

CS150 Assignment 4

Credit Card Processing

Date assigned: Friday, October 10, 2014

Program due: Monday, October 20, 2014, 8am (35 points)

Most people pay a large portion of their bills with a credit card. Unfortunately, many maintain a balance with a large interest rate. You are to write a C++ program that processes the credit card account activity for zero or more individuals. The account activity will be maintained in a data file called **creditcard.txt** with the following format.

```
AccountNumber Date Transaction BeginningBalance
AccountNumber Date TransactionLocation TransactionAmount
AccountNumber Date TransactionLocation TransactionAmount
NewAccountNumber Date Transaction BeginningBalance
NewAccountNumber Date TransactionLocation TransactionAmount
...
00000 00/00/00 End 0.0
```

Here is a sample data file:

```
12345 10/01/14 Balance 1500.00
12345 10/01/14 McDonalds 10.75
12345 10/05/14 Walmart 50.65
54321 10/01/14 Balance 16.75
54321 10/06/14 McMenamins 23.00
54321 10/07/14 Payment -25.00
54321 10/10/14 Comcast 130.01
00000 00/00/00 End 0.0
```

In order to process this data file you need to do the following:

- 1) Read in the account number, date, transaction, and beginning balance for an individual. The beginning balance is the unpaid portion from the previous month
- 2) Calculate the interest on the unpaid balance. The interest rate is a yearly interest rate; however, the interest is calculated using a monthly interest rate because bills are sent out monthly. If the previous balance is $\leq \$1,000$, then the interest rate is 15%; otherwise, the interest rate is 18.5%.
- 3) Process each transaction one line at a time until either the sentinel value of 00000 is read or a different account is read. Before beginning to process the next individual, print out summary account information as shown on the next page.

The solution to this problem could be done with a nested loop, but you are to use a single loop in your solution. Nested loop solutions will lose points.

Here is an example of the output after processing the above data file.

```

C:\Windows\system32\cmd.exe
*****
*   Credit Card Processing   *
*****

Account: 12345
Previous Balance: $1500.00
Interest Rate: 18.50%

Date      Purchase      Amount
10/01/14  Interest         23.13
10/01/14  McDonalds        10.75
10/05/14  Walmart          50.65
          Final Balance 1584.53

Account: 54321
Previous Balance: $16.75
Interest Rate: 15.00%

Date      Purchase      Amount
10/01/14  Interest         0.21
10/06/14  McMenamins       23.00
10/07/14  Payment          -25.00
10/10/14  Comcast          130.01
          Final Balance 144.97

Press any key to continue . . .

```

To complete this assignment you must submit the following:

1. An electronic copy of your program on Grace

- a. Add a new project named 04_CreditCardProcessing to your previously created assignment solution called PUNetIDAssignments. It is *vital* that you name your project correctly!
- b. Type your program (fully documented/commented) into the project. The comment block at the top of the program needs to contain your name, the date the assignment is due, the class name, assignment number and name, a brief description of the program, and the number of hours you spent on the assignment.
- c. Pay attention to the example output! Your program’s output must look **exactly** like the example output! The spacing and newlines in your output must match exactly.
- d. Make sure that your program compiles and runs correctly with no warnings. If you get any errors, double check that you typed everything correctly.
- e. Once you are sure that the program works correctly it is time to submit your program. You do this by logging on to Grace and placing your complete solution folder in the **CS150-02 Drop** folder. This solution folder must contain four projects: 01_Fraction, 02_LongDistance, and 03_A_DaycareCalculator, 03_B_DaycareCalculator, and 04_CreditCardProcessing.
- f. The program must be in the drop folder by 8am on the day that it is due. Anything submitted after that will be considered late.
- g. Follow the coding standards!

2. A hard copy of your program

- a. The hard copy must be placed on the instructor’s desk by 8am on the day that it is due.
- b. The hard copy must be printed in color, double-sided, and stapled if necessary. Staple the program output described above to your program.

Good luck! And remember, if you have any problems, come and see straight away. ☺