Data types in Java

The data type defines the type of value that can be stored in a variable. For example, if a variable has an ***int*** data type, it can only store an integer value. In java, there are two categories of data types.

1. **Primitive Data Type:** A primitive data type is predefined by the language and is named by a keyword or reserved keyword. There are eight types of primitive data types in java such as boolean, char, int, short, byte, long, float, and double.

- **boolean:** boolean data type specifies only one bit of information and it is used to store only two possible values either true or false.
- **byte:** byte data type is 8 bit signed two's complement integer. Its value lies between -128 to 127. It has a minimum value of -128 and a maximum value of 127 (inclusive). The byte data type is most commonly used to save memory in large arrays.
- **short:** short data type is a 16-bit signed two's complement integer. It can hold any number between -32768 to 32767 (inclusive). Like byte data type, it is commonly used to save memory in large arrays.
- **int:** int data type is 32-bit signed two's complement integer. It can hold the number between -2,147,483,648 to 2,147,483,648. The default value of the int data type is 0.
- **long:** long data type is 64-bit two's complement integer. It can hold the number between -2^63 to 2^63-1. The default value of long data type is 0.
- **float: float data type is used to store** floating-point **numbers. The float data type is a single-precision 32-bit IEEE 754** floating-point**. It can hold 6 to 7 decimal digits. It is recommended to use float instead of double if you need to save memory in large arrays of floating-point numbers. The default value of float is 0.0f.**
- **double:** double data type is generally used to store decimal values. The double data type is a double-precision 64-bit IEEE 754 floating-point. For decimal values, this data type is generally the default choice. The default value of double is 0.0d.
- **char:** The char data type is used to store characters. The char data type is a single 16-bit Unicode character**.**

2. Non-Primitive Data Type: Non-Primitive data type refers to the objects. ArrayList and String are some of the examples of Non-Primitive data type. We will discuss the Non-Primitive data type later.

Example

```
// Primitive Data Types
int price = 5000;                    // Integer Value
float rateOfInterest = 5.99f;              // Floating point number
char ch = 'a';                  // Character

// Non-Primitive Data Types
String str = "Coding Ninjas";              // String
```