

National University of Computer & Emerging Sciences

CS 103 – Computer Programming
Spring 2016

Assignment # 04-PartII:

FAST Banking System (FBS)

FAST Banking System

Goal: To design and build a FAST banking management system in C++ using learned Object Oriented techniques.

Deployment: The built system will be deployed in a bank. [Currently version of the system will be used by a bank employee. We will later add on the functionalities from the user perspective].

FAST Banking System

- Account Holder
 - FBS must record the detailed information of each account holder, such as
 - Type of his account (see next slides for more info)
 - First name, middle name, and last name
 - CNIC number
 - Address
 - Telephone number
 - Date of birth
 - In addition it must allocate a **unique account number** to each account holder.

Account Information

An account holder can have two different types of account those are:

1. Checking account

Customer is not paid any interest

2. Saving account

Customer deposit the money for a fix duration at 5% interest per month over the duration. [Hint: Store the year and month of the deposit]

In addition, both types of account will be liable to service charges and government taxes (details are given on the next few slides).

1. Service charges

- All withdrawal transactions over Rs. 5000/- are subject to a 0.2% service charges deducted automatically from the account

2. Government Tax

- Any withdrawal transaction over Rs. 50,000/- during one day is subject to a 2.5% tax to be deducted from the account automatically
- The profit/interest paid to the customer is subject to a 0.5% tax to be deducted from the account automatically (applicable only to saving accounts)

Credit Card

An account holder can possess a credit card of any of the following type :

1. Master card

It has an interest rate of 18%, and an upper limit of Rs 50,000.

2. Visa card

It has an interest rate of 10% and an upper limit of Rs 100,000. In addition, Visa card holders can earn frequent usage points for every Rs they spend (spend 1 Rs earn 1 frequent usage point).

3. Local card.

A local card is for people with a bad credit history. The interest rate is 25% and there is a Rs 10,000 charge limit. However, a local card holder can get a better deal by consistently paying off the entire balance. If a local card holder pays off the balance three times in a row, then their interest rate drops to 20% and their limit increases to Rs 1,50,000.

Note that each credit card must have a unique number.

Following few slides show the desired functionality via output screens.

FAST Banking System

Welcome Screen for Bank Employee (System User)

- A. Create a new account.
- B. Operations over existing customers.
 - 1. Generate Mini Statement of a Bank Customer.
 - 2. Withdraw money from a customer account.
 - 3. Deposit money.
 - 4. Balance Inquiry
 - 5. Transaction history,
 - 6. Any other operations you can think of.
- C. Generate the list of all customers with accounts types and their balance.

A. Create Account

- Add a new account to the existing accounts.
- INPUT:
 - All the customer information

1. Mini-statement

- A customer can request to see mini-statement for any of his accounts
- INPUT:
 - Account number
 - CNIC number
- OUTPUT:
 - Last 10 transactions

2a. Withdraw money Via Credit Card

- A customer can withdraw money from his account via credit card.
- INPUT:
 - Credit Card Number
 - Amount to be withdrawn
- OUTPUT:
 - System response containing amount withdrawn and the balance
- CHECKS:
 - Perform the necessary checkings according the specifications

2. Withdraw money

- INPUT:
 - Account number
 - CNIC number
 - Amount to be withdrawn
- OUTPUT:
 - System response containing amount withdrawn and the balance
- CHECKS:
 - Make sure that the customer has sufficient funds in his account

3. Deposit money

- INPUT:
 - Account number
 - CNIC number
 - Amount to be deposited
- OUTPUT:
 - System response containing amount withdrawn and the balance
- CHECKS:
 - Make sure that the customer has sufficient funds in his account

4. Balance inquiry

- A customer can check the balance in his account
- INPUT:
 - Account number
 - CNIC number
- OUTPUT:
 - Amount in the account

5. Transaction history

- A customer can request to see transaction history for any of his accounts
- INPUT:
 - Account number
 - CNIC number
- OUTPUT:
 - Transaction history for all the transactions.

Implementation Guidelines

Instructions

1. Before writing code, **please** build the class hierarchy i.e. identify different classes and their interaction.
[Follow the principle of *divide and conquer*]
2. Using goto statements or global variables or any other poor design or programming practice will cost you marks. (-1 Marks for each violation).