

CDI

ATM Simulator

Integrated Project – P1

Bruna Maciel (635-203263)
5-27-2020

Contents

Project Description.....	2
Key Functions	2
Files Description	3
Application Screens.....	4
Delivery	8
What is included	8
How to execute.....	8
Step 1	8
Step 2	9

Project Description

This project simulates an ATM and can perform the following key functions:

- Login as client:
 - Deposit
 - Withdrawal
 - Transfer funds
 - Pay Bill
- Login as bank supervisor
 - Refill ATM
 - Pay Interest
 - Change ATM Status
 - View accounts report
 - View transactions report

To operate the ATM simulator is necessary to have the supporting files: “Accounts.txt”, “Customers.txt” and “Supervisors.txt”.

The only form of security implemented in this project is the login with defines what kind of actions the user can perform. In a more realistic simulation, would be necessary to restrict the access to the user PIN, that was not implemented due the project description that request the PIN in the reports.

Key Functions

- Login

The names and PINs of users are validated using data contained in the Customers.txt file. If the PIN/Name combination don't match after 3 tries the application display a message requesting the user to try using the ATM again later. If it's a valid user, it checks if it's a customer or a supervisor and shows the corresponding menu.
- Deposit

The user must enter the amount and select the account type to be credited. By default, the form checks the checking account.
- Withdrawal

The user must enter the amount and select the account type to be debited. By default, the form checks the checking account. It's possible to withdraw a maximum of \$1,000 per transaction and the ATM accepts only amounts multiple of \$10. This transaction checks if the selected account and the ATM have the entered amount available.
- Transfer funds

The user must enter the amount and select the account type to be credited. This transaction is subject to a maximum \$100,000. The system allows only a transfer from checking to savings, or from savings to checking, so when the user selects the account to be credited it automatically selects the account to be debited.

- Pay Bill
This transaction is done debiting from a checking account only so the user must only enter the amount of the transaction. In addition to the entered amount, a \$1.25 fee is charged to complete the transaction. The maximum per transaction is \$10,000.
- Refill ATM
When the application is initiated at start of each day, the bank's balance money is automatically refilled. The supervisor user can also refill the ATM manually. Each refill is in \$5,000 batches limited by a maximum of \$20,000 available in the ATM.
- Pay Interest
The supervisor can cause interest to be paid to all savings accounts at the rate of 1% ($\text{Balance} * \text{rate} / 365 / 100$).
- Change ATM Status
The supervisor can take the ATM out of order or make it operational. When its operational all the transactions can be performed normally, when its out of order only a supervisor user can login and its only possible to view the reports and change the atm status.
- View accounts report
Shows every account read from the file Accounts.txt
- View transactions report
Shows every transaction made while the application was running.

Files Description

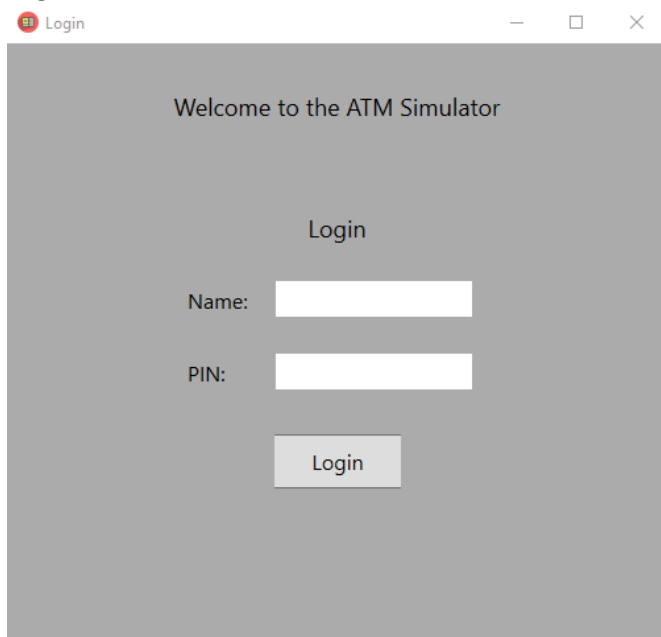
- Accounts.txt
File provided by the CDI in which account balances are stored. Contains the information's bellow:
 - account type (B => bank, S=>savings, C => checking)
 - PIN
 - account number
 - account balance
- Customers.txt
File provided by the CDI that contains the customers login.
 - Name
 - PIN
- Supervisors.txt
File created by me that contains the supervisor's login.
 - Name
 - PIN
- Date_Transactions.txt
Contains the daily transactions made by the ATM simulator, if the file don't exist the application creates a new file. While the transactions report contains only the transactions made while the

ATM is running, this file contains all transactions made during the day even if the application was closed. Contains the information's bellow:

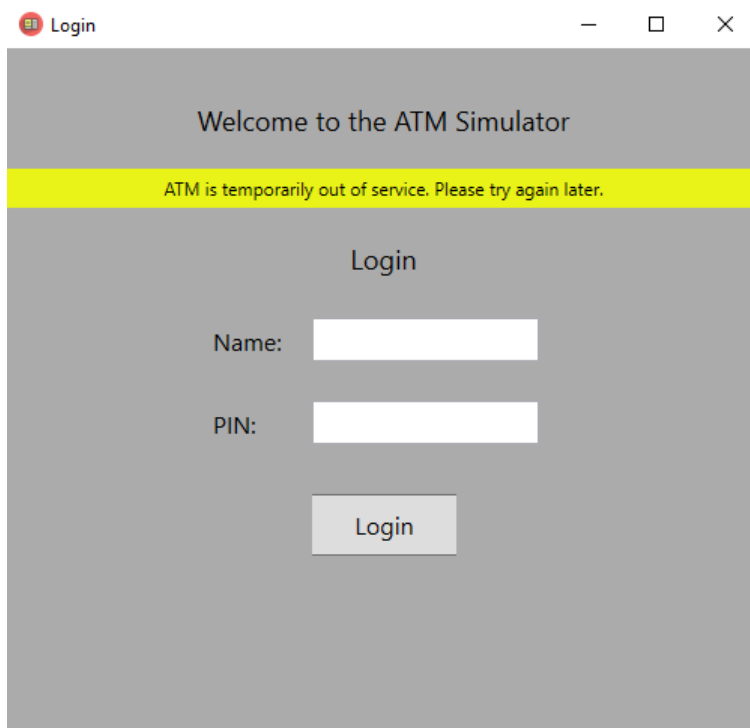
- transaction number (starts at 1000 every time the application starts)
- transaction datetime
- transaction code ('D' for deposit, 'W' for withdrawal, 'T' for transfer, 'B' for bill payment, 'I' for interest payment, 'F' for first automatic refill and 'R' for manual refill)
- transaction fee
- transaction amount
- user name
- PIN
- account type ('C' for checking, 'S' for savings or 'B' for bank)
- user account number
- account balance
- balance available at ATM
- transaction status ("OK" for success, "NOK" for error)
- transaction message (text that informs the error or if it was successful)

Application Screens

- Login

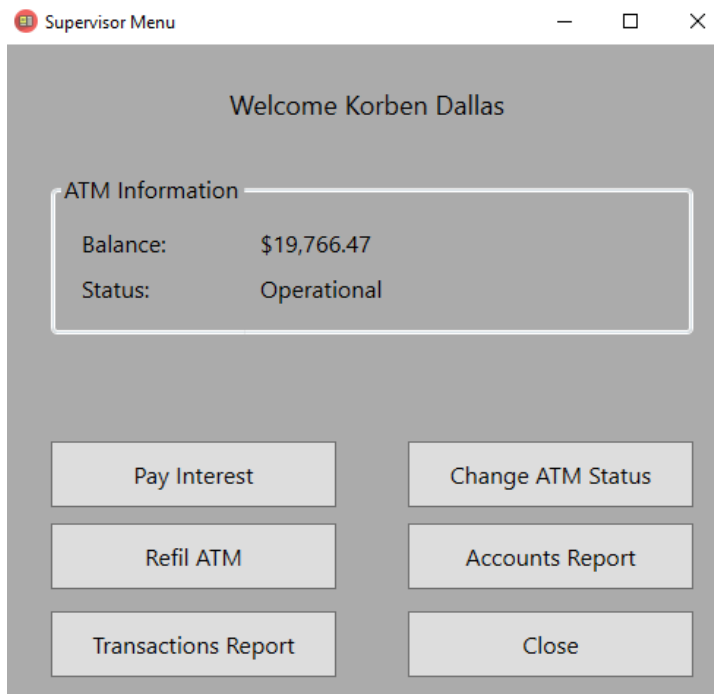
A screenshot of a web application window titled "Login". The window has a grey background and a white border. At the top, it says "Welcome to the ATM Simulator". Below that, the word "Login" is centered. There are two input fields: "Name:" followed by a white rectangular box, and "PIN:" followed by a white rectangular box. Below these fields is a grey button with the word "Login" in white text. The window has standard OS controls (minimize, maximize, close) in the top right corner.

- Login when ATM is out of order



The screenshot shows a window titled "Login" with a standard Windows title bar (minimize, maximize, close buttons). The window content has a grey background. At the top, it says "Welcome to the ATM Simulator". Below this is a yellow banner with the text "ATM is temporarily out of service. Please try again later.". Underneath the banner, the word "Login" is centered. There are two input fields: "Name:" followed by a white text box, and "PIN:" followed by a white text box. Below the PIN field is a grey button labeled "Login".

- Supervisor Menu



The screenshot shows a window titled "Supervisor Menu" with a standard Windows title bar. The window content has a grey background. At the top, it says "Welcome Korben Dallas". Below this is a section titled "ATM Information" which is enclosed in a white border. Inside this section, there are two lines of text: "Balance: \$19,766.47" and "Status: Operational". Below the "ATM Information" section, there are six buttons arranged in two columns. The left column contains "Pay Interest", "Refil ATM", and "Transactions Report". The right column contains "Change ATM Status", "Accounts Report", and "Close".

- Supervisor Menu when ATM it's out of order

Supervisor Menu

Welcome Korben Dallas

ATM Information

Balance: \$19,766.47

Status: Out of Service

Pay Interest

Change ATM Status

Refil ATM

Accounts Report

Transactions Report

Close

- Accounts report

Accounts Report

Type	PIN	AccNumber	Balance
C	D001	10001	\$457.98
C	C001	10021	\$1,027.63
C	C002	10031	\$4.10
C	S001	10011	\$10,657.84
C	J001	10005	\$7,210.00
S	D001	20030	\$21.53
S	C001	20101	\$790.00
S	C002	20001	\$54.45
S	S001	20034	\$1,083.00
S	J001	20008	\$35.00

Close

- Transactions report

Transactions Report

ID	Date	Code	Amount	Fee	Status	Acc Number	Acc Type	Acc Balance	User Name	PIN	ATM
1000	5/26/2020 9:49:31 PM	F	\$5,000.00	\$0.00	NOK	00000	B	\$19,756.47	BANK	0000	\$19,756.47
1001	5/26/2020 9:49:54 PM	D	\$120.00	\$0.00	OK	20034	S	\$600.00	Carlos Santana	S001	\$19,636.47
1002	5/26/2020 9:50:01 PM	D	\$500.00	\$0.00	OK	20034	S	\$600.00	Carlos Santana	S001	\$19,136.47
1003	5/26/2020 9:50:06 PM	D	\$10.00	\$0.00	OK	20034	S	\$600.00	Carlos Santana	S001	\$19,126.47
1004	5/26/2020 9:50:11 PM	D	\$100.00	\$0.00	OK	10011	C	\$11,849.59	Carlos Santana	S001	\$19,126.47
1005	5/26/2020 9:50:17 PM	T	\$30.00	\$0.00	OK	10011	C	\$11,849.59	Carlos Santana	S001	\$19,126.47
1006	5/26/2020 9:50:18 PM	T	\$30.00	\$0.00	OK	20034	S	\$600.00	Carlos Santana	S001	\$19,126.47
1007	5/26/2020 9:50:25 PM	B	\$20.00	\$1.25	OK	10011	C	\$11,849.59	Carlos Santana	S001	\$19,126.47

Close

- Customer Menu

ATM Simulator

Welcome Elton John

Balance

Checking: \$7,210.00

Savings: \$35.00

Key Pad

Transaction

☒ Deposit
☐ Withdrawal
☐ Transfer Funds
☐ Pay Bill

Account

☒ Checking
☐ Savings

Submit

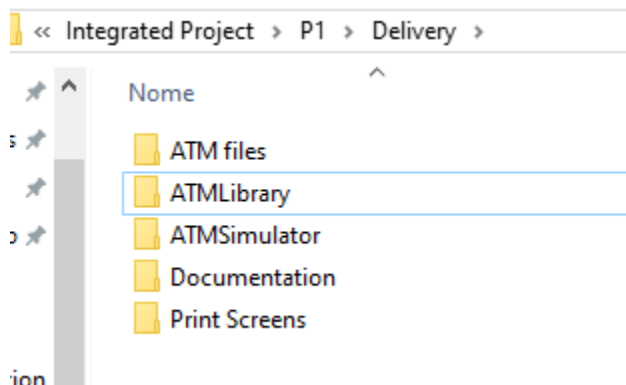
Close

Delivery

What is included

This project delivery contains beside this document the following:

- A C# library project with the coding to perform the key functions of the ATM simulator called "ATMLibrary".
- A WPF project that uses that library and implements the user's application that simulates an ATM called "ATMSimulator".
- A folder that contains the print screens of the application (prints showed above).
- The folder "Documentation" containing the project design files (data dictionary, ERD, DFD, flowcharts/pseudocodes).
- The folder "ATM Files" containing the supporting files Account.txt, Customers.txt and Supervisors.txt and an example file of the transactions file.

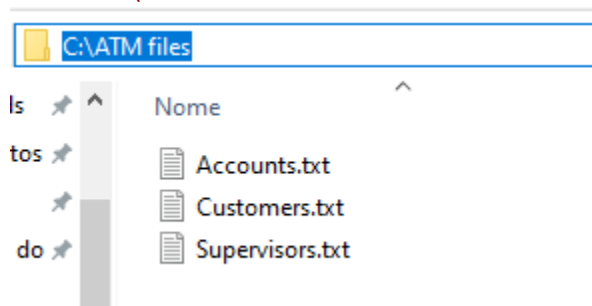


How to execute

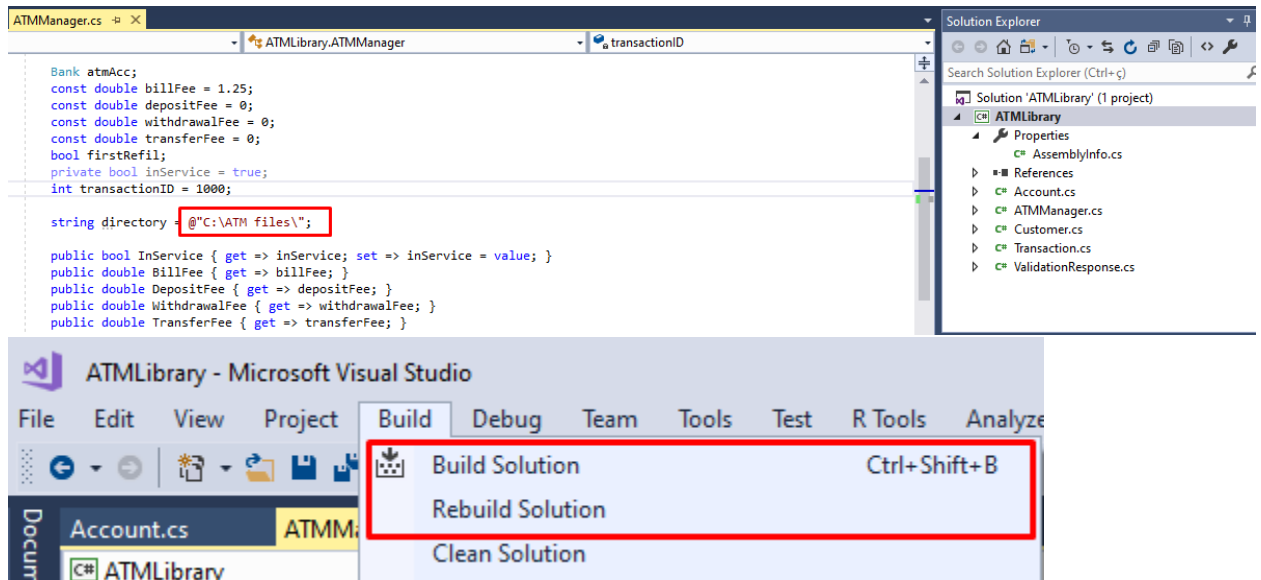
Step 1

To run the project its necessary to adjust the support files path using one of the following options:

- A) Copy the files (Account.txt, Customers.txt and Supervisors.txt) to the folder "C:\ATM files\"



- B) Change the files path in the "ATMLibrary" project and build or rebuild it.



Step 2

Open the “ATMSimulator” project and run using the Debug menu.

