Tender Heart High School

Date-28.10.2024

Class- VIII **Computer** Prabhdeep Kaur

Topic: Introduction to JAVA and BlueJ **Teacher:** Prabhdeep

Good Morning Students

Students, this lesson is of class VIII, for the subject of computers. Sub-Topic is Fundamentals of JAVA language, which is covered in chapter 5 starting on page no. 62 of your text book titled Logix 8 and is being submitted to you on **21.08.2023**.

The dictionary meaning of fundamentals is a central or primary rule or principle on which something is based. So there are different fundamentals of Java language.

1. TOKENS :- Java tokens are smallest elements of a program which are identified by the compiler. Tokens are the basic building blocks which helps in constructing a program. A token can be reserved words such as int for integers, a constant like '6' or 'Ankush' etc.

2. IDENTIFIERS:- Identifiers are the name given to variables, classes, methods etc. Such as main, String etc. Identifiers may only include letters (a-z) or (A-Z), digits (0-9) and underscores ('_')

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3. Keywords :- Java has a set of keywords that are reserved words that cannot be used as variables, methods, Classes. All keywords are written in lower case letters only for example: public, void, class etc.

4. Constants : Constant values are those values that do not change during the execution of a program. They remain fixed for example digit Constant 12, 7.5 or Character Constant Java, BlueJ etc. These are also known as numeric constants and character constants.

5. Variables :- A Java variable is a piece of memory that can contain a data value. Variables are typically used to store information temporarily. It can store or hold one data at a time and can accept different values during the execution of the program.

Students, there are different types of data that can be used in programming languages. Data types are defined as the

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data storage format that a variable can store to perform some specific operation. The main data types in JAVA are as follows:-

TYPE	DATA TYPE	EXAMPLE
1. Integer	int	24, 36, -48 etc.
2. Fractional	Float double	34.89, -26.28 etc.
3. Character	Char	A, Ankush etc.
4. Boolean	boolean	True, False

Let us take an example for declaring and initializing variables

```
int age = 15;
```

Data Type — Variable name — Initialized value

Here int is a data type, age is a variable name and 15 is the initialized value.

OPERATORS: Operators are special symbols that are used to perform calculations. Operators are applied to the variables and constants to form an expression.

Example: `X = X + 5;` (Constant; variables; Addition operator)

The basic operators used in Java are:

1. Arithmetic Operators

1. Addition: This operator is used to add two operands. Symbol used for addition is '+' and format is a+b.

2. Subtraction: used to subtract the value of one operand from other. Symbol used for subtraction is '−' and format is a−b.

3. Multiplication: used to multiply the value of two operands. Symbol used is '*' and format is a*b.

4. Division: used to divide one operand with another. Symbol used is / and formad is a/b. In division quotient is the answer.

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5. Modulus: This operator is used to find the remainder of a divison. Symbol used is % and format is a%b.

2. Relational Operators : is used to test relation between two variables. It gives the result in True or False.

Relational Operators

Operators	Meaning	Example	Result
<	Less than	5<2	False
>	Greater than	5>2	True
<=	Less than or equal to	5<=2	False
>=	Greater than or equal to	5>=2	True
==	Equal to	5==2	False
! =	Not equal to	5! =2	True
===	Equal value and same type	5 === 5	True
		5 === "5"	False
! ==	Not Equal value or Not same type	5 ! == 5	False
		5 ! == "5"	True

3. Logical Operators: These operators compare the result of relational expressions.

Logical Operator	Java Operator
AND	&&
OR	||
NOT	!

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4. Unary Operators: These operators work on a single variable or constant. These are used to increase or decrease the value stored in variable by 1.

Operators	Description
+	Unary plus operator; indicates positive value (numbers are positive without this, however).
-	Unary minus operator; negates an expression.
++	Increment operator; increments a value by 1.
--	Decrement operator; decrements a value by 1.
!	Logical complement operator; inverts the value of a boolean.

5. Assignment Operators: This used to assign a value to a variable or constant = (is equal to) is used as assignment operators.

Operator	Description	Example
=	Assigns values from right side operands to left side operand	c = a + b
+=	It adds right operand to the left operand and assigns the result to left operand	c += a
-=	It subtracts right operand from the left operand and assigns the result to left operand	c -= a
*=	It multiplies right operand with the left operand and assigns the result to left operand	c *= a
/=	It divides left operand with the right operand and assigns the result to left operand	c /= a
%=	It takes modulus using two operands and assigns the result to left operand	c %= a
^=	Performs exponential (power) calculation on operators and assign value to the left operand	c ^= a

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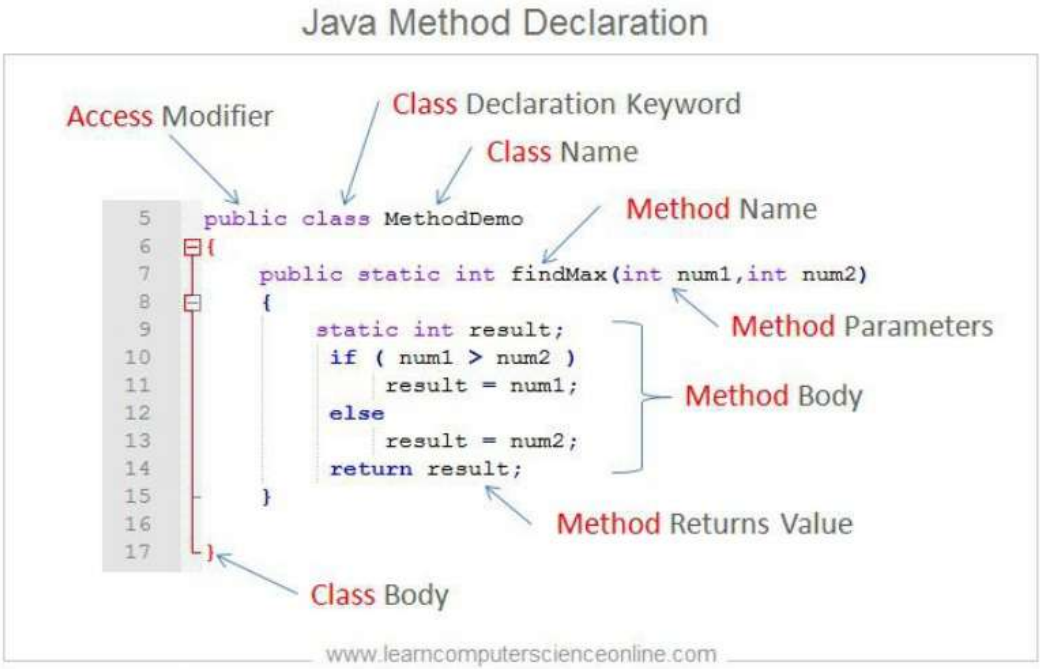
PRECEDENCE OF OPERATORS

Operator's Precedence in Java

Operators	Precedence
!, +, - (unary Operators)	First (Highest)
*, /, %	Second
+, -	Third
<, <=, >=, >	Fourth
==, !=	Fifth
&&	Sixth
||	Seventh
= (assignment Operator)	Lowest

Malik AB

THE CLASS DECLARATION



Students, I am concluding the lesson with this topic. So you are advised to read the assignment carefully and also try to solve part A and part B of back exercise.