Variables and literals in java

**Java Variables**

A variable is a location in memory (storage area) to hold data.

To indicate the storage area, each variable should be given a unique name (identifier). Learn more about [Java identifiers](https://www.programiz.com/java-programming/keywords-identifiers).

### Create Variables in Java

Here's how we create a variable in Java,

int speedLimit = 80;

Here, speedLimit is a variable of int data type and we have assigned value **80** to it.

The int data type suggests that the variable can only hold integers. To learn more, visit [Java data types.](https://www.programiz.com/java-programming/variables-primitive-data-types)

In the example, we have assigned value to the variable during declaration. However, it's not mandatory.

## Java literals

Literals are data used for representing fixed values. They can be used directly in the code. For example,

int a = 1;

float b = 2.5;

char c = 'F';

Here, 1, 2.5, and 'F' are literals.

There are different types of literals in Java. let's discuss some of the commonly used types in detail.

### Integer Literals

Integer literals are numeric values (associated with numbers) without any fractional or exponential part. There are 4 types of integer literals in Java:

1. binary (base 2)
2. decimal (base 10)
3. octal (base 8)
4. hexadecimal (base 16)

For example:

// binary

int binaryNumber = 0b10010;

// octal

int octalNumber = 027;

// decimal

int decNumber = 34;

// hexadecimal

int hexNumber = 0x2F; // 0x represents hexadecimal

// binary

int binNumber = 0b10010; // 0b represents binary

In Java, binary starts with **0b**, octal starts with **0**, and hexadecimal starts with **0x**.

**Note**: Integer literals are used to initialize variables of integer types like byte, short, int, and long.

### Floating-point Literals

Floating-point literals are numeric literals that have either a fractional form or an exponential form. For example,

class Main {

public static void main(String[] args) {

double myDouble = 3.4;

float myFloat = 3.4F;

// 3.445\*10^2

double myDoubleScientific = 3.445e2;

System.out.println(myDouble); // prints 3.4

System.out.println(myFloat); // prints 3.4

System.out.println(myDoubleScientific); // prints 344.5

}

}

[Run Code](https://www.programiz.com/java-programming/online-compiler)

**Note**: The floating-point literals are used to initialize float and double type variables.

### Character Literals

Character literals are unicode characters enclosed inside single quotes. For example,

char letter = 'a';

Here, a is the character literal.

We can also use escape sequences as character literals. For example, **\b** (backspace), **\t** (tab), **\n** (new line), etc.

### String Literals

A string literal is a sequence of characters enclosed inside double-quotes. For example,

String str1 = "Java Programming";

String str2 = "Programiz";

Here, Java Programming and Programiz are two string literals.

### Boolean Literals

In Java, boolean literals are used to initialize boolean data types. They can store two values: true and false. For example,

boolean flag1 = false;

boolean flag2 = true;

Here, false and true are two boolean literals