Assignment 2

Create a new Eclipse project named YourStudentId_OOP_HW2 and add three classes named Currency, HCF, Factorial_for, Factorial_while to the project. You must comply with the following variable names.

1. Currency converter (Write in *Currency* class)

Write an exchange rate unit conversion program (for TWD, USD, and JPY), remind the user to enter a unit and a value, and then convert it to the other two currencies (please use the *printf* method to round the result to the 2nd decimal place). ***Hint****: 1 TWD = 0.034 USD = 3.568 JPY (Retrieve from Yahoo Finance, 109/09/25).*

- Declare a String object named *currency* to get the currency user want to convert.
- Declare a double variable named *value* to get the value user want to convert.
- Use the *Scanner* object to read the input content and assign the object to *cyScanner.*
- Assign user input to the relevant variables ,i.e. *currency, value*.
- Convert to the other two currencies according to the given exchange rate.

Sample output (the green one is user input):

```
Convert from TWD, USD, JPY:TWD
Value:20
The result:20.00 TWD = 0.68 USD = 71.36 JPY
```

or

```
Convert from TWD, USD, JPY:USD
Value:20
The result:20.00 USD = 588.24 TWD = 2098.82 JPY
```

or

```
Convert from TWD, USD, JPY:JPY
Value:20
The result:20.00 JPY = 5.61 TWD = 0.19 USD
```

2. Highest common factor (HCF) (Write in *HCF* class)

Write a program to find the highest common factor between the two numbers.

- Declare three variables named *num1, num2,* and *max*.
- Use a Scanner object named *numScanner* to scan user input.
- Assign user input to the *num1, num2* variable.
- Use "*If else statement*" to find the highest common factor between *num1* and *num2*.
- Assign the result to the *max* variable.
- Print out as sample output.

Sample output (the green one is user input):

```
Please input two integer numbers:20 30
Result: the least common multiple is 10
```

3. Factorial number (Write in *Factorial_for* class)

Write a for loop that calculates *number!* (階乘) where the num is a positive integer.

- Declare an int variable named *num* and assign user input to the variable.
- Declare an int variable named *result* to store the *num!* result.
- Use Scanner object named *numScanner* to scan user input.
- Write a for loop that calculates the result of *num!* and print out as sample output.

Sample output (the green one is user input):

```
Please input a factorial number:10
The result is: 3628800
```

4. Factorial number (Write in *Factorial_while* class)

Rewrite the for loop in *Question 2* into while loop that while output the same result.

- Declare an int variable named *num* and assign user input to the variable.
- Declare an int variable named *result* to store the *num!* result.
- Use Scanner object named *numScanner* to scan user input.
- Write a while loop that calculates the result of *num!* and print out as sample output.

Sample output (the green one is user input):

```
Please input a factorial number:10
The result is: 3628800
```

Submission: Submit your project as "zip (or rar) file" via Moodle. No other submissions will be graded.

Reminder: Please zip the whole project

Deadline: 2020/10/19 (for Mon56) or 2020/10/20 (for Tue23)