Experiment Number : 01 **Date: 27-01-2026**

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24BCS298
CSE-A1

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 used to develop Java programs. It includes the compiler, libraries, and tools needed to write, compile, and run Java applications.

2. Difference between JDK, JRE, and JVM.

   JDK: Used for developing Java programs; includes JRE and development tools.

   JRE: Used to run Java programs; includes JVM and libraries.

   JVM: Executes Java bytecode and makes Java platform independent.

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

   The main() method is the starting point of a Java program. Program execution begins from this method.

IN LAB EXERCISE:

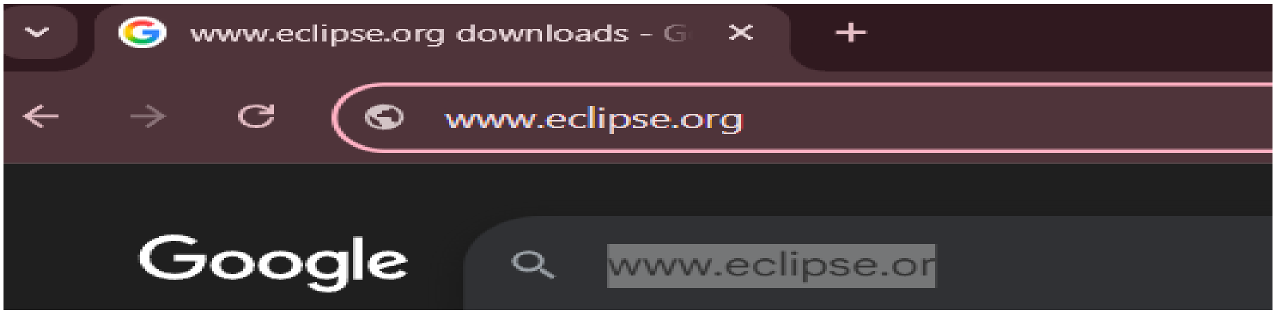
Objective:

To verify Java installation and execute a basic Java program.

INSTALLATION STEPS:

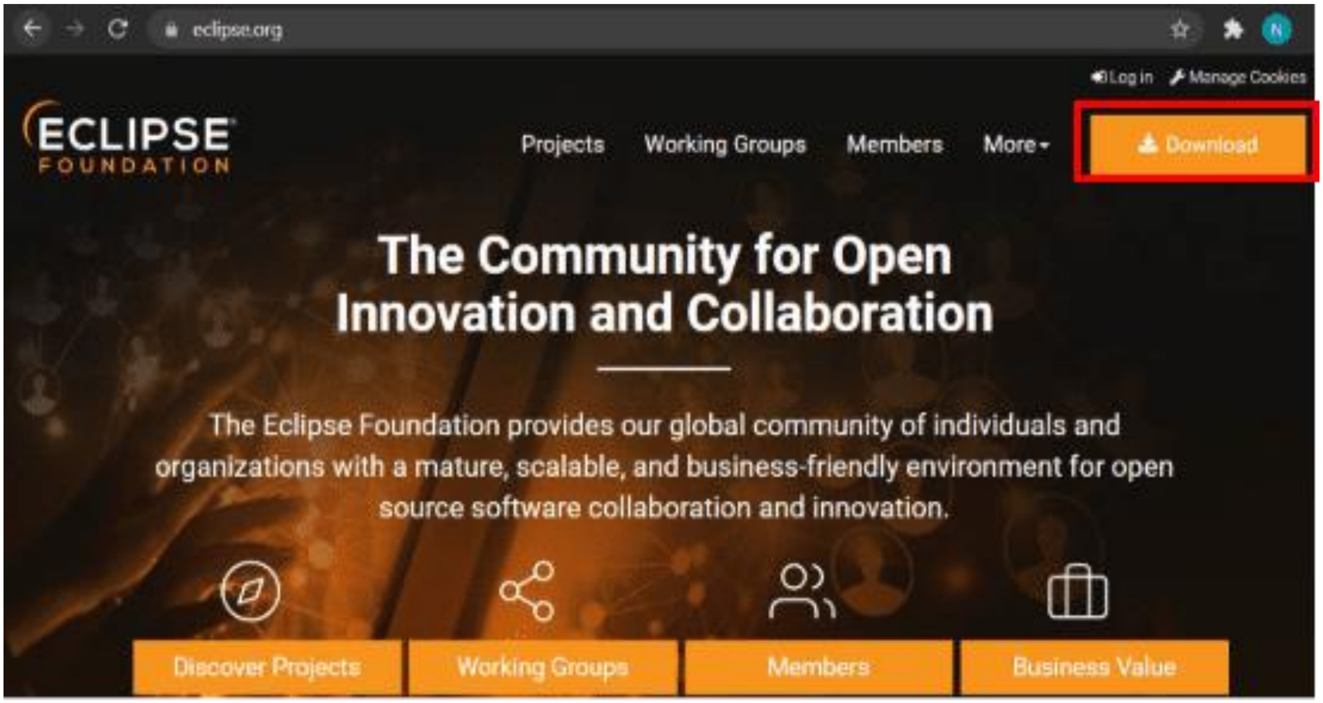
STEP 1: Open Browser

- 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.

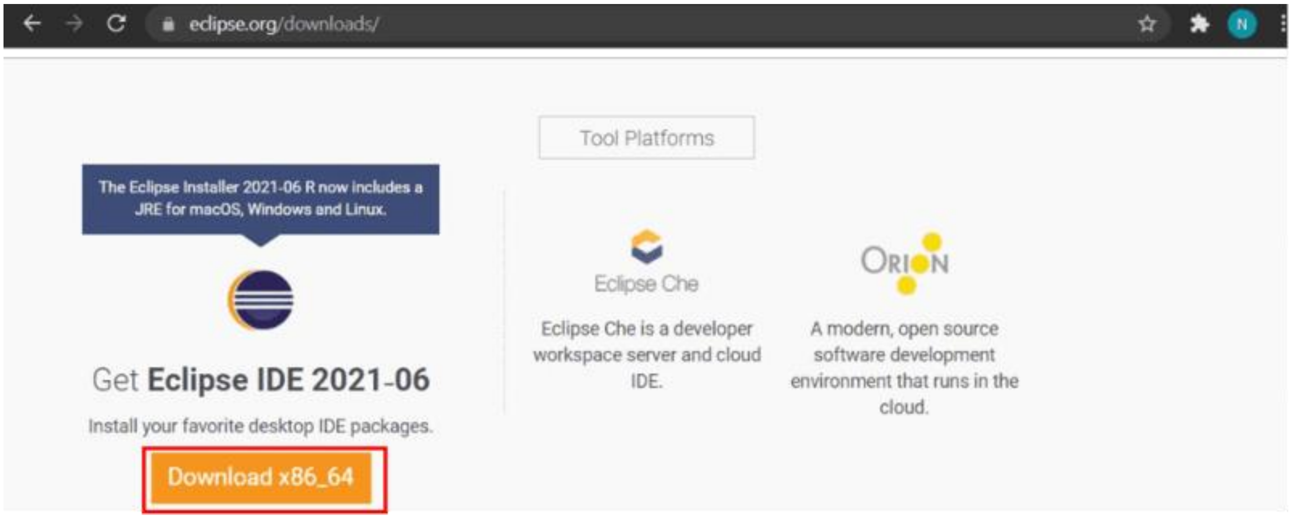


The Community for Open Innovation and Collaboration

The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable, and business-friendly environment for open source software collaboration and innovation.

STEP 3: Download EXE

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



The Eclipse Installer 2021-06 R now includes a JRE for macOS, Windows and Linux.

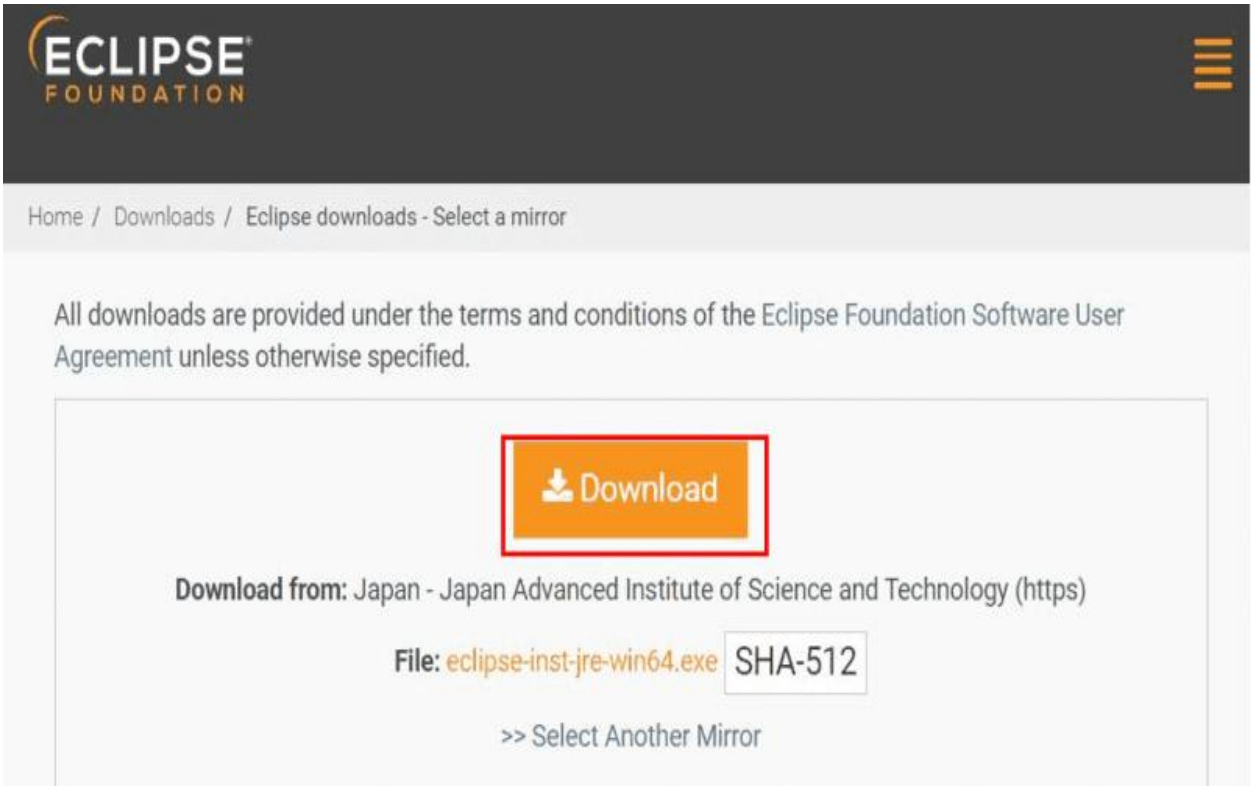
Get **Eclipse IDE 2021-06**

Install your favorite desktop IDE packages.

Eclipse Che is a developer workspace server and cloud IDE.

A modern, open source software development environment that runs in the cloud.

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



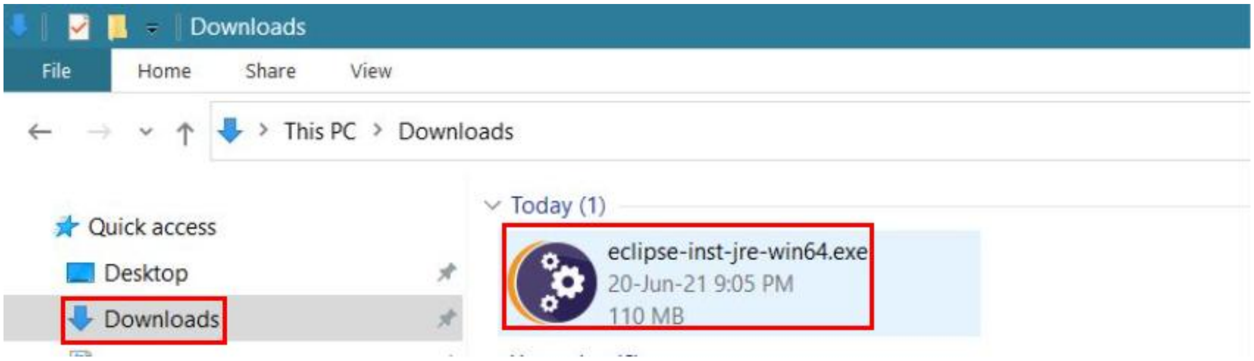
All downloads are provided under the terms and conditions of the Eclipse Foundation Software User Agreement unless otherwise specified.

Download from: Japan - Japan Advanced Institute of Science and Technology (https)

File: eclipse-inst-jre-win64.exe

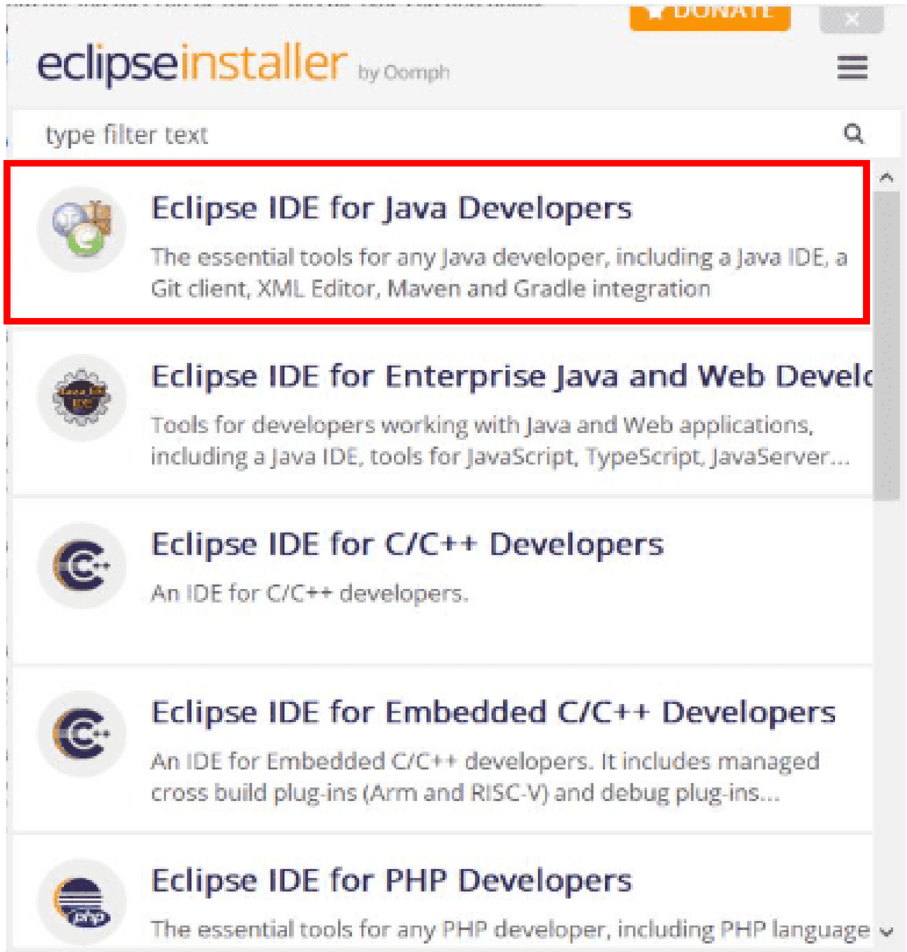
STEP 5: Open Download EXE

- 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".



Eclipse IDE for Java Developers

The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration

Eclipse IDE for Enterprise Java and Web Develc

Tools for developers working with Java and Web applications, including a Java IDE, tools for JavaScript, TypeScript, JavaServer...

Eclipse IDE for C/C++ Developers

An IDE for C/C++ developers.

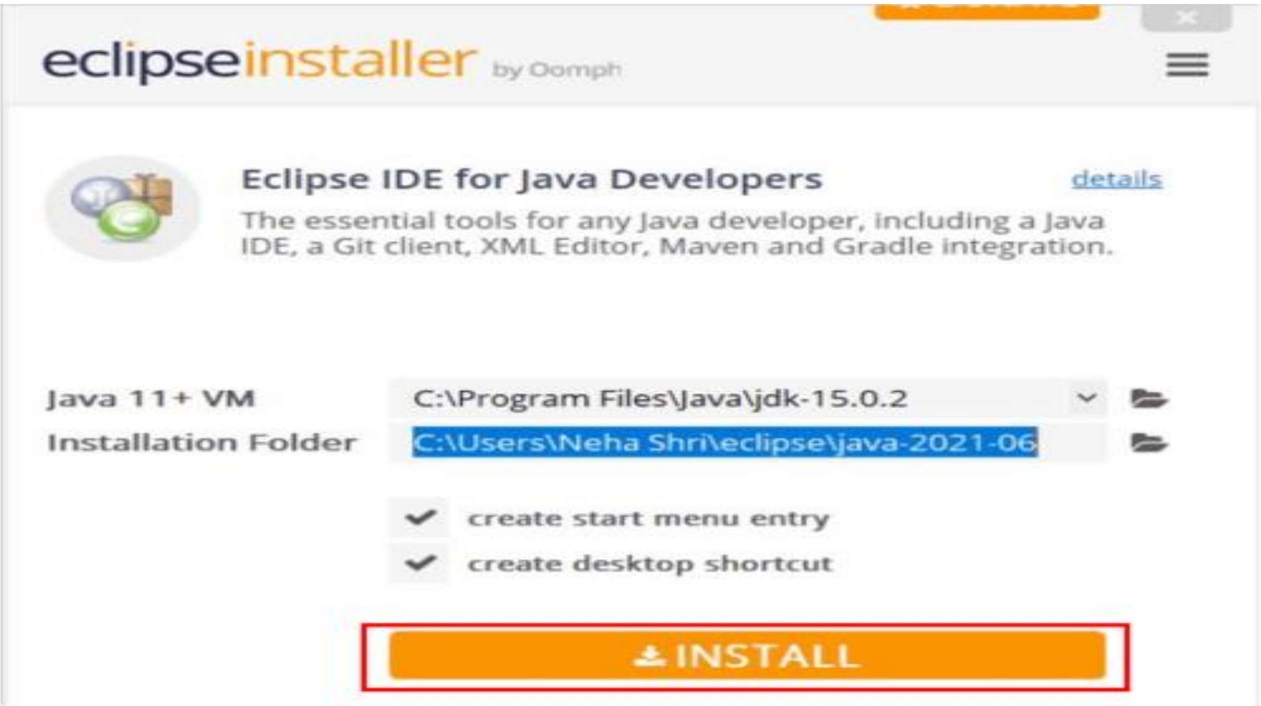
Eclipse IDE for Embedded C/C++ Developers

An IDE for Embedded C/C++ developers. It includes managed cross build plug-ins (Arm and RISC-V) and debug plug-ins...

Eclipse IDE for PHP Developers

The essential tools for any PHP developer, including PHP language

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



eclipseinstaller by Oomph

Eclipse IDE for Java Developers

The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration.

Java 11+ VM C:\Program Files\Java\jdk-15.0.2

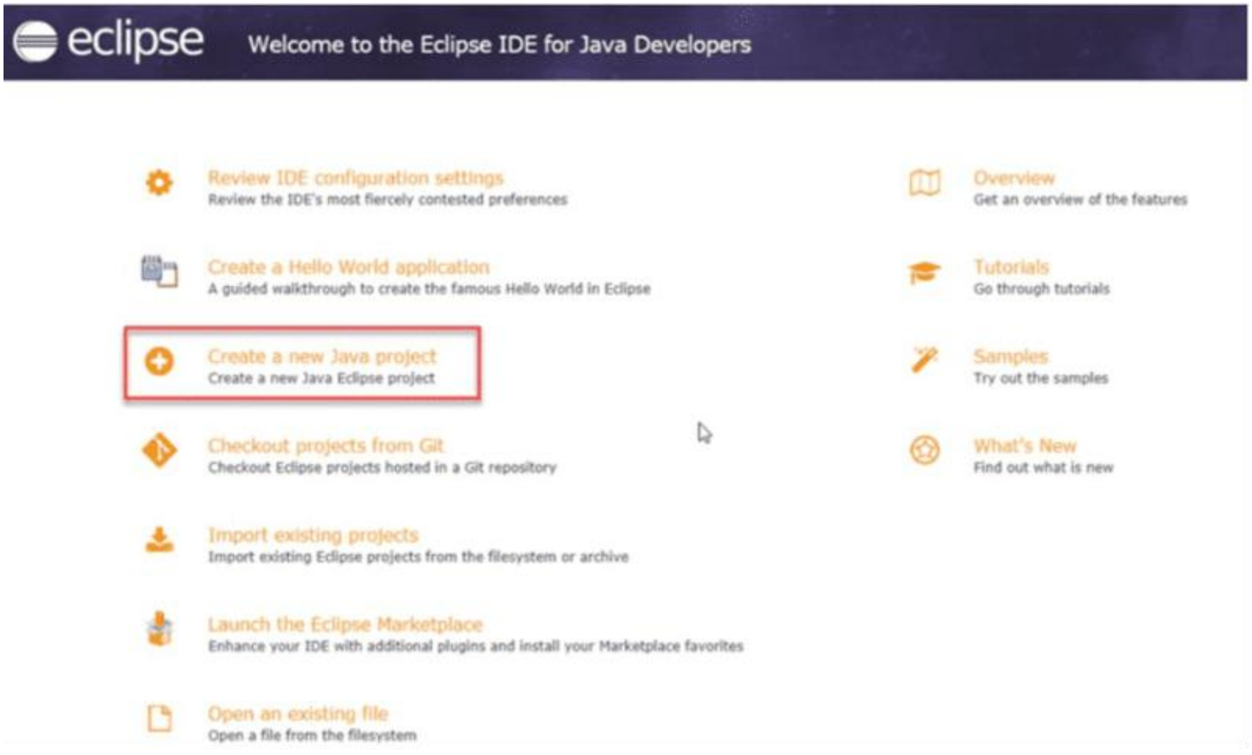
Installation Folder C:\Users\Neha Shri\eclipse\java-2021-06

✓ create start menu entry

✓ create desktop shortcut

Step 8: Create New Project

Now click on "Create a new Java project".



eclipse Welcome to the Eclipse IDE for Java Developers

Review IDE configuration settings
Review the IDE's most fiercely contested preferences

Create a Hello World application
A guided walkthrough to create the famous Hello World in Eclipse

Create a new Java project
Create a new Java Eclipse project

Checkout projects from Git
Checkout Eclipse projects hosted in a Git repository

Import existing projects
Import existing Eclipse projects from the filesystem or archive

Launch the Eclipse Marketplace
Enhance your IDE with additional plugins and install your Marketplace favorites

Open an existing file
Open a file from the filesystem

Overview
Get an overview of the features

Tutorials
Go through tutorials

Samples
Try out the samples

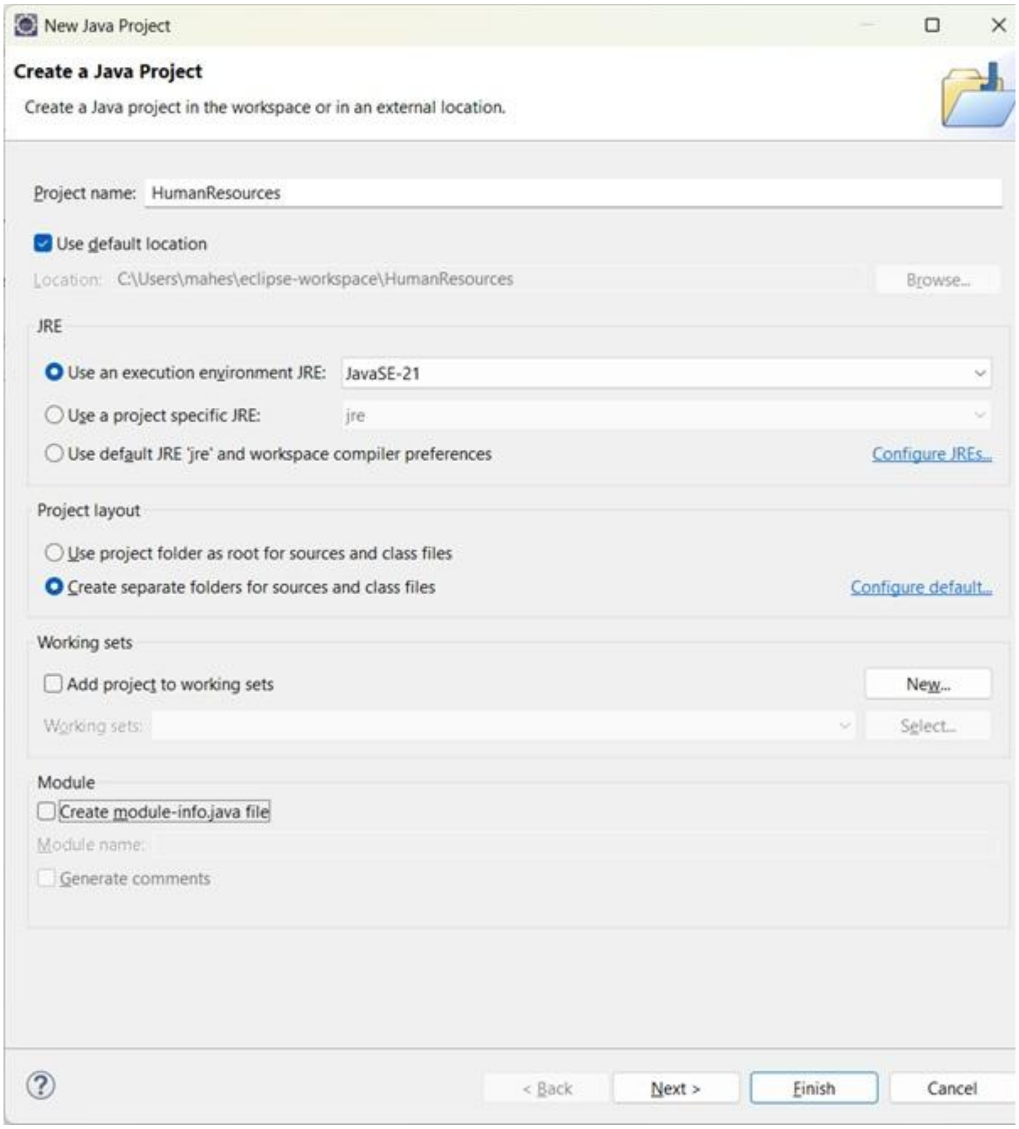
What's New
Find out what is new

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.



New Java Project

Create a Java Project

Create a Java project in the workspace or in an external location.

Project name: HumanResources

☑ Use default location

Location: C:\Users\mahes\eclipse-workspace\HumanResources

JRE

● Use an execution environment JRE: JavaSE-21

○ Use a project specific JRE: jre

○ Use default JRE 'jre' and workspace compiler preferences

Project layout

○ Use project folder as root for sources and class files

● Create separate folders for sources and class files

Working sets

□ Add project to working sets

Working sets:

Module

□ Create module-info.java file

Module name:

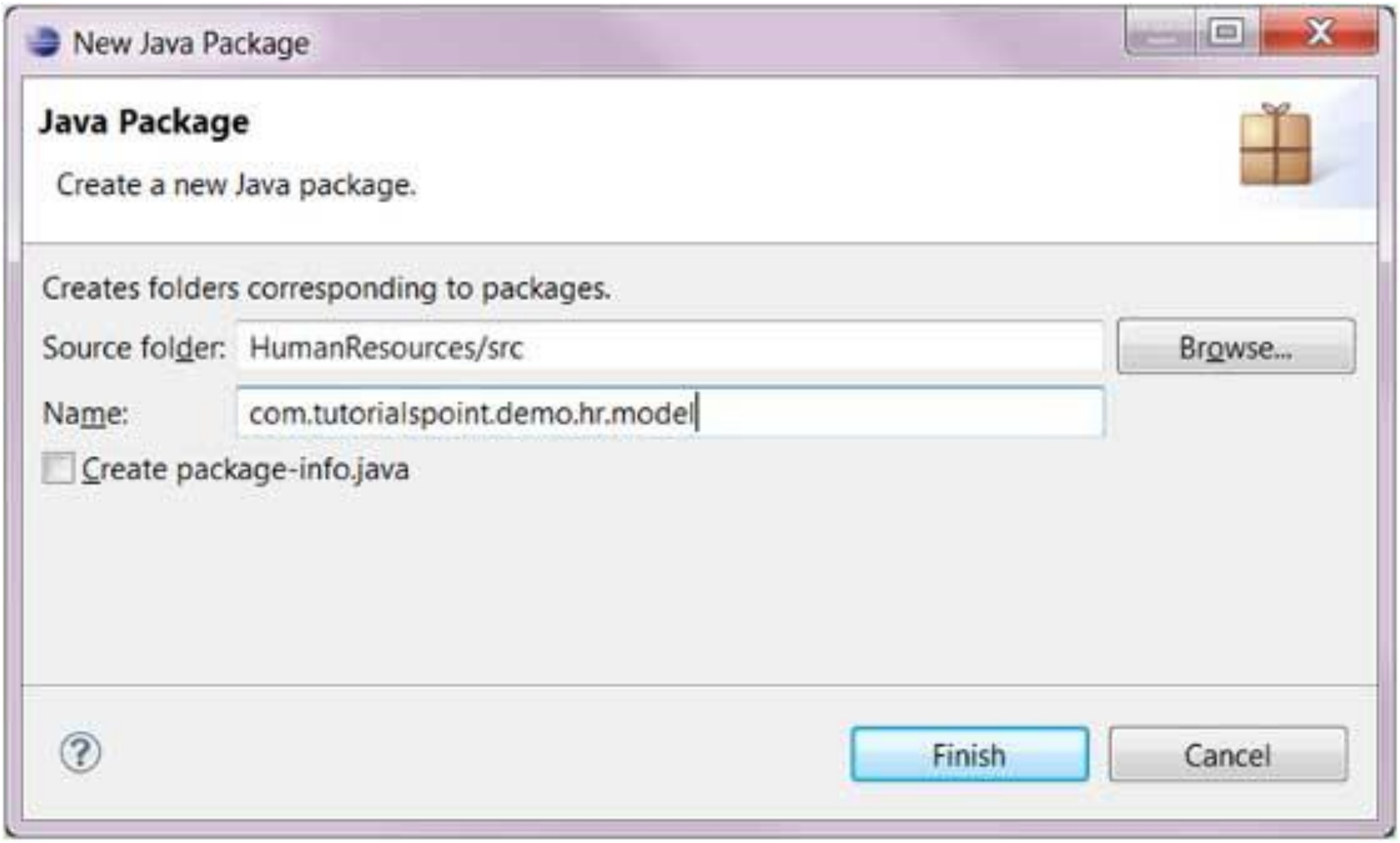
□ Generate comments

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.



New Java Package

Java Package

Create a new Java package.

Creates folders corresponding to packages.

Source folder: HumanResources/src

Name: com.tutorialspoint.demo.hr.model

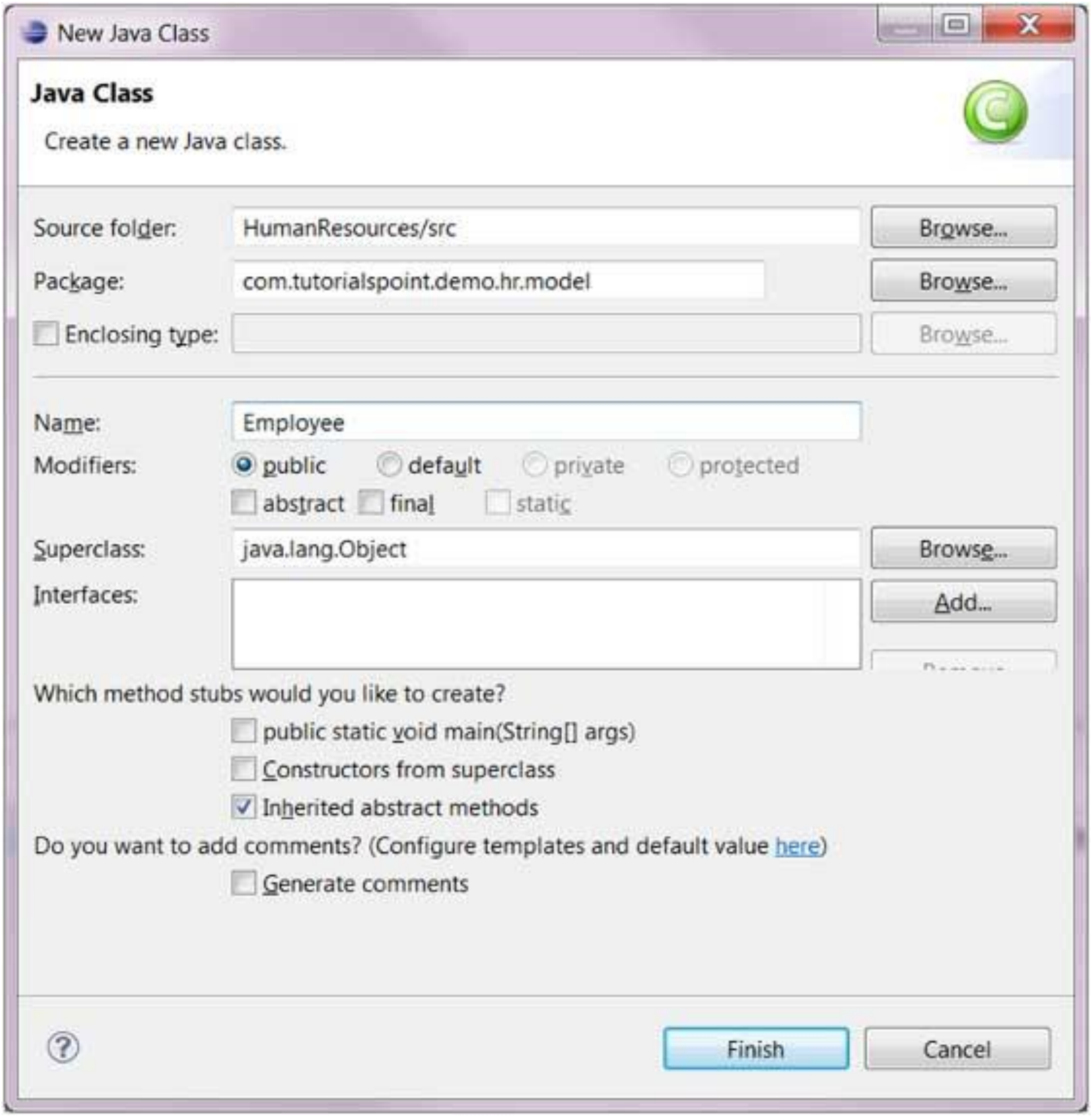
☐ Create package-info.java

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.



New Java Class

Java Class

Create a new Java class.

Source folder: HumanResources/src

Package: com.tutorialspoint.demo.hr.model

□ Enclosing type:

Name: Employee

Modifiers: ● public ○ default ○ private ○ protected

□ abstract □ final □ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

□ public static void main(String[] args)

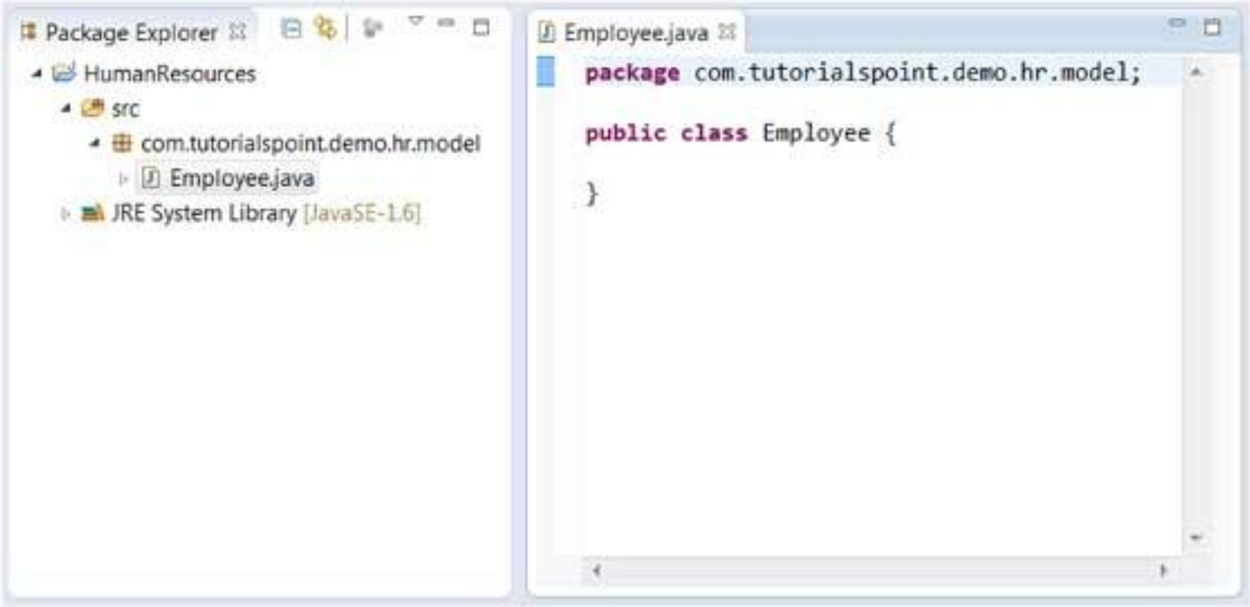
□ Constructors from superclass

☑ Inherited abstract methods

Do you want to add comments? (Configure templates and default value here)

□ Generate comments

STEP 14: Class created successfully.


Package Explorer
HumanResources
src
com.tutorialspoint.demo.hr.model
Employee.java
JRE System Library [JavaSE-1.6]
Employee.java

```
package com.tutorialspoint.demo.hr.model;

public class Employee {

}
```

BASIC PROGRAMS:

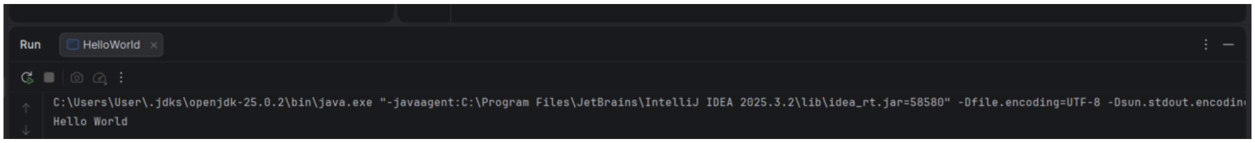
Program 1: Hello World Program

Source Code:

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

Output:

Hello World



```
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=58580" -Dfile.encoding=UTF-8 -Dsun.stdout.encodin
Hello World
```

Program 2: Display Personal Details

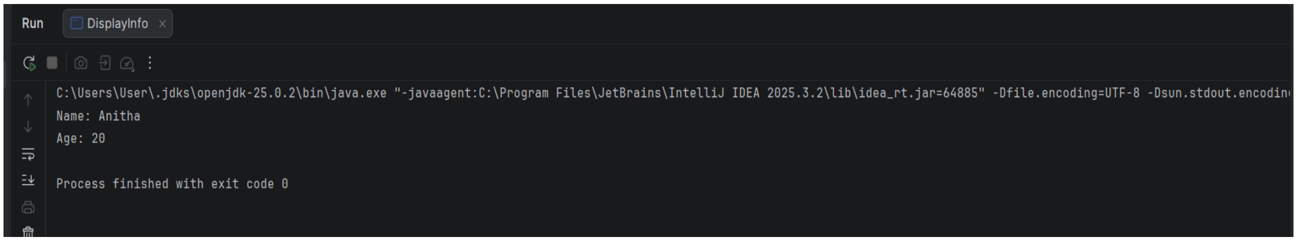
Source Code:

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

Output:

Name: Anitha

Age: 20



```
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=64885" -Dfile.encoding=UTF-8 -Dsun.stdout.encodin
Name: Anitha
Age: 20

Process finished with exit code 0
```

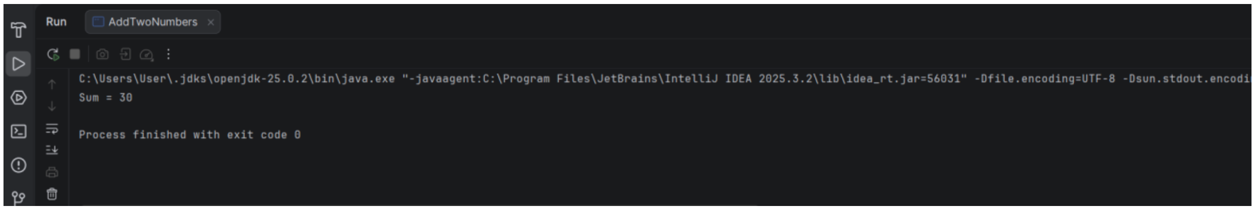
Program 3: Addition of Two Numbers

Source Code:

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

Output:

Sum = 30



```
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=56031" -Dfile.encoding=UTF-8 -Dsun.stdout.encodi
Sum = 30

Process finished with exit code 0
```

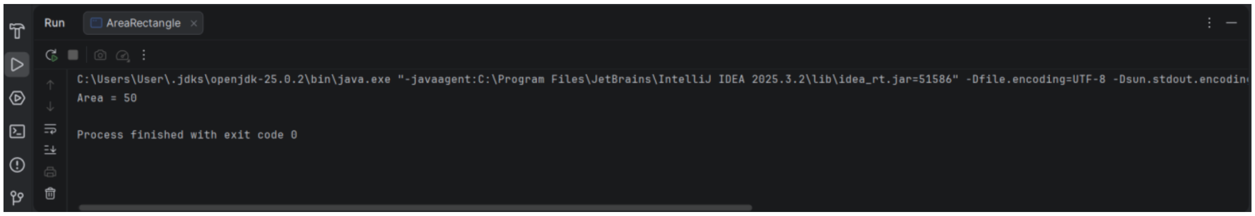
Program 4: Area of a Rectangle

Source Code:

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

Output:

Area = 50



```
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=51586" -Dfile.encoding=UTF-8 -Dsun.stdout.encodin
Area = 50

Process finished with exit code 0
```

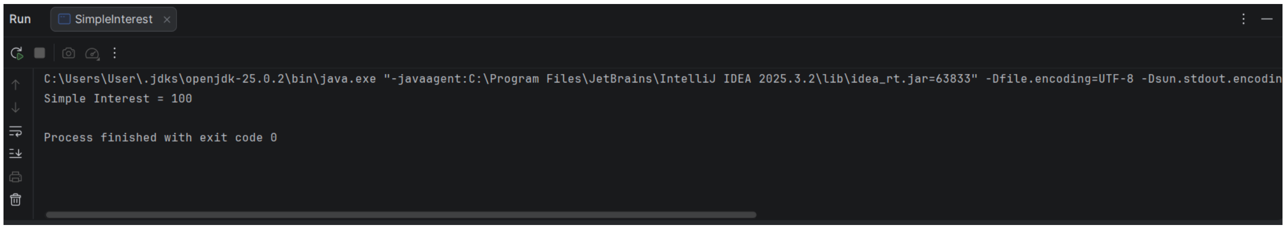
Program 5: Simple Interest Calculation

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

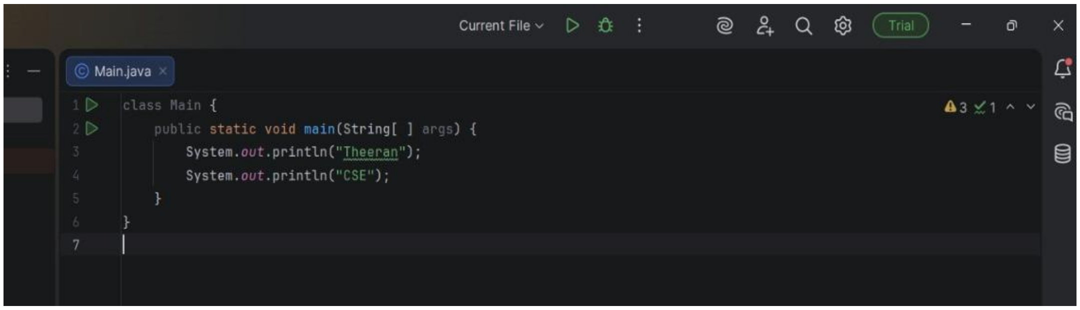


```
C:\Users\User\.jdks\openjdk-25.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2025.3.2\lib\idea_rt.jar=63833" -Dfile.encoding=UTF-8 -Dsun.stdout.encodin
Simple Interest = 100

Process finished with exit code 0
```

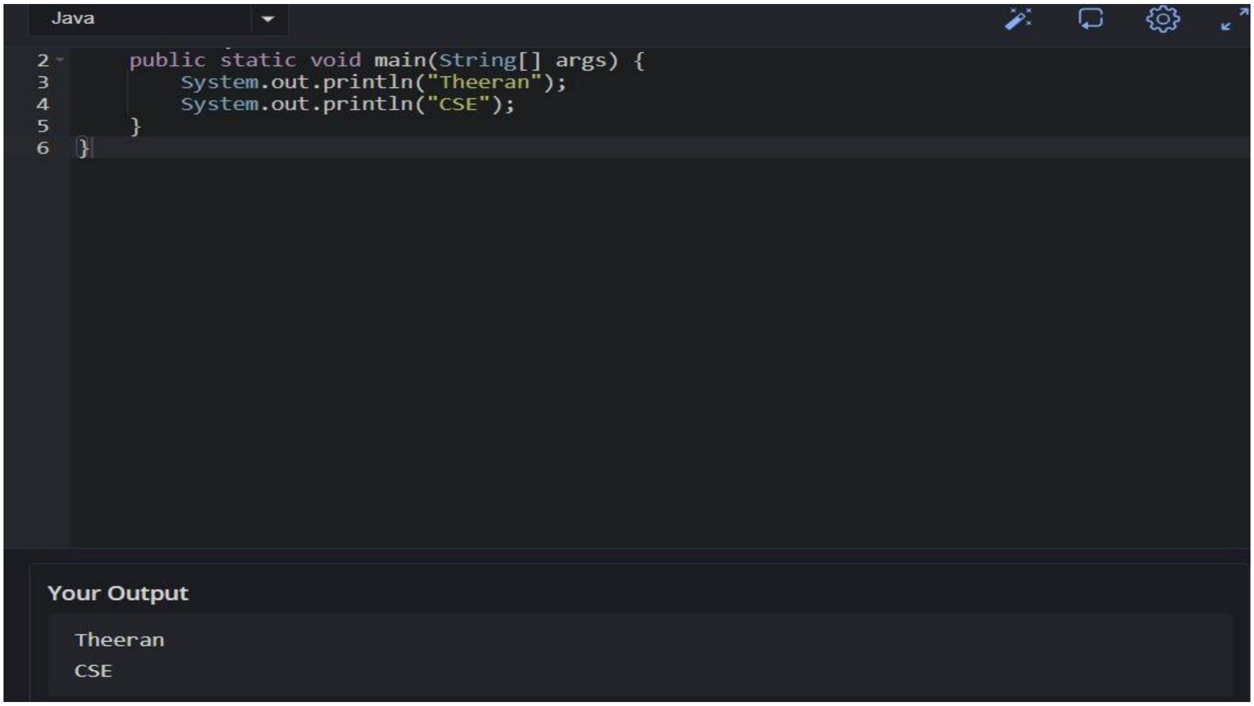
POST LAB EXERCISE

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



```
class Main {
    public static void main(String[ ] args) {
        System.out.println("Theeran");
        System.out.println("CSE");
    }
}
```

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



```
    public static void main(String[] args) {
        System.out.println("Theeran");
        System.out.println("CSE");
    }
}
```

```
Theeran
CSE
```

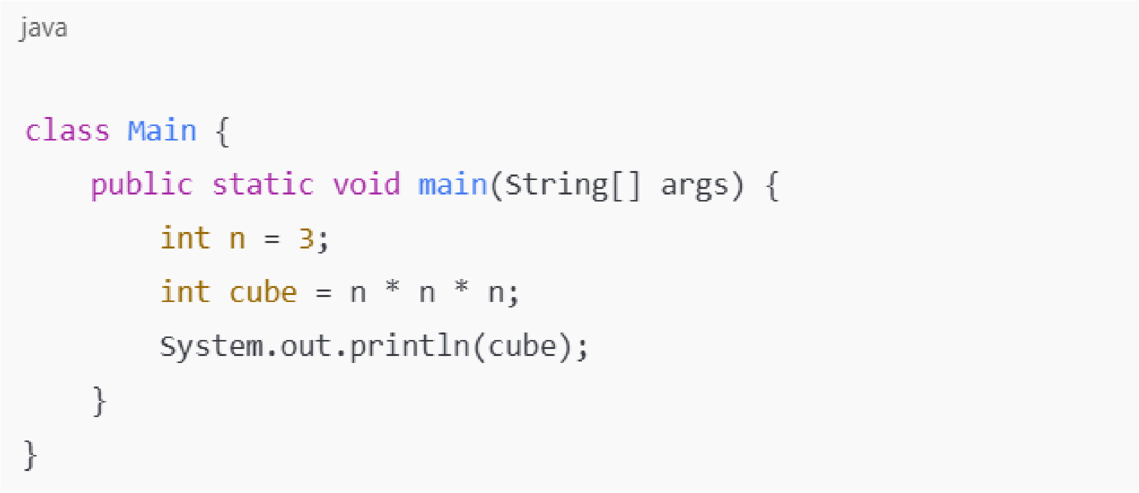
2. **What happens if `main()` is written without `static`?**

The program will compile, but the JVM cannot call main() and throws a runtime error because static is required to run without creating an object.

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

Because Java programs compile into bytecode, which can run on any system that has a JVM (Write Once, Run Anywhere).

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



```java
class Main {
    public static void main(String[] args) {
        int n = 3;
        int cube = n * n * n;
        System.out.println(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	