



Robotic Process Automation in a Day

Lab 8 – Create subflows and web automation using Power Automate for desktop

90 mins

February 2023



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Lab Overview

In previous labs you have created a cloud flow that will be triggered to run automatically every time a new invoice email arrives at the Contoso Coffee shop company email inbox. This cloud flow will extract the invoice details data from the attachment invoice file using AI Builder, send an approval request to human supervisor to confirm this is real and ready to be process. It will then run a desktop flow to enter the invoice details in the Contoso Coffee shop invoice management desktop app and finally response with the confirmation to the vendors who sent the invoice. This completes an end-to-end automation to process the incoming vendor invoices for Contoso Coffee shop company.

We learnt that Contoso Coffee shop company also need 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 purpose etc. 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.

Prerequisites

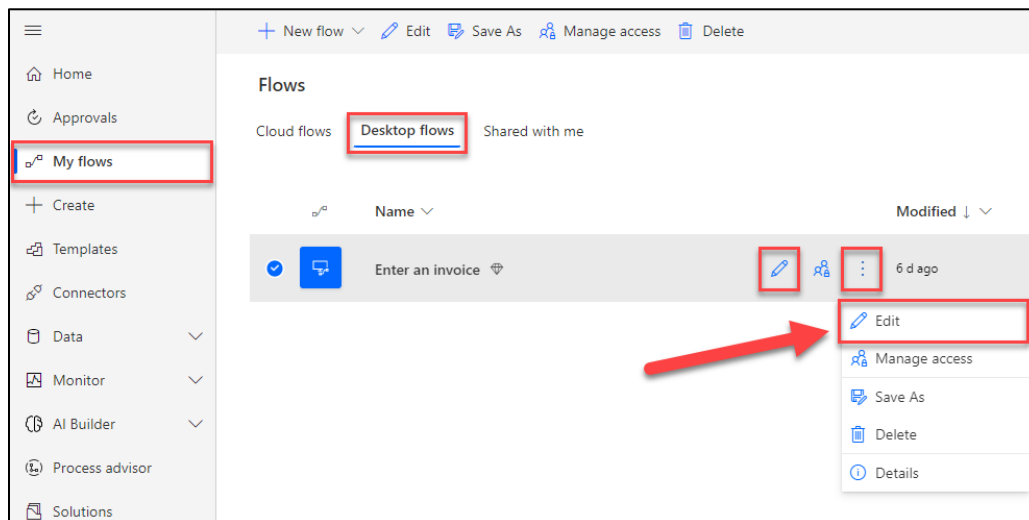
Please complete **lab 1, pre-requisite task 3: Start per user plan with attended RPA trial license** and **lab 1, installation of Power Automate Desktop**. To use Power Automate for desktop, a user must own either a **trial** or **paid** per user plan with attended RPA.

Before doing the exercises, please complete **Lab 2**.

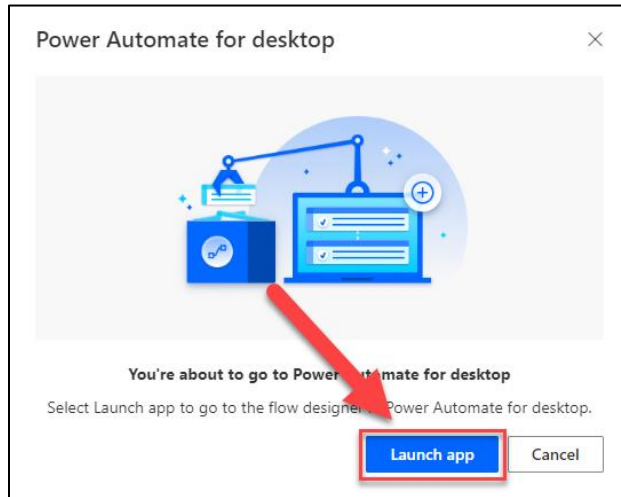
Exercise 1 - Build a Power Automate desktop subflow to write notes into Microsoft Excel

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.

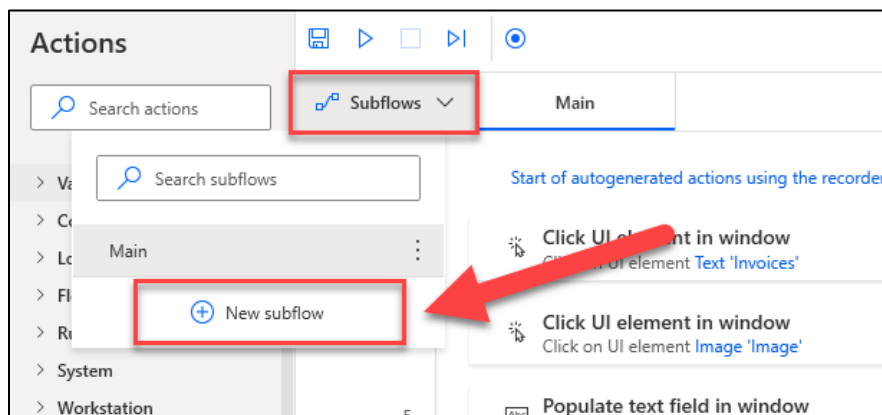
1. Open a new web browser and navigate to **Power Automate for desktop**. Sign in if needed. You can navigate to Power Automate for desktop using the following link: <https://make.powerautomate.com>.
2. From the menu to the left of the screen, select **My Flows**. Then, select the Desktop flows tab at 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.



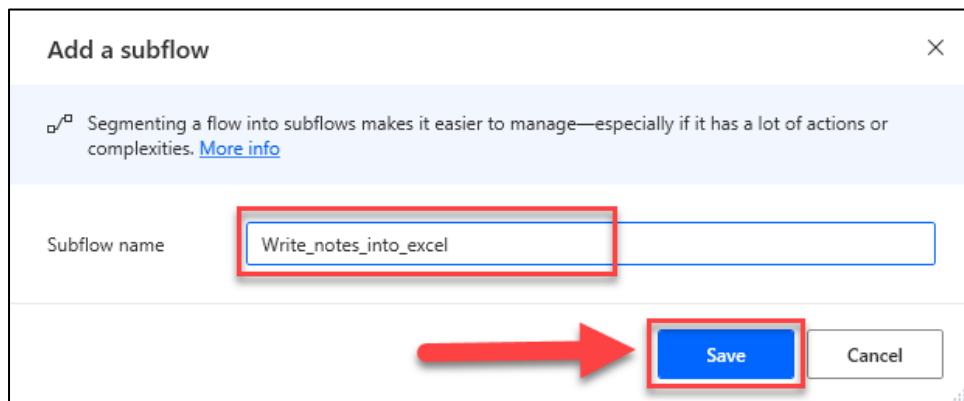
4. Within the **Power Automate for desktop** dialog box, select **Launch app**. It may take a few moments to load.



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**.

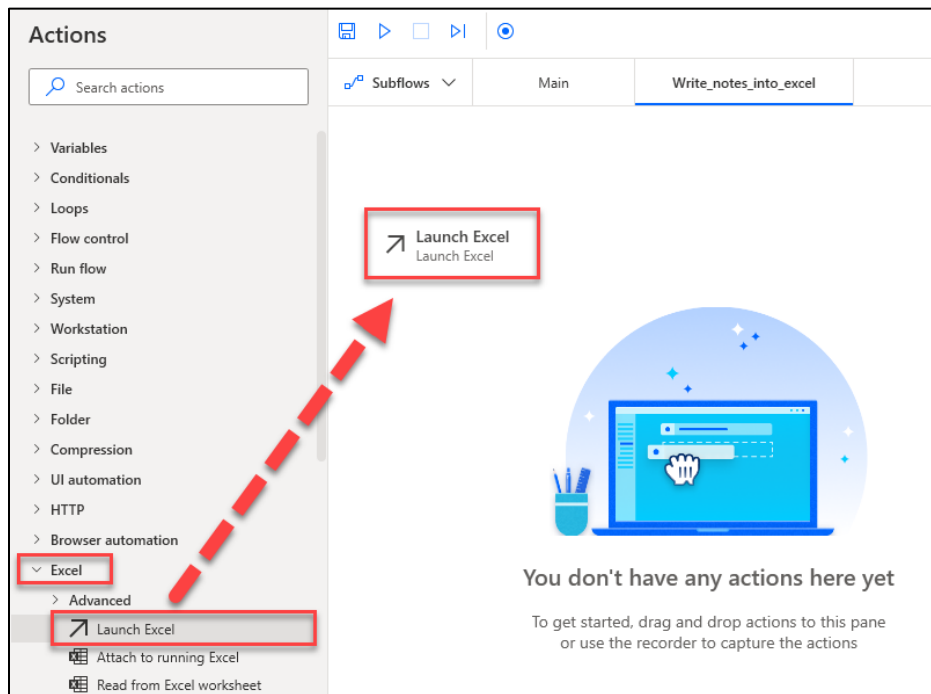


6. Name the Subflow to be **Write_notes_into_excel**. Then, select **Save**.

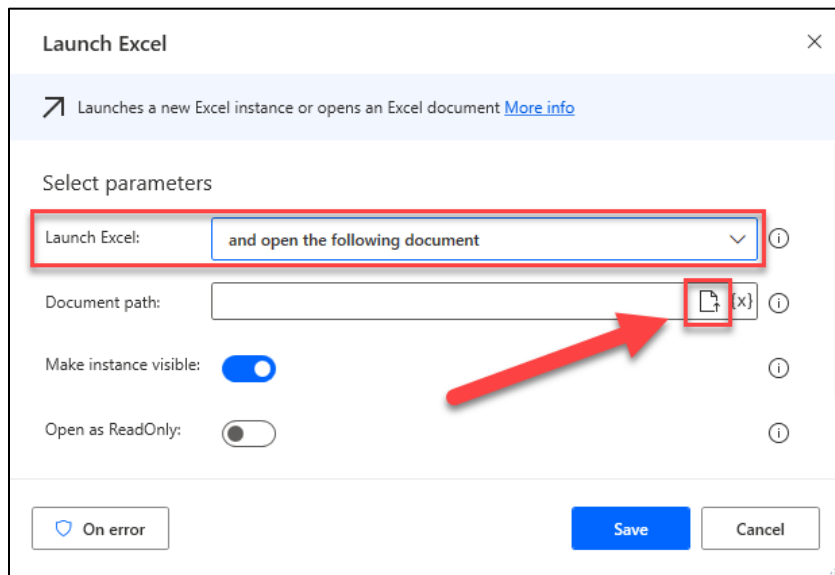


Note: Subflow names **cannot** have spaces.

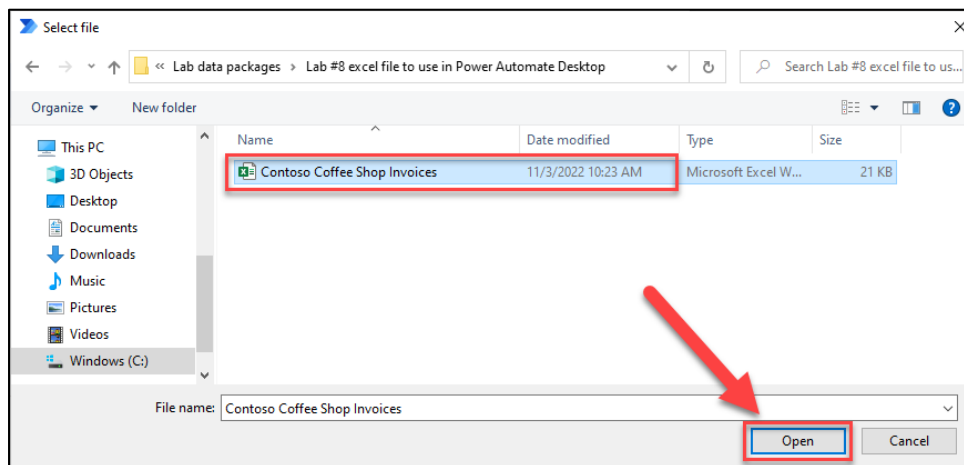
7. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Launch Excel** action into the center pane.



8. 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.

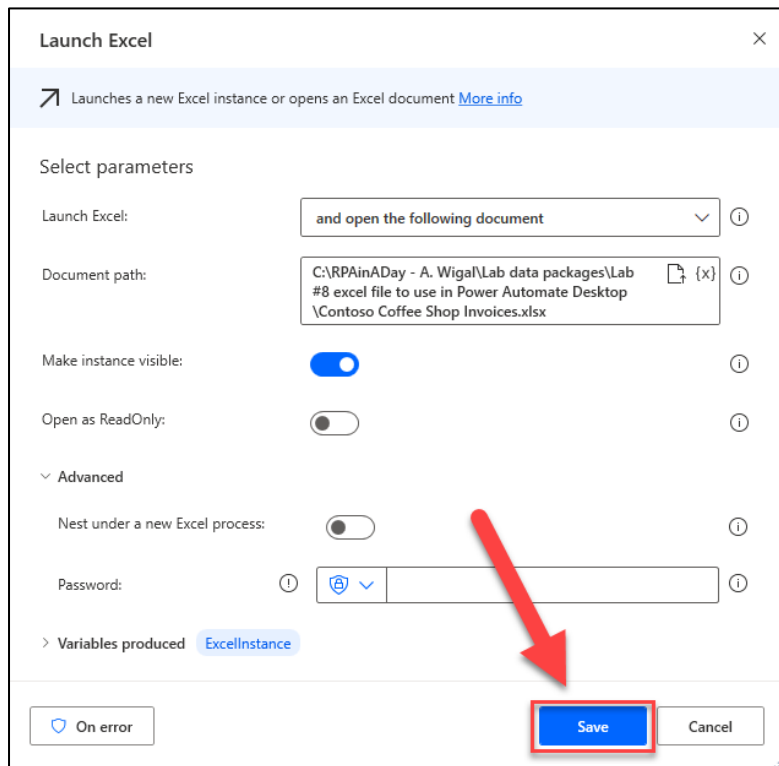


9. Browse, find and select the **Contoso Coffee Shop Invoices** excel file, located in the **Lab #8** file of the **Lab data packages** folder for this lab. Once you have located and selected the excel file, select **Open**.

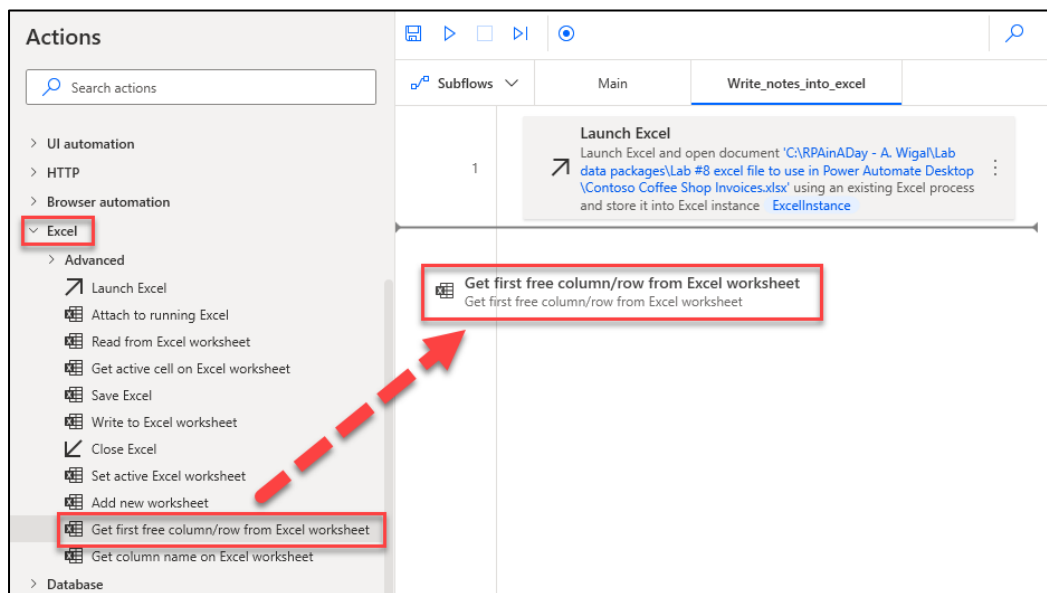


Note: Our spreadsheet does not contain a **password**. However, if our spreadsheet did, we could expand the **Advanced** section in this dialog and we could provide a password.

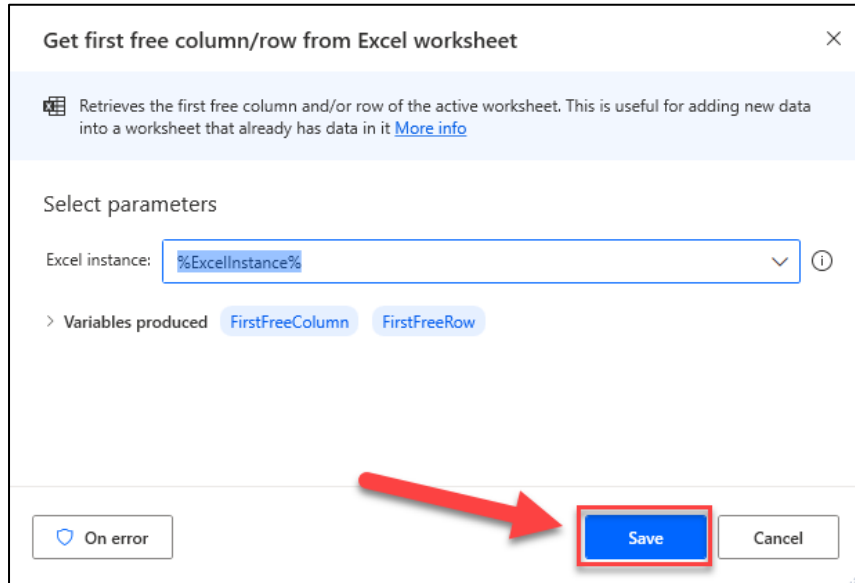
10. Then, in the **Launch Excel** dialog, select **Save**.



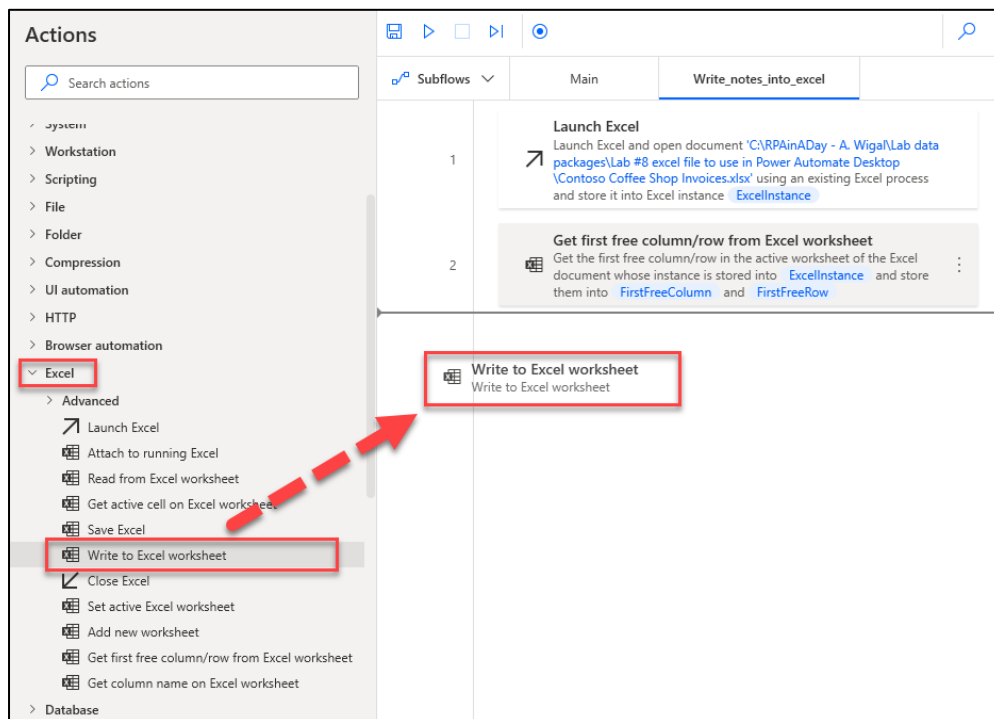
11. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Get first free column/row from excel worksheet** action into the center pane below the first action.



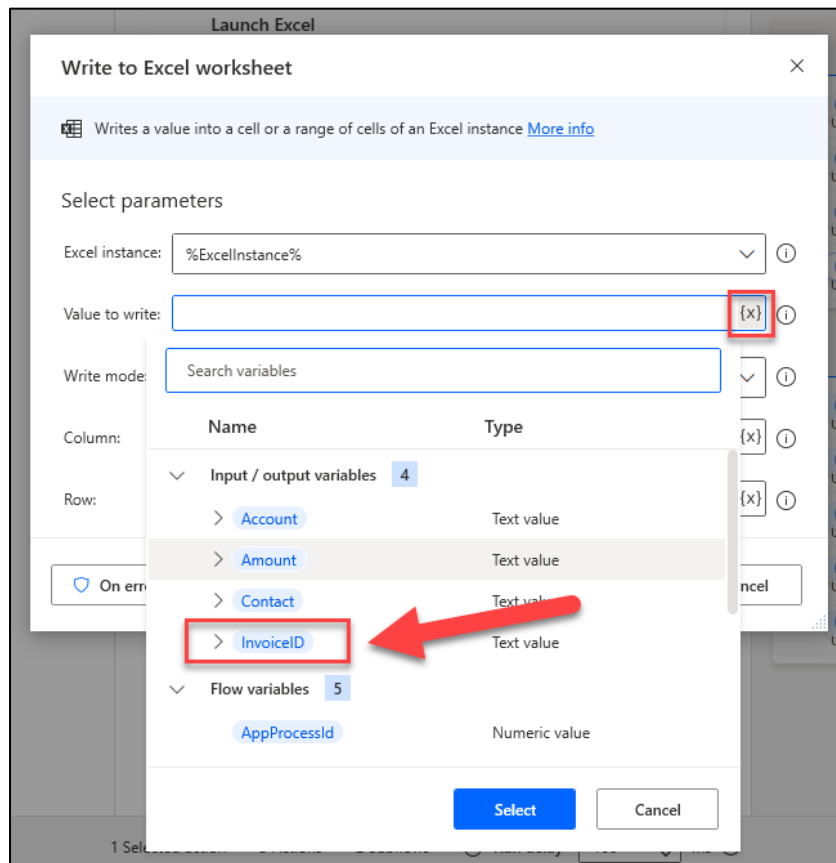
12. In the **Select parameters** section, we will use the default settings for this action. Within the **Get first free column/row from Excel worksheet** dialog, select **Save** to add this action to the design surface. This action will retrieve the number of the first free row and the first free column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



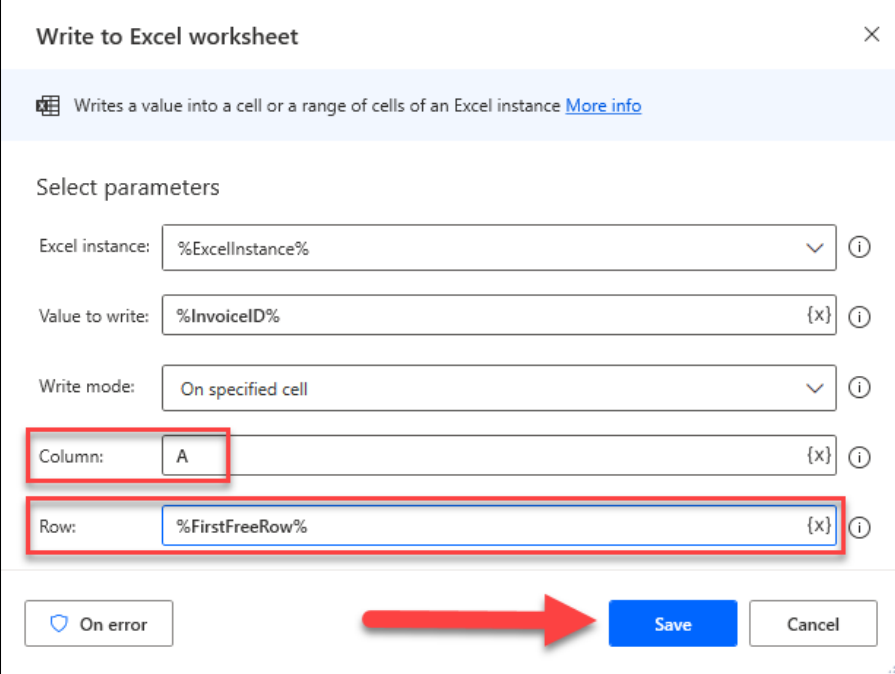
13. Next, from the **Actions** pane to the left of the screen, under the **Excel** expansion, drag and drop the **Write to Excel worksheet** action into the center pane below the second action.



14. 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.



15. 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.



Write to Excel worksheet [X]

Writes a value into a cell or a range of cells of an Excel instance [More info](#)

Select parameters

Excel instance: %ExcelInstance% [v] [i]

Value to write: %InvoiceID% {x} [i]

Write mode: On specified cell [v] [i]

Column: A {x} [i]

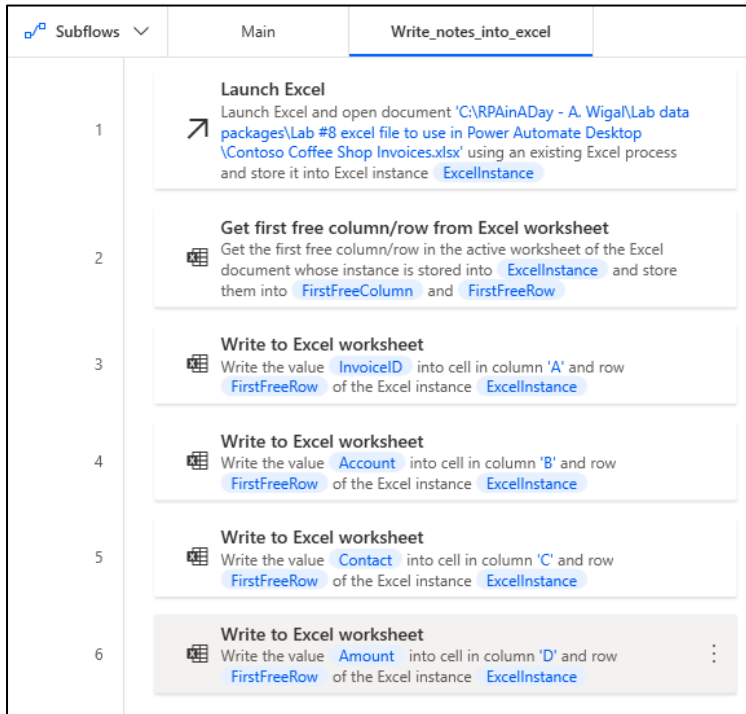
Row: %FirstFreeRow% {x} [i]

On error [Save] [Cancel]

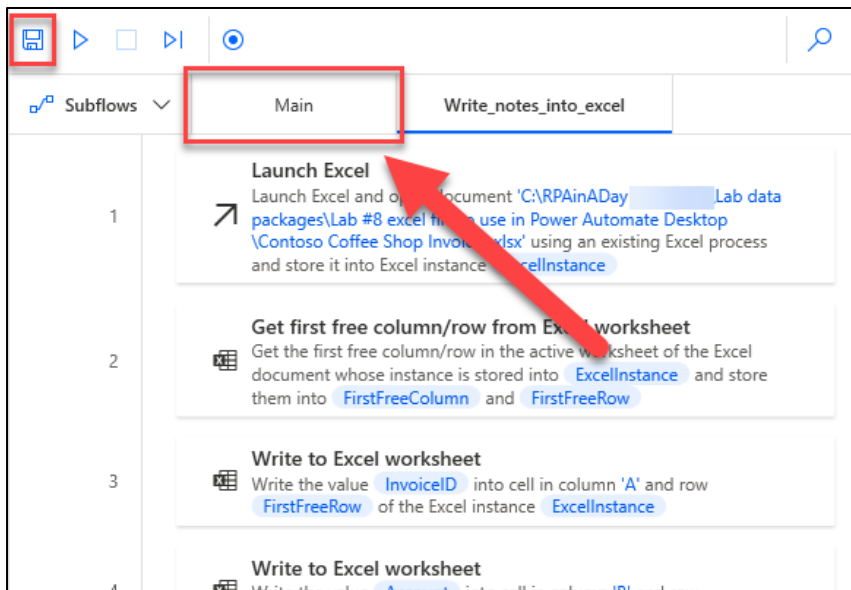
16. Using the same process outlined in **steps 13 through 15**, add **three** more **Write to Excel worksheet** actions to the design space using the values and information in the table below to fill in the different fields:

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

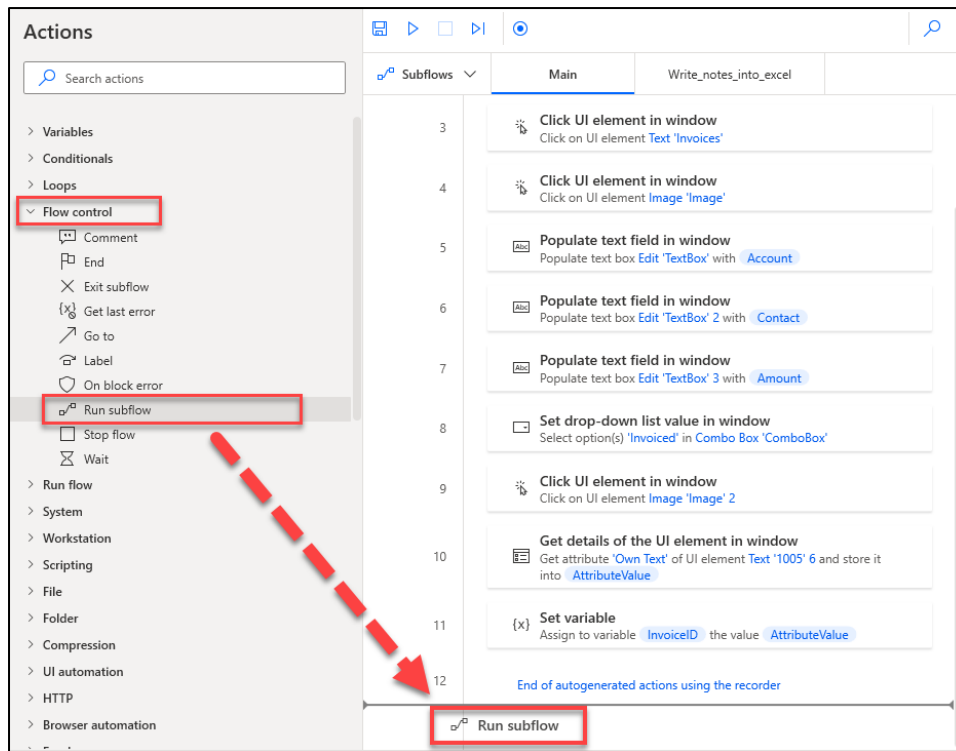
17. When you completed the steps above, your subflow for writing notes into Excel should look like the figure below. You should have **6** actions within the design space list:



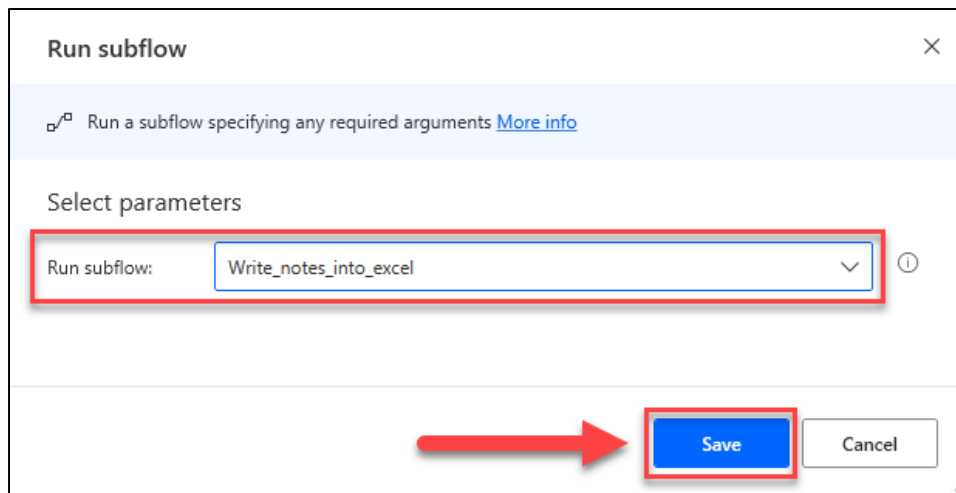
18. From the tool bar at the top of the page, select the **Save** button and then navigate back to the **Main flow** by selecting the **Main** tab at the top of the page.



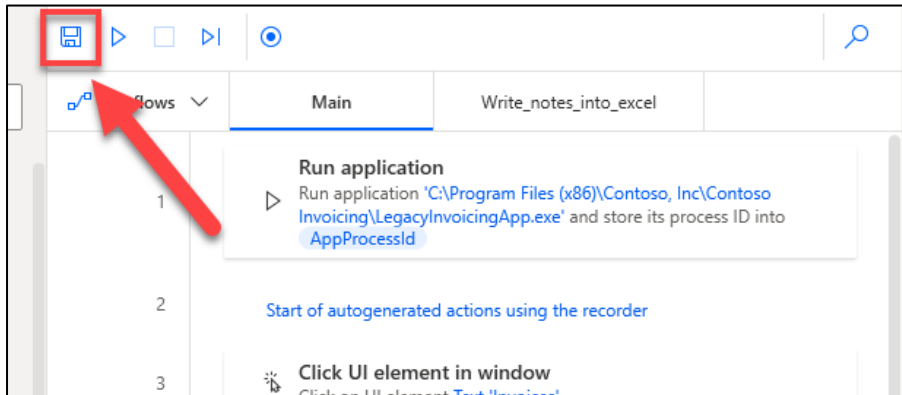
19. Next, in the **Main** flow, from the **Actions** pane to the left of the screen, under the **Flow control** expansion, drag and drop the **Run subflow** action into the design space pane, below step **12**.



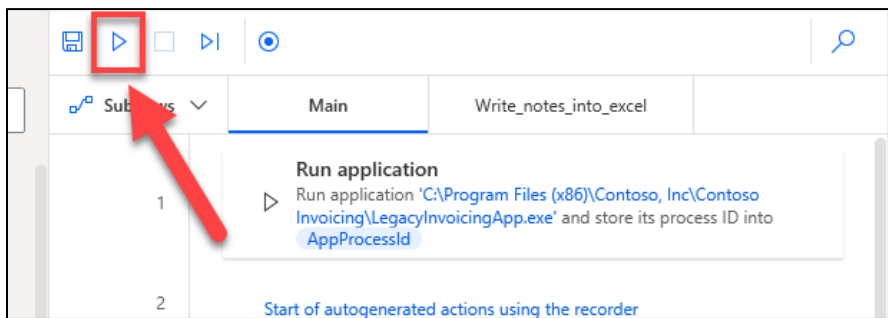
20. In the **Run subflow** dialog, in the **Run subflow** field, select **Write_notes_into_excel** from the drop-down. Then, select **Save**.



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



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



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

The screenshot displays two overlapping windows. The background window is 'Contoso Invoicing', showing a list of invoices. The foreground window is an Excel spreadsheet titled 'Contoso Coffee Shop Invoices'.

Contoso Invoicing - Invoice List:

ID	Date	Account Name	Contact Email	Amount
1026	11/15/2022	Admin Account	labadmin1@m365u44459415.onmicrosoft.com	\$ 100.00
1027	11/15/2022	WingTip Toys	b.friday@wingtipco.com	\$ 500.00
1028	11/15/2022	WingTip Toys	b.friday@wingtipco.com	\$ 500.00
1029	11/15/2022	WingTip Cups	b.friday@wingtipcups.com	\$ 500.00
1030	11/15/2022	WingTip Cups	b.friday@wingtipcups.com	\$ 500.00
1031	11/15/2022	WingTip Cups	b.friday@wingtipcups.com	\$ 200.00
1032	11/15/2022	WingTip Cups	b.friday@wingtipcups.com	\$ 500.00
1033	11/15/2022	WingTip Cups	b.friday@wingtipcups.com	\$ 500.00

Contoso Invoicing - Invoice Detail (ID: 1033):

ID: 1033
Date: 11/15/2022
Account: WingTip Cups
Contact: b.friday@wingtipcups.com
Amount: \$500.00
Status: Invoiced

Excel - Contoso Coffee Shop Invoices:

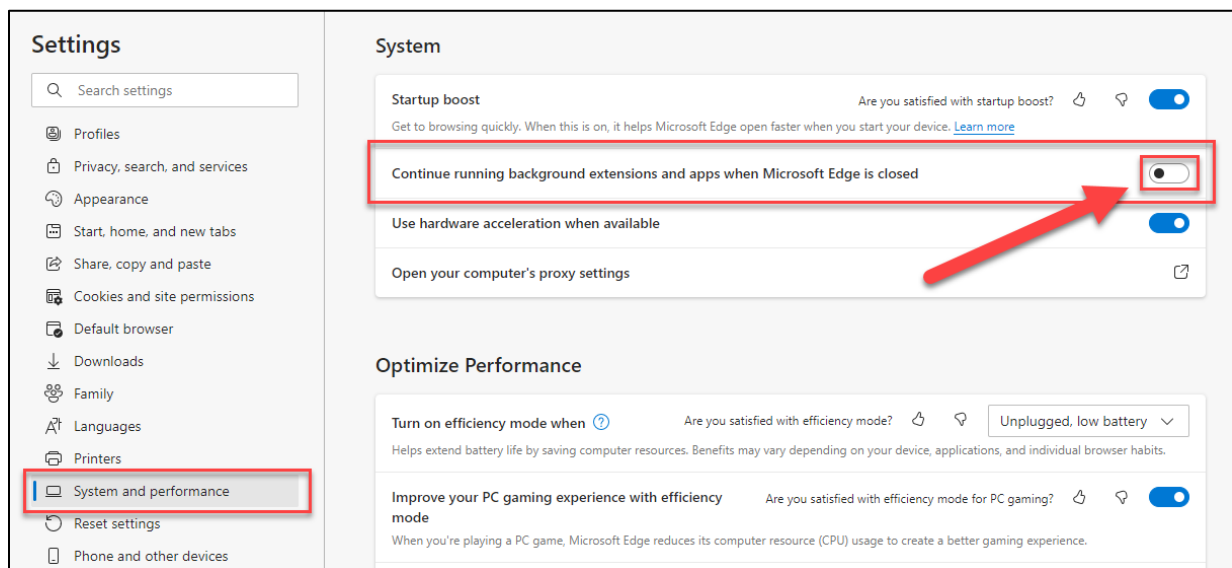
	A	B	C	D	E	F	G	H	I	J	K	L	M
26			1025 WingTip Cups	b.friday@wingtipCups.com	\$1,088.74								
27			1026 WingTip Cups	b.friday@wingtipCups.com	\$500.00								
28			1005 WingTip Cups	b.friday@wingtipcups.com	\$500.00								
29													
30													
31													
32													
33													
34													
35													

Note: You may see a different invoice ID.

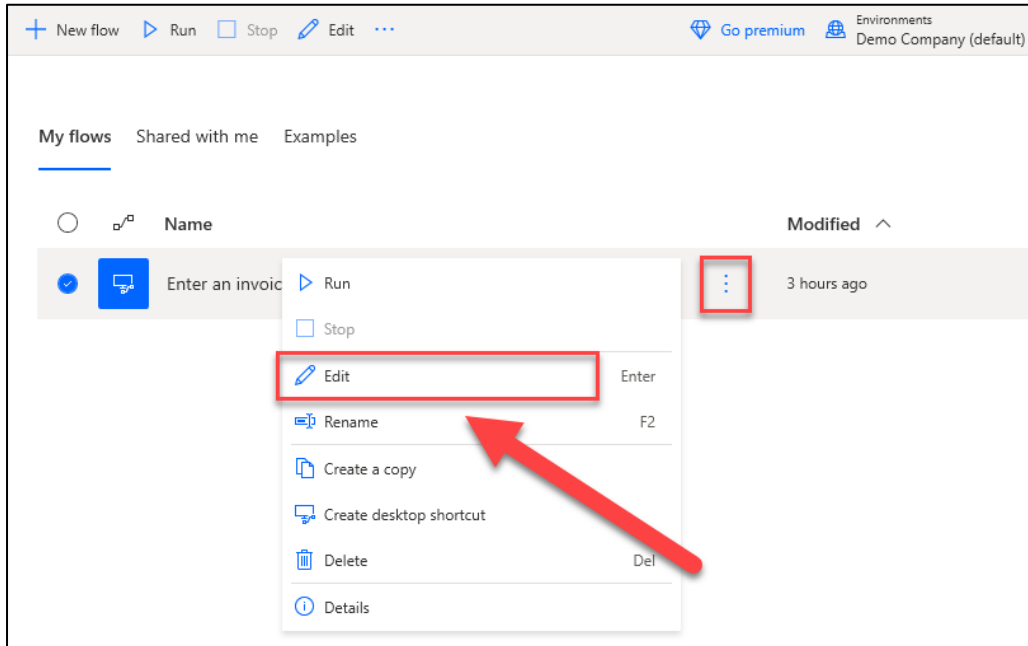
Exercise 2 - Advanced Power Automate Desktop features

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.

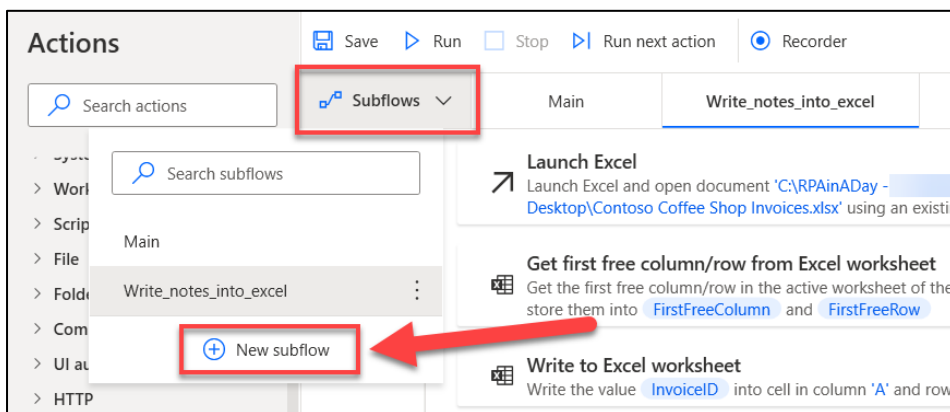
1. Open a new web browser and navigate to Microsoft Edge using the following URL: **edge://settings/system**. This will bring you to the **System and Performance** page. Under the **System** section, turn off **Continue running background apps when Microsoft Edge is closed**. Then, **close** all browser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



- 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.)

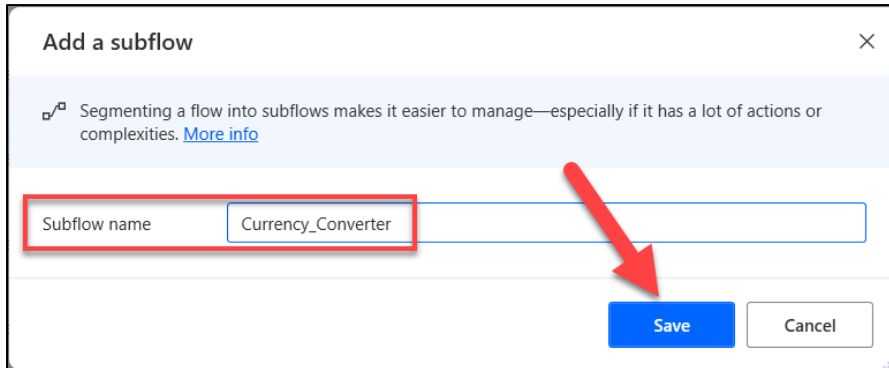


- From the tabs at the top of the screen, select the **Subflows** drop-down. Then, select **+ New subflow** to create a second subflow for the **Enter an invoice** flow.

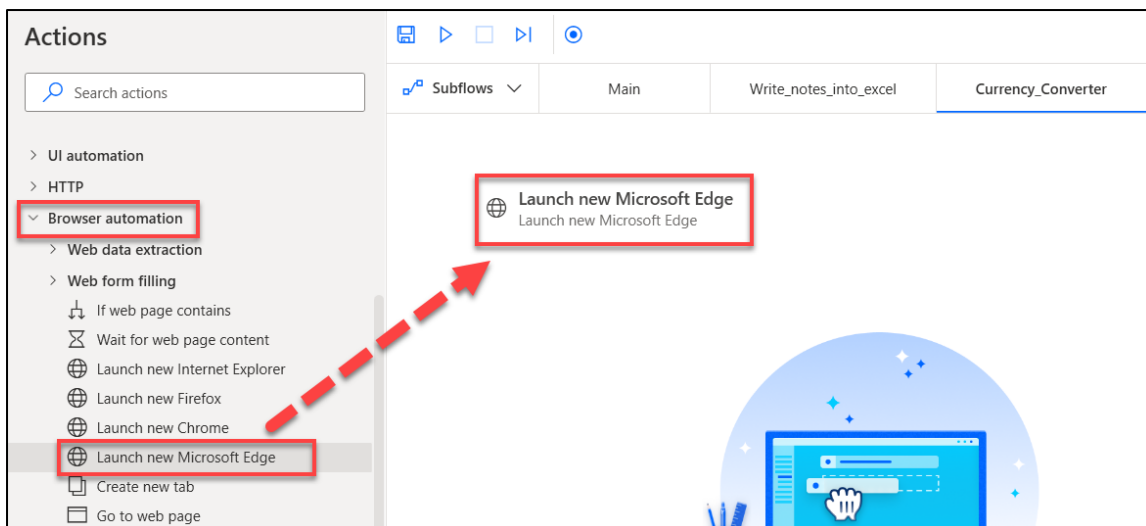


4. Within the **Add a subflow** dialog box, name your new subflow as **Currency_Converter**. Then, select **Save**.

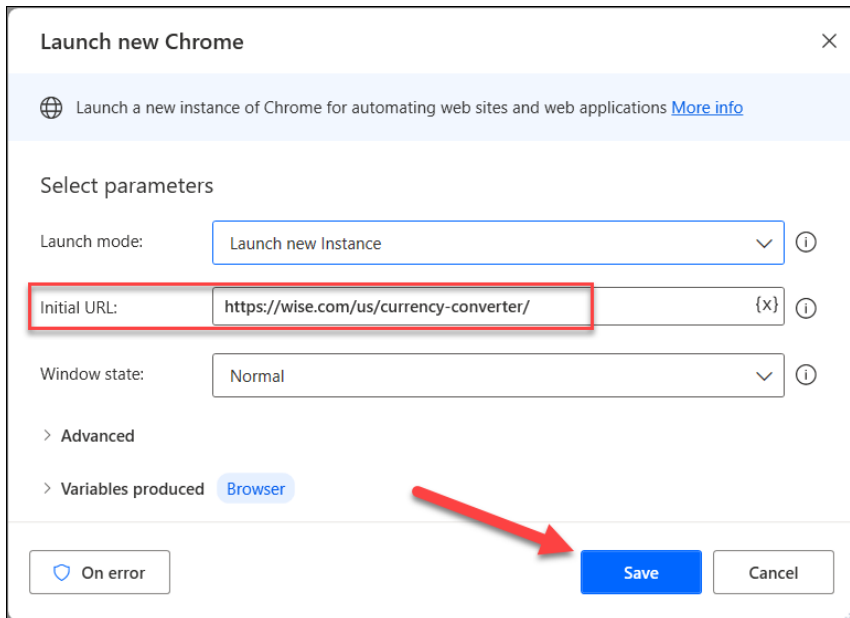
Note: Subflow names **cannot** have spaces. Ensure that if there is a space within the name, you replace the space with an **underscore (_)**.



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.

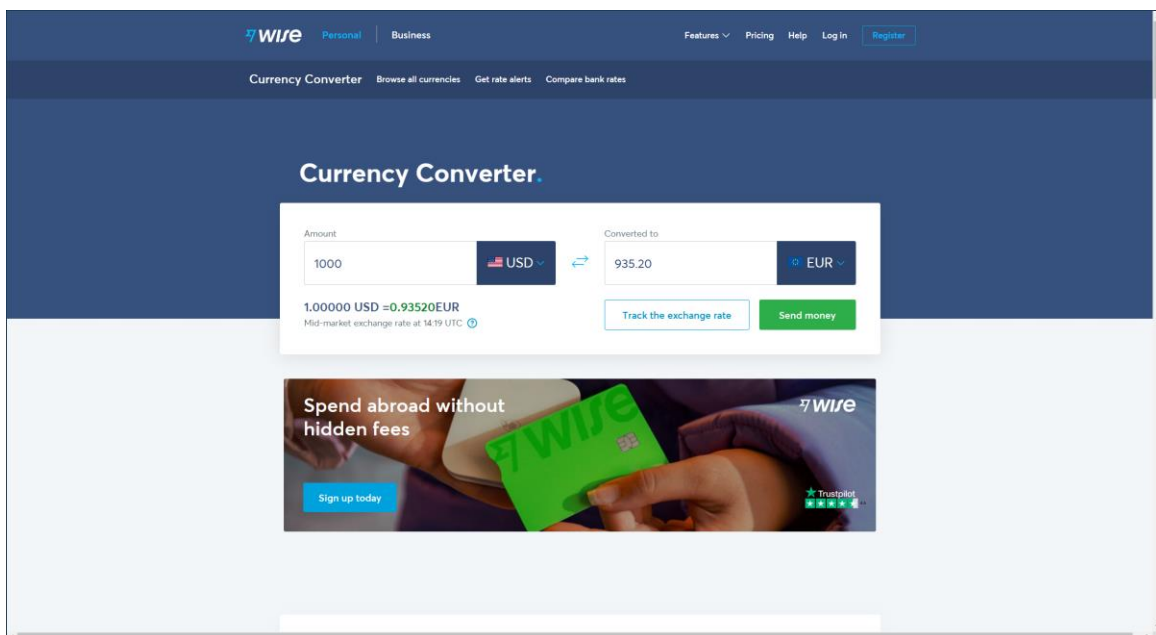


- Within the **Launch new Microsoft Edge** dialog, in the **Initial URL** field, enter the following URL: <https://wise.com/us/currency-converter/>
- Then, select **Save**.

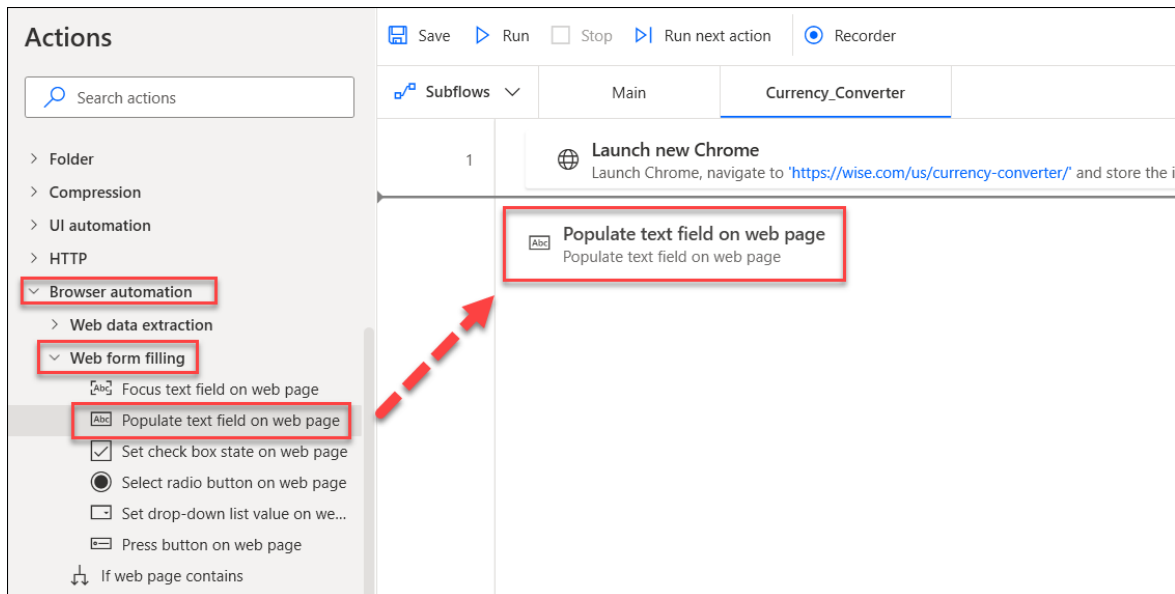


- Open a new **Chrome web browser** and navigate to <https://wise.com/us/currency-converter/>

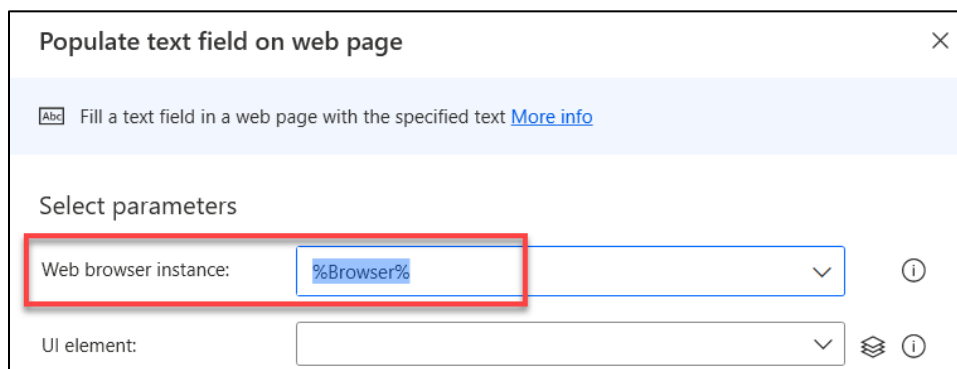
This will be the website we will be using to lookup real-time currency conversion rates.



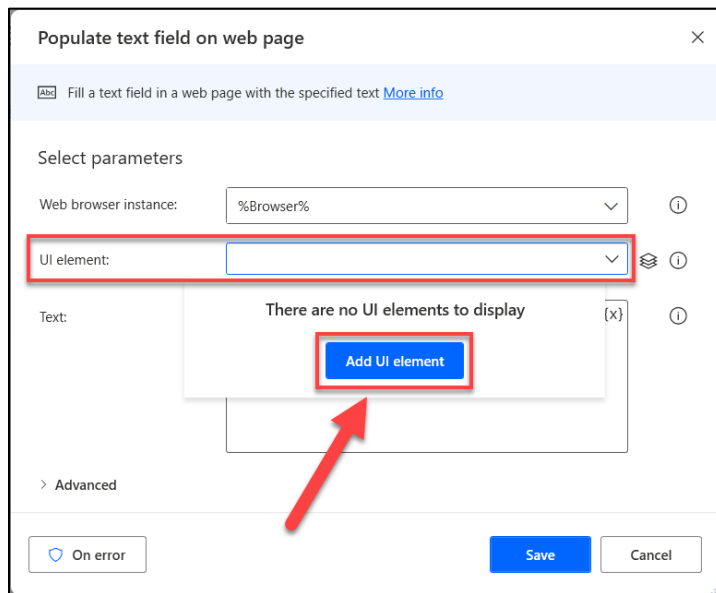
9. Now we will enter the total amount value from AI builder model as the USD dollar amount, into the website input textbox to lookup the converted value.
10. First, we will locate the **UI Element** on the webpage. Navigate back to the **Enter an invoice** flow in Power Automate. Ensure that you are 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.



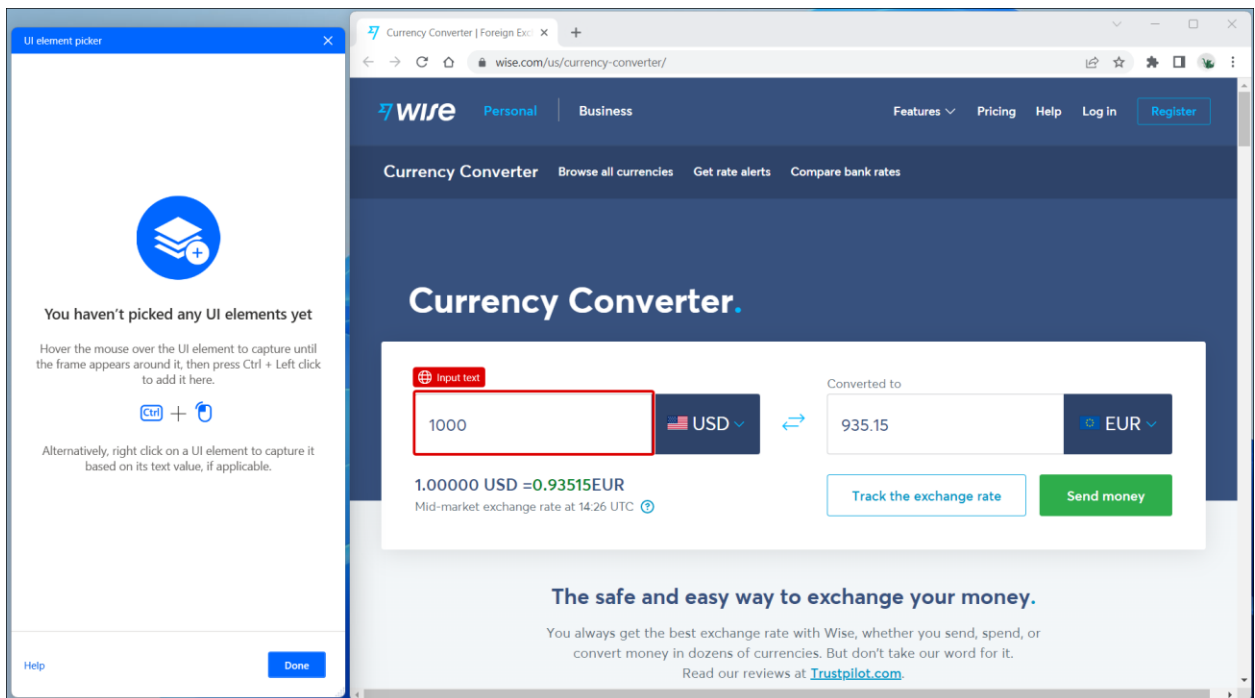
12. The **Web browser instance** has already been populated with the **%Browser%** instance.



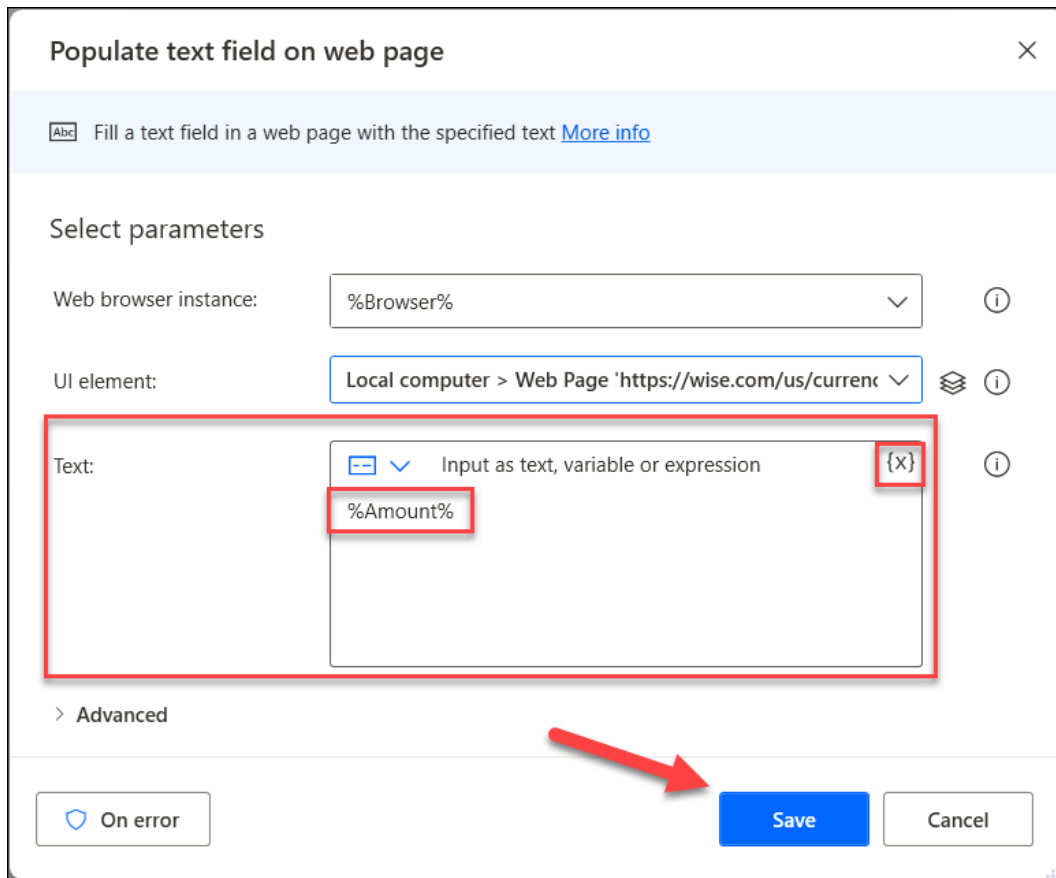
13. We need to identify the textbox **UI element** on the webpage that **takes USD dollar** as input. To do that, select the **UI element** textbox drop-down and then select **Add UI element**.



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.

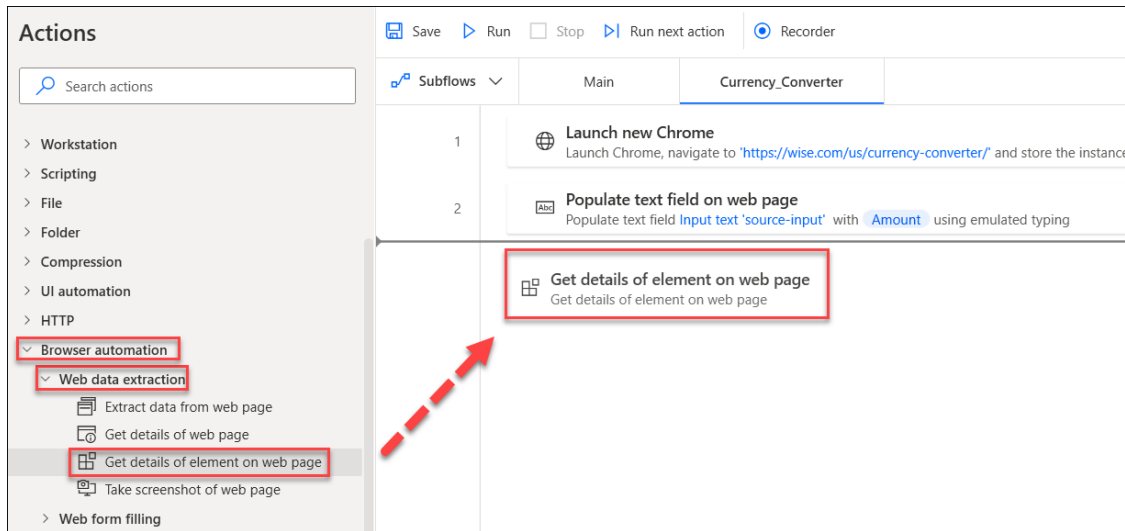


15. Then, within the **Text** field of the dialog, select the **variable {X}** icon to the right of the field. Within the menu, under the input/output section, double-click on the **Amount** variable.
16. Then, select **Save** at the bottom of the dialog.



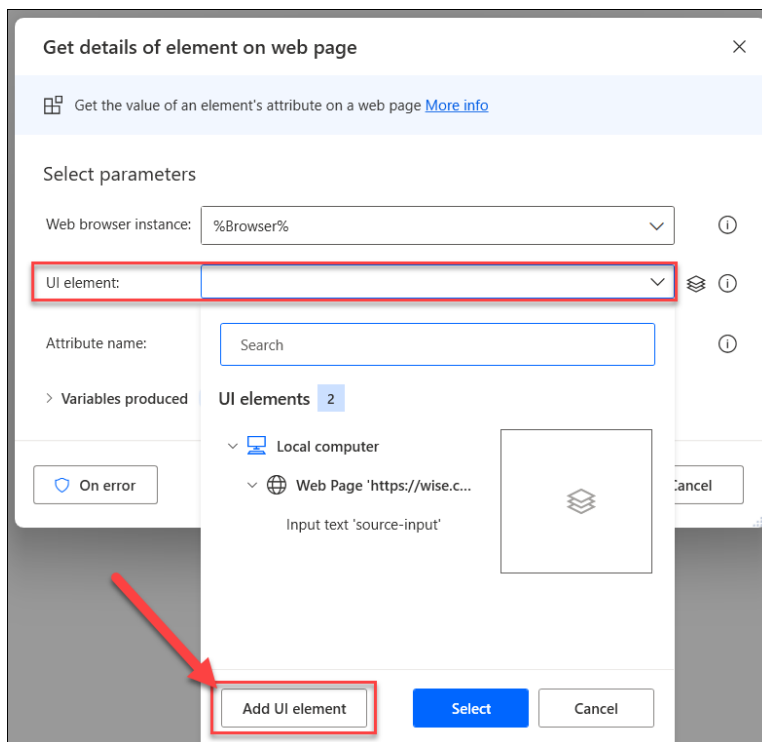
17. Now, let's add another action which will send the previous **Total amount** input value into this UI element field. From the **Actions** pane to the left of the screen, expand the **Web data extraction** sub-folder within the **Browser automation** folder.

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

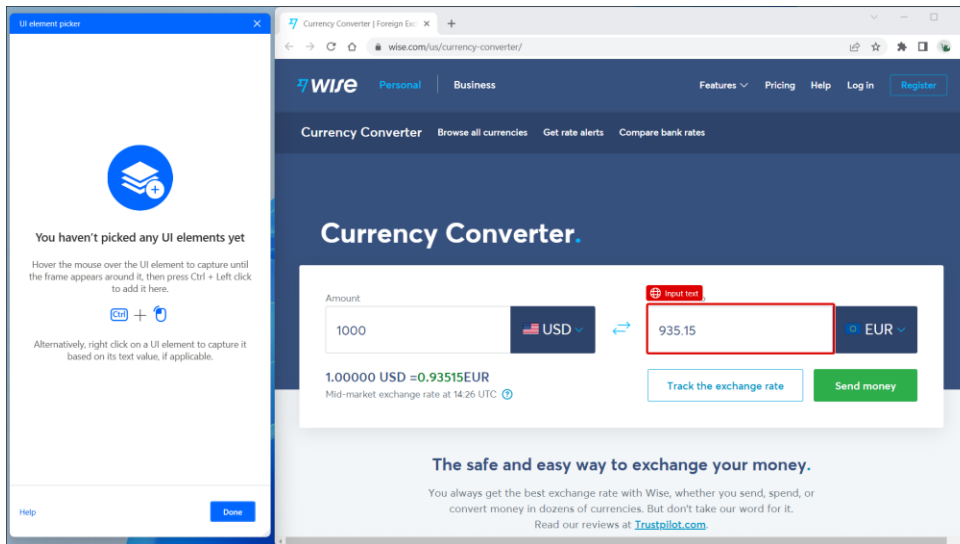


19. Within the **Get details of element on web page** dialog, notice that **%Browser%** has already been used to fill in the **Web browser instance** field. Select the **drop-down** for the **UI element** field.

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



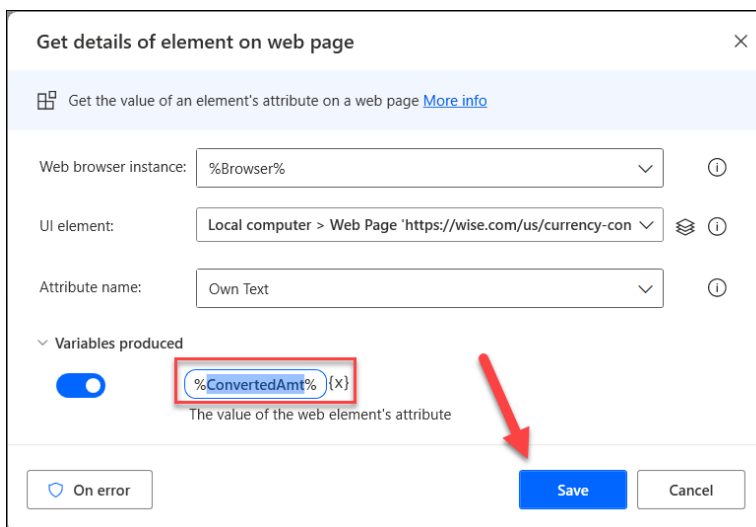
21. Then, navigate back to the **web browser** where we are going to convert the USD dollar value. Using the same process as before, select the **Output value** by holding down the **Ctrl key** and **left-clicking** on the value.



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.

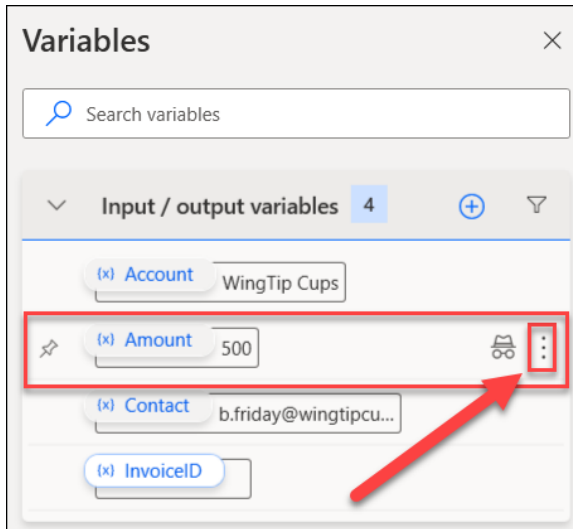
23. **Leaving the percent symbols** to the left and right of the value name, **rename** the value to be **ConvertedAmt**.

24. Then, select **Save**.



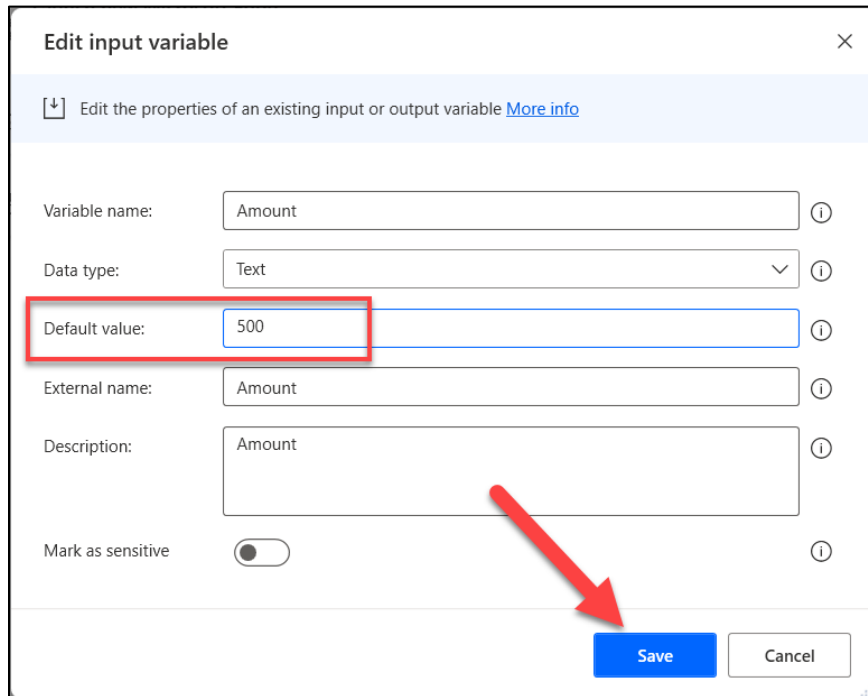
25. Next we will **remove the dollar symbol** from the **Input Amount** variable. From the right side of your screen, locate and hover over the **Amount** variable within the **Input/output variables** section.

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

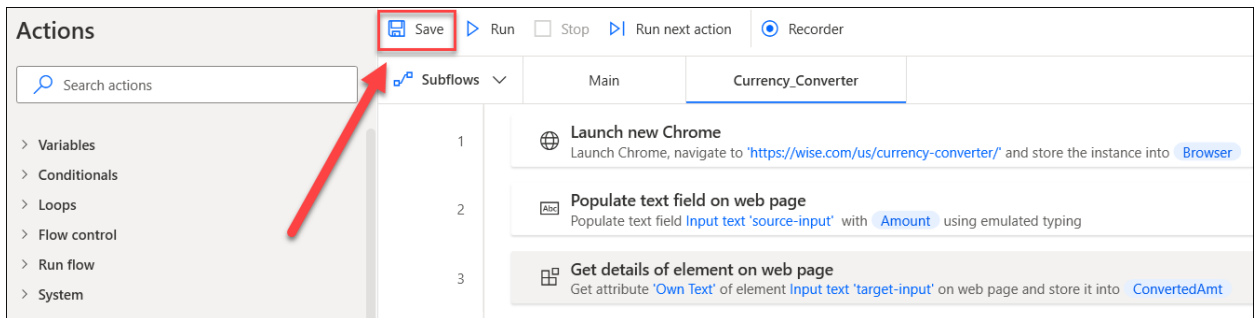


27. From the options menu, select **Edit**.

28. Then, by selecting the **Default value** field, **delete** only the **USD dollar symbol** to the left of the amount value. Finally, select the **Save** button at the bottom of the dialog.

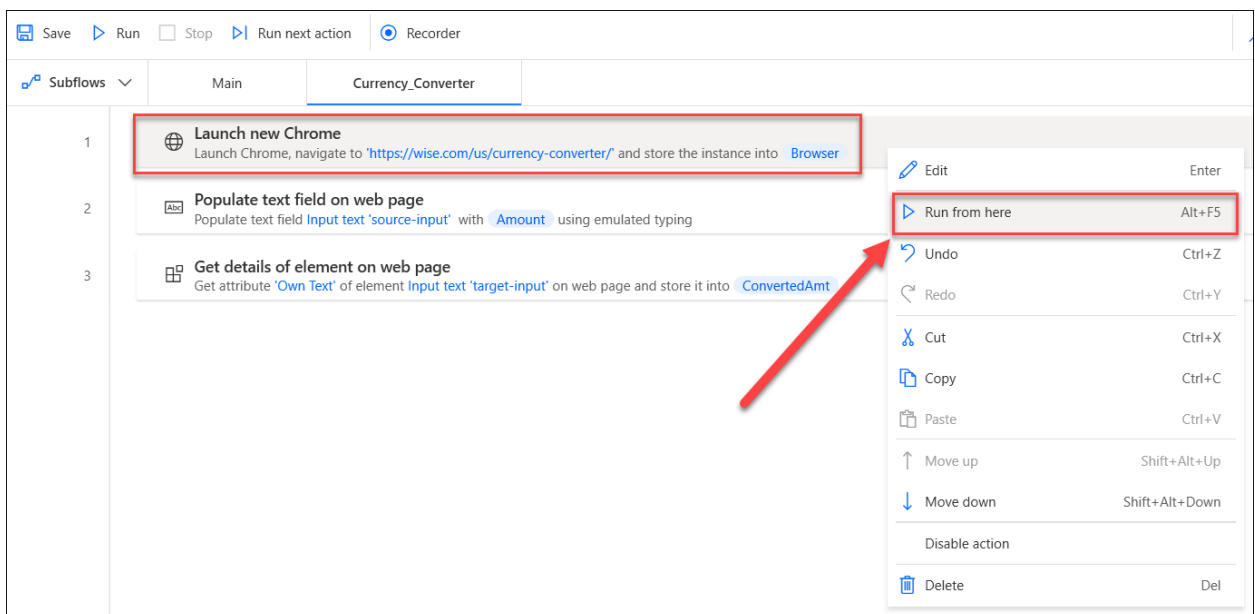


29. Now, from the tool bar at the top of the screen, select the **Save** button to save all of your work and changes.

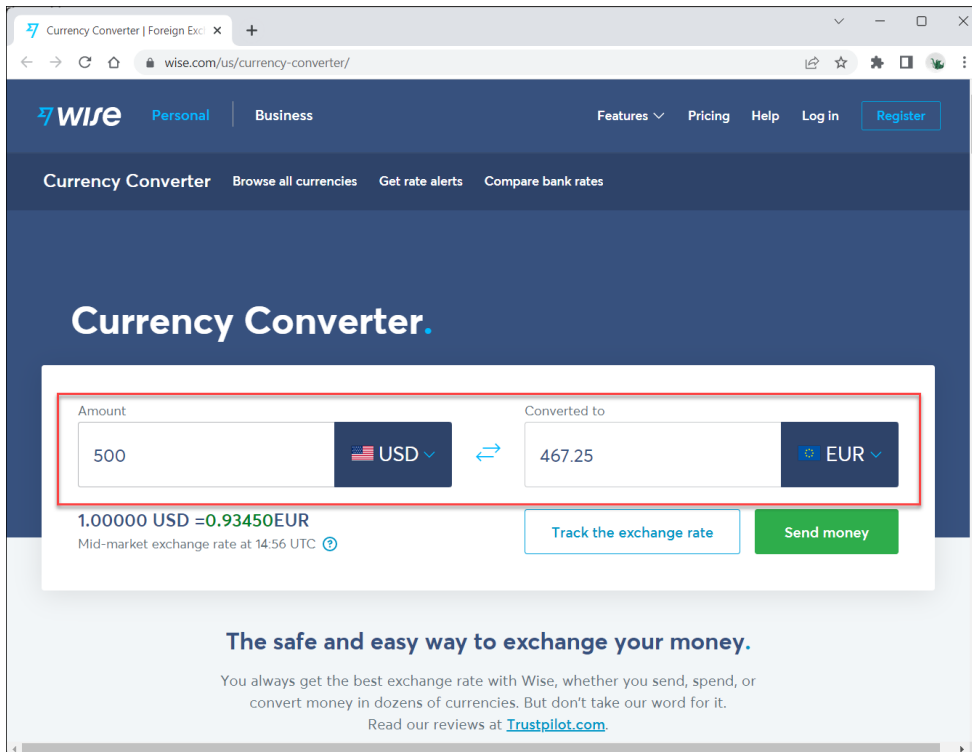


30. Now, we can test the subflow. While still viewing the **Currency_Converter** subflow, **right-click** on the **first action**.

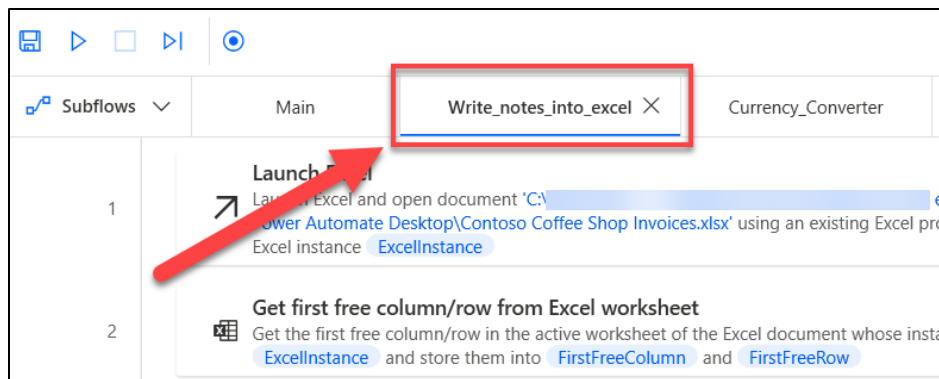
31. Then, from the options menu, select **Run from here**.



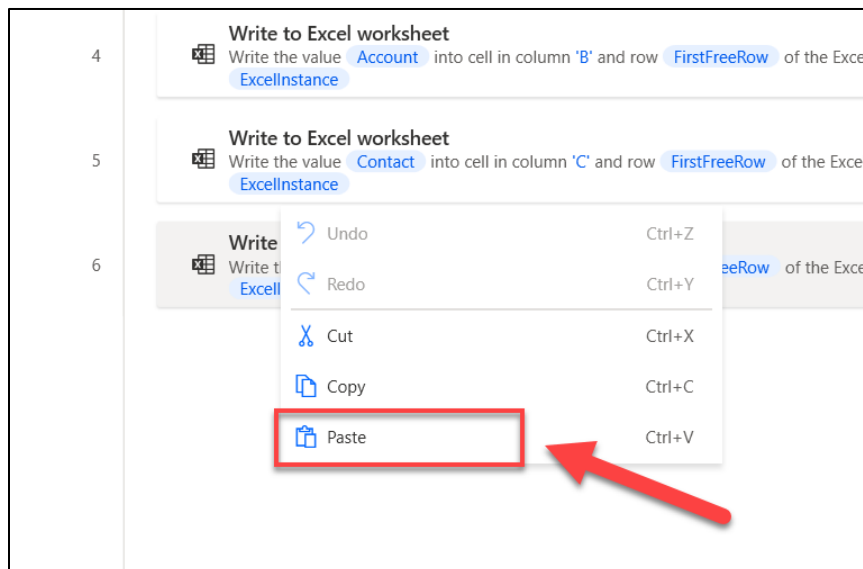
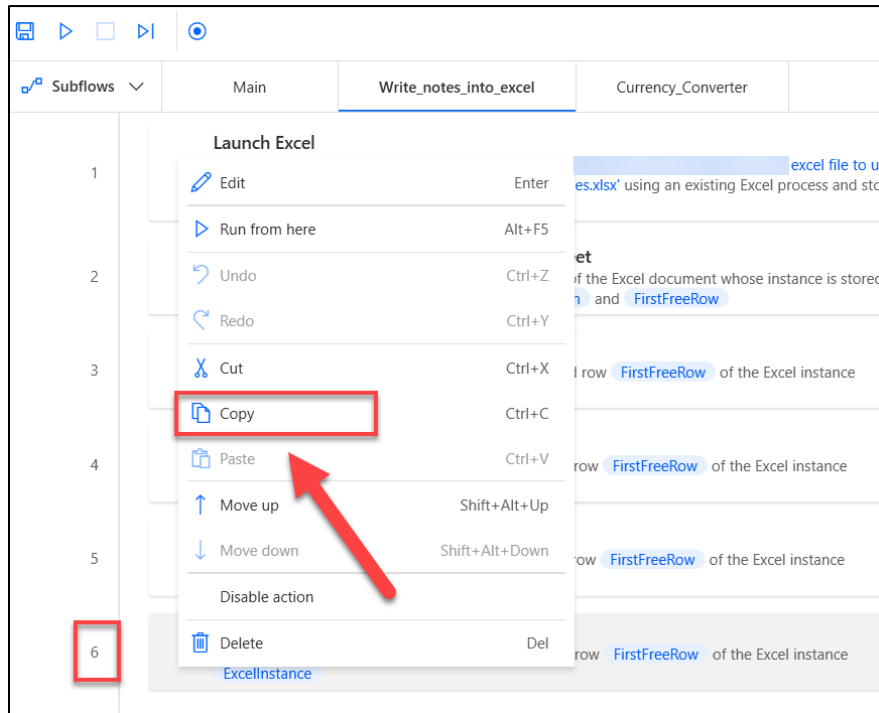
32. You should now see the automation run and convert the \$500 USD amount (the default amount value) into another currency.



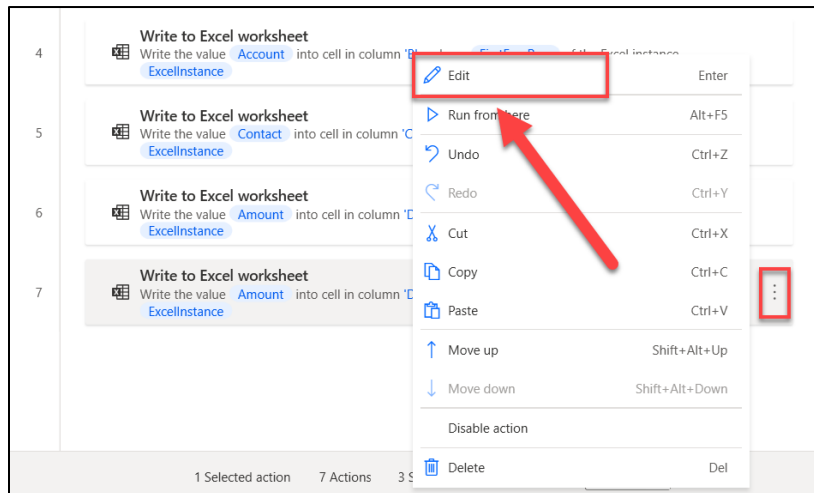
33. The next step is we will capture the **real time converted value** from the website. Navigate to the **Write_notes_into_excel** subflow by selecting the tab at the top of the screen.



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).



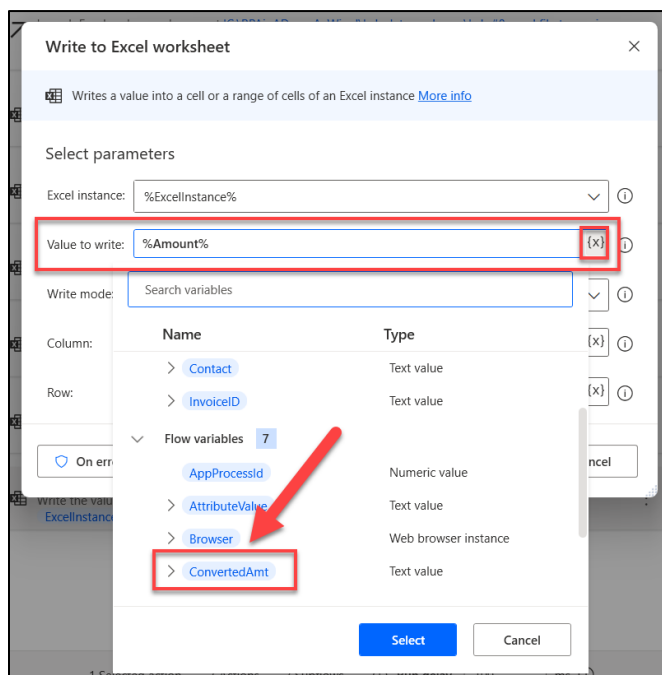
36. Hover over the new **Write to Excel worksheet** action and select the **ellipses (...)** to the right. From the options menu, select **Edit**.



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 variables** 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 **Column** field, and then enter **E** as the new column.
40. For the **Row** field, leave it set as **%FirstFreeRow%**.
41. Finally, select **Save** at the bottom of the dialog.

Write to Excel worksheet [X]

Writes a value into a cell or a range of cells of an Excel instance [More info](#)

Select parameters

Excel instance: %ExcelInstance% [v] ⓘ

Value to write: %ConvertedAmt% {x} ⓘ

Write mode: On specified cell [v] ⓘ

Column: **E** {x} ⓘ

Row: %FirstFreeRow% {x} ⓘ

On error [v] ⓘ

Save Cancel

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.

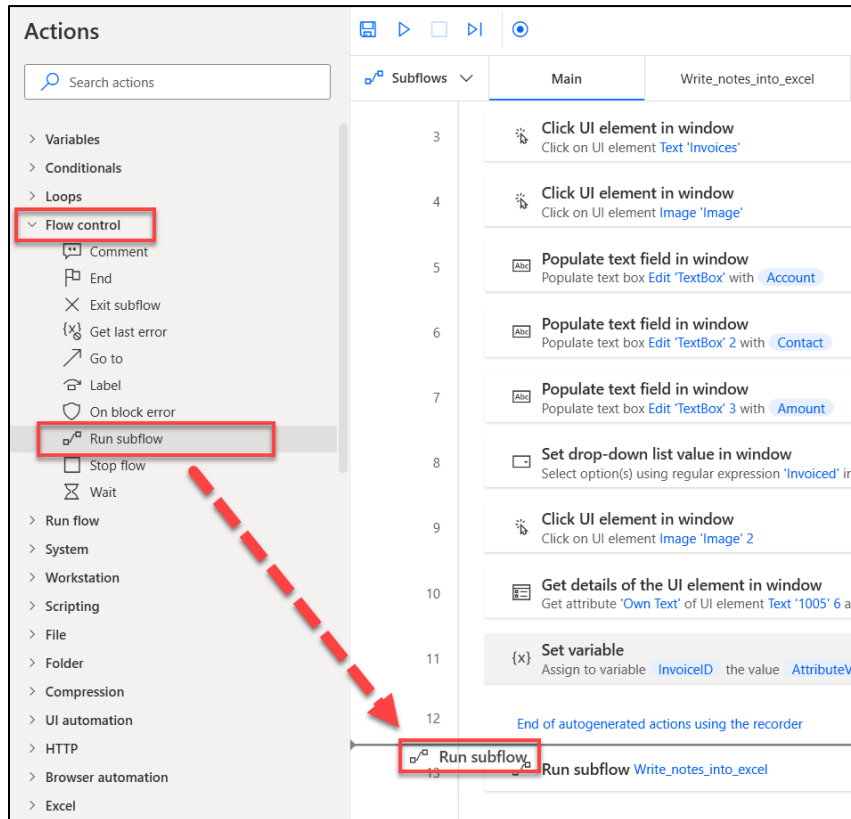
Subflows [v] Main [X] Write_notes_into_excel Currency_Converter

1 Run application
Run application 'C:\Program Files (x86)\Contoso, Inc\Contoso Invoicing\LegacyInvoi arguments and store its process ID into AppProcessId

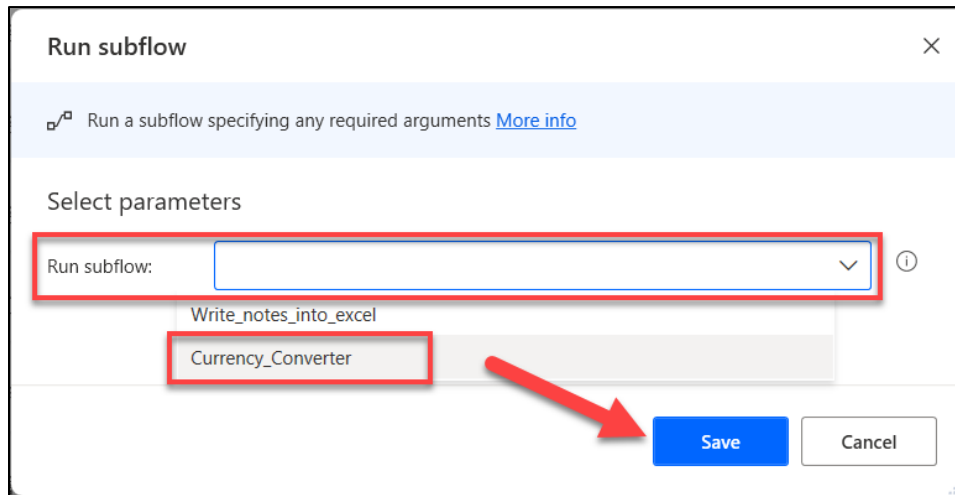
2 Start of autogenerated actions using the recorder

3 Click UI element in window
Click on UI element Text 'Invoices'

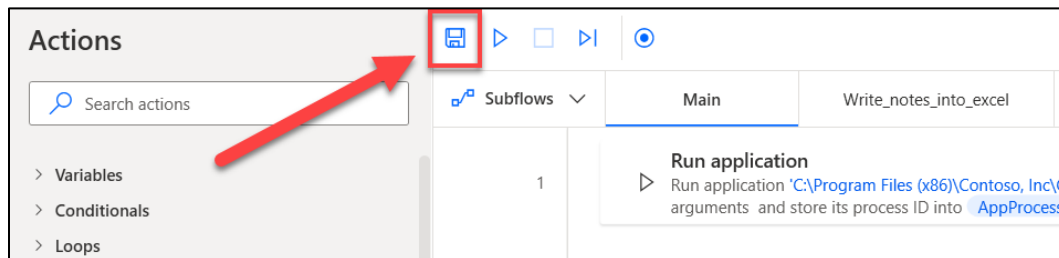
43. From the **Actions** pane to the left of the screen, within the **Flow control** folder, drag and drop the **Run subflow** action into the design space of the **Main** flow. Ensure that the new action is placed between the 12th and 13th actions within the Main flow; **above** the **Run subflow**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



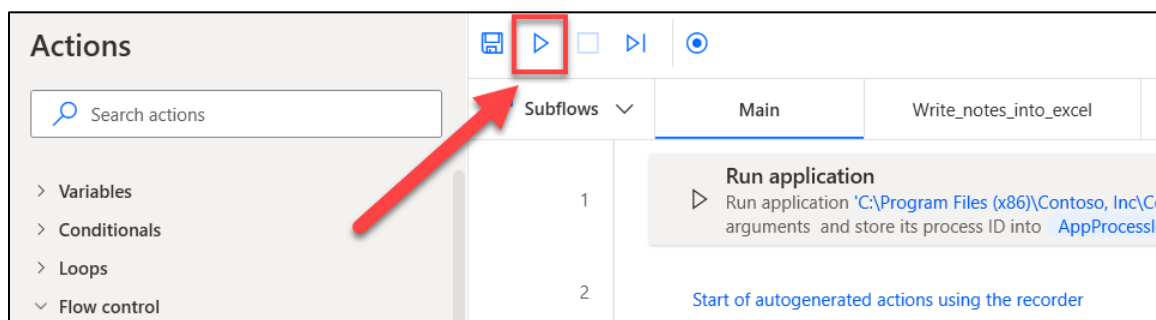
44. Within the **Run subflow** dialog, select the **drop-down** for the **Run subflow** field. From the list, select **Currency_Converter**.
45. Then, select **Save**.



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:

B28		✕	✓	<i>fx</i>	WingTip Cups	
	A	B	C	D	E	F
25	1024	Tailspin Cups	p.gupta@tailspinCups.com	\$5,429.69		
26	1025	WingTip Cups	b.friday@wingtipCups.com	\$1,088.74		
27	1026	WingTip Cups	b.friday@wingtipCups.com	\$500.00		
28	1005	WingTip Cups	b.friday@wingtipcups.com	\$500.00	482.45	
29						
30						

Check your knowledge

Lab 8

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

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