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April 13, 2015

Final Project Report

Cost of Living Comparison Tool

I. Executive summary

The problem facing many recent graduates is where to live and land their jobs when there are many different options to choose from. Besides social factors (e.g., crime rate, community, security, etc.), the cost of living is one of the most important factors in making the final decision. Thus, the purpose of this tool is to analyze and find the lowest cost-of-living index in the following categories:

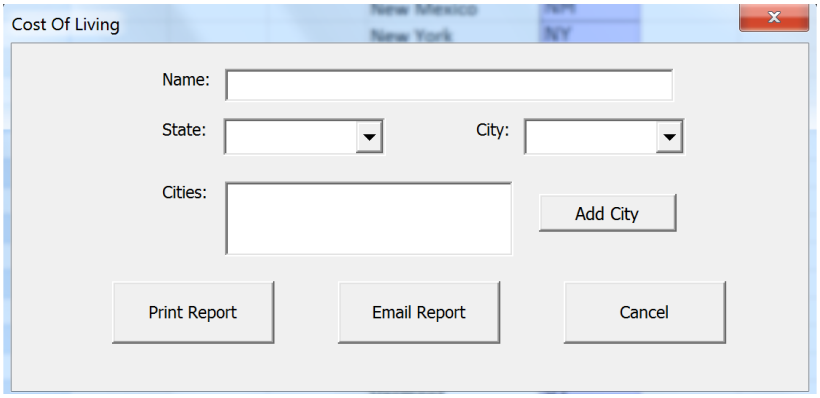
1. Overall
2. Food
3. Housing
4. Utilities
5. Transportation
6. Health
7. Miscellaneous

The data used for comparison are retrieved from www.bestplace.net. Although the website does have its own tool for comparing cost of living, this tool only limits to two cities at a time. The cost of Living Tool in this project, on the other hand, has the ability to compare as many cities as the users want and send an email with a PDF report.

II. Implementation process

There are four main parts in the implementation phase of this project:

Create a main form



The main form is a simple form object where users can enter their names and choose the cities and states they want to compare. First of all, users will choose a state from the list of 50 states in the U.S., then the list of cities will be populated automatically. It is important to note that the list of cities for each state only include cities whose population is over 50,000 people.

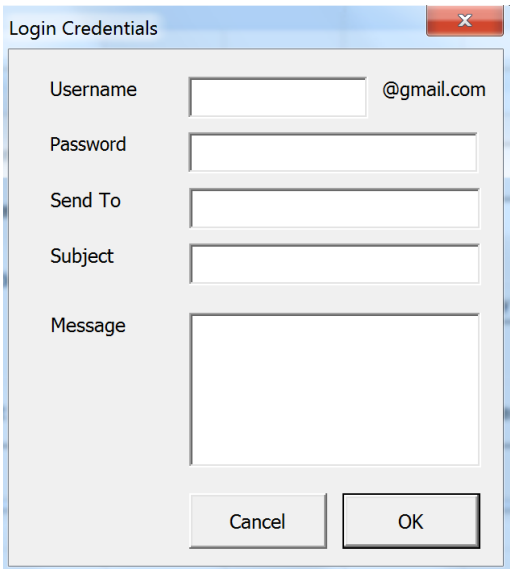
When users finish choosing a city, they can click on the Add City button and continue to choose other cities they want to compare. Next, users can choose to output the report to an excel spreadsheet (Print Report button) or email the report (Email Report button). The email function requires users to have a Gmail account.

Create an email form

The email form is also a simple form object where a user can enter his/her username and password for a Gmail account, the address he/she wants the report to be sent to, the subject of the email, and a message.

When the log-in credentials is incorrect, an error message will pop up and the user will have to enter their login credentials again. On the other hand, if the email successfully sent, a message box will also appear to inform the user.

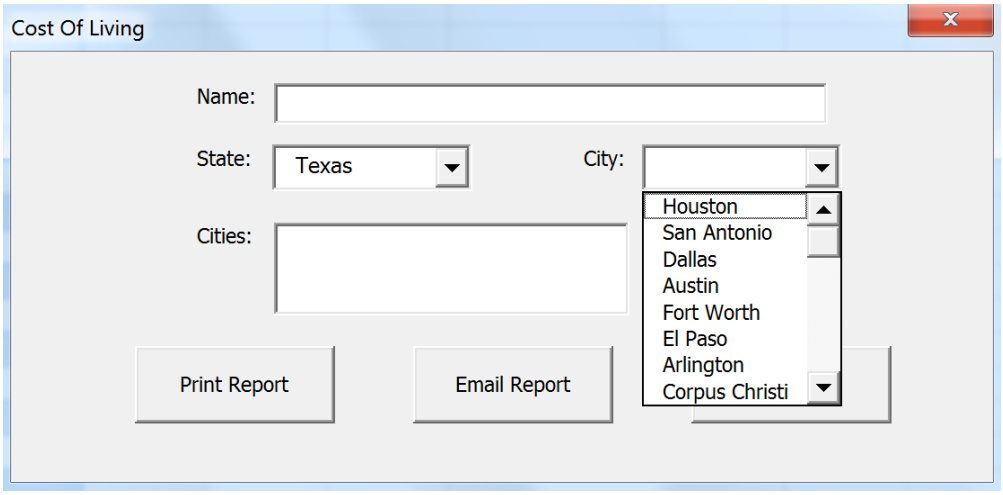
Besides the destination email, subject, and message, the email will also contain a PDF attachment of the report for printing and archiving purpose.



Create Sub-Procedures and Functions related to the main form

The first sub is to initialize items on the main form. The only control which must be initialized is the drop-down list for states. The initialized sub will loop through a list of 50 states in the U.S. on the City State worksheet and add each state to the dropdown box.

Second, a sub is created to populate the list of cities associate with a particular state. For instance, when a user choose the state of Texas, the sub will loop through the City State worksheet and find cities associated with Texas. The result is demonstrated in the below figure.



Third, when users finish choosing a city, they can click the Add City button and it will be added to the Cities listbox. They can choose the next city and add the cities they want to compare.

Fourth, a sub is associated with the Print Report button, when users click this button, the tool will retrieve the cost of living information from www.bestplace.net and output the data to the Result worksheet. After the process is done, the form is closed and users will be directed to the Result worksheet.

Fifth, a sub is associated with the Email Report button, when users click this button, the email form will pop up.

Lastly, a sub is associated with the Cancel button, when users click this button, the form will be terminated

Create Sub-Procedures and Functions related to the email form

When users choose to email the report, an email form will pop-up asking the users to fill out their Gmail credentials (username and password), the email's subject, destination, and the content. When the users have all these information filled out and click the OK button, a sub will be triggered which will call the sendGmail function in the modEmail module and handle the process of sending email through appropriate network protocol. If the credentials are correct and no error in the process, a message box will show with the text "Email Sent!." If the process fails,

however, a message box will show with the text “Please check your credentials.” The users then have to refill all the required in formation on the email form. An email with the PDF version of the cost of living report, email subject and content will be sent to the destination email.

III. Lessons Learned

At the beginning of this project, the scope has been narrow. My tool could only retrieve data from the www.bestplace.net website and input these data in an Excel spreadsheet. However, as I came and talked to Dr. Allen, he has helped me to widen the scope to comparing many cities instead of just two cities at once and the ability to send a PDF report. Although the tools becomes more useful, it also introduces new technical difficulties.

The first difficulty is to make a PDF report in Excel. Although there are many tutorials which instructed on how to create text files in VBA, there are very rare instructions on PDF creation. After searching for about two hours, I have been able to find not only short but also sufficient and easy to understand code on how to convert Excel worksheets to a PDF document.

The second difficulty is to attach the PDF file in the email to be sent. Although Dr. Allen talked about sending emails in class, the detail of attaching a file to the email is relatively new to me. However, by examining the sendGmail function, I have been able to discover the attachment method which help me to attach the PDF report with the email.

Along the two major difficulties above, I encountered minor bugs while working on this project. By using Debug.Print and the Intermediate Window, I was able to solve these minor bugs one by one and ensure the final tool with no bug (under my testing of the form).

IV. Assistance

The initial project design and business problem comes from my ideas and approved by Dr. Allen. However, as I was building my tool, I constantly talked to Dr. Allen to ensure the scope of the project is large enough. Also, Dr. Allen helped me with debugging the project and commenting on the design as well as the code structure.

Regarding to the code itself, the only function I borrowed from Dr. Allen lecture is the sendGmail function. This function is very useful and powerful. However, I did modified this function so it could attach a document to the email itself. Besides Dr. Allen and lecture material, online forum such as stackoverflow.com was also very helpful in guiding me in building the tool and debug it.

V. Conclusion

This project has been a wonderful learning experience for me. My next step is to talk to the IS recruiting coordinator (Reid Grawe) to find out important aspects that graduates need to know when they choose a place to start their careers. and improve the tool so it can retrieve other factors when graduates choose a place to live and work such as crime rate and community’s demographic information. By putting these other information together, I can help many students, especially students in the IS major to decide a great place to start their career.