

Vanier College
Computer Science Department



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420-331-VA : Application Development (Sec-01)

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Introduction:

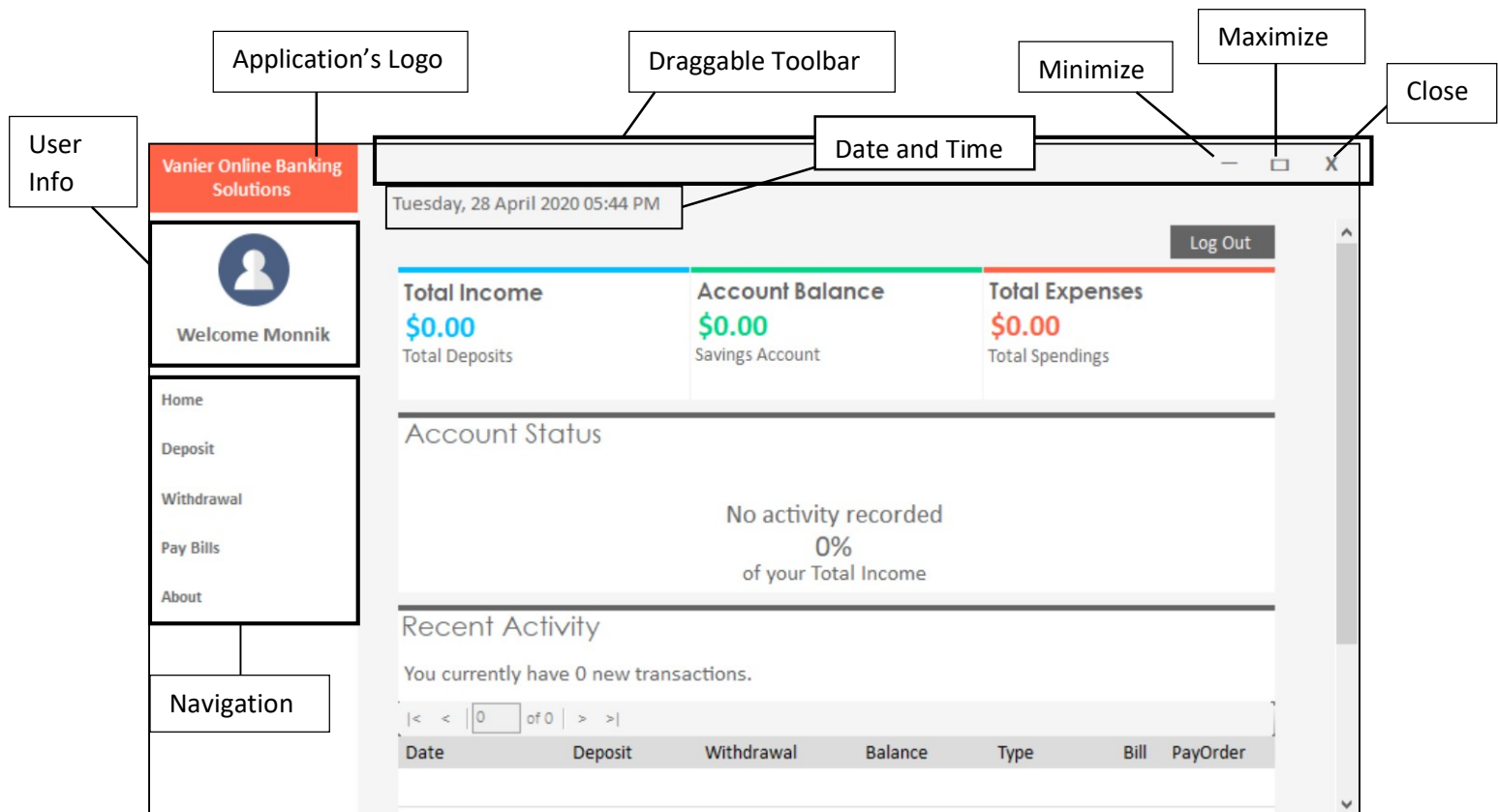
Vanier Online Banking Solutions is an application designed to simulate a real-world online banking application. This program provides common transaction features such as bank accounts with their own balances, the ability to deposit paychecks, withdrawing cash, and paying bills. This user's manual will provide a detailed explanation of all features included in this online banking application.

Interactive Features:

In recent years, online banking has become widely popular across the nation due to its ability to perform online transactions on the Web with only the click of a button. The Vanier Online Banking Solutions app provides just the right amount of convenience for your everyday banking transactions. Some of the major features of this applications include:

- the **Account Balance** being displayed and constantly updated every time a transaction is performed
- the **Total Income** which is the sum of all deposits
- the **Total Expenses** which is the sum of all withdrawals
- the **Transaction History** which keeps an entire record of previous deposits and withdrawals
- the **Account Status** which keeps track of the percentage amount on how much the user spends from his total income
- the ability to **print** a receipt of all statements whether they are deposit, withdrawal, or bill payment statements.

Graphical User Interface:



Basic UI:

This application is programmed using the C# language and comes with a very simple user interface and has a light design. The UI is inherited from one single form called **InheritedForm.cs** and as the user clicks on one of the **navigation** buttons, the same placement of each UI module can be seen on every form.

Additionally, when the user **logs in**, the **user info** is updated, and the welcome message is accompanied by the entered username that was entered during the **log in screen**. We can also see the **date and time** dynamically displaying the current date and time of the day.

Application Features:

Log In Screen

Users are asked to enter their **username** and **password**

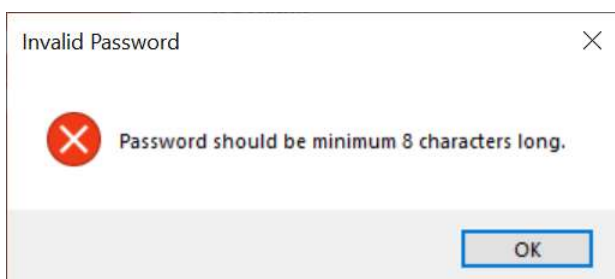
Entering an invalid value will change the textbox to red

Log In button validates user input

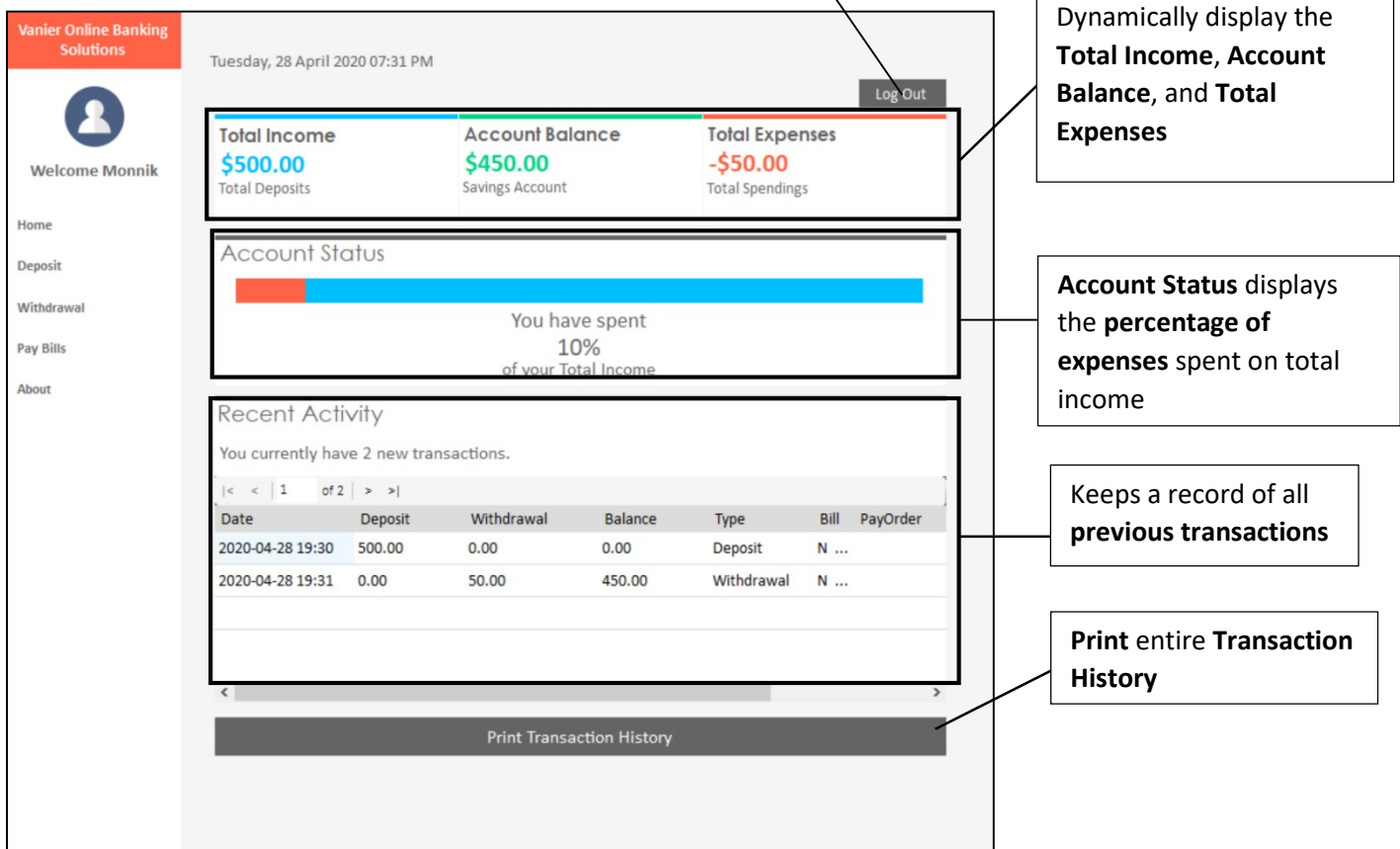
In the **Log In** screen, the user must enter a username and a password in order to access his or her account. Once the information has been entered, the **Log In button** verifies if the entered data is valid.

Exception Handling:

- The username must be a **minimum of 4 characters long**.
- The password must be a **minimum of 8 characters long** and must contain the following:
 - At least **one special character**
 - At least **one uppercase character**
 - At least **one lowercase character**



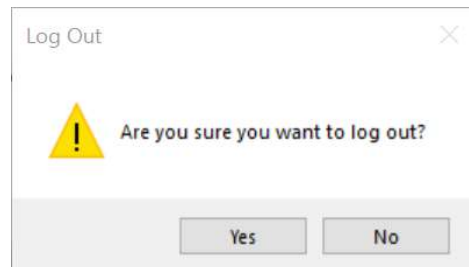
Dashboard:



The **main menu** of this application includes an interactive **dashboard** that displays and updates the **Total Income, Account Balance, and Total Expenses** after every transaction the user performs. These three values are automatically provided by the **Transaction Database** meaning that the data is stored inside a table. As we can see in the **Recent Activity** section, the current amount of new transactions is equal to the **number of rows** added to the database. The table header includes valuable information about each transaction such as, **date, deposit, withdrawal, balance, type, bill, pay order, and description**.

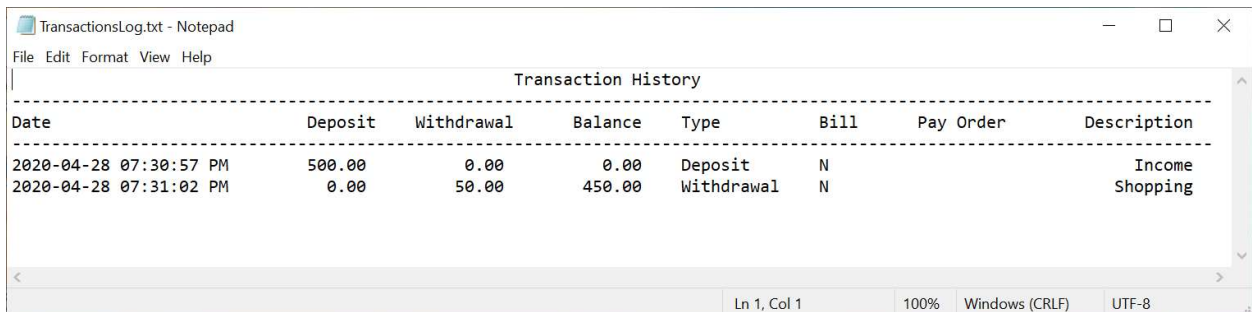
Log Out Button:

The **Log Out** button simply clears the Transactions database, meaning it clears all data entries to the data grid view.

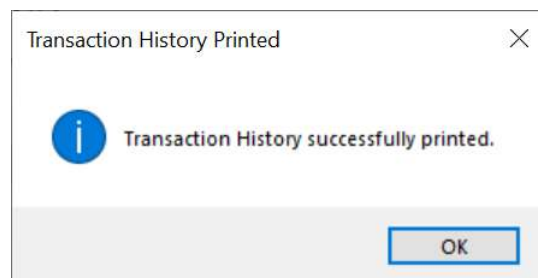


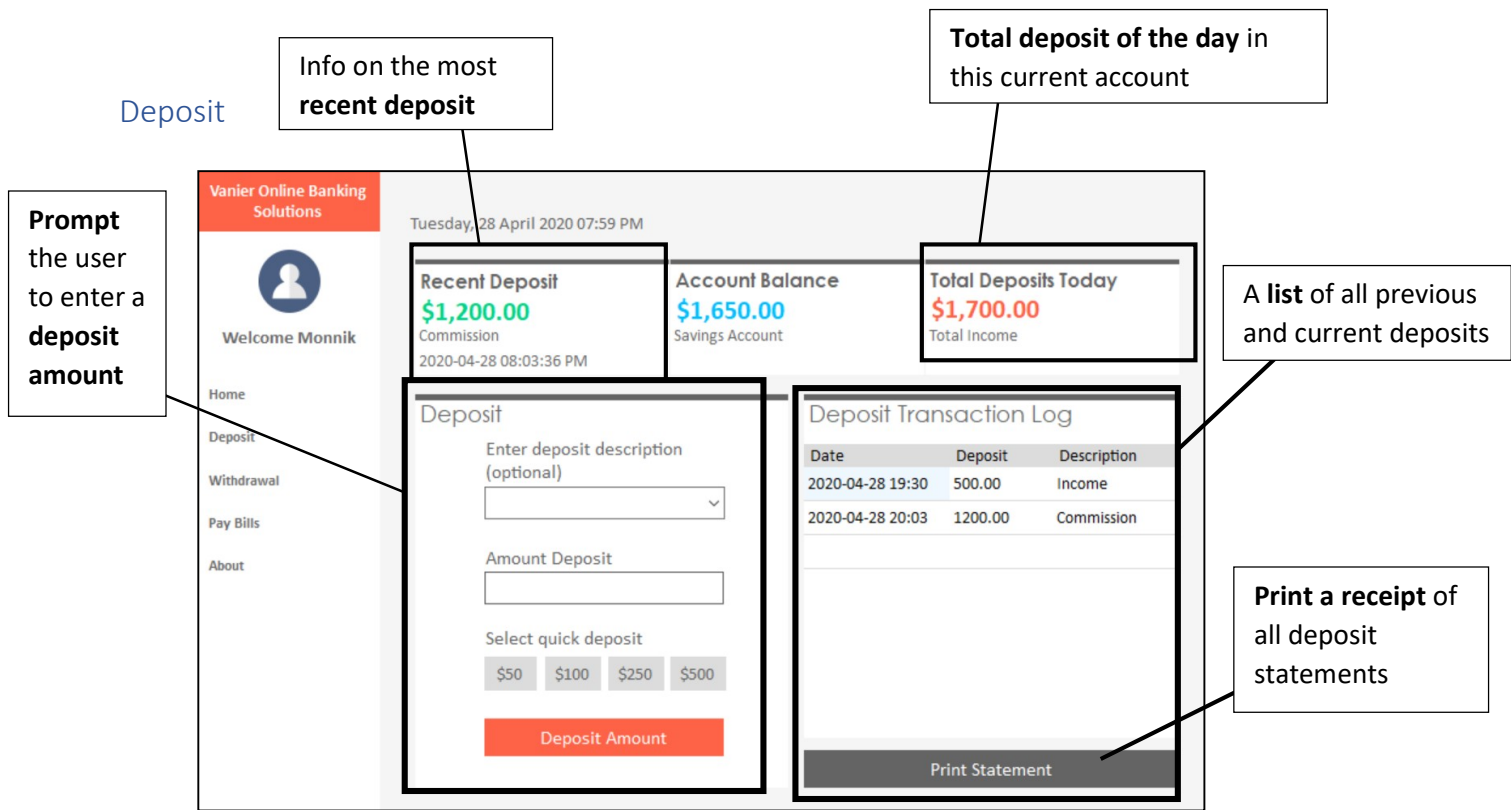
Output Transaction Log.Txt:

Furthermore, the **Print Transaction History** outputs a text file called **TransactionLog.txt** in the user's **Desktop** with all the current bank account's transactions.

A screenshot of a Notepad window titled "TransactionsLog.txt - Notepad". The window displays a table of transaction history. The table has columns: Date, Deposit, Withdrawal, Balance, Type, Bill, Pay Order, and Description. The data shows two transactions: a deposit of 500.00 on 2020-04-28 at 07:30:57 PM, and a withdrawal of 50.00 on 2020-04-28 at 07:31:02 PM, resulting in a balance of 450.00.

Transaction History							
Date	Deposit	Withdrawal	Balance	Type	Bill	Pay Order	Description
2020-04-28 07:30:57 PM	500.00	0.00	0.00	Deposit	N		Income
2020-04-28 07:31:02 PM	0.00	50.00	450.00	Withdrawal	N		Shopping

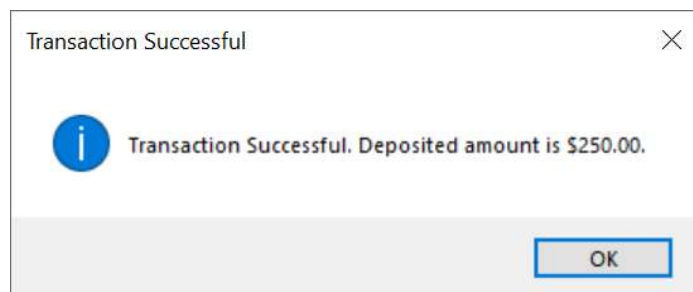




Users can enter a **specific amount** or a **quick deposit** amount (which consists of **radio buttons** of predetermined values) to deposit into their bank accounts. The amount deposited is **incremented** to the user's **Account Balance**. Once the deposited amount is added to the database, information such as **date**, **deposit**, and **description** are made available through the **Deposit Transaction Log** and the **Recent Deposit**.

Exception Handling:

- A popup box will display whether the transaction was successful or not.

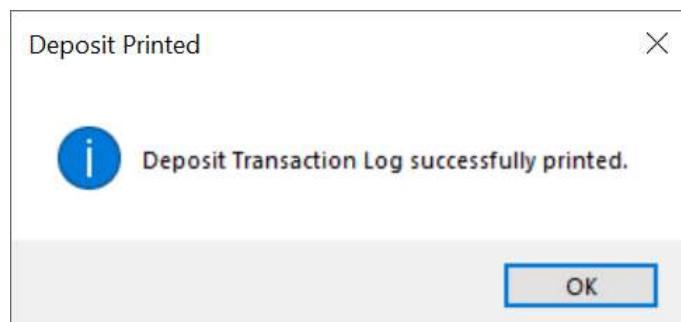
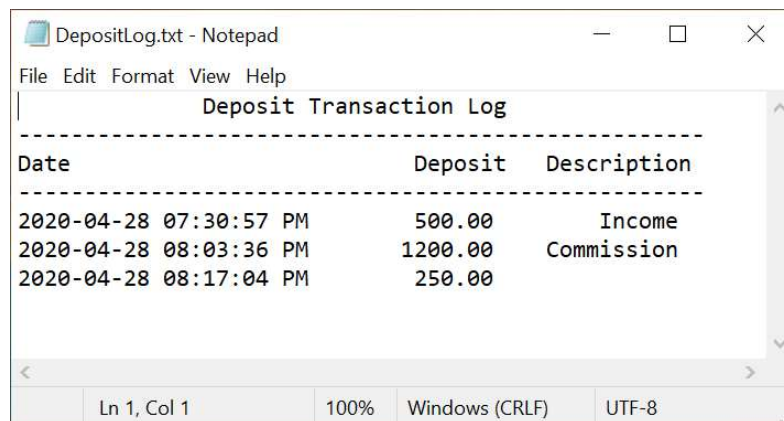


- If a negative value is entered in the deposit amount an error message will be displayed.



Output Deposit Log.txt:

Users of this application can click on the **Print Statement** button to retrieve a receipt with all previous and current deposits. The application will output a text file named **DepositLog.txt** on the user's Desktop.



Withdrawal

Vanier Online Banking Solutions

Tuesday, 28 April 2020 08:31 PM

Welcome Monnik

Home

Deposit

Withdrawal

Pay Bills

Recent Withdrawal

\$50.00

Groceries

2020-04-28 08:36:48 PM

Account Balance

\$1,850.00

Savings Account

Total Withdrawals Today

\$100.00

Total Spendings

Withdrawal

Enter withdrawal description (optional)

Amount Withdrawing

Select quick withdrawal

Withdrawal Transaction Log

Date	Withdrawal	Description
2020-04-28 19:31	50.00	Shopping
2020-04-28 20:36	50.00	Groceries

In the **Withdrawal** form, the user can enter a **specific amount** or a **quick amount** to withdraw from their accounts. Once the withdrawn amount is added to the database, information such as the **date**, **withdrawal**, and description are made available through the **Withdrawal Transaction Log** and the **Recent Withdrawal**. The withdrawn amount is **subtracted** from the user's **Account Balance**.

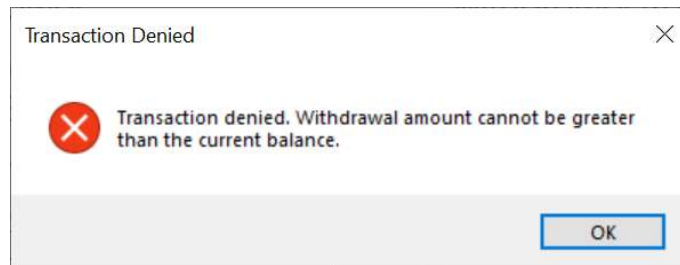
Exception Handling:

- There must first be a balance in order to withdraw.

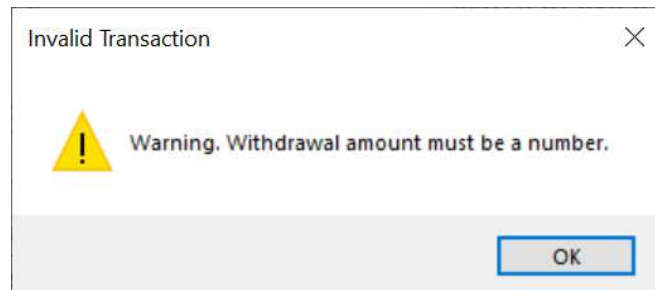
Invalid Transaction

Invalid Transaction. Your account balance is \$0.00. Please make a deposit.

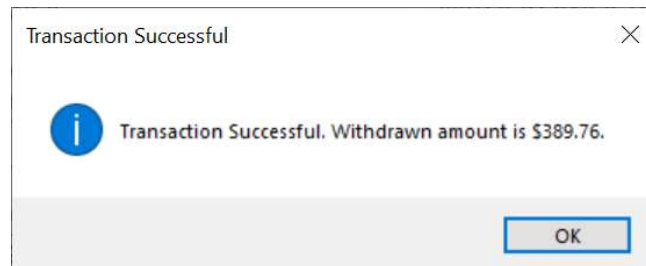
- The withdrawn amount must not be greater than the account balance.



- The withdrawn amount must be a number.

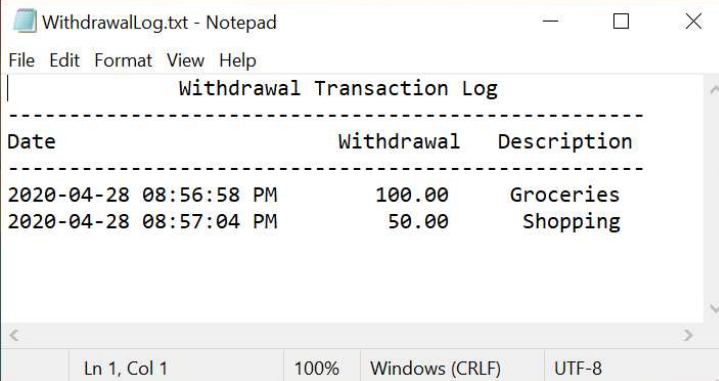


- If the withdrawal is successful, a popup message will display the withdrawn amount.



Output Withdrawl Log.Txt:

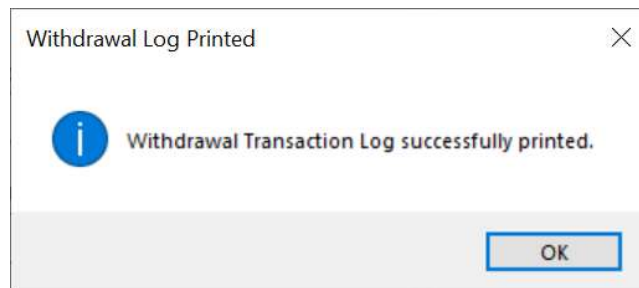
Users of this application can click on the **Print Statement** button to retrieve a receipt with all previous and current withdrawals. The application will output a text file named **WithdrawalLog.txt** on the user's Desktop.

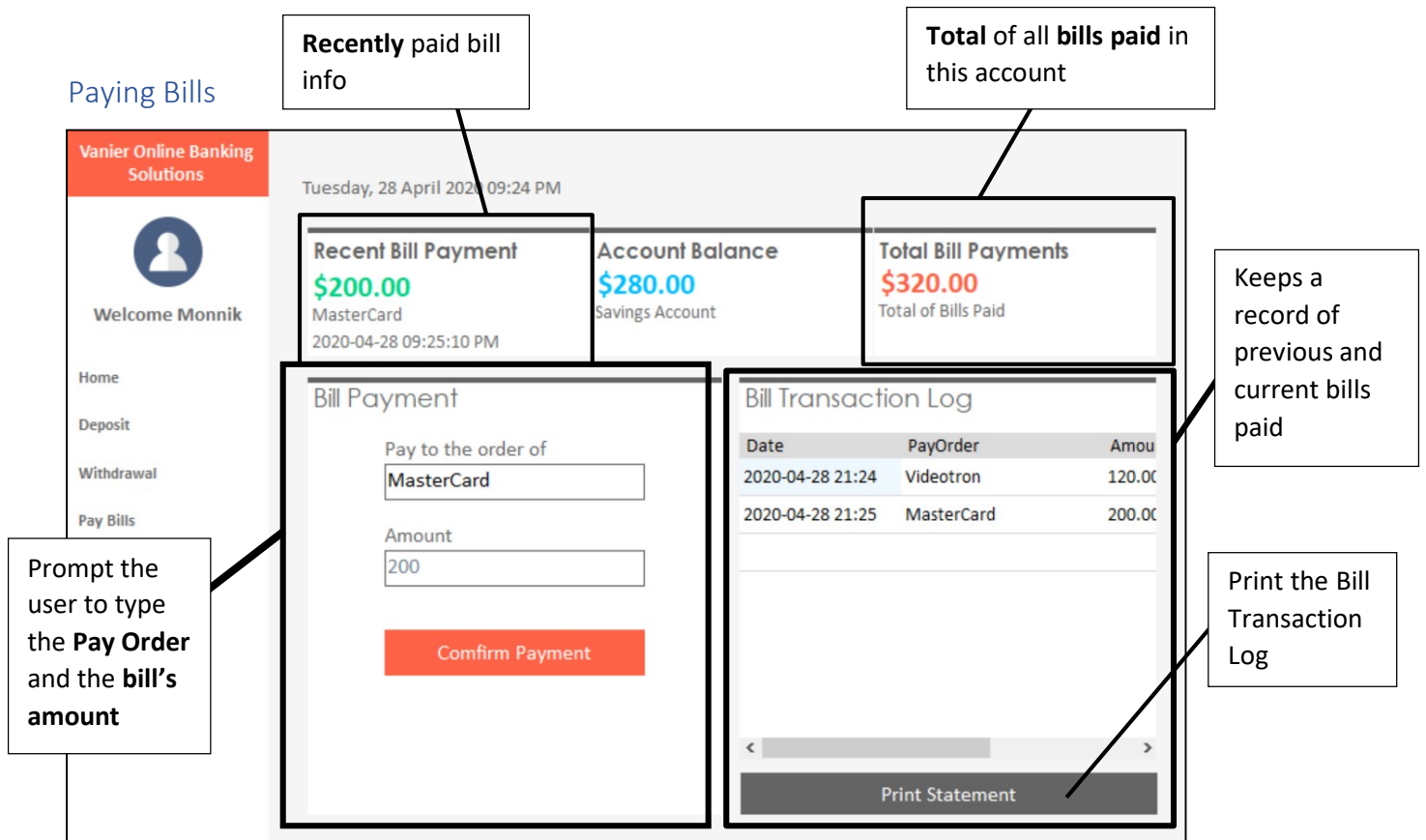


The screenshot shows a Notepad window with the title 'WithdrawalLog.txt - Notepad'. The menu bar includes File, Edit, Format, View, and Help. The text content is as follows:

Withdrawal Transaction Log		
Date	Withdrawal	Description
2020-04-28 08:56:58 PM	100.00	Groceries
2020-04-28 08:57:04 PM	50.00	Shopping

The status bar at the bottom indicates 'Ln 1, Col 1', '100%', 'Windows (CRLF)', and 'UTF-8'.

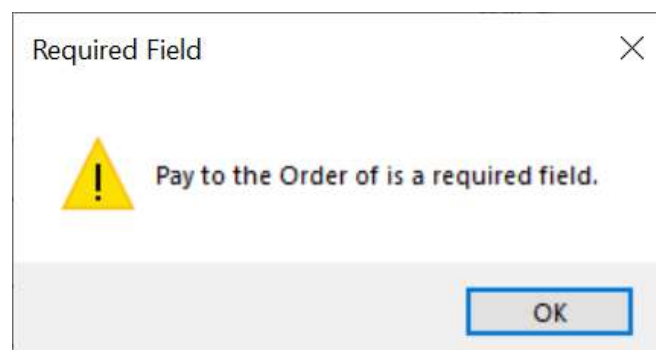




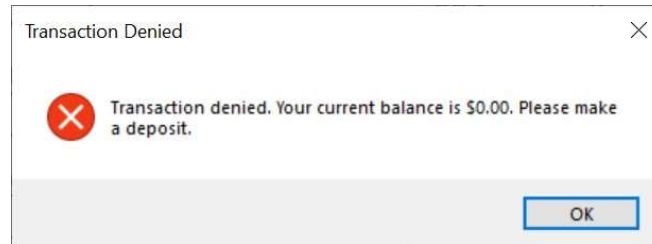
In online banking, having the ability to **pay your bills online** is a necessary feature. In the **Bill Payment** section, the user is asked to type in the name of the **entity** (which is a mandatory field) they must **transfer their funds** to. After the user enters the **amount**, the bill payment is stored in the database and information such as **date, pay order, amount, and description** are made available through the **Bill Transaction Log** and the **Recent Bill Payment**.

Exception Handling:

- The **Pay to the Order of** is a required field.



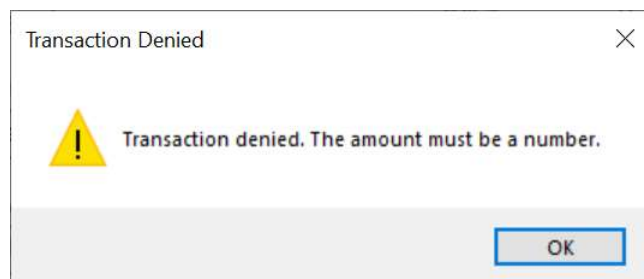
- There must be an **account balance** before paying your bills.



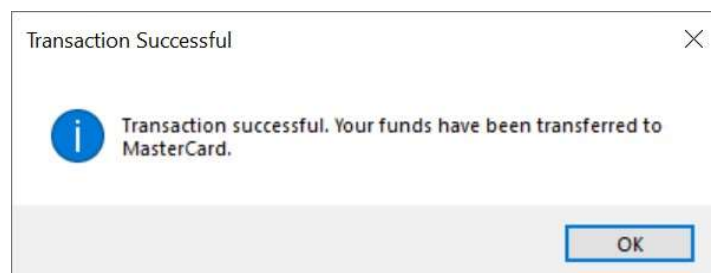
- The bill's amount must not be greater than the account balance.



- The bill's amount must be a number.

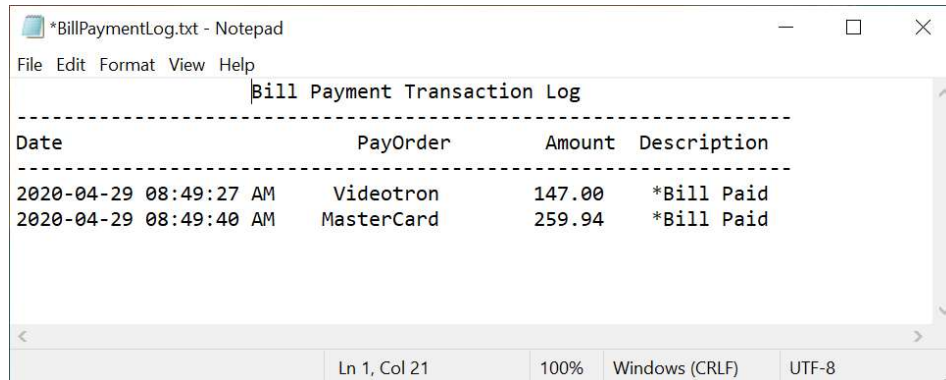


- If transaction is successful, a popup message will show that the funds have been transferred to the entity.



Output BillPayment Log.txt:

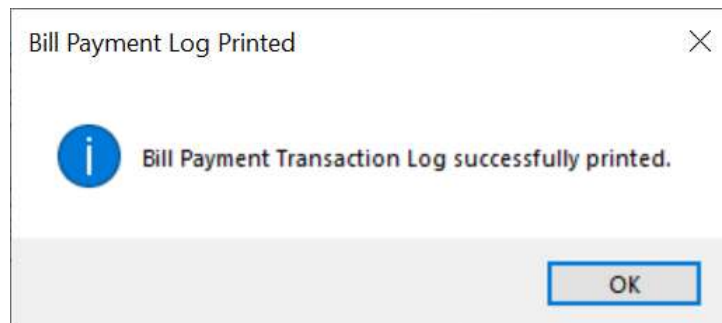
Users of this application can click on the **Print Statement** button to retrieve a receipt with all previous and current **bill payments**. The application will output a text file named **BillPaymentLog.txt** on the user's Desktop.



The screenshot shows a Notepad window with the title '*BillPaymentLog.txt - Notepad'. The menu bar includes File, Edit, Format, View, and Help. The text content is as follows:

Bill Payment Transaction Log			
Date	PayOrder	Amount	Description
2020-04-29 08:49:27 AM	Videotron	147.00	*Bill Paid
2020-04-29 08:49:40 AM	MasterCard	259.94	*Bill Paid

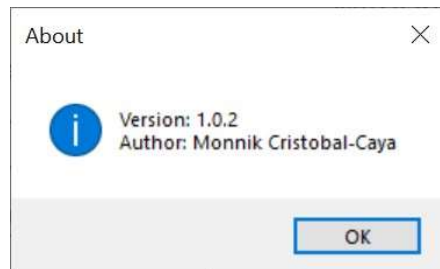
The status bar at the bottom indicates 'Ln 1, Col 21', '100%', 'Windows (CRLF)', and 'UTF-8'.



Miscellaneous:

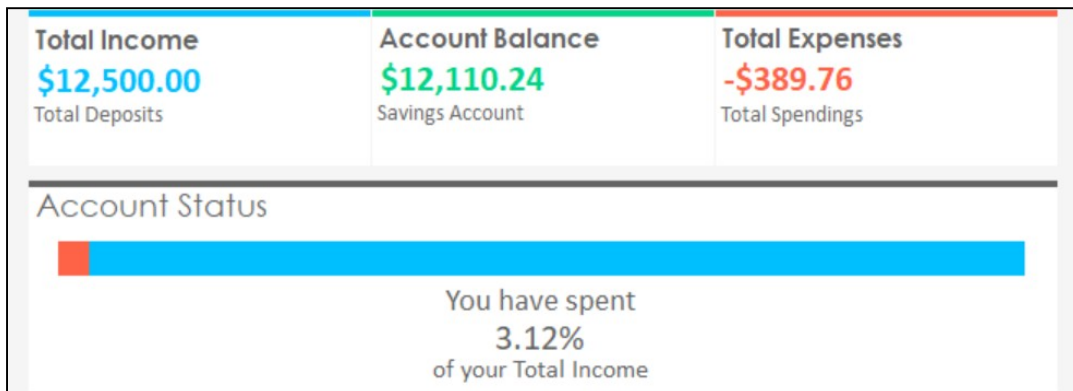
About

The **About** button in the navigation section simply displays a popup **message box** with the program's **author** and **current version**.



Account Status Bar:

The **Account Status** bar dynamically displays a **percentage** that represents the **total spending** divided by the **total income**. This is an interactive feature of this program since the percentage is constantly updated after every transaction the users makes on his or her bank account. The Account Status bar also helps keep track of the **user's spending habits**.



Previous Versions:

Version 1.0.0

Vanier Online Banking Solutions

Menu

Home

Check Balance

Deposit

Withdrawal

Pay Bills

About Us

Welcome Monnik

Total Income
\$122.00

Total Spendings
-\$0.00

Current Balance
\$122.00

Recent Activity


You currently have 2 new transactions.

|< < 1 of 2 > >|

Id	Date	Deposit	Withdrawal	Transaction Type
3	2020-04-24 7:54	111.00	0.00	Checking
4	2020-04-24 7:54	11.00	0.00	Checking

Version 1.0.1

Vanier Online Banking Solutions



Welcome Monnik

[Home](#)
[Check Balance](#)
[Deposit](#)
[Withdrawal](#)
[Pay Bills](#)
[About](#)

Log Out

Dashboard

Total Income
\$0.00

Total Spendings
\$0.00

Current Balance
\$0.00

Recent Activity

You currently have 0 new transactions.

|< < | 0 of 0 | > >|

Id	Date	Deposit	Withdrawal	Type
----	------	---------	------------	------