



Local Variables

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Learning Objectives

Declare and initialize variables

Assign values to variable

Local Variables

In Java, variable declaration and initialization are two steps involved in working with local variables. Here's an explanation of each step with an example:

Variable Declaration

- Variable declaration involves specifying the type and name of the variable.

- It informs the compiler about the existence and type of the variable without assigning it a value.

```
1 int age; // Declaration of an integer variable named 'age'
2 double salary; // Declaration of a double variable named 'salary'
3 String name; // Declaration of a String variable named 'name'
```

Variable Initialization

- Variable initialization involves assigning an initial value to the declared variable.
- It sets the variable's value, allowing it to be used in subsequent operations or computations.
- Assignment operator is "=" which assigns the value on **the right side to the variable on the left side**.

```
1 int x = 5; // Assigns the value 5 to the variable x
```

```
1 int age = 25; // Initialization of 'age' with the value 25
2 double salary = 50000.0; // Initialization of 'salary' with the value 50000.0
3 String name = "John"; // Initialization of 'name' with the value "John"
```

Combining Declaration and Initialization

It's important to note that Java also allows combining the declaration and initialization into a single statement.

```
1 int age = 25; // Declaration and initialization of 'age' in a single statement
```

Initialization after Declaration

Additionally, variables can be initialized later in the code, but before they are used. This is especially useful in cases where the initial value is not known at the time of declaration.

```
1 int age; // Declaration of 'age' // ... some code ...
2 String name = "John";
```

```
3 age = 25; // Initialization of 'age' with the value 25
```

These are the fundamental steps involved in declaring and initializing local variables in Java. Remember to specify the appropriate data type and assign an initial value when necessary.

Others

Variable Reassignment

Local variables can be reassigned with new values after their initialization. You can update the value of a variable by assigning a new value using the assignment operator (`=`).

Variable Usage

Ensure that you **use variables after they have been declared and initialized**. Using a **variable not yet initialized may result in compilation errors** or unexpected behavior.

Variable Scope and Lifetime

Understand that local variables exist only **within the block where they are declared**. Once the block is finished executing, the **variable goes out of scope and is no longer accessible**.

Questions

- How do we declare and initialize variables?
- What are the differences between them?
- Practice it until you are completely familiar with this.