

# SNS COLLEGE OF TECHNOLOGY



An Autonomous Institution  
Coimbatore-35

## Department of Computer Science & Engineering

**23ITT202 – Object Oriented Programming**

I B.E CSE/ II SEMESTER

## **UNIT I :Introduction To OOPS**

**Topic : Variables and Operations in Java**



# Java Data Types – Example Program

```
public static void main(String[] args) {
    // Primitive Data Types
    int age = 20;
    float marks = 85.5;
    char grade = 'A';
    boolean passed = true;

    // Non-Primitive Data Type
    String name = "Saran";

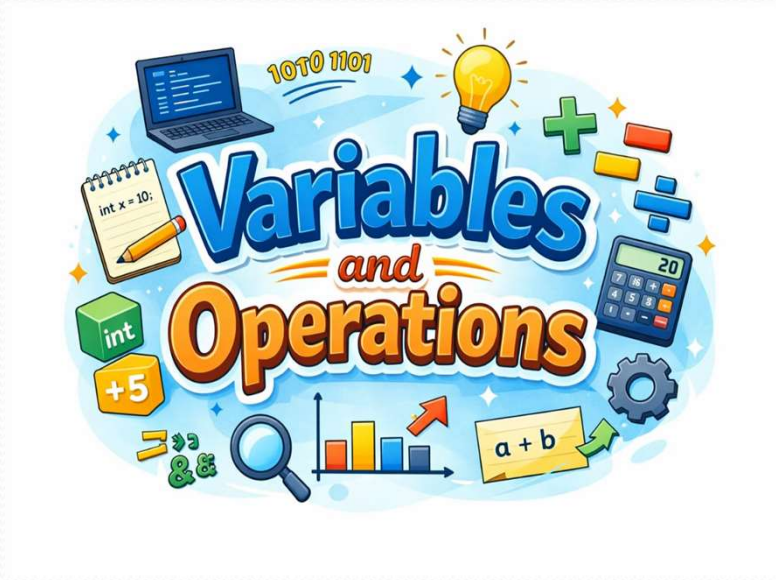
    System.out.println("Name: " +
name);
    System.out.println("Age: " + age);
    System.out.println("Marks: " +
marks);
    System.out.println("Grade: " +
grade);
    System.out.println("Passed: " +
passed);
}
```



Name: Saran  
Age: 20  
Marks: 85.5  
Grade: A  
Passed: true

# Introduction...

- Java is a widely used Object-Oriented Programming Language.
- Every Java program works by storing data and performing operations on that data.
- Variables are used to store values in memory.
- Operations are used to perform calculations and comparisons.
- Understanding variables and operations is the foundation of Java programming.



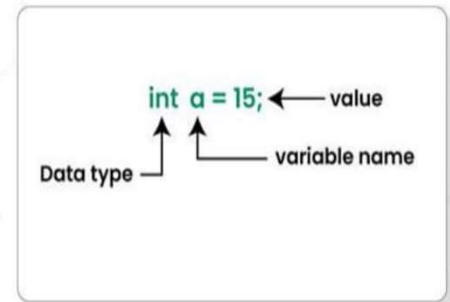
# Topics for Discussion

- ✓ What is a variable?
- ✓ Types of variables in Java?
- ✓ How to declare variables in Java?
- ✓ What are operations in Java?
- ✓ Why do we use operators?
- ✓ How to perform simple calculations using Java?

# What is a variable?

- A variable is a memory location used to store data.
- The value of a variable can change during execution.

## Variables in Programming



### Each variable

has:

- ✓ Name
- ✓ Data Type
- ✓ Value

Example:

```
int age = 20;
```

# Types of variables

## Local Variable:

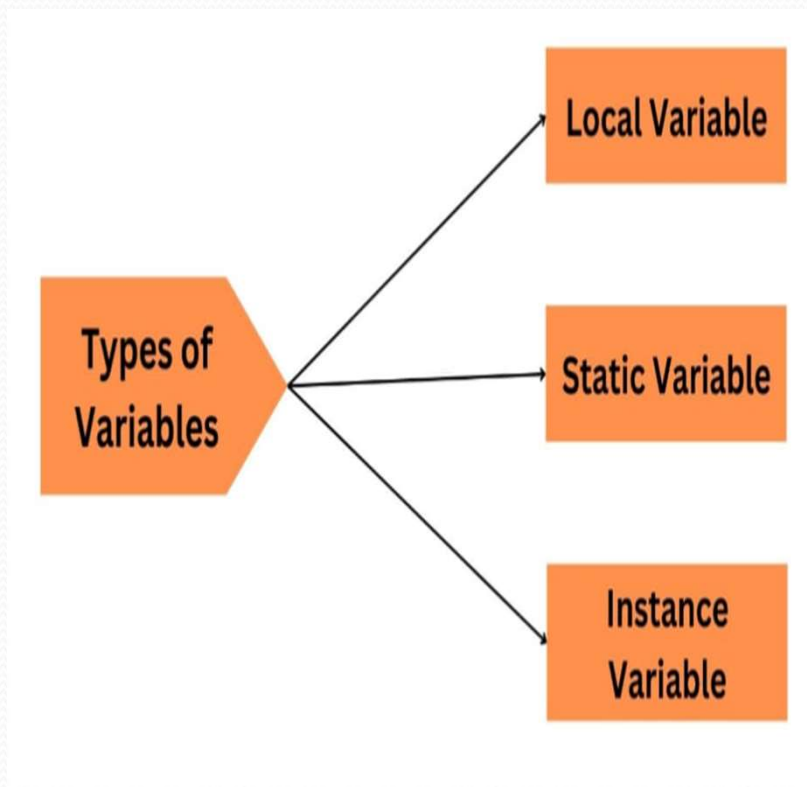
- Declared inside a method.
- Used only within that method.

## Instance Variable:

- Belongs to an object.

## Static Variable:

- Shared among all objects.



# Declaring variables in Java

- Variables must be declared before  
use

- Java is a strongly typed language

**Syntax:**

```
dataType variableName = value;
```

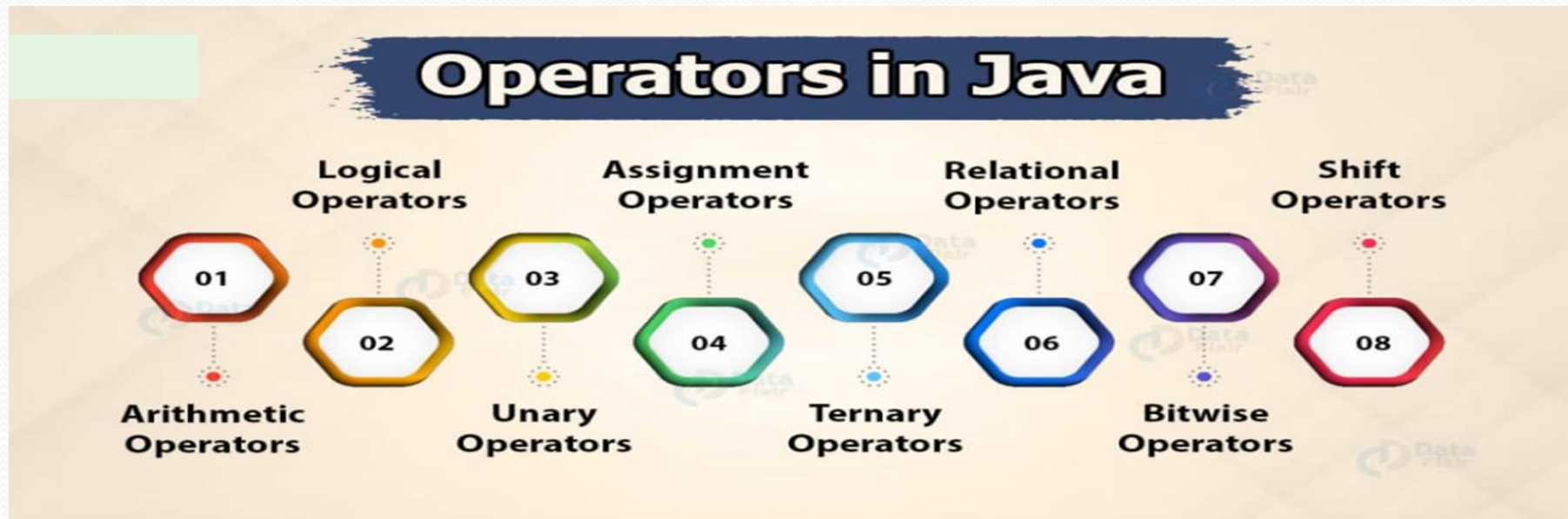
**Examples:**

```
int a = 10;
```

```
float marks = 85.5f;
```

## Java?

Operations perform actions on data using operators. They are used to calculate values, compare data, and play an important role in building program logic.



# Java Operators: Precedence and Associativity

Operators	Associativity	Type
++ --	Right to left	Unary postfix
++ -- + - ! (type)	Right to left	Unary prefix
/ * %	Left to right	Multiplicative
+ -	Left to right	Additive
< <= > >=	Left to right	Relational
== !=	Left to right	Equality
&	Left to right	Boolean Logical AND
^	Left to right	Boolean Logical Exclusive OR
	Left to right	Boolean Logical Inclusive OR
&&	Left to right	Conditional AND
	Left to right	Conditional OR
?:	Right to left	Conditional
= += -= *= /= %=	Right to left	Assignment

# Why do we use operators?

- Operators are used to perform actions on data in a program.
- They help in calculations, comparisons, and logical decisions.
- Operators are essential for building program logic and producing results.



# How to perform simple calculations using Java?

```
class SimpleCalculations {  
    public static void main(String[] args) {  
  
        int a = 20, b = 10;  
  
        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("Is a greater than b? " + (a >  
b));  
    }  
}
```



```
Addition = 30  
Subtraction = 10  
Multiplication = 200  
Division = 2  
Is a greater than b?  
true
```

# Assessment

**1. Logical operators work with \_\_\_\_\_ values.**

Ans: Boolean

**2. Which variable is declared inside a method?**

- a) Static variable
- b) Instance variable
- c) Local variable**
- d) Global variable

**3. What is a variable in Java?**

A variable is a memory location used to store data that can change during program execution.

# References

- [https://www.w3schools.com/java/java\\_variables.asp](https://www.w3schools.com/java/java_variables.asp)
- <https://docs.oracle.com/javase/tutorial/java/nutsandbolts/index.html>
- <https://www.geeksforgeeks.org/java-variables/>

# Thank You

