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
F**loat** : decimal numbers, e.g., 3.14, -0.5
Char : single characters, e.g., 'a', 'B', '@'
Boolean : true or false values

2) 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 "_"

3) 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

4) 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.

2. **Type casting (Explicit)**

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

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