

CPSC 1061 – Introduction to Programming in Java Lab

Spring 2021

Lab 6 – Due Monday, February 22, 10:00pm

1 Introduction and Lab Objectives

In this lab you will practice writing short Java programs with a focus on loops. The objectives of this lab are to write Java programs that:

1. use different types of loops: for loops, while or do-while loops, and nested loops
2. continue using previous concepts such as creating random numbers or working with Strings

The lab today has to be performed in groups of two. Do not just tell each other solutions but always make sure that your lab partner also understands why something does or does not work. Have fun!

2 Main

2.1 General Instructions

At the start of each program, write your name, the name of your lab partner, the course and lab, the date, and a description of what your program does as in the previous lab. In this lab as well as in all following labs, each program needs to have comments (not just at the beginning), to be clean, and to compile. Furthermore, any input and output should be designed to have appropriate instructions and sentences.

2.2 Baking.java

It seems that baking has become a trend during the pandemic. But what if you have recipes that use temperatures in Celsius, but your oven works in Fahrenheit? Display the useful table in the picture below on the left side using a for-loop. Tip: the degree sign in unicode is `\u00B0`.

2.3 NumberOfEs.java

Write a program that asks the user for a word and counts the number of 'e's in upper case and lower case together (e.g., Elephant has two 'e's).

°C	°F
80	176
90	194
100	212
110	230
120	248
130	266
140	284
150	302
160	320
170	338
180	356
190	374
200	392
210	410
220	428
230	446
240	464

```

1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8 9

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9

9 8 7 6 5 4 3 2 1
9 8 7 6 5 4 3 2
9 8 7 6 5 4 3
9 8 7 6 5 4
9 8 7 6 5
9 8 7 6
9 8 7
9 8
9

```

2.4 Divisors.java

Write a program that asks the user for a number n (integer) and then prints all of the divisors of n , including 1 and n .

2.5 CoinTosses.java

Write a program that simulates doing coin tosses repeatedly. Using a while loop or a do-while loop, print out how many heads and tails you have once you reach 100 heads.

2.6 Pattern.java

Write a program that uses nested for loops to display the three patterns in the figure on the right side.

2.7 Submit Files

Make sure to test your java files on the lab machines. Create a single zip-file that includes all the java files (and no other files) and submit the zip-file to Canvas.