1. What are the Conditional Operators in java?

Ans: - The conditional operators in Java are:

- "&&" (and)
- "||" (or)
- "!" (not)

These operators are used to perform conditional tests in Java and return a Boolean value (true or false) based on the evaluation of the expression.

2. What are the types of operators based on the number of operands?

Ans: - Based on the number of operands, the types of operators in programming are:

- Unary operator: An operator that operates on a single operand. Examples: negation (-), increment (++), decrement (--)
- Binary operator: An operator that operates on two operands. Examples: arithmetic operators (+, -, *, /), comparison operators (==, !=, <, >, <=, >=)
- Ternary operator: An operator that operates on three operands. The ternary operator is often referred to as the conditional operator, and it is the only operator in Java that takes three operands. The syntax for the ternary operator is: "condition ? expression1 : expression2". The condition is evaluated first, and if it is true, expression1 is executed. If the condition is false, expression2 is executed.

3. What is the use of switch case in Java programming?

Ans: - The "switch" statement in Java is used to control the flow of a program based on multiple cases. It is a multi-way branch statement that provides a convenient alternative to nested if-else statements. The switch statement is used to match a value against a list of possible cases, and when a match is found, the corresponding block of code is executed.

The syntax for the switch statement is:

```
switch (expression) {
  case value1:
    // code to be executed if expression matches value1;
    break;
  case value2:
    // code to be executed if expression matches value2;
```

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```
    break;
  ...
  default:
    // code to be executed if no case matches the expression;
    break;
}
```

The "expression" is evaluated, and its value is compared to each of the "case" values. When a match is found, the code in the corresponding case block is executed. The "break" statement is used to exit the switch statement. The "default" case is optional, and if specified, it will be executed if no other case matches the expression.

4. What are the priority levels of arithmetic operation in java?

Ans: - The priority levels of arithmetic operations in Java are:

- Parentheses: expressions in parentheses are evaluated first.
- Exponentiation: the operator "^" (raised to the power of) has the highest priority.
- Multiplication, division, and modulus: the operators "*", "/", and "%" have the same priority, and they are performed from left to right.
- Addition and subtraction: the operators "+" and "-" have the same priority, and they are performed from left to right.

  For example, the expression "5 + 3 * 2" would be evaluated as "11", not "16". The multiplication is performed first because it has higher priority than the addition. Similarly, the expression "(5 + 3) * 2" would be evaluated as "16", because the parentheses change the order of the operations.

5. What are the conditional Statements and use of conditional statements in java?

Ans: - Conditional statements in Java are used to control the flow of execution of a program based on certain conditions. There are 3 types of conditional statements in Java:

- If statement: An if statement tests a condition, and if the condition is true, it executes a block of code.
- If-else statement: An if-else statement tests a condition and executes a block of code if the condition is true and a different block of code if the condition is false.

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- Switch statement: A switch statement is used to choose one of many blocks of code to be executed. It tests a variable against multiple values, and the first matching value runs its corresponding block of code.

The use of conditional statements in Java can help to make decisions based on certain conditions, execute different code paths, and control the flow of a program.

6. What is the syntax of if else statement?

Ans: - The syntax of an if-else statement in Java is as follows:

```
if (condition) {
   // code to be executed if condition is true
} else {
   // code to be executed if condition is false
}
```

Where condition is a boolean expression that returns either true or false. If the condition is true, the code inside the first set of curly braces {} will be executed, otherwise, the code inside the second set of curly braces {} will be executed.

7. What are the 3 types of iterative statements in java?

Ans: - The 3 types of iterative statements in Java are:

- For loop: A for loop is used to repeat a block of code a specified number of times. It is used when you know the exact number of iterations you want to perform.
- While loop: A while loop is used to repeat a block of code while a certain condition is true. It is used when you don't know the exact number of iterations you want to perform beforehand.
- Do-while loop: A do-while loop is similar to a while loop, but it guarantees that the block of code will be executed at least once. It is used when you want to repeat a block of code at least once, and then continue repeating the block as long as a certain condition is true.

Each of these iterative statements can be used in different situations depending on the specific requirements of the program.

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8. Write the difference between for loop and do-while loop?

Ans: - The difference between a for loop and a do-while loop in Java are:

- Condition Checking: The for loop checks the condition before executing the loop, whereas the do-while loop checks the condition after executing the loop.
- Execution Order: In a for loop, if the condition is false, the loop will not be executed at all. In contrast, the do-while loop will always be executed at least once, regardless of the condition.
- Loop Control: For loop uses a counter or an increment/decrement operation to control the number of iterations, whereas do-while loop uses a condition to control the number of iterations.
- Usage: For loop is typically used when the number of iterations is known beforehand, whereas do-while loop is used when the number of iterations is unknown, but the loop should be executed at least once.

In conclusion, the choice between a for loop and a do-while loop will depend on the specific requirements of the program, such as the number of iterations and the order in which the loop should be executed.

9. Write a program to print numbers from 1 to 10.

Ans: -

```
public class firstprogram {

   public static void main(String[] args) {

     for(int i=1;i<=10;i++) {
       System.out.print(i + "  ");
     }
   }
}
Output:-
1 2 3 4 5 6 7 8 9 10
```

This program uses a for loop to print the numbers from 1 to 10. The loop starts with int i = 1, which is the initial value. The condition i <= 10 tests if i is less than or equal to 10, and if it is, the loop will continue to execute. The increment i++ increases the value of i by 1 after each iteration. The loop will repeat until the condition i <= 10 is no longer true. The statement System.out.println(i) prints the value of i to the console.

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