Basis of Computer Programming (java)
Lab Exercise 2

[Experimental Objective]

1. Learn some basic programming concept, including the layout of a java file (package, import and class), the main method, Java's primitive type, and comments.
2. Learn some important features of Java, including
   - Displaying data on the screen in a Command Prompt or a console of IDE;
   - Inputting data from the keyboard;
   - Performing calculations and making decisions.

[Exercises]

1. Write an application that displays the following text:
   Welcome Lab
   2
   "**"
   * *
   Write the program using the following techniques:
   a) Use one System.out.println statement.
   b) Use four System.out.print statements.
   c) Use one System.out.printf statements

2. (Book P52, 2.11) Write an application that asks the user to enter two integers, obtains them from the user and prints their sum, product, difference and quotient (division).

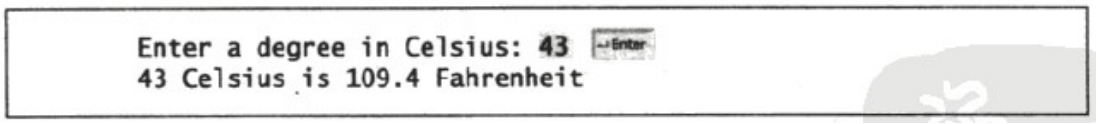
3. (Book P52, 2.13)Write an application that inputs three integers from the user and displays the sum, average, product, smallest and largest of the numbers. [Note: The calculation of the average in this exercise should result in an integer representation of the average. So if the sum of the values is 7, the average should be 2, not 2.3333….]

4. Write an application that inputs an integer from the user and determines and prints whether it's odd or even. (Hint: Use the remainder operator.)

5. Write an application that reads from the console an integer Celsius (摄氏) temperature, and then convert it to Fahrenheit (华氏), and display the result. The conversion formula is as follows:

   Fahrenheit = (9/5) * Celsius + 32

A running example is as follow.



6. (Book P53, 2.22) Write an application that inputs from the user the radius of a circle as an integer and prints the circle's diameter (直径), circumference (周长) and area (面积) using the floating-point value 3.14159 for π. Use the following formulas (r is the radius):
   diameter = 2r
   circumference = 2πr
   area = πr^2
   Do not store the results of each calculation in a variable (变量). Rather, specify each calculation as the value that will be output in a System.out.printf statement. Note that the values produced by the circumference and area calculations are floating-point numbers. Such values can be output with the format specifier %f in a System.out.printf statement.

7. (Book P53, 2.23)Write an application that inputs one number consisting of five digits from the user, separates the number into its individual digits and prints the digits separated from one another by three spaces each. For example, if the user types in the number 42339, the program should print

```
4   2   3   3   9
```

   Assume that the user enters the correct number of digits. If you type a number more than five digits or fewer than five digits, the program should display prompt massage "more than five digits" or "fewer than five digits" respectively.

8. (Book P53, 2.24) Using only the programming techniques you learned in this chapter, write an application that calculates the squares and cubes of the numbers from 0 to 10 and prints the resulting values in table format, as shown below. [Note: This program does not require any input from the user.]

```
number  square  cube
0       0       0
1       1       1
2       4       8
3       9       27
4       16      64
5       25      125
6       36      216
7       49      343
8       64      512
9       81      729
10      100     1000
```

[Assignment]
Question 2、3、6、7、8 of [Exercises]