

Project 4

CS 1323-4, Fall 2020

Learning Objectives

1. Use an if or if-else statement in a program. (10 points)
2. Use a cascading if-else statement in a program. (20 points)
3. Keep a running sum (accumulator) in a program. (10 points)
4. Get String input from the user (10 points)
5. Perform a String comparison using `.equals` or `.equalsIgnoreCase` to handle arbitrary capitalization from the user. (10 points)
6. Show output to the user (10 points)
7. Create a program that administers an online quiz correctly. (20 points)

10 points will be awarded for the documentation of your program. That means using good names for variables, comments, proper and consistent indentation of code, and meaningful use of whitespace.

1324: When your program is completed and running, upload the program to the Zylab. If you finish in lab, have the teaching assistants check the program to get credit for the lab. If you and your partner do not finish the lab in class, you should work on it separately after class. Make sure both people have copies of the code at the end of the laboratory. You must attend the whole lab to get credit for this assignment.

1323: When your program is complete and running, upload the program to the Zylab.

Due: Monday September 28 by 11:59 p.m.

Description

Psychology Today has an interesting quiz to determine if you are stressed out:

<https://www.psychologytoday.com/us/blog/just-listen/201010/are-you-stressed-out-take-the-quiz>

This quiz can be automated, so you can help your friends tell if they are stressed out or not. The quiz is pretty long (12 questions), so cut it down to three questions and adjust the scoring proportionately. I'll let you pick the three questions you think are the best indicators of stress.

For a three question quiz, the scoring would be:

0 points: You're more exhausted than stressed out

1 point: You're beginning to stress out

2 points: You're possibly stressed out

3 points: You're probably stressed out

Please be careful to use the exact wording above. Even a one character alteration will cause the zyLab to mark your program as incorrect.

A sample user input is shown below (pay attention to the capitalization):

Answer yes or no to the following questions

I am losing my sense of humor.

YES

I find it more and more difficult to see people socially.

No

I feel tired most of the time.

yes

You're possibly stressed out

Any answer that is not some form of yes (with any possible capitalization) should be counted as no.

Call your program Project4.

Coding Notes

I see a lot of code from beginning programmers that looks like the code below.

```
Scanner input = new Scanner(System.in);
int data1 = input.nextInt();
int data2 = input.nextInt();
int data3 = input.nextInt();
int sum = data1 + data2 + data3;
```

There's nothing wrong with that code in terms of functionality, but it is creating three variables when only one is needed. The code can be written using one variable repeatedly and a running sum. This technique is very common in programs and demonstrates a better understanding of how computer memory works.

```
Scanner input = new Scanner(System.in);
int sum = 0; // this is a running sum. Sum is called an accumulator.
int data = input.nextInt();
sum = sum + data;
data = input.nextInt(); // location data is being reused, this is OK—we've used the old value
sum = sum + data;
data = input.nextInt(); // location data is being reused again
sum = sum + data;
```

At first you might think this code is worse than the code above because it is longer and does the same thing. However, it uses less space in memory (2 variables instead of 5). We don't worry about wasting small amounts of memory space in the computer, but we should worry about making the program more complex than necessary.

Implementation Suggestions

Write one question first, get the user answer, and save it to the accumulator. Once you have that working perfectly, you can copy and paste for the other questions. You'll have to make some minor modifications to the code. Make sure you test your code carefully after you do this—copy and paste tends to get people into trouble.