



Chase Banking Tool VBA Project

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Executive Summary

I decided to create a tool that would allow me to access my personal banking data from Chase Bank. I wanted to have the following functionality:

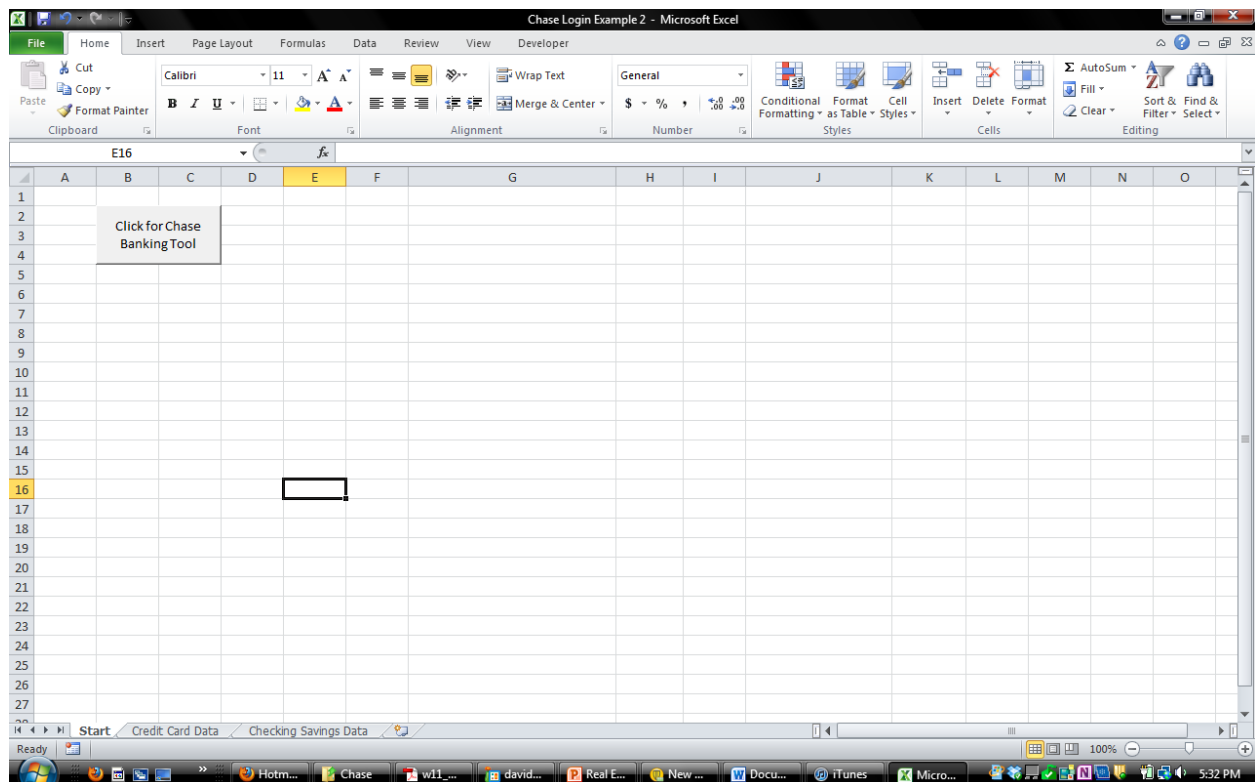
- Display current balances in checking, savings, and credit cards
- Sort expenses according to categories, month of purchase, and year of purchase
- Download my banking information automatically
- Ability to search through my data for specific purchases
- View and edit specific purchases
- Have a yearly review feature where the user could review all the purchases for an entire year or all purchases together

I have incorporated all of this functionality into a tool that I call the Chase banking tool.

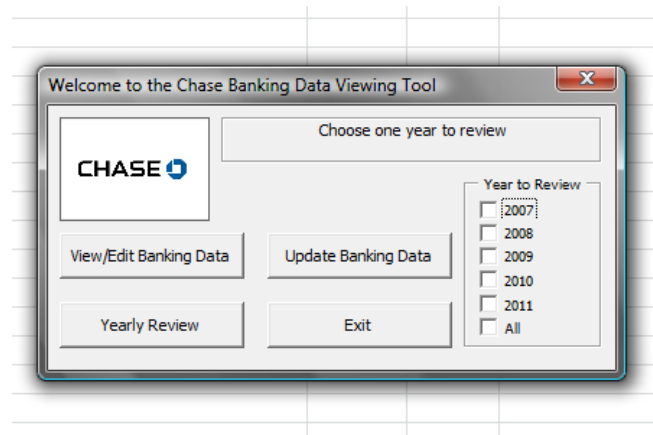
Implementation Documentation

Starting the Tool

When opening the file, a screen such as the following will be displayed. The user must click on the “Click for Chase Banking Tool” button in order to start the tool.

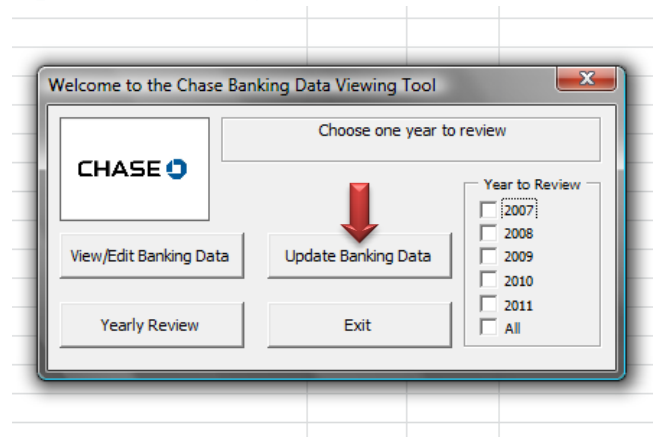


After the button has been clicked the start area of the tool will open and will look like this.

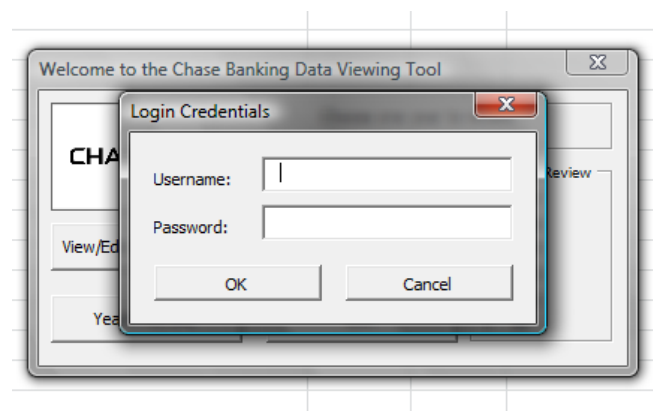


The userform has 4 main buttons and checkboxes for years back to 2007. Each button will be described in better detail in subsequent sections.

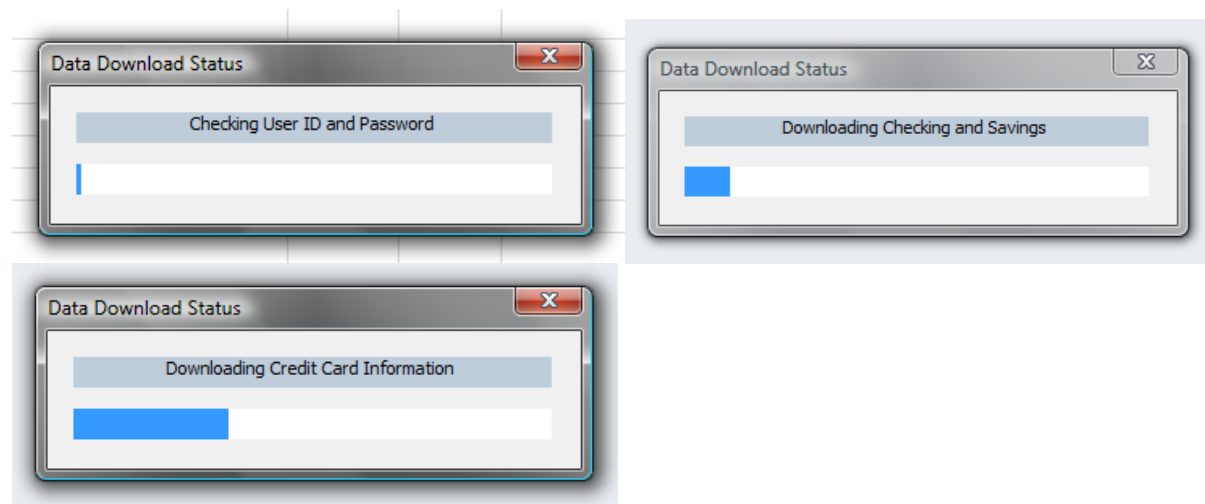
Update Banking Data



The "Update Banking Data" allows the user to import their data from the Chase website. Clicking on the button brings up the following userform where the user can enter their username and password. The password is starred out on the screen.



If the user enters an incorrect password then the program will display a message box that says “Username or Password is incorrect” and will return to the Login Credentials input screen. If the username and password are correct then the program uses the agent class module to open an instance of explorer and signs into the user’s account. The first instance of explorer is used to download the current balance in the savings and checking accounts and the balance of the credit cards. A second instance of explorer is then opened to cycle through the credit cards and download the information into the credit card data and checking/savings data tabs. The user doesn’t see this happening but is rather greeted with download status indicators shown below. When the process is finished, a message states that the “Data has been updated”.



The Start, Credit Card Data and Checking / Savings Data tabs look like the images below and the user will be taken back to the startup userform.

Chase Login Example 2 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K
1											
2							Total balance: \$30.00				
3											
4							CHASE BETTER BANKING (...9999)	\$10.00			
5											
6							CHASE MONEY MARKET (...9999)	\$20.00			
7											
8							CREDIT CARD (...9999)			CREDIT CARD (...9999)	
9							Account Summary			Account Summary	
10							Outstanding balance	\$0.00		Outstanding balance	\$0.00
11											
12							Payment due date	5/5/2011		Payment due date	4/10/2011
13											
14							Minimum Pay	\$0.00		Minimum Pay	\$0.00
15											
16							Balance last statement	\$0.00		Balance last statement	\$250.00
17											
18							Available credit	\$1,000.00		Available credit	\$4,750.00
19											
20							Total credit limit	\$1,000.00		Total credit limit	\$5,000.00
21											
22											
23											
24											
25											
26											
27											

Ready

Chase Login Example 2 - Microsoft Excel

	A	B	C	D	E	F	G	H	I
1	Credit Card	Trans Date	Post Date	Type	Description	Area	Transaction Number	Amount	
2	Card 2	12/14/2010	12/15/2010	Sale	AMAZON MKTPLACE P	Merchandise	1	\$100.00	
3	Card 2	12/14/2010	12/15/2010	Sale	Amazon.com	Merchandise	2	\$14.00	
4	Card 2	12/14/2010	12/15/2010	Sale	GROUPON INC.	Travel and Entertainm	3	\$1.00	
5	Card 2	12/14/2010	12/16/2010	Sale	DENNY'S #7482	Dining	4	\$16.00	
6	Card 2	12/15/2010	12/16/2010	Sale	Amazon.com	Merchandise	5	\$10.00	
7	Card 2	12/15/2010	12/16/2010	Sale	VERIZON WRLS MYACC	Service	6	\$50.00	
8	Card 2	12/15/2010	12/17/2010	Sale	SUN N SKI - 70	Merchandise	7	\$40.00	
9	Card 2	12/15/2010	12/17/2010	Sale	WENDYS #4710 Q25	Dining	8	\$3.00	
10	Card 2	12/16/2010	12/17/2010	Sale	Amazon.com	Merchandise	9	\$9.00	
11	Card 2	12/18/2010	12/20/2010	Sale	MEIJER INC #172 Q01	Merchandise	10	\$24.00	
12	Card 2	12/21/2010	12/21/2010	Sale	Amazon.com	Merchandise	1	\$10.00	
13	Card 2	12/21/2010	12/22/2010	Sale	MARATHON OIL 11688	Vehicle Expenses	2	\$24.00	
14	Card 2	12/26/2010	12/28/2010	Sale	BARNEYS CONV MRT #	Vehicle Expenses	3	\$1.00	
15	Card 2	12/30/2010	12/31/2010	Sale	BRIGHTONDIGITAL CIN	Travel and Entertainm	4	\$8.00	
16	Card 2	12/31/2010	1/2/2011	Sale	LITTLE CAESARS 4006	Dining	5	\$7.00	
17	Card 2	1/3/2011	1/4/2011	Sale	WAL-MART #1768	Merchandise	6	\$50.00	
18	Card 2	1/3/2011	1/5/2011	Sale	AUTOZONE #0865	Vehicle Expenses	7	\$5.00	
19	Card 2	1/3/2011	1/5/2011	Sale	AUTOZONE #0865	Vehicle Expenses	8	\$5.00	
20	Card 2	1/3/2011	1/5/2011	Sale	CARL'S JR #1101363 QP	Dining	9	\$9.00	
21	Card 2	1/4/2011	1/5/2011	Sale	PROVO CITY JUST COU	Other	10	\$90.00	
22	Card 2	1/4/2011	1/5/2011	Sale	SMITHS FOOD #4136	Merchandise	1	\$65.00	
23	Card 2	1/4/2011	1/6/2011	Sale	J DAWGS 801-373-3294	Dining	2	\$3.00	
24	Card 2	1/5/2011	1/5/2011	Sale	Amazon.com	Merchandise	3	\$40.00	
25	Card 2	1/5/2011	1/6/2011	Sale	AMAZON MKTPLACE P	Merchandise	4	\$25.00	
26	Card 2	1/5/2011	1/7/2011	Sale	WENDYS #4710 Q25	Dining	5	\$5.00	
27	Card 2	1/6/2011	1/7/2011	Sale	LITTLE CAESARS 4001	Dining	6	\$7.00	

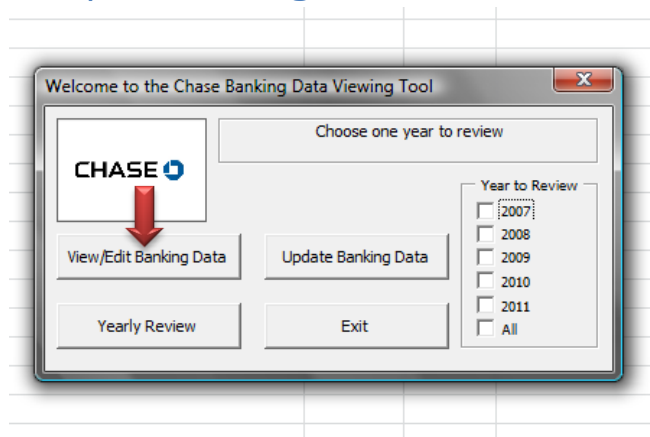
Ready

Chase Login Example 2 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K
	Account	Date	Type	Description	Debit	Credit	Balance				
1											
2	Checking	01/03/2011	ATM Deposits	Stuff		\$4,000.00	\$5,000.00				
3	Checking	01/06/2011	ACH Debit	Stuff	\$200.00		\$4,000.00				
4	Checking	01/06/2011	ACH Debit	Stuff	\$900.00		\$4,300.00				
5	Checking	01/11/2011	ACH Debit	Stuff	\$900.00		\$3,100.00				
6	Checking	01/12/2011	ACH Debit	Stuff	\$80.00		\$3,100.00				
7	Checking	01/13/2011	Bill Payment	Stuff	\$300.00		\$2,800.00				
8	Checking	02/11/2011	ACH Debit	Stuff	\$700.00		\$2,000.00				
9	Checking	02/14/2011	Bill Payment	Stuff	\$300.00		\$1,700.00				
10	Checking	03/10/2011	ACH Debit	Stuff	\$500.00		\$1,200.00				
11	Checking	03/14/2011	Bill Payment	Stuff	\$300.00		\$900.00				
12	Checking	03/22/2011	ACH Credit	Stuff		\$0.01	\$900.00				
13	Checking	03/22/2011	ACH Credit	Stuff		\$0.04	\$900.00				
14	Checking	03/24/2011	Account Transfer	Stuff		\$150.00	\$1,000.00				
15	Checking	03/24/2011	ACH Credit	Stuff		\$65.00	\$1,100.00				
16	Checking	03/24/2011	Misc. Debit	Stuff	\$12.00		\$1,100.00				
17	Checking	03/28/2011	Misc. Credit	Stuff		\$250.00	\$1,400.00				
18	Checking	03/28/2011	Misc. Credit	Stuff		\$50.00	\$1,400.00				
19	Checking	12/24/2010	Misc. Debit	Stuff	\$12.00		\$900.00				
20	Checking	1/11/2011	ACH Debit	Stuff	\$800.00		\$3,200.00				
21	Savings	03/24/2011	Account Transfer	Stuff	\$150.00		\$10.00				
22											
23											
24											
25											
26											
27											

If data is already present then the tool will only add the data that isn't already contained in the list. The duplicate data will be deleted.

View/Edit Banking Data



Clicking the the View/Edit Banking Data button allows the user to search for and edit specific purchases. When clicked the userform shown below is displayed.

Post Date	Type	Description	Area	Transacti
12/15/2010	Sale	AMAZON MKTPLACE P	Merchandise	
12/15/2010	Sale	Amazon.com	Merchandise	
12/15/2010	Sale	GROUPON INC.	Travel and Entertainm	
12/16/2010	Sale	DENNY'S #7482	Dining	

Find Banking Data

All or part of Name of Data Item

All or part of Date

All or part of Data Item Area

Row #

Find First

Find Next

View/Edit

Close

Double Clicking the text boxes on the right will input the text box values into input boxes on the left

This userform allows the user to search for all or part of the name, date, or category of purchase. The full name, data, and category of purchase will be shown in the boxes at the right and double clicking will enter the full information in the input boxes on the left. Find first will find the first instance of the information in the data and find next will find the next instance in the data. View/Edit will bring up a userform that looks like the following picture. Close closes the Find/Edit userform.

Row	Trans Date	Post Date	Transaction Number	Credit Card
2	12/14/2010	12/15/2010	1	Card 2

Update Banking Data Information

Description

AMAZON MKTPLACE PMTS

Area

Merchandise

Transaction Amount

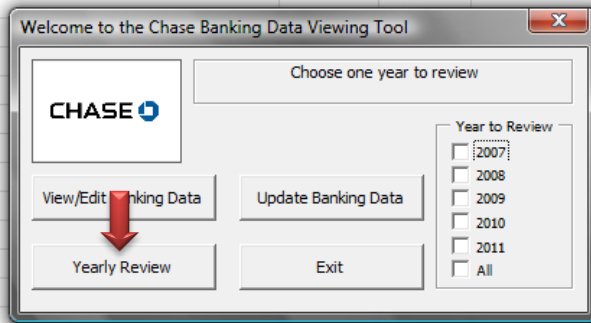
\$100.00

Save

Cancel

The Update Banking Data Information userform allows the user to change the description of the purchase or the area to which the purchase belongs. The Save button saves the information to the data in the excel spreadsheet and the cancel button takes the user back to the Search userform.

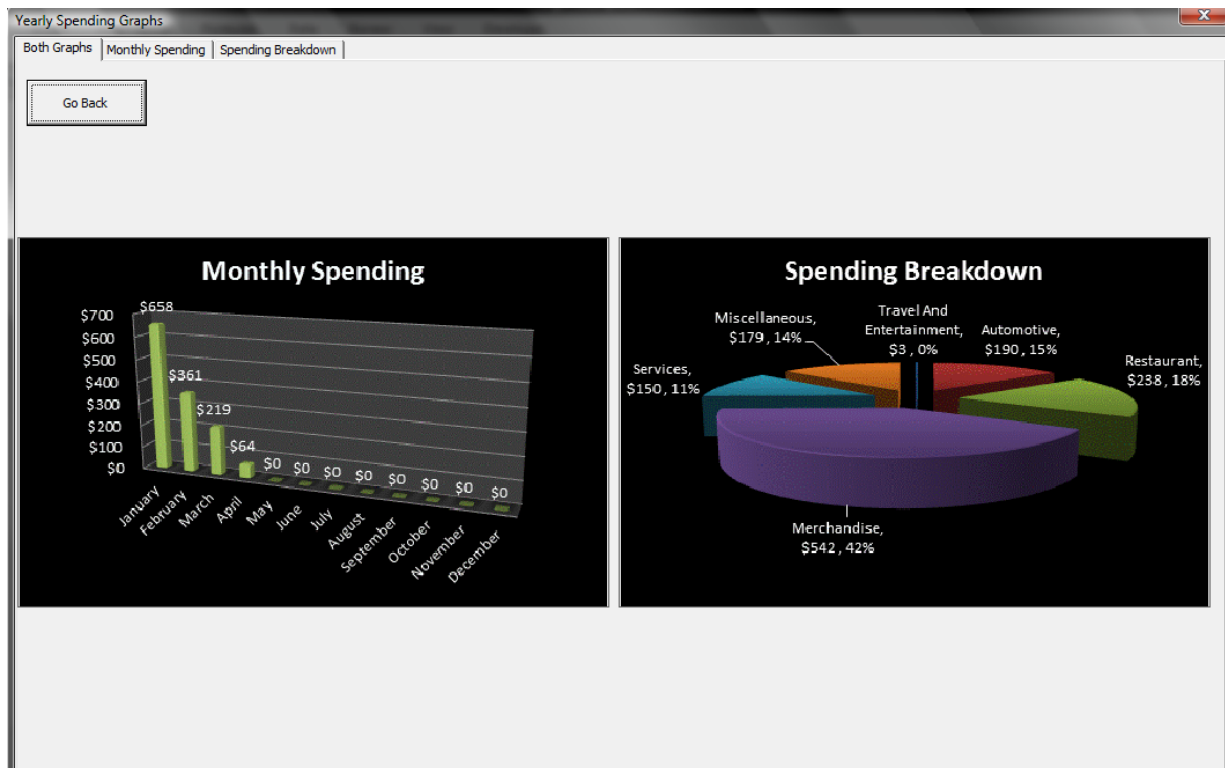
Yearly Review



When clicking the yearly review button, the user must check one of the “Year to Review” checkboxes on the right or a message box will be displayed saying “choose a year to display.” If a year is checked and the user then clicks the Yearly Review button, a page such as the following will be displayed.

Year in Review							
2011 Go Back Graphs							
	Travel & Entertainment	Automotive	Restaurant	Merchandise	Services	Miscellaneous	Total \$
January	\$ 0	\$ 40	\$ 109	\$ 369	\$ 50	\$ 90	\$ 658
February	\$ 3	\$ 90	\$ 107	\$ 111	\$ 50	\$ 0	\$ 361
March	\$ 0	\$ 60	\$ 22	\$ 62	\$ 50	\$ 25	\$ 219
April	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 64	\$ 64
May	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
June	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
July	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
August	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
September	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
October	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
November	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
December	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 3	\$ 190	\$ 238	\$ 542	\$ 150	\$ 179	\$ 1302

This page lists the purchases in each of the categories for each of the months in the year chosen. The year is displayed in a box on the top left of the userform. The user can click on the graphs button to show this data in graph form as shown below.



The user can then click on either the “Monthly Spending” tab or the “Spending Breakdown” at the top of the screen to show a larger version of either graph. Clicking the “Go Back” button will bring you back to this screen again.

Year in Review

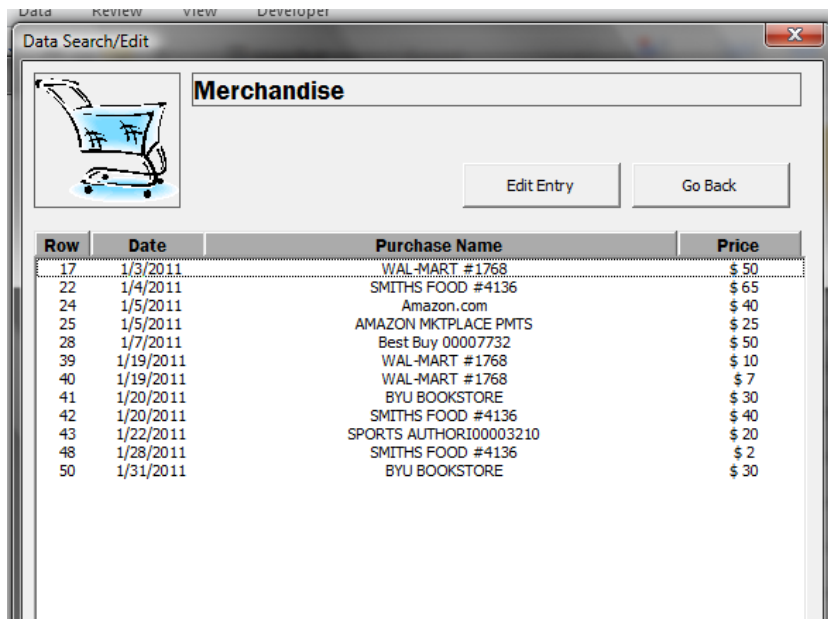
2011

Go Back

Graphs

	Travel & Entertainment	Automotive	Restaurant	Merchandise	Services	Miscellaneous	Total \$
January	\$ 0	\$ 40	\$ 109	\$ 369	\$ 50	\$ 90	\$ 658
February	\$ 3	\$ 90	\$ 107	\$ 111	\$ 50	\$ 0	\$ 361
March	\$ 0	\$ 60	\$ 22	\$ 62	\$ 50	\$ 25	\$ 219
April	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 64	\$ 64
May	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
June	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
July	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
August	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
September	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
October	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
November	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
December	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 3	\$ 190	\$ 238	\$ 542	\$ 150	\$ 179	\$ 1302

If the user wants to see what purchases make up each of the costs such as merchandise in January then they only need to click on the corresponding label. This will bring up a user form such as this.



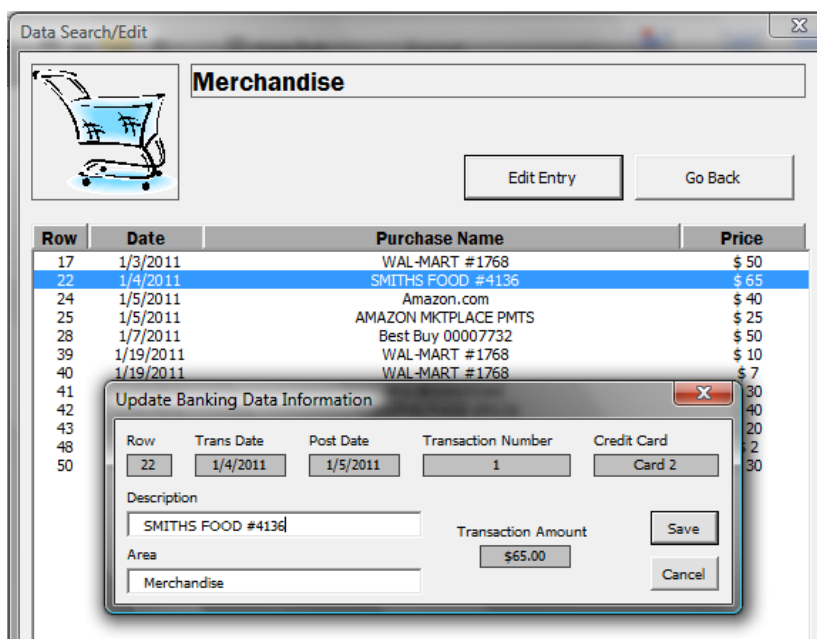
Data Search/Edit

Merchandise

Edit Entry Go Back

Row	Date	Purchase Name	Price
17	1/3/2011	WAL-MART #1768	\$ 50
22	1/4/2011	SMITHS FOOD #4136	\$ 65
24	1/5/2011	Amazon.com	\$ 40
25	1/5/2011	AMAZON MKTPLACE PMTS	\$ 25
28	1/7/2011	Best Buy 00007732	\$ 50
39	1/19/2011	WAL-MART #1768	\$ 10
40	1/19/2011	WAL-MART #1768	\$ 7
41	1/20/2011	BYU BOOKSTORE	\$ 30
42	1/20/2011	SMITHS FOOD #4136	\$ 40
43	1/22/2011	SPORTS AUTHORITY 00003210	\$ 20
48	1/28/2011	SMITHS FOOD #4136	\$ 2
50	1/31/2011	BYU BOOKSTORE	\$ 30

This allows the user to see what specific purchases were made. The “Edit Entry” button allows the user to edit the specific entry that is highlighted. If none are highlighted then a message box will be displayed that says “You must select an entry”. The “Edit Entry” button will bring the user to the edit form which looks like this. This userform allows the user to change the purchase description or area to which the purchase belongs. Save saves the changes to the excel spreadsheet and cancel takes the user back to the Data Search/Edit userform.



Data Search/Edit

Merchandise

Edit Entry Go Back

Row	Date	Purchase Name	Price
17	1/3/2011	WAL-MART #1768	\$ 50
22	1/4/2011	SMITHS FOOD #4136	\$ 65
24	1/5/2011	Amazon.com	\$ 40
25	1/5/2011	AMAZON MKTPLACE PMTS	\$ 25
28	1/7/2011	Best Buy 00007732	\$ 50
39	1/19/2011	WAL-MART #1768	\$ 10
40	1/19/2011	WAL-MART #1768	\$ 7
41	1/20/2011	BYU BOOKSTORE	\$ 30
42	1/20/2011	SMITHS FOOD #4136	\$ 40
43	1/22/2011	SPORTS AUTHORITY 00003210	\$ 20
48	1/28/2011	SMITHS FOOD #4136	\$ 2
50	1/31/2011	BYU BOOKSTORE	\$ 30

Update Banking Data Information

Row: 22 Trans Date: 1/4/2011 Post Date: 1/5/2011 Transaction Number: 1 Credit Card: Card 2

Description: SMITHS FOOD #4136 Transaction Amount: \$65.00

Area: Merchandise

Save Cancel

In summary, this tool allows a user to view and analyze their spending and helps them plan a personal budget. It quickly retrieves the data and then allows the user to view the data in graphs and lists.

Learning and Conceptual Difficulties

There weren't any things that I wanted to add but going forward I think there are some things I will add. These include a way to change the purchase area for multiple purchases, a way to have the program run on its own once a month, and possibly a way for customers to change the purchase categories. These changes will have to come with version 2.0.

The learning and conceptual difficulties that I had with this project weren't extensive because of the vast amount of knowledge about VBA on Google and Dr. Allen's help. The most difficult and important things I learned in doing the project were the following:

1. Create pictures from the graphs that excel makes and then importing those pictures into a userform as was done with the graphs section of the report. The code looks like this:
 - a. `Sheets("Graphs").ChartObjects(1).Chart.Export Filename:="pie.gif", FilterName:="GIF"`
 - b. `frmGraphs.imgBar.PictureSizeMode = fmPictureSizeModeZoom`
`frmGraphs.imgBar.Picture = LoadPicture("bar.gif")`
2. The logic for filtering the data to include in each of the Yearly Breakdown areas took a while to think of and perfect
3. Looking into the html code and trying to find things there that wouldn't change depending on the types of credit cards or accounts that the user possesses
4. Finding the actual button to submit the username and password on the Chase website (I ended up using the official sign in page rather than the home page to accomplish this)
5. Using a listbox that had four columns (by the way, column headings in listboxes do not work and you cannot add anything to them according to Google. Mistake by Microsoft I guess)
6. Working with the agent class module and userforms formed the backbone of this project and I learned an enormous amount of information on how to use both and manipulate both to perform actions I didn't know were possible