

VBA Project Write-Up

Executive Summary:

Crown Trophy is the biggest franchiser of trophy stores in the nation and currently there are 142 stores located around the country. Crown Trophy focuses on providing high quality awards and recognitions to corporations and athletic groups. My father owns two of these franchises located in the Austin and San Marcos area. One of the main pain points that he experiences in managing his franchises, is the amount of time it takes to pull and organize QuickBooks data into a usable form. To aid with this problem, I developed a program that will easily pull in data from a QuickBooks report and format it for any number of Crown Stores.

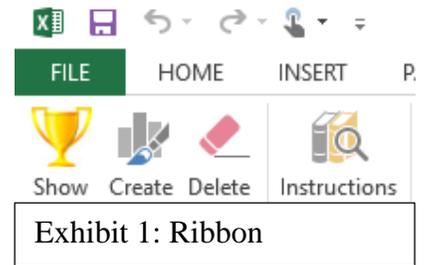
Formatting the data includes cleaning up the original report and only pulling in the correct line items and summations. This is accomplished through interaction with various user forms until the data is displayed by store and by the correct time period. I wrote two different codes for pulling in the two different time periods which are monthly and quarterly. New stores can be added or edited at any time. After the reports have been imported into my program the user can select to create a bar chart of any of the line items and compare these to the projected numbers for the same store and time period.

Process:

The main problem that my dad faces with QuickBooks is that the report that is generated takes time and energy to clean up. The report generated is an extensive P&L statement that contains all of the line items that have been created for the company (See Step 3). These reports are normally between two or three hundred line items long. However, when forecasting, my father needs to only pull twelve numbers from the mix. These numbers are summations of various numbers in the P&L statement and each month may include different line items that must be considered. My program sought to change that by cleaning the data for him. Below is a walkthrough of how my program works and some of the features and programming that was involved. The process has been recorded in a step format with a broad description of some of the issues that were encountered as well as insights into how my program is written.

Step 1: *Accessing the Code through the Ribbon*

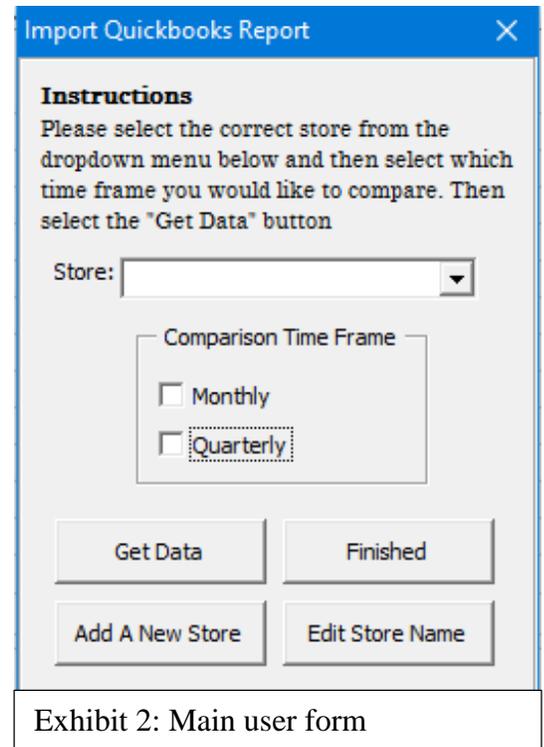
To be able to pull data, run charts, delete charts and access the instructional manual, the user must first access the user form through a custom ribbon entitled “Crown Reports”. Inside the ribbon, four buttons are found that allow all the functions to be accessed. This is how the code is accessed and run.



Step 2: *User Forms*

Main user form: Exhibit 2

To be able to pull in the QuickBooks reports, I needed to create a user form that the user would interact with. To the right is the main user form and it is connected to five other user forms (explained below). Through this form a user can select to pull data for a specific store and time frame, add a new store or edit a store’s name. This user form was programmed to only proceed if certain requirements were met. To pull in data, a user must have a store selected from the dropdown menu and only one time frame selected. If any of these conditions are not met then the user will receive an error message with a prompt of what they did wrong. Likewise if a user seeks to edit the store name then a store must be selected from the dropdown menu or an error message is displayed. Attached to the form are two different codes to import data. This is due to monthly and quarterly reports both requiring different import programs to be run.



Add a new store: Exhibit 3

If the user decides to add a new store then Exhibit 3 will be displayed. The user can type in the new store name and then select the “Add” button. Before the code runs, the input box is checked to make sure that the user has typed a new store name and not left it blank. If it is blank the user is alerted with an error message and asked to input a store name.

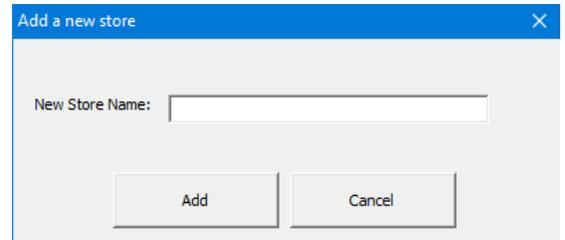
A screenshot of a dialog box titled "Add a new store" with a close button (X) in the top right corner. The dialog contains a text input field labeled "New Store Name:" which is currently empty. Below the input field are two buttons: "Add" and "Cancel".

Exhibit 3: Add a new store

Edit store name: Exhibit 4

If a user decides to edit a store name or delete a store then this is the user form that is displayed. This user form populates with the store that was selected from the main user form and then allows the user to type a different name. My code will verify that a new name has been entered and then rename the store. This will then re-populate the dropdown box on the main user form with the new updated name. If the user selects the delete button then they will be presented with a verification message box asking to verify their decision. This will then reload the main user form dropdown box and assure that the list is complete with no gaps in it.

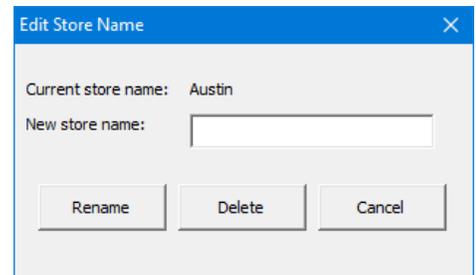
A screenshot of a dialog box titled "Edit Store Name" with a close button (X) in the top right corner. The dialog contains two text input fields. The first is labeled "Current store name:" and has the text "Austin" entered. The second is labeled "New store name:" and is empty. Below the input fields are three buttons: "Rename", "Delete", and "Cancel".

Exhibit 4: Edit store

Quarter and Month Selection: Exhibit 5

Depending on the timeframe selected, either the monthly or quarterly user form is displayed. These forms determine what quarter or month the user will be importing. When the select button is clicked the code will first verify that a value has been entered and then continue. If a value has not been entered, then an error message will be displayed that prompts the user to select a month or quarter from the dropdown box.

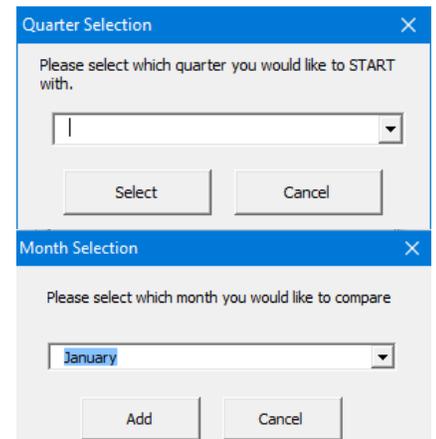
Two stacked screenshots of dialog boxes. The top one is titled "Quarter Selection" with a close button (X) in the top right corner. It contains the text "Please select which quarter you would like to START with." and a dropdown menu that is currently empty. Below the dropdown are two buttons: "Select" and "Cancel". The bottom one is titled "Month Selection" with a close button (X) in the top right corner. It contains the text "Please select which month you would like to compare" and a dropdown menu with "January" selected. Below the dropdown are two buttons: "Add" and "Cancel".

Exhibit 5: Q and M selection

Step 3: *Opening the correct report, cleaning the data, and then pulling it in.*

After the user has opened the main user form (Exhibit 2) and selected a store and time frame, the program will open a box to allow the user to import the QuickBooks report. These reports are P&L Statement that Quickbooks generates. To the right is an example of a Q1 report. It contains multiple lines that have the same name and is a mess to sort through. I had to solve how my program would be able to recognize the different line items. After the report has been opened my program begins to scan the data. I wrote multiple for loops that are embedded in each other, that step line by line and look at what the cell is actually called. If a cell is found to match a correct title then my program will save the dollar amount associated with that cell as a variable. Of the twelve numbers found and pulled, it finds ten of them and calculates the remaining two. It then creates a new sheet inside the original excel report called "Clean Data" and consolidates the twelve numbers there. It then copies the data and moves it into the correct location in the comparison form without touching the clipboard. For a quarterly report it posts the data side by side while in a monthly report the data is posted below each other. My program will then close the original QuickBooks report and prompt the user to import the next data sets.

		Jan - Mar 15
Ordinary Income/Expense		
Income		
Sales Medals 1		113.31
Sales Medals		2.79
Sales Medals		492.44
Sales Medals		597.37
Sales Medals		2.69
Sales Medals		2.69
Sales Medals		34.97
Sales Medals		34.97
Sales Medals		45.73
Sales Medals		41.86
Sales A.S.I. Promotional		194.35
Sales A.S.I. Promotional		90.65
Sales Acrylic		75.00
Sales Tax Timely Filing Discoun		14.39
Sales Discount		-343.66
Sales Items		
Sales Trophies		11,428.48
Sales Stock Medals		8,233.54
Sales Ribbons		14.00
Sales Plaques		5,738.42

Exhibit 6: Original QuickBooks Report

This is the process used to open the correct report, clean the data and then import it and place it in the correct location. To make this process possible, I had to build three separate counting mechanisms that keep track of both the quarter being imported, the row that the data needs to be pasted on and the number of imports that have been made. These counters help distinguish how to import data that is monthly versus data that is quarterly. To facilitate importing the data, I created a sheet that is hidden that stores the names of the stores, the counters, the months, the quarters, and all of the inputs from the user forms. This data dump sheet was created so that each time the workbook is opened the userforms come pre-populated with the correct stores, months and quarters. This design facilitate the ease of data entry.

After the data has been imported through my program it is displayed in the format to the right (Exhibit 7- Each column is a separate QuickBooks report that has already been imported.)

Austin Actual Data									
	Q2		Q3		Q4		Q1		TOTAL
Income	\$ 151,264		\$ 151,264		\$ 151,264		\$ 136,924		\$ 590,717
COGS (Materials & Shipping)	\$ 52,169	34%	\$ 52,169	34%	\$ 52,169	34%	\$ 50,490	37%	\$ 206,998
Gross Profit	\$ 99,095	66%	\$ 99,095	66%	\$ 99,095	66%	\$ 86,435	63%	\$ 383,719
Franchise Fees	\$ 7,995	5%	\$ 7,995	5%	\$ 7,995	5%	\$ 5,578	4%	\$ 29,564
Marketing & Advertising	\$ 2,542	2%	\$ 2,542	2%	\$ 2,542	2%	\$ 2,252	2%	\$ 9,877
Merchant Fees	\$ 2,269	2%	\$ 2,269	2%	\$ 2,269	2%	\$ 1,425	1%	\$ 8,232
Payroll	\$ 37,152	25%	\$ 37,152	25%	\$ 37,152	25%	\$ 31,589	23%	\$ 143,045
Rent	\$ 8,821	6%	\$ 8,821	6%	\$ 8,821	6%	\$ 9,841	7%	\$ 36,305
Utilities	\$ 2,140	1%	\$ 2,140	1%	\$ 2,140	1%	\$ 2,381	2%	\$ 8,800
Other Expenses	\$ 10,635	7%	\$ 10,635	7%	\$ 10,635	7%	\$ 6,376	5%	\$ 38,282
Total Expenses	\$ 71,555	47%	\$ 71,555	47%	\$ 71,555	47%	\$ 59,442	43%	\$ 274,106
Net Income	\$ 27,547	18%	\$ 27,547	18%	\$ 27,547	18%	\$ 27,501	20%	\$ 110,141

Exhibit 7: Imported Quarterly Report

Along with the data that is posted my program will also format the sheet. This is described in greater detail below.

Step 4: *Formatting the Sheet*

To improve the appearance of the workbook, my program formats the sheet and pastes the line items that are needed (Income, Cogs..etc) Throughout the sheet I also employed conditional formatting and multiple if statements. These are used to apply the color that is seen in the top of the bar and the percentages between the imported data. As data is imported these percentages and titles appear and disappear based on whether data is available and present.

Step 5: *Creating and deleting charts*

If a user desires to insert a chart they must select a line item that they wish to graph. The user can then select the “Create Chart” button in the top ribbon and that line is formatted into a chart to the right. This chart includes both the actual data imported from the QuickBooks report and the projected data that was entered by the user. Exhibit 8 demonstrates one of the charts that was created for the line item “Franchise Fees”. These charts are placed to the right of the projected data field in the workbook and on the same line as the active row. As more charts are created they are placed below the last one and this pattern continues. When a user selects the “Delete Charts” button, all of the charts that have been created are deleted.

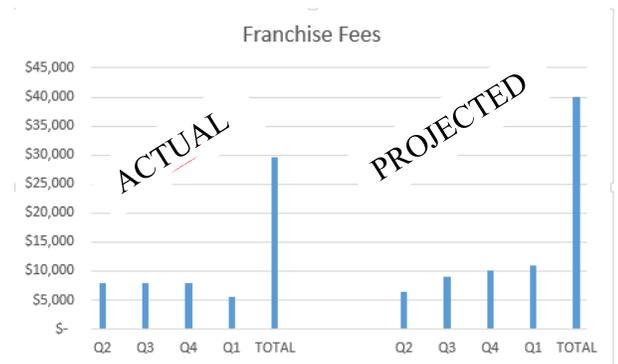


Exhibit 8: Chart created comparing A vs. P

Step 6: *Erasing all data and reformatting the sheets*

After the user is finished running a report and would like to create another one, I created code that will clear all of the fields except those containing formatting or if statements. This is accessed by closing the main user form by selecting the “Finished” button and then reopening the form. This displays a message box (Exhibit 9) that asks whether the user would like to start over. If the user selects ok, the program will run and clear all data that has been entered and leave the user with a fresh template to begin importing data into. This function clears both the monthly reports and quarterly reports.

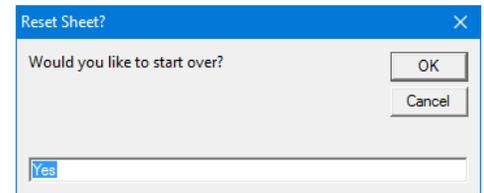


Exhibit 9: Erasing all data

Difficulties Encountered:

- Uncertain number of stores - The biggest difficulties that I encountered were in adapting all of my code to an uncertain number of stores. I wanted to build everything with the capability to compare not just two stores but three, four...etc. I therefore had to build everything with the thought that any number of stores could be added and at any time. Therefore, I needed the formatting to be done by excel, the data pasting, the summations and any other small part.
- Importing other excel documents into my own workbook – One of the difficulties I had was getting excel to open up a workbook and then work in that workbook. When I wrote this portion of my code it was before we had learned about opening other excel documents and I had to figure it out based on the textbook we have in class. It took me many attempts to get the program to correctly open up the other excel document, clean the data, create a new tab and paste that data. I was finally able to complete it long before we were taught it in class.
- Copying the data to my new workbook- I originally used the clipboard to copy the data over to my crown comparison form. However, I was instructed that this is not a good habit for programming and so it took me a while to figure out how best to get the data moved over without touching the clipboard. This was something that was never taught to us in class.
- Figuring out where to paste data – I wanted my program to be able to be run, stopped and then pick up where it had left off. This required that I use counters throughout the program that kept track of the exact location that data had last been imported as well as the company that the data was being imported for.
- Two different reports – Having both a monthly and a quarterly report with different formats required some brainstorming. I originally wanted to write one program that handled both formats but settled on two different programs when I encountered substantial differences.
- Repopulating the dropdown boxes – I found that when a store was deleted it messed up the entire dropdown box. I had to figure out a way to keep the dropdown box from becoming split in two and therefore not showing all the stores after the one deleted.
- I also encountered a problem with the charts. I noticed that in office 2013 the charts work exactly as programmed. However, in excel 2010 the chart feature does not work. I am still working on this issue but im not sure why it doesn't work.
- I also wanted to add a portion of code that would email me if a problem was encountered but decided against it.
- The last element of the project that I found challenging was making sure that no errors got through on all of the input boxes, import pages, user forms or message boxes. I had to make sure and add verification to everything to make sure that when the correct buttons were pushed, the outcome would occur. This took a significant amount of time to apply all of the verifications throughout the entire project.

Assistance: I only communicated with the professor on this project and that was to receive small insights into how an element worked. Outside of this, I received no help from anyone else.

All Crown Stores - Actual						All Crown Stores - Projected					
	Q2	Q3	Q4	Q1	TOTAL		Q2	Q3	Q4	Q1	TOTAL
Income	\$ 313,182	\$ 288,188	\$ 288,188	\$ 273,848	\$420,097	Income					\$ -
COGS (Materials & Shipping)	\$ 113,800	\$ 102,659	\$ 102,659	\$ 100,979	\$ 420,097	COGS (Materials & Shipping)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Gross Profit	\$ 199,382	\$ 185,529	\$ 185,529	\$ 172,869	\$ 743,310	Gross Profit	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Franchise Fees	\$ 16,097	\$ 13,573	\$ 13,573	\$ 11,156	\$ 54,399	Franchise Fees	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Marketing & Advertising	\$ 5,167	\$ 4,794	\$ 4,794	\$ 4,504	\$ 19,257	Marketing & Advertising	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Merchant Fees	\$ 3,694	\$ 3,694	\$ 3,694	\$ 2,851	\$ 13,934	Merchant Fees	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Payroll	\$ 62,668	\$ 66,741	\$ 66,741	\$ 63,178	\$ 263,328	Payroll	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Rent	\$ 21,602	\$ 18,662	\$ 18,662	\$ 19,681	\$ 78,608	Rent	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Utilities	\$ 4,797	\$ 4,521	\$ 4,521	\$ 4,763	\$ 18,601	Utilities	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Other Expenses	\$ 17,985	\$ 17,012	\$ 17,012	\$ 12,753	\$ 64,761	Other Expenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Total Expenses	\$ 152,011	\$ 130,937	\$ 130,937	\$ 118,885	\$ 532,869	Total Expenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -
Net Income	\$ 47,886	\$ 55,047	\$ 55,047	\$ 55,001	\$ 212,982	Net Income	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	\$ -

Austin Actual Data						Austin Projected Data					
	Q2	Q3	Q4	Q1	TOTAL		Q2	Q3	Q4	Q1	TOTAL
Income	\$ 151,264	\$ 151,264	\$ 151,264	\$ 136,924	\$ 590,717	Income	\$ 10,000	\$ 10,000	*****	*****	*****
COGS (Materials & Shipping)	\$ 52,169	\$ 52,169	\$ 52,169	\$ 50,490	\$ 206,998	COGS (Materials & Shipping)					
Gross Profit	\$ 99,095	\$ 99,095	\$ 99,095	\$ 86,435	\$ 383,719	Gross Profit	\$ 6,500	\$ 3,000	*****	*****	*****
Franchise Fees	\$ 7,995	\$ 7,995	\$ 7,995	\$ 5,785	\$ 29,564	Franchise Fees					
Marketing & Advertising	\$ 2,542	\$ 2,542	\$ 2,542	\$ 2,252	\$ 9,877	Marketing & Advertising					
Merchant Fees	\$ 2,269	\$ 2,269	\$ 2,269	\$ 1,425	\$ 8,232	Merchant Fees					
Payroll	\$ 37,152	\$ 37,152	\$ 37,152	\$ 31,589	\$ 143,045	Payroll					
Rent	\$ 9,821	\$ 9,821	\$ 9,821	\$ 9,841	\$ 39,305	Rent					
Utilities	\$ 2,140	\$ 2,140	\$ 2,140	\$ 2,361	\$ 8,800	Utilities					
Other Expenses	\$ 10,635	\$ 10,635	\$ 10,635	\$ 6,376	\$ 38,282	Other Expenses					
Total Expenses	\$ 71,555	\$ 71,555	\$ 71,555	\$ 69,442	\$ 274,106	Total Expenses					
Net Income	\$ 27,547	\$ 27,547	\$ 27,547	\$ 27,501	\$ 110,141	Net Income					

Exhibit 10: Full view of the Quarter Report. This is where all the data is pulled to, summed and broken down. The right side is the projected data is hand entered by the user.

Conclusion:

Overall, this project was very challenging but I found that I enjoyed the challenge and the thrill of creating something innovative and new that addressed a real life problem. I spent more than 60+ hours on this project and began before the first midterm. Thank you for all the fun! 😊