

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 2 : Java Data Types



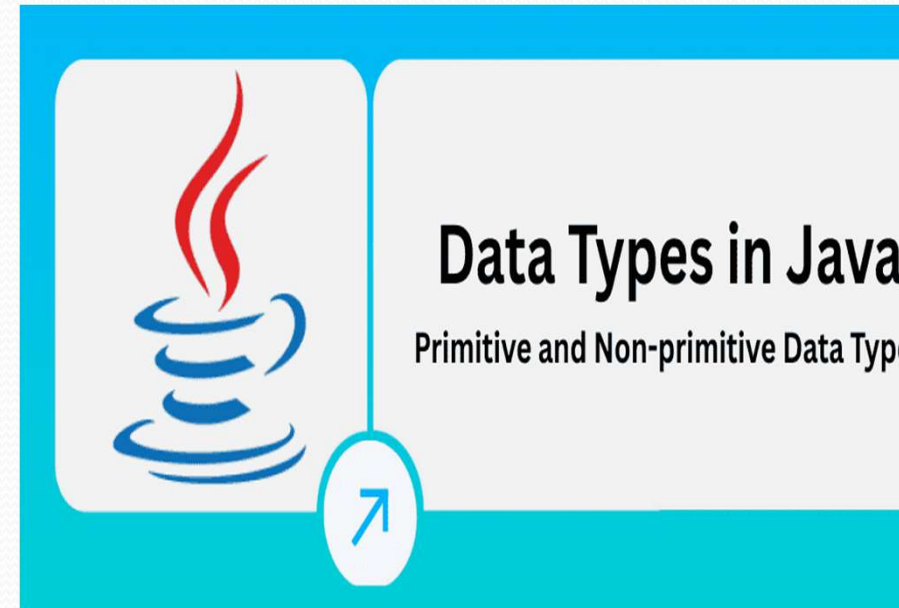
Data Types in Java...

A data type in Java defines the type of value that a variable can store.

It specifies the amount of memory required for storing the data.

Data types also determine the operations that can be performed on the variable.

Using proper data types helps in avoiding errors and improves program efficiency.



Topics for Discussion

Types of Data Types



Primitive Data types



Example Program



Non - Primitive Data
Types

Types of Data Types

Java data types are classified into two main types:

Primitive Data Types

- ✓ Store simple and single values
- ✓ Fixed memory size

Examples: int, float, char, boolean

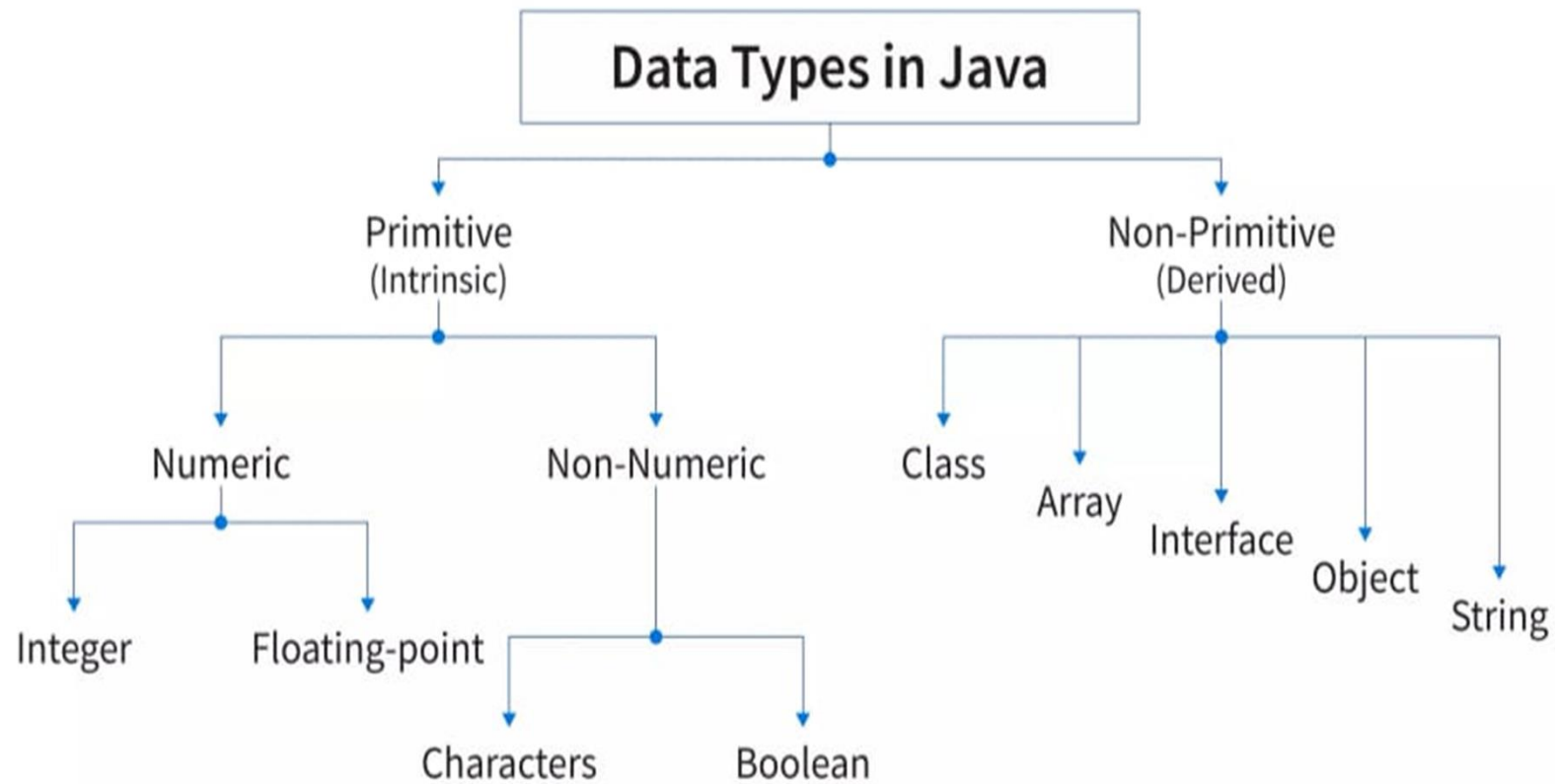
Non-Primitive Data Types

- ✓ Store complex data or multiple values
- ✓ Memory size is not fixed

Examples: String, Array, Class, Object

This classification helps Java manage memory efficiently and perform type-safe operations.

Classification of Data Types in Java



Primitive Data Types

Primitive data types in Java are basic data types used to store simple values. They are predefined in Java and have a fixed memory size. They store the actual value directly and are faster than non-primitive types.

The 8 Primitive Data Types are:

- 1) Byte
- 2) Short
- 3) Int
- 4) Long
- 5) Float
- 6) Double
- 7) Char
- 8) boolean

Primitive Data Types in Java

DATA TYPES	SIZE	DEFAULT	EXPLANATION
boolean	1 bit	false	Stores true or false values
byte	1 byte/ 8bits	0	Stores whole numbers from -128 to 127
short	2 bytes/ 16bits	0	Stores whole numbers from -32,768 to 32,767
int	4 bytes/ 32bits	0	Stores whole numbers from -2,147,483,648 to 2,147,483,647
long	8 bytes/ 64bits	0L	Stores whole numbers from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
float	4 bytes/ 32bits	0.0f	Stores fractional numbers. Sufficient for storing 6 to 7 decimal digits
double	8 bytes/ 64bits	0.0d	Stores fractional numbers. Sufficient for storing 15 decimal digits
char	2 bytes/ 16bits	'\u0000'	Stores a single character/letter or ASCII values

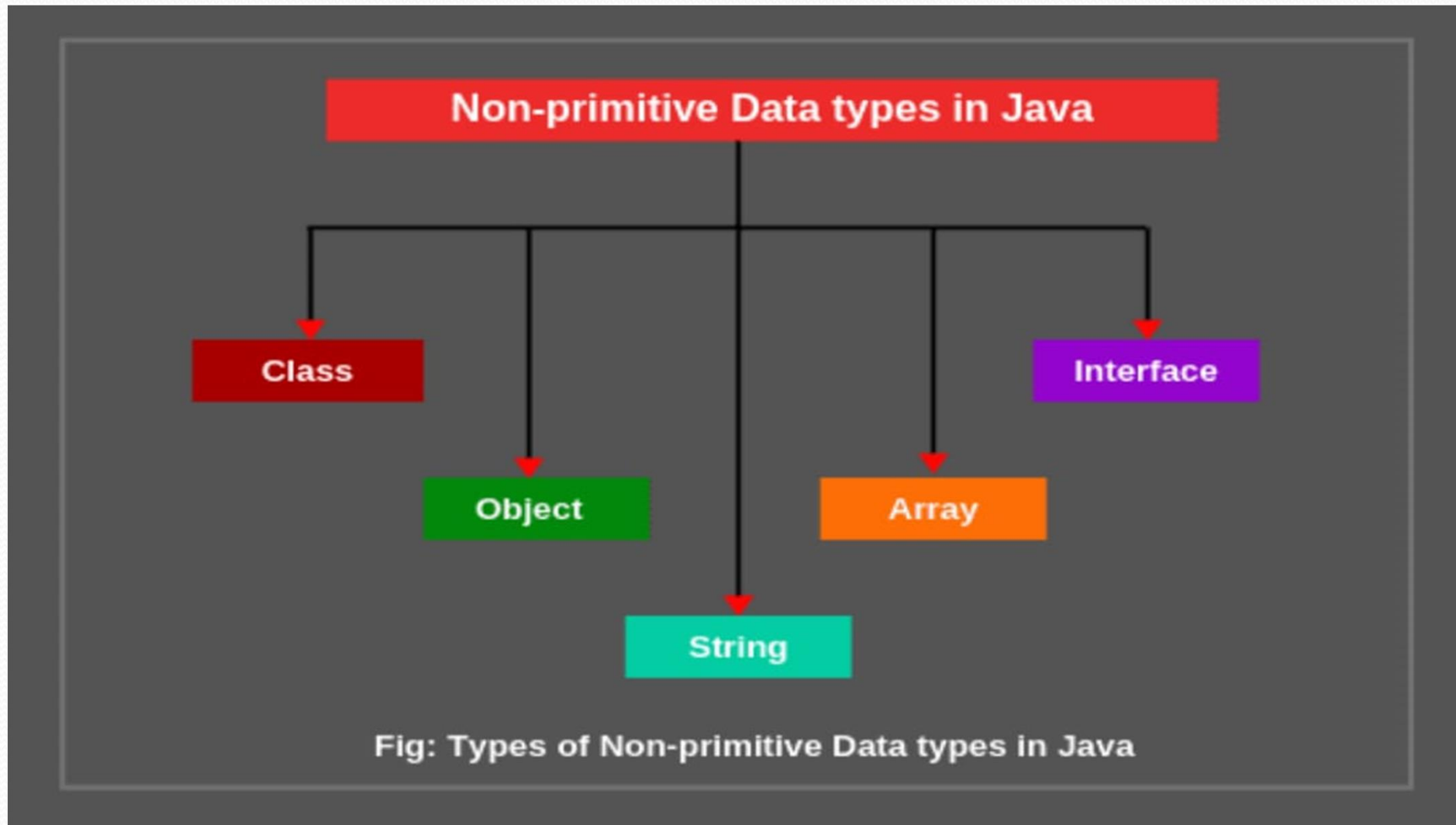
Non-Primitive Data Types

Non-primitive data types are used to store complex data and multiple values. They do not store the actual value directly; instead, they store references to memory locations. These data types are also called Reference Data Types.

Types of Non-Primitive Data Types are:

- 1) String – Stores a sequence of characters
- 2) Array – Stores multiple values of the same data type
- 3) Class – Blueprint for creating objects
- 4) Object – Instance of a class
- 5) Interface – Used to achieve abstraction in Java

Non-Primitive Data Types



Java Data Types – Example Program

```

class DataTypesExample {
    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
    
```

Assessment

1. The two main types of data types in Java are _____ and _____.

Answer : Primitive and Non-Primitive

2. Data types in Java are used to _____.

- a) Store methods
- b) Store values in variables**
- c) Create objects
- d) Compile programs

3. How many primitive data types are there in Java?

Answer : There are 8 primitive data types in Java.

References

- <https://www.geeksforgeeks.org/java/java-data-types/>
- <https://docs.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html>
- https://www.w3schools.com/java/java_data_types.asp

Thank You

