25 points Homework Assignment #4

Objectives:

1. Write the main function by following the flowchart provided.
2. Watch the associated video tutorial “Creating Visio Flowcharts” and study the “Designing a Program – BMI” example program.
3. Draw the flowcharts for the withdrawal, deposit, invalid code, and display new balance functions.
4. Learn how to design and code decision statements.
5. Validate the transaction code and transaction amount.
6. Write the Python program that matches the logic in the flowcharts.

For this assignment, the customer’s account balance will be computed and displayed for a bank transaction. Use the main function flowchart provided to code the main function. Create four functions to: 1) process a withdrawal; 2) process a deposit; 3) process an invalid transaction code; and 4) display the customer’s balance after the transaction is complete. The customer’s balance is displayed only by the display balance function. Since the customer’s balance is currency, display it formatted for dollars and cents including a dollar sign. Create the flowcharts for these 4 functions and write the matching Python program. Read Chapter 4 in the Flowcharting Guide.

The main function will input their name, account ID, transaction code (W or w = withdrawal, D or d = deposit), previous balance, and transaction amount and calls the appropriate function. The process withdrawal function must check to make sure the customer is not attempting to withdraw more than is in the account. If so, an overdraft error message is printed and the previous balance is passed for displaying. If not, the new balance is calculated and passed for displaying. The process deposit function calculates the new balance and passes it for displaying. The process invalid code function prints an invalid code error message and passes the previous balance for displaying.

Calculate the new balance for each set of input test data shown below. Use this test data when verifying your structure chart, flowcharts, and program.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| name | account ID | transaction code | previous balance | transaction amount | new  balance | error message |
| Sally | 10 | W | 10.00 | 1.00 | $9.00 | none |
| Bill | 23 | D | 10.00 | 1.00 | $11.00 | none |
| Linda | 42 | 3 | 10.50 | 1.50 | $10.50 | Invalid Transaction Type |
| Tom | 31 | w | 25.72 | 30.00 | $25.72 | Withdrawal Exceeds Available Balance |
| Rich | 75 | d | 1234.56 | 2345.67 | $3,580.23 | none |
| Chris | 40 | W | 10.00 | 10.00 | $0.00 | none |

Submit each of the following in electronic format following class standards inside a compressed folder using the D2L drop boxes for Homework 4.

Use the logic diagrams drop box to submit:

1. Complete program flowcharts drawn with MS-Visio showing your logical solution. (9 pts.)
2. Completed table of test data showing the new balance and error message, if applicable (2 points)

Use the program drop box to submit:

3. A Python program exactly matching the solution shown in the flowcharts provided and in your flowcharts. (14 points)