

Programming 2

Tutorial 1

Activity 1 (required)

Write a program that will print your initials to standard output in letters that are nine lines tall. Each big letter should be made up of a bunch of *'s. For example, if your initials were “DJE”, then the output would look something like:

```
*****
*****
*****
**      **      **      **
**      **      **      **
**      **      **      **
**      **      **      *****
**      **      **      **
**      **      **      **
**      **      **      **
*****
*****
*****
```

Activity 2 (required)

Write a program that asks the user's name, and then greets the user by name. Before outputting the user's name, convert it to upper case letters. For example, if the user's name is Fred, then the program should respond “Hello, FRED, nice to meet you!”.

Activity 3 (required)

If you have N eggs, then you have N/12 dozen eggs, with N%12 eggs left over. (This is essentially the definition of the / and % operators for integers.) Write a program that asks the user how many eggs she has and then tells the user how many dozen eggs she has and how many extra eggs are left over.

A gross of eggs is equal to 144 eggs. Extend your program so that it will tell the user how many gross, how many dozen, and how many left over eggs she has.

For example, if the user says that she has 1342 eggs, then your program would respond with: Your number of eggs is 9 gross, 3 dozen, and 10 since 1342 is equal to 9*144 + 3*12 + 10.

Activity 4 (required)

```
1 /**
2 * This class implements a simple program that
```

```

3 * will compute the amount of interest that is
4 * earned on 17,000 invested at an interest
5 * rate of 0.07 for one year. The interest and
6 * the value of the investment after one year are
7 * printed to standard output.
8 */
9 public class Interest {
10 public static void main(String[] args) {
11 /* Declare the variables. */
12 double principal;
13 double rate;
14 double interest;
15 /* Do the computations. */
16 principal = 17000;
17 rate = 0.07;
18 interest = principal * rate;
19 principal = principal + interest;
20 /* Output the results. */
21 System.out.print("The interest earned is ");
22 System.out.println(interest);
23 System.out.print("The value of the investment after one
year is ");
24 System.out.println(principal);
25 } // end of main()
26 } // end of class Interest

```

Answer the following questions about program Interest:

(a). Change the statement at line 16 to the following statement. Compile and run the program again. Does it work? Why do you think that is?

```
principal = 17000.0;
```

(b). *Change the statement at line 12 to the following statement. Compile the program again. Does it work? Why do you think that is? Can you fix it without reversing the change?

```
int principal;
```

Activity 5 (Optional)

There is a shop that has:

N types of products. For each integer i from 1 to N , the i -th type of product has a price of P_i Dong each.

We decide to purchase M type of products from 1 to M , and we will buy Q_i each type.

We will pay the total price of the products purchased.

Calculate the amount we will pay.

All input values are integers and you will read it from file input.txt

Content of input.txt:

N M

P_1 Q_1

P_2 Q_2

....

P_M Q_M

....

P_N

Example content of file input.txt

7 3

500 2

600 3

700 1

300

1000

1100

100

Submission

Submit a **zip** file containing all Java programs to this tutorial's submission box in the course website on FIT Portal.