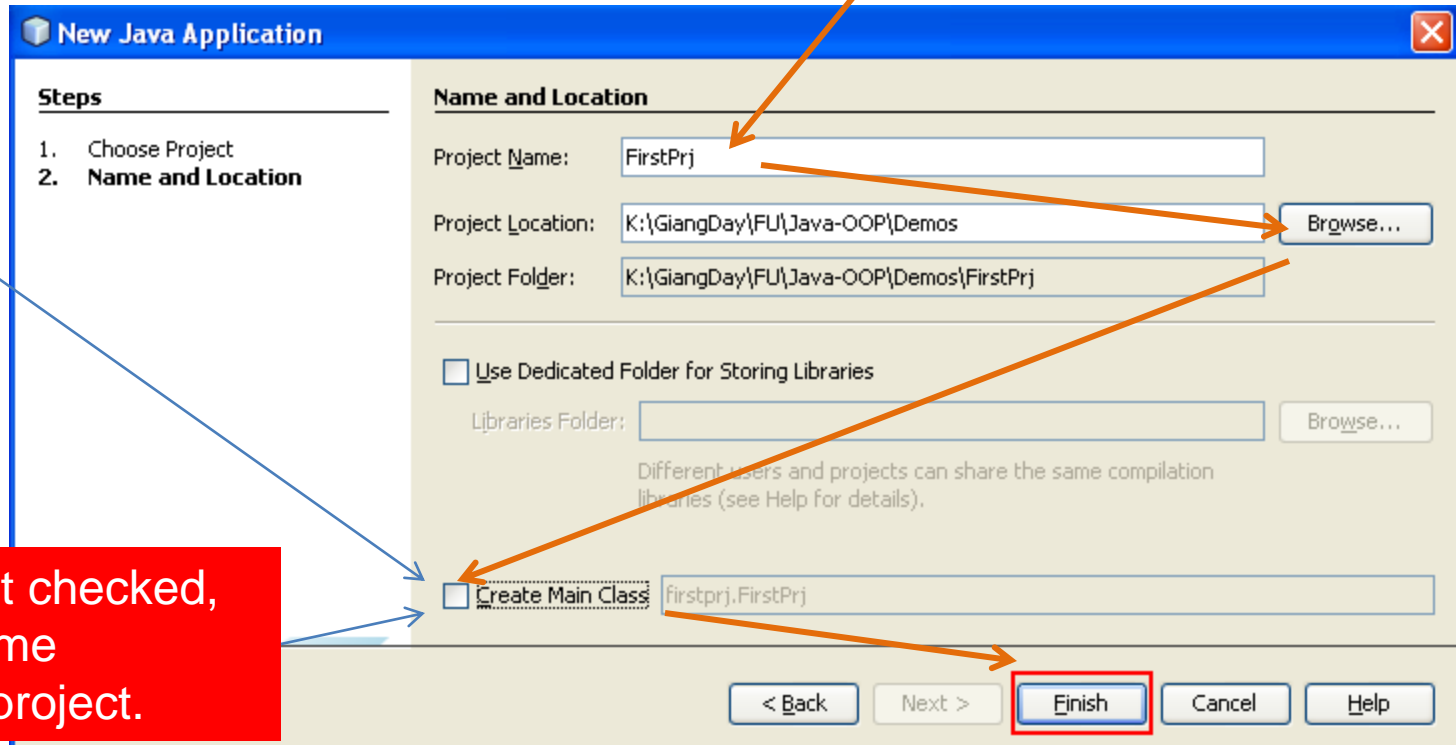
Steps

- 1- Create a new Java NetBeans project
- 2- Add a Java class
- 3- Write code
- 4- Compile/Run the program

Step 1- New Project

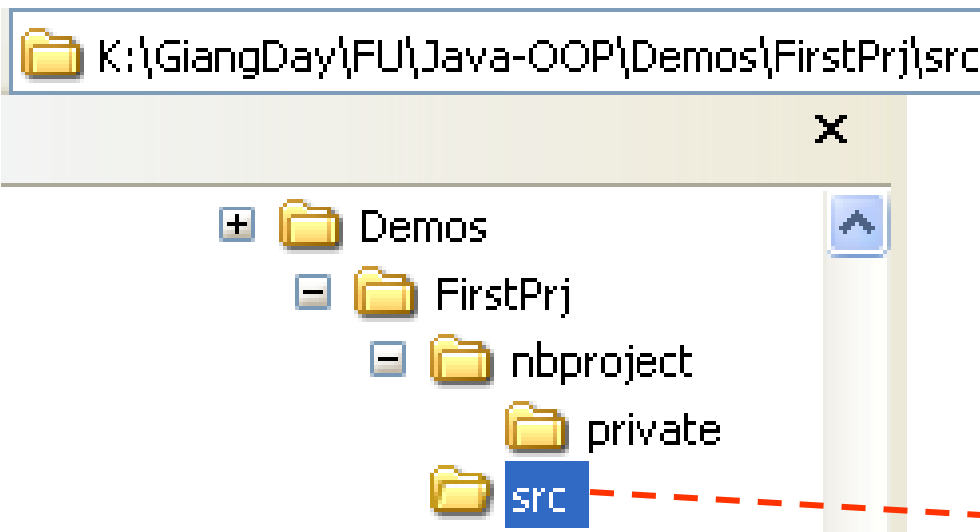


If this option is checked, NetBeans will automatically generate a class, named Main, for the project.

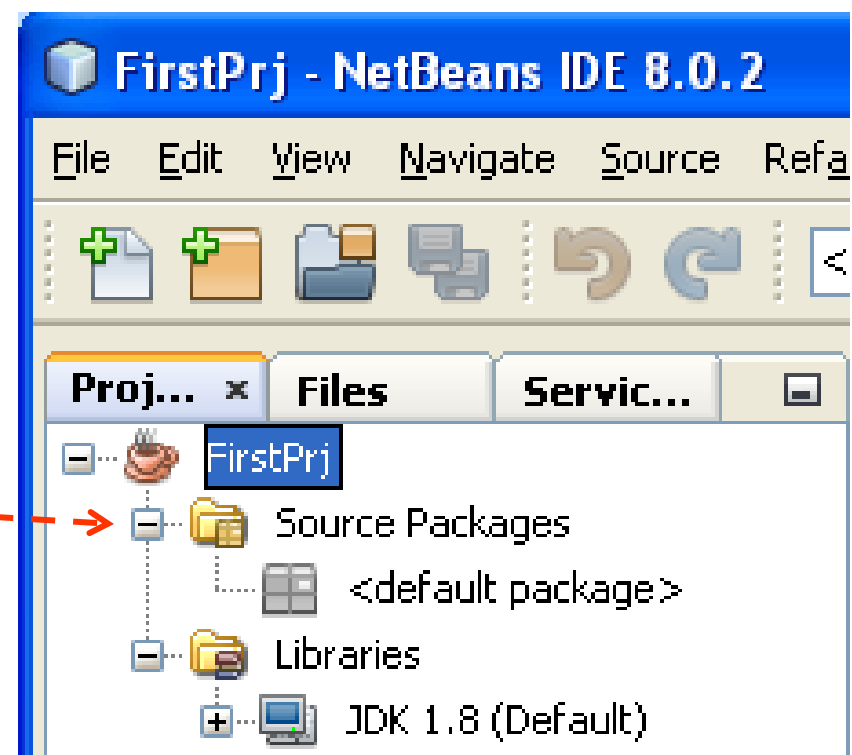


If this option is not checked, we can create some programs in one project.

New Project...: Initial Project Structure

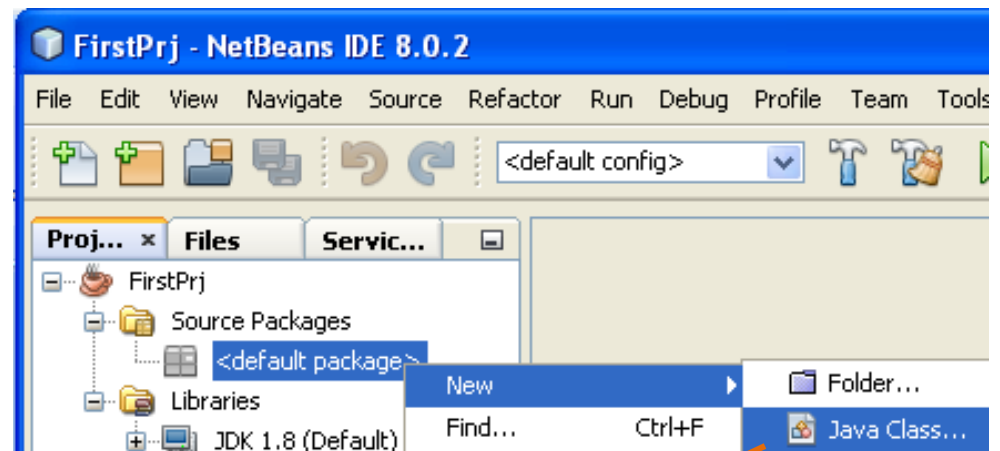


In Windows Explorer

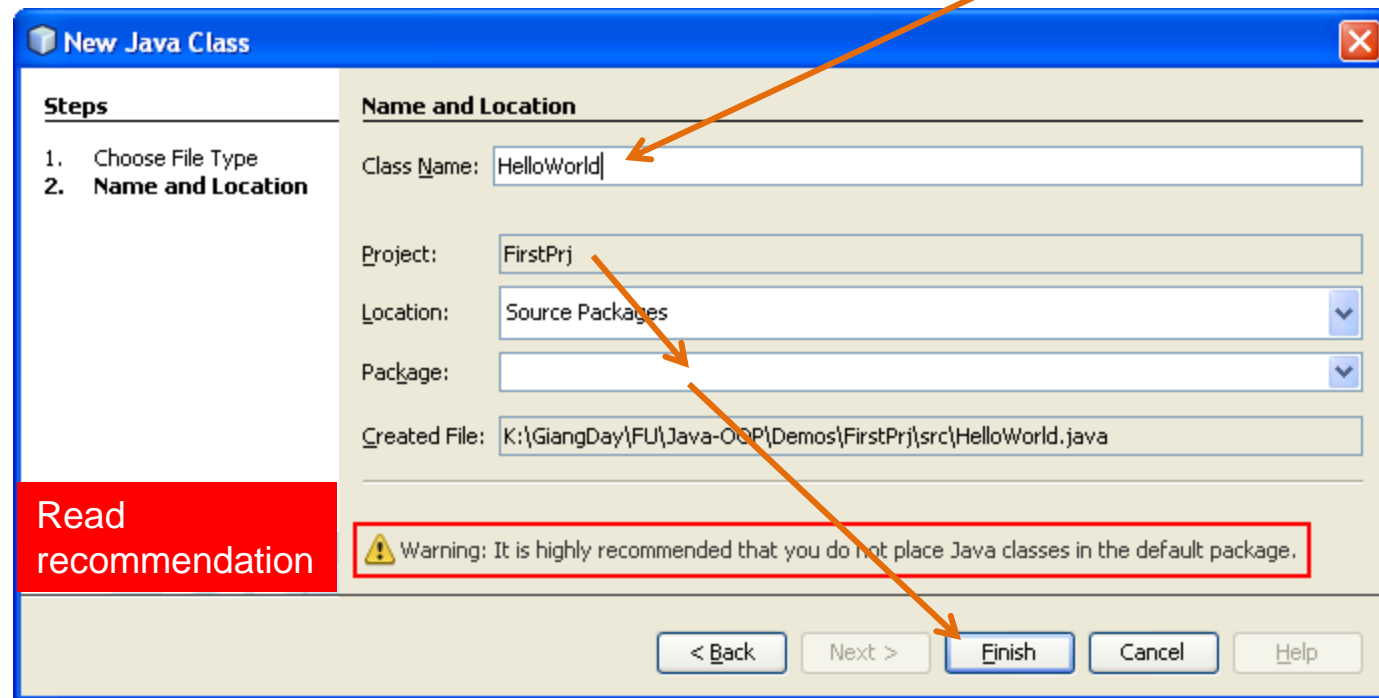
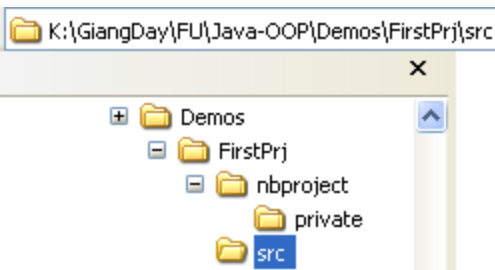


In NetBeans

Step 2: Add a Java Class

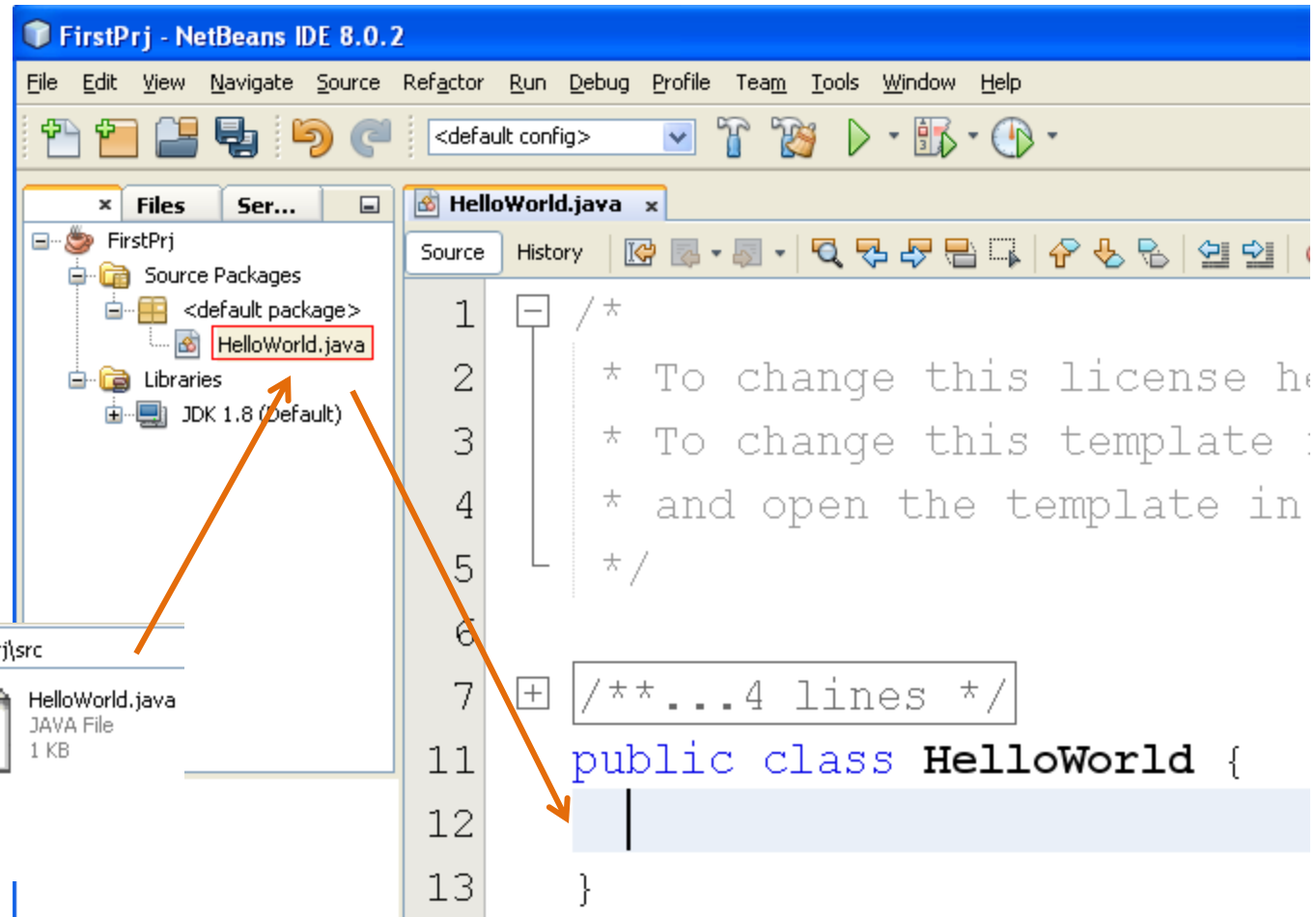


Package:
Subdirectory of the
folder Project/**SRC**



In this demo, we do not specify
package intentionally

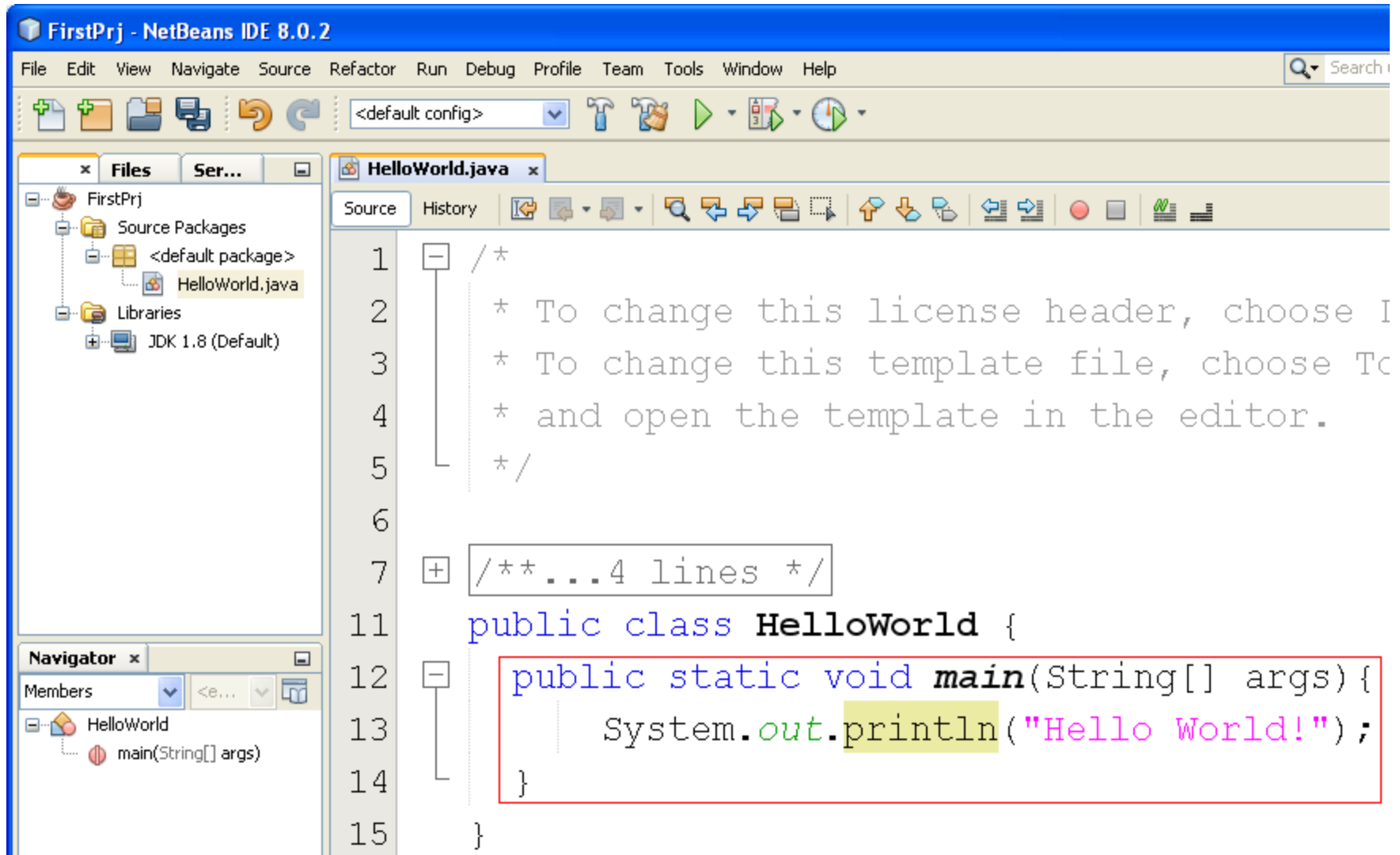
Add a Java Class...



In Windows Explorer

In NetBeans

Step 3: Write code



Explain JDK and its tools

- javac (Java compiler)

```
javac [option] source
```

where,

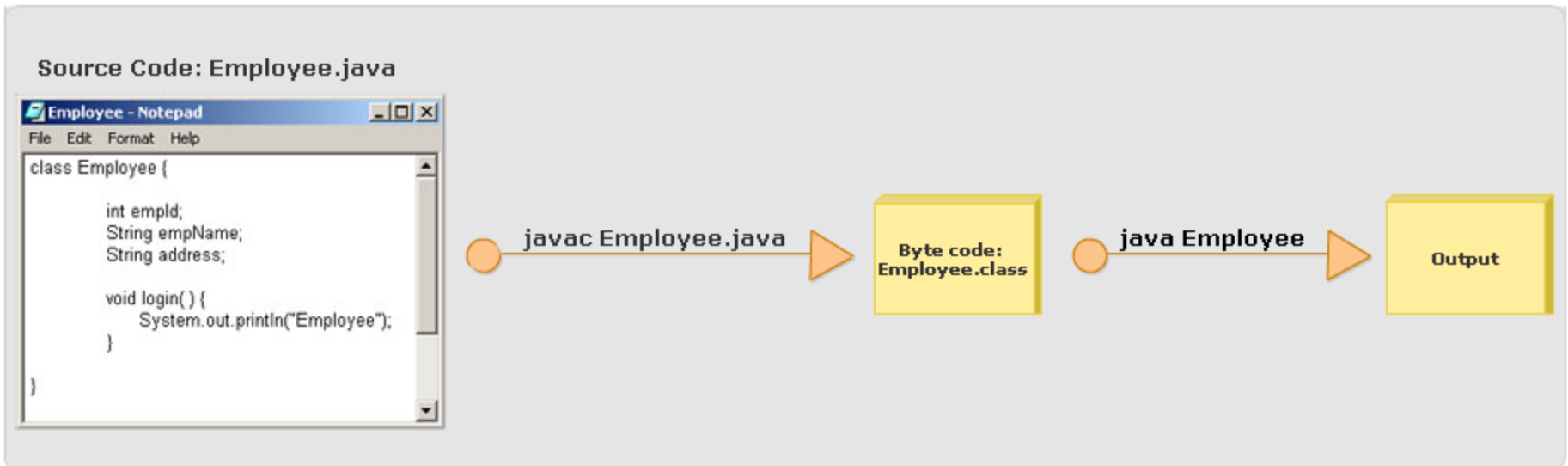
source is one or more file names that end with the extension .java.

- java (Java interpreter)

```
java [option] classname [arguments]
```

where,

classname is the name of the class file.



Summary

- An overview of Java technology as a whole.
- What to download, what to install, and what to type, for creating a simple "Hello World!" application.
- Discusses the "Hello World!" application.