

Matt Martin

MBA 614/IS 520 VBA Project

Executive Summary

My project is in response to a time consuming process at my place work within BYU's SOA. Academic advisors are required to search individual students each semester to verify their grades are at an appropriate level. This is especially true for students who are involved in integrated programs. This process is very repetitive and requires an advisor to spend approximately five hours at the end of each semester in order to complete.

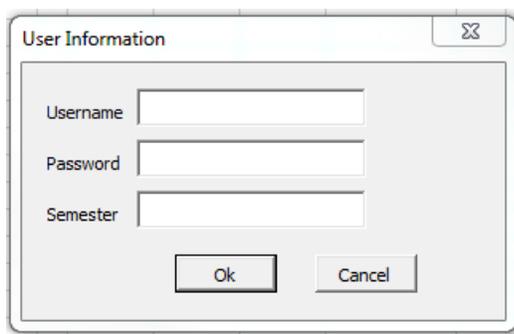
In order to verify a student's grade the advisor (particularly in the IS and Accounting schools) is required to search individual Net IDs and manually evaluate the grades. When a student's grades fall below a certain level (B-), the advisor needs to identify them as marginal. Although some of the process must be done by the advisor, like discussing possible actions with the Associate Director of the school or potentially communicating the issue to the student, much of the leg work can be automated. This will save the advisors hours of time that, at the moment, are currently being used to perform this task.

The system that was constructed, taking over 20 hours, will enable the user to search a list of net ids for the grades of any semester the user would like to find. The program will insert the desired information into an easily accessible list in Excel and then it will evaluate each student's grades and mark any that need to be inspected by the advisor. The program will also pull the student's overall GPA for the semester and flag any that fall below a 3.0 (which is the minimum requirement for both the IS and Accounting programs).

Unfortunately, this project requires authorization from BYU to run because it is pulling sensitive student data. Thus, in this write-up photos of the results will be shown with any sensitive data omitted. The write-up will also depict the steps of the macro to ensure the reader is able to understand the process without actually being able to run the macro.

Implementation

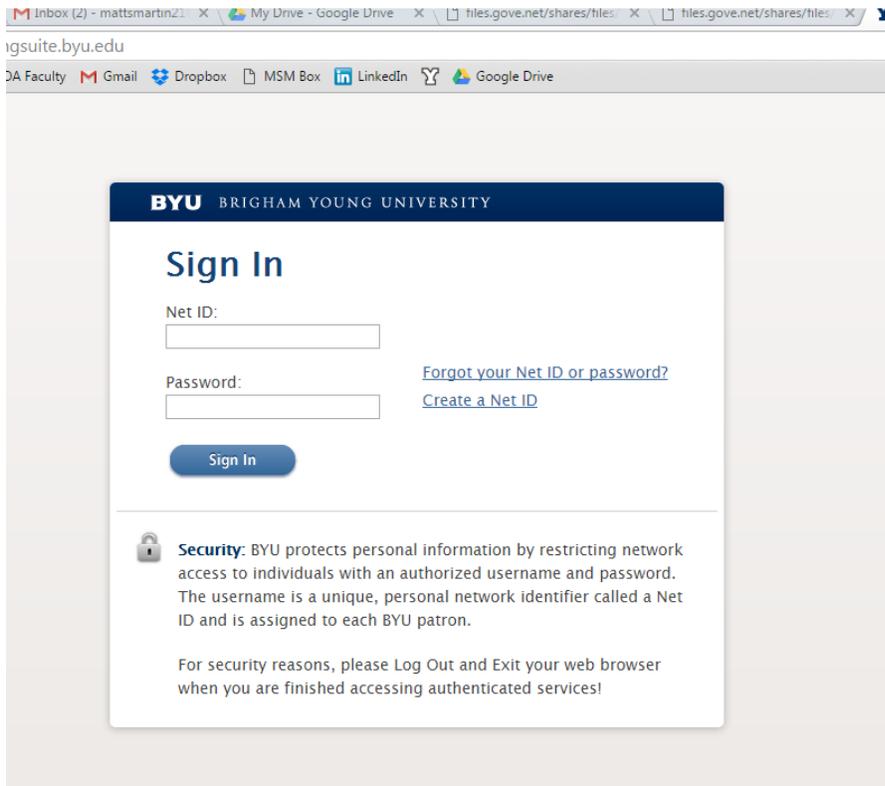
The first step required to make this program work is providing inputs that will authorize the user to gain access to BYU's system. In order to accommodate this requirement, I created a userform that enables the user to enter their Net ID, password, and the year and semester grades they want to pull. Below is an image of the userform that was created.



The image shows a standard Windows-style dialog box titled "User Information". It contains three text input fields stacked vertically, labeled "Username", "Password", and "Semester". Below the fields are two buttons: "Ok" and "Cancel". The dialog box has a close button (an 'X' icon) in the top right corner.

This userform requires the user to input all three categories in order to click “Ok.” If the user leaves a box blank an error will appear until they either enter the information or click “Cancel” and end the procedure.

The data entered into each of the boxes above are stored in different variables in the macro. The data from the “Username” and “Password” box are used when the program opens up the log in page shown below.



With the stored data the Net ID and Password are automatically inputted and then the program submits the data and logs in. The information from the “Semester” box will be used later in the macro to search for the specific semester the user is looking for.

After the program submits the log in information the web browser will pull up the unofficial transcript of the person who has logged in. The image below is a censored version of what will appear on the user’s screen. I have removed the Name, Student ID, Birthdate, Gender, Class Grades, and Semester GPA.

Last Name/Identifier: First Name: GO

Masters Degree - STD/PT/ACT

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STUDENT INFORMATION
NAME          :
BYU ID       :
BIRTHDATE    :
GENDER       :

SCHOOL       : Accountancy
BACHELORS MAJOR : Accounting
EMPHASIS     : Professional Accounting
MASTERS MAJOR : Professional Accounting
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DEGREES AWARDED - BRIGHAM YOUNG UNIVERSITY
No degrees awarded at BYU as of April 6, 2016
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BYU COURSE WORK
TEACH CRS SEC H   COURSE DESCRIPTION          SEM GRD
AREA NO.  NO.                HRS

Fall Semester 2009
ANTHR 101 014      Social/Cultural Anthropology          3.00
GEOG 101 003      Introduction to Geology                3.00
BIO 100 002       Principles of Biology                  3.00
ECON 110 002      Econ Principles & Problems            3.00
REL A 121 076     The Book of Mormon                    2.00
REL A 211 009     The New Testament                      2.00
SEM HR ERN 16.00 HR GRD 16.00 GPA
    
```

Winter Semester 2010

This page is where all the data will be pulled from, but the data will need to be pulled for students other than the user. This is where the program goes to the list of Net IDs required, exported to an Excel worksheet, and searches one Net ID at a time using a loop.

The macro will input the first Net ID from the excel sheet into the "Last Name/Identifier" box and then click the "GO" button. This will pull up the information for the student who was searched. Rather than just providing the information for the specific semester the user is looking for, the web browser provides the students entire transcript from BYU. As a result the program uses the information provided in the userform, the "Semester" box, and moves the position to that semester. This means that in order for the search to work the user must enter data into the "Semester" box in the following format: "Fall Semester 2015" or "Winter Semester 2014". If the input has a different form than what was shown, the macro will not pull accurate data.

Last Name/Identifier: First Name: GO

Masters Degree - STD/PT/ACT

```

STUDENT INFORMATION
NAME          :
BYU ID       :
BIRTHDATE    :
GENDER       :

SCHOOL       : Accountancy
BACHELORS MAJOR : Accounting
EMPHASIS     : Professional Accounting
MASTERS MAJOR : Professional Accounting
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DEGREES AWARDED - BRIGHAM YOUNG UNIVERSITY
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Fall Semester 2009
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REL A 121 076     The Book of Mormon                    2.00
REL A 211 009     The New Testament                      2.00
SEM HR ERN 16.00 HR GRD 16.00 GPA
    
```

Winter Semester 2010

Once the correct semester has been identified by the code it will proceed to pull the class title and the GPA from the course. In order to ensure that the code would pull all the classes, because it common for students to have a differing number of courses, I established an array that will store the values until the position finds the phrase "SEM HR ER." An array was used because a student could potentially take a lot of classes so it can handle as many as a student can take, but varies based on the Net ID pulled. Once this happens, the program will then jump to the end and pull the overall semester GPA. These values are then pasted into the excel spreadsheet. This makes it easy for the advisor to see a list of as many students as are needed. The next image shows the values that are pulled from the web browser. It is important to note that the image below only circles one example of each piece of data that is pulled from the web page. The macro will pull every class between "Fall Semester 2009" and "SEM HR ERN."

[Home](#) > [AIM](#) > Record Summary

Last Name/Identifier: First Name: [GO](#)

Masters Degree - STD/PT/ACT

STUDENT INFORMATION

NAME :
 BYU ID :
 BIRTHDATE :
 GENDER :

SCHOOL : Accountancy
 BACHELORS MAJOR : Accounting
 EMPHASIS : Professional Accounting
 MASTERS MAJOR : Professional Accountancy

DEGREES AWARDED - BRIGHAM YOUNG UNIVERSITY
 No degrees awarded at BYU as of April 6, 2016

BYU COURSE WORK

TEACH AREA	CRS NO.	SEC NO.	H	COURSE DESCRIPTION	SEM	GRD
					HRS	
Fall Semester 2009						
ANTHR	101	014		Social/Cultural Anthropology	3.00	A
GEOL	101	003		Introduction to Geology	3.00	A
BIO	100	002		Principles of Biology	3.00	A
ECON	110	002		Econ Principles & Problems	3.00	A
REL A	121	076		The Book of Mormon	2.00	A
REL A	211	009		The New Testament	2.00	A
SEM HR ERN	16.00		HR GRD	16.00	GPA	4.0

Winter Semester 2010

After the data is stored in the array it is pasted into the excel spreadsheet next to the Net ID it searched. The data below shows the results of running the macro with a list of 17 students. Then, just for aesthetic purposes I delete the "SEM HR ERN" and put "Semester GPA" instead. I also ensured that, although

there are differing numbers of classes, the semester GPA's would all be in the same column. For this image I only eliminated the name and Net ID of the students in order to show as much of the result as possible. It is also important to note that the advisors who run this macro often are searching between 75 and 200 students each semester, only to find a handful of students who are not meeting the requirements of the program. By keeping the simple output and not over-formatting it makes it easier for the advisor to get utility from the output and identify students that are struggling. In order to accommodate the advisors, I simply added gridlines to help make the data more readable.

The screenshot shows an Excel spreadsheet with columns A through AA. The data includes course names (e.g., ACC 310, BUS M 201), grades (e.g., A-, A, B+), and Semester GPA values (e.g., 3.87, 3.87, 3.54). A 'Run' button is located in the middle-right area. A yellow instruction box on the right contains the following text:

Instructions:
 1. Paste Name into column A
 2. Paste NetID into column B
 3. Make sure there are **NO** column headings
 4. Push the Button that says "Run"
 5. Enter Your Username, Password

In addition to pasting the data here on the excel sheet, the macro will clean up the data by eliminating unnecessary data and auto-fitting each cell. The macro then scans the dataset and identifies any grade below a B- by highlighting it in yellow. It also highlights any GPA below a 3.0 as that is of particular concern to the academic advisors. This makes it quick and easy for the school advisors to identify students that may need to have a conversation with the Associate Director, but of course that is up to the judgment of the advisor so it is not a step this program includes.

As is visible from the image above, I chose to use a button to run the macro for the benefit of the advisors who will be using it. When I discussed with them the possibility of putting a button in the ribbon, they said they felt like they would have a hard time finding the ribbon in the future and may even forget it was there. As a result, I put the button right on the front of the worksheet and included a boxed yellow instruction sheet so the advisors could use this macro far into the future (they have had other macros created, for other jobs, that they don't know how to run anymore so it is a problem). I also determined not to make any additional formatting changes because the advisors said it was best to be able to see as many of the students as possible and just have the yellow highlights stand out.

Learning and Conceptual Difficulties

Perhaps the most challenging problem I faced while working on this project was being able to select all the classes and grades for a particular semester, when it changes for each student. Initially I tried setting a specific number of times for the loop to run, but that didn't work because for some students it would grab too much data and for other students it wouldn't get enough. I finally realized that by using an

array, and targeting the phrase "SEM HR ERN," I could pull all the data for each student without going beyond the dataset. I could also have the program stop once it had gather all classes for the semester.

Another challenge was how to get the cursor to move to the semester. Once I realized the solution, by including it in the userform, it was easy. Initially, however; I spent the quite a bit of time trying to decide how to move to the current semester. I thought of having the user input the semester into cells in the worksheet, but realized that if a user forgot to do it the whole thing would run before they realized they hadn't put the correct semester there. Also, if there was a certain semester saved previously, the advisor could potentially pull data from the wrong semester unknowingly. Finally, I realized that including it in the userform I could require the user to add the semester and resolve the issue before it happened.

Assistance

No assistance was used in the creation of this project.