Experiment Number : 01 **Date: 28/1/2025**

Installation of Java and Simple Java Programs

Aim:

To install Java Development Kit (JDK), configure the environment, and write simple Java programs including Hello World.

PRE LAB EXERCISE

QUESTIONS

1. **What is JDK and why is it required?**

   JDK (Java Development Kit) is a software package that provides tools to develop, compile, and run Java programs.

2. **Difference between JDK, JRE, and JVM.**

   JDK is for developing Java programs, JRE is for running Java programs,
   and JVM executes Java bytecode on any platform.

3. **What is the purpose of the main() method in Java?**

   The main() method is the entry point where the execution of a Java program begins.

IN LAB EXERCISE

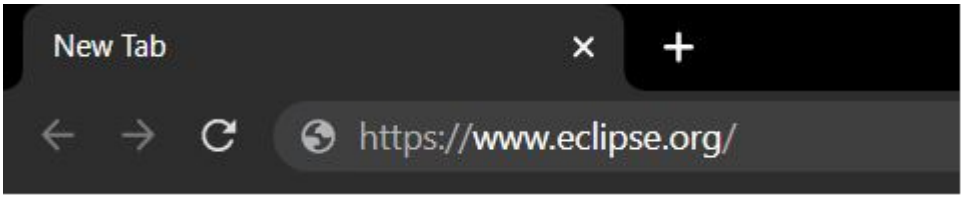
Objective:

To verify Java installation and execute a basic Java program.

INSTALLATION STEPS:

STEP 1: Open Browser

- Open your browser and go to the official URL Eclipse Downloads page.

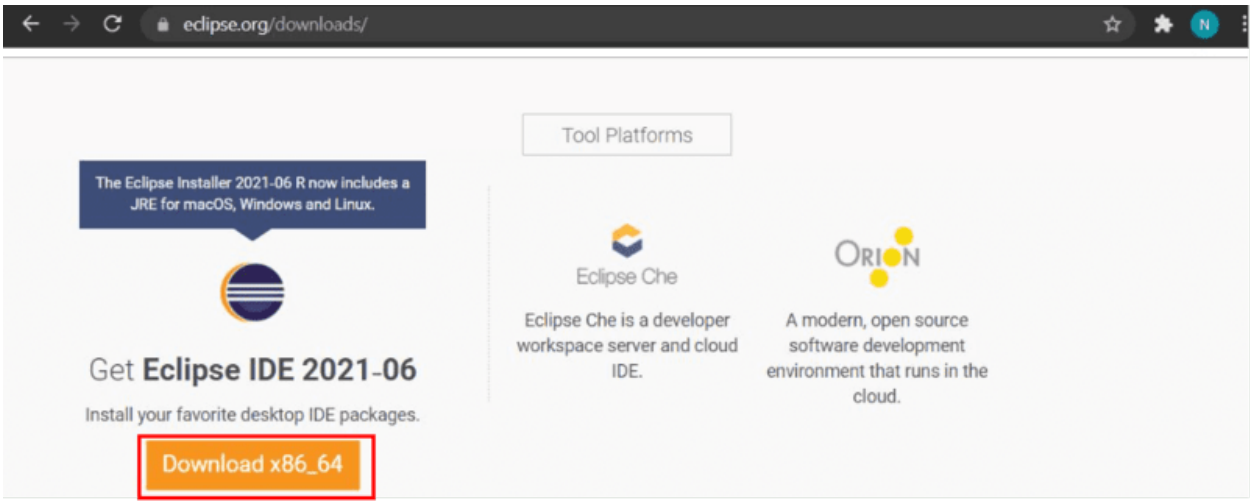


STEP 2: Download Eclipse Installer

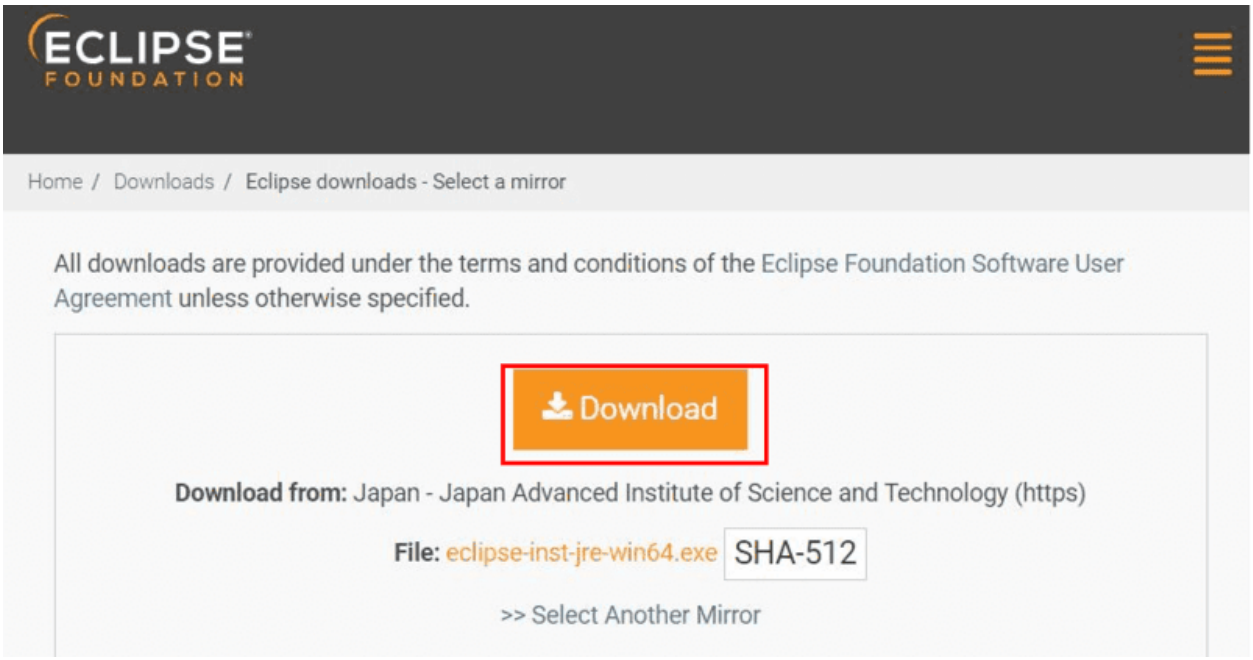
- Then, click on the "Download" button to download Eclipse IDE.

STEP 3: Download EXE

- Now, click on the "Download x86_64" button.

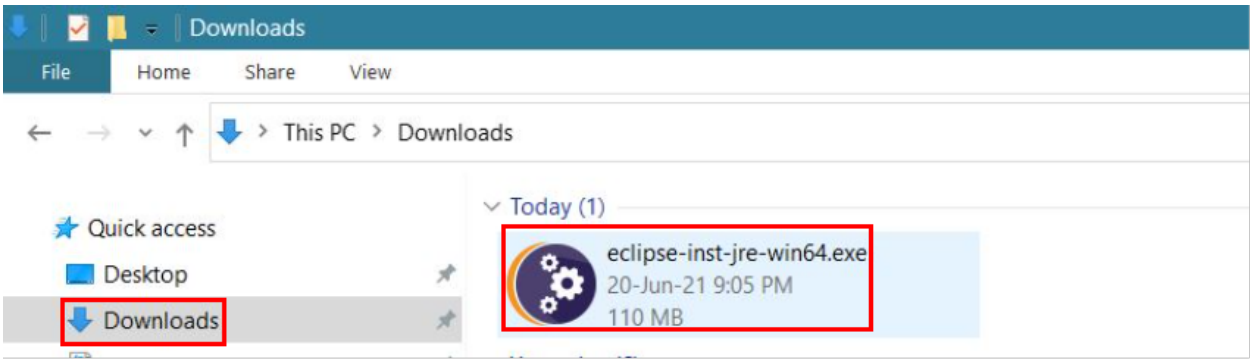


STEP 4: Then click on the "Download" button. After clicking on the download button the .exe file for the eclipse will be downloaded.



STEP 5: Open Download EXE

- Now go to File Explorer and click on "Downloads" after that click on the "*eclipse-inst-jre-win64.exe*" file for installing Eclipse IDE**.**



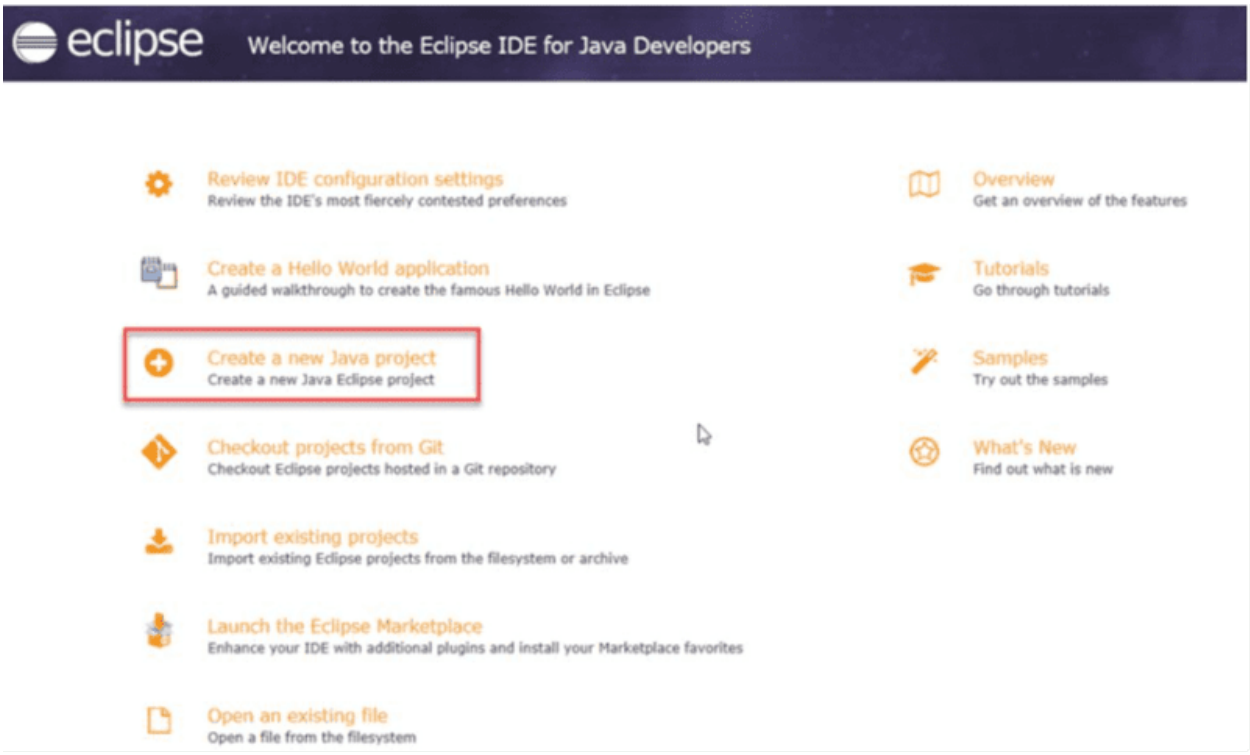
STEP 6: Install Eclipse

- Then, click on "Eclipse IDE for Java Developers".

STEP 7: Then, click on the "Install" button.

Step 8: Create New Project

Now click on "Create a new Java project".

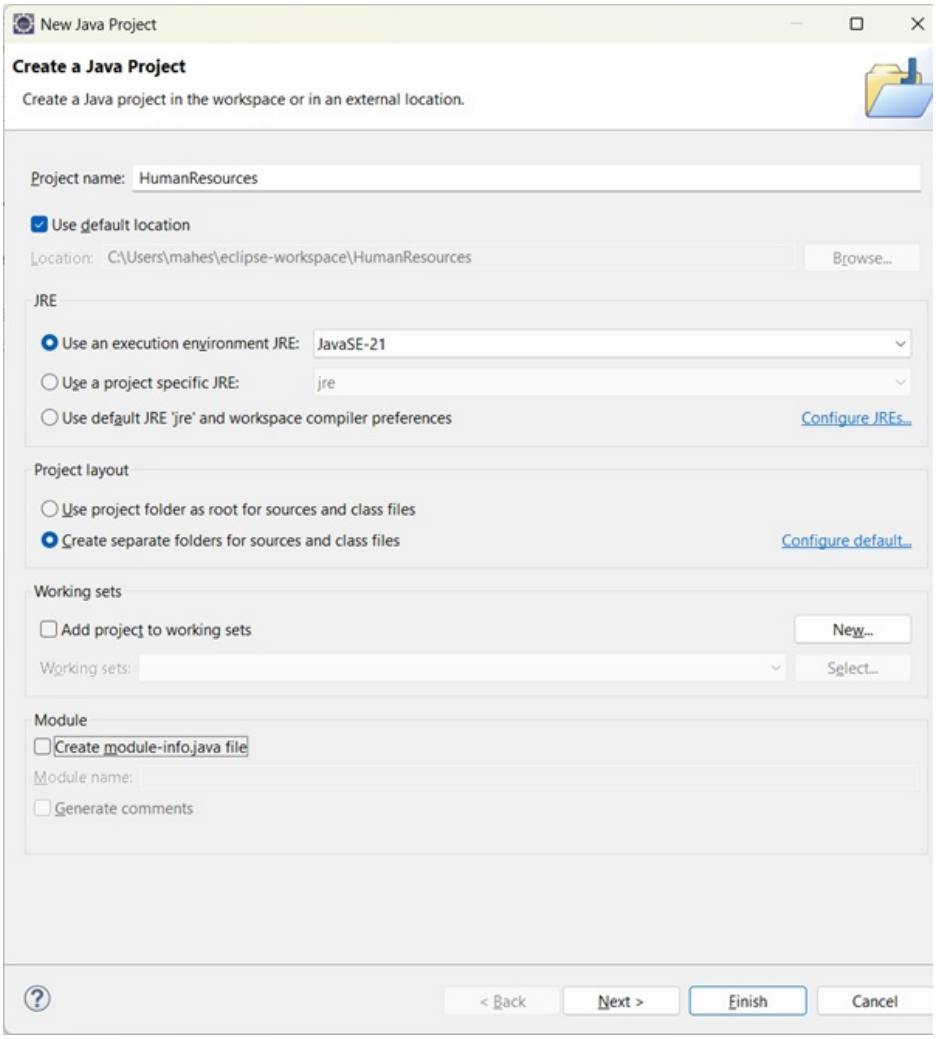


STEP 9:Create a new java project

- By clicking on the File menu and choosing New → Java Project.

- By right clicking anywhere in the Project Explorer and selecting New → Java Project.
- By clicking on the New button ( ) in the Tool bar and selecting Java Project.

STEP 10: Enter the Project Name

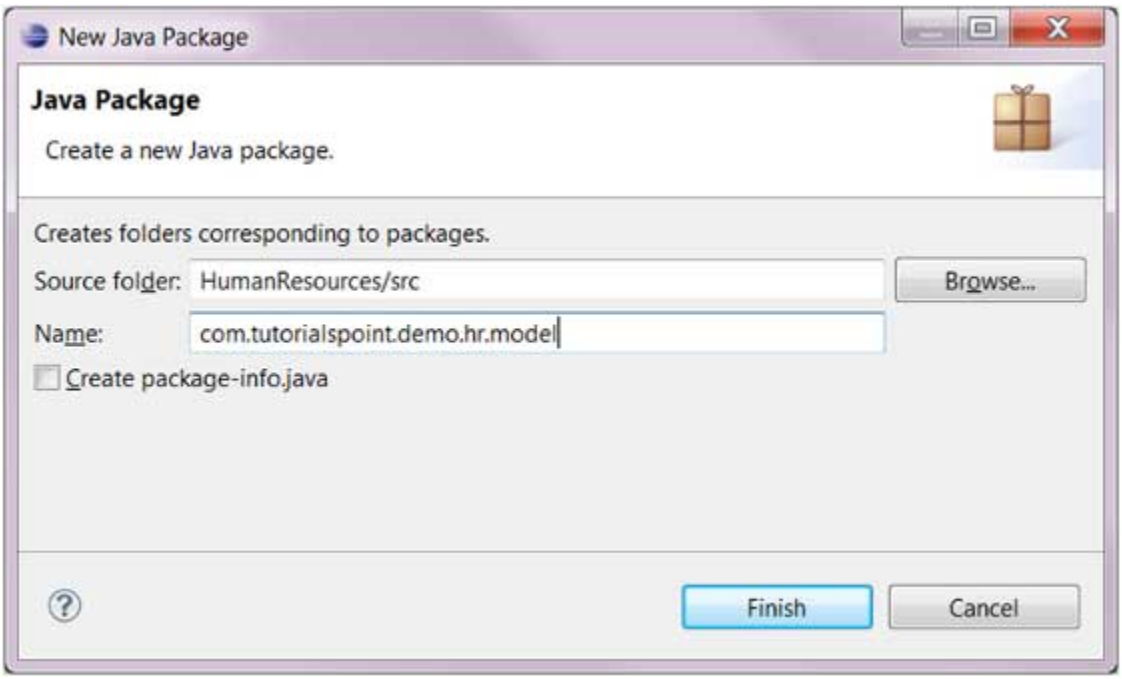
- Select the Java Runtime Environment (JRE) or leave it at the default
- Select the Project Layout which determines whether there would be a separate folder for the source codes and class files. The recommended option is to create separate folders for sources and class files.
- 

STEP 11: Create a new java package

- By clicking on the File menu and selecting New → Package.
- By right click in the package explorer and selecting New → Package.
- By clicking on the package icon which is in the tool bar( ).

STEP 11:

- Enter/confirm the source folder name.
- Enter the package name.
- Click on the Finish button.

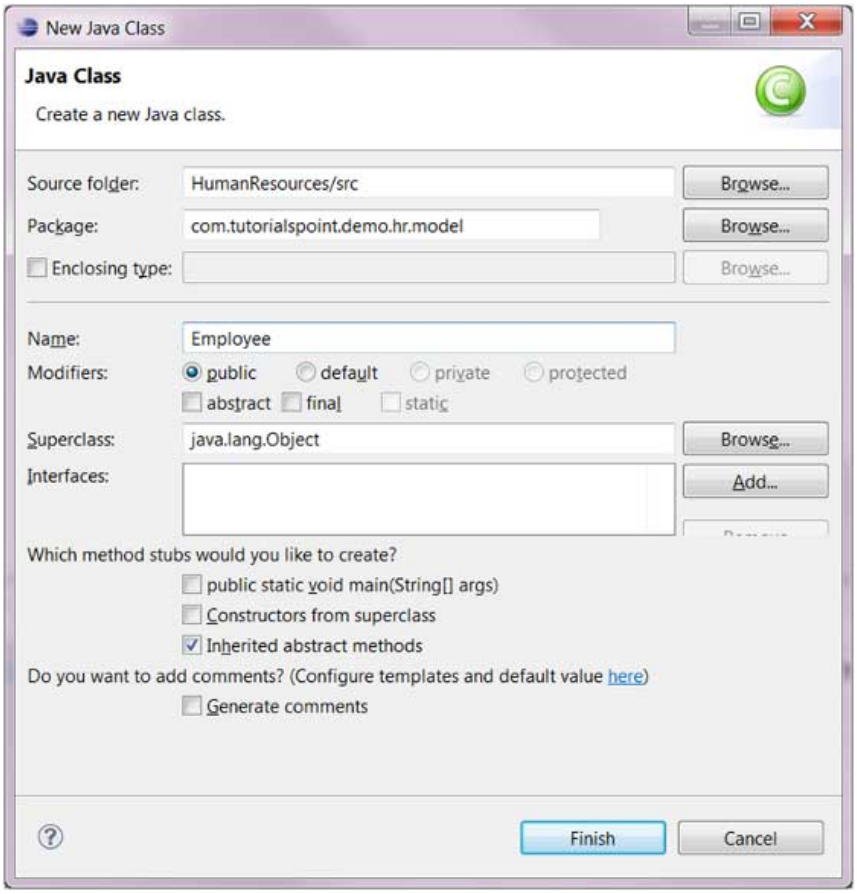


STEP 12:Create a New Java class.

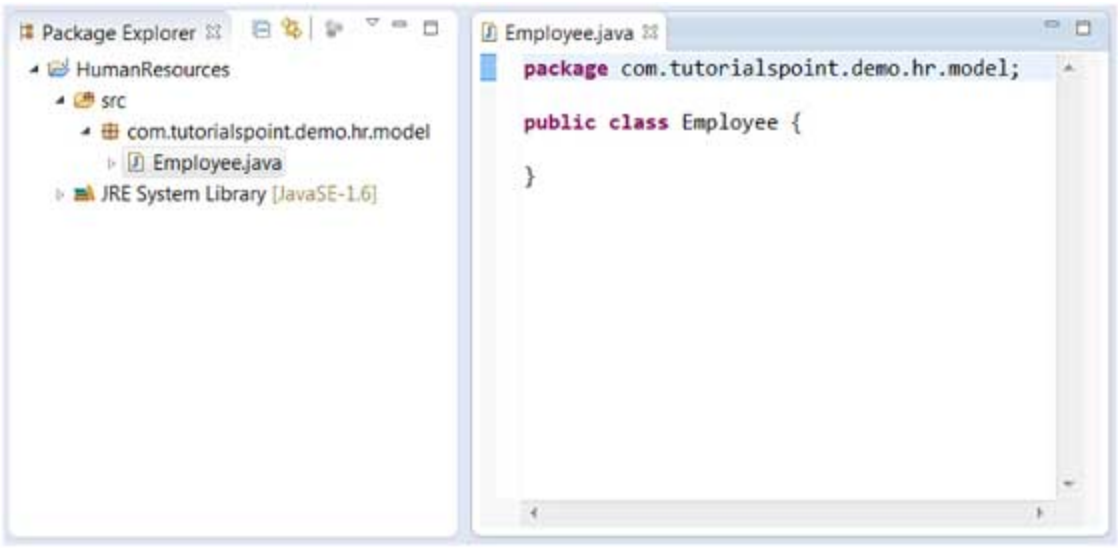
- By clicking on the File menu and selecting New → Class.
- By right clicking in the package explorer and selecting New → Class.
- By clicking on the class drop down button ( ) and selecting class ( ).

STEP 13:

- Ensure the source folder and package are correct.
- Enter the class name.
- Select the appropriate class modifier.
- Enter the super class name or click on the Browse button to search for an existing class.
- Click on the Add button to select the interfaces implemented by this class.
- Examine and modify the check boxes related to method stubs and comments.



STEP 14: Class created successfully.



BASIC PROGRAMS:

Program 1: Hello World Program

Source Code:

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

Output:

Hello World

```
3ecd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin HelloWorld
Hello World
```

Program 2: Display Personal Details

Source Code:

```
class DisplayInfo {
public static void main(String[] args) {
System.out.println("Name: Anitha");
System.out.println("Age: 20");
}
}
```

Output:

Name: Anitha

Age: 20

```
cd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin DisplayI
nfo
Name: Anitha
Age: 20
```

Program 3: Addition of Two Numbers

Source Code:

```
class AddTwoNumbers {
```

```
public static void main(String[] args) {
int a = 10, b = 20;
System.out.println("Sum = " + (a + b));
}
}
```

Output:

Sum = 30

```
cd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin AddTwoNu
mbers
Sum = 30
```

Program 4: Area of a Rectangle

Source Code:

```
class AreaRectangle {
public static void main(String[] args) {
int length = 10, breadth = 5;
System.out.println("Area = " + (length * breadth));
}
}
```

Output:

Area = 50

```
cd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin AreaRect
angle
Area = 50
```

Program 5: Simple Interest Calculation

Source Code:

```
class SimpleInterest {
public static void main(String[] args) {
int p = 1000;
int r = 5;
int t = 2;
```

```
int si = (p * r * t) / 100;

System.out.println("Simple Interest = " + si);

}

}
```

Output:

Simple Interest = 100

```
cd/redhat.java/jdt_ws/JAVA\ VS_2bcf11c9/bin SimpleIn
terest
Simple Interest = 100
```

POST LAB EXERCISE

1. **Write a Java program to display your name and department.**

```
class Display {
   public static void main(String[] args) {
      System.out.println("Name: Santhosh Krishnaa M");
      System.out.println("Department: Computer Science");
   }
}
```

2. **Modify the program to print the output in same line.**

```
class Display {
   public static void main(String[] args) {
      System.out.print("Name: Santhosh Krishna, Department: Computer Science");
   }
}
```

3. **What happens if main() is written without static?**

   The program will not run because JVM cannot call main() without creating an object.

4. **Why is Java called platform independent?**

   Java is platform independent because compiled Java code (bytecode) runs on any system with a JVM.

5. **Write a program to find the cube of a number.**

```
class Cube {
   public static void main(String[] args) {
      int n = 3;
```

```
        System.out.println("Cube = " + (n * n * n));
    }
}
```

Result:

Thus the Java IDE was successfully installed and a simple Java program was executed.

ASSESSMENT

Description	Max Marks	Marks Awarded
Pre Lab Exercise	**5**	
In Lab Exercise	**10**	
Post Lab Exercise	**5**	
Viva	**10**	
Total	**30**	
Faculty Signature		