

1. What is Statically typed and Dynamically typed Programming Language?

Answer: Statically Typed Programming Language: Statically Typed Programming Language is one in which the type of the variable must be declared explicitly while declaring a variable. Example: C, C++, Java, etc.

Dynamically Typed Programming Language: Dynamically Typed Programming Language is one in which the type of the variable is determined on the runtime, rather than being explicitly declared by programmer. Example: Python, Ruby, JavaScript, etc.

2. What is the variable in Java?

Answer: Variables in Java are named locations in memory where a value can be stored, updated, and accessed. Variables have a specific data type and an associated name.

3. How to assign a value to variable?

Answer: A value can be assigned to a variable by using the '=' assignment operator.

Example :

```
int age = 20;
```

Here, int is datatype. 'age' is the name of the variable, and 20 is the value that is assigned to the variable 'age'.

4. What are primitive data types in Java?

Answer: Followings are the primitive data types in Java:

- a. byte: used to store small integer values
- b. short: used to store short integer values
- c. int: used to store integer values(whole numbers)
- d. long: used to store large integer values
- e. float: used to store floating-point values(numbers with decimal points)
- f. double: used to store large floating point values
- g. char: used to store a single character
- h. boolean: used to store true/false values

5. What are the Identifiers in Java?

Answer: Identifiers in Java are the names that are given to the classes, interfaces, packages, methods, and variables.

There are a few rules about identifiers:

1. All identifiers should only contain '\$' (dollar sign), '_' (underscore), digits, lowercase, and uppercase English letters.
2. The first letter of the identifier can not a digit.
3. ' ' (space) character is not allowed in an identifier.
4. Identifiers are case-sensitive which means 'myvariable' and 'myVariable' are treated as two different identifiers.

5. Java reserved keywords such as 'class', 'int', 'void', 'interface', etc can't be used as an identifier.

Examples of legal identifiers: \$name, _marks, age, _2DArray, etc.

6. List the operators in Java.

Answer: List of operators in Java:

A. Arithmetic Operator

- a. '+' addition operator
- b. '-' subtraction operator
- c. '*' multiplication operator
- d. '/' division operator
- e. '%' modulo or remainder operator

B. Relational Operator

- a. '==' equal to operator
- b. '!=' not equal to operator
- c. '<' less than operator
- d. '<=' less than or equal to operator
- e. '>' greater than operator
- f. '>=' greater than or equal to operator

C. Logical Operator

- a. '&&' logical AND
- b. '||' logical OR
- c. '!' logical NOT

D. Assignment Operator

- a. '=' value on the left side assigned to variable on the right side;
- b. '+=' value of the left side variable and right side value or variable is added and the result is assigned to the left side variable.
- c. '-=' value or variable on the right side is subtracted from the variable on the left side and the result is assigned to the left side variable.
- d. '*=' value of the left side variable is multiplied by the right side value or variable and the result is assigned to the left side variable.
- e. '/=' value of the left side variable is divided by the right side value or variable and the result is assigned to the left side variable.
- f. '%=' value of the left side variable is divided by the right side value or variable and the remainder is assigned to the left side variable.

E. Ternary Operator

- a. condition ? if true : if false (alternative to a single if-else)

F. Unary Operator

- a. '+' unary plus operator
- b. '-' unary minus operator

- c. '++' increment operator
- d. '--' decrement operator
- G. Bitwise Operator
 - a. '&' bitwise AND operator
 - b. '|' bitwise OR operator
 - c. '^' bitwise XOR operator
 - d. '~' bitwise complement operator
 - e. '<<' bitwise left shift operator
 - f. '>>' bitwise right shift operator
- H. instanceof operator

7. Explore about Increment and Decrement operators and give an example.

Answer: In Java Programmin we frequently need to increment or decrement a number by one. We can do this by $x = x + 1$ or $x += 1$. But, there is another operator (++ or --) for this which is known as Increment or Decrement Operator. We use them as prefix or suffix in a variable.

Example : $x = 5$; $x++$; x equals to 6, $y = 5$; $y--$; y equals to 4

There are two types of Increment or Decrement Operator:

- a. Pre Increment or Decrement Operator
- b. Post Increment or Decrement Operator

Pre Increment or Decrement Operator: In Pre Increment or Decrement Operator Variable first use the value then Increment or Decrement.

Example : $a = 5$; $x = a++$; after the operation x gives 5 and a gives 6
 $b = 5$; $y = b--$; after the operation y gives 5 and b gives 4

Post Increment or Decrement Operator: In Post Increment or Decrement Operator variable Increment or Decrement the value then use it.

Example : $a = 5$; $x = ++a$; after the operation x gives 6 and a gives 6
 $b = 5$; $y = --b$; after the operation y gives 4 and b gives 4