Introduction to Computer Programming - CST8110
Algonquin College - David Lareau

Assignment 1 - Branching

Given on 2017-09-21
(Thursday)
Due date 2017-10-08
(a little more than two weeks later, including weekend, end of day Sunday)

Rules

Assignments are expected to be done individually. However, it is ok to share ideas or discuss with peers. Do not copy/paste or transcribe code from each other or the web. This way your work will keep some of its originality.

Grading

For each questions, the marking is as follow:

- A header comment which includes your name, and a description of the program. [0.5 pts]
- Simple comments throughout the code explain your algorithm (i.e. steps). [0.5 pts]
- The program reads the input correctly (i.e. prompt, scanner). [1 pts]
- The program logic is correct (e.g. the correct tests, or calculations are done). [2 pts]
- The program ouputs meaningful results. [1 pts]
- The program does not compile. [-5 pts]

The minimum grade for each question is 0 out of 5 (i.e. you cannot go in the negative).

At this point in the course, you are not required to validate the input. We'll just say your program has undefined behaviour if the user enters an invalid value.

Remember to attend the lab hours reserved for help with this assignment. The lab hours are there to help you manage your time effectively amidst multiple courses. Do not count on the deadline being pushed, I already give ample time.

A solution will be posted shortly after the due date, so late submissions will mostly likely be rejected.

1 Even and Odd

Write a program that asks the user their age, and reports if their age is an even number or not.

1.1 Runtime Examples (the text in blue is user input)

```
How old are you?
42
Interesting. Did you know that 42 is an even number?
```

```
How old are you?
17
That's odd.
```

1.2 Hints and Tips

- import java.util.Scanner;
- Remember to use the nextInt() method to read the user's age.
- An even number does not leave a remainder when divided by 2.
- An odd number leaves a remainder of 1 when divided by 2.

2 Car Insurance

Write a program that lets the user know the cost of their yearly car insurance after completing a questionnaire. The numbers and rules are completly fictional.

- The questions asked are the gender, the number of accidents and the car year.
- The base cost for females is $500.
- The base cost for males is $1000.
- (Optional) The base cost for any other gender is $1000. (It's 2017 after all).
- Each accidents adds $100 to the base cost.
- If the car is more than 10 years old, the total cost is halved.
- The report must be detailed like in the examples below.

2.1 Runtime Examples (the text in blue is user input)

```
Gender (male/female)?
male
Accidents?
0
Car year?
2009
You are a male.
Base cost is $1000
You've had 0 accidents. Increase is $0.
Your car is 8 years old.
Still recent. No rebate.
Your insurance cost will be $1000.
```

```
Gender (male/female)?
male
Accidents?
2
Car year?
1996
You are a male.
Base cost is $1000
You've had 2 accidents. Increase is $200.
Your car is 21 years old.
That's old. Your total cost will be halved.
Your insurance cost will be $600.
```

2.2 Hints and Tips

- Remember to use the next() method of the Scanner for the gender.
- Remember to use the nextInt() method of the Scanner for the other values.
- Remember to use equals() when comparing two String objects.
- The current year is 2017. You need that number to calculate the car's age.
- Because all the numbers are even, you can use integer division by 2 without worry.

What to submit

- Submit your two .java files in Blackboard. The names of the files and classes don't matter.
- Your programs must compile.