Lab 3 – Simple Selection

Preparation

Find the *BlueJ* project folder named `Lab3_Start` in the Resource folder in the I: drive (or download and uncompress `Lab3_Start.zip` on Blackboard). Copy this folder to your home directory and rename your copy to `Lab3_lastname_firstname`.

Part A – Errors with if Statements

1) Start *BlueJ* and open this project. Open the class `IfExample` with the editor. Trace through the code to determine what the output will be when the value 24 is entered. Write this down on a piece of paper, and what the output will be when the value 20 is entered. Then check by running the program twice, entering 24 the first time and 20 the second time.

2) Add a semicolon immediately after the keyword `else` (i.e. `else;`). Compile the program and run it twice, entering 24 the first time and 20 the second time. Can you explain the results? Ask your instructor if you are not sure.

3) Next delete the semicolon after the keyword `else` and remove the braces around the else block. The code will look like:

```
else
     System.out.println ("\nThe else block is executing");
     System.out.println ("The units digit is " + unitsDigit);
```

   Compile the program and run it twice, entering 24 the first time and 20 the second time. Can you explain the results? Ask your instructor if you are not sure.

4) Finally, change the indenting so that it is consistent with the way the program is now working.

Part B – Coding with if Statements

The Canadian Heart Foundation recommends that no more than 35 percent of a person's total daily calories come from fat. Each gram of fat contains 9 calories. Given the number of grams of fat and the number of calories that a serving of a particular food item contains, we can calculate the percentage of the calories that come from fat.

Here is some sample data. Calculate the results by hand and enter them in the last column.

Food Item	Grams of fat	Calories	Percentage from fat
Salmon	3	100	_____
Oat Meal	2	180	_____
Corned Beef	8	200	_____

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An algorithm to solve this problem is:

```
read gramsFat
read totalCalories

fatCalories = 9.0 * gramsFat
pctgFatCalories = (fatCalories / totalCalories) * 100

write pctgFatCalories
```

Create a new class called FatContent in your Lab2 project. In it, translate this algorithm into a Java program which calculates the percentage of calories from fat. You do not need to declare the number of calories per gram as a named constant or read the name of the food item.

When your program compiles, run it three times and enter the data for which you calculated the results by hand. Verify that your program produces the expected results.

Once this is working properly, add code which prints one of the following messages:

`"This food item is Heart Healthy"` (if the percentage of fat is 35% or less)
`"This food item is not Heart Healthy"` (if the percentage of fat is more than 35%)

Submission

This is the end of the work that is to be submitted. Submit your work by copying your folder `Lab3_astname_firstname` to the submit folder for your section.