



3/30/2015

Project Report

IS 520 – Final Project



Shingo Osaka

IS Careers Staff

Information Systems Advisory

Brigham Young University Career Center

Email: AdvisorAssistant@byu.edu

TABLE OF CONTENTS

| | |
|--|----|
| executive summary..... | 1 |
| Background | 1 |
| Problems | 1 |
| Solution | 1 |
| Instruction..... | 2 |
| implementation documentation..... | 2 |
| Get_Report Module | 2 |
| Get_Infosession_Report_From_Bridge Sub..... | 2 |
| Info_Session Module | 4 |
| Get_InfoSession_Report_From_Bridge Sub | 5 |
| Clean_Information_Session | 5 |
| Job_Internship Module | 7 |
| Get_Job_Report_From_Bridge Sub | 7 |
| Clean_Information_Session | 8 |
| Combine_Files Module | 10 |
| Combine_Files Sub..... | 10 |
| Discussion of learning and conceptual difficulties encountered | 11 |

EXECUTIVE SUMMARY

BACKGROUND

We, IS Careers Staffs, work under Reid Grawe who is career advisor for all the IS students in BYU. The main goal that we have is to help all the IS students to have a job when they graduate. In order to achieve the goal, we research companies, keep track of student placements, providing internship/job information, and so on. One of the weekly tasks is sending "Friday Forecast" which is a weekly newsletter with Reid's message, upcoming events information, and job/internship information. As an Excel attachment, we generate two different reports from bridge. One report has information of all the events of companies, and another report has information of all Job/Internship/part-time position. We combine two different reports into one Excel sheet with four tabs (Events, Job, and Internship/Part-time). We create this weekly report every Friday and send it to all the IS students with the newsletter.

PROBLEMS

One of the main problems with creating the weekly report is that it takes time every week. It takes about an hour to just create the weekly report for the following reasons.

1. We have to make the report readable. The reports generated by Bridge system is raw data which is not easy to read for the viewer
2. We have to clean the data. We get data which we don't need even though we use pre-set SQL code of Bridge's report system to generate the reports. We have to manually check more than 2500 job/internship position to filter if they are related to IS major.
3. We have to organize the folder to save the file each week. For the record purpose, we have to make directory each year, each month, and each week to save the weekly report in the certain file with the HTML of the Friday Forecast and the week's other attachments.

SOLUTION

As requested, I developed a VBA macros to automate the most of the work and reduce the amount of manual work and time. The deliverable project currently includes the following features:

1. Automated reports generation and download from the Bridge system.
 - For security concern, it asks you to type your username and password each time.
 - You will wait for 5 to 50 seconds until the report is completed because of the Bridge reporting system. The VBA code will resume when the report is complete.
 - Message box pops out when the process is done
2. Automated organizing, filtering, and cleaning data.
 - When the macro runs, the report is well-formatted and readable.
 - The report shows only IS-related Information of next two weeks from coming Friday instead of showing all the raw data.
3. Automated combining two different files into one Excel sheet with four tabs.
4. Automated creating directory based on the day you create the report and saving files.
 - Example: C:\Users\msm-advisorass\Dropbox\IS Career Center\Friday Forecast\Weekly Reports\2015\March\Mar 27

Expanded detail of individual applications in the macro can be found in the Implementation Documentation.

INSTRUCTION

1. Open the "FF Weekly Report Generator.xlsm," and you will see three buttons: "Info Session Report," "Job/Internship Report," and "Combine files" (See Figure 1).
2. Click Info "Info Session Report" or "Job/Internship Report" to generate the report.
 - * You might need to wait for 1 – 2 minutes to generate the reports due to the Bridge Reporting System.
 - * Message box pops up when the process is done.
3. Click "Combine Files" to put together the two reports into one Excel sheet with four tabs.
 - * Message box pops up when the process is done.



Figure 1

IMPLEMENTATION DOCUMENTATION

The project was developed using Excel VBA macro. The following will describe more of the specific how the VBA code work to create weekly reports. This documentation is intended for reference to understand and maintain the macro.

There are five models in this macro ("Info_Session," "Get_Report," "Job_Internship," and "Combine_Files.") and one class module ("agent"). Although the following will describe each module, I would not explain about the class module, originally created by Dr. Gove Allen to manipulate IE application through VBA. However, within the class module, I added three Subs for this project; thus, I would explain the added Subs in this documentation.

GET_REPORT MODULE

This module's purpose is to generate and download from Bridge website. This module contains the following Sub:

1. Get_Report_From_Bridge
 - a. Go to Bridge website with IE application and login as manager.
 - b. Go to report tab and run a report with pre-set SQL.
 - c. Wait until the completion of generating the report.
 - d. Download the latest report by clicking "Save as Excel" button.
 - e. Close the IE application.

GET_INFOSESSION_REPORT_FROM_BRIDGE SUB

This sub basically works to go to the Bridge website, login, and download the report.

- * Login Process
 - I. Open IE and go to "https://byu-csm.symphlicity.com/manager/" using "agent" class module.
 - * If you want to see what's going on the website, change "visible = False" to "visible = True"
 - II. Check the login status. If it's already logged in, it will log out.

- * Since Bridge does not redirect to the page where you originally wanted, it's easier to logout each time and login.
- III. User form (Figure 2) will pop-ups and requires you to type username and password.

Figure 2

- * Even if you type wrong password or username, user form pops out over and over.
- * If you type wrong username or password more than 2 times, the IE windows pops out and asks you to type verification code (Figure 3). Once you login with verification code, please logout and THEN click OK button on the Excel's Message box. DO NOT CLOSE IE APPLICATION AFTER YOU LOG OUT. KEEP IT OPEN. After clicking "OK", please retry the report generator macro again (Figure 4).
- * When you click "Cancel" button on the userform, the macro will end.

Figure 3

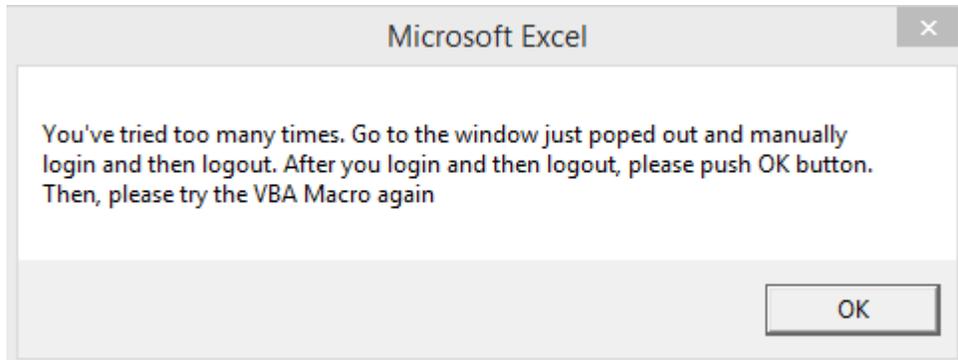


Figure 4

- * Report Generation Process
 - I. Go to create report page and generate a report with using pre-set SQL code.
 - * Wait until the report is complete (Figure 5). The VBA code will resume when the report is complete (Figure 6). It sometimes takes for a minute.
 - II. Click "Save as Excel" button to save the file into the download folder (Figure 7).
 - III. After downloading the file, it will logout.

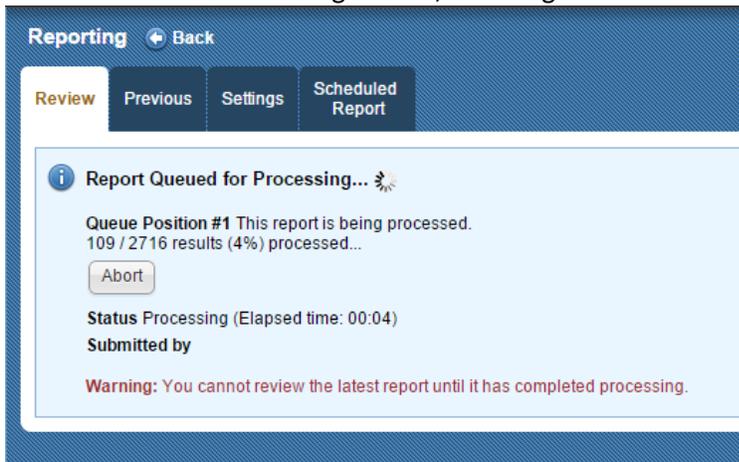


Figure 5

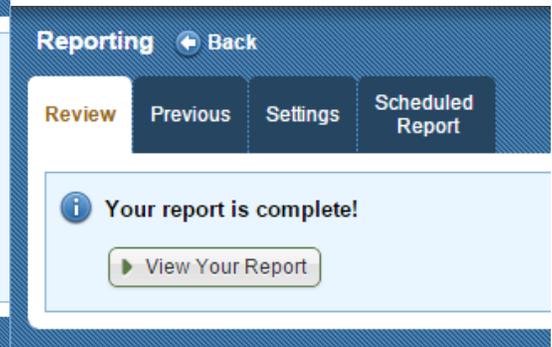


Figure 6

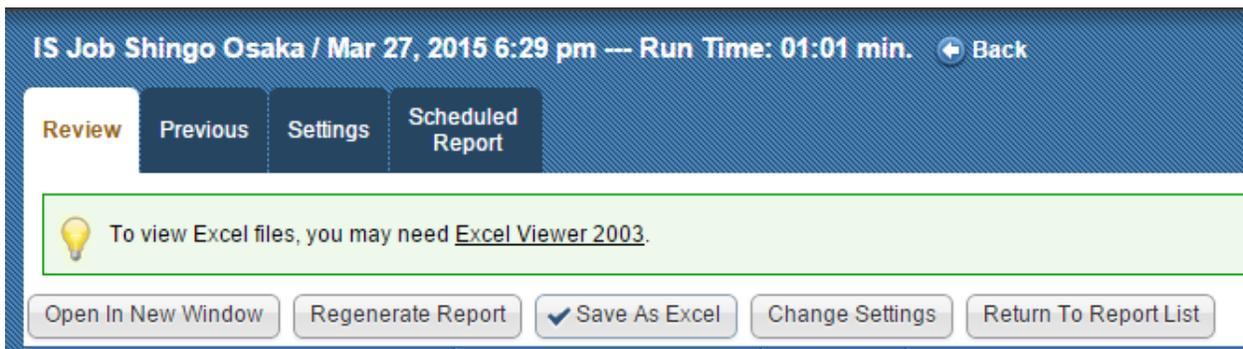


Figure 7

INFO_SESSION MODULE

This module's purpose is to create a readable report which contains all the events for next two weeks from the coming Friday. This module contains the following Subs:

1. Get_InfoSession_Report_From_Bridge
 - a. Run "Get_Report_From_Bridge" with its report id.
 - b. Open the report which is in download folder.
 - c. Run "Clean_Information_Session" Sub.
 - d. Save the report in "Current Reports" folder.
 - e. Show a message box to notify the end of the process.
2. Clean_Information_Session
 - a. Change the table format.
 - b. Change each headings.
 - c. Sort the data by "Session Type," "Major," and "Start Date/time."
 - d. Delete the event which is not within next two weeks from the coming Friday.
 - e. Filter the data in order to show the event which is related to IS major.
 - f. Insert a row and create the title for the table.
 - g. Change each column's heading font color matching with the title color.
 - h. Change the tab name.

GET_INFOSESSION_REPORT_FROM_BRIDGE SUB

This sub basically works to open the downloaded file which is in Download folder within C drive and then run Clean_Information_Session Sub. After cleaning the data, the file will be saved in "Current Reports" folder.

- I. Run "Get_Report_From_Bridge" with its report id.
 - ★ Report id is "119193b9da21311ba8614212169149c3."
- II. Open the file which is in Download folder within C drive.
 - ★ The path: C:\Downloads\119193b9da21311ba8614212169149c3*.xls.
 - ★ If the file is not found, the macro will end.
- III. Run Clean_Information_Session Sub.
- IV. Change file name to "Info_Session.xlsx" and save the file to temporal folder called "Current Reports" before combining it with other reports.
- V. Delete the raw downloaded file in Download folder within C drive.
 - ★ Eliminate the possibility of errors since the original file's file name is report_id of the Bridge System which are similar to each other. If you do not delete the file, the macro might not grab the latest report from the download folder.
- VI. Shows Message box with success message and the file path which where the file saved.

CLEAN_INFORMATION_SESSION

This sub basically works to clean data and format the table to make the report readable since the raw downloaded file is not organized (Figure 8). Without cleaning data, there are more than 200 data which includes not related to IS major. See Figure 9 which is cleaned report.

| | A | B | C | D | E | F | G |
|----|---|-------|----------|-------------|--------------------------------------|---|---|
| 1 | Information Session: Major(s) Targeted | | | | | | |
| 2 | Booth (Tar | ##### | TNRB 1st | KPMG LLF | Accounting (No Emphasis) | | |
| 3 | Booth (Tar | ##### | TNRB 1st | KPMG LLF | Accounting (Professional Accounting) | | |
| 4 | Booth (Tar | ##### | TNRB 1st | KPMG LLF | Accounting (Tax) | | |
| 5 | Booth (Tar | ##### | TNRB 1st | KPMG LLF | Information Systems | | |
| 6 | Booth (Tar | ##### | TNRB 1st | KPMG LLF | Information Systems Management | | |
| 7 | Booth (Tar | ##### | TNRB 1st | Apple, Inc. | All Majors | | |
| 8 | Booth (Tar | ##### | TNRB 1st | Cotopaxi | International and Area Studies | | |
| 9 | Booth (Tar | ##### | TNRB 1st | Cotopaxi | Management | | |
| 10 | Booth (Tar | ##### | TNRB 1st | Mozy | All Majors | | |
| 11 | Booth (Wil | ##### | WSC-BOC | Teach For | All Majors | | |
| 12 | Booth (Wil | ##### | | LGCY Pow | All Majors | | |
| 13 | Information | ##### | WSC 2420 | Intel Corpo | Engineering and Technology | | |
| 14 | Information | ##### | WSC 2420 | Intel Corpo | Management | | |
| 15 | Information | ##### | TNRB Ecc | Estify Inc. | Management | | |
| 16 | Information | ##### | | Sears Holc | All Majors | | |

Figure 8

- I. Make "Application.ScreenUpdating = False" in order to run the macro faster.
- II. Select whole table and change table style to "TableStyleMedium2."
- III. Change each headings of the columns since the original headings includes unnecessary words.
- IV. Sort the data by "Session Type," "Major," and "Start Date/time."
 - * Session Type is type of the events such as information session, booth at campus, office tour at the office, and so on.
 - * Major contains not only IS but also accounting, marketing, finance, CS, and so on.
 - * Start Date/time includes all the events in the database including the one which already occurred or will occur next year.
- V. Change each column's width.
 - * Use AutoFit.
- VI. Delete the event which is not within next two weeks from the coming Friday.
 - * Find out coming next Friday by using Date and Weekday function.
 - thisfriday = Date + 8 - Weekday(Date, vbFriday).
 - The event which already occurred and will not occur within next two weeks from the coming next Friday will be deleted from the table.
- VII. Filter the data in order to show the event which is related to IS major.
 - * This includes "IS," "CS," and "IT."
- VIII. Insert a row and create the title for the table.
 - * You need title to know what this report is about.
- IX. Change each column's heading font color matching with the title color.
- X. Change the tab name.
 - * Important to change the tab name since we will combine this report with others later.

| Information Session | | | | | |
|-------------------------|-----------------|-----------------------|--------------------|--------------------------------|--|
| Session Type | Start Date/Time | Location | Employer | Major(s) Targeted | |
| Booth (Tanner Building) | 2015/3/24 10:00 | TNRB 1st Floor Atrium | Apple, Inc. | All Majors | |
| Information Session | 2015/3/24 17:45 | TNRB W-408 | Apple, Inc. | All Majors | |
| Information Session | 2015/3/25 17:30 | TNRB W-410 | Goldman Sachs & Co | All Majors | |
| Information Session | 2015/3/24 11:00 | TNRB W-408 | Deloitte | Information Systems | |
| Information Session | 2015/3/24 11:00 | TNRB W-408 | Deloitte | Information Systems Management | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Figure 9

JOB_INTERNSHIP MODULE

This module's purpose is to create a readable report which contains all the job/internship positions which application deadline is within next two weeks from the coming Friday. This module contains the following Subs:

1. Get_Job_Report_From_Bridge
 - a. Run "Get_Report_From_Bridge" with its report id.
 - b. Open the report which is in download folder.
 - c. Duplicate the sheet and name Sheet1 as "Job", Sheet2 as "Internship," and Sheet3 as "Part-Type."
 - d. Run "Clean" Sub for each Sheet.
 - e. Save the report in "Current Reports" folder.
 - f. Show a message box to notify the end of the process.
2. Clean
 - a. Add Column called "Category."
 - b. Go through all the data and find IS related Job by searching certain keywords.
 - c. Change each headings.
 - d. Change the table format.
 - e. Sort the data by "Position Type," "Major," and "End Date."
 - f. Delete the job position which application does not end within next two weeks from the coming Friday.
 - g. Filter the data in order to show the job position which is related to IS major.
 - h. Filter data by position type which is given when the sub is called.
 - i. Hide "Category" column which is not necessary.
 - j. Insert a row and create the title for the table.
 - k. Change each column's heading font color matching with the title color.
 - l. Change each column's width.

GET_JOB_REPORT_FROM_BRIDGE SUB

This sub basically works to open the downloaded file which is in Download folder within C drive and duplicate the sheet twice to create three sheets with the same data. Then, run Clean Sub for each sheet. After cleaning the data, the file will be saved in "Current Reports" folder.

- I. Run "Get_Report_From_Bridge" with its report id.
 - * Report id is "d79ce719f283487634ab971bb6f030f3."
- II. Open the file which is in Download folder within C drive.
 - * The path: C:\Downloads\d79ce719f283487634ab971bb6f030f3*.xls
 - * If the file is not found, the macro will end.
- III. Duplicate the sheet with data and name Sheet1 as "Job", Sheet2 as "Internship," and Sheet3 as "Part-Type" (See Figure 10).
 - * Reid Grawe, my boss, wants the show the report separated.
- IV. Run Clean Sub for each sheet.
- V. Change file name to "Job&Internship.xlsx" and save the file to temporal folder called "Current Reports" before combining it with other reports.
- VI. Delete the raw downloaded file in Download folder within C drive.
 - * Eliminate the possibility of errors since the original file's file name is report_id of the Bridge System which are similar to each other. If you do not delete the file, the macro might not grab the latest report from the download folder.
- VII. Shows Message box with success message and the file path which where the file saved.

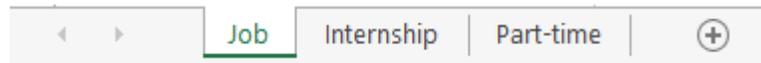


Figure 10

CLEAN_INFORMATION_SESSION

This sub basically works to clean data and format the table to make the report readable since the raw downloaded file is not organized (Figure 11). Without cleaning data, there are more than 2500 data which includes not related to IS major. See Figure 12 which is cleaned report.

This sub requires sheet's name, position type (Job, Internship, or Part-time), and table title name.

| | A | B | C | D | E | F | G | H | I |
|----|-------------|-------------|-------------|-------------|-------------|---------------------------------|-------------|-------------|------------------------------|
| 1 | Job: | Job: | Emp: | Job: | Pos: | Job: | End: | Job: | Majors/Concentrations |
| 2 | EXECUTIV | State of Ut | Experience | Salt Lake | 2015/4/12 | All Majors | | | |
| 3 | PROJEC | Profession | Experience | Draper, Ut | 2015/4/2 | All Majors | | | |
| 4 | Benefits A | General EI | Experience | Sao Paulc | 2015/4/11 | All Majors | | | |
| 5 | Business | General EI | Experience | Mebane, I | 2015/4/4 | Management | | | |
| 6 | EHS Spec | General EI | Experience | Madison , | 2015/4/4 | All Majors | | | |
| 7 | Employee | General EI | Experience | Abidjan, I | 2015/4/16 | All Majors | | | |
| 8 | Global Re | General EI | Experience | Amershar | 2015/4/16 | All Majors | | | |
| 9 | IT Project: | General EI | Internship | Moscow, | 2015/4/16 | Information Systems | | | |
| 10 | Recruiting | General EI | Experience | Akasaka, | 2015/4/13 | All Majors | | | |
| 11 | Senior Fir | General EI | Experience | Shanghai, | 2015/4/16 | Management | | | |
| 12 | Senior Ma | General EI | Experience | Beijing, In | 2015/4/4 | All Majors | | | |
| 13 | VP Audit, | General EI | Experience | London, Ir | 2015/4/4 | Management | | | |
| 14 | VP, Audit | General EI | Experience | London, Ir | 2015/4/4 | All Majors | | | |
| 15 | VP, Audit | General EI | Experience | London, Ir | 2015/4/4 | Management | | | |
| 16 | Account F | Henry Sch | Full-Time E | American | 2015/3/30 | All Majors | | | |
| 17 | Business | Domo, Inc. | Experience | American | 2015/4/13 | Computer Science (Animation) | | | |
| 18 | Business | Domo, Inc. | Experience | American | 2015/4/13 | Computer Science (Disinformati) | | | |

Figure 11

- I. Make "Application.ScrreeUpdating = False" in order to run the macro faster.
- II. Add Column called "Category."
 - * This column helps to find out if the position is related to IS major.
- III. Go through all the data and find IS related Job by searching certain keywords.
 - * This code looks for keywords within the "Job Title" and "Major" headings. When it finds the keywords, add 1 if their target major is IS or if it includes any of the following terms:
 - Software
 - Developer
 - Engineer
 - Technology
 - Project Manager
 - Information
 - Programmer
 - System
 - Consultant
 - Web
 - Data
 - Assurance
 - Business Intelligence
 - Advisory
 - IT
 - Information Systems
- IV. Change each headings of the columns since the original headings includes unnecessary words.
- V. Select whole table and change table style to "TableStyleMedium2."
- VI. Sort the data by "Position Type," "Major," and "End Date"
 - * Position Type is the followings: "10+ Years Experienced," "Full-Time Entry-Level," "Internship," "Part-time," and so on.
 - * Major contains not only IS but also accounting, marketing, finance, CS, and so on.
 - * End date includes all the application which will end next year.
- VII. Delete the job position which application does not end within next two weeks from the coming Friday.
 - * Find out coming next Friday by using Date and Weekday function.
 - thisfriday = Date + 8 - Weekday(Date, vbFriday).
 - * The application which will not end within next two weeks from the coming next Friday will be deleted from the table.
- VIII. Filter the data in order to show the event which is related to IS major.
 - * This includes "All majors," "IS," "CS," and "IT."
 - * It won't show the application if the "Category" column is less than 1.
- IX. Filter data by position type which is given when the sub is called.
 - * If the given position type is internship, it shows only internship.
- X. Hide "Category" column which is not necessary to show.
 - * In Figure 12, it shows Category column in order to explain how it works.
- XI. Insert a row and create the title for the table.
 - * You need title to know what this report is about.
- XII. Change each column's heading font color matching with the title color.
- XIII. Change each column's width.
 - * Since some of the Job title are too long, it is better not to use auto-fit to change the column's width for this report.

| Job Application Deadlines | | | | | | | |
|---|-----------------------------------|-----------------------|----------------------------|-----------|--------------------------------|----------|---|
| Job Title | Employer | Type | Location | End Date | Majors/Concentrations | Category | |
| 332 IT Technician | The Living Planet Aquarium | Full-Time Entry-Level | Draper, Utah United State | 2015/4/4 | Information Technology | | 1 |
| 333 PwC - Featured Jobs | PwC (PricewaterhouseCoopers, LLC) | Full-Time Entry-Level | , Nationwide United State | 2015/4/3 | Information Systems Management | | 1 |
| 334 Business Intelligence Analyst | Skywest Airlines | Full-Time Entry-Level | St. George, Utah United S | 2015/4/10 | Information Systems Management | | 1 |
| 335 Data Scientist | Land O'Lakes, Inc. | Full-Time Entry-Level | Gray Summit, Missouri Ui | 2015/4/10 | Information Systems Management | | 1 |
| 336 Performance Staff Auditor | Office of the Utah State Auditor | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/10 | Information Systems Management | | 1 |
| 337 Staff Performance Auditor | Office of the Utah State Auditor | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/10 | Information Systems Management | | 1 |
| 338 Data infrastructure Analyst | Google, Inc | Full-Time Entry-Level | Mountain View, California | 2015/4/13 | Information Systems Management | | 1 |
| 339 PwC - Featured Jobs | PwC (PricewaterhouseCoopers, LLC) | Full-Time Entry-Level | , Nationwide United State | 2015/4/3 | Information Systems | | 1 |
| 340 IT Technician | The Living Planet Aquarium | Full-Time Entry-Level | Draper, Utah United State | 2015/4/4 | Information Systems | | 1 |
| 341 Waddell & Reed Financial Advisors-Best Care | Waddell & Reed | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/6 | Information Systems | | 1 |
| 342 Waddell & Reed Financial Advisors-Best Care | Waddell & Reed | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/6 | Information Systems | | 1 |
| 343 Business Intelligence Analyst | Skywest Airlines | Full-Time Entry-Level | St. George, Utah United S | 2015/4/10 | Information Systems | | 1 |
| 344 Data Scientist | Land O'Lakes, Inc. | Full-Time Entry-Level | Gray Summit, Missouri Ui | 2015/4/10 | Information Systems | | 1 |
| 345 Performance Staff Auditor | Office of the Utah State Auditor | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/10 | Information Systems | | 1 |
| 346 Data infrastructure Analyst | Google, Inc | Full-Time Entry-Level | Mountain View, California | 2015/4/13 | Information Systems | | 1 |
| 347 UX Designer | Saxton/Home | Full-Time Entry-Level | Sandy, Utah United State | 2015/4/13 | Information Systems | | 1 |
| 361 IT Technician | The Living Planet Aquarium | Full-Time Entry-Level | Draper, Utah United State | 2015/4/4 | Computer Science (No Emphasis) | | 1 |
| 362 Data Scientist | Land O'Lakes, Inc. | Full-Time Entry-Level | Gray Summit, Missouri Ui | 2015/4/10 | Computer Science (No Emphasis) | | 1 |
| 363 Data infrastructure Analyst | Google, Inc | Full-Time Entry-Level | Mountain View, California | 2015/4/13 | Computer Science (No Emphasis) | | 1 |
| 371 Aftermarket Project Manager I | WesTech Engineering, Inc. | Full-Time Entry-Level | Salt Lake City, Utah Unite | 2015/4/3 | All Majors | | 1 |

Figure 12

COMBINE_FILES MODULE

This module's purpose is to combine the two reports into one Excel sheet with four different tabs. Then, build the directory based on the day you create the report for the organized record purpose. This module contains the following Subs:

1. Combine_Files
 - a. Calculate next coming Friday date and make a folder name by using Format function.
 - b. Set path and file name
 - c. Build directory by checking if the directory already exists.
 - d. Create and save new workbook into the correct folder
 - e. Open "Info_Session" file to move the sheet "Info_Session" to the new workbook.
 - f. Open "Job/Internship" file to move all the sheet to the new workbook.
 - g. Save the file and close.
 - h. Message box pops out to notify the end of the process.

COMBINE_FILES SUB

This sub basically works to combine files and save it into correct folder which is created by this code.

- I. Calculate next coming Friday date and make a folder name by using Format function.
 - * See Figure 13 to understand how it's done.
- II. Set path and file name.
 - * See Figure 13 to understand how it's done.

```

If Weekday(Date) = 6 Then
    thisfriday = Date
Else
    thisfriday = Date + 8 - Weekday(Date, vbFriday)
End If

thisfriday = Format(thisfriday, "mmm dd")
month_name = Format(thisfriday, "mmm")
year_name = Format(thisfriday, "yyyy")

MyPath = "C:\Users\Shingo Osaka\Dropbox\IS Career Center\Friday Forecast\Weekly Reports"
FullPath = MyPath & "/" & year_name & "/" & month_name & "/" & thisfriday & "/"
MyFileName = "Weekly Report.xlsx"

```

Figure 13

- III. Build directory by checking if the directory already exists (See Figure 14)
 - * There are four folders to check if they exists: “Weekly Reports” folder, “Year” folder, “Month” folder, and “Next Friday” folder.
 - * Use Len function to check if the folder exists and use Mkdir function to create directory if the folder doesn't exist.

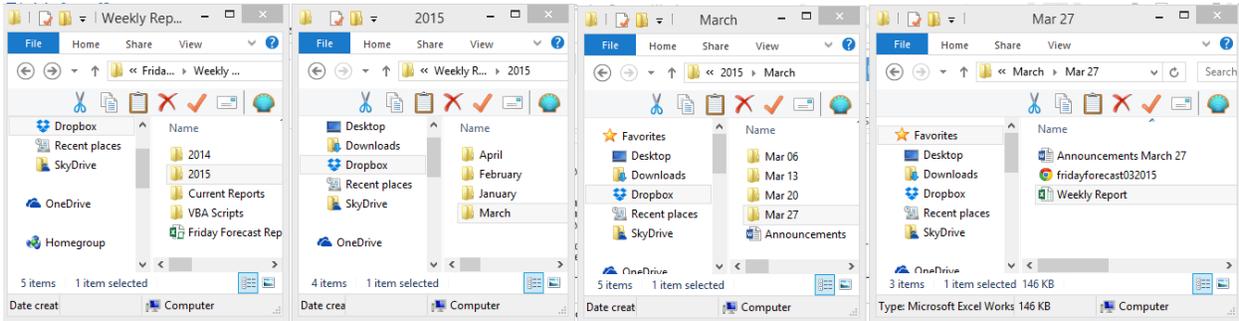


Figure 14

- IV. Create and save new workbook into the folder which is created in the process III.
 - * If the file has been already existed, it will replace with the latest report.
- V. Open “Info_Session” file to move the sheet “Info_Session” to the new workbook.
 - * The file is in the “Current Reports” folder which is temporal place to save the file.
- VI. Open “Job/Internship” file to move all the sheet to the new workbook.
 - * The file is in the “Current Reports” folder which is temporal place to save the file.
 - * The order of the Tab is Info_Session → Internship → Part-time → Job. See the Figure 15.



Figure 15

- VII. Save the file and close the file
- VIII. Message box pops out to notify the end of the process.

DISCUSSION OF LEARNING AND CONCEPTUAL DIFFICULTIES ENCOUNTERED

What I learned most from this project is manipulating IE application through VBA. Listening to a lecture in class and doing it by myself were different. First wall that I hit was login page. Since Bridge system does not redirect to the page where I originally wanted, I needed to write a code to check the login status before logging in. If it's already logged in, it needed to log out. Also, if the user types wrong username or password more than twice, it requires verification code with username and password. Thus, it made an infinite loop even though the user types correct username and password unless the user types verification code. However, I was able to fix the problem as explained in page 3. I added two different subs in the “agent” class module which is the VBA code for IE application (Login and checkLoginStatus subs)

Another wall that I hit for the IE application manipulation is generating latest report. Since each report differs in its completion time and you have to wait for the completion of the report on the Bridge System (See Figure 5), agent's waitForLord sub did not work. With the waitForLord sub, it moves next

code before the completion and gives you an error. For the solution, I created another sub called `waitForText` which loops with `waitForLord` sub until it finds certain text on the HTML.

Also, it took a couple of hours to figure out how to create a code to build directory based on the day of creating the weekly report. Since I was tired of manually making directory and organizing all the attachments for Friday Forecast, this helped me to reduce my time to spend on Friday Forecast. Overall, I was able to cut down the time of creating weekly report from an hour to two minutes. With the time that I save, I can work on other tasks.