

# CORE JAVA DAY 1

19 JULY 2022

Q.1 WHAT IS PLATFORM INDEPENDENT AND DEPENDENT AMONG JDK,JRE,JVM?

**JVM:-**

1. Java is platform-independent but JVM is platform dependent
2. JVM depends on the operating system – so if you are running Mac OS X you will have a different JVM than if you are running Windows or some other operating system.

**JDK:-**

1. JDK is platform dependent i.e there is separate installers for Windows, Mac, and Unix systems.
2. JDK includes both JVM and JRE and is entirely responsible for code execution.

**JRE:-**

1. The Java Runtime Environment (JRE) is part of the Java Development Kit (JDK). It contains a set of libraries and tools for developing java applications.
2. consists of JVM and some other things. Since it include JVM, it is platform dependent.

**In easier words :-**

1. JVM -> platform dependent.
2. JRE -> consists of JVM and some other things. Since it include JVM, it is platform dependent.
3. JDK -> consists of JRE, compiler and some other things. Since it includes JRE which in turn includes JVM, it is platform dependent.

Q.2 CAN WE USE/DOWNLOAD JRE DIRECTLY WITHOUT DOWNLOADING JDK?

1. The JDK is a superset of the JRE, and contains everything that is in the JRE, plus tools such as the compilers and debuggers necessary for developing applets and applications.
2. It is not necessary to use the jdk and jre of same version
3. Example: If we develop with JDK 11 but only use features from Java 8 -> code will run in JRE 8. See the older versions as subsets of the newer ones.

4. It is not possible to compile your java code in the absence of JDK. javac , the java compiler, and other Java Development related binaries are available in the JDK only not in JRE.

**Q.3 Create a simple class "HelloWorld" and print "HelloWorld".**

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

**Save the filename as HelloWorld.java**

```
C:\Users\Coditas>cd Desktop
C:\Users\Coditas\Desktop>javac HelloWorld.java
C:\Users\Coditas\Desktop>java HelloWorld
Hello World
C:\Users\Coditas\Desktop>
```

**Q.4 Use The above-mentioned class and save this file as "HelloWolrd\_Batch2 java" and try to execute the code.**

1. The code is same as the above

```
C:\Users\Coditas\Desktop>javac HelloWorld_Batch2.java
javac: file not found: HelloWorld_Batch2.java
Usage: javac <options> <source files>
use -help for a list of possible options

C:\Users\Coditas\Desktop>javac HelloWorld_Batch2.java

C:\Users\Coditas\Desktop>java HelloWorld
Hello World
```

**Q.5 Create Simple Calculator program.**

```
class Addition
```

```
{  
    int add=0;
```

```
    Addition(int x, int y) //Addition constructor
```

```
{  
    add = x + y;  
}  
}
```

```
class Subtraction
```

```
{  
    int sub=0;
```

```
    Subtraction(int x, int y) //Substraction constructor
```

```
{  
    sub = x - y;  
}  
}
```

```
class Multiplication
```

```
{  
    int multi=0;
```

```
    Multiplication(int x, int y) //Multiplication constructor
```

```
{  
    multi = x * y;  
}  
}
```

```
class Division
```

```
{  
    int div=0;
```

```
    Division(int x, int y) //Division constructor
```

```
{  
    div = x / y;  
}  
}
```

```
public class Calculator  
{  
  
    public static void main(String[] args)  
    {  
        int num1 = 10 ;  
        int num2 = 20 ;  
  
        Addition object1 = new Addition(num1, num2);  
        Subtraction object2 = new Subtraction(num1, num2 );  
        Multiplication object3 = new Multiplication(num1, num2 );  
        Division object4 = new Division(num1, num2 );  
  
        System.out.println("The sum of " +num1+" and "+num2+" is: "+ object1.add);  
        System.out.println("The sum of " +num1+" and "+num2+" is: "+ object2.sub);  
        System.out.println("The sum of " +num1+" and "+num2+" is: "+ object3.multi);  
        System.out.println("The sum of " +num1+" and "+num2+" is: "+ object4.div);  
    }  
}
```

```
C:\Users\Coditas\Desktop>javac Calculator.java  
  
C:\Users\Coditas\Desktop>java Calculator  
The sum of 10 and 20 is: 30  
The sum of 10 and 20 is: -10  
The sum of 10 and 20 is: 200  
The sum of 10 and 20 is: 0
```