

# Java-Loops

## Exercise 1 – Range of integers between two integers

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Write a Java program that asks the user to input two integers and lists all integers between the two in proper order.

### Example 1:

Please input two integers:   3    9

{3, 4, 5, 6, 7, 8, 9}

### Example 2:

Please input two integers:   4    -2

{-2, -1, 0, 1, 2, 3, 4}

```
import java.util.Scanner;
public class intRange {
    public static void main(String[] args) {

        int n1, n2;
        Scanner s = new Scanner(System.in);
        System.out.print("Please input two integers: ");
        n1 = s.nextInt();
        n2 = s.nextInt();
        if (n2 < n1) {
            int tmp = n1;
            n1 = n2;
            n2 = tmp;
        }
        s.close();
        System.out.print("{ " + n1);
        for (int i=n1+1; i<=n2; i++) System.out.print(", " + i);
        System.out.println("}");
    }
}
```

## Exercise 2 – Multiplication table

Write a Java program that asks the user to input a positive integer N between 1 and 9 then prints the multiplication table up to N.

### Example

Please input an integer between 1 and 9: 5

*	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

```
import java.util.Scanner;
public class multTable {
public static void main(String[] args) {
    // TODO Auto-generated method stub
    int n;
    Scanner s = new Scanner(System.in);
    System.out.print("Please input a positive integer between 1
and 9: ");
    n = s.nextInt();
    s.close();
    if ((n < 1) || (n > 9)) System.out.println("Invalid input");
    else {
        int i,j;
        System.out.print("*\t");

        for (i = 1; i<=n; i++) System.out.print(i + "\t");
        System.out.println("\n");

        for (i = 1; i <=n; i++) {
            System.out.print(i + "\t");
            for (j = 1; j<=n; j++) {
                System.out.print(i*j + "\t");
            }
            System.out.println("\n");
        }
    }
}
```

## Exercise 3 – Max, Min & Average

Write a Java program that reads 10 integers then displays the maximum, minimum and average numbers.

### Example

Please input 10 integers: **1 2 3 4 5 -1 -2 -3 -4 -5**

Max: 5

Min: -5

Average: 0.0

```
import java.util.Scanner;
public class minMaxAvg {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        System.out.print("Please input 10 integer numbers: ");
        Scanner s = new Scanner(System.in);
        int sum,min,max;
        int num = s.nextInt();
        sum = num;
        min = num;
        max = num;

        for (int i = 1; i<10; i++) {
            num = s.nextInt();
            sum += num;
            if (num > max) max = num;
            if (num < min) min = num;
        }
        s.close();
        System.out.println("Max:\t" + max);
        System.out.println("Min:\t" + min);
        System.out.println("Avg:\t" + (sum / 10.0f));
    }
}
```

## Bonus – Guessing Game

Write and test a java program that picks a number between 0 and 9 and gives the user 3 chances to guess it. If the user doesn't guess the number correctly in 3 attempts then the program should display the chosen number and exit. (integers only).

### Example1:

I'm thinking about a number between 0 and 9. Can you guess it? (3 attempt(s) left): **5**

Sorry. Wrong number.

I'm thinking about a number between 0 and 9. Can you guess it? (2 attempt(s) left): **3**

Sorry. Wrong number.

I'm thinking about a number between 0 and 9. Can you guess it? (1 attempt(s) left): **8**

Sorry. Wrong number.

The correct number is 9.

### Example2:

I'm thinking about a number between 0 and 9. Can you guess it? (3 attempt(s) left): **5**

Congratulations! That was the correct number.

### Hint:

To pick a random number between 0 and 9 import the random number generator (`import java.util.Random;`) then create an instance of the generator (`Random r = new Random();`) then finally get a random number (`int myRandomNumber = r.nextInt(10);`).

## Solution, Gussing-Game

```
import java.util.Scanner;
import java.util.Random;

public class guessing {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int myRandom, userInput;
        boolean guessed = false;
        int attemptsLeft = 3;
        Random r = new Random();
        Scanner s = new Scanner(System.in);

        myRandom = r.nextInt(10); //choose a random number between 0
and 9
        while ((attemptsLeft > 0) && (!guessed)) {
            System.out.print("I'm thinking about a number between 0
and 9. Can you
guess it? ");
            System.out.print("(" + attemptsLeft + " attempt(s)
left): " );
            userInput = s.nextInt();

            guessed = userInput == myRandom; // is it a correct
guess?
            attemptsLeft--; // 1 more attempt used
            if (!guessed) System.out.println("Sorry. Wrong guess!");
        }

        if (guessed) System.out.println("Congratulation!! That was
the correct number.");
        else System.out.println("You tried 3 times.. The correct
number is " + myRandom);
    }
}
```