Microsoft

Empowering RPA enthusiasts: Harnessing the Potential of Power Automate (MPPC23)

Lab 4 – Create Subflows – Excel and Web Automation

60 mins

October 2023

Lab Overview

In previous labs you have created a desktop flow that will pass the input data to the desktop legacy invoicing application.

We learnt that Contoso Coffee shop company also needs to do another additional step after processing a new incoming invoice, which is to record the invoice information into an existing excel file, which will be used by other department later for auditing purposes. Furthermore, if you are working on an international branch in Europe, you are required to convert the invoiced amount from USD to EUR using real time currency conversion rate, then log the converted amount into the excel file. Power Automate for desktop app also has the support to help you complete those type of tasks because it not only can automate against Windows applications, but also can automate against any website. You will complete the following tasks in this lab:

- **Exercise 1 – Build a Power Automate Desktop subflow to write notes into Microsoft Excel**
    - Create a process with fixed value variables.
    - Test and run this process.
- **Exercise 2 – Build web automation using Power Automate for desktop**
    - Web data scraping and writing to Microsoft Excel
    - Test and run this process.
- **Exercise 3 – Use AI Builder within Power Automate for desktop**
    - Use the GPT action on Azure OpenAI service to summarize the details of invoices
    - Test and run this process.

Prerequisites

Before doing the exercises, please complete **Lab1, Lab2 and Lab 3**.

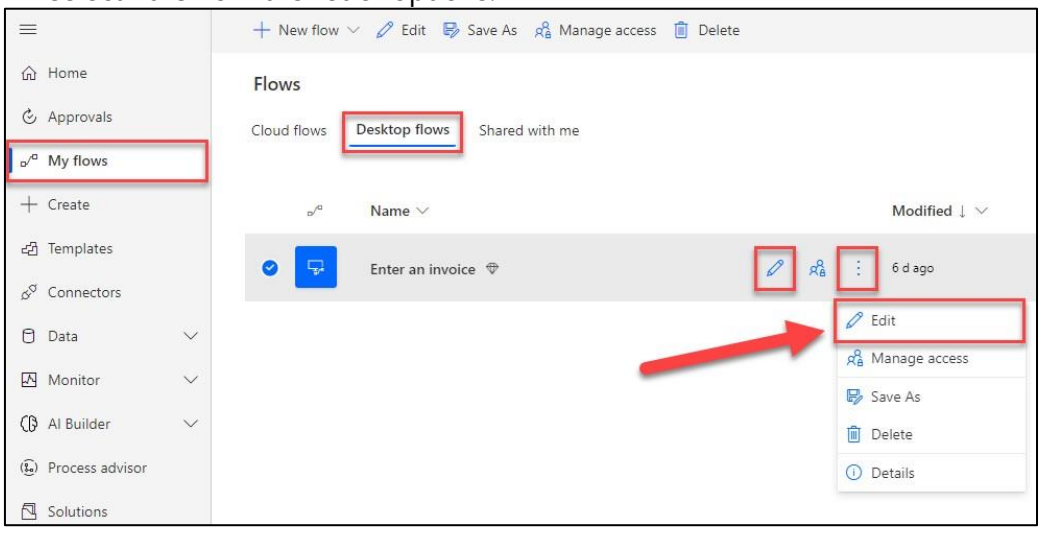
Part 1 - Build a Power Automate for desktop subflow to write notes into Microsoft Excel

In this exercise we will create a process within Power Automate for desktop which will write the values of variables, that we already created earlier, into a Microsoft Excel file.

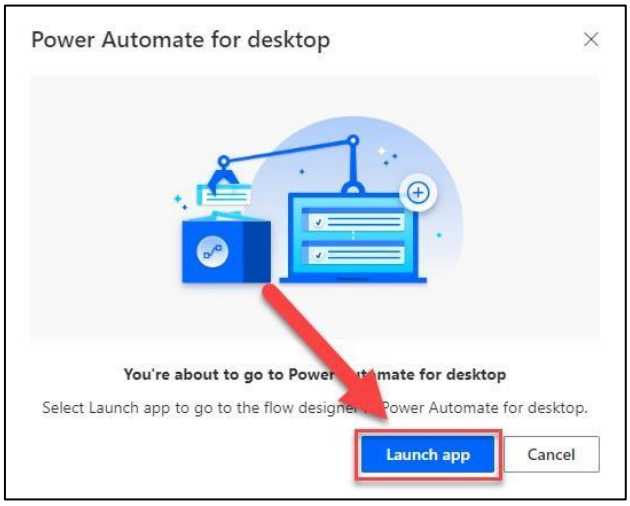
1. Open a new web browser and navigate to **Power Automate for desktop**. Sign in if needed. You can navigate to Power Automate for desktop using the following link: https://make.powerautomate.com.

2. From the menu to the left of the screen, select **My Flows**. Then, select the Desktop flows tab at the top of the page.

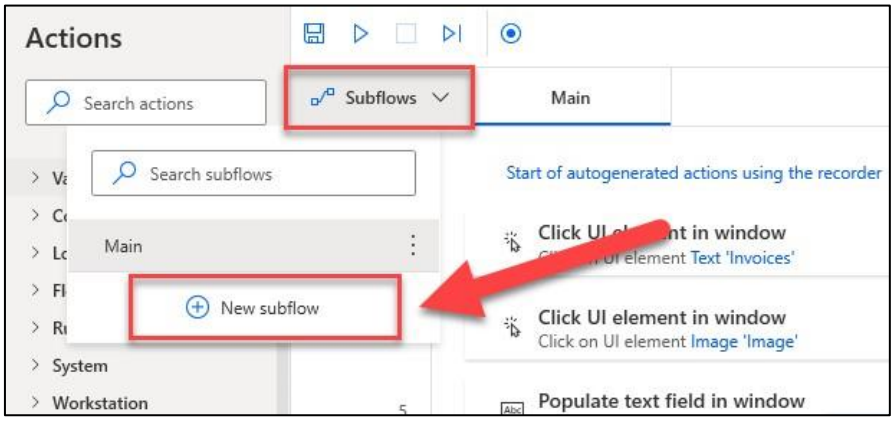
3. Within the **Flows** page, find and select **Enter an invoice**. To the right of the flow title, select the **pencil icon** to **Edit** the flow; or you can select the **ellipses** (**...**) and select **Edit** from the list of options.



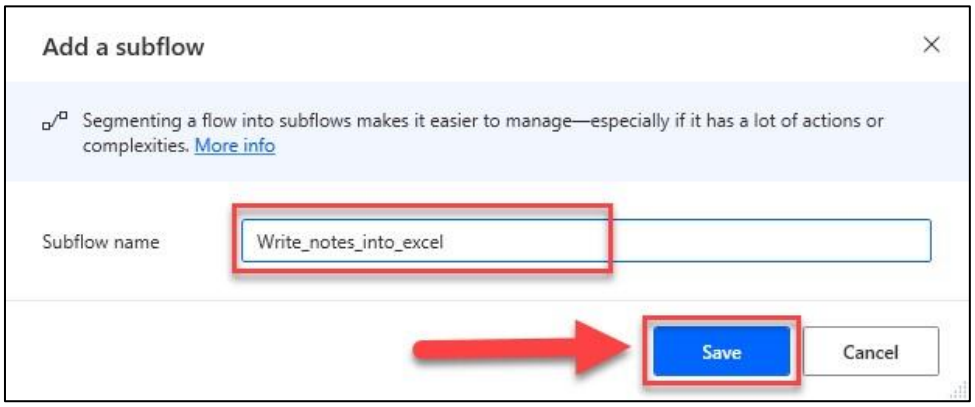
4. Within the **Power Automate for desktop** dialog box, select **Launch app**. It may take a few moments to load.



5. Once Power Automate has launched, select the **Subflows** drop-down at the top of the screen. Then, select **+ New subflow** to create a subflow for **Enter an invoice**.

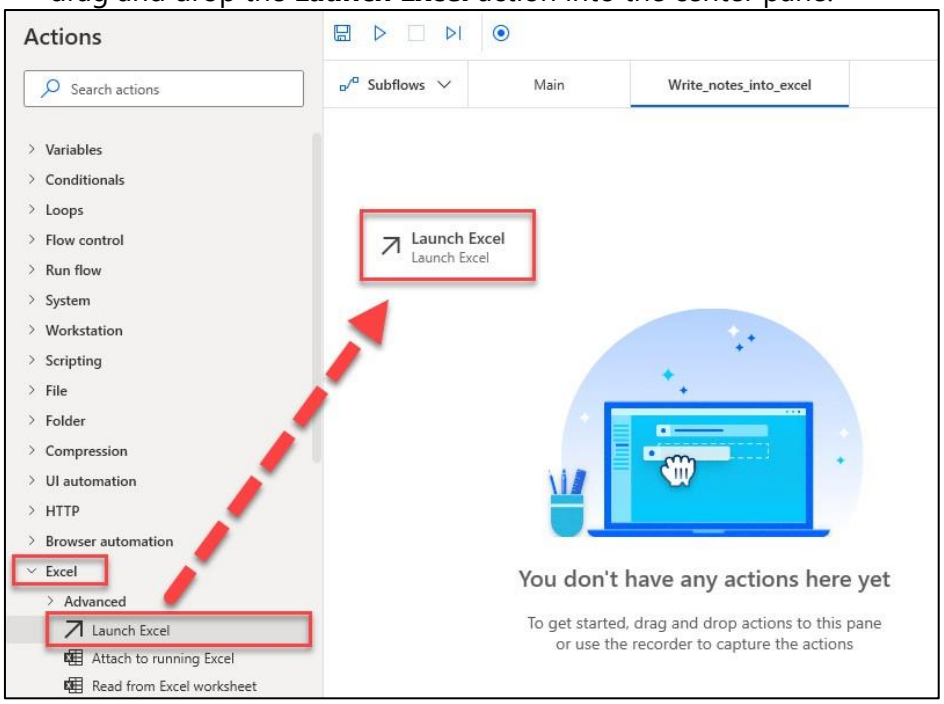


6. Name the Subflow to be **Write_notes_into_excel**. Then, select **Save**.

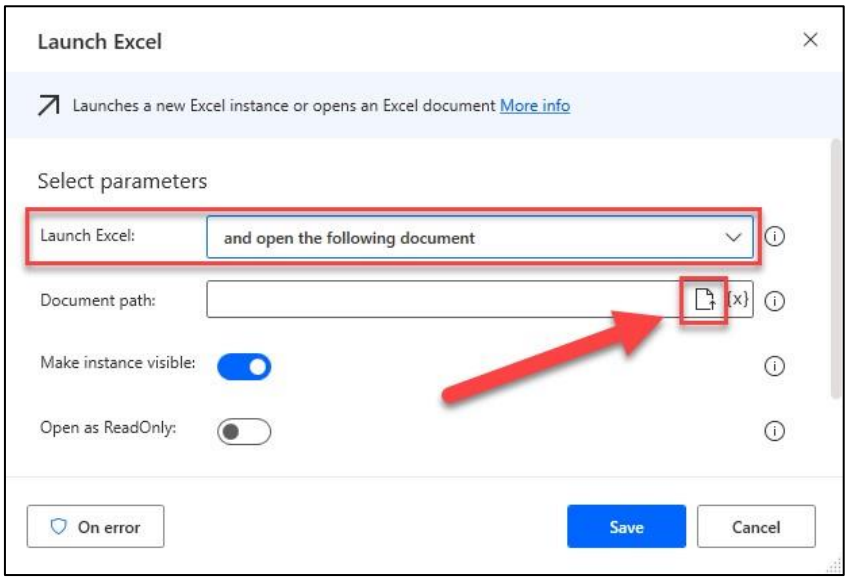


Note: Subflow names **cannot** have spaces.

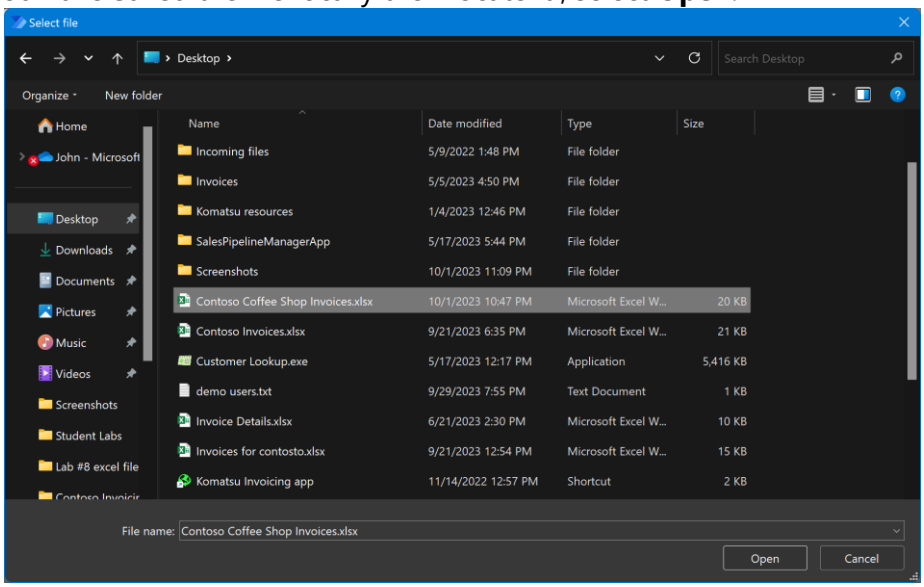
7. Browse, find **Contoso Coffee Shop Invoices** excel file, located in the **Lab data packages** (Lab #4 excel file to use in Power Automate Desktop) folder for this lab.
8. Save it on your Desktop directory.
9. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Launch Excel** action into the center pane.



10. Within the Launch Excel dialog, from the **Launch Excel drop-down**, select **and open the following document**. Then, select the **file icon** within the **Document path** field.

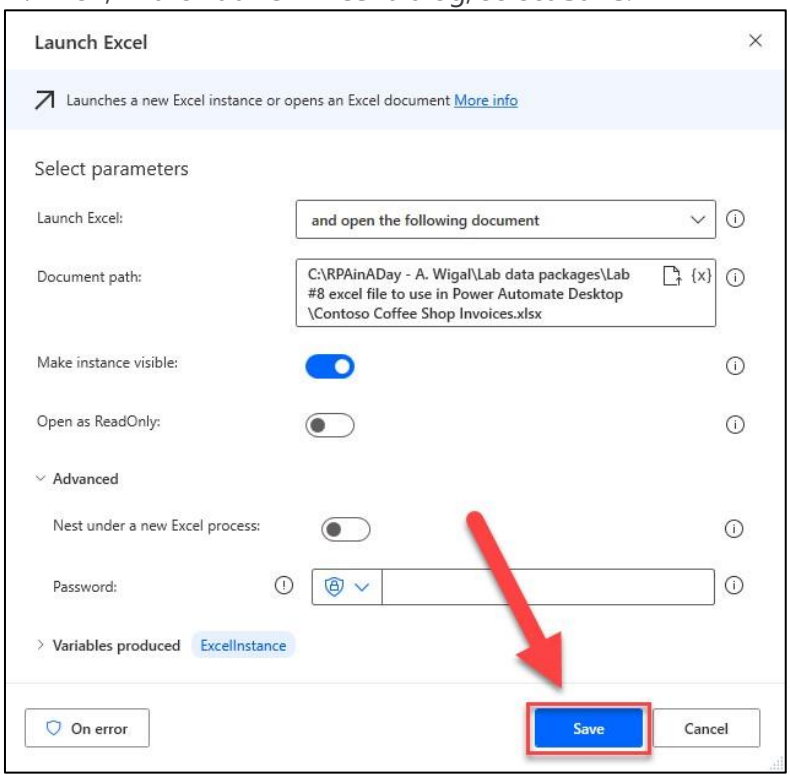


11. Once you have Saved the file locally then locate it , select **Open**.

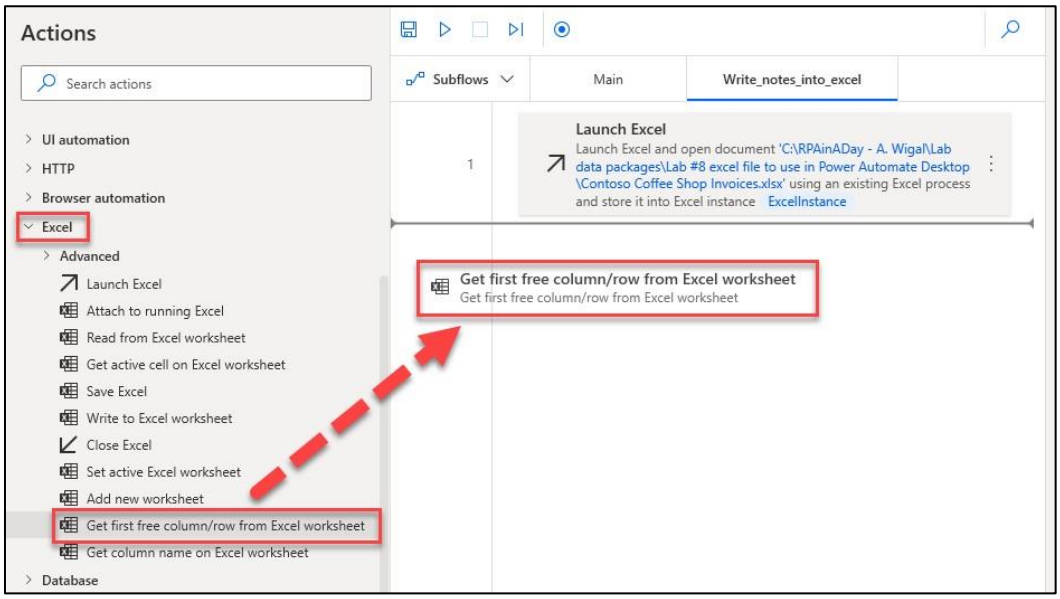


Note: Our spreadsheet does not contain a **password**. However, if our spreadsheet did, we could expand the **Advanced** section in this dialog and we could provide a password.

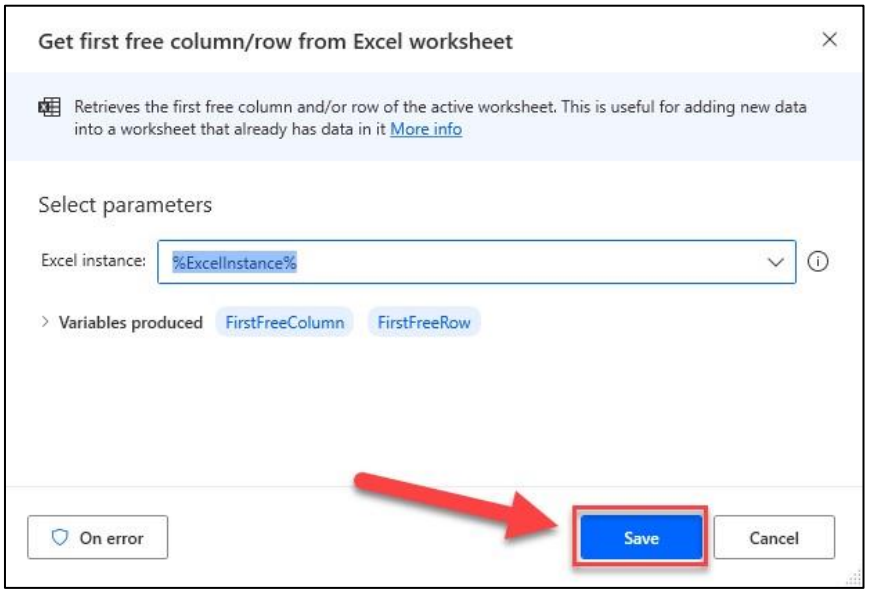
12. Then, in the **Launch Excel** dialog, select **Save**.



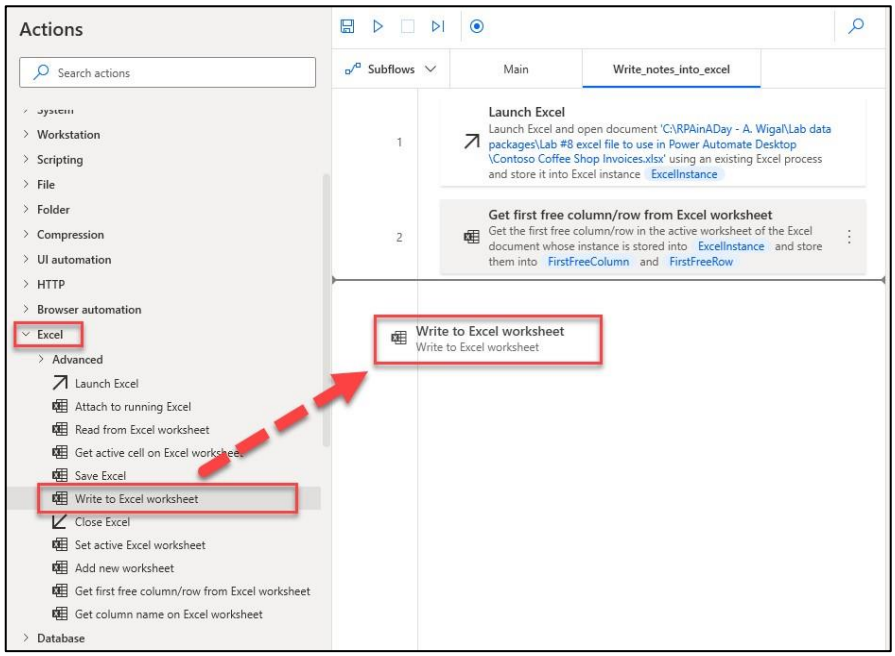
13. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Get first free column/row from excel worksheet** action into the center pane below the first action.



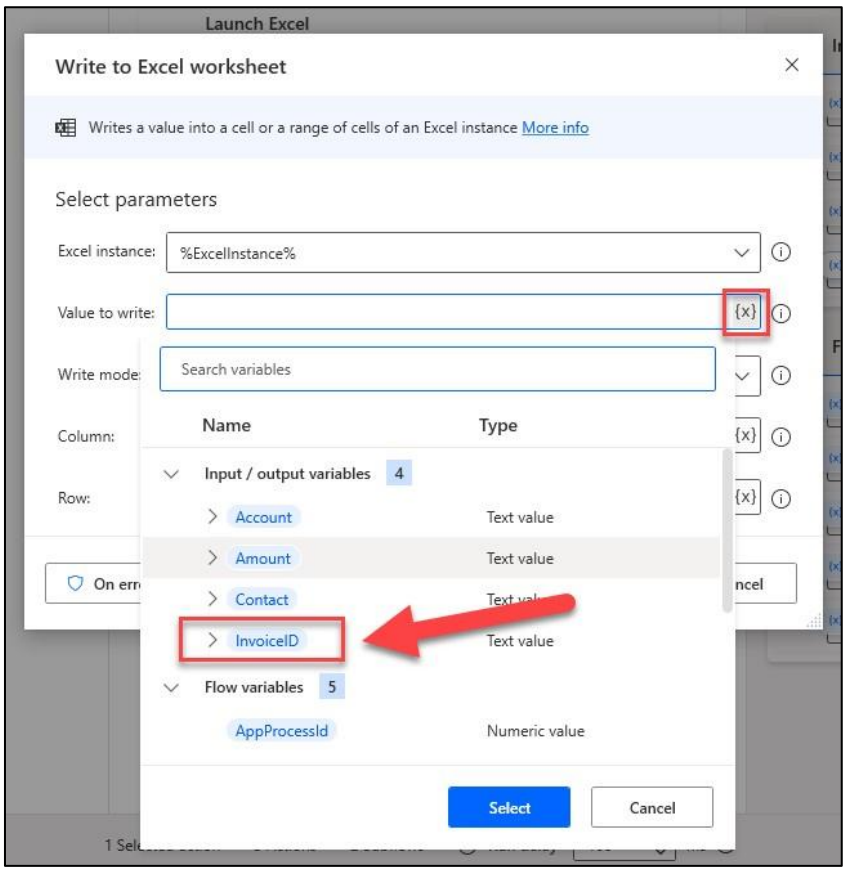
14. In the **Select parameters** section, we will use the default settings for this action. Within the **Get first free column/row from Excel worksheet** dialog, select **Save** to add this action to the design surface. This action will retrieve the number of the first free row and the first free column and store them into variables.



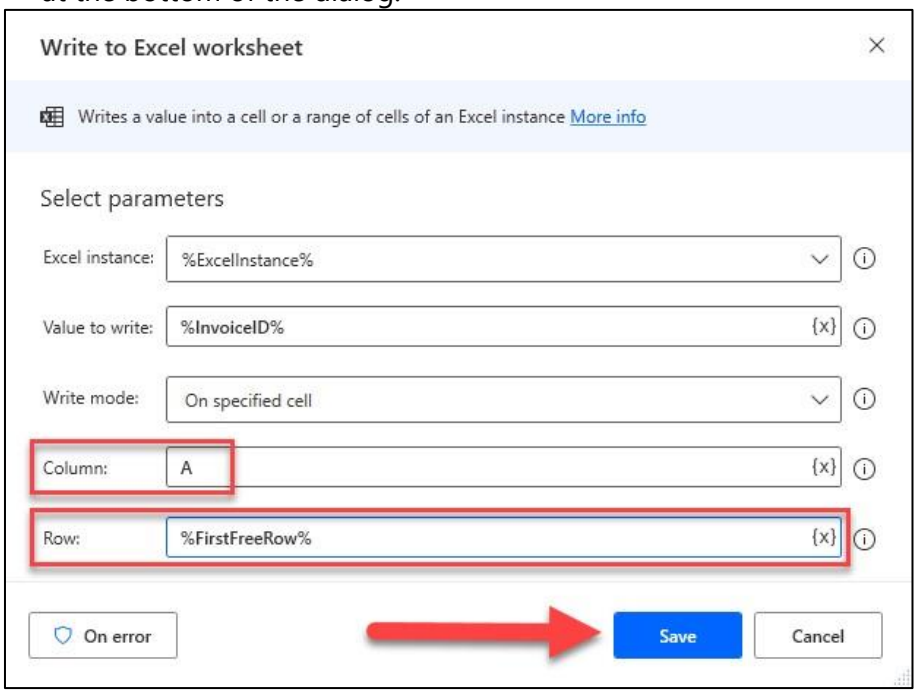
15. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Write to Excel worksheet** action into the center pane below the second action.



16. Within the **Write to Excel worksheet** dialog, in the **Value to write** field, select the **variable {X}** icon. Then, double-click on the **InvoiceID** variable under the Input/output section.



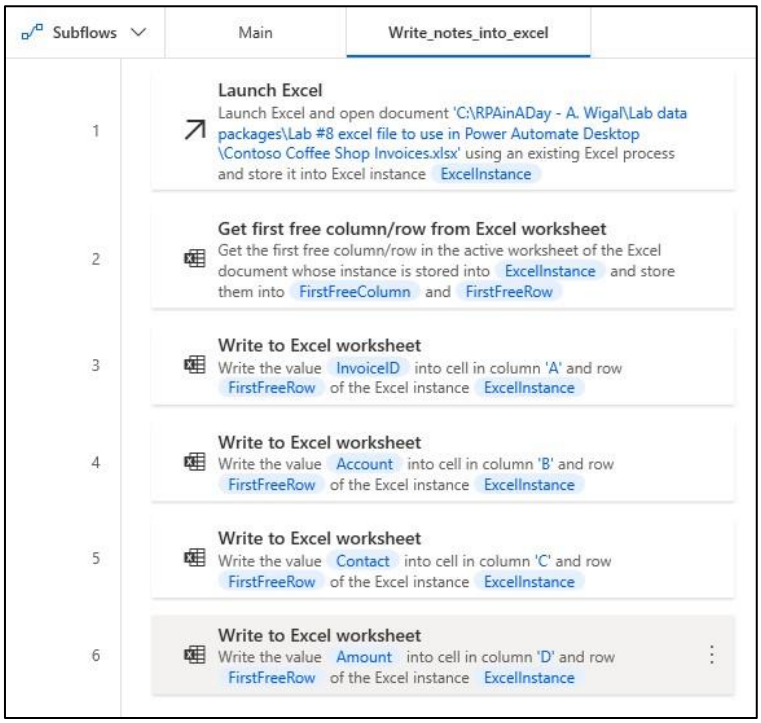
17. Within the **Column** field, type the letter **A**. Then, in the **Row** field, select the **variable {X}** icon and double-click on **FirstFreeRow** from the Flow variables section. Then, select **Save** at the bottom of the dialog.



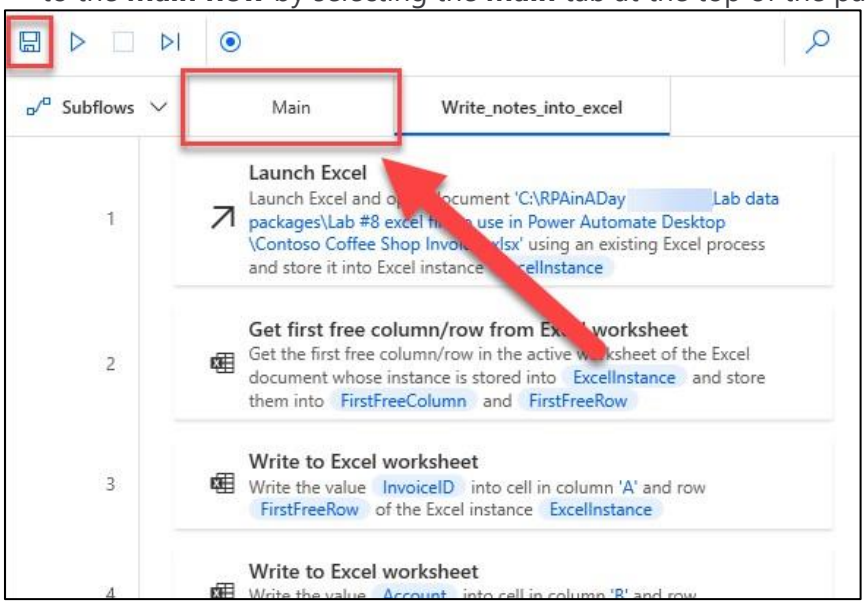
18. Using the same process outlined in **steps 13 through 15**, add **three** more **Write to Excel worksheet** actions to the design space using the values and information in the table below to fill in the different fields:

Value to write	Column	Row
%Account%	B	%FirstFreeRow%
%Contact%	C	%FirstFreeRow%
%Amount%	D	%FirstFreeRow%

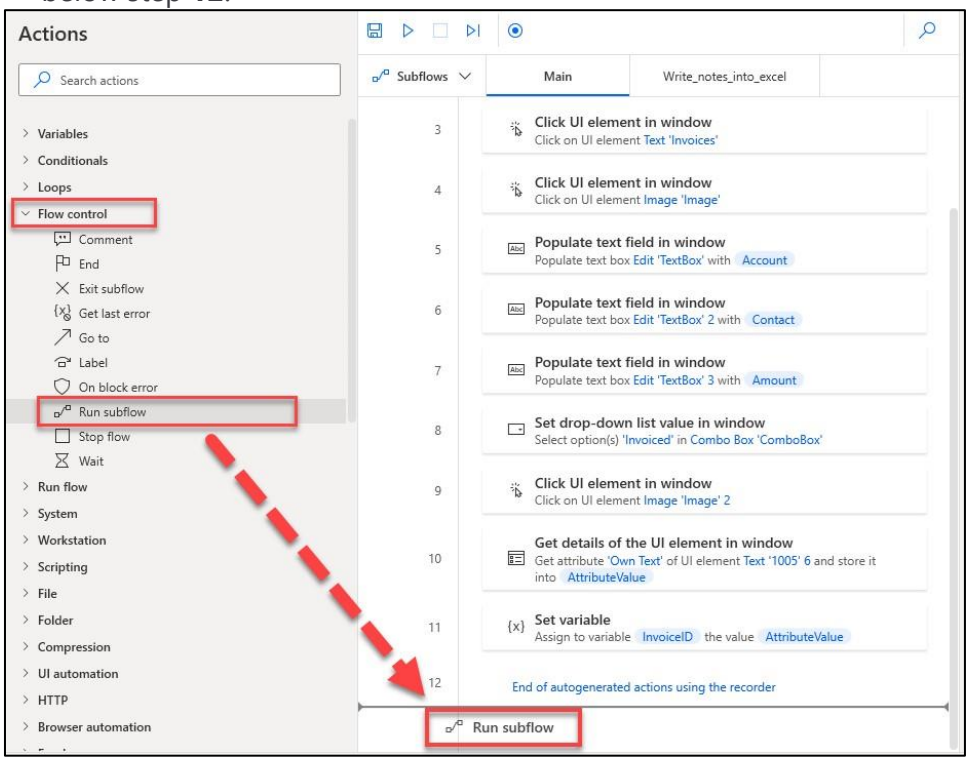
19. When you completed the steps above, your subflow for writing notes into Excel should look like the figure below. You should have **6** actions within the design space list:



20. From the tool bar at the top of the page, select the **Save** button and then navigate back to the **Main flow** by selecting the **Main** tab at the top of the page.

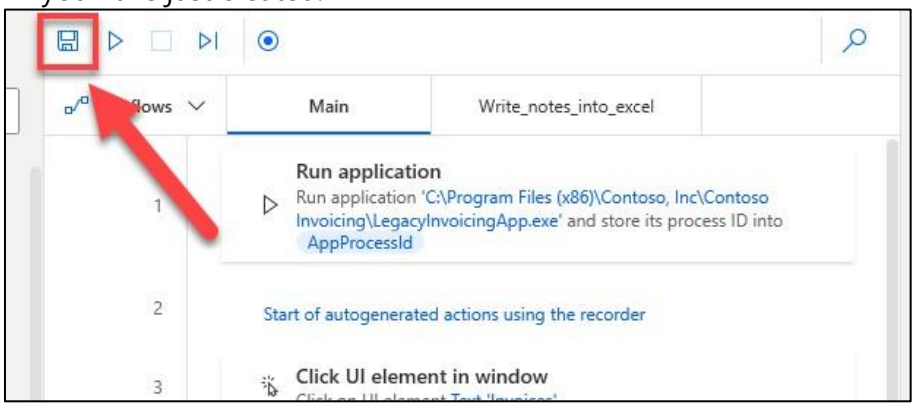


21. Next, in the **Main** flow, from the **Actions** pane to the left of the screen, under the **Flow control** expansion, drag and drop the **Run subflow** action into the design space pane, below step **12**.

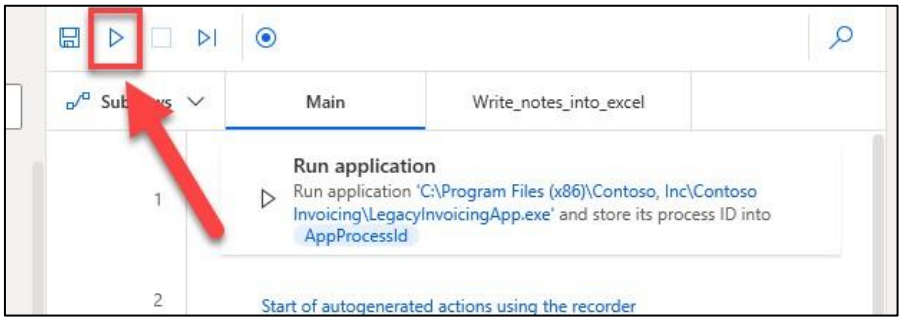


22. In **the Run subflow** dialog, in the **Run subflow** field, select **Write_notes_into_excel** from the drop-down. Then, select **Save**.

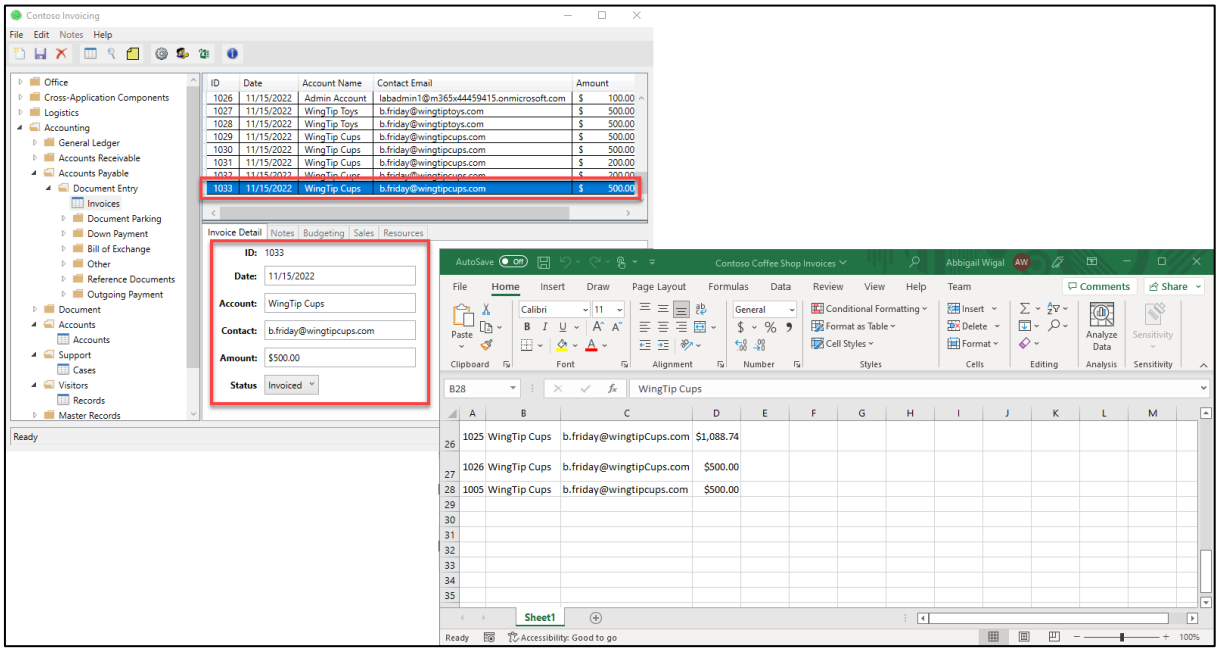
23. Then, from the tool bar at the top of the screen, select **Save** so that you save the flow you have just created.



24. You can now run your flow by selecting the **Run icon** from the tool bar at the top of the screen.



25. After the automation run, check the **Excel** file and you will see that the following entry has been added:

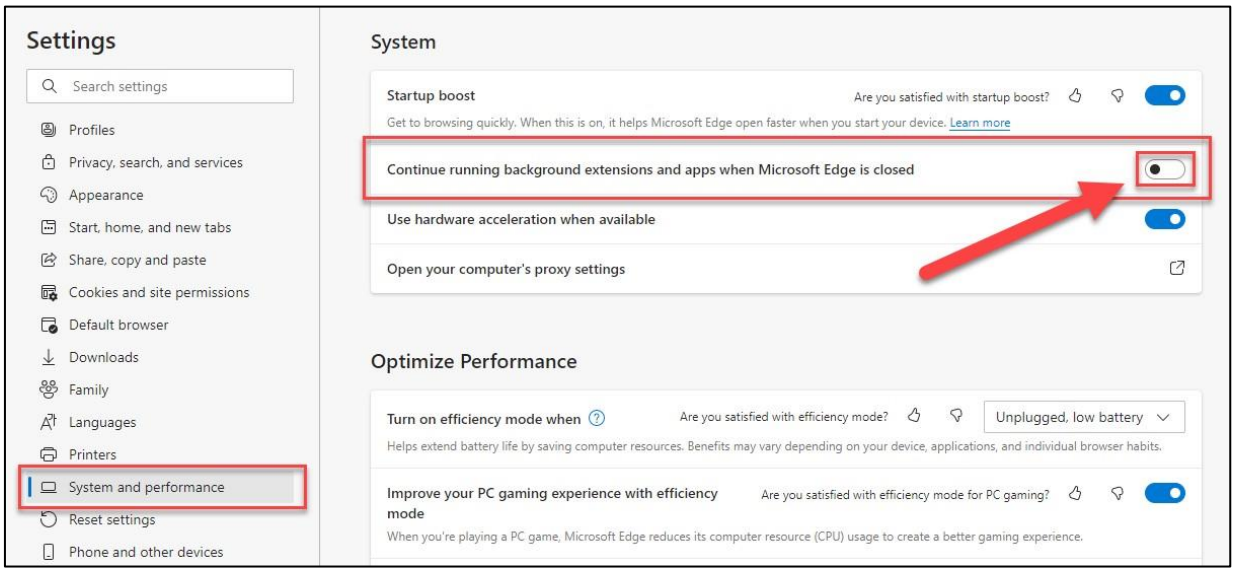


Note: You may see a different invoice ID.

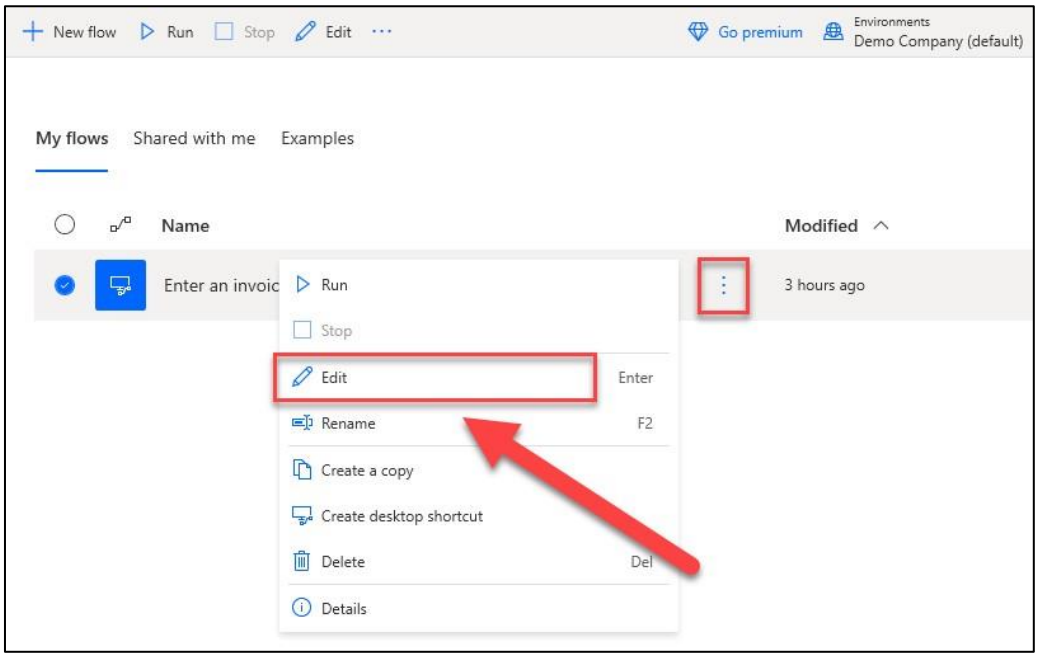
Part 2 – Build a Power Automate for desktop subflow with Web Automation

In this exercise, we will use the web automation to convert the total amount into another currency and add the new conversion to the Excel document.

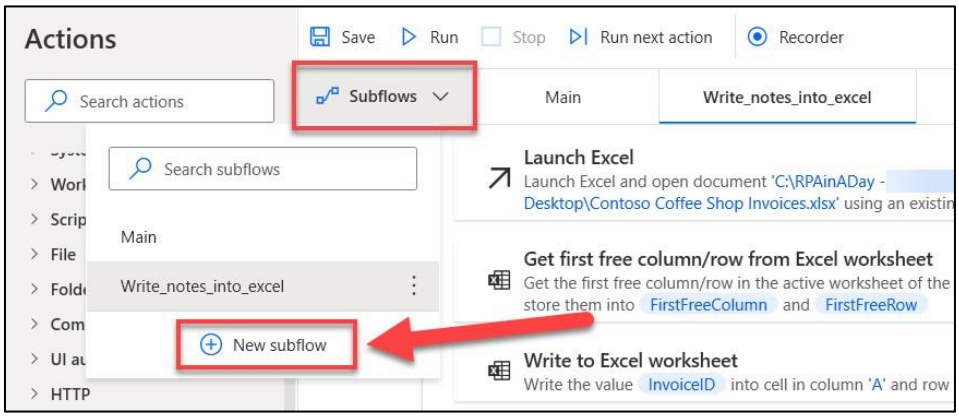
1. Open a new web browser and navigate to Microsoft Edge using the following URL: **edge://settings/system**. This will bring you to the **System and Performance** page. Under the **System** section, turn off **Continue running background apps when Microsoft Edge is closed**. Then, **close** all browser tabs and sessions before you proceed.



2. Now, open **Power Automate for desktop**, and then navigate to the **Enter an invoice** flow that you created earlier. Then, select the ellipses (…) to the right of the flow title, and select Edit from the options menu. (You can also select the **pencil icon** to navigate directly to the editing view for your flow.)

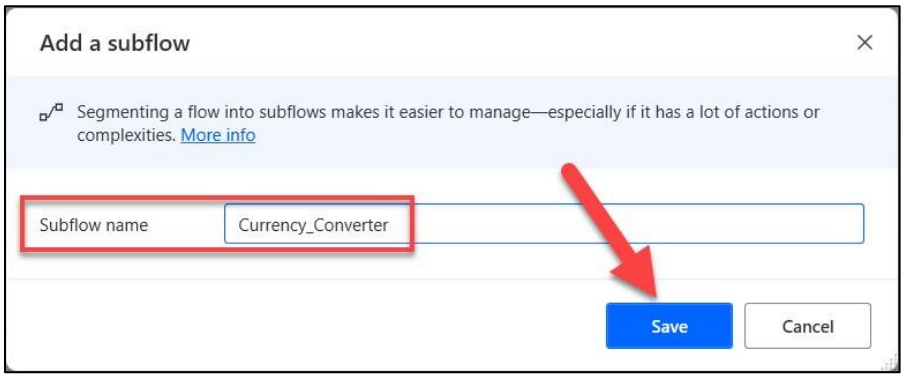


3. From the tabs at the top of the screen, select the **Subflows** drop-down. Then, select **+ New subflow** to create a second subflow for the **Enter an invoice** flow.

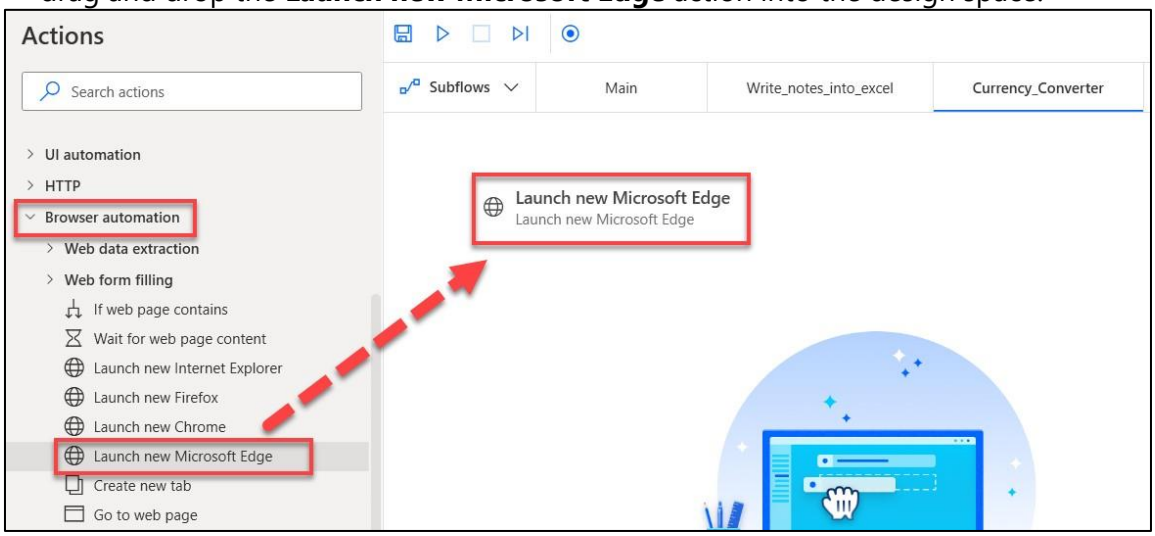


4. Within the **Add a subflow** dialog box, name your new subflow as **Currency_Converter**. Then, select **Save**.

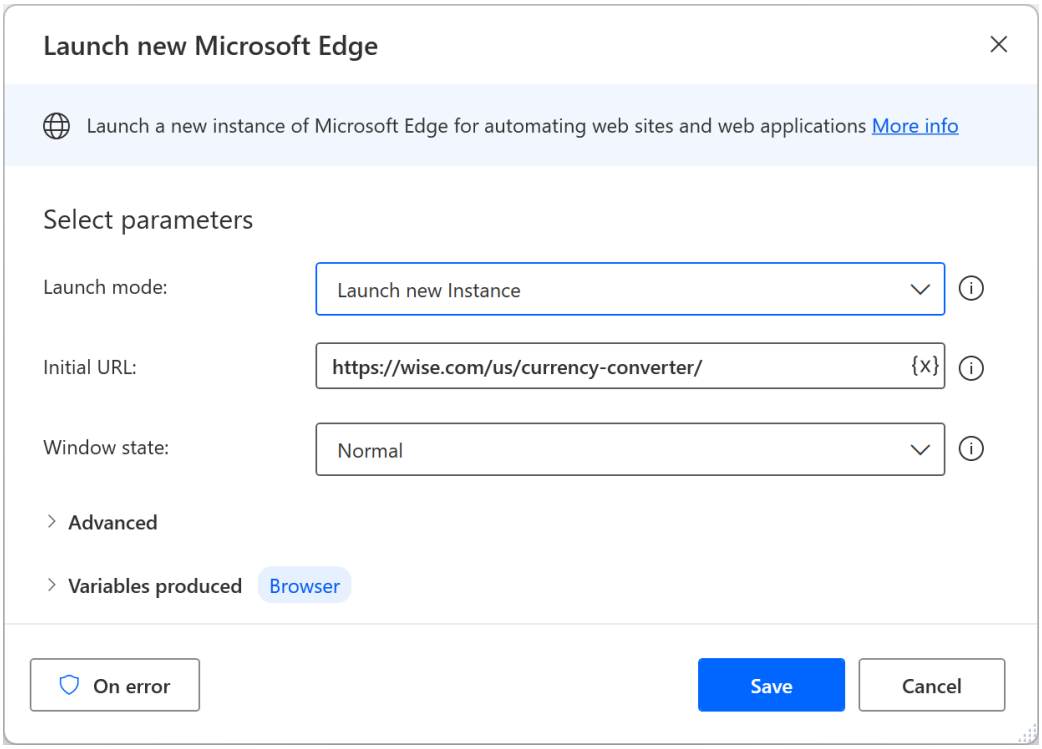
Note: Subflow names **cannot** have spaces. Ensure that if there is a space within the name, you replace the space with an **underscore** (_).



5. From the **Actions** menu to the left of the screen, under the **Browser automation** folder, drag and drop the **Launch new Microsoft Edge** action into the design space.



6. Within the **Launch new Microsoft Edge** dialog, in the **Initial URL** field, enter the following URL: **https://wise.com/us/currency-converter/**
7. Then, select **Save**.

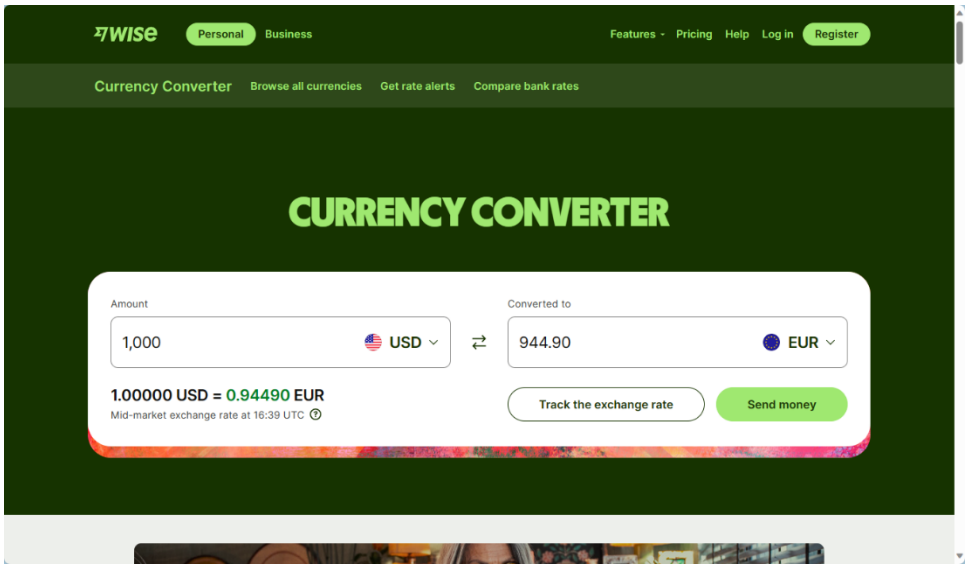


8. Open a new **Edge web browser** and navigate to:

   https://wise.com/us/currency-converter/

(Accept the cookies so that they no dot popup again)

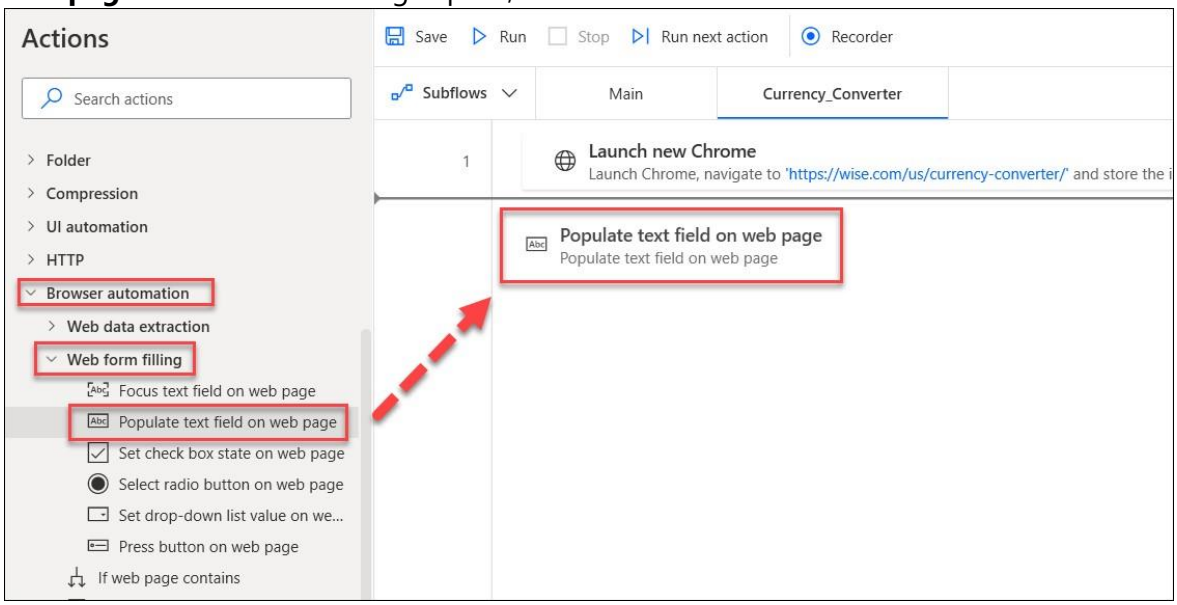
This will be the website we will be using to lookup real-time currency conversion rates.



9. Now we will enter the total amount value as the USD dollar amount, into the website input textbox to lookup the converted value.

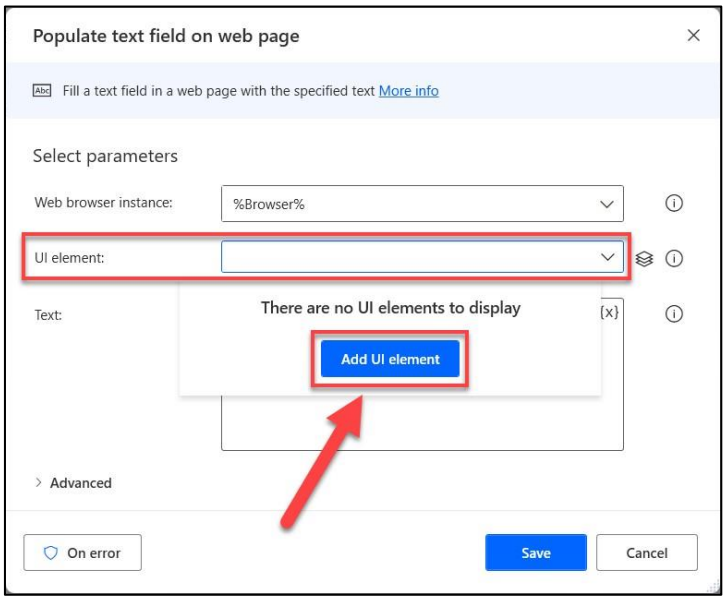
10. First, we will locate the **UI Element** on the webpage. Navigate back to the **Enter an invoice** flow in Power Automate. Ensure that you are viewing the **Currency_Converter** subflow. From the **Actions** pane to the left of the screen, under the **Browser automation** folder, expand the **Web form filling** sub-folder.

11. From the **Web form filling** sub-folder, drag and drop the **Populate text field on web page** action into the design space, below the first action.



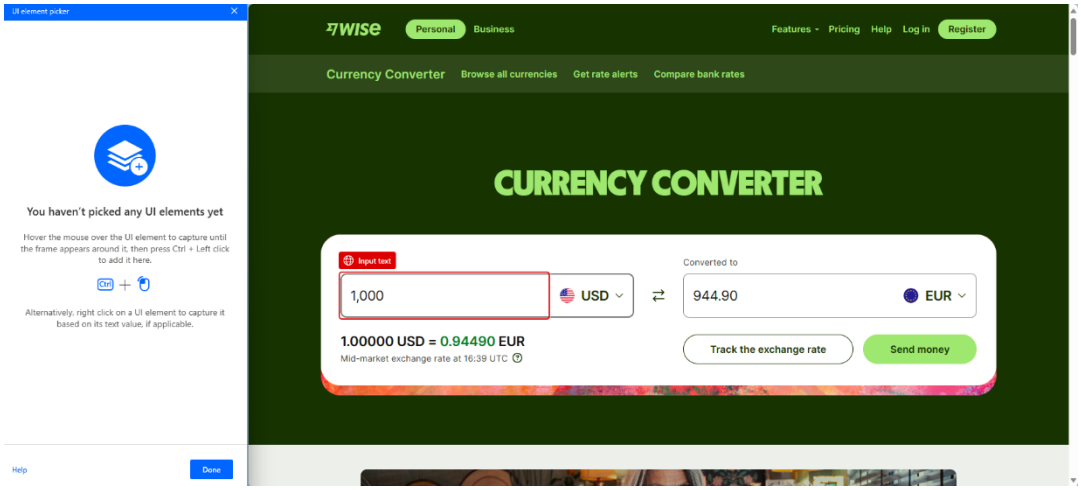
12. The **Web browser instance** has already been populated with the **%Browser%** instance.

13. We need to identify the textbox **UI element** on the webpage that **takes USD dollar** as input. To do that, select the **UI element** textbox drop-down and then select **Add UI element**.



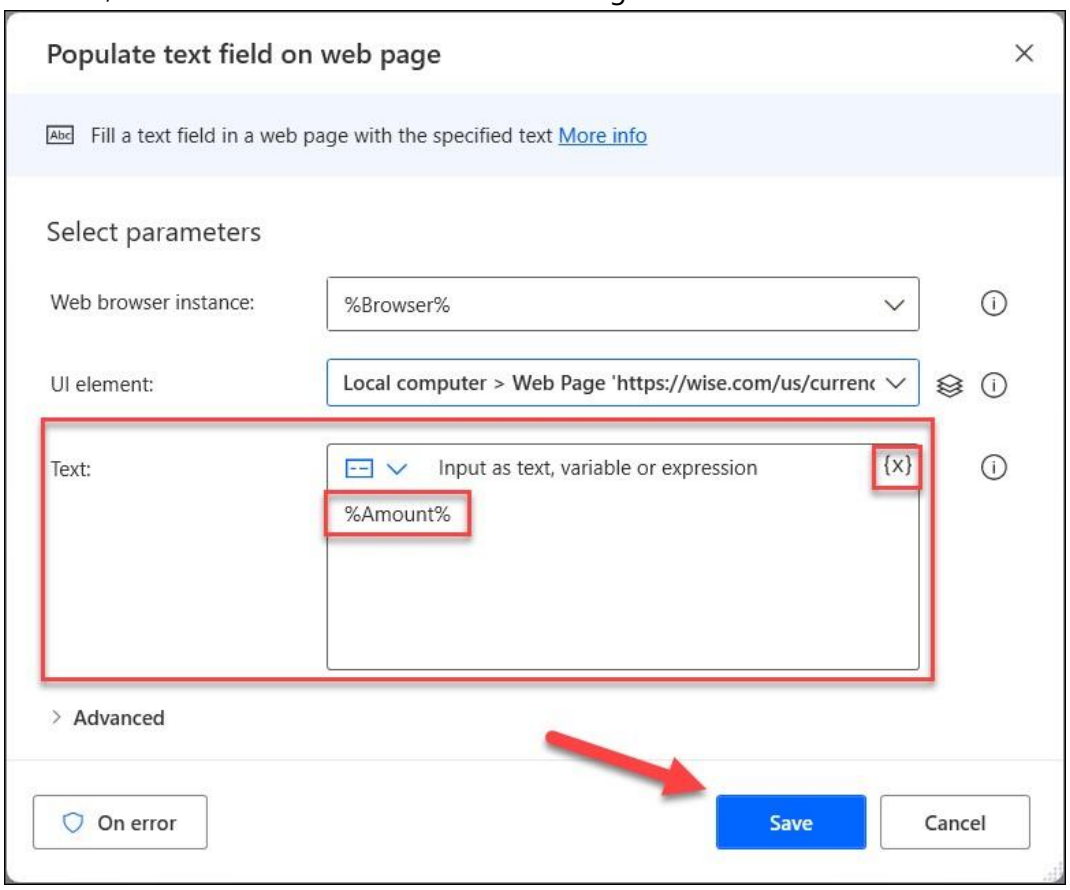
14. Having done this, a small **tracking session window** will show up to capture UI elements. **Open the browser webpage**, and you will see a **red rectangle** appear within the webpage while hovering the mouse over different elements.

    Move the mouse over the **text field containing the USD dollar value** and hold the **Control key** on your keyboard and **left-click** using the mouse to select the element.



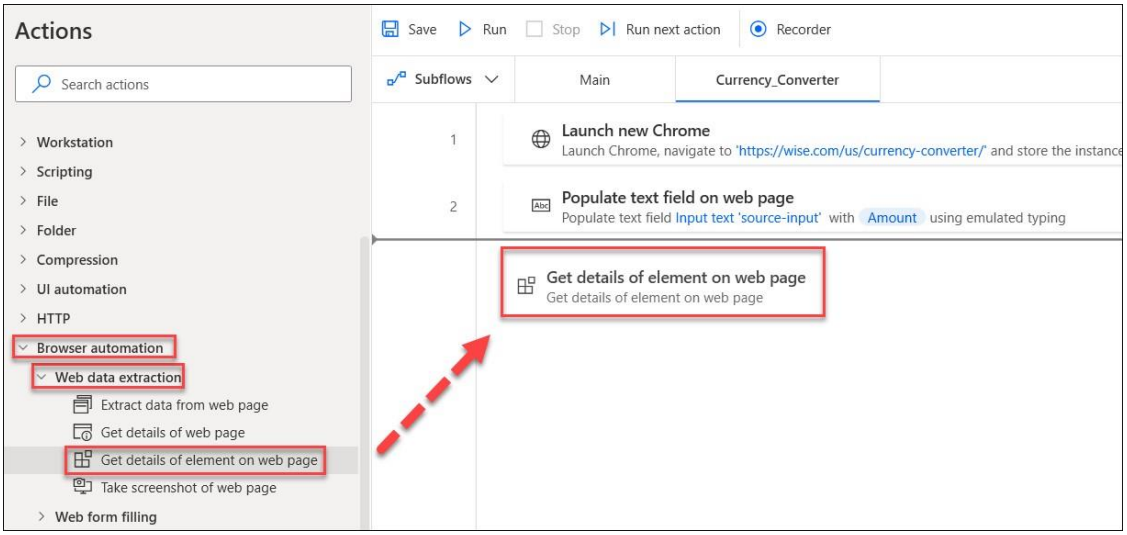
15. Then, within the **Text** field of the dialog, select the **variable {X}** icon to the right of the field. Within the menu, under the input/output section, double-click on the **Amount** variable.

16. Then, select **Save** at the bottom of the dialog.



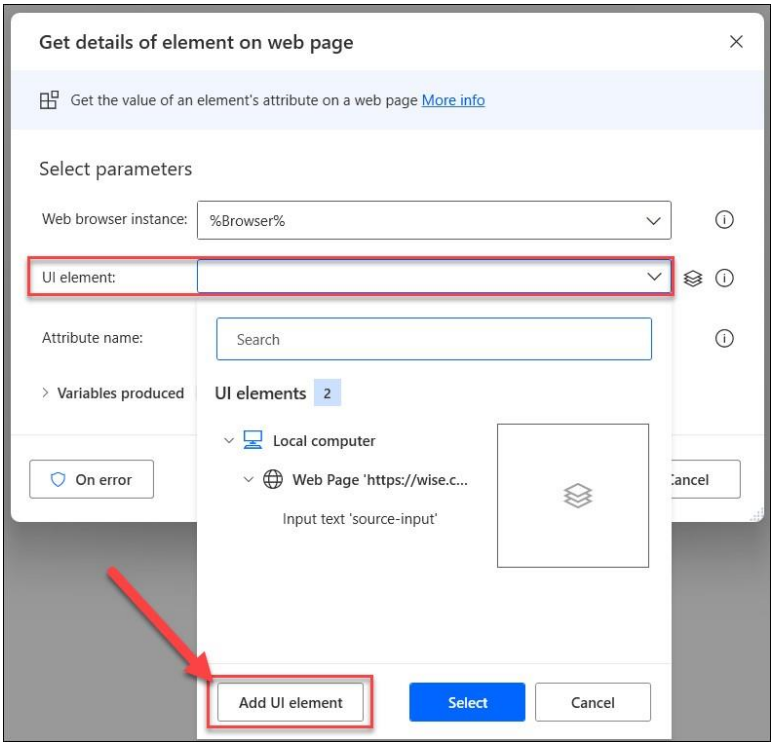
17. Now, let's add another action which will send the previous **Total amount** input value into this UI element field. From the **Actions** pane to the left of the screen, expand the **Web data extraction** sub-folder within the **Browser automation** folder.

18. Then, drag and drop the **Get details of element on web page** action into the design space, below the second action.

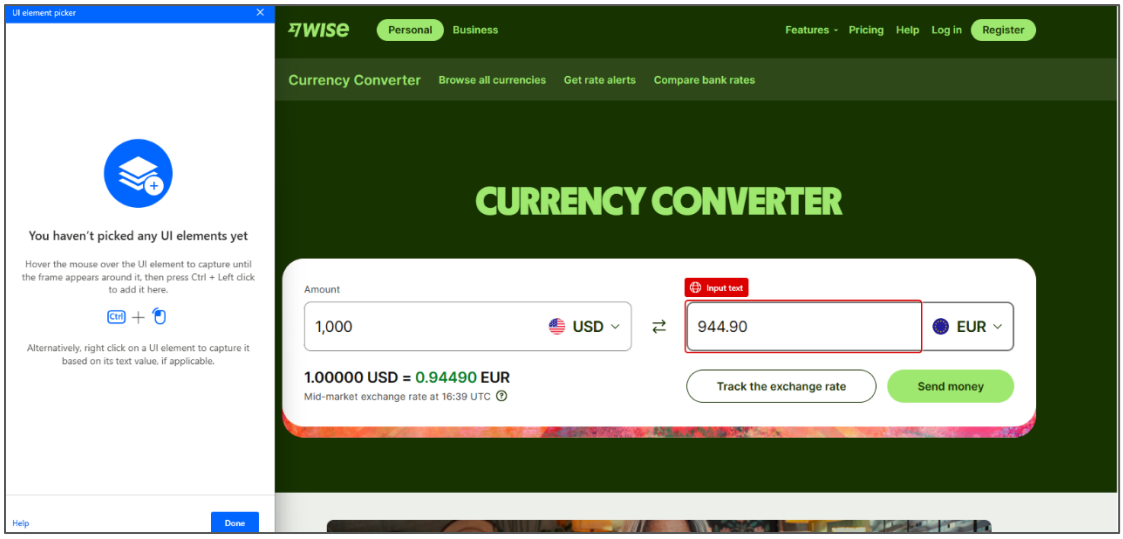


19. Within the **Get details of element on web page** dialog, notice that **%Browser%** has already been used to fill in the **Web browser instance** field. Select the **drop-down** for the **UI element** field.

20. From the drop-down menu, select the **Add UI element** button.



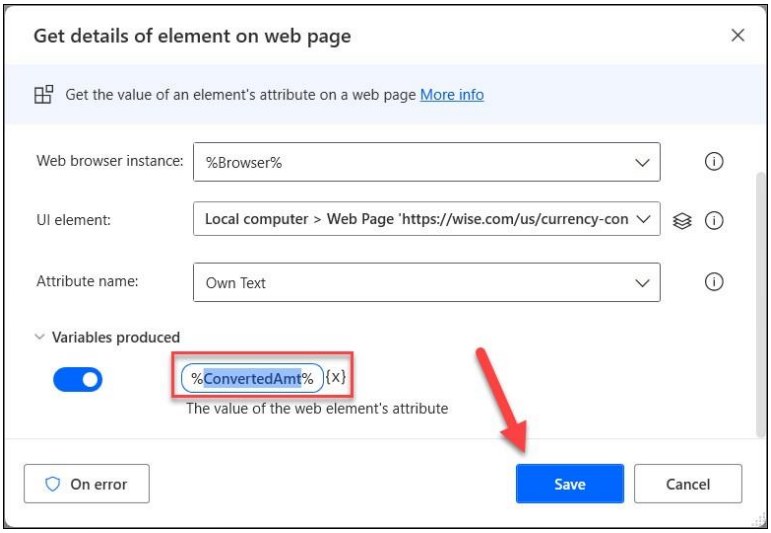
21. Then, navigate back to the **web browser** where we are going to convert the USD dollar value. Using the same process as before, select the **Output value** by holding down the **Ctrl key** and **left-clicking** on the value.



22. Next, back within the **Get details of element on web page** dialog, **double-click** on the **Variables produced** value located at the bottom of the dialog.

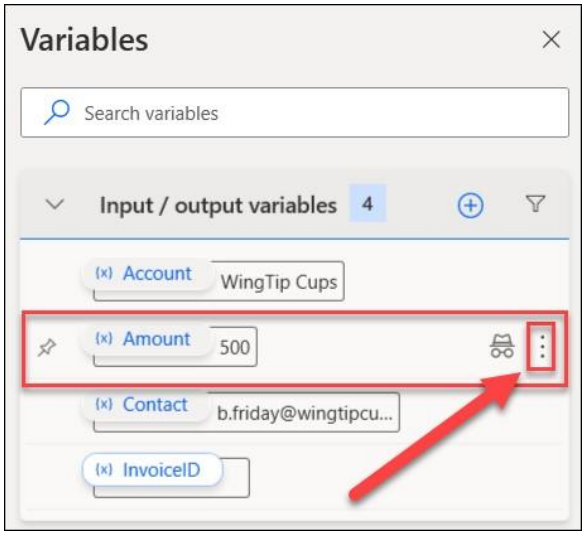
23. **Leaving the percent symbols** to the left and right of the value name, **rename** the value to be **ConvertedAmt**.

24. Then, select **Save**.



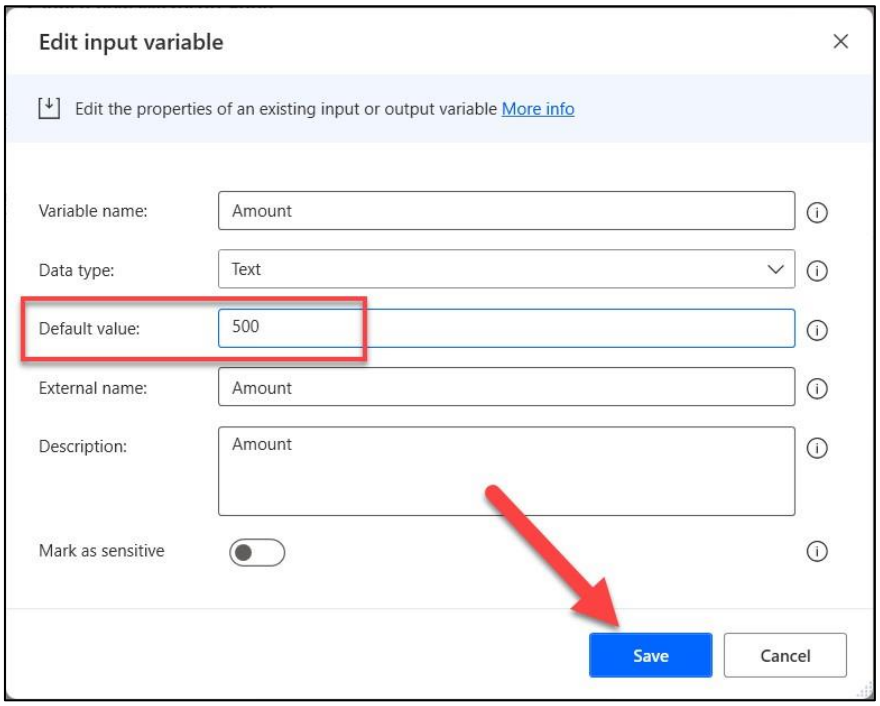
25. Next we will **remove the dollar symbol** from the **Input Amount** variable. From the right side of your screen, locate and hover over the **Amount** variable withint the **Input/output** variables section.

26. To the right of the variable name, select the **ellipses** (**...**).

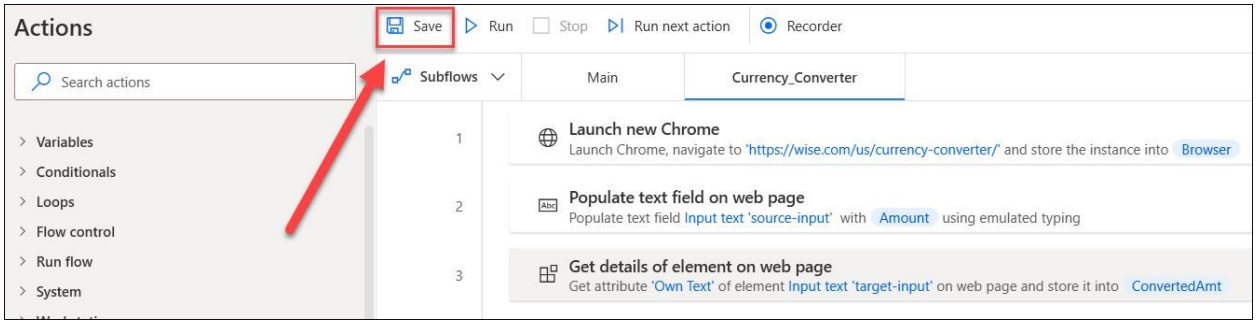


27. From the options menu, select **Edit**.

28. Then, by selecting the **Default value** field, **delete** only the **USD dollar symbol** to the left of the amount value. If you had no $ value in the beginning, then leave it as it is. Finally, select the **Save** button at the bottom of the dialog.

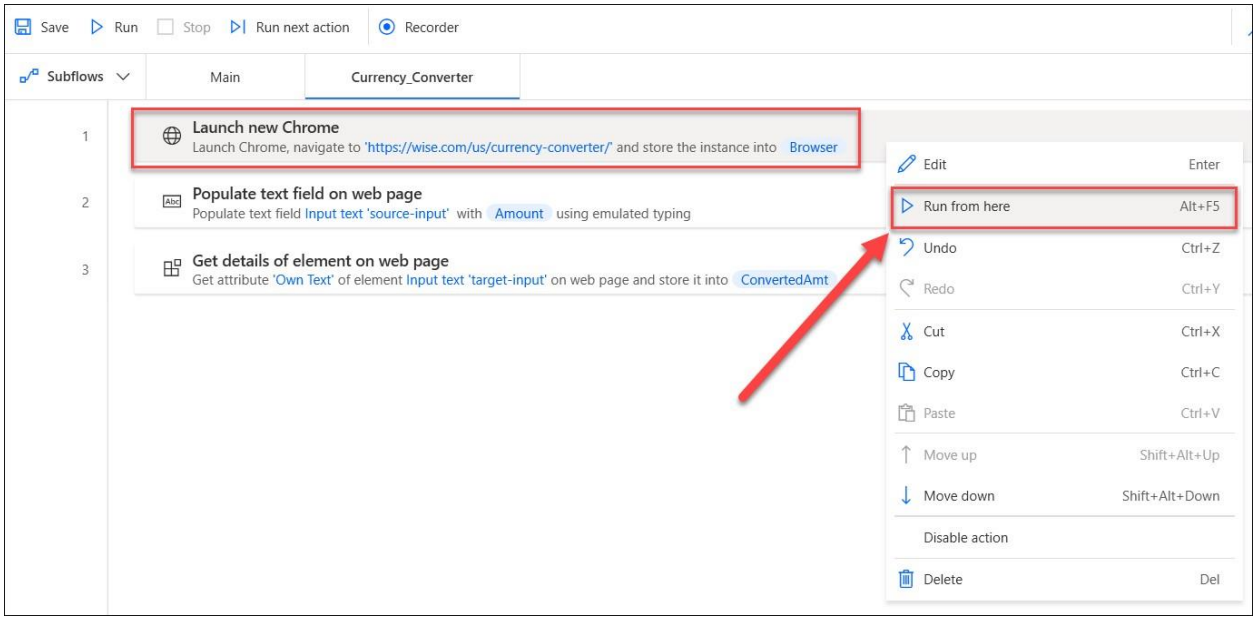


29. Now, from the tool bar at the top of the screen, select the **Save** button to save all of your work and changes.



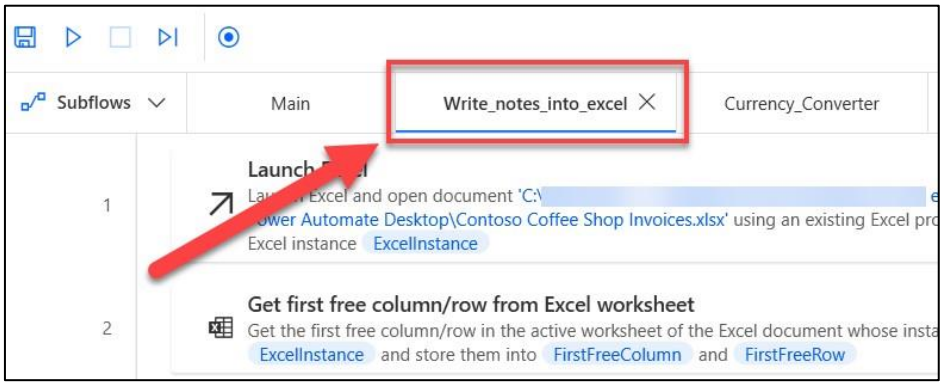
30. Now, we can test the subflow. While still viewing the **Currency_Converter** subflow, **right-click** on the **first action**.

31. Then, from the options menu, select **Run from here**.



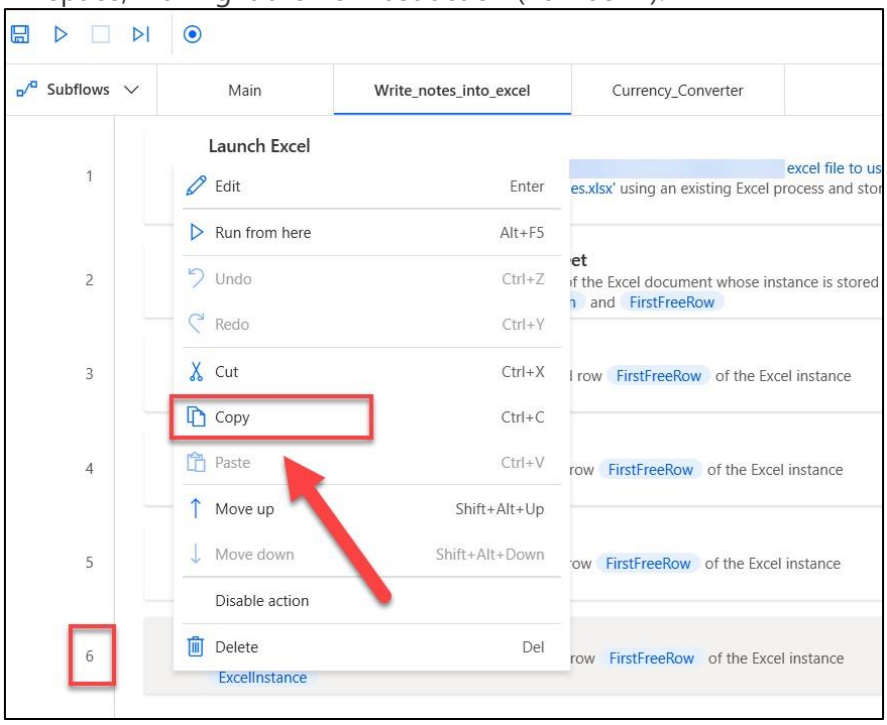
32. You should now see the automation run and convert the $500 USD amount (the default amount value) into another currency.

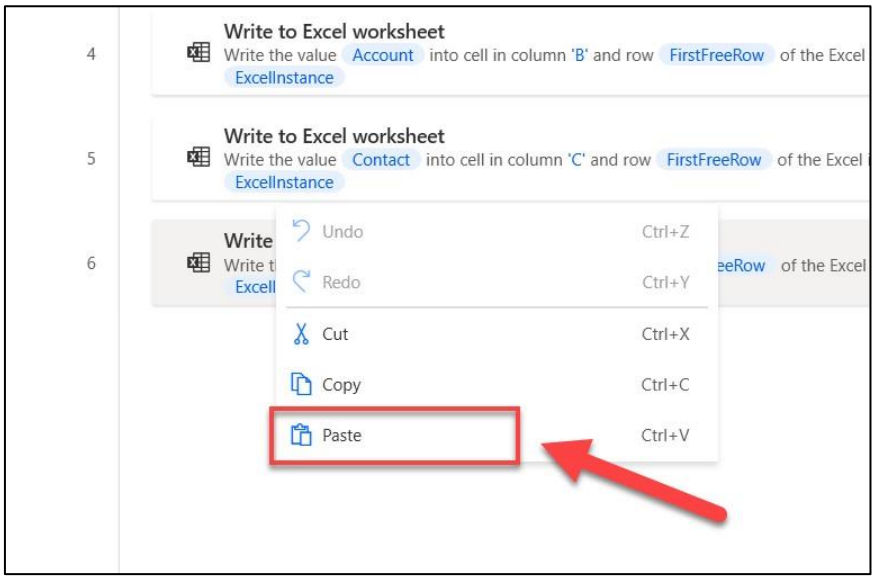
33. The next step is we will capture the **real time converted value** from the website. Navigate to the **Write_notes_into_excel** subflow by selecting the tab at the top of the screen.



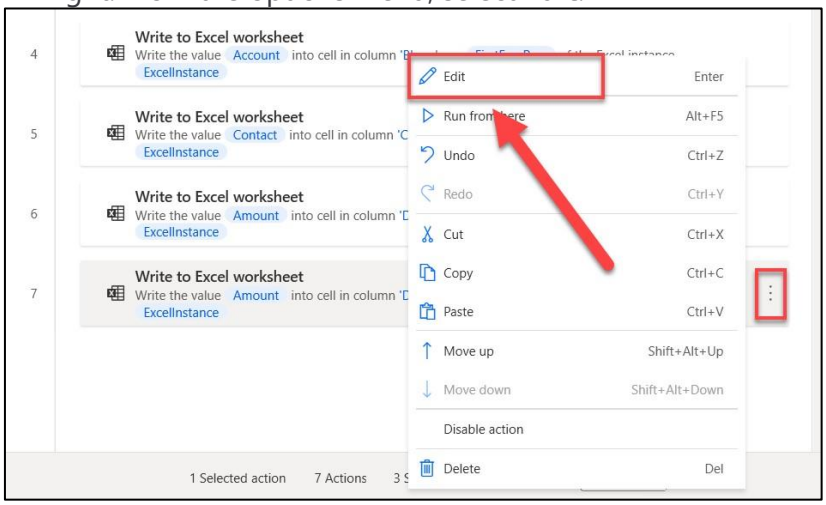
34. Hover over the **last action** (number 6), **Write to Excel worksheet**, within the subflow and **right-click**.

35. From the options menu, select **Copy**. Then, **Paste** the action below, within the blank space, making it the new last action (number 7).





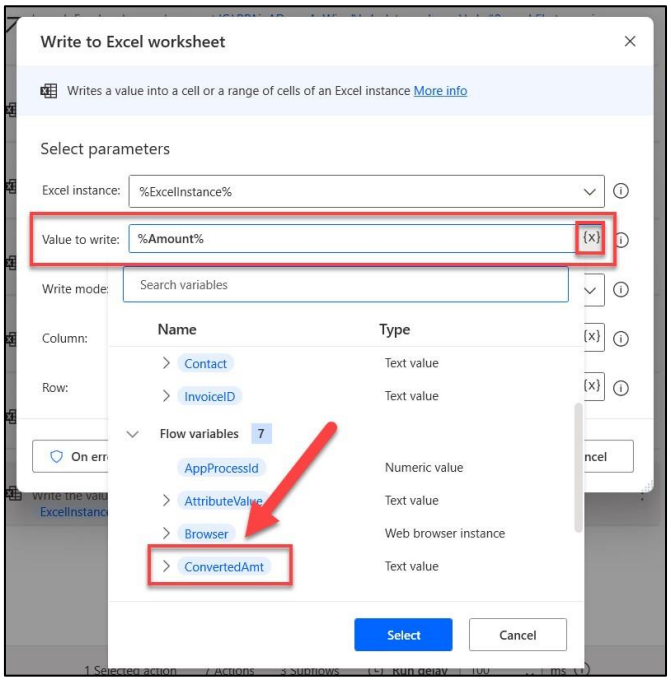
36. Hover over the new **Write to Excel worksheet** action and select the **ellipses** (**...**) to the right. From the options menu, select **Edit**.



37. From the **Write to Excel worksheet** dialog, select the **Variable {X} icon** to the right of the **Value to write** field.

38. From the menu, under the **Flow varibales** section, **double-click** on the **ConvertedAmt** variable that we added previously.

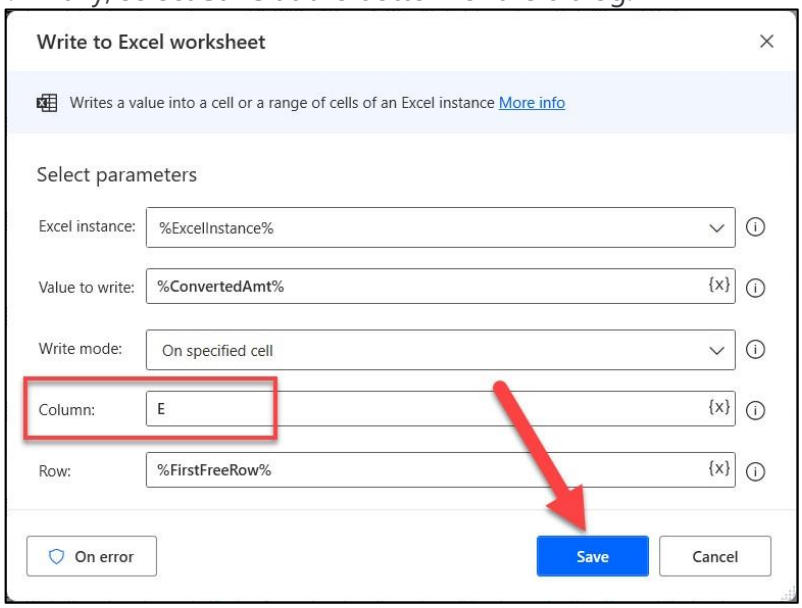
    (**Note:** You may need to **delete** the previous variable within the field in order to correctly enter the new variable.)



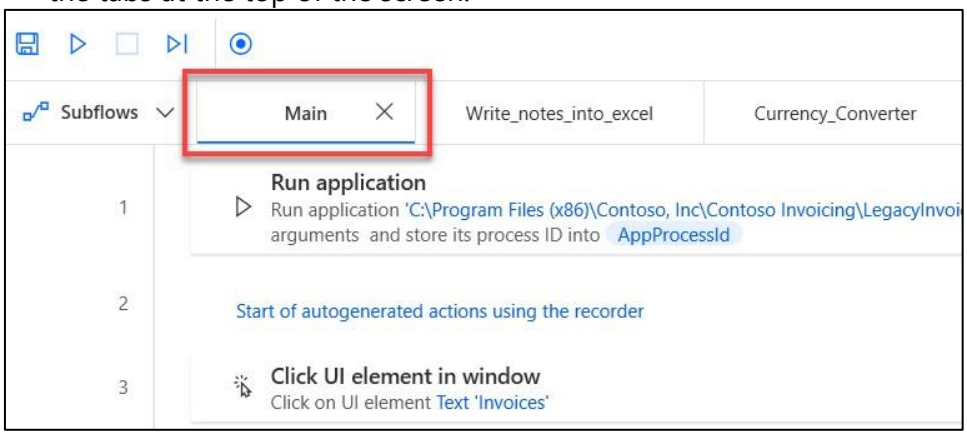
39. Select the **Columm** field, and then enter **E** as the new columm.

40. For the **Row** field, leave it set as **%FirstFreeRow%**.

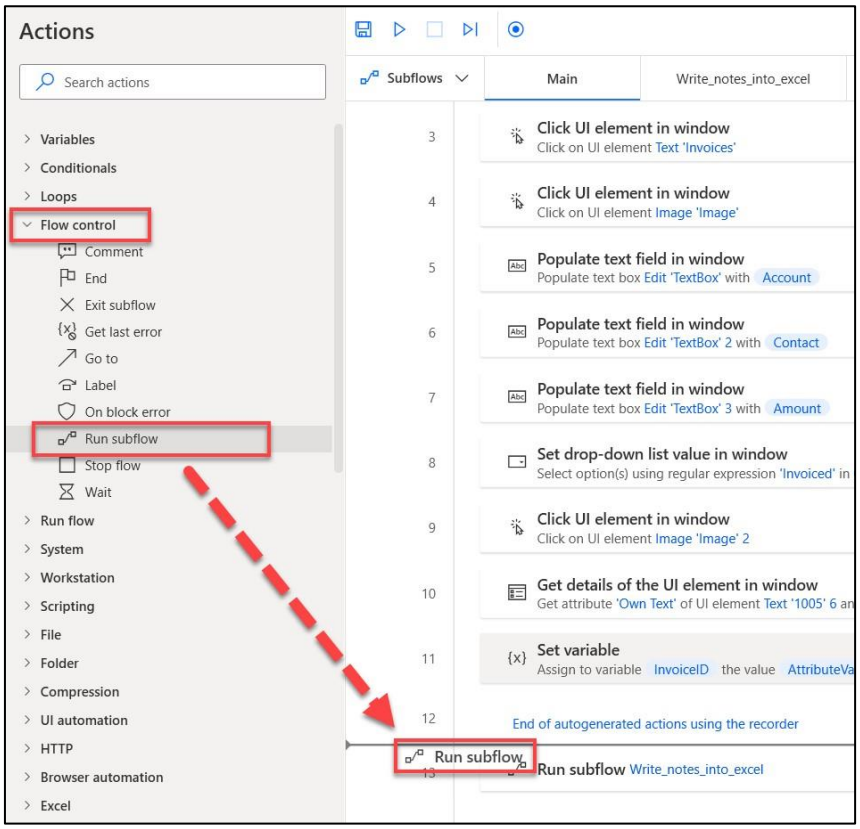
41. Finally, select **Save** at the bottom of the dialog.



42. Now we will add the **Currency_Converter** subflow into the **Main** flow, before the **Write_notes_into_excel** subflow. Navigate back to your **Main** flow by selecting it from the tabs at the top of the screen.

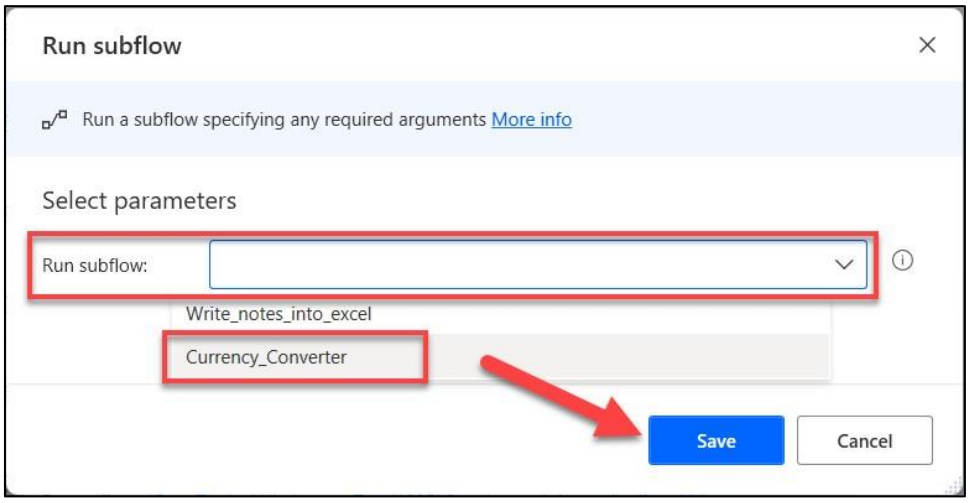


43. From the **Actions** pane to the left of the screen, within the **Flow control** folder, drag and drop the **Run subflow** action into the design space of the **Main** flow. Ensure that the new action is placed between the **12th** and **13th** actions within the Main flow; **above** the **Run subflow** for **Write_notes_into_excel**.

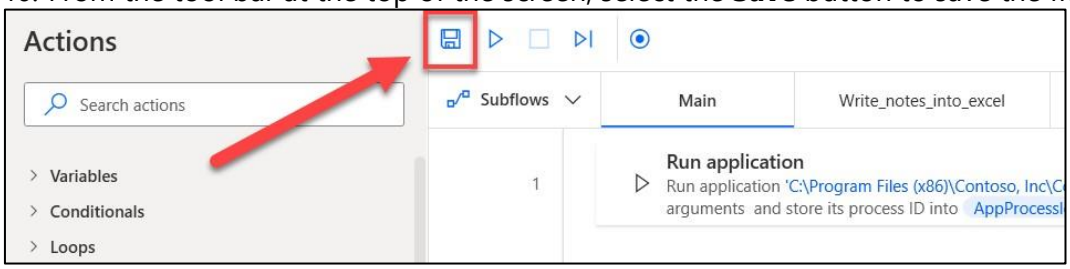


44. Within the **Run subflow** dialog, select the **drop-down** for the **Run subflow** field. From the list, select **Currency_Converter**.

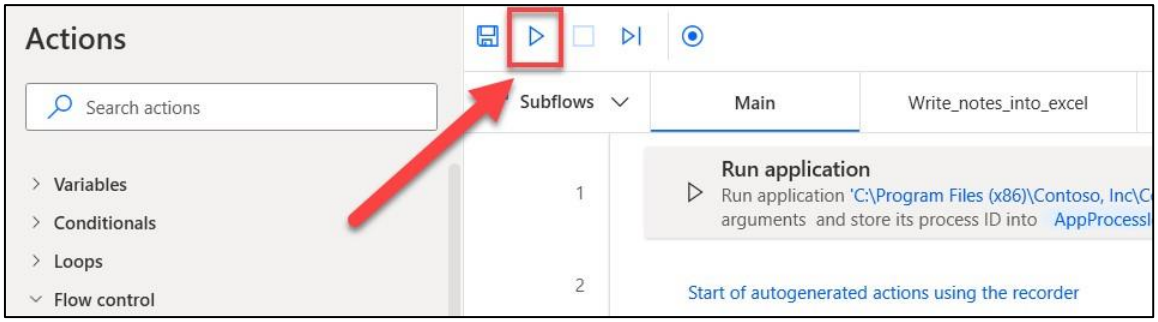
45. Then, select **Save**.



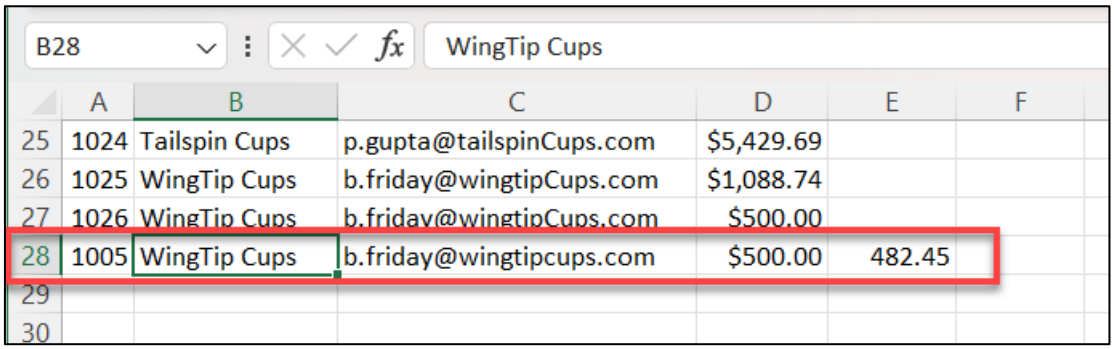
46. From the tool bar at the top of the screen, select the **Save** button to save the flow.



47. You can now run the **Main** flow. From the tool bar at the top of the screen, select the **Run** button.



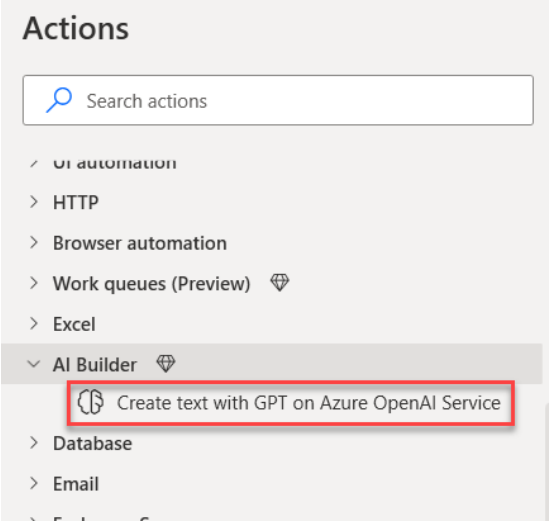
48. After a while, an entry is added to the **Excel file** as in the previous exercise, with an additional cell containing the **converted** value:



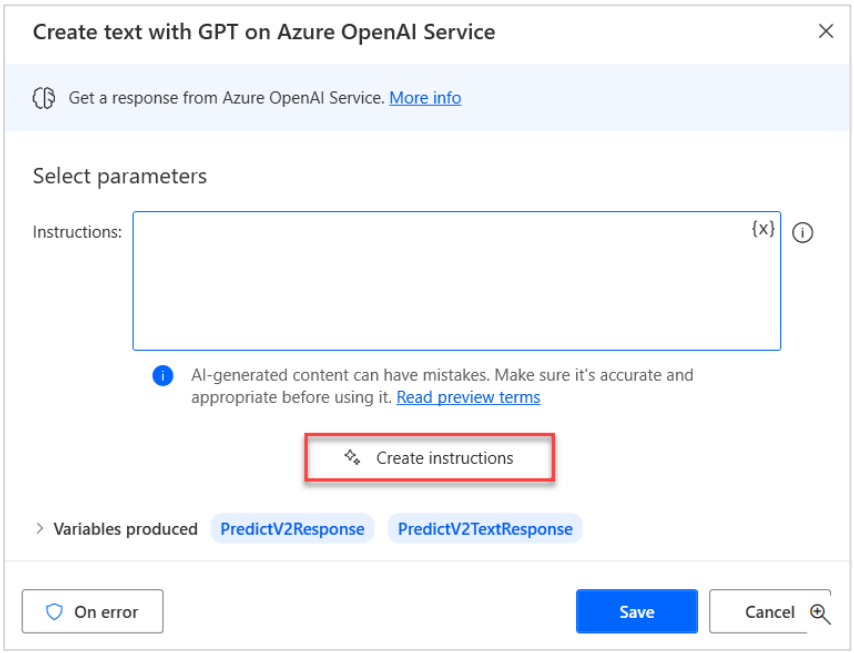
Exercise 3 – Use AIBuilder within Power Automate for desktop

To begin this task, start by having the **Power Automate Desktop app** open to the **Enter an Invoice** flow. Ensure that you're currently viewing the **Main** sub-flow.

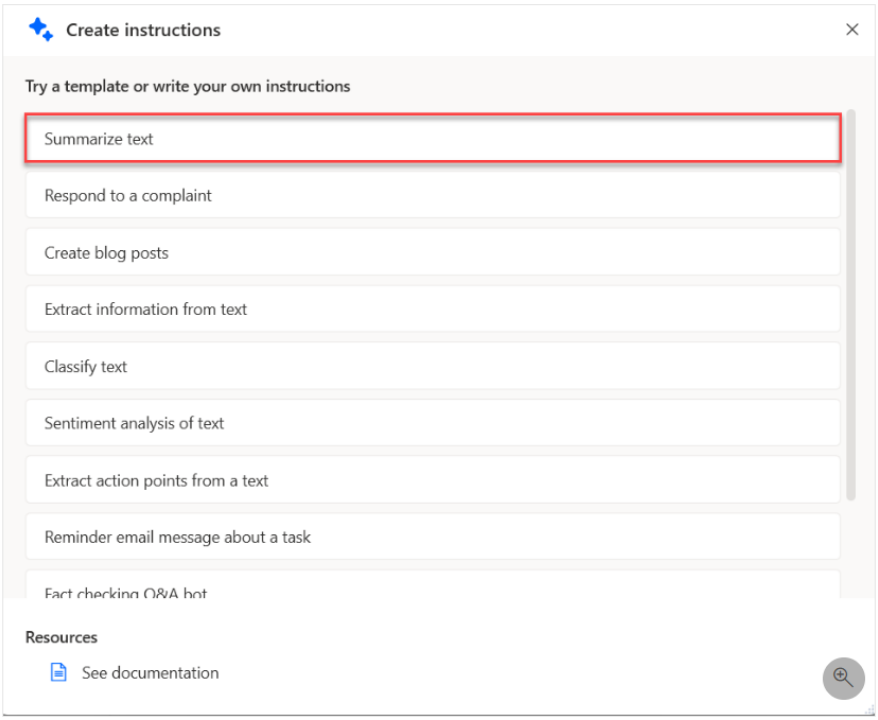
1. From the **Actions** pane to the left of the screen, expand the **AI Builder** menu and then double-click the **Create text with GPT on Azure OpenAI Service** action.



2. In the **Create text with GPT on Azure OpenAI Service** dialog, select **Create Instructions**.

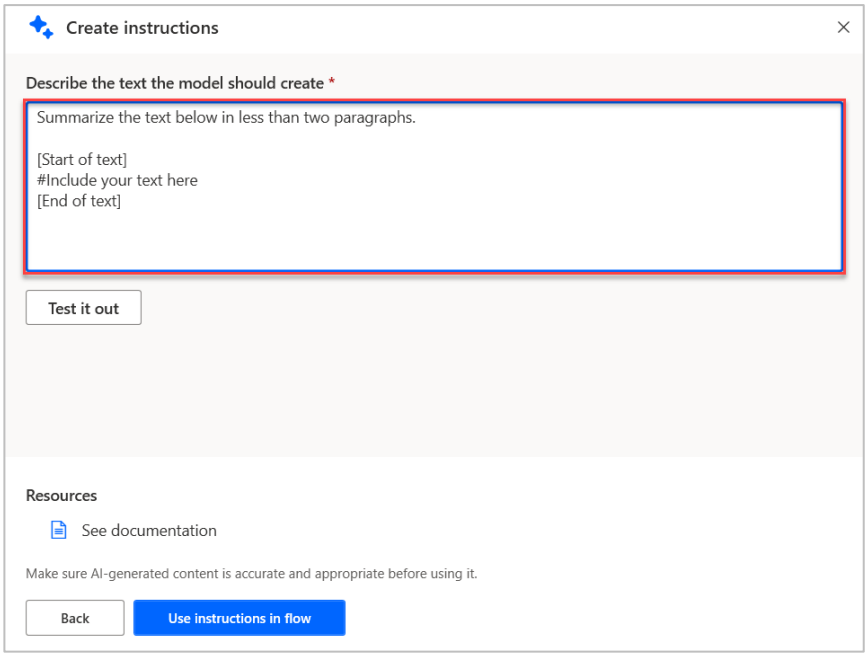


3. Select **Summarize text** from the list of options.



4. Review the auto-generated instructions in the **Describe the text the model should create** area. **Remove the following parts of the prompt**: "*without adding new information.*

If the text below has less than a few words or looks like a placeholder text, respond "Sorry, I can't summarize," otherwise respond with the summary"



5. Select the **Use instructions in flow** button located at the bottom of the dialog.

6. Update the **Instructions** by replacing "*#Include your text here*" with the Input variables created for the flow. To add the variables, select the **{x}** icon in the right corner of the instructions area, then select the variables from the drop-down list. Remove any unnecessary spacing within the text.

    The instructions should now read:

    Summarize the data below in only one paragraph:

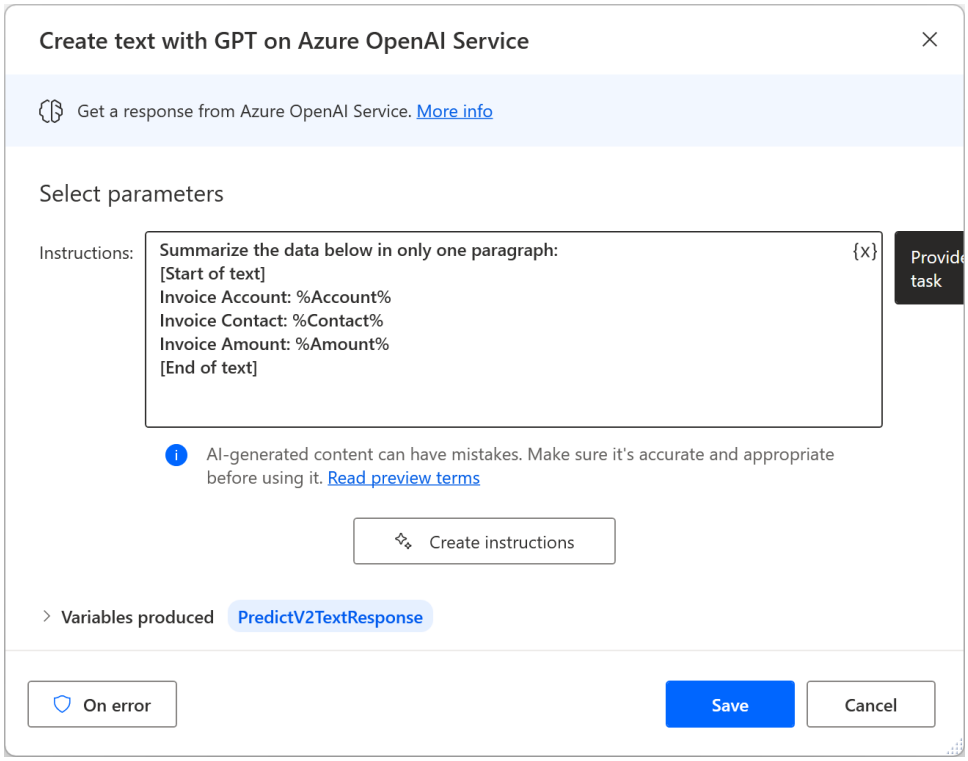
    [Start of text]

    Invoice Account: %Account%

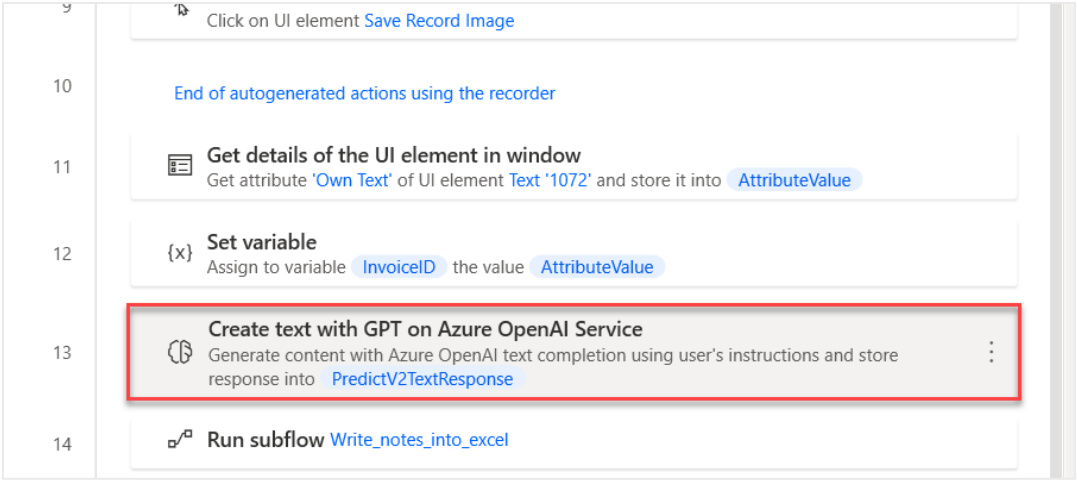
    Invoice Contact: %Contact%

    Invoice Amount: %Amount%

    [End of text]



7. Select **Save** to add the action to the **Main** sub-flow. Ensure that the new action is positioned below the **Set variable** action and above the **Run subflow** action within the sub-flow.

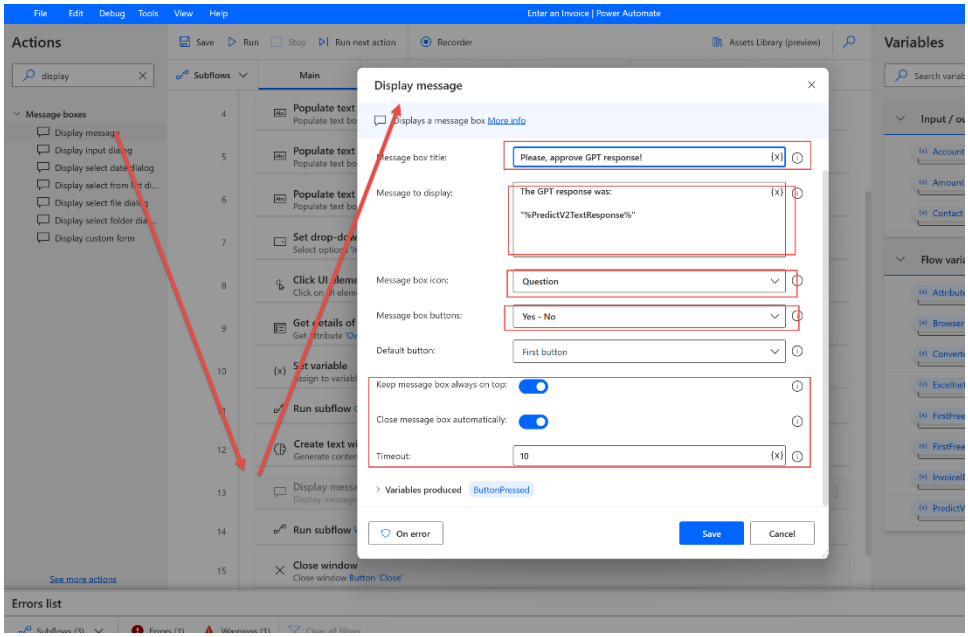


8. GPT action and its responses require human approval, hence the Warning message that you got in the designer after adding the GPT action.
   Add a **Display Message** action located under the **Message boxes** group of actions,

and place it right after the **"Create text with GPT on Azure OpenAI Service"** action. Fill in the parameters as per the below:

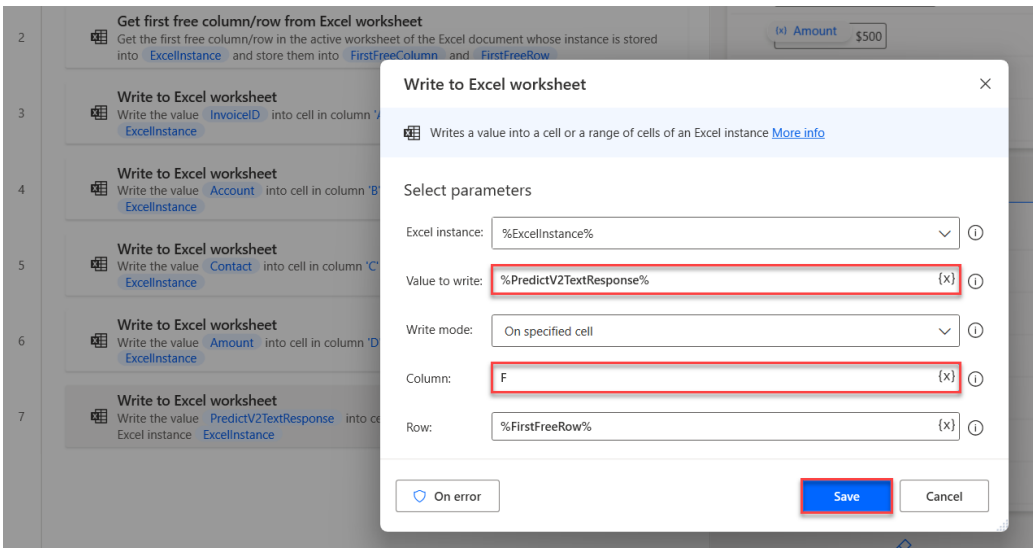
- Message box Title: **Please, approve GPT response!**
- Message to display: **The GPT response was: "%PredictV2TextResponse%"**
- Message box icon: **Question**
- Message box buttons: **Yes – No**
- Turn on the two toggles **"Keep message box always on top"** and **"Close message box automatically".**
- Set timeout to **10.**

Select **Save** in the action properties.

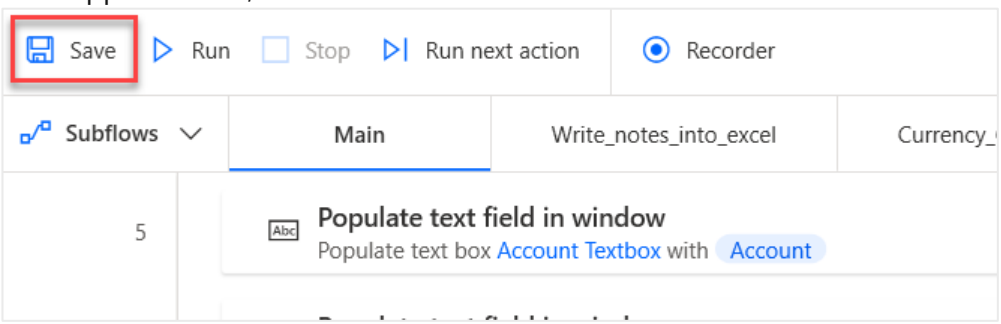


9. Navigate to the subflow **Write_notes_into_excel**. Copy and paste one of the **Write to Excel worksheet** actions to be added to the bottom of the sub-flow.
10. Once pasted, **edit** the new **Write to Excel worksheet** action by double-clicking on the action. Replace the **Value to write** with the newly generated flow

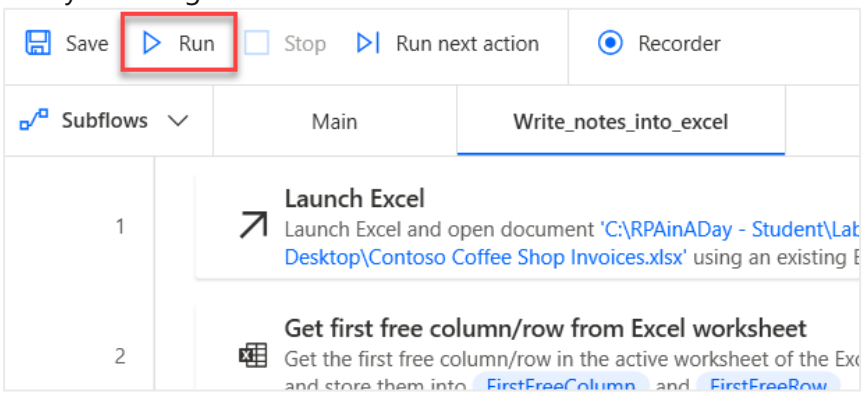
variable **`%PredictV2TextResponse%`**. Replace the **Column to write** value with the column F. **Save** the action when complete.



11. From the upper toolbar, select **Save** and then wait for the flow to be saved.



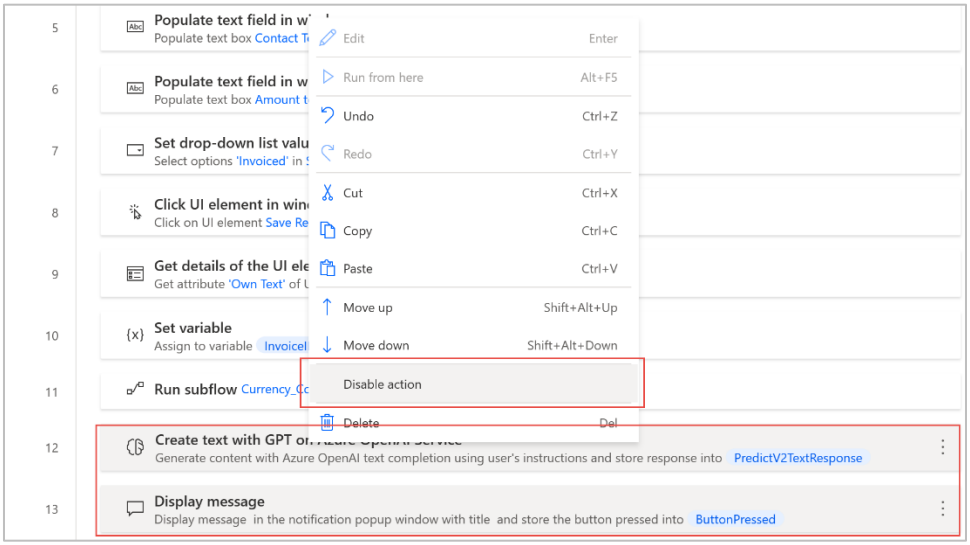
12. Run the flow by selecting **Run** from the toolbar to see how the GPT action works.



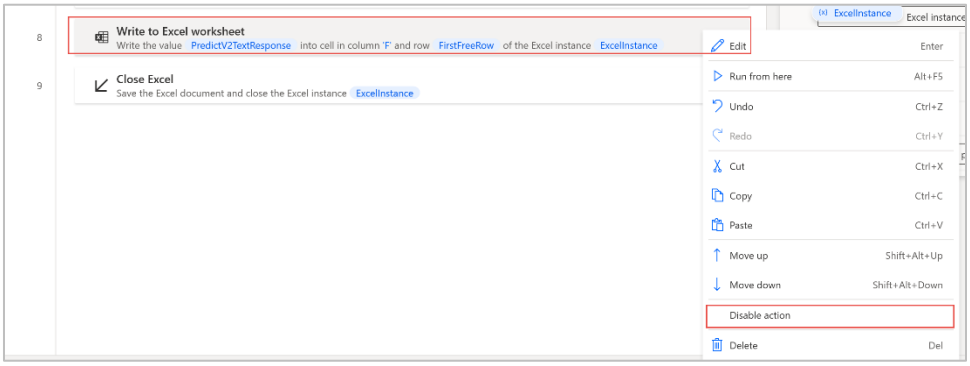
13. To be able to run this flow in unattended mode, you will need to disable **the GPT part and its approval message box** which only makes sense in Attended and local Attended

executions. In Unattended mode there will be no user to Approve this response through the message box.

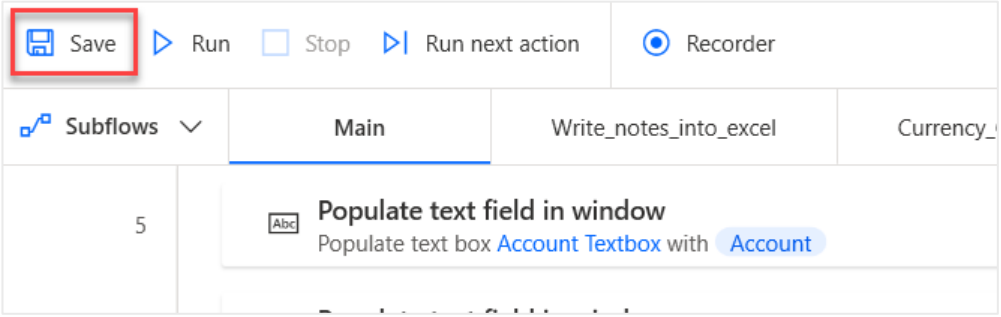
14. Select the GPT action, **right click** and select **Disable action.** Do the same for the message box action.



15. Navigate to the subflow **Write_notes_into_excel and disable the Write to Excel action that writes the GPT response into Excel column F.**



16. From the upper toolbar, select **Save** and then wait for the flow to be saved.



Congratulations!

You have completed this Lab!

Check your knowledge

Lab 4

5 mins

1. Which of the following can you use as your Subflow name?
   A. Currency converter
   B. Currency Converter
   C. Currency_converter
   D. All the above

2. When you try to capture a web element from a web page, after selecting the **Click link on web page** action and selecting the UI element dropdown, you need to select _____ to be able to capture the element.
   A. Add UI element
   B. Save
   C. Browser
   D. None of the above

3. When you are populating text Field on web page, you need to hold the _____ and _____ to select the element.
   A. CTRL + Left-Click
   B. Tab + Left-Click
   C. CTRL + Right-Click
   D. Tab + Right-Click

Answer Key

1. Which of the following can you use as your Subflow name?
   A. Currency converter
   B. Currency Converter
   C. **Currency_converter**
   D. All the above

   Answer: **C**. Currency_converter. Power Automate Desktop does not allow for spaces to be in the name of a Subflow.

2. When you try to capture a web element from a web page, after selecting the **Click link on web page** action and selecting the UI element dropdown, you need to select _____ to be able to capture the element.
   A. **Add UI element**
   B. Save
   C. Browser
   D. None of the above

   Answer: **A**. Add a new UI element - You need to select this button to start capture elements

3. When you are populating text Field on web page, you need to hold the _____ and _____ to select the element.
   A. **CTRL + Left-Click**
   B. Tab + Left-Click
   C. CTRL + Right-Click
   D. Tab + Right-Click

   Answer: **A**. CTRL + Left-Click