

# Understanding the JVM

## JVM and the main method

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# Topics list

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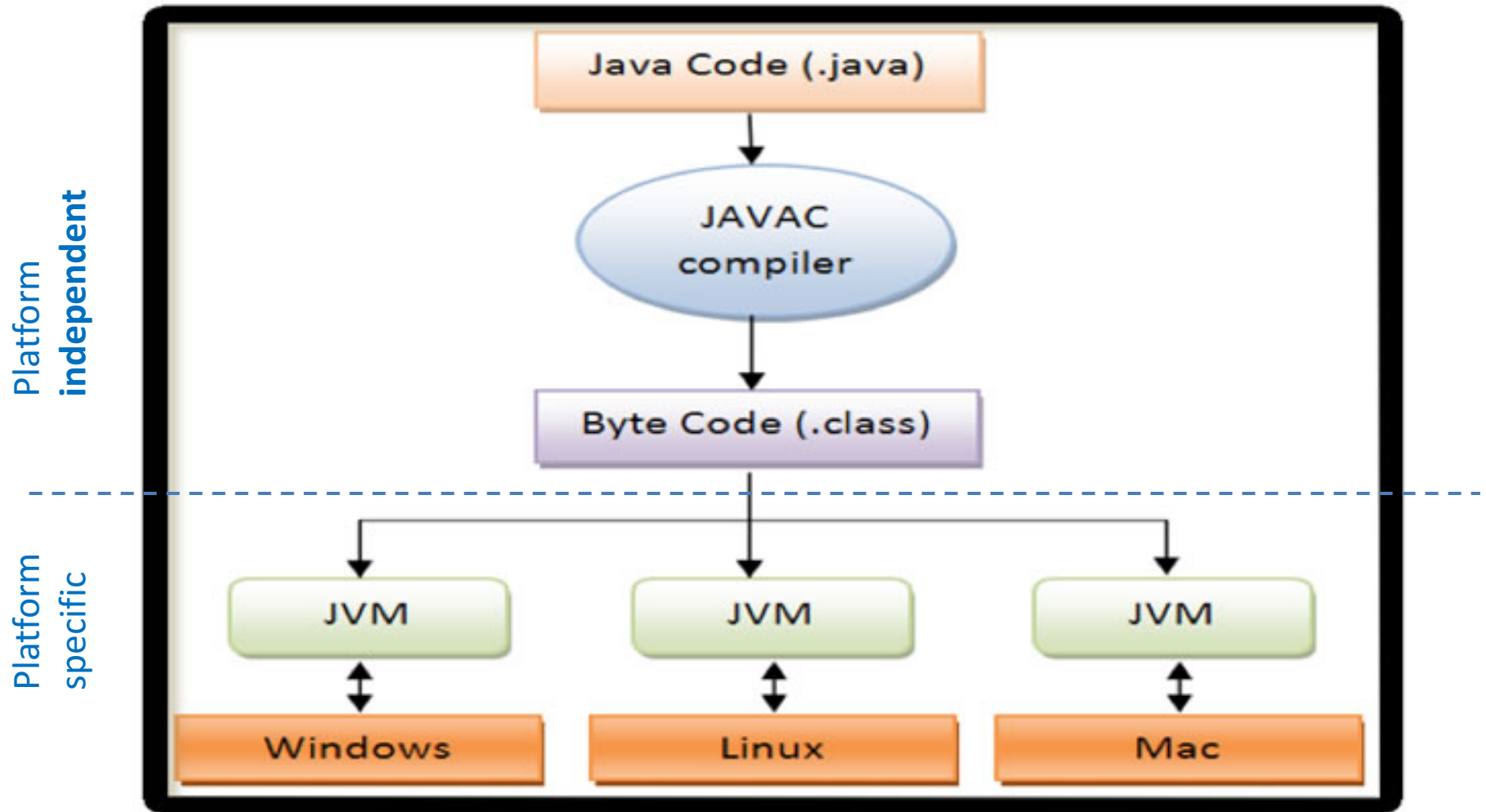
**1. Files** in Java.

2. Java Virtual Machine (**JVM**).

**3. main()** method.

4. Installing **JDK 9**.

# Files in Java (1)



# Files in Java (2)

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- **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
  - is also known as “**byte code**”
  - it is 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*)

# Topics list

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1. **Files** in Java.

2. Java Virtual Machine (**JVM**).

3. **main()** method.

4. Installing **JDK 9**.

# Java Virtual Machine (JVM)

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- Java Virtual Machine (**JVM**)
  - is a “**virtual**” computer that resides in the “real” computer as a software process.
- 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).

# Topics list

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1. **Files** in Java.
2. Java Virtual Machine (**JVM**).
3. **main()** method.
4. Installing **JDK 9**.

# main() method

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- 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**.

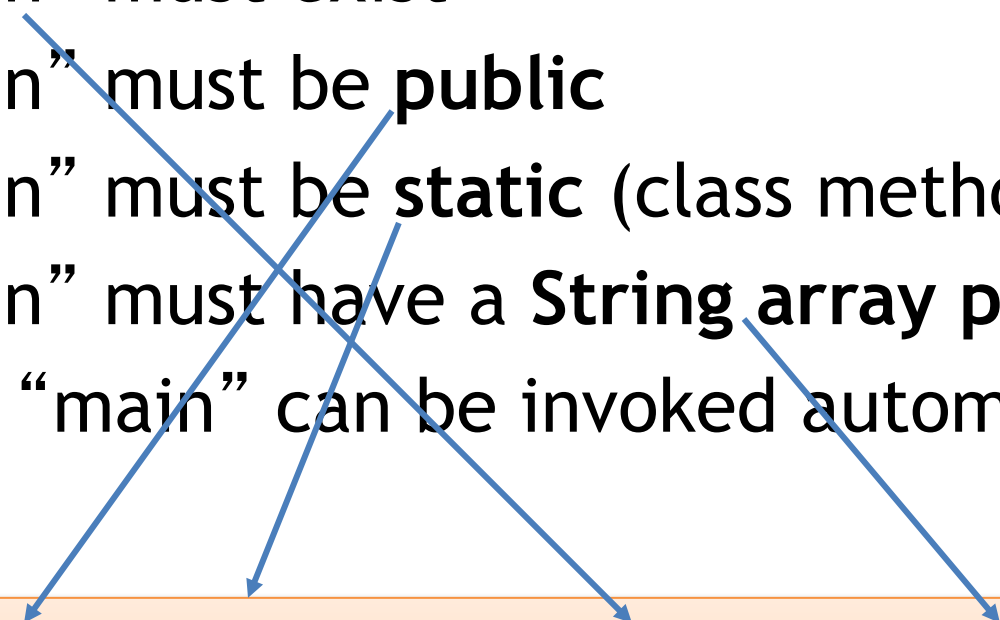
```
public static void main(String[] args)
{
    . . .
}
```



# main() method - signature

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- “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.



The diagram consists of four blue arrows originating from the list items and pointing to specific parts of the code signature: one from “main” to `main`, one from “public” to `public`, one from “static” to `static`, and one from “String array” to `String[]`.

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

# main() method

---

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

- The main method should
  - create an object
  - call the first method


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# What is a **JDK**?

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- Java Development Kit (JDK).
- It includes **tools** for developing Java applications.
- It also includes a Runtime Environment (**JRE**) 
  - **JRE** is the implementation of the JVM.
  - It is a subset of the JDK
- Free from **Oracle** website.

# Note

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- If you are installing the JDK on a windows platform, **USE Internet Explorer!**
- There are **issues** with installing the JDK using the following browsers:
  - Firefox
  - Chrome
  - Microsoft Edge



# Note

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- If you are installing the JDK on the **OSX** platform, **USE Safari!**
- There are **issues** with installing the JDK using the following browsers:
  - Firefox
  - Chrome



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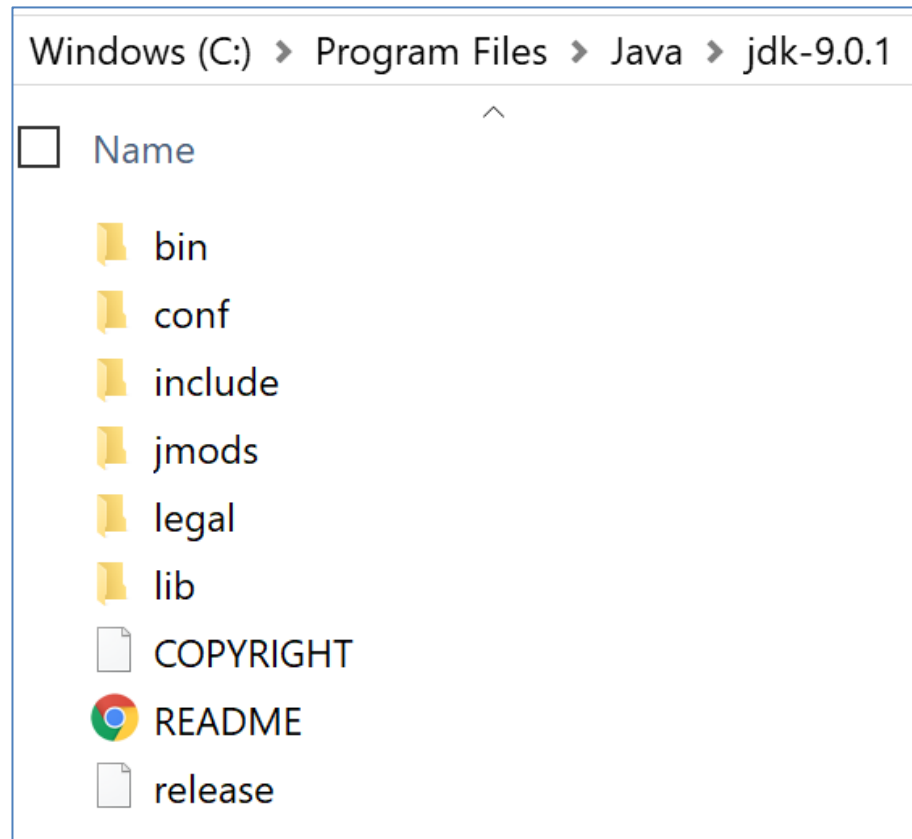
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