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IS 520

Final Project: Travel Costs

Executive Summary:

Generally, business executives do a substantial amount of travelling. However, I've noticed that many of them do not plan their own travel but instead, have their secretaries do it for them. Although there is nothing wrong with this, secretaries then are left with the burden of planning a trip or several trips within a short period of time. In my own life I have also noticed how time consuming trip-planning can be. For this reason, I have created a macro to help provide a brief overview of the costs of travelling.

My project focuses on two main sources of travel, driving and flying. The user can enter his data and know exactly **how much** a trip will cost and **how long** a trip will take. As was mentioned in my proposal, the information will return the price of the flight and pull the cheapest flight. Additionally, the overall cost of driving will be calculated and compared to the flight price and whichever is less expensive will be shown in a message box. The project consists of a simple userform in which users can enter all of their relevant information and then easily select a button to pull in the information from several web sources. The final product is a basic table with the pulled data and is simple enough for anyone to understand. In addition to the table, users can also request an email, by clicking another button, with the link associated to the flight information gathered from the web. From this email they can immediately go to the website and purchase plane tickets to their destination.

Implementation Documentation:

The "behind-the-scenes" portion of my project has several moving parts. It contains ribbon buttons, userforms, agent relationships, and of course, plenty of VBA code.

From this project, I have learned more about agents and their relationships with VBA code, than I ever thought I would in this class. I also learned that I don't like coding as much as I hoped I would, but overall this project helped me to gain a better understanding of coding and how I can use it to more efficiently complete tasks.

Ribbon Buttons:

The project obviously starts with the ribbon buttons. I have three- "Find," "Email," and "Me First". I used the UI Editor to create these buttons. The first button pulls up the user form and allows information to be entered. Often the information will already be entered for a particular location because I found that if I wanted to search for different flights on different days, it was tedious to re-enter all of the other information as well. Thus, part of my code saves the prior information to another sheet where it can be re-entered when the userform is activated. The second button allows the user to enter their email address and password, which I copied from our email/text class period. I modified the code so that it pulls the flight link directly from the userform and then inserts that into the email and when I open the email, the string is already hyperlinked. The last button is an anomaly, but is necessary to pull the correctly flight cost

information. Though I have become much more familiar with agents and their interactions with VBA code, I was unable to solve the problem which this button seems to fix. The data from one particular website will not properly download the first time the webpage is activated. Rather, the code has to be run through twice before all of the data shows up.

Userforms:

The userforms are both pretty straightforward. The first is categorized by driving or flying and has several drop-down lists for the user to choose from. It took me quite a while to figure out that the drop-down lists had to be initialized before I showed the userform, but thankfully I finally got it. The gas grade was captured from a website (Figure 4) that I imported on the second sheet, which updates each time the workbook is open to more accurately reflect current gas prices. The three buttons along the bottom are self-explanatory except for maybe the "Clear" button which erases the data both in the userform and in the spreadsheet where it is being stored. The second userform prompts user info to login to an email account and inserts that data into the sub.

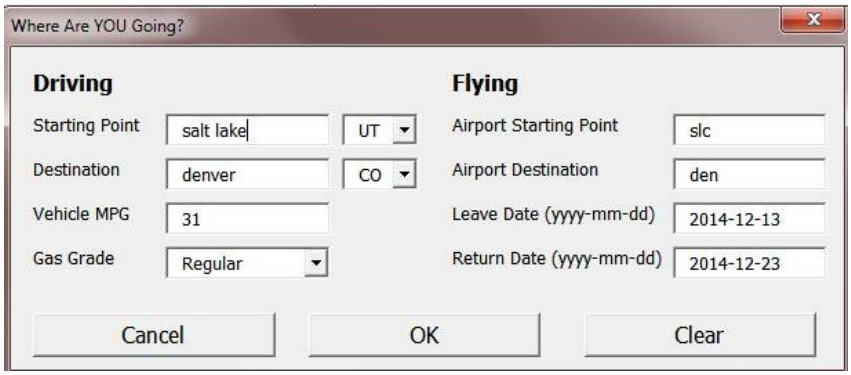
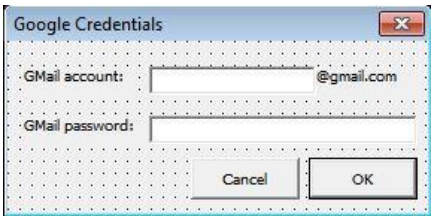


Figure 4



State	Regular	Mid	Premium	Diesel
Alaska	$3.425	$3.475	$3.592	$3.733
Alabama	$2.472	$2.719	$2.952	$3.301
Arkansas	$2.472	$2.670	$2.863	$3.291
Arizona	$2.555	$2.699	$2.844	$3.450
California	$2.934	$3.042	$3.142	$3.549
Colorado	$2.627	$2.788	$2.921	$3.533

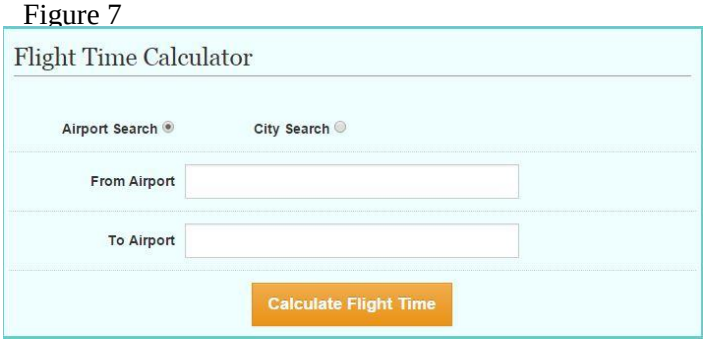
Agent Relationships:

This was probably the most difficult part of the project, pulling data from several online sources. I created three agents to pull information from separate websites and learning how they interacted with one another was challenging. I first created agent "a" to pull data (Figure 5) about the distance between cities (Distance-cities.com). The second was to gather data on flight costs (from Kayak.com – Figure 6) and the last was to specify how long a flight would take (Prokerala.com/travel/flight-time – Figure 7).

Figure 5

Figure 6

Figure 7



After researching online for hours I finally realized that you could search for tags on a webpage as well as ids. This helped me with two of the agents and allowed me to directly pull information from a single location on the page itself. However, with the last agent, I had to download the entire webpage and pull the data that I was looking for specifically. This route was not as reliable as the other, but I was glad to have an alternative.

VBA Code:

The coding was difficult for me because I wasn't sure how to operate ribbon buttons or agents completely. Let's just say it was a learning curve. The code itself consists of five main parts:

1. Downloading information from several websites
2. Performing basic calculations
3. Inserting calculations into spreadsheet
4. Saving user data and
5. Sending a formatted email

I've already mentioned downloading information, so I will move on to the next bullet. The basic calculations that I performed were just for the total gas price. I had to find the intersecting points between starting state and gas grade followed by destination state and gas grade. After finding the range of these cells, I took the average gas price between starting state and destination state and multiplied that by the total distance/miles per gallon.

After making the calculations I inserted them into the spreadsheet along with the other values that I had downloaded. This step actually became quite difficult because I did not specify the proper sheet that I wanted the calculations to be entered on. From this, I have learned to update the spreadsheet in consecutive order so that I won't be jumping around in the code too much.

As I mentioned earlier, I wanted to save the user data to insert again in the user form if desired. I inserted all of the information from the userform into a sheet, from which the userform then pulls the information again upon initialization. The sheet with the data is hidden so as not to distract users as they enter their information. I found this most useful when searching for flights that may have been on different days. Rather than entering in all of my information again I simply had to change the dates that I had originally specified.

Lastly, I had to focus on sending the email with the link attached. I had to update the gmail mod from class and insert only the relevant data. I had to enable several google features in order for the email to even begin its sending process. Ultimately, this portion of the code was not terribly difficult but I was able to better grasp the elements involved, as I debugged the program. This has been an insightful project, not one that I would want to do again, but definitely one that has helped me to prepare for the final and prepare for future uses of VBA coding. Below is an image of the final product:

	Total Cost	Total Distance (mi)	Total Time
Driving	$52	534	7 hours 38 mins
Flying	$185 only nonstop	-	1 hour 18 mins

Select the Find button on the Comparison ribbon to get started!