This assignment is designed to give you some practice and experience writing Java applications using variables, keyboard input and if-statements. Each question specifies the name that each file/application should have. Please follow this naming convention. When you have completed the assignment compress all of your files into a single archive using Windows (Right Click folder -> Send To -> Compressed Folder) or OS X (Right Click folder -> Compress). Using a 3rd party compression utility such as WinRAR or 7zip may render your files unreadable and un-markable. Submit a single compressed file to D2L. You can resubmit your files as many times as you would like up to the due date and time.

Be sure to include your name and a brief description of your program (as comments) at the top of each file. Pay attention to using good variable names. If you have any questions please check or post to the forum.

Submit solutions for these questions. Wherever applicable, do your best to reproduce my output exactly. In my sample, **bold** indicates user-input.

If you work in partners, submit only one solution and make sure that both partners' names are in ALL files. If only one name appears, only one person will get the grade. No exceptions.

A word in general on assignment grading (for future assignments): If your program produces the displayed output and meets the criteria specified in the question you should expect to receive full marks. Deductions are taken when there are deviations in the output – small deductions for small deviations (calculation error, improper formatting, etc.) while larger deductions are taken for larger deviations (missing output, substantially incorrect values, etc.). Express your creativity in your code, not in your output. Also, deductions will be taken for:

- lack of comments
- poor variable names
- programs that don't run at all (large deduction), so make sure your program runs, even if it is not complete.

If you have any questions or concerns about the grading scheme before you submit an assignment please post to the forum and ask for clarification. If you have concerns about the grading you've received on an assignment, please email me and I will review the grading form.

Do <u>all of the questions</u> to ensure that you are practicing <u>all of the concepts</u> but submit solutions to questions 1 and 2 ONLY for grading. It is assumed that you are doing all of the questions and some of them may be referenced in future assignments. Solutions will be provided only for required questions.

Question 1. `(question1.java)` Write a Java application that declares the following variables:

- A String to hold your name
- An integer to hold your expected year of graduation.
- A double to hold your wishful starting salary for your first post-Laurentian job.

Do not collect any input from the user, hard code all of the values above using literals. Your program displays the information as follows:

```
C:\Desktop\cosc1046\a1> java question1
My name is Aaron Langille.
I expect to graduate in 2016.
I hope to make $100453.0 per year when I do.
```

***Note: **`C:\Desktop\cosc1046\a1> java question1`** is not part of the output. It shows what command I am running to get the output to display. This will appear in many questions throughout the term.

Question 2. (`question2.java`) They say "A dollar doesn't go as far as it used to…" but they rarely mention that it depends on where you take that dollar. Beside is a table of made-up conversion rates. Write a program that uses variables and literals to print out the value of a converted amount of money for various countries. Use the last three digits of your student number as the value to convert. For example, my student number ends with 964 so the output of my program would be:

$1 Canadian (CAD) Buys:	
0.76	US Dollars (USD)
94.41	Japanese Yen (JPY)
4.73	Chinese Yuan (CNY)
48.51	Indian Rupees (INR)
0.72	Euros (EUR)

```
C:\Desktop\cosc1046\a1> java question2
$964.00 CAD buys:

USD:732.64
JPY:91011.23999999999
CNY:4559.72
INR:46763.64
EUR:694.0799999999999
```

The output above is pretty messy, especially considering it's showing money to too many digits. If you are done with time to spare, see if you can format your output as follows. Hint: Look up printf() in chapter 3:

```
C:\Desktop\cosc1046\a1> java question2
$964.00 CAD buys:

USD:   732.64
JPY: 91011.23
CNY:  4559.72
INR: 46763.64
EUR:   694.07
```

Question 3. Create a single Java application that evaluates the following mathematical expressions. Use literals in your expressions and use variables to store the result. Then print the values stored in those variables. Practice using comments to clearly mark each part of the question.

a) The product (multiplication) of the first 10 positive **integers**. Store your result as an `int` value. Do not use doubles or floats in your solution.

b) The product (multiplication) of the first 17 positive **integers**. Store your result as an `int` value. Do not use doubles or floats in your solution.

c) $z = 5x^2 + y^2(\frac{1}{1+x^2})^{\frac{1}{2}}$, for x = 7.5 and y = -9

d) $w = \left(\frac{1}{a}\right) * a$ where a = 0.000000001 (take note of your result here).

Sample output from my solution is shown below. Note that I have hidden the output from two parts so as not to give away the surprises. Your solution should show the proper result.

```
C:\Desktop\cosc1046\a1> java question3
a)3628800
b)          (Hidden)
c)291.95526132737245
d)          (Hidden)
```