CS150-01 Lab 8

Bank Account

Date Assigned: Tuesday, October 19, 2004

Date Due: Tuesday, October 26, 2004

Points: 15

Objectives

Program using files.

Problem statement

You are to write a program that will process a collection of checking account transactions for one customer only. The input will consist of a series of lines of data, the first line containing the account number and the previous balance. Each subsequent line will contain: (a) a date in the form 041019 to be read into an integer, (b) one of two characters (D - deposit, or W - withdrawal) to be read into a char and (c) an amount of money to be deposited or withdrawn to be read into a float. A deposit transaction is identified by the character D followed by the amount of the deposit. A withdrawal transaction is identified by the character W followed by the amount of the withdrawal. Each transaction is preceded by a date. The last line of the data contains a date of 000000 which stands for end, at which time your program will print the summary statistics for all transactions.

The summary statistics will consist of:

1. number of withdrawals
2. total sum of all the withdrawals
3. number of deposits
4. total sum of all the deposits
5. lowest balance during month
6. highest balance during month

Use the following format for your output:

```
                  Account: ####

         Previous Balance: $####.##

Date    Withdrawals($)      Deposits($)   Balance($)

######       ######.##                    ######.##

######                        ######.##    ######.##

######                        ######.##    ######.##

######       ######.##                    ######.##


       (##) Withdrawals Totalled $######.##

       (##) Deposits    Totalled $######.##


    Lowest  Balance during month was $######.##

    Highest Balance during month was $######.##
```

A simple data file might look like:

```
1234 500.00
041001 W 25.00
041015 W 99.25
041030 D 100.00
000000
```

Steps for software development

1. First, we need to understand the program requirements. What needs to be calculated? Is there any additional information that we need?

2. Next, we need a program analysis. Answering the following questions will help guide you through the process.

(a) What is the input to your program? What units will it be in?

(b) What is the output to your program? What units will it be in?

(c) Is there any data that will be internal to your program?

(d) What are the calculations needed for your program?

3. What is the algorithm to solve this problem? Here you should describe in English the steps for solving the program. This is the place where you decide the specifics of your program. For example, if you need to use any selection or repetition structures.

4. Create a new project in Visual Studio .NET. You should name your project "08BankPUNetId", where PUNetId is your own id. I would name my project "08Bankkhoj0332". While working on a project, it should be located on the current computer you are working on (i.e. the desktop). Once you have completed developing, you should copy the project folder onto Turing.
5. Write the code that will solve the problem. Make sure that you add comments to the code as you type and that your code follows the coding standards
6. How can you verify that your program works correctly? What numbers would you use to test the program.

What to turn in

When you have completed writing the program and you have verified that it works correctly, you will need to show it to the instructor or the TA.

Once you have done this you will submit the project for grading. You submit your program by placing a copy of the project folder in the "CS150-01 Lab" folder on Turing. Make sure that you also place a copy of the project folder in your own folder on Turing.

To receive full credit for this lab project, your program must be in the "CS150-01 Lab" folder by 8am on Tuesday, October 26.