

Introduction to JVM

Java Virtual Machine and the main method

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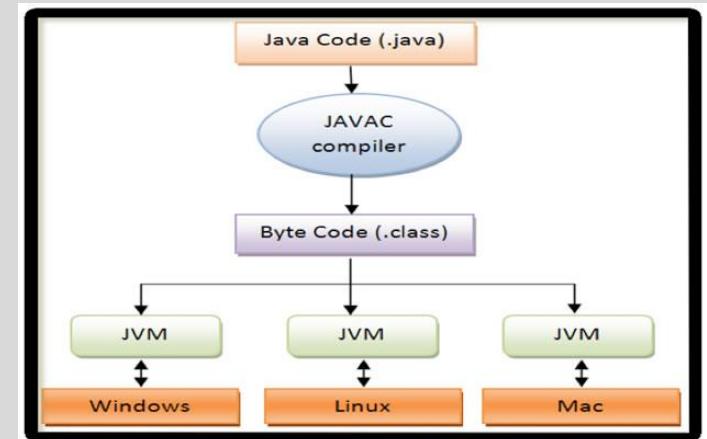
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Topics list

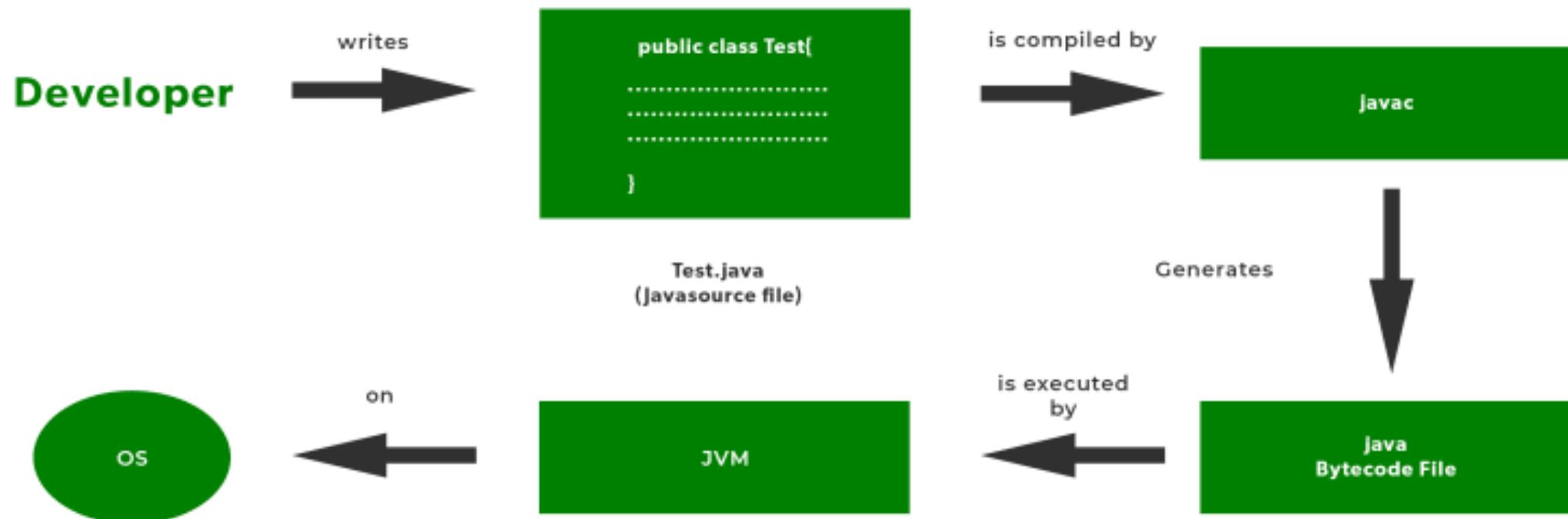
1. Files in Java.
2. Java Virtual Machine (JVM).
3. main() method.

Files in Java

- **Java code** is written in **.java** file.
 - code contains one or more Java language constructs
e.g. Classes, Methods, Variable, Objects etc.
- **Compiling** this code generates a **.class** file
 - A **.class** file
 - “**byte code**”
 - the input to Java Virtual Machine (JVM)
 - The **JVM** (*for a specific platform*)
 - **reads** this byte code
 - **interprets** it as machine code instructions (*for that platform*)
 - and **executes** the program (*on that platform*)



Development Process



Step from java.code to machine code

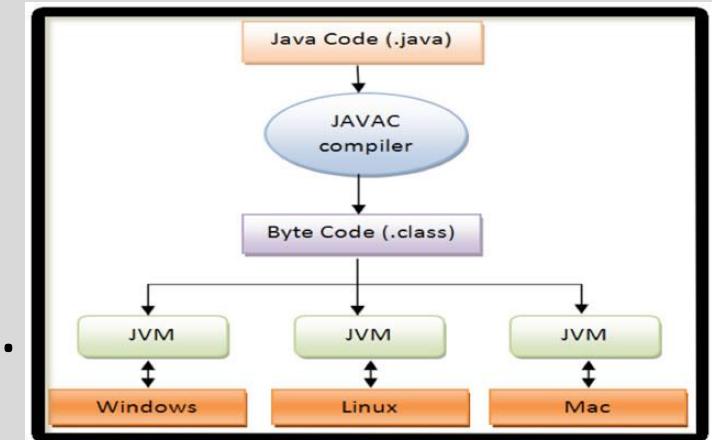
- java source code is compiled.
- Transformed to bytecode by java compiler.
- Interpreted and executed by the java virtual machine on the underlying operating system.

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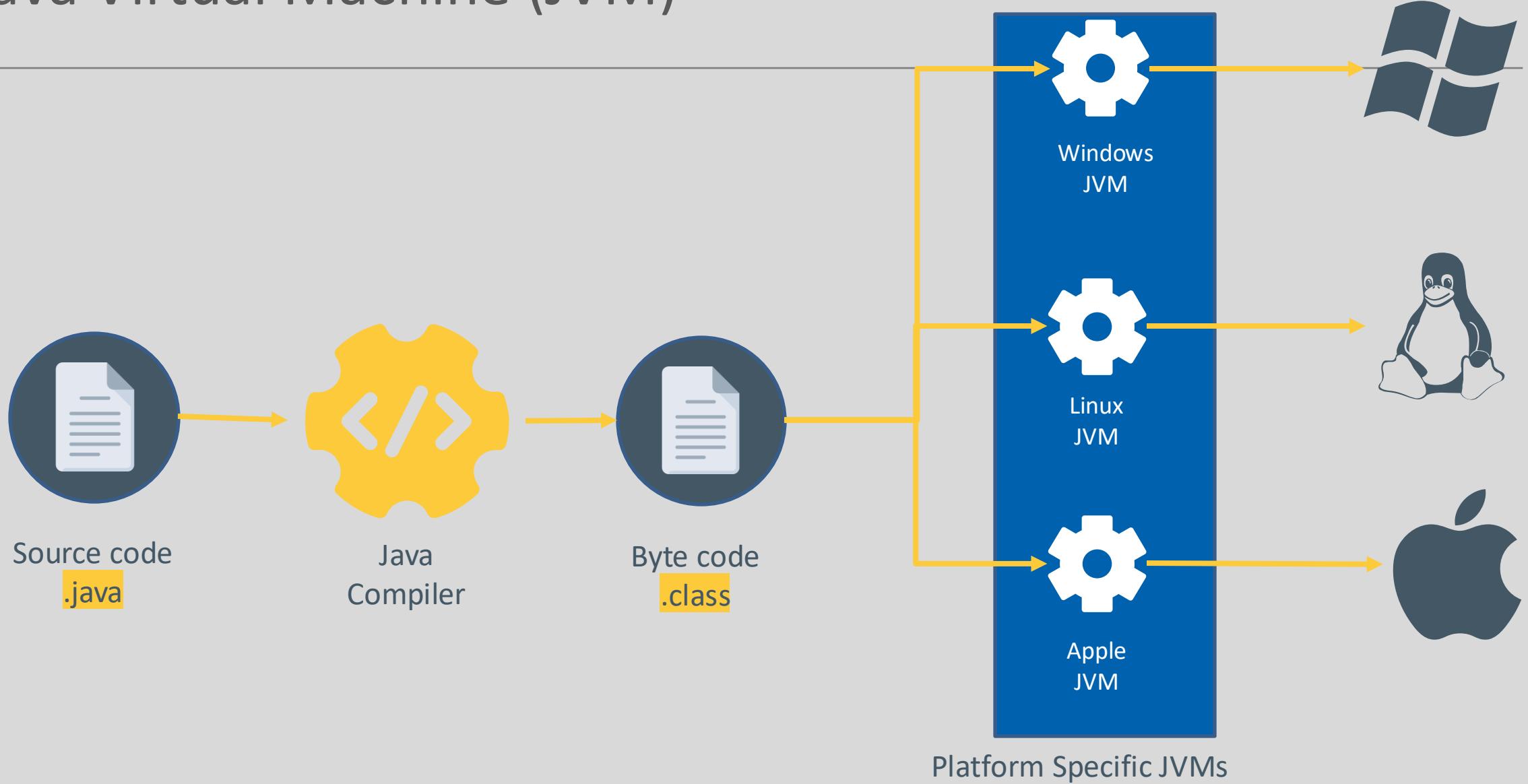
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Java Virtual Machine (JVM)

- Java Virtual Machine (**JVM**)
 - is a “**virtual**” computer that resides in the “real” computer as a software process.
 - E.g. JVM for windows, for OSX, Linux etc.
- The JVM gives Java the flexibility of **platform independence**.
- The **.class** files can be run on any OS, once a JVM has been installed
 - (NB: JVM is installed when you install the JDK).



Java Virtual Machine (JVM)



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1. Files in Java.
2. Java Virtual Machine (JVM).
3. main() method.

main() method

- When you want to run a java project, the Java Virtual Machine (JVM) invokes the **main()** method in the project.
- For the JVM to recognise it, the main() method must have a specific method **signature**.

```
public static void main(String[] args)
{
    ...
}
```

main() method - signature

- “main” must exist
- “main” must be **public**
- “main” must be **static** (class method)
- “main” must have a **String array parameter**
- Only “main” can be invoked automatically.

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

The **main()** method typically...

```
public static void main(String[] args)
{
    Driver driver= new Driver();
    driver.runMenu();
}
```

Creates an object

Calls the first
method

Questions?

