

CMPSC 111
Introduction to Computer Science I
Fall 2013
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Recitation 7
10–11 October 2013
Due in Sakai by midnight
“Checkmark” grade

Summary

Learning how to write loops.

A Quick Tutorial

Suppose you want to do something many times in Java, for instance, print out 100 coin flips.

Here’s one way:

```
...
Random rand = new Random();
for (int i = 0; i < 100; i++)
{
    char coin = "HT".charAt(rand.nextInt(2));
    System.out.print(coin + " ");
}
System.out.println();
...
```

The structure “for(...) { ... }” is called a “for-loop”. It says, “Using the variable *i* as a counter, count from 0 through 99 and, for each value of the counter, perform the statements inside the “{...}”. So, to repeat something 25 times, you can write:

```
for (int i = 0; i < 25; i++)
{
    ... statements to be repeated ...
}
```

Here’s a more interesting example:

```
for (int i = 0; i < 10; i++)
{
    System.out.println(i + " squared is " + (i*i));
}
```

This will produce ten lines of output:

```
0 squared is 0
1 squared is 1
2 squared is 4
... etc. ...
9 squared is 81
```

And here's one more, even more interesting:

```
...
Scanner scan = new Scanner(System.in);
int sum = 0;

System.out.println("Enter 10 integers to be added:");
for (int i = 0; i < 10; i++)
{
    System.out.print("Value? ");
    int value = scan.nextInt();
    sum = sum + value;
}
System.out.println("The sum is: " + sum);
...
```

Try these out—write a Java program and enter the code above.

Then, write a Java program that:

- Finds the product of the integers from 1 through 25
- Prints out a table of values of the function $i^3 - i + 7$ for values of i from 0 to 50
- Asks the user to enter 5 grades (between 0 and 4) and then prints the average grade
- One other loop application of your choosing!

At the end of the period, or by midnight of the day of your recitation, upload the file you just created.

If you were unable to complete the exercise and have nothing to upload, please send me an email with the subject line “Recitation 7” and tell me what problems you encountered so that I can help you. (Actually, email me if you had any problems or questions, even if you uploaded something.)

General Guidelines for Recitation Sessions

- **Experiment!** Recitation sessions are for learning by doing without the pressure of grades or “right/wrong” answers. So try things! The best way to learn is by trying things out.

- **Submit *something*.** Your grade is just 0 or 1, depending on whether or not you attempt the work and upload something to Sakai.
- **Try to Finish During Class.** Recitation exercises are not intended to be the equal of laboratory assignments. If you are simply a slow typist, I've given you until the end of the day, but ideally you should upload a file, even a non-working one, by the end of the class period and be finished with it.
- **Help One Another!** If your neighbor is struggling and you know what to do, offer your help. Don't "do the work" for them, but advise them on what to type or how to handle things.
- **Review the Honor Code policy on the syllabus.** Remember that you may discuss programs with others, but programs that are nearly identical to others will be taken as evidence of violating the Honor Code.