Class 2:

Ste1:

Install Eclipse.

Location:

<https://www.eclipse.org/downloads/packages/release/2025-06/r/eclipse-ide-java-developers>?

Click Download -> Select One time \_> eclipse will download

Extract the folder -> You can find eclipse ready

**(Optional)Run the installer** (eclipse-inst-jre-win64.exe) and select **Eclipse IDE for Java Developers** when prompted.

**(Optional)Install a 64-bit JDK**, if you haven't already, to ensure compatibility.

**Launch Eclipse**, choose or create a workspace, and you're ready to start coding!

**Basic Java Program Structure**

Here’s a simple program that prints "Hello World":

class HelloWorld {

public static void main(String[] args) {

System.out.println("Hello World");

}

}

**Explanation:**

* class HelloWorld → Defines a class named HelloWorld.
* public static void main(String[] args) → Starting point of the program.
* System.out.println() → Prints output to the screen.

### Program 1: Print "Hello World"

class HelloWorld {

public static void main(String[] args) {

System.out.println("Hello World");

}

}

### Program 2: Print your name

class PrintName {

public static void main(String[] args) {

System.out.println("My name is Suresh");

}

}

### Program 3: Print multiple lines

class PrintLines {

public static void main(String[] args) {

System.out.println("Java is powerful.");

System.out.println("It is platform independent.");

System.out.println("Let's start learning!");

}

}

**Java Data Types**

Java is **strongly typed**, meaning every variable must have a type.

**Primitive Types:**

| **Type** | **Size** | **Example** |
| --- | --- | --- |
| byte | 1 byte | byte a = 10; |
| short | 2 bytes | short b = 100; |
| int | 4 bytes | int c = 1000; |
| long | 8 bytes | long d = 100000L; |
| float | 4 bytes | float e = 3.14f; |
| double | 8 bytes | double f = 19.99; |
| char | 2 bytes | char g = 'A'; |
| boolean | 1 bit | boolean h = true; |

**Variables**

Variables store data.

**Example:**

int age = 25;

String name = "Suresh";

System.out.println("My name is " + name + " and I am " + age + " years old.");

### Program 1: Display different data types

class DataTypesDemo {

public static void main(String[] args) {

int age = 25;

float height = 5.9f;

char grade = 'A';

boolean isJavaFun = true;

String name = "Suresh";

System.out.println("Name: " + name);

System.out.println("Age: " + age);

System.out.println("Height: " + height);

System.out.println("Grade: " + grade);

System.out.println("Java Fun? " + isJavaFun);

}

}

### Program 2: Swap two numbers

class SwapNumbers {

public static void main(String[] args) {

int a = 10, b = 20;

System.out.println("Before swapping: a = " + a + ", b = " + b);

int temp = a;

a = b;

b = temp;

System.out.println("After swapping: a = " + a + ", b = " + b);

}

}

**Operators**

| **Operator Type** | **Example** |
| --- | --- |
| **Arithmetic** | +, -, \*, /, % |
| **Relational** | ==, !=, <, >, <=, >= |
| **Logical** | &&, ` |
| **Assignment** | =, +=, -=, \*= |

**Example:**

int a = 5, b = 3;

System.out.println(a + b); // Output: 8

### Program 1: Arithmetic operations

class ArithmeticDemo {

public static void main(String[] args) {

int a = 15, b = 4;

System.out.println("Addition: " + (a + b));

System.out.println("Subtraction: " + (a - b));

System.out.println("Multiplication: " + (a \* b));

System.out.println("Division: " + (a / b));

System.out.println("Modulus: " + (a % b));

}

}

### Program 2: Relational operators

class RelationalDemo {

public static void main(String[] args) {

int a = 10, b = 20;

System.out.println(a == b); // false

System.out.println(a != b); // true

System.out.println(a > b); // false

System.out.println(a < b); // true

}

}

### Program 3: Logical operators

class LogicalDemo {

public static void main(String[] args) {

boolean x = true, y = false;

System.out.println("x && y: " + (x && y));

System.out.println("x || y: " + (x || y));

System.out.println("!x: " + (!x));

}

}