Austin McNeil
Final Project Write Up

Global Trade Logistics Sales Report Program

Executive Summary

Global Trade Logistics (GTL) is a small shipping company located in Provo, Utah. My wife works as a combination of a variety of positions – she answers the phones, handles the invoicing and bills of lading, and retrieves quotes from various shipping carriers. Her boss (Justyn) is the owner of the company and usually stops by the office two to three times a week. Justyn actually owns a few small businesses here in the Utah Valley. Due to the amount of work and capital required to own and operate multiple small businesses, GTL does not have up-to-date accounting information systems. GTL currently uses a very basic online database that can only store transaction data and export it to an Excel file.

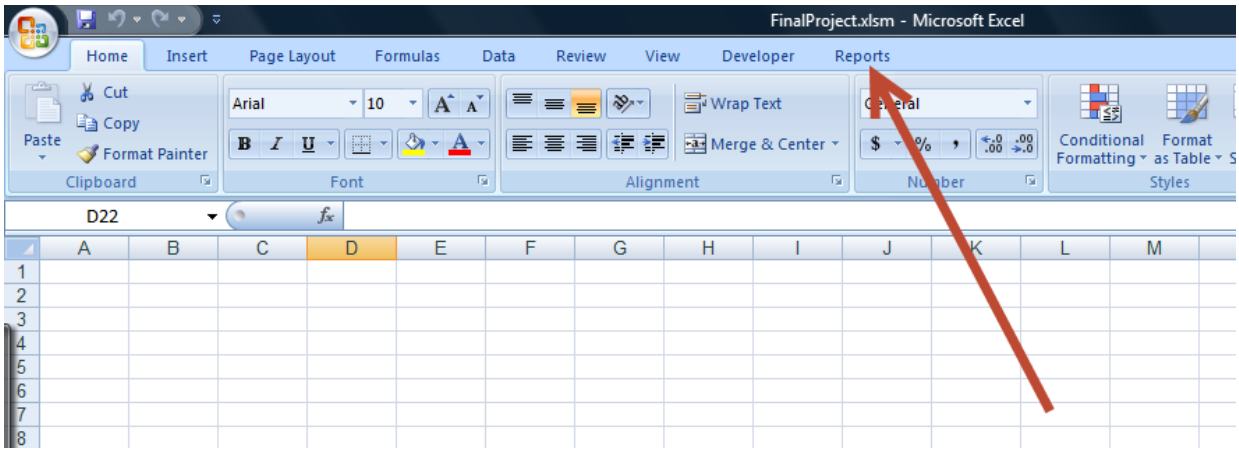
Once a month, Justyn logs into the online database, queries it, and downloads an Excel workbook containing that month's transaction data. He then sends that Excel workbook to my wife and asks her to create a summary report that displays the following for each customer included in the month's transaction list: total cost, total revenue, and total number of shipments. Creating this summary report by hand can take my wife quite a long time as a typical month's transaction listing has between 500 and 1,000+ lines of information.

The purpose of my program was two-fold: 1) Improve the efficiency of GTL's internal reporting process and 2) make my wife's job easier. As was stated earlier, Justyn logs into the online database, runs the query, attaches the exported workbook to an email, and sends it to my wife who then downloads it herself, creates a summary report by hand, and sends it back to Justyn. This process can take anywhere from 3 to 5 hours to possibly even a day depending on when my wife actually gets the email and begins working on making a summary report by hand. This is an extremely slow and painful (for my wife) process that can be improved through the use of Excel VBA.

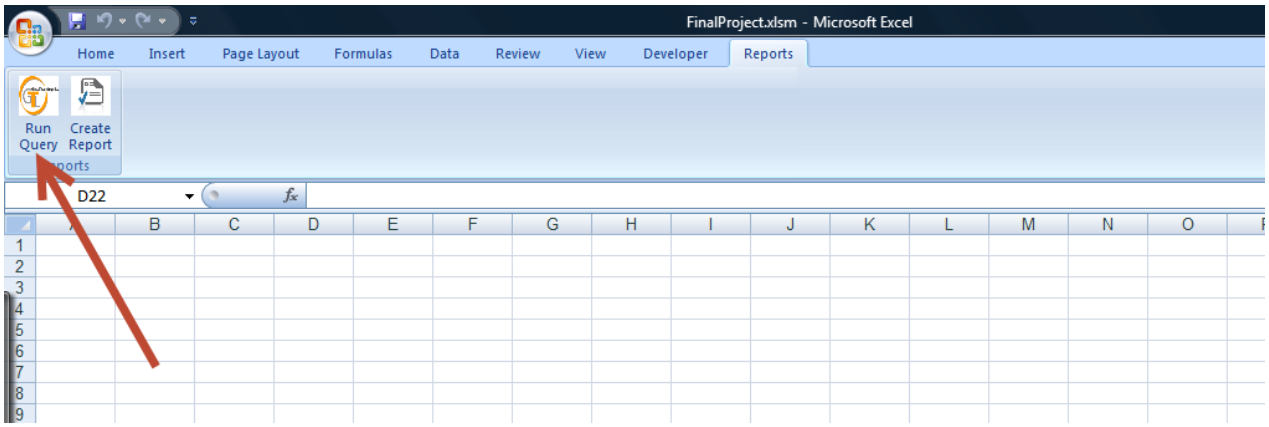
My program implements a user form that gathers a username, password, starting date, and ending date and then uses those inputs to log into GTL's online database, run a query, and export sales transaction data to the user's workbook. With the data in the workbook, the program then uses arrays to gather and group the transaction data into a clean professional-looking summary report. With this program, my wife can now create the sales summary report herself which saves Justyn's time as well as her own and improves the overall internal reporting process of GTL.

Implementation Documentation

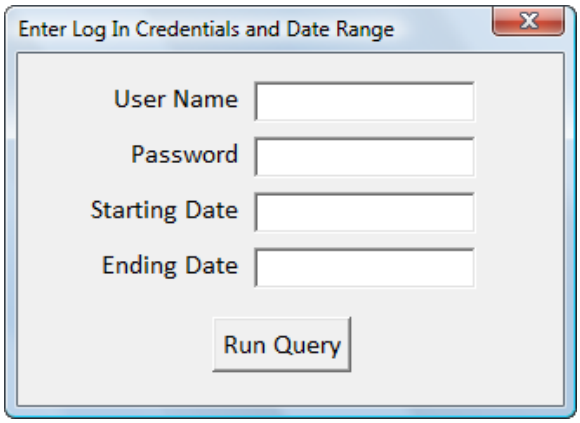
The following screenshots will be used as a walkthrough of the program I created for GTL.



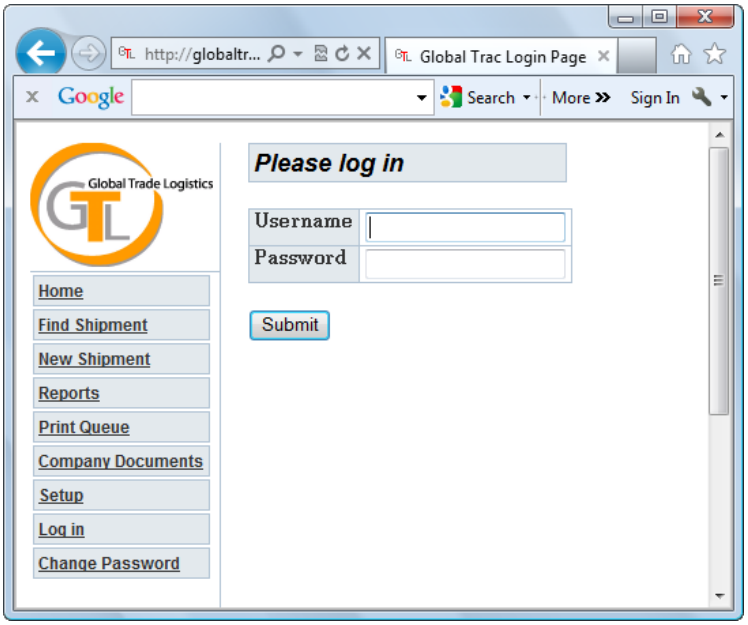
Upon opening the Excel workbook, the user will notice that a new tab titled “Reports” has been added to the Excel ribbon. This tab contains the two buttons needed to run the program. Adding this tab makes it easy to find the buttons used to run the program, thereby making the program itself easy to run.



The first button under the “Reports” tab is the “Run Query” button. This button is used to log into GTL’s online database, run a query, and import the desired transaction data into the workbook for summarizing. Clicking this button brings up the following user form:

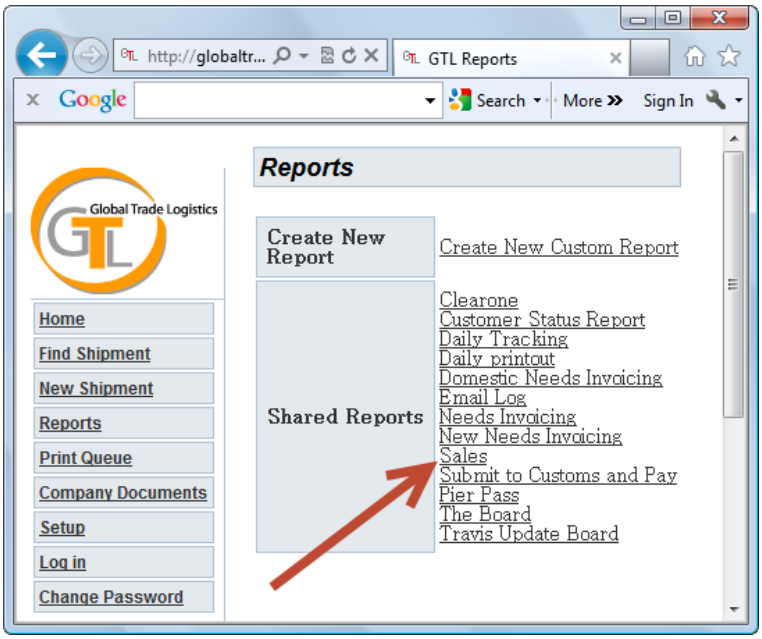


This user form gathers the information necessary to successfully log into the online database, run the query, and bring the transaction data into the workbook. The user must enter a valid user name, password, and date range in order for the query to run. A password-protecting font has been added to the password input box in order to provide security for GTL. Also, each time the "Run Query" button is clicked to bring up this form, the previous query's data is erased from the form in order to provide further security. Both the starting and ending dates must be in the format of "mm/dd/yyyy" for the query to successfully run. After correctly entering in the username, password, and date range, the "Run Query" button of the user form is clicked and the data is retrieved. The user only encounters a slight pause before the data appears in the workbook ready for summarizing. The following screen shots will illustrate what occurs behind the scenes after the "Run Query" button of the user form is clicked.

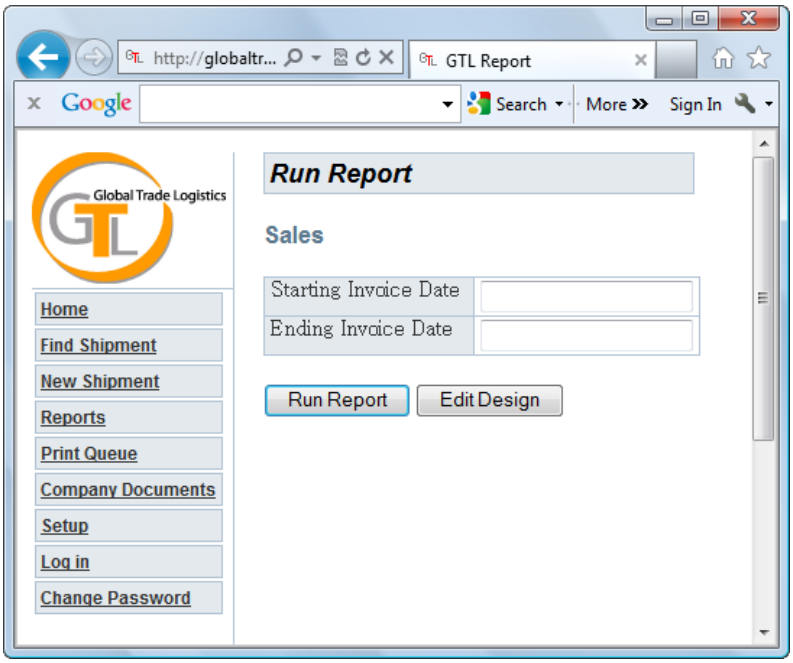


First, the program calls a sub procedure that opens up internet explorer and goes directly to GTL's online database website (globaltrac.net). Then, the program inserts the username and password given by the user and clicks the "Submit" button.

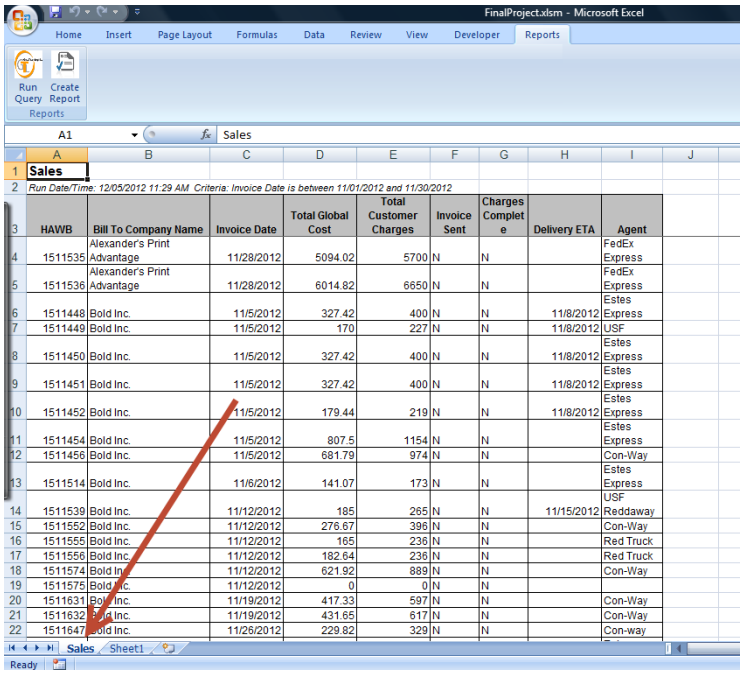
Now that the program is logged in, it can navigate through the site in order to query the database. First, the program clicks the "Reports" link shown above. This link takes the program to the webpage shown below.



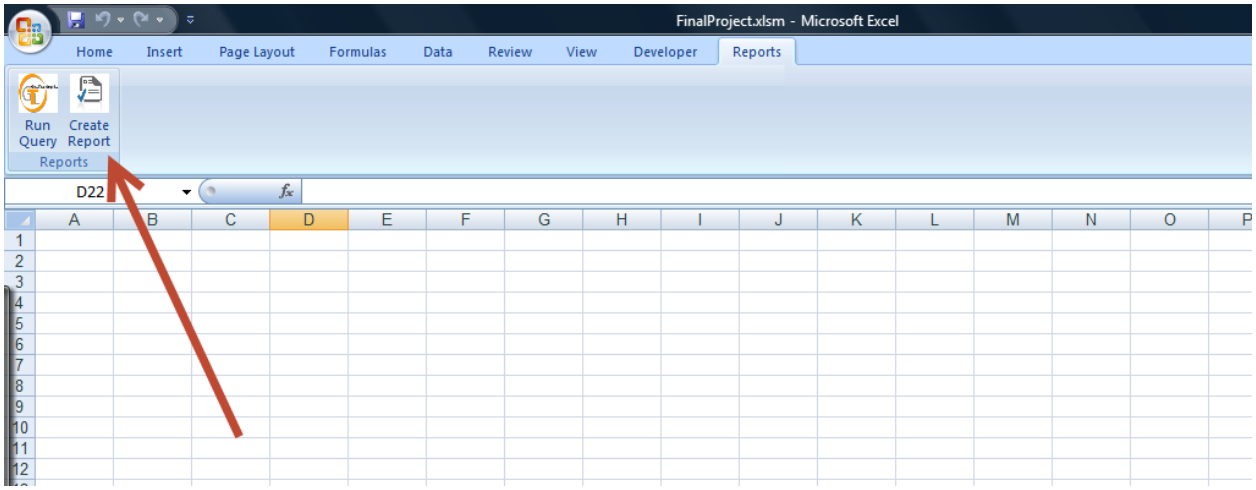
The program then clicks on the "Sales" link shown above and arrives at what's shown on the following screen shot.



The program can now query the database and retrieve the desired transaction data. The program enters in the date range given by the user and clicks on the "Run Report" button. Clicking on this button causes a dialog box to pop up prompting the user to select either to open the workbook, save the workbook, or cancel the download. Figuring out how to make the program interact with this dialog box was probably the biggest challenge with this project and will be discussed in the "Challenges" section of this write up. The program then opens the downloaded workbook titled "Sales". This workbook contains one tab that is also titled "Sales". The program moves this tab into the user's workbook resulting in the screen below.



As can be seen, the sales transaction tab is now located in the user's workbook. The "Sales" workbook is saved into the same folder that contains the project workbook. At this point, the data is ready to be summarized. All the user needs to do is click the "Create Report" button of the "Reports" tab.



Clicking this button calls another sub procedure that uses a series of loops to go down each line of transaction data in the "Sales" tab. The sub procedure uses arrays to group transaction data by company name. The program then places the grouped data into "Sheet1" and formats it into a clean, user-friendly report as seen below.

Global Trade Logistics

Sales Summary Report

11/1/2012 To 11/30/2012

Customer	Cost	Revenue	Shipments
Alexander's Print Advantage	$11,108.84	$12,350.00	2
Bold Inc.	$6,864.86	$9,504.00	21
Bullet Tools	$189.65	$206.00	2
Casepak	$1,314.01	$1,447.00	8
Clear One Billing	$276.31	$566.12	2
Clickhere2shop	$5,026.94	$6,404.57	36
Columbia Trading Corporation	$797.85	$900.00	2
Die Cuts With a View	$895.74	$932.00	4
Durham Brands	$200.43	$215.00	1
Ensign Group International	$122,943.50	$131,961.28	20
Firebox Stove	$526.08	$570.00	2
FiveFinch, LLC	$13.53	$20.00	1
Hedgehog Solutions	$163.05	$205.00	1
Humless	$26,452.57	$30,173.71	6
Hundegger Usa	$106.46	$117.00	1
Industro, Inc.	$0.00	$0.00	1
K-9 Kennels	$3,478.72	$5,204.00	29
Scrapbox	$6,741.66	$10,559.21	8
Scrapbox (Domestic)	$25,302.43	$28,286.00	147
Virtuosity Products, LLC	$247.79	$270.00	1
Wasatch Product Development	$2,336.53	$2,555.00	12
Westgate Hotel	$301.02	$352.00	1
TOTALS	**$215,287.97**	**$242,797.89**	**308**

Discussion of Learning and Conceptual Difficulties Encountered

I enjoyed working on this project because it was very challenging. I was able to have an extremely beneficial learning experience that wasn't overly-frustrating. I was able to experience firsthand both the power of Excel and the frustration that can come when trying to solve a problem through the use of VBA.

I began this project by working on the sub procedure that summarizes the data into a report. Working on this procedure taught me a lot about creating and working with dynamic arrays. I figured out how to move down the list of transactions and put the company name and cost and revenue data into arrays without too much trouble. However, grouping transaction data that was from the same company into one single value within an array was quite a challenge. My knowledge of control logic was increased greatly and I learned even more about arrays through solving that problem.

Another challenge I experienced also came from working on the sub procedure that summarizes the transaction data. This challenge came from the actual data itself. I had a difficult time working with the transaction data from October 2012. For some reason, the transaction data for the month of October 2012 had some blank revenue cells. I wrote a simple "If-Then" statement that I thought would check for any blank cells in the revenue column and if they were blank, would put a "0" in them so that the sub procedure could continue running smoothly. However, these "blank" cells were not in fact blank. They were blank to the naked eye but had some kind of special formatting or value within them because of the online database. So, I had to use "On Error" statements that referred to an exception in order to bypass the problems caused by this formatting issue. The exception enters a "0" in for the variable and resumes the sub procedure. I further developed my error handling skills through solving this issue.

Probably the most challenging aspect of this project was figuring out how to control Internet Explorer and get it to download the "Sales" workbook from GTL's online database. I worked with Professor Allen for quite some time trying to figure out how to obtain the session ID cookie from Internet Explorer and to then use that cookie to allow the program to download and open the "Sales" workbook. We needed to do this because we were unable to successfully control the dialog box that appears when the "Run Report" button is clicked on GTL's website. I learned a lot about controlling Internet Explorer and although I do not fully understand everything about it, I definitely know a lot more now than I did before working on this project. I now feel comfortable enough with it that I could write another program that controls a website.

Assistance

I received a lot of help from Professor Allen. As was stated previously, he helped me with controlling Internet Explorer. I needed substantial help from him because GTL's website was not easily accessible or controllable using the source code of the website. The html code of the 'Run Report" button was hidden from view and I had no idea how to retrieve it. Professor Allen ended up showing me how to retrieve the session ID cookie from GTL's site and then how to use it to allow my program to successfully download the "Sales" workbook. I also received some help from Tyler Whitezell in using the "On Error" statements.