CPSC 1061 – Introduction to Programming in Java Lab

Spring 2021

Lab 4 – Due Monday, February 8, 10:00pm

1 Introduction and Lab Objectives

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

1. write Java programs with selection control (if, if-else, nested if, multi-way if, switch)
2. be able to generate random numbers using the Math.random() method
3. program using logical operators (&&, ||, and !)

The lab today can 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 Ten.java

Write a program that asks the user for a number (integer). If the user enters 10, print "Jackpot!". Otherwise print "You lost.".

2.3 Clothing.java

Write a program that asks the user for a temperature in Fahrenheit and prints a clothing recommendation based on the temperature.

Differentiate three cases, when it is above 70 degrees Fahrenheit, when it is between 40 and 70 (both included), and when it is below 40 degrees Fahrenheit.

Make sure to always print out exactly one recommendation. Make sure to test your program with many different values.

Here are examples of the output:

```
What's the temperature in Fahrenheit?
80
It is 80 degrees. Wear shorts and a t-shirt
```

```
What's the temperature in Fahrenheit?
60
It is 60 degrees. Wear long pants and a pullover
```

```
What's the temperature in Fahrenheit?
30
It is 30 degrees. Don't forget your jacket!
```

2.4 Days.java

Assume the days of the week are numbered 0,1,2,3,4,5,6 from Sunday to Saturday. Write a program that asks the user for a number between 0 and 6 and prints the corresponding day name. For example, the user types 1, and the program displays "It is Monday! Have a wonderful day.". The program has to use a switch statement.

2.5 RockPaperScissors.java

Write a program that plays the popular rock-paper-scissors game. The program randomly generates a number 0, 1, or 2. The number 0 represents rock, 1 represents paper, and 2 represents scissors. The program asks the user to enter a number 0, 1, or 2. It then displays a message indicating what the computer randomly chose (rock, paper, or scissors), what the user chose, and whether the user wins, loses, or if it is a draw.

Details: Rock crushes scissors (rock beats scissors), paper covers rock (paper beats rock), scissors cuts paper (scissors wins over paper). If the user and the computer both choose the same shape, it is a draw.

2.6 Guess.java

Write a program as follows:

The computer chooses a random integer between 1 and 4.

The user is asked to guess the number.

If the user guesses correctly, s/he wins (print "You won!").

If the user does not guess correctly, the computer gives a tip in the form of: "The answer is not x." where x is a number other than the one the computer chose or the one the user chose.

The user is asked to guess the number again. If the user guesses correctly, s/he wins (print "You won at your second attempt!"). Otherwise, the user has lost the game (print a message).

Use logical operators in your program (&&, ||, or !).

2.7 Submit Files

Transfer your java files from the lab machine to your computer/laptop. Create a single zip-file that includes all the java files (and no other files) and submit the zip-file to Canvas.