**Experiment Number : 01** **Date: 28.01.26**

## 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?

Ans:

JDK means java development kit. It is a software package used to create and run the java program.It contains tools like write,compile and java code but without JDK cannot run the java application.

2. Difference between JDK, JRE, and JVM.

Ans:

JVM – java virtual machine – Run only java program and other program compiled in byte code.

JRE – java runtime environment – It provide environment for JVM.

JRK – java development kit – It contain JRE and development tools and also include for JVM excuting bytecode.

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

Ans:

It is the starting point of the program. Without the main() function, the program will not be excuted.

**IN LAB EXERCISE**

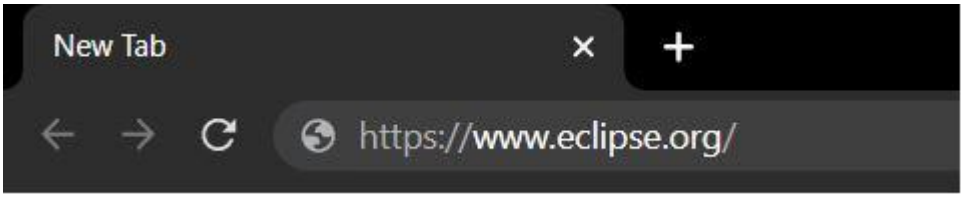
**Objective:**

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.

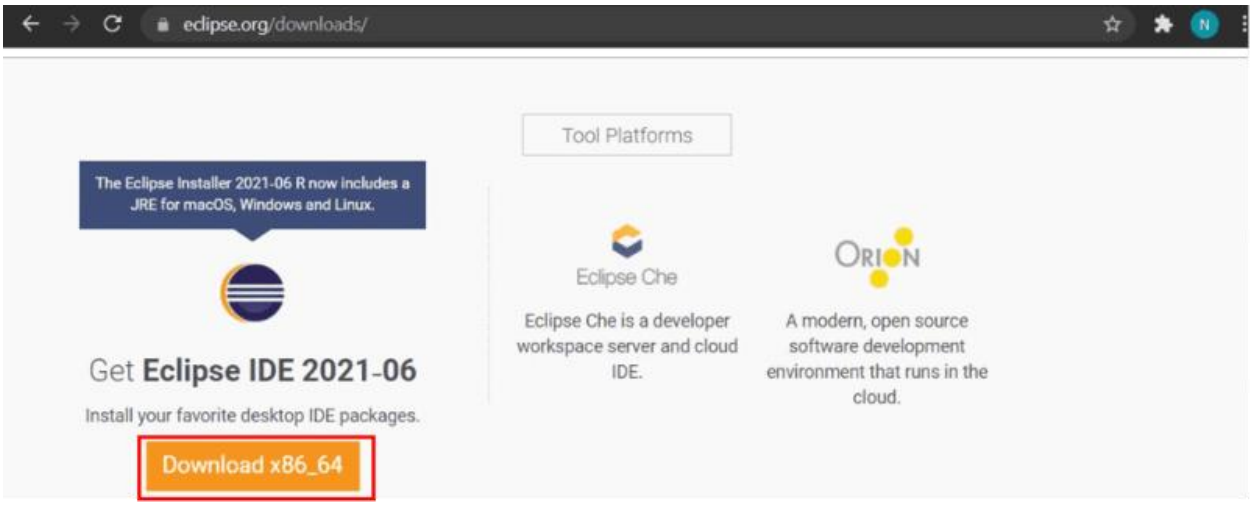



**STEP 2: Download Eclipse Installer**

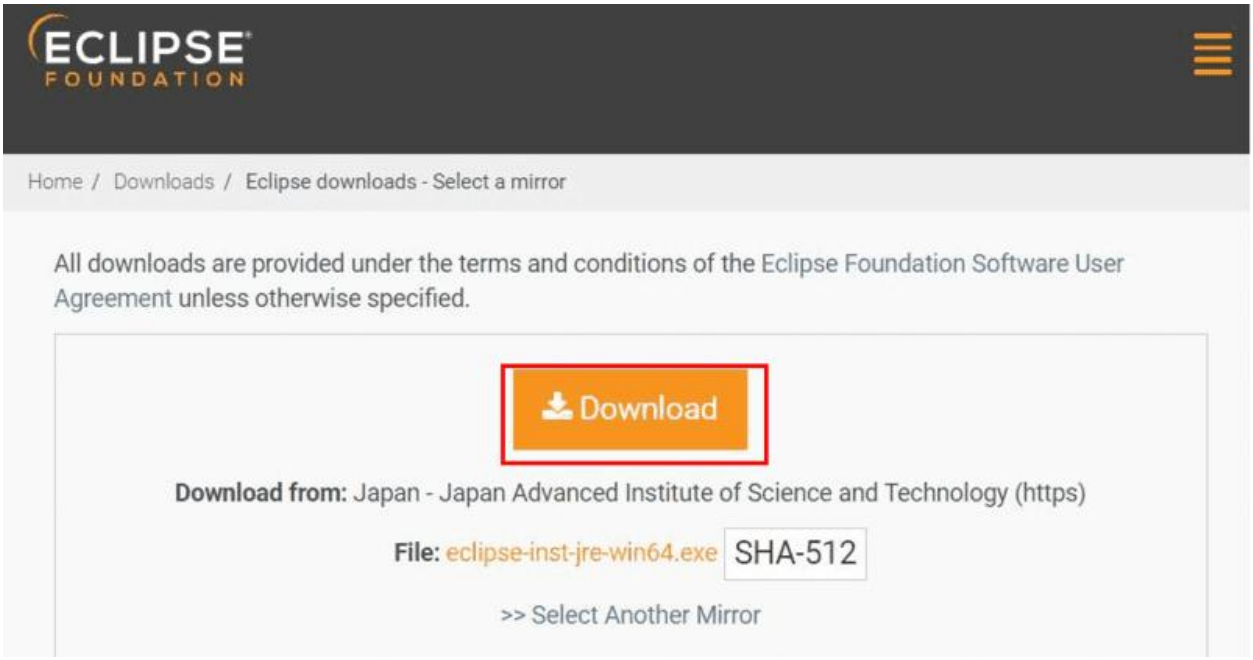
- Then, click on the "Download" button to download Eclipse IDE.


**STEP 3: Download EXE**

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

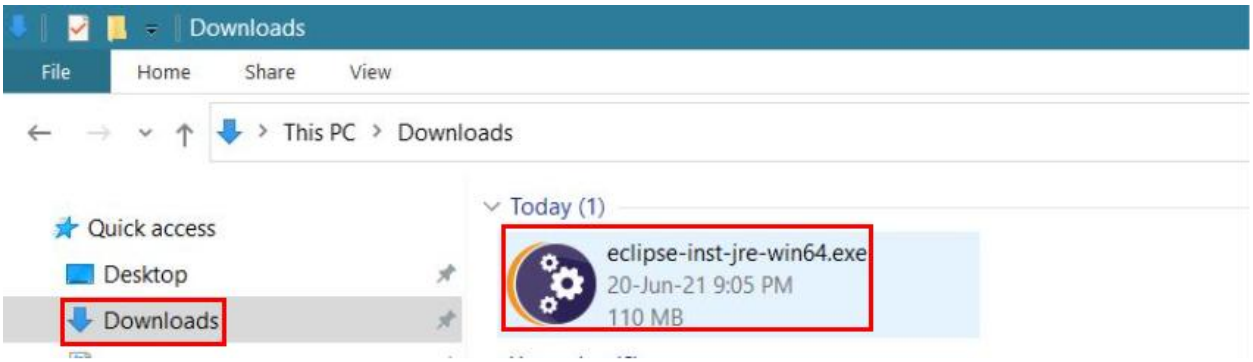



**STEP 4:** Then click on the "Download" button. After clicking on the download button the .exe file for the eclipse will be downloaded.




**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**.**



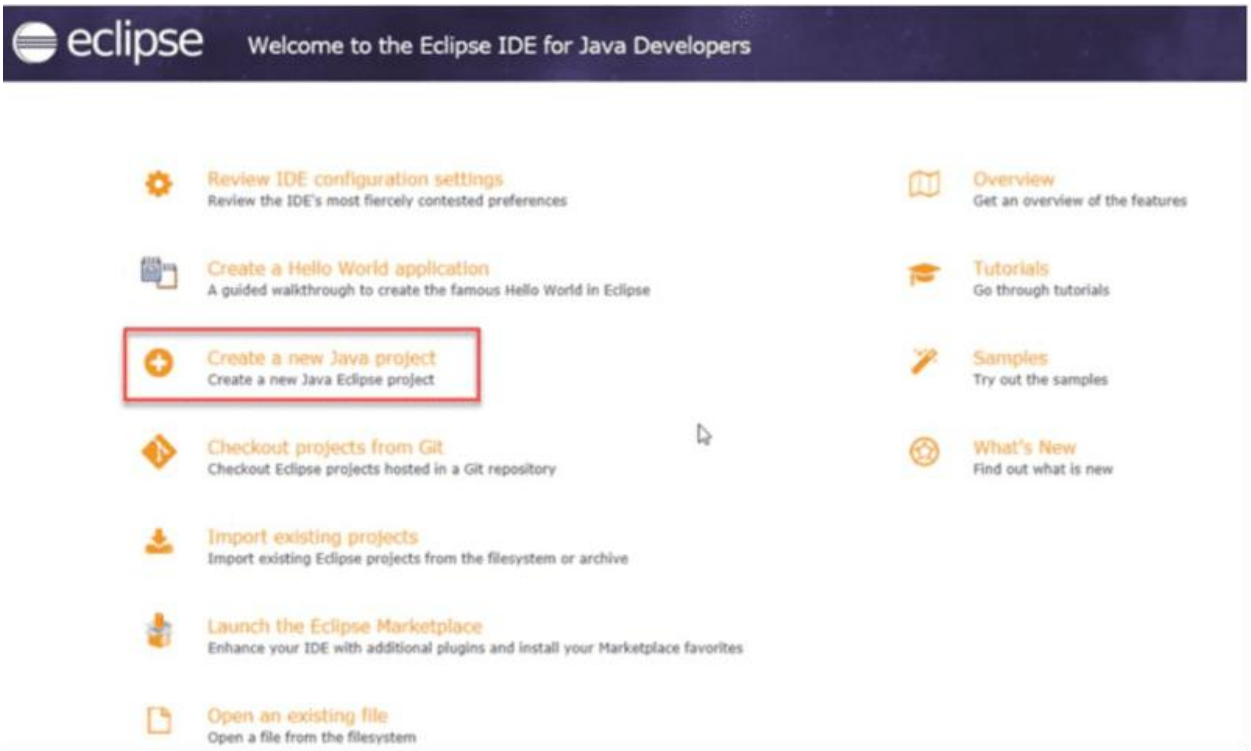

**STEP 6: Install Eclipse**

- 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".



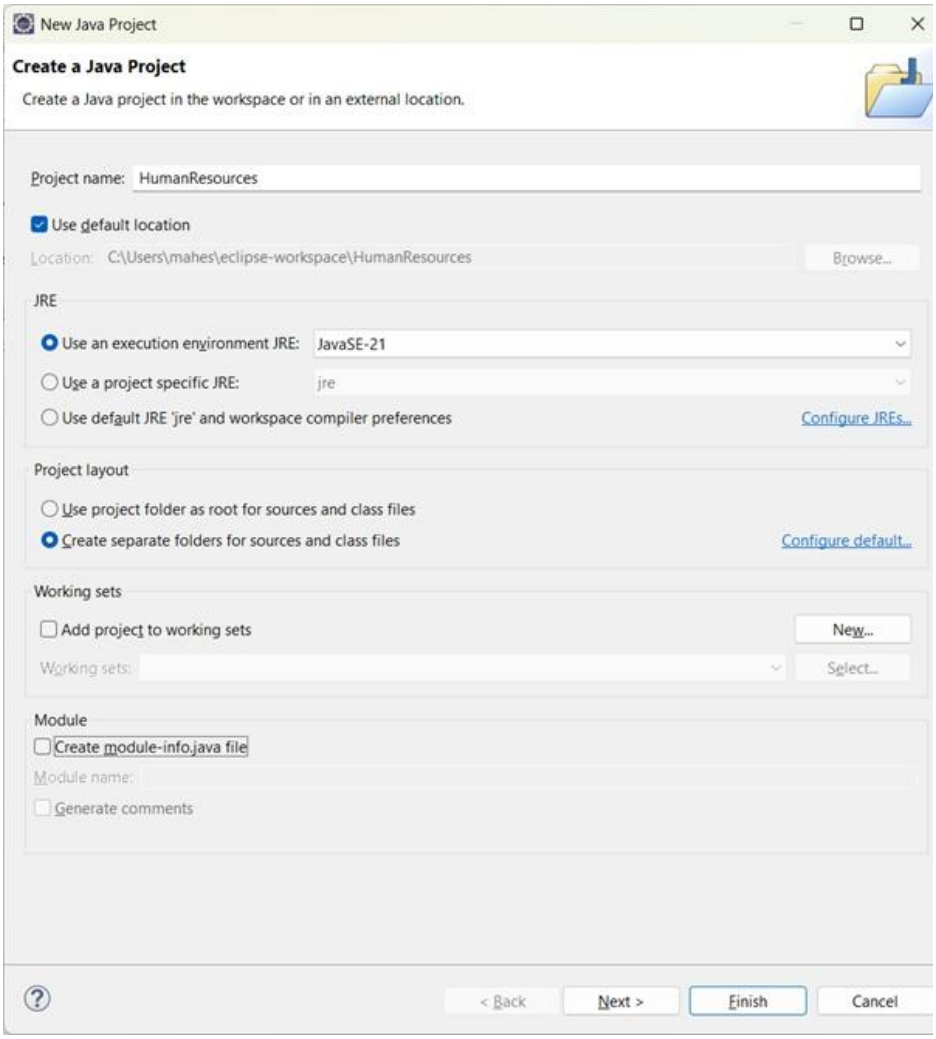

**STEP 9:Create  a new java project**

- 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.

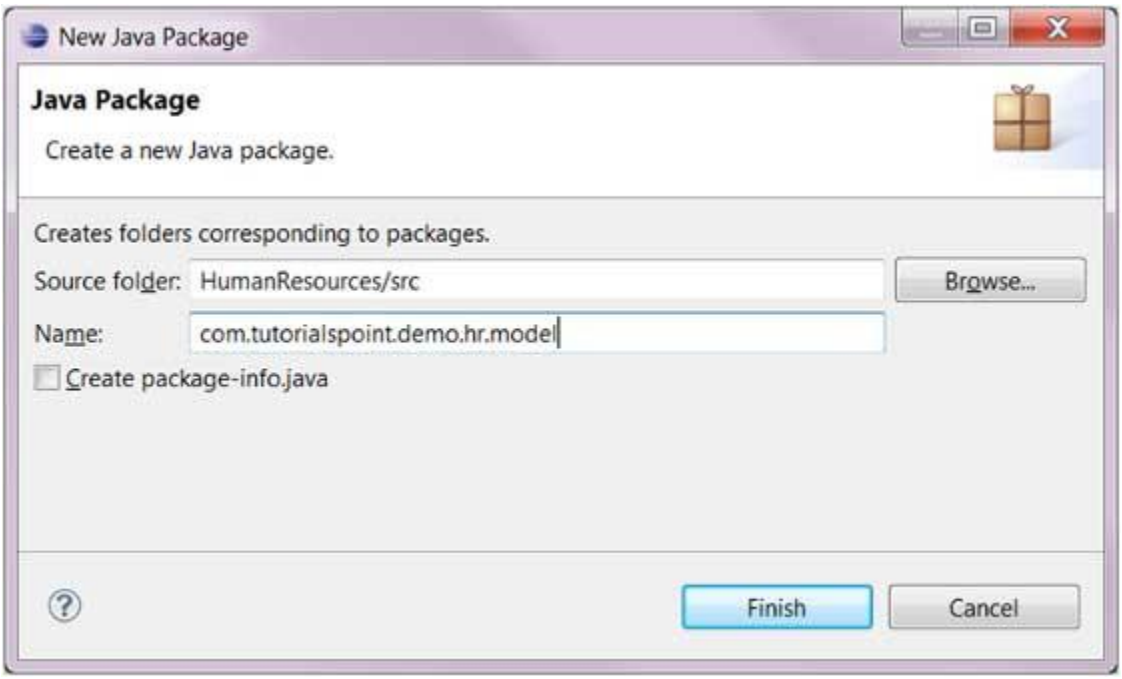



**STEP 11: Create a new java package**

- 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.

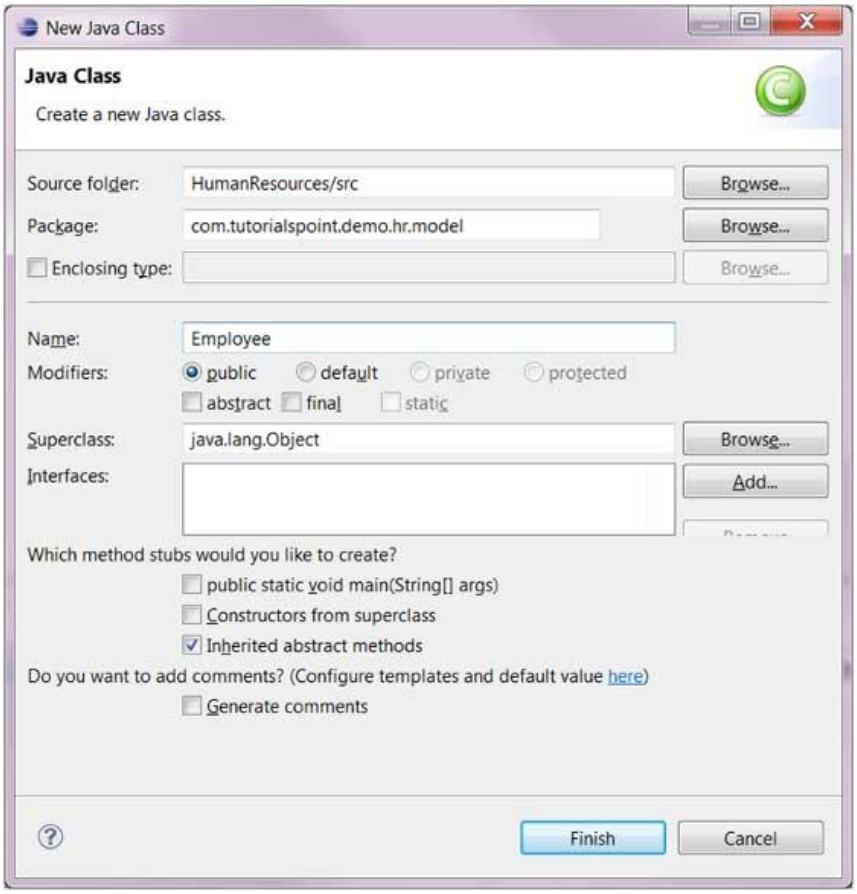



**STEP 12:Create a New Java class.**

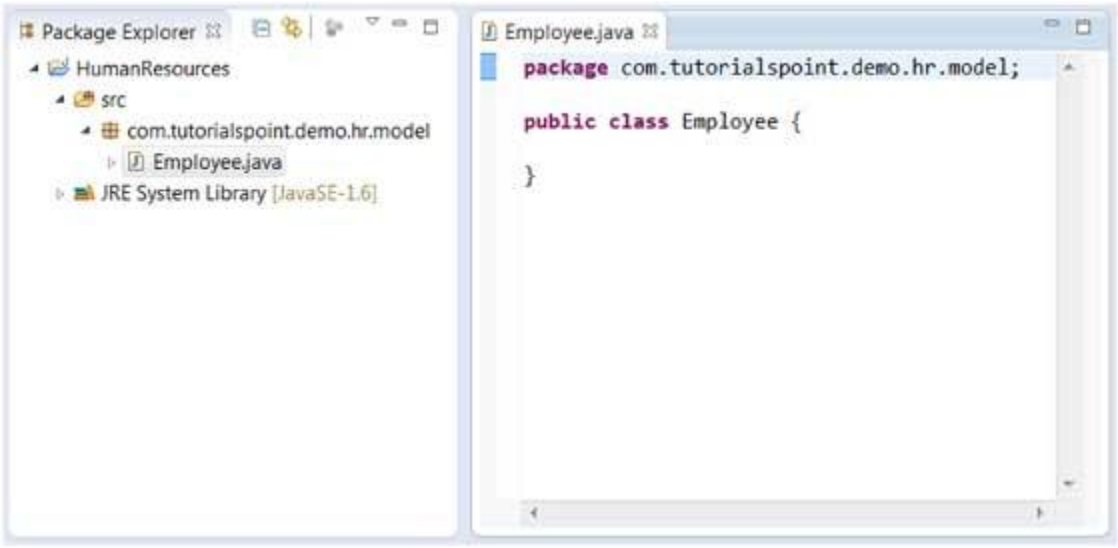
- By clicking on the File menu and selecting New → Class.
- By right clicking in the package explorer and selecting New → Class.
- By clicking on the class drop down button ( ) and selecting class ( ).

**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:**

```
PS C:\Users\prawin H\OneDrive\Desktop\
tspot\bin\java.exe' '-XX:+ShowCodeDeta
g\Code\User\workspaceStorage\99647c62e
 '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:**

```
'C:\Program Files\Eclipse Ad
ionMessages' '-cp' 'C:\Users\
e0fec2abefad\redhat.java\jdt_
Name: Prawin H
Age: 19
PS C:\Users\prawin H\OneDrive
```

**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:**

```
 'AddTwoNumbers'
Sum = 50
PS C:\Users\prawin H\OneDrive\Desktop
```

**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:**

```
e0fec2abefad\redhat.java\jdt_ws\educat
Area = 56
PS C:\Users\prawin H\OneDrive\Desktop\
```

**Program 5: Simple Interest Calculation**

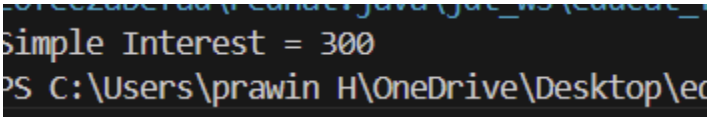
**Source Code:**

```
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:**




**POST LAB EXERCISE**

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

Code:

It is used println the output is print after that next output print in next line.

```
class Main {

public static void main(String[] args) {

System.out.println("Name: Prawin H");

System.out.println("Department: Computer Science");

}

}
```

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

It is used only print the output in same line not println.

Code:

```
class Main {

public static void main(String[] args) {

System.out.print("Name: Prawin H ");

System.out.print("Department: Computer Science");

}
```

}

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

Ans:

If main() is not static, the program cannot excuted.

4. Why is Java called platform independent?

Ans:

Java is platform independent because it uses JVM,so we can write a program once and run it anywhere.

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

Ans:

```
class Main {

 public static void main(String[] args) {

 int n = 5;

 int cube = n * n * n;

 System.out.println("Cube of " + n + " is " + cube);

 }

}
```

**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** | |