Allen Zhou

IS 520/ MBA 614

Final Project

Executive Summary

For many BYU students who have jobs in school, clocking in and out is a necessity for them to record their hours and get paid. I am one of these students. Computer solves the problem for us to clock in/out anywhere we are. However, one problem with the current system is that we might happen to clock in twice or more. If we accidentally click on the clocking in/out button twice, our timesheet will show us an error.

The tool I build with VBA helps us solve this problem. It prevents the user to clock in again if the current user is already clocked in, and likewise for the case of clocking out. Once the user enters his or her name through a form from Excel, the information will be passed to Y-Time and it will take care of clocking in/out for the user.

In addition to that, this form saves the trouble for user to move from pages to pages of timesheet to get the data of how many hours of work he/she has done from a specific period. All the user has to do is to enter the start date and end date for that period and click "Get Time".

Implementation and Concepts

To first trigger the user form, simply click on the clock in/out picture. This acts like a button and there's a macro that shows the user form. This is provides a simple access to the user form. Alternatively, the user can go to the Developer tab to access the macro called "Button1_Click" in Macros.

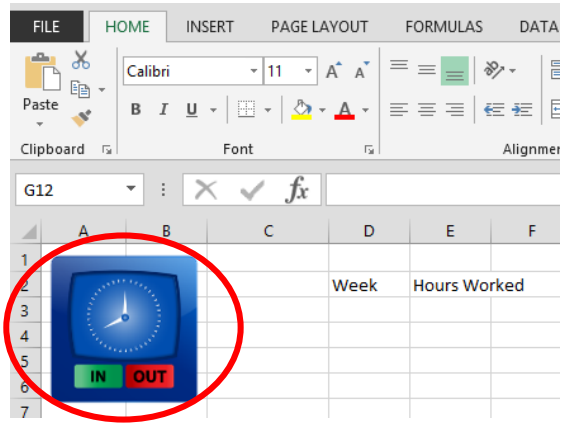


Fig 1. Triggering the macro

After clicking on the picture or trigger the macro, a user form titled "Y-Time" will pop up. See Fig 2. This is where the user type in the credential information. To use any functions of this user form, the user must put in the correct BYU username and password. Otherwise nothing in the user form will work.

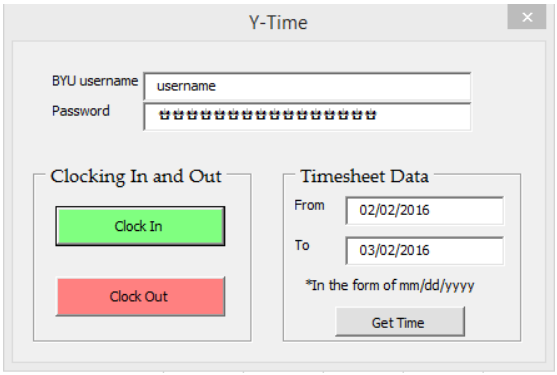


Fig 2. User form

I first started with creating a user form in Visual Basics and I made several buttons and input boxes for user type in. After that, since I will be going online, I used the agent class module provided by Dr. Gove Allen to help me implement that. The main codes are behind these three buttons. I will first talk about the clock in and out button before the "Get Time" button.

Clock In/Out

These two have a very similar code to them. I first created a variable to be the agent object. Then I used it to go through the credential log in for BYU, which will then leads the user to the "Y-time" page, Fig 3. I then created some "if" statements. Under one scenario, it is possible for users to have an automatic log in to BYU through Internet Explorer already, therefore, if that happens, the code will move on and will skip the part where the user has to log in. If the user doesn't have an automatic log in for the BYU through IE, then this form will put in the information the user enters into the credential log in.

I have also accounted for the fact that maybe the user won't successfully log in. If that happens, a message will appear that let the user know the password or username are incorrect. (*When the user enters the password, it will be masked for security issues, as shown in Fig 2).

Fig 3. Y-time page

If the user successfully signs into the webpage, then VBA will check whether the user is clocked in or not. If the user is clocked-in already and wants to use the user form to clock in again, user will get an error message that says he/she is already clocked in. Same thing happens with clocking out.

After that, the user will be signed out from the BYU "Y-time" page and IE will close itself in the background.

Get Time

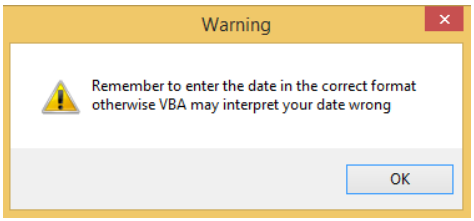
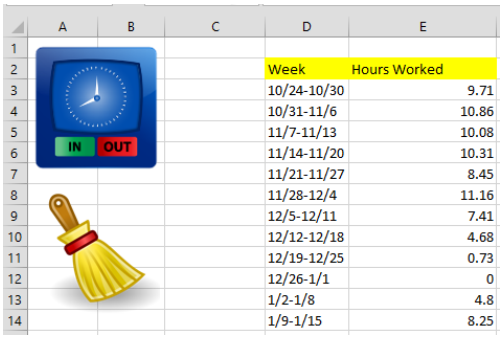


Fig 4. Warning message

The code behind the "Get Time" button will first check to make sure the user has a valid date or not. When the user make changes to the start and end date text boxes, the user will see a message that reminds the user to enter the correct format of the date, Fig 4. If the user uses this with incorrect format of date, the VBA will try to interpret it, but it might interpret it wrong and will return something different from what the user want or might not work. Other than that, if the user puts something that is not even a date, the procedure will not continue to execute and no hours will be returned to the Excel worksheet.



	A	B	C	D	E
1					
2				Week	Hours Worked
3				10/24-10/30	9.71
4				10/31-11/6	10.86
5				11/7-11/13	10.08
6				11/14-11/20	10.31
7				11/21-11/27	8.45
8				11/28-12/4	11.16
9				12/5-12/11	7.41
10				12/12-12/18	4.68
11				12/19-12/25	0.73
12				12/26-1/1	0
13				1/2-1/8	4.8
14				1/9-1/15	8.25

If the date is entered in the correct format and the end date is after the start date, then the word "Work" and "Hours" will appear in cell D2 and E2 of the Excel Sheet1 and are coloured. After that, it goes online and do the same features like clock in/out to check sign in status and correct username/password combination. If that is successful, it opens the timesheet website to record data. It will then get the value of week and its respective hours for that week. These records will then be entered in the column D and E.

The user may get something similar to the data shown in Fig.5. Afterward, the user can choose to make charts, graphs or some kind analyse with the week and hours if the user decides to.

Clear Data

The little broom picture under the clock in and out picture clears everything in this Excel document. This action **can not be undone**. If the user has anything valuable, the user should put them onto another sheet to preserve the data, and should think it through before clicking on the broom. The code behind the broom will only clear data. This broom picture is just like the one shown in Fig.5.

I decide to include it there so the user will not have to select cells to delete data every time. This just provides an easier way for the user to manipulate the Excel sheet.

*The clock in/out picture for this code is obtained from iTimePunch, which I received permission to use and the broom picture is obtained from Wikipedia. These images are only for academic and personal use with no intention to distribute, and they are credited to their rightful owners.

Learning and Difficulties

One of the most difficult thing was getting the time data in to Excel. I had to think of many scenarios of what might happen depending on what the users types in, and after that, how to loop through pages, so that it will properly import the data in. Since there are too many cases of that, I decide to make an "On Error Goto" statement and it will just end the sub procedure.

I have also accounted the fact that maybe the user wants to import a chunk of data for one period and keep importing data from a different period. I made it so that when the user wants to get data, the new data will append under the existing ones.

Another thing was to get the data when there's a change to the year, e.g from 12/25/2015 to 01/08/2016. Y-time website shows only the month and day and if I use VBA to interpret that for me, it will always give me the current year. Therefore, I had to check the year to make sure it runs correctly and getting the data in the right way. At the end, I figured it out by adding a year variable obtained through the "Date" value near the top on the timesheet website.

From this project, I learn to give an exhaustive list of possible scenarios that might happen. This is especially true in the case to account for all the things a user can type on the "get time" text boxes. Maybe next time I can make a pop-up calendar and will let the user to pick a date from there. Then I don't have to worry about what the user types in for the two date values.

I also learn to eliminate the problem if we can't solve it. When I first started to make the form, I worried whether the user will be signed in or not before clocking in/out and then account for the possibility that the user might sign in with Excel and then go to IE and sign out or something of that nature. And I still have to make clock in and out work for the user. Another problem is making sure Excel signs the user out when the workbook is closed… Then I realize if I make the user sign out every time after a specific action has been achieved, then this problem will cease to be a problem, like how I sign the user out after clicking clock out. All I have to do now is to check whether the user has automatic sign in with IE or not.

Assistance

Dr. Gove Allen provided help for me and taught me how to use his agent class module. The Spreadsheet Automation book for our class was also quite useful.