Programming Fundamentals 1

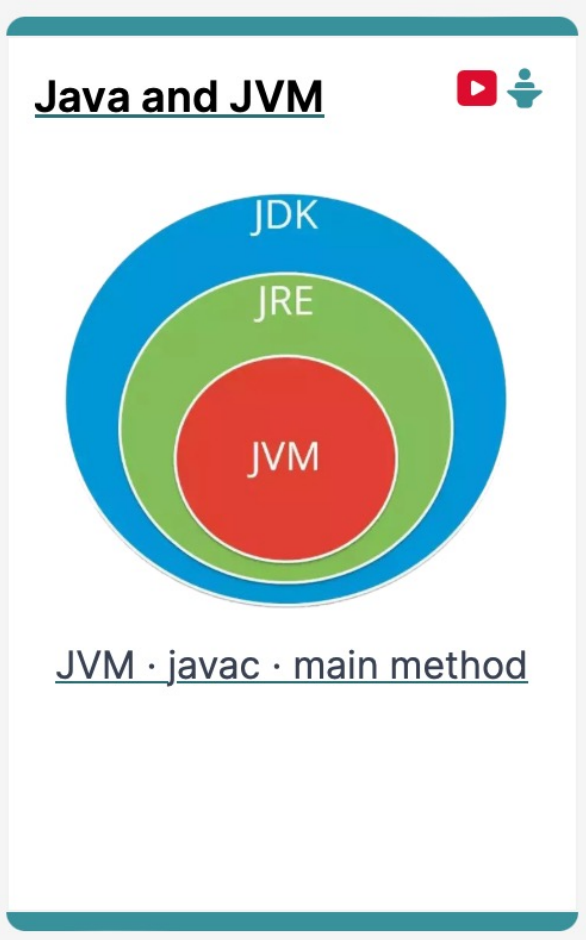
Produced by Mr. Dave Drohan (david.drohan@setu.ie)
Dr. Siobhán Drohan
Ms. Mairead Meagher

Department of Computing & Mathematics
South East Technological University
Waterford, Ireland

setu.ie

Introduction to the JVM

The Java Virtual Machine and the main method



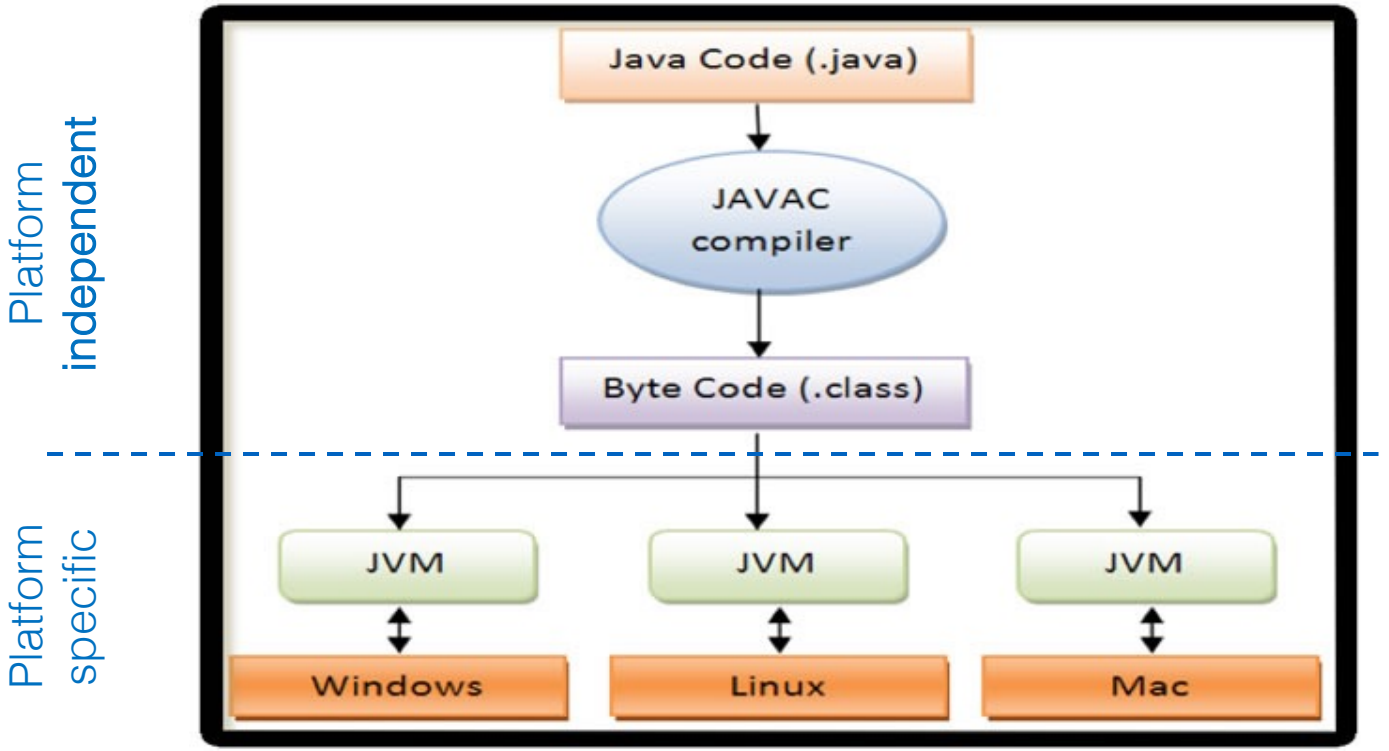
Agenda

- Files in Java
- Java Virtual Machine (JVM)
- `main()` method

Files in Java

Files in Java

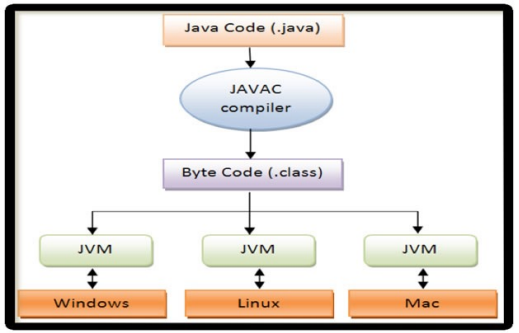
http://viralpatel.net/blogs/java-virtual-machine-an-inside-story/



Files in Java

http://viralpatel.net/blogs/java-virtual-machine-an-inside-story/

- **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)

Java Virtual Machine (JVM)

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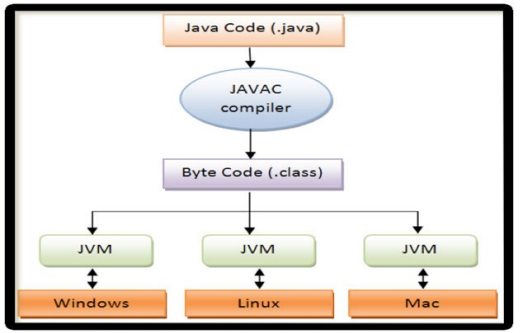
Java Virtual Machine (JVM)

- A "**virtual**" computer that resides in the "real" computer as a software process
- 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).



`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)
{
   ...
}
```

The `main()` method typically…

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

Creates an object

Calls the first method

Questions?

Thanks.