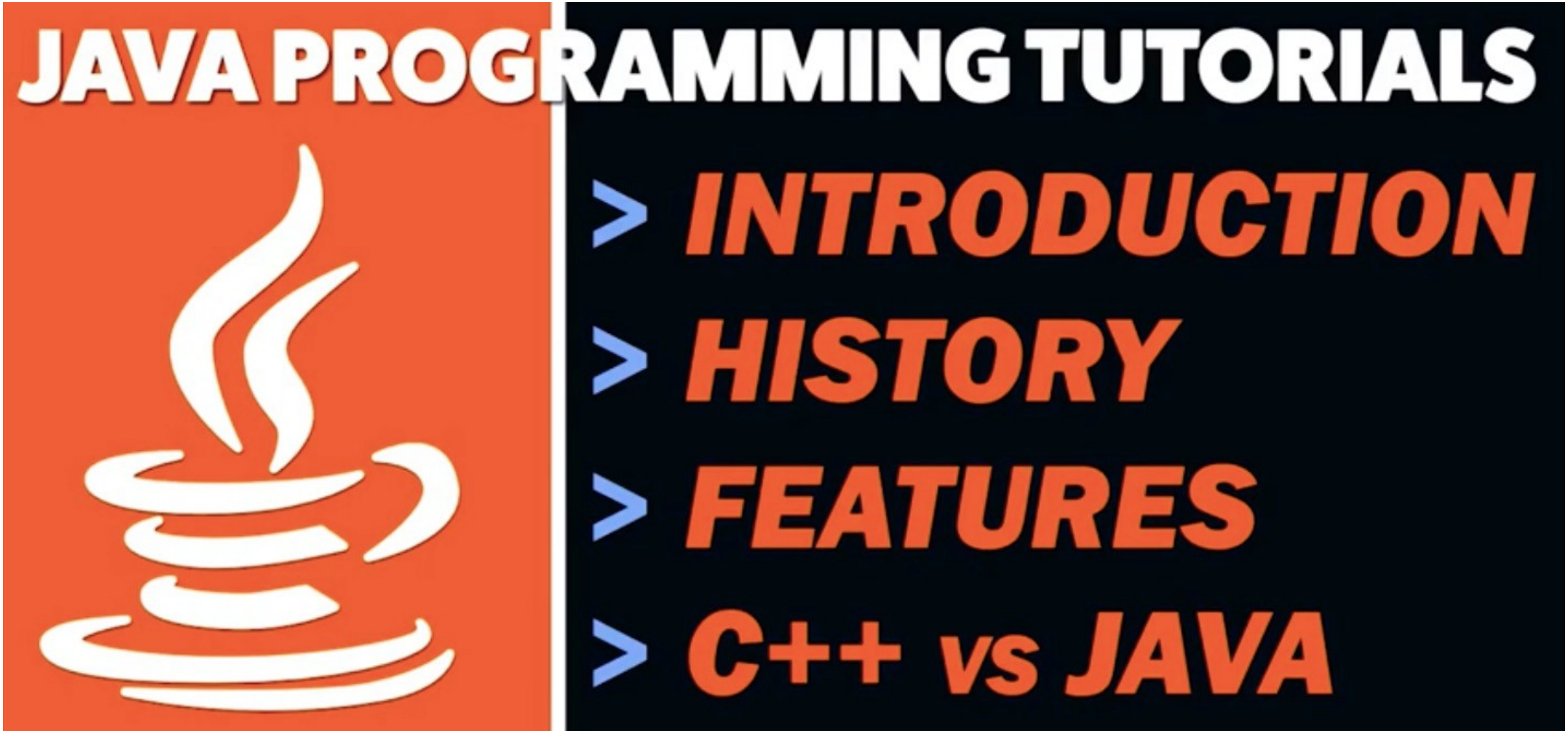

JAVA PROGRAMMING TUTORIALS
> INTRODUCTION
> HISTORY
> FEATURES
> C++ vs JAVA

Introduction to Java Programming

- Java is a programming language and a platform.
- Java is a high level, robust, secured and object-oriented programming language.
- Platform: Any hardware or software environment in which a program runs, is known as a platform. Since Java has its own runtime environment (JRE), it is called platform.

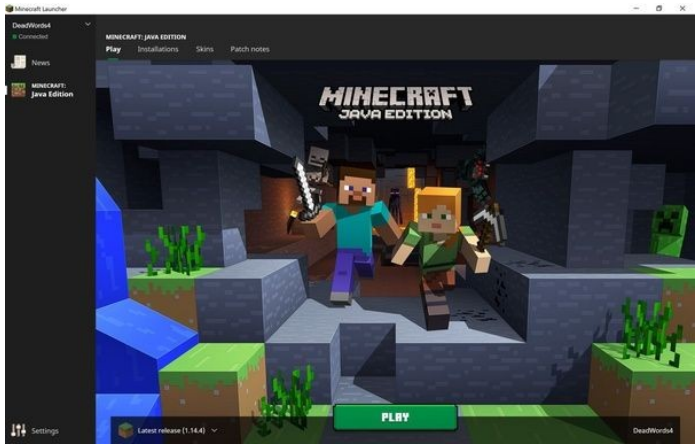
History of Java

- Java programming language was originally developed by Sun Microsystems(currently acquired by Oracle Corporation) which was initiated by James Gosling and released in 1995 as core component of Sun Microsystems Java platform.
- Stable release: Java SE 9.0.4

Features of JAVA

Introduction to JAVA

- Some of the applications which uses JAVA as one of the languages



Where is Java Used ?

- Desktop Applications
- Web Applications
- Enterprise Applications
- Mobile Applications
- Embedded System
- Smart Card
- Robotics
- Games etc.

3 PHASES OF PROGRAM EXECUTION

1) Writing - java programmer

2) Compilation - javac compiler.

I. Javac is the primary java compiler included in java development kit (JDK).

II. It takes java program as input and generates java byte code as output.

3) Run phase :

JVM executes the bytecode generated by compiler.

bytecode

I. javac compiler of JDK compiles the java source code into bytecode so that it can be executed by JVM.

II. The bytecode is saved in a .class file by compiler.

Java Development Kit(JDK)

JDK includes

I. JRE (Java Runtime Environment)

II. compilers

III. various tools like JavaDoc, Java debugger etc.

In order to create, compile and run Java program you would need JDK installed on your computer.

Java Runtime Environment(JRE)

I. JRE is a part of JDK

II. When you have JRE installed on your system, you can run a java program however you won't be able to compile it.

III. When you only need to run a java program on your computer, you would only need JRE.

JAVA IS PLATFORM INDEPENDENT

Each operating system has different JVM, however the output they produce after execution of byte code is same across all operating systems. That is why we call java as platform independent language.

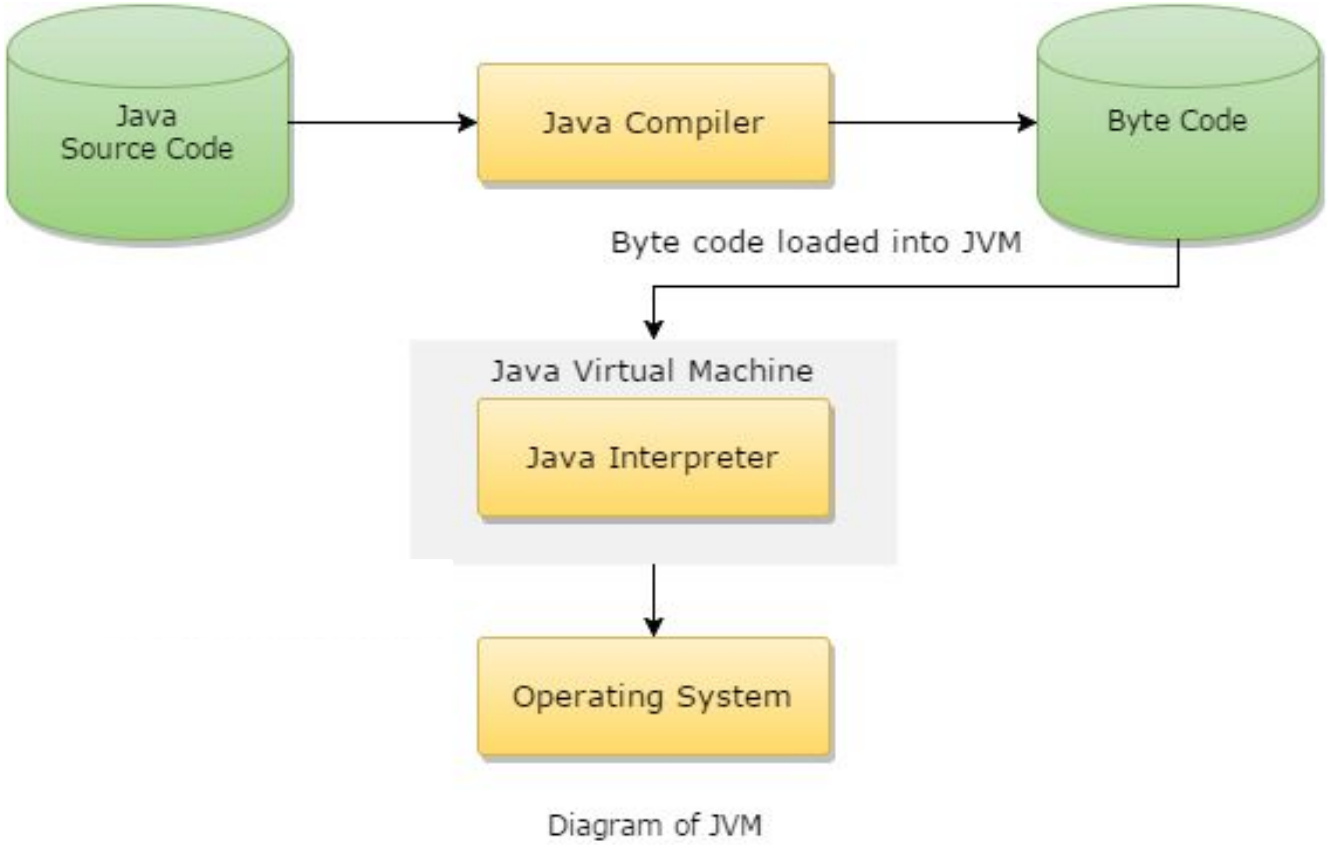
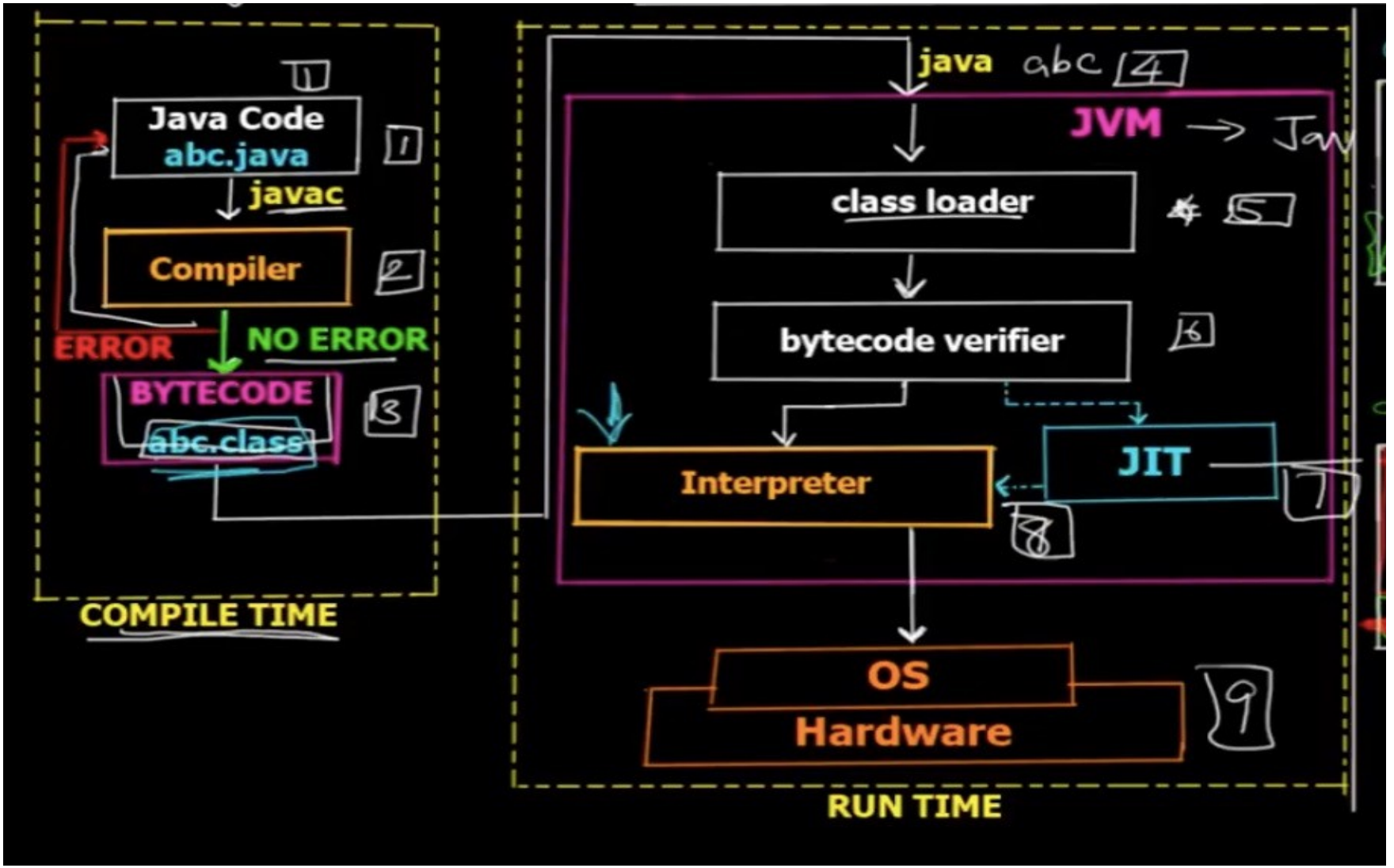


Diagram of JVM

C++ vs JAVA

Comparison Index	C++	Java
Platform-independent	C++ is **platform-dependent**.	Java is **platform-independent**.
Mainly used for	C++ is mainly used for **system programming**.	Java is mainly used for **application programming**. It is widely used in window, web-based, enterprise and mobile applications.
Goto	C++ supports goto statement.	Java doesn't support goto statement.
Multiple inheritance	C++ supports **multiple inheritance**.	Java **doesn't support** multiple inheritance through class. It can be achieved by **interfaces** in java.
Operator Overloading	C++ supports **operator overloading**.	Java **doesn't support** operator overloading.
Pointers	C++ **supports pointers**. You can write pointer program in C++.	Java **supports pointer internally**. But you can't write the pointer program in java.
Compiler and Interpreter	C++ **uses compiler only**.	Java uses **compiler and interpreter** both.


Java Code
abc.java
javac
Compiler
ERROR
NO ERROR
BYTECODE
abc.class
COMPILE TIME
java abc
JVM
class loader
bytecode verifier
Interpreter
JIT
OS
Hardware
RUN TIME

BASIC JAVA STRUCTURE

I. A class is a template that describes the data and behavior associated with an instance of that class.

II. A class is defined by the *class* keyword and must start with a capital letter. The body of a class is surrounded by {}.

III.
```
package test;
class MyClass
{
 }
```

BASIC STRUCTURE

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

Interview Questions !!

- One of the features of JAVA, it is secured language. Why?
- What is the difference between JAVA and C++ ?

What is JDK, JRE and JVM ?

Interview Question !!

Why JAVA is called Platform Independent?

Each operating system has different JVM, however the output they produce after execution of byte code is same across all operating systems.

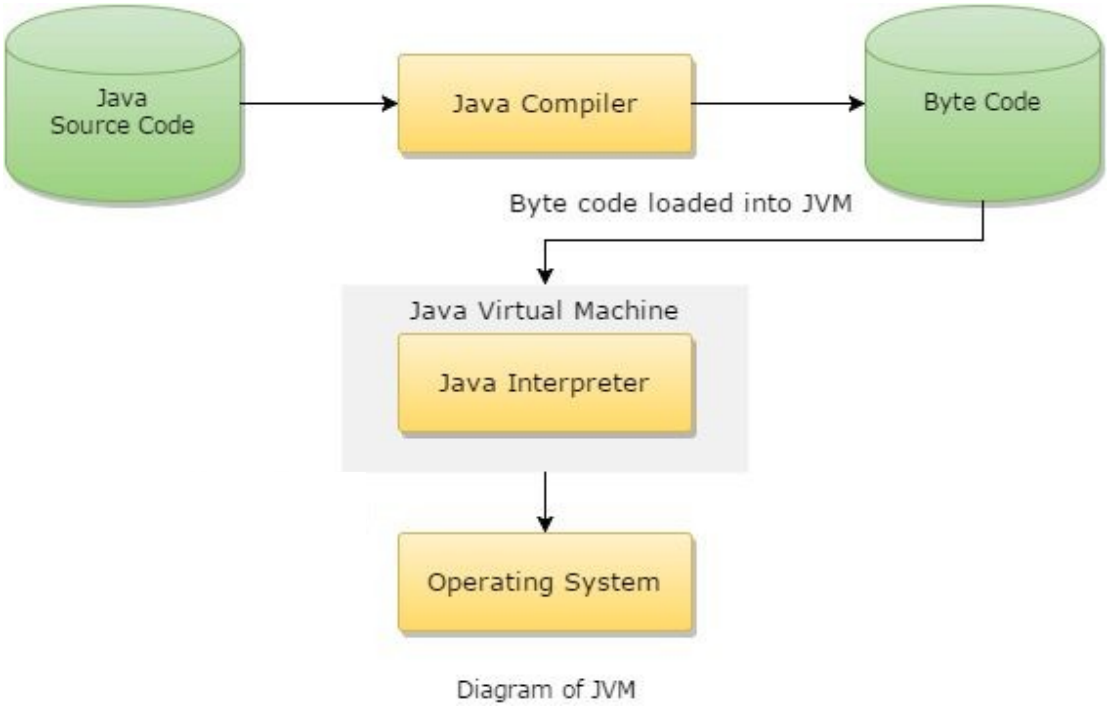


Diagram of JVM

Explain public static void main(String[ ] args)