Introduction and Overview of Java
Lecture-1

Java is an object-oriented programming language developed by Sun Microsystems of USA in 1991. It is

- Compiled and Interpreted
- Platform Independent and Portable
- Object-Oriented
- Robust and Secure
- Distributed
- Simple, Small and Familiar
- Multithreaded and Interactive
- High Performance
- Dynamic and Extensible
- Ease of Development
- Scalability and Performance

Java Runtime Environment

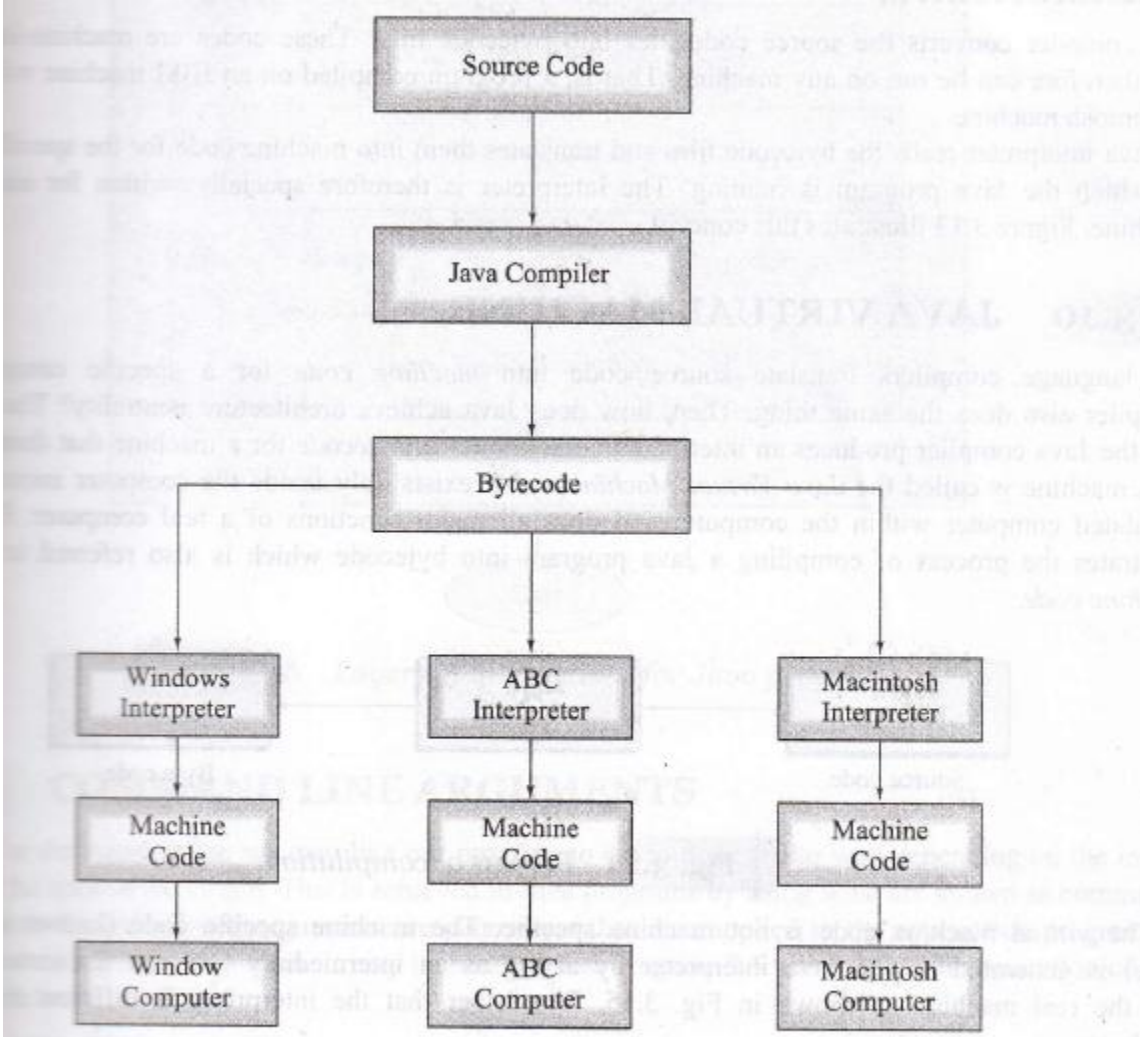
Java Runtime Environment (JRE) facilitates the execution of programs developed in Java. It comprises the following

- ❖ Java Virtual Machine
  - Java virtual machine to execute Java programs
- ❖ Runtime Class Libraries
  - Core class libraries needed for execution of Java programs
- ❖ User Interface Toolkits
  -AWT and Swing are the toolkits

NetBeans

- NetBeans refers to both a platform framework for Java desktop applications as well as an integrated development environment (IDE) for developing with Java, JavaScript, PHP, Python, Groovy, C, C++.
- The NetBeans IDE is written in Java and can run anywhere a compatible JVM is installed, including Windows, Mac OS, Linux, and Solaris. A JDK is required for Java development functionality, but is not required for development in other programming languages.

How Java program implemented?



Implementation of Java programs

Java Comments

- Java permits both single-line comments and multi-line comments
- Single line comments begin with //
- Multi-line comments starts with /* and ends with */

Some Java Programs

1#

```
package Lecture1; // Name of the package that put classes together

public class HelloJava // Name of the Class
{

    public static void main(String[] args)  // Main Method of the Class
    {
        System.out.println ("My First Java Program"); // Display of the String
    }
}
```

2#

```
package Lecture1;

public class Addition
{

    public static void main (String [] args)
    {
        int a = 5;
        int b = 7;
        int result = a+b;
        System.out.println("Result: " +result);
    }
}
```

3#

```
package Lecture1;

import javax.swing.*;

public class GUIHello
{
    public static void main (String [] args)
    {
        // JOptionPane makes it easy to pop up a standard dialog box

        JOptionPane.showMessageDialog (null, "Welcome\nto\nJava");
    }
}
```

4#

```
package Lecture1;

import java.lang.Math; // Loading Math class from the package lang

public class SquareRoot
{
   public static void main(String[] args)
   {
      double x = 5; // Declaration and initialization
      double y; // Simple declaration

      y = Math.sqrt(x);

      System.out.println("y = " +y);
   }
}
```

5#

```
package Lecture1;

import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class TestFrame extends JFrame
{
        public TestFrame() // Constructor of the Class
        {
                super( "Test a JFrame" );
                setSize( 200, 100);

        }

        public static void main( String args[] )
        {
                TestFrame frm = new TestFrame(); // Creating object frm
                frm.setVisible(true);
        }

}
```