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MBA 614

Final Project

Professor: Gove Allen

The evening tutoring schedules creator

Executive Summary

Business Problem

I work at the Missionary Training Center (MTC) as a supervisor. In our area we specialize in language tutoring of senior missionaries and mission presidents. Our missionaries come to the MTC for at most two weeks. During their stay, we arrange language lessons were we would have at most two senior missionaries per class. Their schedules are created on excel by our department secretaries. They create the schedules one by one (this includes formatting), entering the data for each individual missionary. They then print four copies of each schedule. These four copies go to the following people: the missionaries, the tutors, the service desk, and the general scheduling office at the MTC. The following is the way in which the schedules are created:

- The secretaries get a list of the incoming missionaries which usually ranges between 20 to 35
- They then open an excel sheet that has the format that they want an copy paste it onto another workbook in excel
- Then they enter the following data for each missionary:
    - Name
    - Classroom number
    - Dates they will be at the MTC for their first and second weeks respectively
        - Every missionary couple receives at least one week of tutoring. This first week only includes classes from Wednesday to Friday of their first week of their stay. If they will also be staying for a second week, then the missionaries will specify which days they want to receive tutoring. For second week, tutoring missionaries can receive tutoring on all days, but on Tuesdays since there is a devotional on those days.
    - Accounting for the dates in which the missionaries would like to have lessons (before they arrive, missionaries will specify how many days they would like to have lessons while they are at the MTC)
    - the secretary will print four copies of each schedule, and re-use the newly created template for the remainder schedules
    - Finally, since they were just re-using their newly created template they would just dispose of it after they are done with the last schedule

Issues

The secretaries have to create each schedule individually each time. Even though they have a template (which they re-create each week) they don't save it and since they write over it; if they make a mistake on a previews schedule, they will have to re-create the entire schedule.

The secretaries cannot save each schedule; thus, if a missionary loses it, they just write the schedule information on a post-it note. In addition, this task takes them 4 ½ hours to complete.

In summary, we are not only losing money by wasting so many hours a week, but we are also being very inefficient with our procedure. This procedure forces the secretaries to not have saved schedules; thus, if a missionary ever loses their schedule they would have to re-create it.

Overview of the system

The solution that satisfied the business need, was to create a user interface using excel that will allow user input. Through programing logic, the program would automatically create the desire schedules. The following is a summary of the way the system works:

Missionary couple attends MTC for only one week (First week tutoring)

The user will enter or select the following information: Missionary's Name, date of first Monday of the incoming week of the missionary, and classroom number for 1st week. The user will then click the create schedule button to finalize the procedure.

Missionary couple attends MTC for two weeks

User will repeat the all the steps of the first week tutoring, but will not click the create schedule button until they have included the following steps:

The user will check mark the days of the second week when the missionary will want classes; at this point, the program will calculate the dates for each week respectively. Once the user finishes adding the information, they will click the create schedule button. The program will open a new excel workbook, and it will create the desire schedule with the user's input on the first sheet of the newly opened workbook.

At this point if the user is finished they can click on the "Exit" button to end the program. If they need to continue creating schedules; the user can click on the "Clear" button to clear all the previously entered values, and allow the user to input new values to create another schedule.

Implementation

The components of the solution are outlined in the following table:

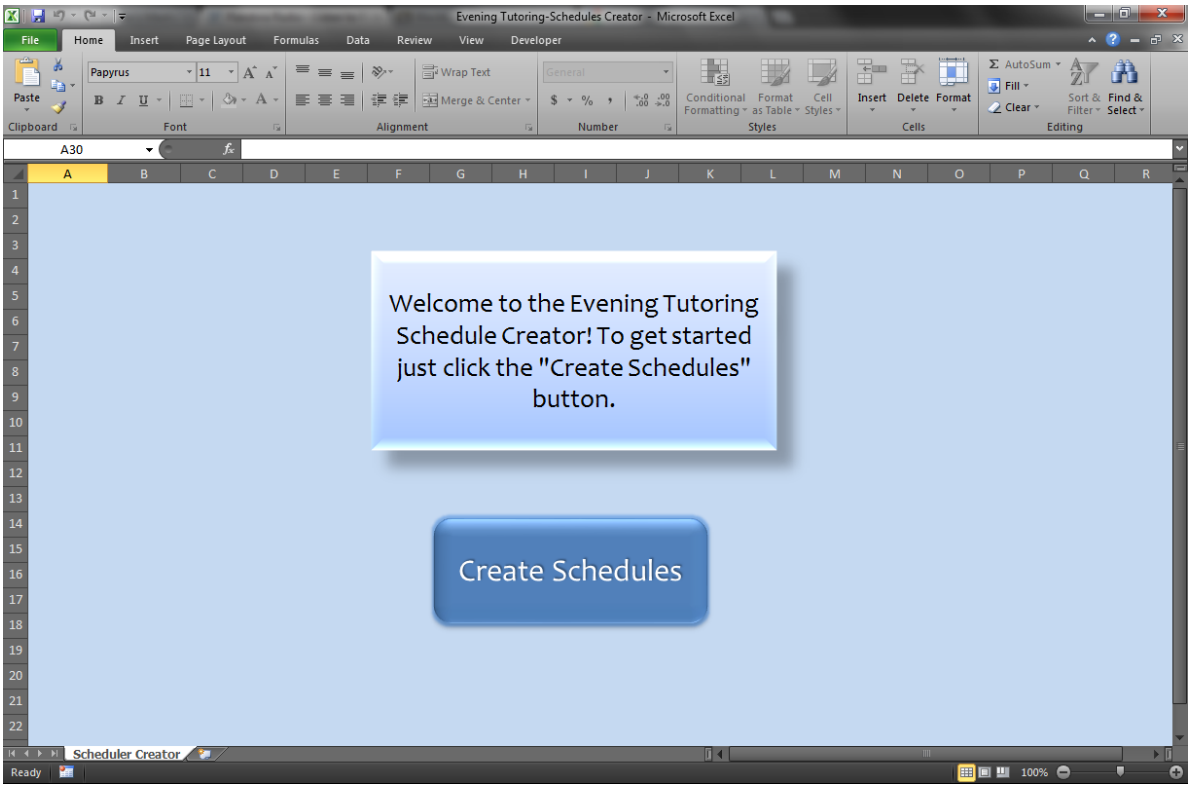
Component Name	Action	Problem that solves
User Form	Is the main user interface. Its purpose is to contain all the other components.	It helps the users to operate the program in an easy to access form that is simple, self-explanatory, and efficient.
Name	It receives the missionary's name. It uses it to rename the sheet of the current schedule, and it is also used in the schedule.	With this new tool the user can now have each schedule labeled by name. This will help the user to access it in an easy and fast manner.
1st Monday's Date	It displays a list of the five dates of each Monday	A schedule can have at least one

	of each week starting with the current week. The dates on this list are updated automatically based on the current date. There is no need of user interaction to maintain the dates up-to-date. When the user selects a date (in "MM/DD/YYYY" format), the program takes the date, and with an algorithm computes the date for the first week that should begin on Wednesday (which is the first day of tutoring for the first week) and end on Friday (in "Month Day – Month Day" format). If the user selects a day for the second week, the program will calculate the date for the second week beginning on Monday of the second week, and ending on Friday of the second week.	week and at most two weeks. This component makes it extremely simple to calculate and format dates. It also provides five weeks ahead of the current Monday's date in case the user would want to get ahead (which according to user, it will never happen due to the timing of when they receive the list of the incoming missionaries, but I thought it would be a good idea to build the functionality in case it ever changes).
Room# 1st week	Takes the input from the user and adds it to the schedule on the 1st week.	It helps the user to add room numbers to schedules in an easy manner.
2nd week day selection (check boxes)	The interface allows the user to select what days the missionaries will receive tutoring for second week (Missionaries can choose the days of tutoring only for second week). As a day is selected the program will know what days to add to the schedule.	This component is one of the main reasons for developing this tool. The user used to have to format manually each day on each schedule. Now, they can add days to a schedule for the second week by only clicking on a check box.
Room selection 2nd week	The missionaries may be assigned to the same classroom for their tutoring for both weeks, or they can have a different one. This section of the user interface provides two radio buttons that allow the user to select either "the same room" as 1st week (which then it will take the input from the 1st week's room number), or it will allow the user to enter a "new room". If the user selects the "new room" radio button, the program will make a text box visible for the user to input the new room.	This functionality allows the user to save time by selecting the same room as 1st week; while being flexible in case the rooms are different for each week.
Create Schedule button	When the user click on this button, the program will call another sub procedure that will first check for errors (missing inputs from user). This include making sure that the user enters a name, selects a date, enters a room number for 1st week, if a day for second week is selected it checks that the user has selected one of the two radio buttons for 2nd week's room (If the new room radio button is selected, the program will check that there is actually an input for the room), and finally, since the program takes the name of the missionary and uses it to name a sheet, to prevent an error, it	This function allows the user to create the schedules without having the program crash. In addition, it allows the user to have all of the schedules for a certain week in a single workbook that can now be saved in any location. The newly created workbook does not contain any vba code; thus, allowing the user to make any manual changes or updates as appropriate.

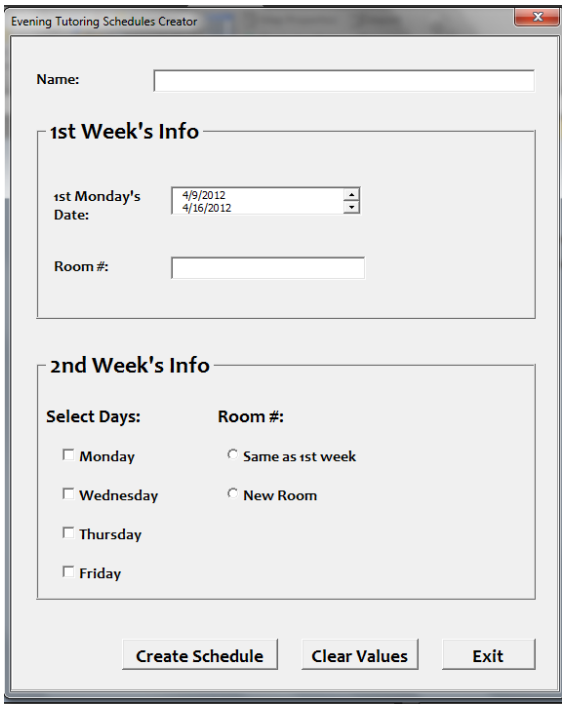
	checks that the name is different from any existing sheet in the newly created workbook. If all those errors are not true, then the first time the button is clicked, the program will open a new workbook, and will create the first schedule on sheet 1. Once the program has created one schedule successfully, the program will keep adding schedules to the newly created workbook. Before the workbook runs out of sheets, the program will add an extra one.	
"Clear" button	It clears all the values on the user interface	It allows the user to promptly enter new information without having to manually delete previous values.
"Exit" button	It exits the program gracefully	It allows the user to exit the program without crashing or giving any errors.

The following screen shots illustrate the execution of the program:

Main Screen of workbook

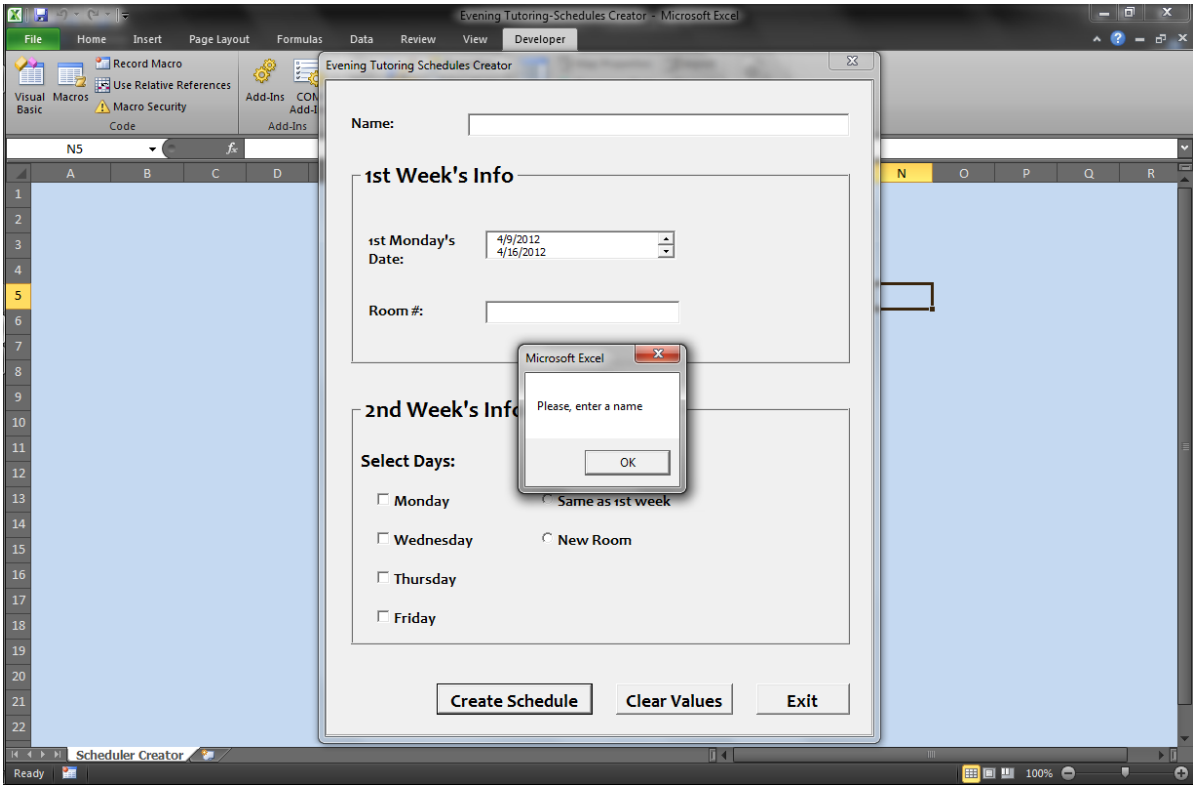


User Interface (user form)

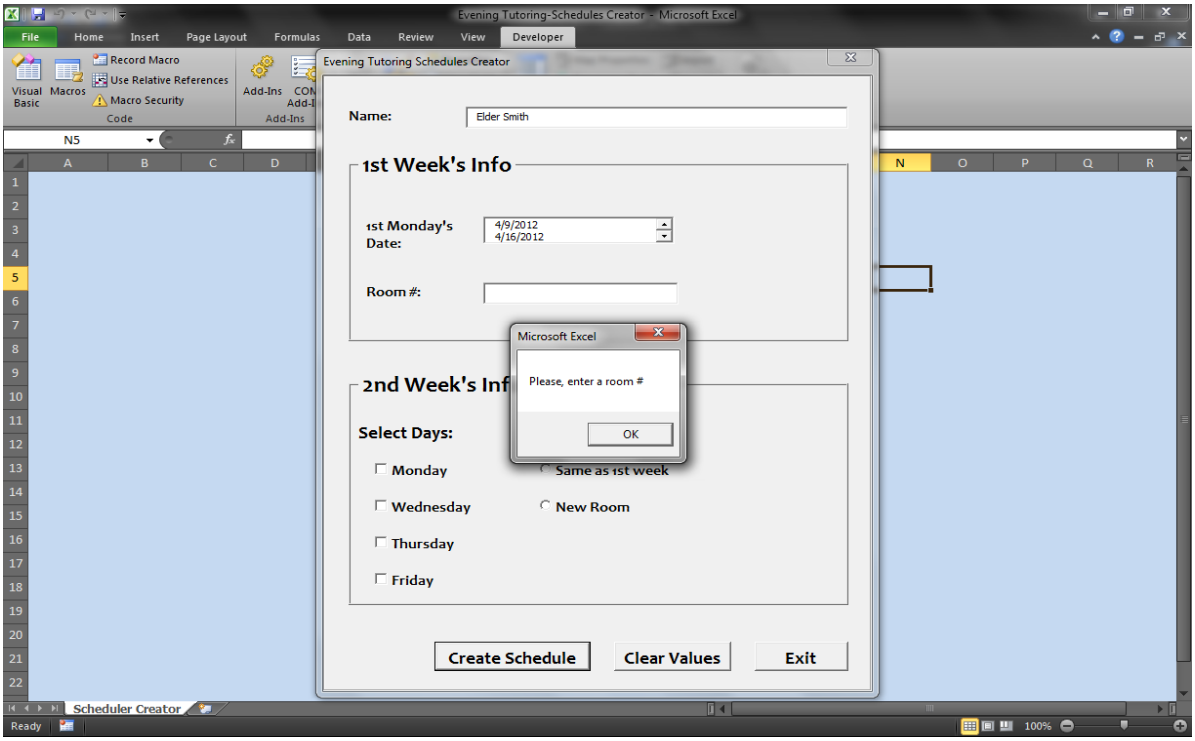


Error handlers and handling for missing input from user

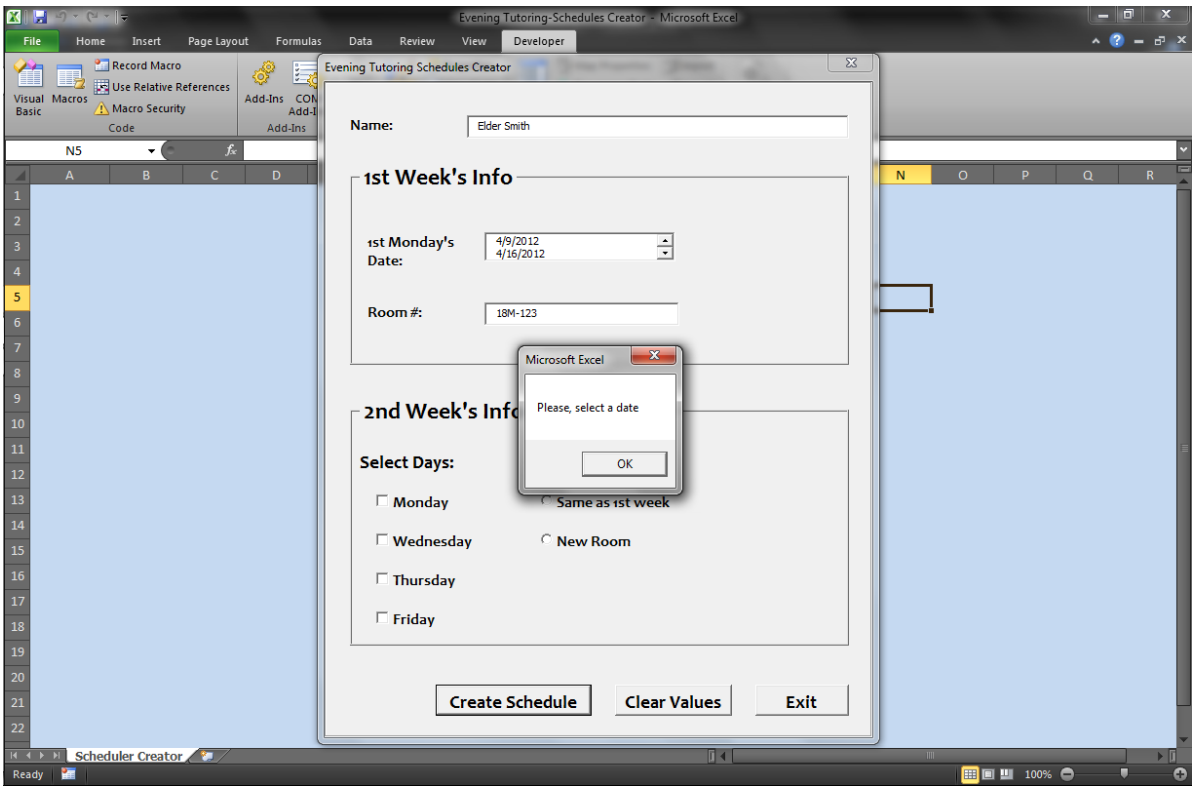
Missing Missionary's Name



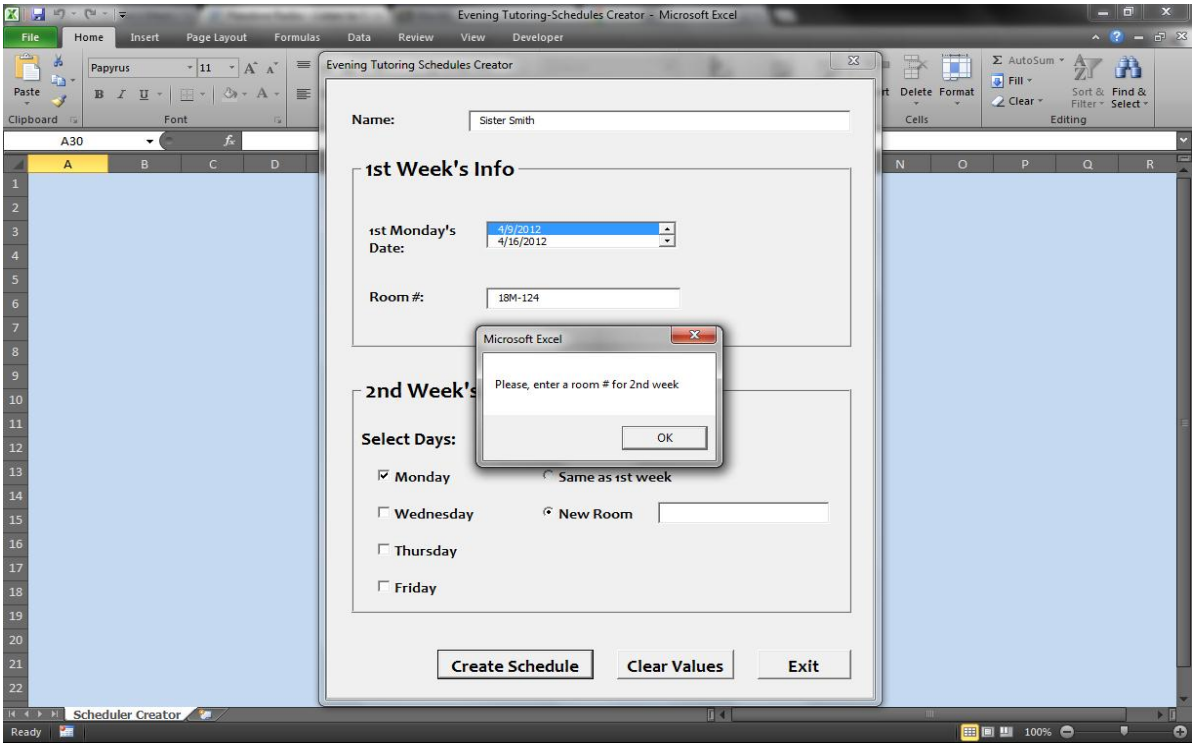
Missing room# for 1st week



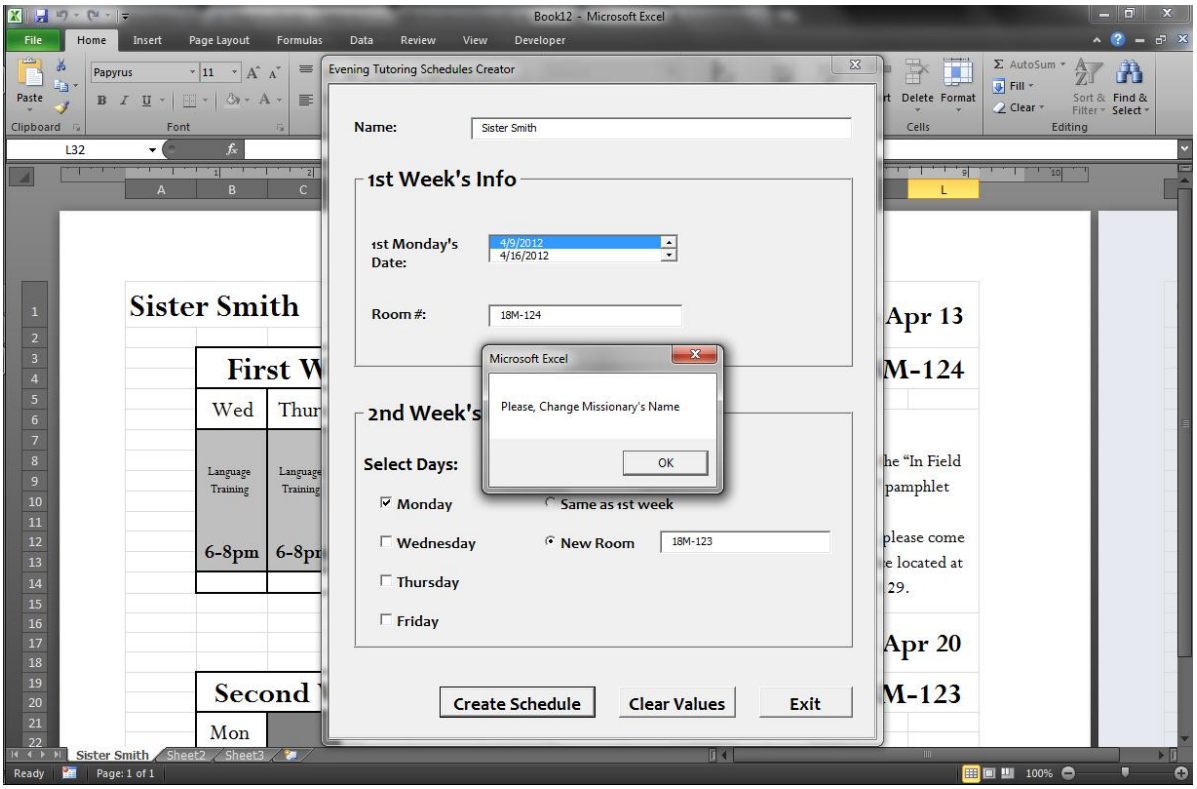
User did not select a date



User selected the new room radio button, but did not enter a new room

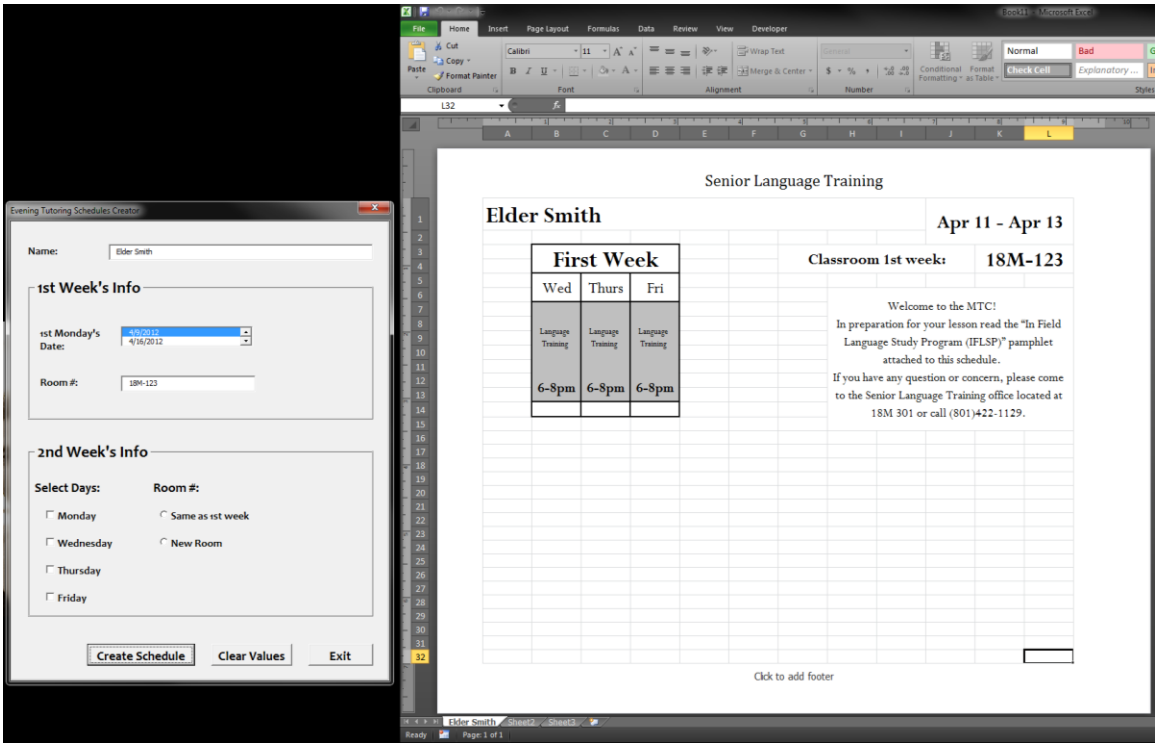


There is already a schedule with the existing name

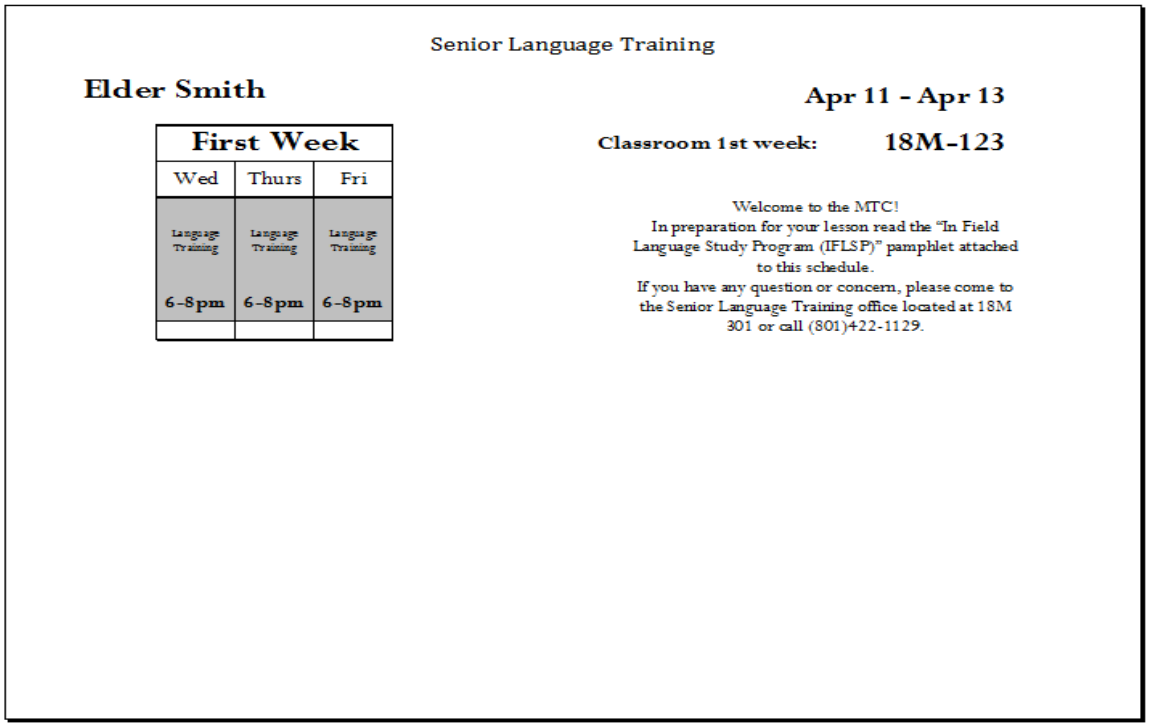


Creation of schedules and actual output

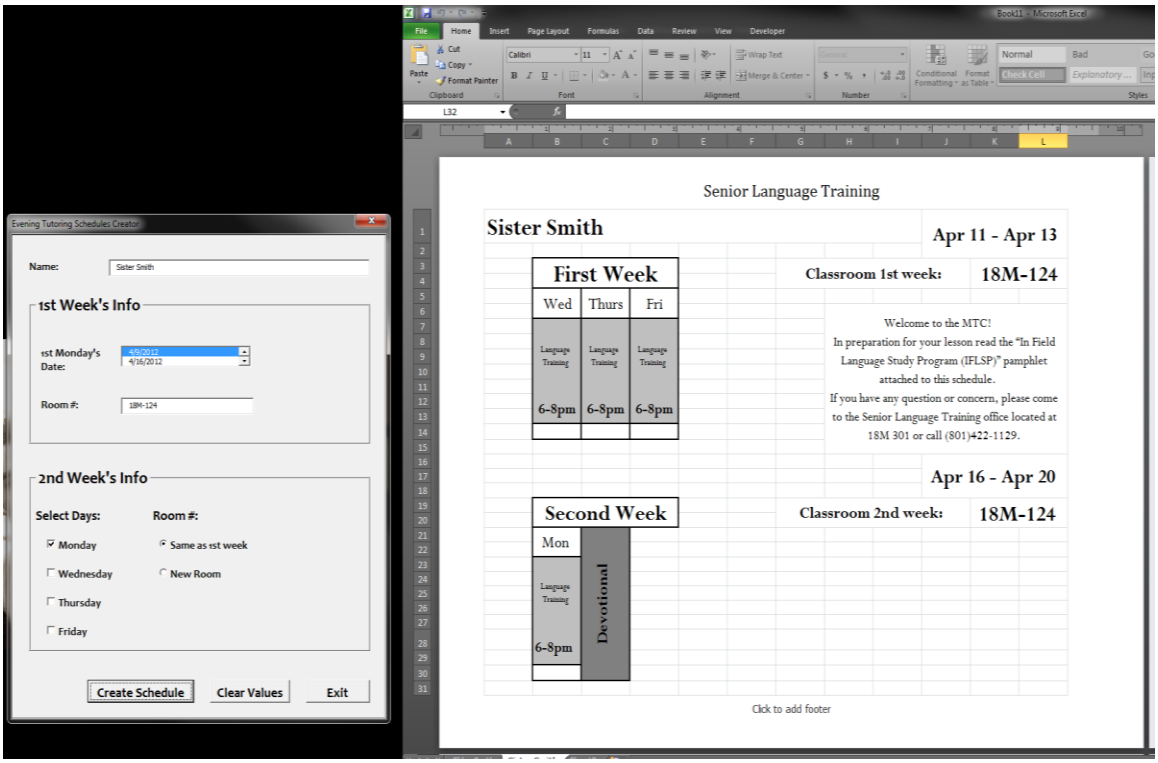
Only 1st week



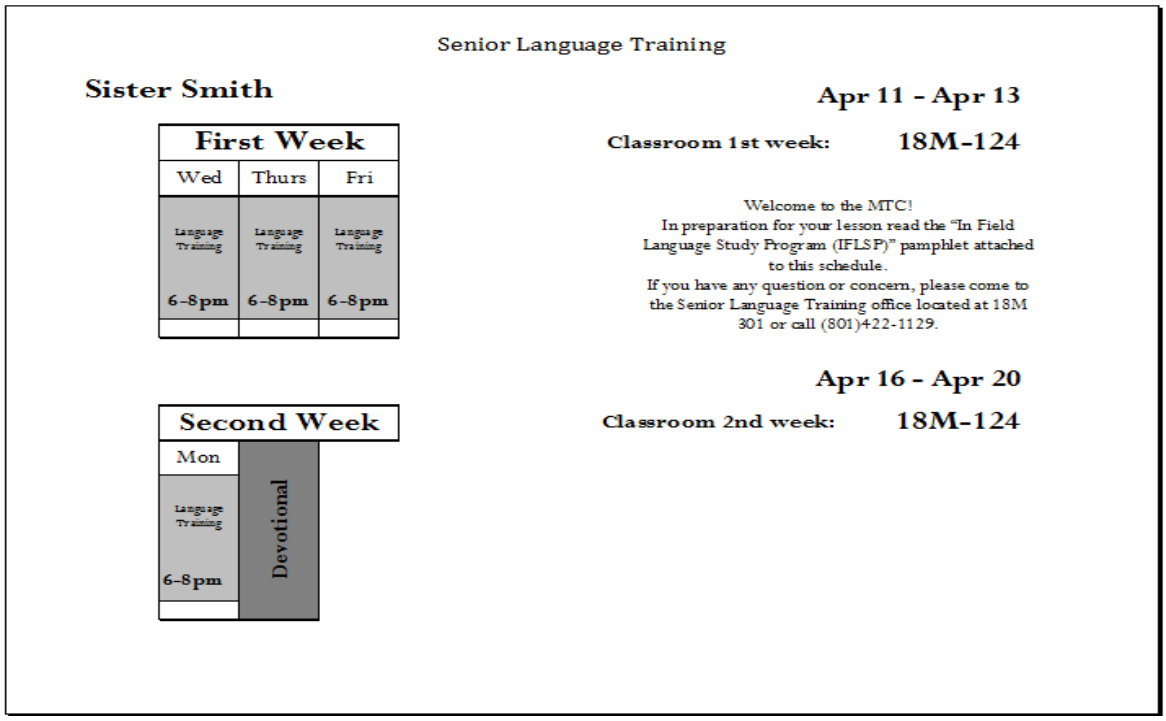
Actual printable output



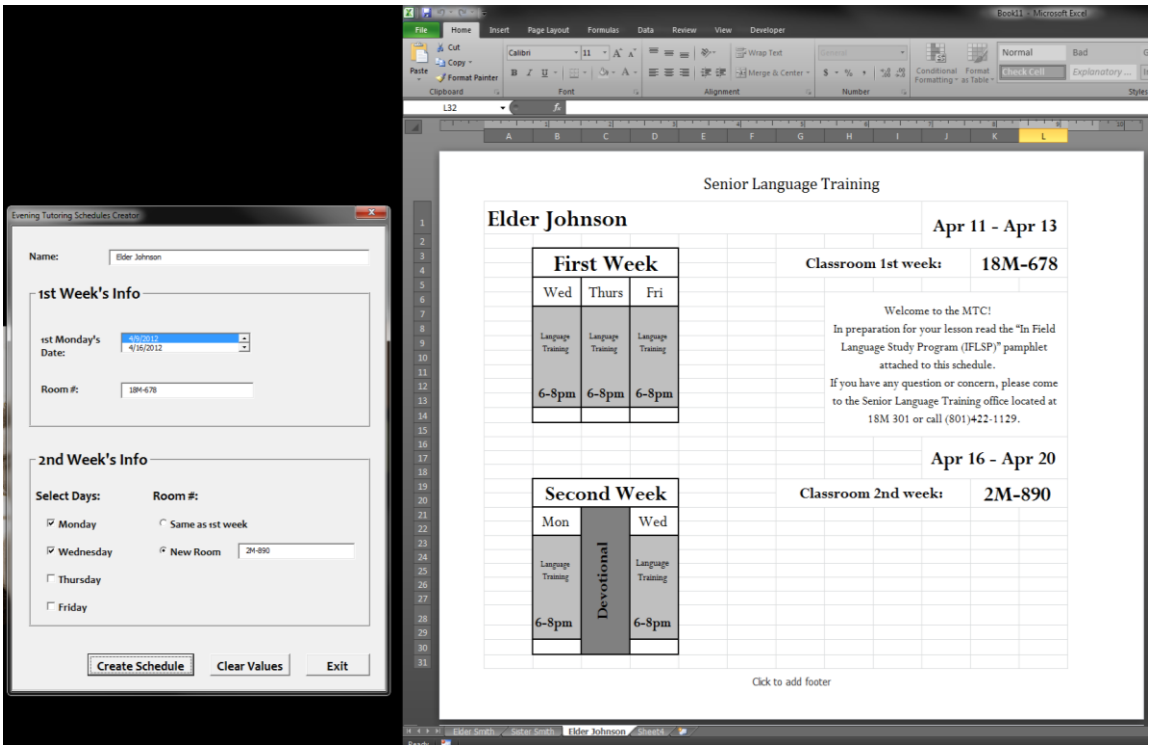
1st and 2nd week (only Monday of second week) and same room selected for 2nd week



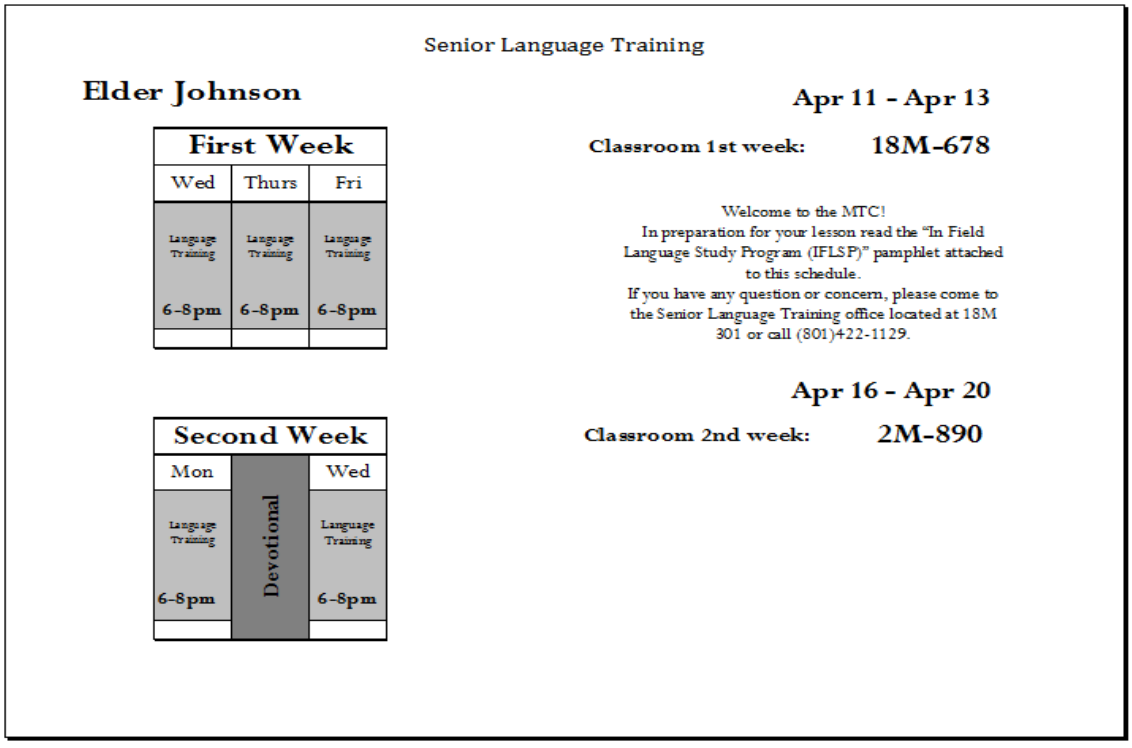
Actual printable output



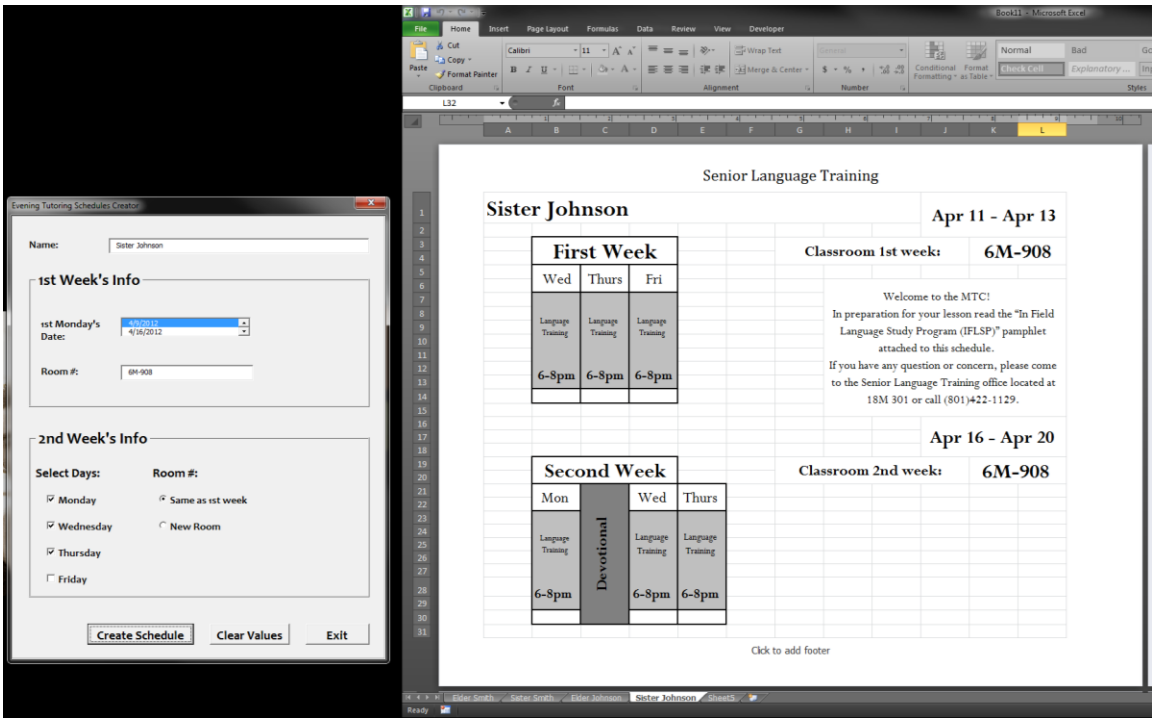
1st and 2nd week (only Monday and Wednesday) and new room selected for 2nd week



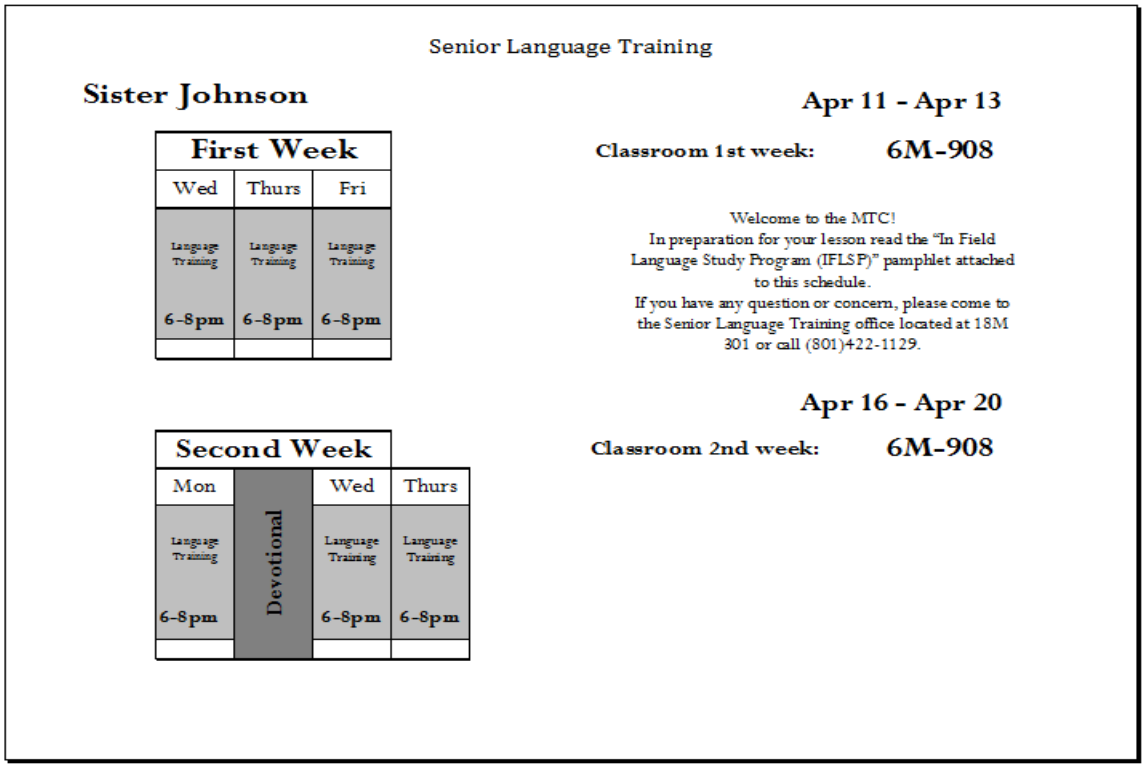
Actual printable output



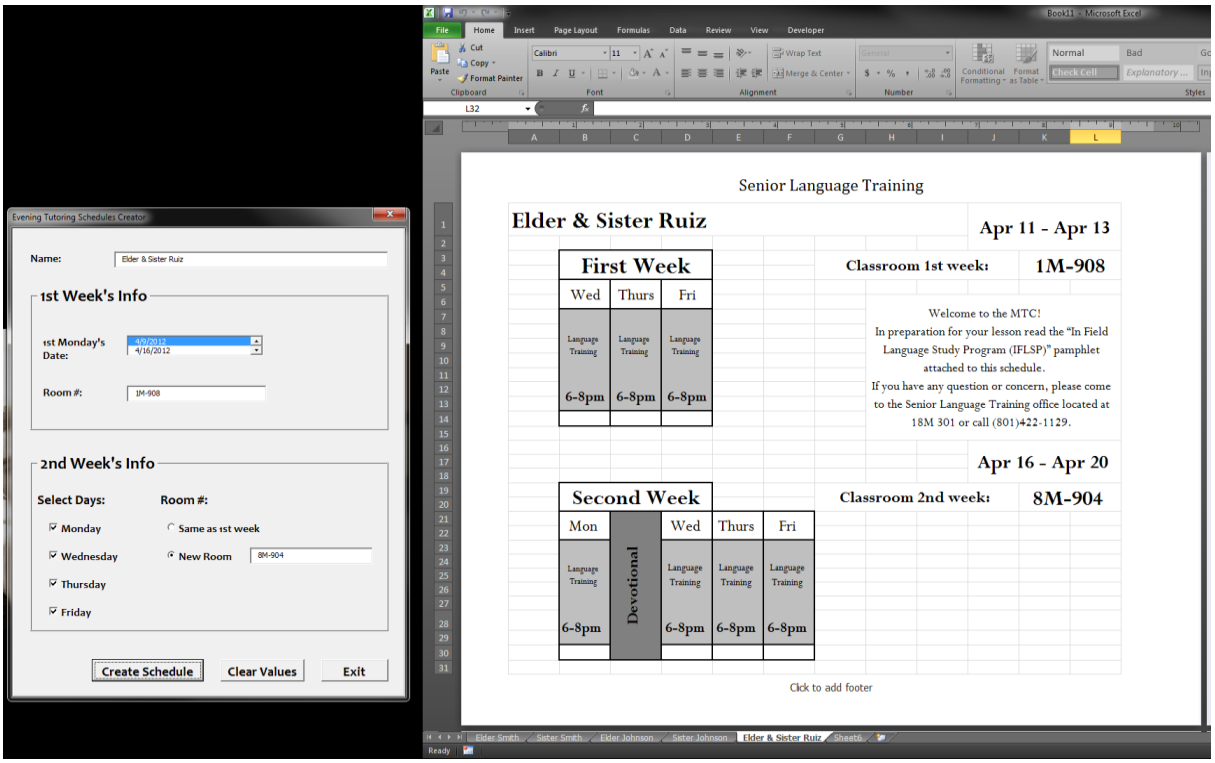
1st and 2nd week (Includes Monday, Wednesday, and Thursday) and same room selected for 2nd week



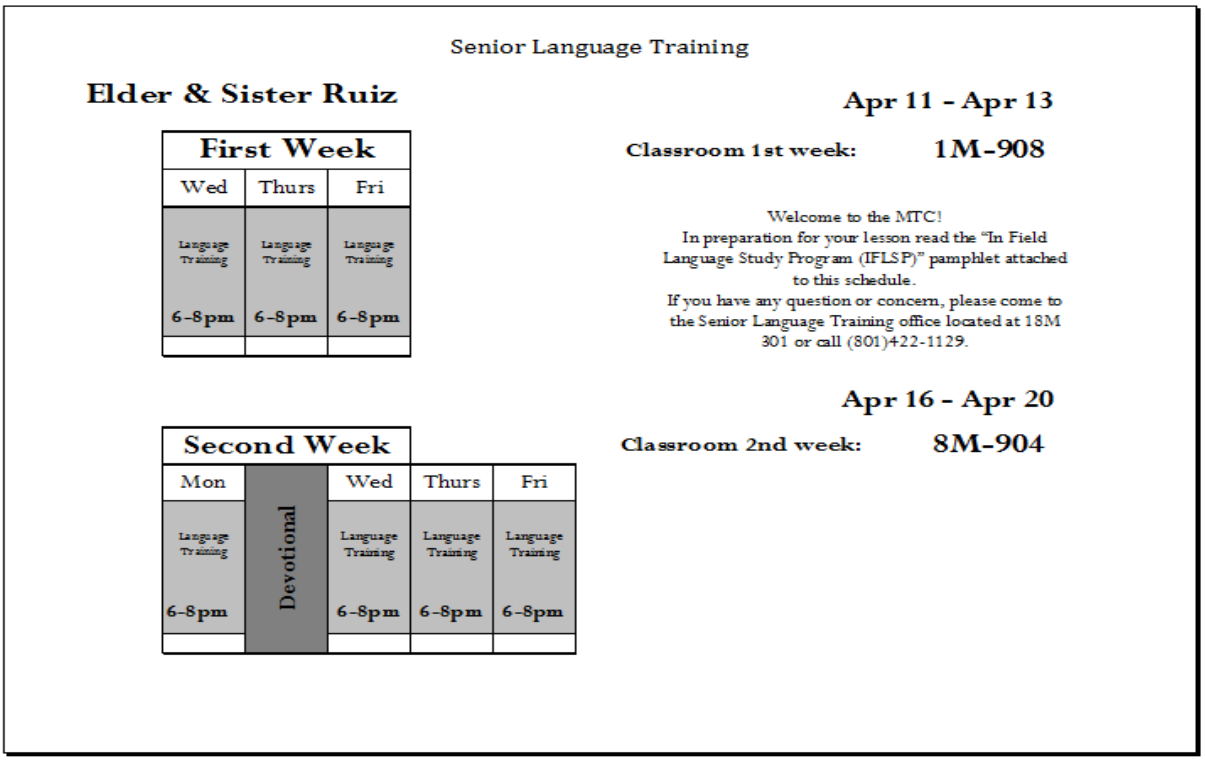
Actual printable output



1st and 2nd week (Includes Monday, Wednesday, Thursday, and Friday) and a new room is selected for 2nd week



Actual printable output



Learning and Conceptual difficulties encountered

The development of this program took many weeks and it became an everyday task. I feel that I ran into many issues, but the main thing I learned from this project was to be able to find answers to my problems by searching online or by forcing myself to think outside the box. I can say that the two things that were the hardest were the algorithm for the calculation of the dates along with the format convertion, and to be able to add the second schedule to the newly open workbook (which contains the first schedule created). This task also invoilved adding a new sheet once there were not enough. These were all challenging tasks, but I felt that I was learning even things that we did not cover in class by tackling these chllenges. I really enjoyed putting together this application that will actually be used.

Assistance

I did not receive any assistance with this project other than the frequent user's input that I requested as I developed this program. In summary I created all the code, algorithms, and design of this project.