INTRODUCTION TO COMPUTERS, PROGRAMS AND JAVA

JAVA FEATURES

1. **Platform independent and portable:**
   - ❖ Java byte code achieves the write-once-Run- Anywhere (WORA) approach so running on different operating system platforms is possible.
   - ❖ As you know java is both compiler and interpreter based language. Once, the Java code(As source code) is compiled, it gets converted to byte code which is portable and can be easily executed on all operating system without change/ upgrade in the Java programs.
   - ❖ Byte code generated is basically represented in hexadecimal format in .class file. This .class file contains byte code which is executed by JVM (Java Virtual Machine) which is a runtime environment for Java.
   - ❖ Now this time .class file can be run in any environment with the help of JVM and it convert byte code into native code.
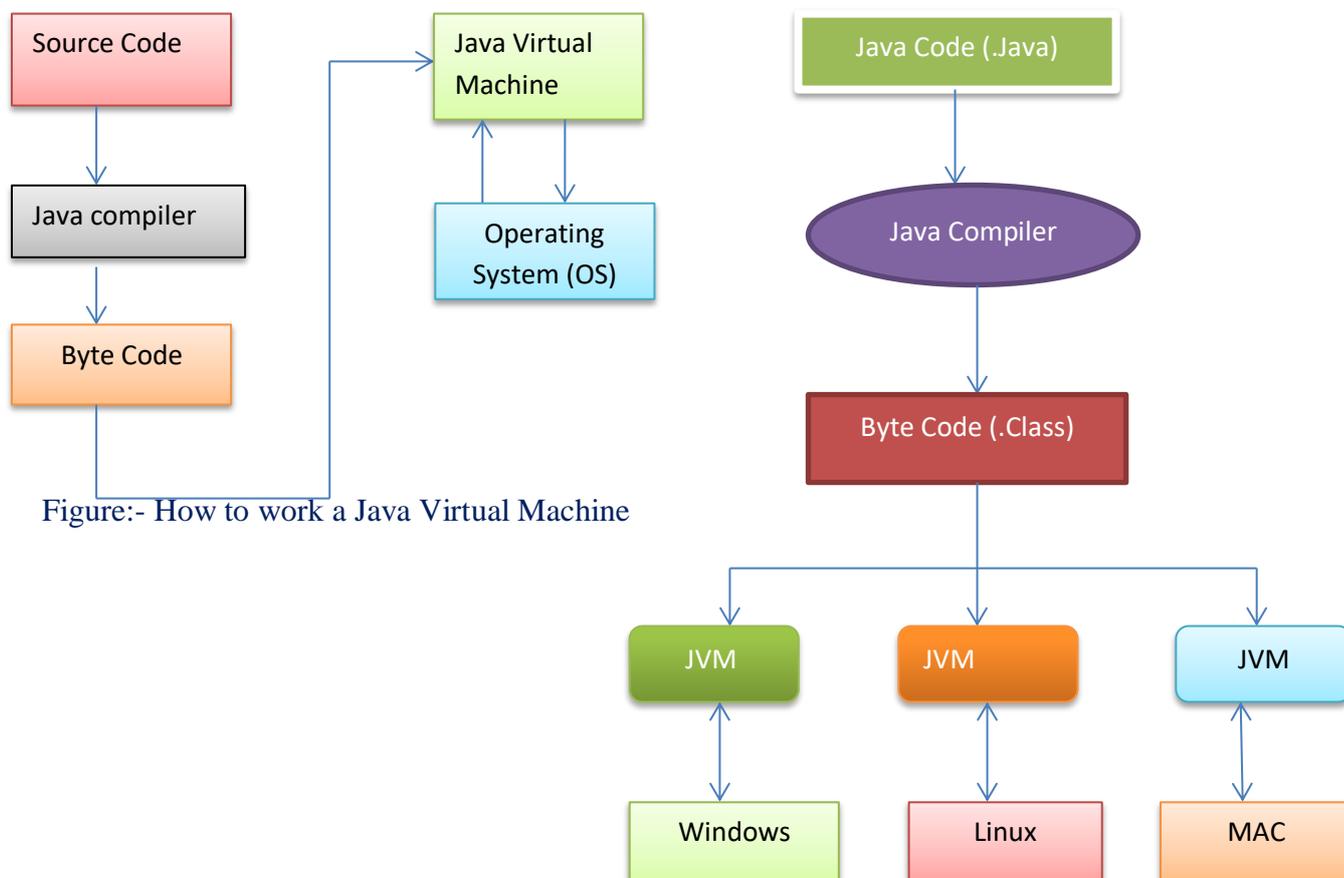
Figure:- How to work a Java Virtual Machine

Figure: how to work Different types of O/S

- ❖ Java Virtual Machine (JVM) like its real counterpart executes the program and generates output. To execute any code, JVM utilizes different components like the stack, the garbage collected heap, the registers and the method area.
- ❖ To show that JVM for different operating system is different. The JVM must translate the byte code into machine language, and since the machine language depends on the operating system being used, it is clear that the JVM is platform (Operating system) dependent, In other words we can say that the JVM is not Platform independent.
- ❖ Java ensure portability in two ways, First, Java compiler generates byte code instructions that can be implemented on any machine, Secondly, the size of the primitive data types are machine- independent.

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