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IS 520

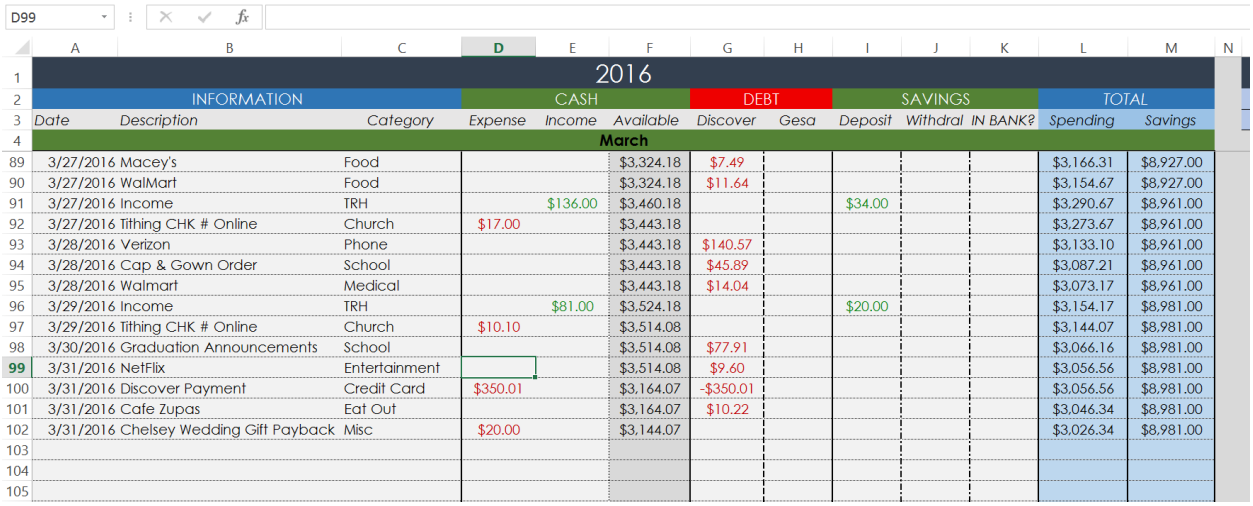
520 Semester Project Write-Up

Purpose

The model I put together is designed to help me track my financial position. Not only is it designed so that I know exactly how much I have in several different locations, but it's also designed to collect detailed spending data so that I can more accurately plan and budget for upcoming months and events. Data can be powerful, so the more I know the better off I'll be.

Transaction Level Data

In order to aggregate the data to learn about trends or monthly habits, I needed to have a standardized transaction sheet for every month. The following is a shot of one of those sheets.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1						2016								
2		INFORMATION			CASH		DEBT		SAVINGS			TOTAL		
3		Date	Description	Category	Expense	Income	Available	Discover	Gesa	Deposit	Withdral	IN BANK?	Spending	Savings	
4						March									
89		3/27/2016	Macey's	Food			$3,324.18	$7.49					$3,166.31	$8,927.00	
90		3/27/2016	WalMart	Food			$3,324.18	$11.64					$3,154.67	$8,927.00	
91		3/27/2016	Income	TRH		$136.00	$3,460.18			$34.00			$3,290.67	$8,961.00	
92		3/27/2016	Tithing CHK # Online	Church	$17.00		$3,443.18						$3,273.67	$8,961.00	
93		3/28/2016	Verizon	Phone			$3,443.18	$140.57					$3,133.10	$8,961.00	
94		3/28/2016	Cap & Gown Order	School			$3,443.18	$45.89					$3,087.21	$8,961.00	
95		3/28/2016	Walmart	Medical			$3,443.18	$14.04					$3,073.17	$8,961.00	
96		3/29/2016	Income	TRH		$81.00	$3,524.18			$20.00			$3,154.17	$8,981.00	
97		3/29/2016	Tithing CHK # Online	Church	$10.10		$3,514.08						$3,144.07	$8,981.00	
98		3/30/2016	Graduation Announcements	School			$3,514.08	$77.91					$3,066.16	$8,981.00	
99		3/31/2016	NetFlix	Entertainment			$3,514.08	$9.60					$3,056.56	$8,981.00	
100		3/31/2016	Discover Payment	Credit Card	$350.01		$3,164.07	-$350.01					$3,056.56	$8,981.00	
101		3/31/2016	Cafe Zupas	Eat Out			$3,164.07	$10.22					$3,046.34	$8,981.00	
102		3/31/2016	Chelsey Wedding Gift Payback	Misc	$20.00		$3,144.07						$3,026.34	$8,981.00	
103															
104															
105															

Fields include:

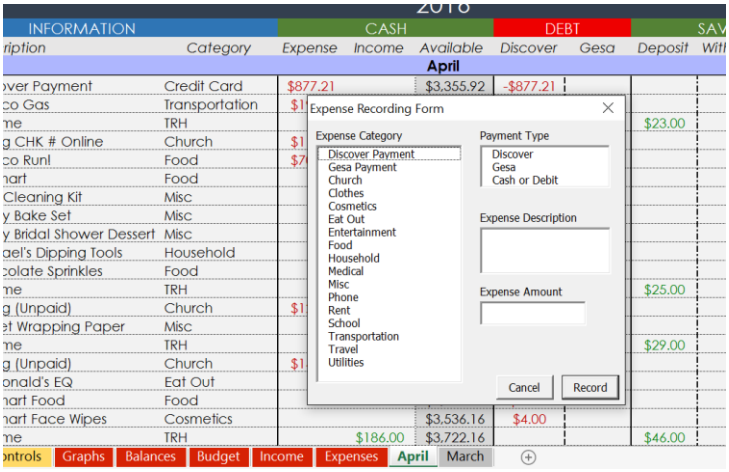
- Date – Self-Explanatory
- Description – Anything to help me remember what happened in the transaction
- Category – this is the field that sorts all of the expenses and forms of income. Most of the data aggregation comes from this field.
- Expense – Any expense paid with cash or debit.
- Income – Any income allocated to checking account and available to use for bills and spending.
- Available – Balance including checking account and cash.
- Discover – all payments made on discover.
- Gesa – Same as Discover just different card.
- Deposit – Any income allocated to savings
- Withdral – Any money taken from the savings account.
- In Bank? – " " means it's been moved over to the savings account. "N" indicates it's been allocated but needs to be moved over.
- Spending – Cash and Debit balance minus any debt on credit cards.
- Savings – Running balance of Savings account.

Automation

Recording a transaction has been automated through two different user forms. One collects information about expenses and the other records income.

Expenses

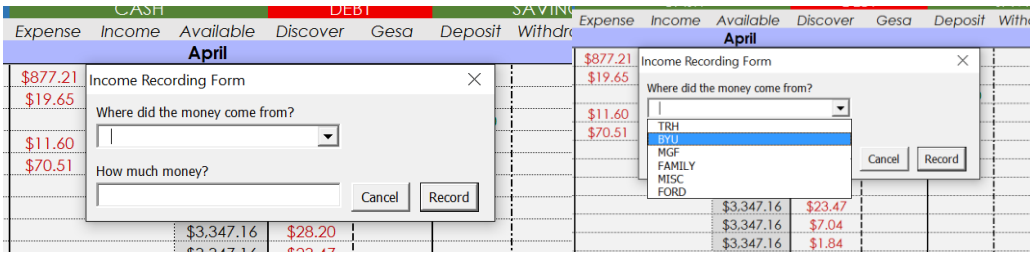
The following is screenshot of the expense form.



The form has four categories that record information necessary to know where to place the expense, since the expense could go in three different columns. The list of expense categories is populated from a list on the model control sheet. When a user updates the expense categories on the model control sheet, the expense categories throughout the model are changed. The same goes for the income recorder. This ensures that categories are not misspelled and thus accidentally skipped over in the summary sheets. It also helps make the model more intuitive.

Income

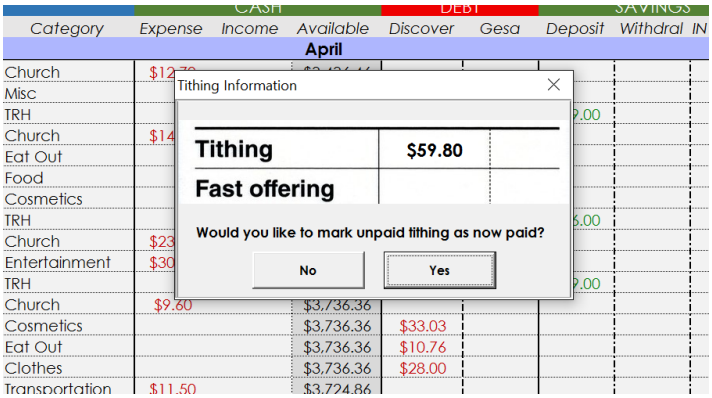
Two screenshots of the Income form follows.



This form collects the category for the income as well as the total amount received. It then allocates a portion to savings based of the percentage indicated on the Model Controls sheet. It marks the savings as having not yet been moved to the account and records a 2nd separate record for the tithing expense associated with the income. The form also records the tithing as unpaid so that the tithing counter can find it when it searches for tithing to be paid.

Tithing Counter

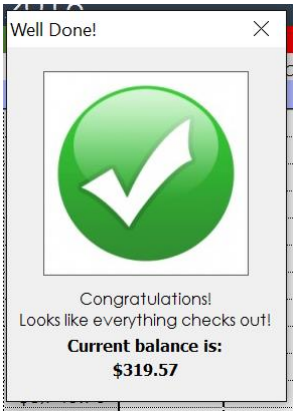
My sheet doesn't automatically request the transaction for the tithing, although that will undoubtedly be in the works, it only records it. Because of this it records new tithing entries as unpaid. VBA made adding these entries easy. The following is the tithing form that shows after the tithing counter has run.

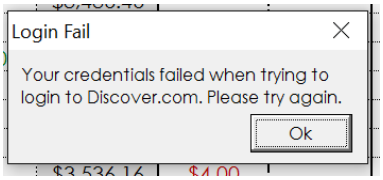


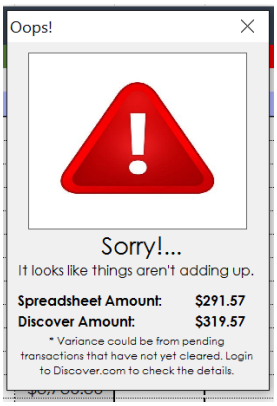
The prompting on the form allows me to change all the unpaid tithing to paid, or press no if I haven't actually paid those records yet. This allows me to easily see how much I owe and make the necessary payment. This doesn't affect my running balance, because I've already subtracted tithing at the time the income was recorded.

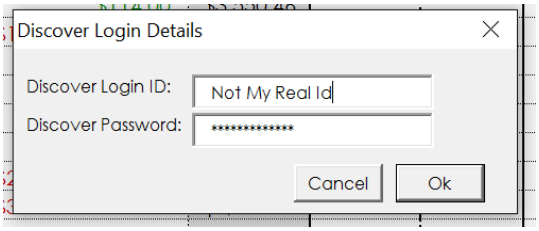
Discover Reconciliation

Getting every transaction isn't easy, and sometime I miss some especially if their paid in cash. Cash was hard to think of a way to check my transactions, but linking up to Discover to compare my sheet to the real balance was possible. I wrote a sub that automatically logs into discover.com checks the cleared balance, checks the pending balances, and then sums them and compares it to what I have as my balance on my sheet. The following photos show the four forms that are part of that process.





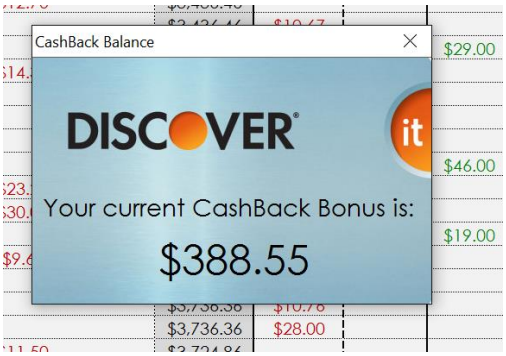




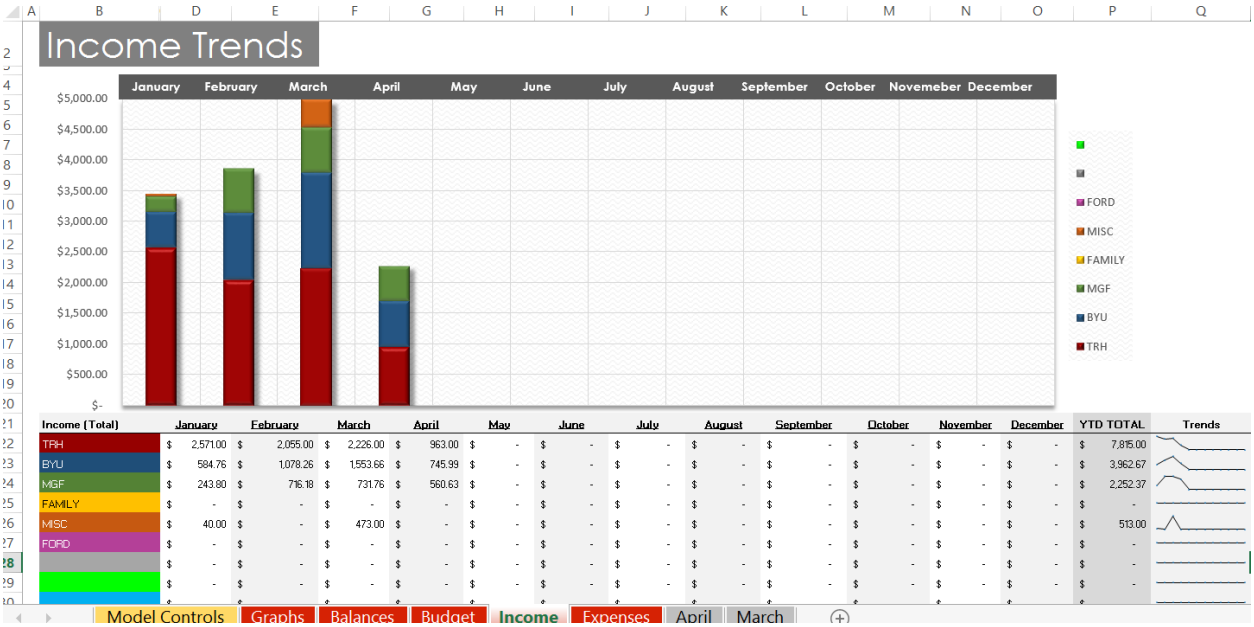
The first form collects the login details and submits them. If the login failed the second form will notify the user. If everything adds up the user gets a green check, and if something is off the red warning form pops up. This was probably the most time consuming portion because of making the connection run properly as well as creating all the different forms for the different situations.

Discover Cash Back

As more of a fun addition than anything, the Discover Cash Back procedure logs into Discover.com using the same credential form as the other Discover Procedure, and finds the cash back balance. This is returned to the user in a form.

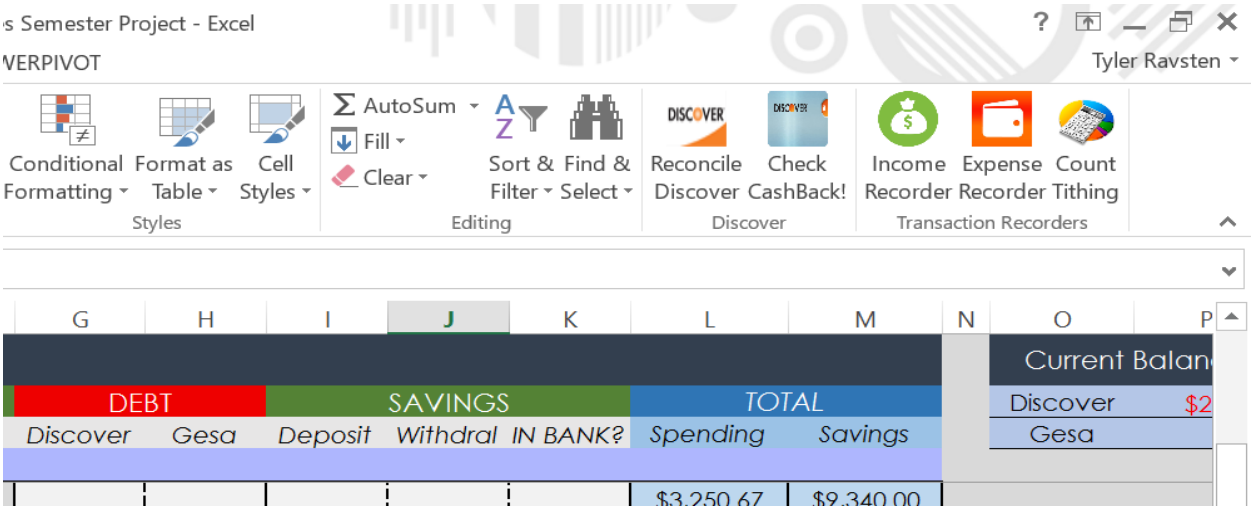


All of these procedures and forms run to help make sure all the information recorded and stored is accurate. All of this information is then aggregated on an expense tab, an income tab, an account balances tab, and a chart tab. The follow is the income tab that, just like all the other tables and graphs updates dynamically each time a new record is inserted to a monthly transaction sheet.



The Ribbon

All of these procedures are great and have made my model more user friendly, but the icing on the cake for this model are the ribbon medications on the home tab that make most of this procedures one click away. The ribbon modification was challenging but also fun to do. This last snippet shows the modifications I made to the ribbon. All of the buttons call the same sub-procedure and then a case select statement based on the callers Id chooses which procedure to run.



Learning Experience

Completing this protect has actually been a lot of fun. I've enjoyed thinking of what I would like to have in my finance tracker, and then making it happen. The best part is that it's not over yet. I intend to try to add even more bells and whistle as time permits in the future. I took away two big things from this project. The first is to have patience and think through the logic. I had several time when creating the connection with Discover when I could not get it to work the way I wanted to. At several points it was rather frustrating. One frustrating episode could have been avoided if I had just thought through the logic. I was angry that I couldn't figure out the syntax but it turns out I had it right all along, I just didn't have it far enough into my code. I had to have other portions of the code run first and I had failed to realize that I was trying to make something happen out of order.

Secondly I've learned to plan out the idea first. Instead of thinking of something and building it, I learned to think about the project as a whole and not just portions of code. I spent a fair amount of time on portions of the model that aren't there anymore because as I learned new things and the old way of doing the task was now redundant. Think big and slowly build it instead of building each piece in silos.

I learned that although I've seen and heard a lot about VBA this semester, I still have a long way to go until I know a lot about VBA. Because each situation is unique every VBA problem will be unique, and that's the beauty of it. Specifically for my career I need to focus on VBA within the realm of databases and SQL. Most companies will have a database for me to pull from and understanding what it takes to automate interactions with databases will be a huge time saver. Focusing on web queries and working with HTML will also be an area I need to strengthen.

In Conclusion…

I didn't have any help from anyone directly (although I spent an enormous amount of time on google). It was satisfying to run into a problem and eventually overcome it. I've thoroughly enjoyed this class and look forward to using VBA in the future.