Coding the Law: Final Project Bibliography
December 15, 2023

Coding the Law Final Project Biography

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1 Quick Links

Github

https://github.com/blieu645/ctlfinalproject/

Alien Change of Address v1

https://forms.office.com/r/f8gQngTSyJ

Alien Change of Address v2

https://forms.office.com/r/V84GWAhgPr

Alien Change of Address Final

https://forms.office.com/r/d1Qd019NKm

Partner Letter

https://github.com/blieu645/ctlfinalproject/blob/17670c79ad3cf0de571e5540ba0b118c851ba293/CTL%20Partner%20Letter.pdf

Example filled PDF

https://github.com/blieu645/ctlfinalproject/blob/17670c79ad3cf0de571e5540ba0b118c851ba293/ar-11%20test%20unlocked%20filled.pdf

Pitch Slide Deck

https://github.com/blieu645/ctlfinalproject/blob/15aa8c27b18e4b6b2aaf858d581cc8d57a666da2/Coding%20the%20Law%20-%20Ben%20L.pptx

2 Introduction:

This is a documentation for the development of the Coding the Law final project produced by Ben Lieu.

3 Scope:

Problem

This project aims to solve the **documentation overload** for attorneys for the organization I volunteer for. The Asian Task Force Against Domestic Violence (ATASK) is a non-profit. And with small non-profits, we are a small legal team with no paralegals. Most times, attorneys manually fill out immigration forms that do not require an attorney's time. If some of the more tedious forms are automatically completed with attorney review, valuable attorney time could be spent on more substantive matters.

Users

- The user profile would be ATASK clients. A client who requires immigration assistance could be sent the link to a survey corresponding to the legal matter. The client would then complete the survey and automatically receive a filled immigration form via email after attorney review.
- Note: Most ATASK clients and thus our userbase are limited English proficient and quite sensitive to their domestic violence issues that require human interaction. Filling out a survey alone about these issues is not viable for these clients. As a result, this limits the scope of the project to generic basic forms that do not involve their case facts.

Stakeholders

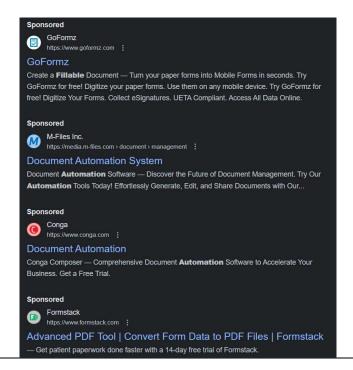
- The stakeholders of this project are the attorneys and legal interns of ATASK. The legal program has a vested interest in delivering to clients correctly completed immigration forms.

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4 Research:

Alternative solutions

- There are many solutions on many platforms. For example, a simple google search will result in many **commercial** solutions. But as you can predict, there are no **free** alternatives. The only infinitely free service would be Suffolk Lit Lab's very own Docassemble program.



5 Prototype:

Ideation

- There were three main options to pursue:
 - Microsoft Forms
 - Advantages: Most aesthetic, Power automate support, branching and logic, can output to pdf, excel, or word, easy to modify form, connection to outlook.
 - Disadvantages: most services are paid.
 - Docassemble
 - Advantages: Free, tailor-made to the problem, encapsulated program.

- Disadvantages: limited output to PDF, limited notification settings for, to modify interview requires coding, number format has thousands marker.
- Google Forms
 - Advantages: Highly like MS Forms, lots of logic and branching options, can output to pdf, Google Sheets, or Docs.
 - Disadvantages: less aesthetic, most services are paid.

Decision

- The decision would be to create 2 prototypes, one in Docassemble and one in MS Forms. This is due to my familiarity with Microsoft Suite and a personal interest in learning Power Automate, I chose MS Forms over Google Forms. Docassemble is a viable alternative, so I decided to test it out regardless.

6 User Testing:

A-B testing

- MS Forms takes 3 minutes to complete.
- Docassemble takes 5 to read and complete.

The main issue with docassemble in my opinion was there were a lot of UI elements that I had to read as a first-time form taker. This slowed down my completion of the form.

My personal user feedback

- On Docassemble, there was an issue with the format of "number format only". For some reason, the numbers had 1,000 separators instead of 1000. This caused issues for the Alien registration number.

- On MS Forms

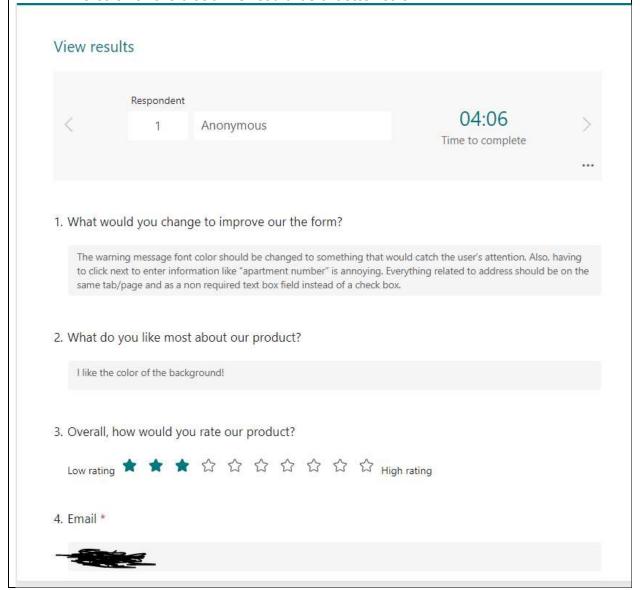
There were branching options and logic "move to end" options that assisted in guiding the user through each screen.

The branching logic each section is displayed one-by-one, applicants cannot skip sections without programmed to.

Questions that had branching logic would appear and disappear according to whether or not they were required.

Potential User Feedback

- There were comments about the professionalism of the language in the form.
- The tediousness of the line of questioning for apt/suite/flr annoyed users.
 - There were a series of 4 yes-no questions that would
- The color of the disclaimer could be a better color.



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7 Iterations:

AR-11: Alien change of Address v1

https://forms.office.com/r/f8gQngTSyJ

Notes: Initial form with all fields listed in form.

AR-11: Alien change of Address v2

https://forms.office.com/r/V84GWAhqPr

Notes:

- Per user feedback, streamlined "checkbox section".
- Removed double disclaimer in title section
- Changed font color of disclaimer to red

AR-11: Alien change of Address (Final)

https://forms.office.com/r/d1Qd019NKm

Notes:

- Outright removed checkbox section questions for each section and replaced with "What is your art/suite/flr number?"
- Removed disclaimer for email section because that email actually has to be real
- Revised disclaimer language to be more professional
- Included introduction for form with instructions
- Made first and last name required

8 Final Design:

Final project workflow Microsoft forms Power Automate **Email Final product Power automate workflow** 1. User completes • This is the trigger for the whole workflow. When a new MS Form response is submitted, the flow activates. 2. Get Response • Grabs response data Details • Grabs the unlocked template PDF from my oneDrive 3. Get File content folder Copy • converts the pdf template data into text (one long string) 4. Compose in input box • mapped new response data with PDF form fields • uses new response data and replaces PDF empty fields 5. Import PDF with new responses in .XML Forms data • imports data into PDF fields 6. Delay of 7 • allow files to refresh in oneDrive seconds • moves old filled pdf and saves it into a different folder in 7. Move file my oneDrive • using the filled pdf data conent, create a new pdf using 8. Create File copy that .XML data. 9. Delay of 7 • Allow for file to refresh in oneDrive seconds 10. Create Share • Create share link for new file link • Send an email with the link to view in the body of the 11. Send Email email

9 Impact

Impact

- I think the impact for attorneys is great. Before, attorneys had to manually fill out the form. Now they just have to review the form that clients received in the email. The manual step is 100% removed from the new process.

The main time sink is asking the client their personal information or finding the information. This costs time that the client can just answer using their own time, instead of wasting the attorney's time.

- Old process
 - Schedule Client interview or email.
 - Ask questions about or find address and personal information.
 - Attorney or legal intern manually type in responses.
 - Attorney reviews form.
 - Send file to Client.
- New process
 - Send email to Client with MS Form link.
 - Client completes form on their own time.
 - Client emails attorney with completed form.
 - Attorney reviews form.
 - Send file to Client.

10 Viability, Sustainability, & Beyond

Viability

- This is in the skateboard stage. This form is deceptively simple and actually more complicated than it looks.
- I think using Power Automate as a template for future forms is very viable. The process to switch to a new form is as simple as selecting a new Form and remaking all the inputs (PDFs and variables). The structure remains the same.

Required work:

- Extra research and testing needs to be completed on checkboxes, the logic and .XML language for them needs to be looked into. ("yes" and "Off")
 - Ideally the MS Form would output responses that are exactly in the required syntax needed to convert to .XML, otherwise I would have to find a way in Power Automate to convert MS Form answers into variables that fit the syntax of .XML buttons.

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- There is an edge case error where two users input a response at within the delay time (within 14 seconds)
 - The solution is unknown but the Ideal solution would be to restructure the file shuffling in oneDrive.

Sustainability

- I will continue troubleshooting the simultaneous submission logic.
- Power automate is a very malleable program with lots of back-ups available on its platform. I can easily work on new updates.
- I had a lot of fun troubleshoot the workflow. I will continue to troubleshoot and add to my list of errors I conquered!
- My notes for all the errors I had to resolve were numerous.
 - Experimentation in excel outputs
 - Metadata that was messing with triggers
 - How to send emails
 - Attachments sending garbled PDF data
 - File update issues with oneDrive
 - Bad requests due to incorrect dependencies
 - Lots of trial and error for PDF template (must unlock first!)
 - .XML syntax errors when I tried to code
 - Ex. <time> </time> and <time />
 - Workflow only taking the first response over and over again instead of new response

11 Documentation/Instructions for use

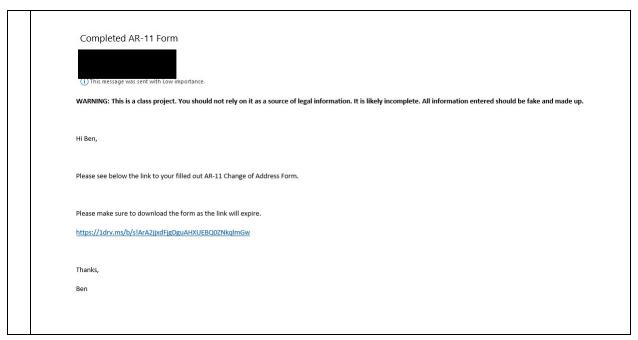
Function:

This Project uses the Microsoft suite to automate filling out a PDF for notifying the US immigration office about a change in address.

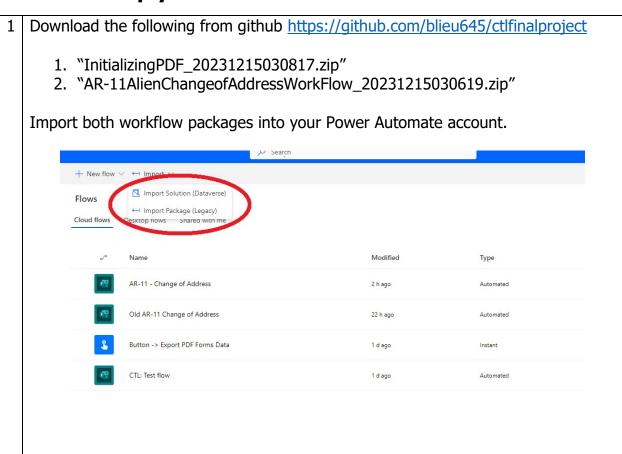
This documentation describes <u>how to use</u> the current set-up workflow for AR-11 Alien change of Address PDF and <u>how to set-up your own custom workflow</u> for your own PDF.

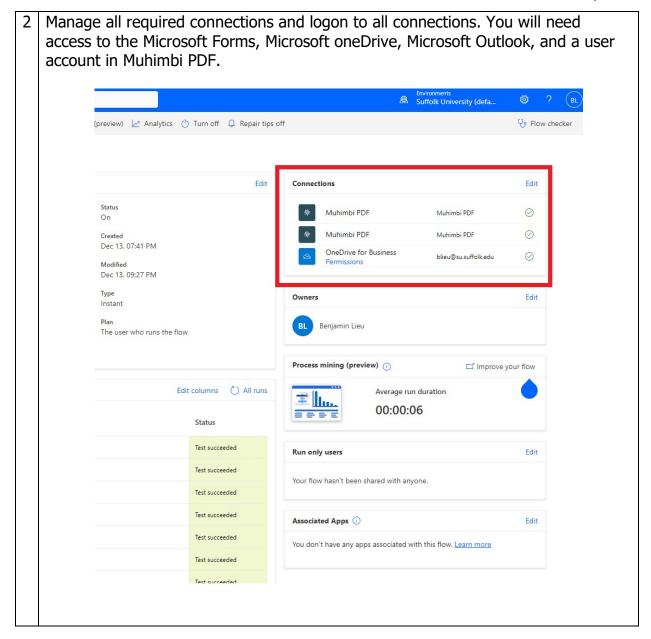
How to use:

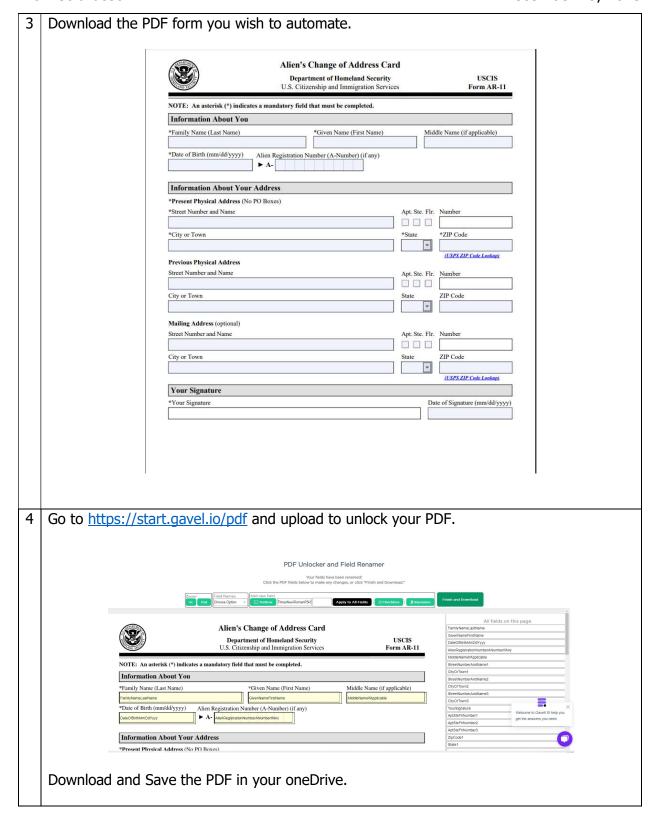
Open the MS Form "AR-11 Alien Change of Address" using the link found below or in the project biography. https://forms.office.com/r/d1Qd019NKm Complete the Form. AR-11: Alien Change of Address Thanks! Your response was submitted. Keep the information with you by saving your response. Save my response Submit another response Simplify data collection and gain smart insights today! Use Forms to easily create surveys or quizzes, and get data insights instantly. → Get started Powered by Microsoft Forms |
The owner of this form has not provided a privacy statement as to how they will use your response data. Do not provide personal or sensitive information. Wait a minute or two and receive a link to your completed PDF through email!



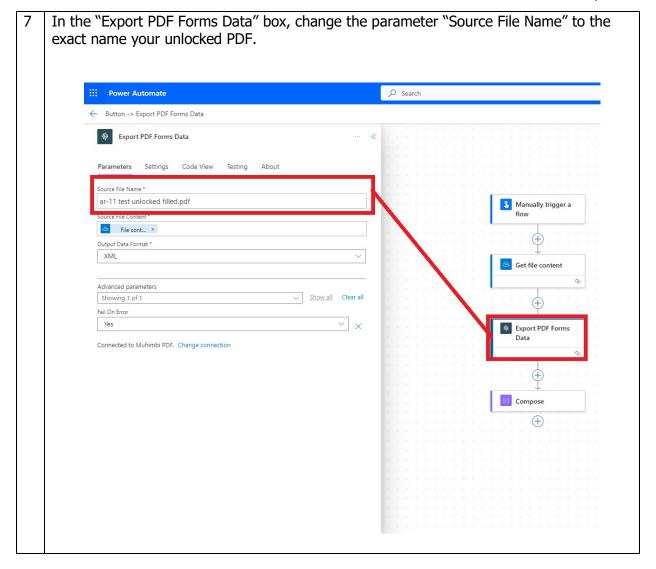
How to set-up your own Power Automated Form

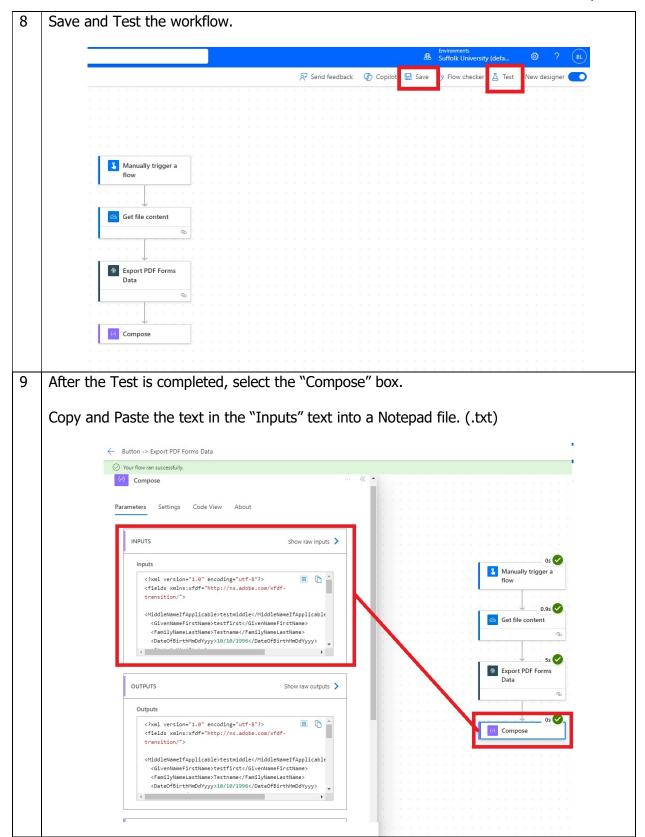


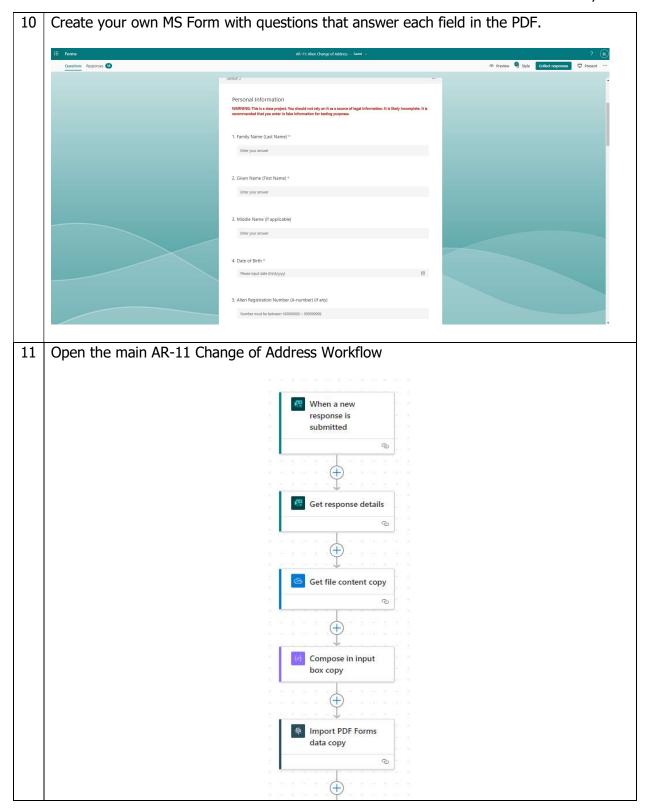


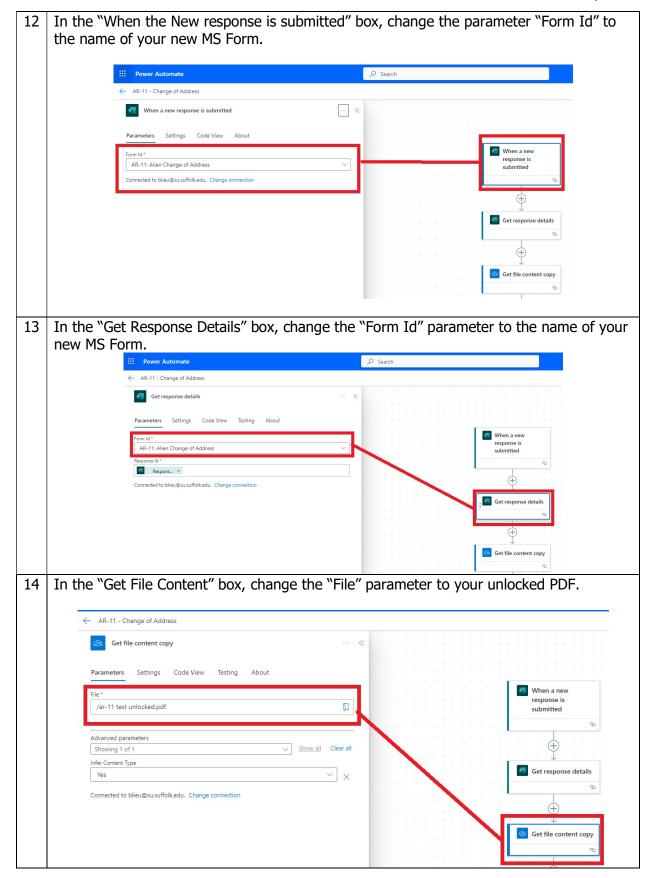


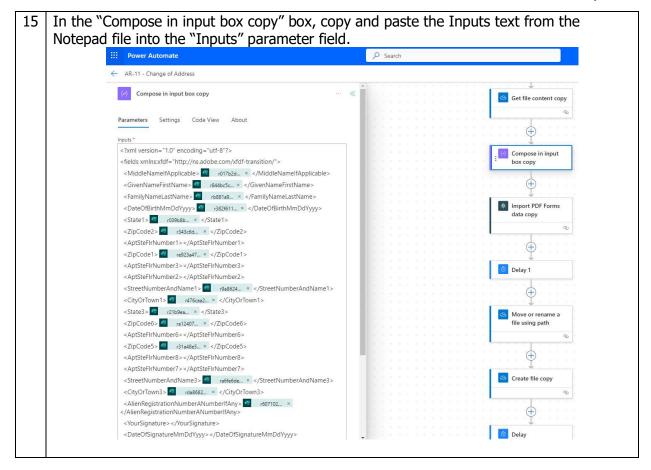
Fill in dummy data into the relevant fields in your unlocked PDF. 6 Open the "button Export PDF Forms Data" workflow and edit. In the "Get File content" box, change the parameter "File" to navigate to the file path of your unlocked PDF. **Power Automate** ∠ Search ← Button -> Export PDF Forms Data Set file content Parameters Settings Code View Testing About /ar-11 test unlocked filled.pdf Manually trigger a Advanced parameters Showing 1 of 1 ✓ Show all Clear all Infer Content Type Get file content Y X Connected to blieu@su.suffolk.edu. Change connection (1) Export PDF Forms
Data Compose \oplus







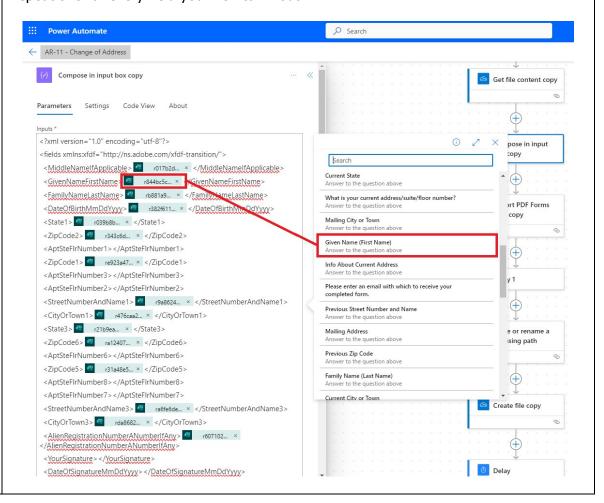




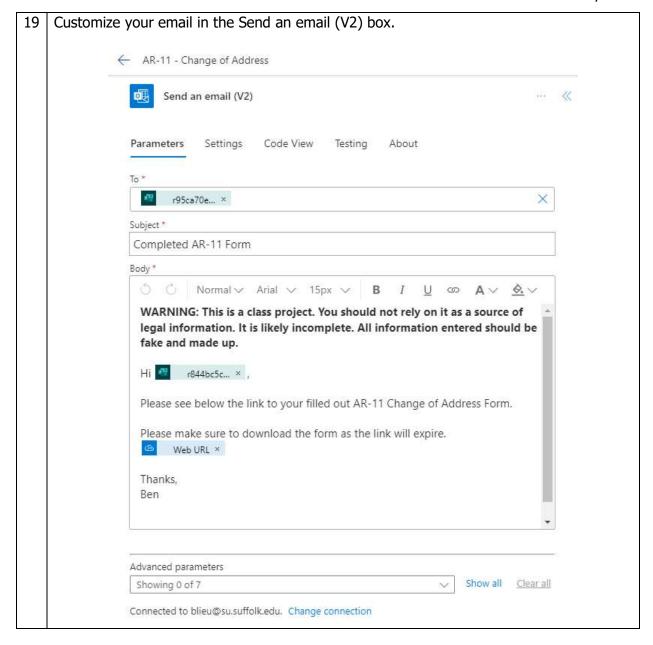
Replace the text in each line with the answers from the MS Form. Each line in the Inputs box represents a specific field in your PDF.

In the example below, the "GivenNameFirstName" Field corresponds to the First name field in the example PDF and is mapped to the MS Form's answer "Given Name (First Name)"

Repeat this for every field you wish to fill out.



In the "move or rename file using path" box, change the "File Path" parameter to the file path you wish to save your new filled PDF. Change the Destination File Path parameter to the folder where you wish to move old PDFs. Power Automate Search ← AR-11 - Change of Address **Power Automate** ∠ Search ← AR-11 - Change of Address Move or rename a file using path Parameters Settings Code View Testing About /Documents/CompletedFiles/AR11completed.pdf Destination File Path * /Documents/OldFiles/AR11completed Base file ... × .pdf Move or rename a file using path ✓ <u>Show all</u> Clear all Showing 1 of 1 (1) Connected to benlieu645@gmail.com. Change connection Create file copy Create share link by Do the same for "Create File Copy" and "Create Share Link by Path" boxes by changing the File and Folder path to where you want to store the new filled PDFs. Create file copy Parameters Settings Code View Testing About /Documents/CompletedFiles File Name * AR11completed.pdf File Content * Connected to benlieu645@gmail.com. Change connection Create share link by path ... « Parameters Settings Code View Testing About /Documents/CompletedFiles/AR11completed.pdf Link Type * Connected to benlieu645@gmail.com. Change connection



Benjamin Lieu Prof. Colarusso

