

Lecture 38

Java – For Loop

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| Intro...

- You should now be able to write a program which **finds the largest of four, five, six, or even ten numbers**.
- You already know the scheme, so **extending the size** of the problem will **not** be particularly **complex**.
- But what happens if we ask you to write a program that **finds the largest of two hundred numbers**? Can you imagine the code?
 - You'll need **two hundred variables**. If two hundred variables isn't bad enough, try to **imagine searching for the largest of a million numbers**.

| Intro...

- Performing a certain part of the code more than once is called a **loop**
- Loop: **repeated code**
- The simplest kind of loop is called a **definite loop**. This is a loop that will execute a definite number of times

| Loop

- If something is **worth doing**, it is **worth doing more than once**. Programming is the same
- we frequently need to **perform an action over and over**, often with variations in the details each time — the mechanism that meets this need is the **loop**
- There are three major loop structures in java
 - for loop
 - while loop
 - do-while
- Each loop must contain: **(1)** initialize **(2)** check **(3)** Update

| Loop

- Encapsulates the **essential elements of a loop** into **one statement**
- You want to do something a **fixed number of times** — perhaps you want to calculate the **pay checks for 120 employees** or **print put the squares of all the numbers from 1 to 50**
- Here you **should know before executing the program**, how many times you need to repeat your task
- It is particularly well **suited** for loops in which the **number of passes is known in advance**

| Loop

- Do not place a **semicolon between the loop expression and the body** of the loop, since the keyword **for** and the loop expression do not constitute a complete C statement
- It is **not important** to consider the **braces** when the for loop is **one statement**
- The **for loop can execute zero time**, if the **condition is not satisfied** at the beginning

| Loop

```
for(i=0;i<5;i++)  
{  
    System.out.print("Sekoseko: ");  
    System.out.println(i);  
}
```

| Loop

- Another kind of loop available in Python comes from the observation that sometimes it's more important to **count the "turns" of the loop than to check the conditions**
- Actually, the for loop is designed to do more complicated tasks - it can "browse" large collections of data item by item

| References

- Java: How to Program, 9th Edition (Deitel) 9th Edition by Paul Deitel , Harvey M. Deitel
- Head First Java, 2nd Edition 2nd Edition by Kathy Sierra, Bert Bates
- Think Java: How to Think Like a Computer Scientist 1st Edition by Allen B. Downey, Chris Mayfield