كلية العلوم

قســـم الانظمة الطبية الذكية

Lab: (1)

❖Looping And Iteration Part I

Subject: Computer Programming (I)
Level: First
Lecturer: Asst. Lect. Ali Saleem Haleem

Java For Loop

When you know exactly how many times you want to loop through a block of code, use the `for` loop instead of a `while` loop:

Syntax
```
for (statement 1; statement 2; statement 3) {
  // code block to be executed
}
```

Statement 1 is executed (one time) before the execution of the code block.

Statement 2 defines the condition for executing the code block.

Statement 3 is executed (every time) after the code block has been executed.

The example below will print the numbers 0 to 4:

```java
public class Main {
  public static void main(String[] args) {
    // Loop from 0 to 4
    for (int i = 0; i < 5; i++) {
      System.out.println(i); // Print the current value of i
    }
  }
}
```

Output :

0

1

2

3

4

- This example will only print even values between 0 and 10:

```java
public class Main {
  public static void main(String[] args) {
    for (int i = 0; i <= 10; i = i + 2) {
      System.out.println(i);
    }
  }
}
```

- This program iterates from 1 to 100 using a for loop, adding each number to the `sum` variable. Finally, it prints out the sum of all numbers from 1 to 100.

```java
public class SumNumbers {
    public static void main(String[] args) {
        int sum = 0;

        for (int i = 1; i <= 100; i++) {
            sum += i;
        }

        System.out.println("The sum of numbers from 1 to 100 is: " + sum);
    }
}
```

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- **Java program that calculates the average of 6 marks entered by the user using a for loop:**

```java
import java.util.Scanner;

public class AverageMarks {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int totalMarks = 0;

        System.out.println("Enter the marks for 6 subjects:");

        // Input marks for 6 subjects
        for (int i = 1; i <= 6; i++) {
            System.out.print("Enter marks for subject " + i + ": ");
            int marks = scanner.nextInt();
            totalMarks += marks;
        }

        // Calculate average
        double average = (double) totalMarks / 6;

        // Display the average
        System.out.println("The average marks of the student is: " +
average);

        scanner.close();
    }
}
```