

# Day 5: Mastering Loops in Java!

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Yesterday, we explored the world of conditional statements in Java, including if-else statements, switch statements, and conditional operators. Today, we're going to dive into another fundamental concept in **Java: loops!**

## Unlocking the Power of Loops

Loops are a crucial part of any programming language, and Java is no exception. They allow you to execute a block of code repeatedly for a specified number of times, making it easier to perform tasks that require repetition.

### For Loops: The Workhorse of Java

For loops are the most commonly used type of loop in Java. They allow you to execute a block of code for a specified number of times, and are perfect for tasks that require a fixed number of iterations. The basic syntax is:

```
for (initialization; condition; increment/decrement) {  
    // code to be executed  
}
```

Here's an example:

```
for (int i = 0; i < 5; i++) {  
    System.out.println("Hello, World!");  
}
```

### While Loops: The Flexible Friend

While loops are similar to for loops, but they allow you to execute a block of code as long as a certain condition is true. They're perfect for tasks that require a variable number of iterations. The basic syntax is:

```
while (condition) {  
    // code to be executed  
}
```

Here's an example:

```
int i = 0;  
while (i < 5) {  
    System.out.println("Hello, World!");  
    i++;  
}
```

### Do-While Loops: The Rare but Useful Cousin

Do-while loops are similar to while loops, but the code is executed at least once before the condition is checked. They're perfect for tasks that require a block of code to be executed at least once, regardless of the condition. The basic syntax is:

```
do {  
    // code to be executed  
} while (condition);
```

Here's an example:

```
int i = 0;  
do {
```

```
System.out.println("Hello, World!");
```

```
i++;
```

```
} while (i < 5);
```

### **Challenges**

Write a program that uses a for loop to print the numbers from 1 to 10. Write a program that uses a while loop to print the numbers from 1 to 10. Write a program that uses a do-while loop to print the numbers from 1 to 10.

### **Code**

You can find the code for today's challenges in the Day5 folder of this repository.

### **Join the Conversation**

How was your experience with loops today? Did you encounter any challenges or have any questions? Share your thoughts in the comments below!

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