1. Java program demonstrating the use of the continue statement in a loop:

public class Main {

public static void main(String[] args) {

for (int i = 1; i <= 10; i++) {

if (i == 5) {

continue;

}

System.out.println(i);

}

}

}

1. **Comparison between for and while loops:**

**For loop**: Best used when the number of iterations is known in advance. It includes initialization, condition checking, and increment/decrement in a single line.

Example: Iterating through a fixed range of numbers.

**While loop**: Best used when the number of iterations is not known and depends on some condition that is evaluated during the loop execution.

Example: Continuously reading input until a valid input is given.

**When to prefer one over the other**:

Use a **for loop** when you know how many times you want to loop.

Use a **while loop** when the loop should continue until a certain condition is met, and you don't know how many iterations are needed.

1. Java program to find the average of numbers stored in an integer array

public class Main {

public static void main(String[] args) {

int[] numbers = {10, 20, 30, 40, 50};

int sum = 0;

for (int num : numbers) {

sum += num;

}

double average = sum / (double) numbers.length;

System.out.println("Average: " + average);

}

}

1. Method that returns the maximum value from an array:

public class Main {

public static void main(String[] args) {

int[] numbers = {10, 20, 30, 40, 50};

int max = findMax(numbers);

System.out.println("Maximum value: " + max);

}

public static int findMax(int[] array) {

int max = array[0];

for (int num : array) {

if (num > max) {

max = num;

}

}

return max;

}

}

1. Program to calculate the factorial of a given number:

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a number: ");

int num = scanner.nextInt();

int factorial = 1;

for (int i = 1; i <= num; i++) {

factorial \*= i;

}

System.out.println("Factorial of " + num + " is " + factorial);

}

}