

Islamic University of Technology

Department of Computer Science and Engineering

SWE 4202 - OOC I Lab

Lab 03, Group A (January 12, 2023)

1 hour 45 minutes

10 marks

INSTRUCTIONS

- *Do not communicate and copy codes from others.*
 - *Do not use your cellphone during lab time.*
 - *You can use calculator and internet.*
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Question 1: Develop a Banking System Management application using Windows Forms. 10

The basics features that your application should include are as follows.

- Creating an account
- Deposit and Withdraw money from that account
- Viewing account information
- Suspending an account

There needs to be support for multiple banking accounts in your system. Admin should be able to access account details given the account number. A *List* of user-defined type *BankAccount* can be used to store the information. Due to the lack of input, an account number will be generated automatically (via auto-increment; for example, if 10 accounts already exist in your system, the next account number will be 11). *BankAccount* class should have a parameterized constructor for creating the objects/accounts. Here is a list of items that are needed to register an account.

1. Account Holder's Name
2. Branch Name (Gazipur/ Uttara/ Motijheel/ Rajshahi) - ComboBox
3. Account Type (Savings/ Current) - ComboBox
4. Initial Deposit Amount

The Admin can also temporarily disable a user's account. If an account is temporarily frozen, users cannot add funds to or remove funds from that account. Never under any circumstances should an account have a negative balance. When the user clicks the ShowBalance button, a MessageBox will appear with the account balance. When a user makes a deposit, withdraws, or uses the Suspend button, a confirmation or error message should be displayed.

Your solution should incorporate the concept of inheritance and static classes. Create separate classes for SavingsAccount and CurrentAccount. Both of these classes will be derived from the base BankAccount class. The only difference these derived classes will have is in the definition of the *deposit* function. The *deposit* function of the SavingsAccount class will add extra 2.5% e.g., depositing BDT 100 will add BDT 102.5 to the balance whereas, the *deposit* function of the CurrentAccount class will simply add the amount to the balance. Create a static class, Utility for counting the total number of bank accounts and generating the next bank account number.

Keep the focus on getting the features in as quickly as possible instead of on making the UI as pretty as possible. Keep the user interface as streamlined and straightforward as possible. The process of merely creating the user interface is ungraded. See below for some screenshot examples of the user interface.

The screenshot shows a user interface for 'AB Bank Limited, Bangladesh'. The interface is divided into three main sections by vertical lines.

- Left Section (Account Creation):** Contains fields for 'Account No. : 154408', 'Name:', 'Branch:' (with a dropdown arrow), 'Account Type:' (with a dropdown arrow), and 'Initial Deposit:'. A 'Create Account' button is at the bottom.
- Middle Section (Account Management):** Contains an 'Account No.' field, a 'Show Account Information' button, and a 'Suspend Account' button.
- Right Section (Account Information):** Contains an 'Account No.' field, an 'Amount (BDT)' field, and buttons for 'Deposit', 'Withdraw', and 'Show Balance'.

Account Information Section:

Account Information

Account No. : 154407
 Name: Tasnim Ahmed
 Branch: Board Bazar
 Account Type: Savings
 Balance: BDT 5001.70
 Suspended?: False

Figure 1: Basic UI

Form1

AB Bank Limited, Bangladesh

Account No. : 154408

Name:

Branch:

Account Type:

Initial Deposit:

Savings

Current

DPS

Create Account

Account No.

Show Account Information

Suspend Account

Account Information

Account No. : 154407

Name: Tasnim Ahmed

Branch: Board Bazar

Account Type: Savings

Balance: BDT 5001.70

Suspended?: False

Account No.

Amount (BDT)

Deposit

Withdraw

Show Balance

Figure 2: Basic UI with Drop-down List