***2. Data Types, Variables, and Operators***

1. Primitive Data Types in Java (int, float, char, etc.)

Answer :- Data types in Java are of different sizes and values that can be stored in the variable

There is 2 Types :

1. Primitives Data Types.

2. Non Primitive Data Types.

**Primitives Data Types :**

Primitives data are only Single values and have no special capabilities. There are 8 primitives Data Types such as Boolean , int, float, char, double, long, byte and short.

Int : whole numbers, e.g., 1, 2, 3

Float : decimal numbers, e.g., 3.14, -0.5

Char : single characters, e.g., 'a', 'B', '@'

Boolean : true or false values

1. **Variable Declaration and Initialization**

Answer :- Variable is nothing but to store some values.

Syntax:-

Data\_types Variable\_name ; // Declaration ….

Variable\_name = 10; // Initialization ….

Identifier :-

1) Does not start with digit

2) Does not allow reserved keyword as a variable name

3) Does not allow space between variable name

4) Followed with digit after any letter or "\_"

1. **Operators: Arithmetic, Relational, Logical, Assignment, Unary, and Bitwise**

**Answer :-**

Arithmetic operators: Used to perform mathematical calculations, such as addition, subtraction, multiplication, and division

Relational operators: Used to compare and check the equality of input objects

Logical operators: Used to compare bits of an object and return a Boolean result

Assignment operators: Used to assign a value to a variable or property

Unary operators: Used to perform operations on a single operand

Bitwise operators: Used to perform operations on individual bits, and the result is also a bit

1. **Type Conversion and Type Casting**

**Answer :-**

Type conversion and type casting are both techniques for converting one data type into another:

**2 Types** :-

Implicit (Smaller Data Type to Bigger Data Type) and Explicit (Bigger Data Type to Smaller Data Type)

1. Type conversion (Implicit)

Automatically converts a data type at compile time. The destination data type must be larger than the source data type.

1. Type casting (Explicit)

Manually converts a data type using a casting operator. The programmer requests the conversion in the program.