

Project #1: Foreign Currency - US Dollar Converter

Due Date: February 6, 2009 @ 11:55 p.m.

You will be writing a java application called **CurrencyDollarConverter.java** that will display the details of a customer's currency exchange transaction, as well as the amount of US Dollars and exact change paid to the customer after the currency exchange transaction has been made. Your program will prompt the customer for

- His/her first and last name
- Name of the currency (s)he wants to exchange
- Current currency exchange rate (to convert the foreign currency to US Dollar)
- The amount of foreign currency the customer wants to exchange.

The customer will pay a 1.2% exchange fee to convert his/her money to US Dollars.

Your program will compute the equivalent amount of US Dollars as follows:

- Apply the exchange rate to the amount of money in the foreign currency.
- Calculate the exchange fee charged to the customer in US Dollars
- Compute the total US Dollars that should be paid to the customer (it will be the equivalent amounts in US Dollars minus the exchange fee.)

Finally, your program will display the US Dollar amount paid to the customer, which is computed by rounding the total US Dollars up to at most two decimal digits. Your program has to display the number of US dollar bills and coins needed to represent the amount. You can assume that a twenty-dollar bill is the maximum bill needed. For this project, you can safely assume that the user will always enter a valid (positive) amount of money in a foreign currency as well as a valid currency exchange rate.

Example #1:

```
First name:           John
Last name:            Doe
Currency:             Euro
Current Exchange Rate: 1.3245
Currency Amount:     100.09
```

Currency Transaction Summary

```
Customer           :   Doe, John
Currency Amount    :   100.09 (Euro)
Currency Exchange Rate: 1.3245 US Dollar per Euro
US Dollar Amount   :   132.569205
Exchange Fee(1.2%) :   1.59083046
Total US Dollar    :   130.97837454
```

```
Amount paid to the customer: $130.97
Exact change paid to customer:
```

6 twenty dollar bills
1 ten dollar bills
0 five dollars bills
0 one dollar bills
3 quarters
2 dimes
0 nickels
2 pennies

Example #2:

First name: Mary
Last name : Smith
Currency : Australia Dollar
Current Exchange Rate: 0.67209
Currency Amount: 57.38

Currency Transaction Summary

Customer : Smith, Mary
Currency Amount : 57.38 (Australia Dollar)
Currency Exchange Rate: 0.67209 US Dollar per Australia Dollar
US Dollar Amount : 38.5645242
Exchange Fee(1.2%) : 0.4627742904
Total US Dollar : 38.1017499096

Amount paid to the customer:\$38.1

Exact change paid to customer:

1 twenty dollar bills
1 ten dollar bills
1 five dollars bills
3 one dollar bills
0 quarters
1 dimes
0 nickels
0 pennies

Deliverables:

- CurrencyDollarConverter.java

Requirements

- You should try to make your program look just like the example above when you run it on these inputs. Note that all inputs start at the same depth. In order to get this, you'll need to use some special escape characters in your prompts. But **do not** use spaces to align the inputs or the outputs up. Use tabs instead.
- The exchange fee percent must be declared as a **constant** in your program and be displayed as a percent.
- You should not be worried if amounts are not printed out with two decimal digits, except for the amount paid to the **customer should be displayed with at most two decimals digits**. The number of bills and coins on the other hand must be whole numbers.

- The name of the class in your java program must be **CurrencyDollarConverter**. Therefore, the java source code file must be called **CurrencyDollarConverter.java**.
- Your code must include a comment header like the following in every project you submit.

```
/*
 * CurrencyDollarConverter.java
 * Author: Amy Smith
 * Last edited: 01/30/2009
 *
 * Purpose: A brief one or two paragraph description of the
 * program. What does it do? How does it do it?)
 *
 * Statement of Academic Honesty:
 *
 * The following code represents my own work. I have neither
 * received nor given inappropriate assistance. I have not copied
 * or modified code from any source other than the course webpage
 * or the course textbook. I recognize that any unauthorized
 * assistance or plagiarism will be handled in accordance with
 * the University of Georgia's Academic Honesty Policy and the
 * policies of this course.
 */
```

Hints

- Use data conversions when needed.

Project Submission

Submit the file CurrencyDollarConverter.java via WebCT.

Project Grading

All projects are graded out of possible 100 points. In this project, 80 points are for program correctness and 20 points are for programming style. The following specific criteria will be applied to grade this project:

If your code does not compile, you will get a 0. Make absolutely certain your code compiles before you submit it via WebCT.

Style:

- 5 points for program header.
- 5 points for helpful comments.
- 5 points for using mnemonic well-named variables.
- 5 points for correct code indentation and readability.

Correctness:

20 point for input/output formatting.

60 points for the correct output values on 5 test cases (12 points per test case).