

Business Applications Programming

Assignment 3 (25%)

Please complete the following exercise and submit your solution online by Friday 12th November @ 5pm at the latest. Your submission should have two parts (A) your full application solution folder (zipped) to the designated dropbox on Blackboard, and (B) your source code in a word document to the Turnitin dropbox provided (no screenshots required). Note only one submission is accepted.



Invest4U Application:

Your client Mad4Money Bank Corp is a financial services company that offers various investment products to its customers. One of these is a medium-term investment product called '*Invest4U*', in which a client invests a principal sum of money and receive returns depending on the amount and duration of their investment. Your company has been commissioned to create a well-designed application for bank employees to process client transactions for this product.

Normal Flow of Events

When the application loads, the user has to enter a password before being able to view any details or pricing. The password is '**ShowMeTheMoney#**'. If the user enters an incorrect password, they should be notified of the error & asked to try again. If the user enters the wrong password on four occasions the application closes with a message to the user.

A client on expressing interest in the '*Invest4U*' product is asked by the employee how much they would like to invest; this figure is inputted into the application and the ***Display*** button is pressed. The application displays each of the four terms available (1, 3, 5 & 10 years) with the applicable interest rate for each term, and the final balance that will have accrued on the investment at the end of each of

the terms. The interest on investments in the ‘*Invest4U*’ product is compounded monthly, with an interest rate schedule as detailed in table 1 on the next page.

If the client chooses a term they wish to invest for, the employee selects this option and presses the ***Proceed*** button. The application displays a randomly generated unique eight-character transaction ID along with that day’s date. Textboxes are provided for inputting the clients’ details (full name, telephone number & email address). After these details are entered and the ***Submit*** button is pressed, the application displays the full details of the investment, the transaction number & date, and the client’s details, and prompts the employee to gain final confirmation of the investment from the client. If the client confirms that they wish to proceed, the transaction is saved persistently to text file by the application.

| Investments up to €100,000 | |
|--|---------------|
| Term | Interest Rate |
| 1 Year | 0.005000% |
| 3 Years | 0.006250% |
| 5 Years | 0.007125% |
| 10 Years | 0.011250% |
| Investments more than €100,000 | |
| Term | Interest Rate |
| 1 Year | 0.006000% |
| 3 Years | 0.007250% |
| 5 Years | 0.008125% |
| 10 Years | 0.012500% |
| <i>Investments of greater than 1 Million for 5 Years or more receive an additional €25,000 bonus on term completion</i> | |
|  | |

Table 1: Interest Rate Schedule

Additional Required Functionality

- If a manager wishes to see the number of transactions processed to file, he/she/they presses the ***Summary*** button after which the system displays (from file) the full list of transaction numbers, as well as the total amount invested, the total interest accruing on the investments, the average amount invested, and the average duration (term) of an investment.
- The application should allow a user to ***Search*** previous transactions by entering a transaction number for a single transaction, a client email if searching for multiple transactions by the same client, or a date to search for transactions for that day. If the search term is found, the full details of the transaction(s) is displayed.

Design Notes

- A minimum of **three** methods are required to be developed with this application, with at least one being a value returning method.
- Handle any exceptions that could occur in your project & provide user input validation as needed.
- This is a single form project.
- Use of any collection (list, array etc.) and their methods is strictly prohibited. This includes the use of list view, data grid controls, along with any database.