



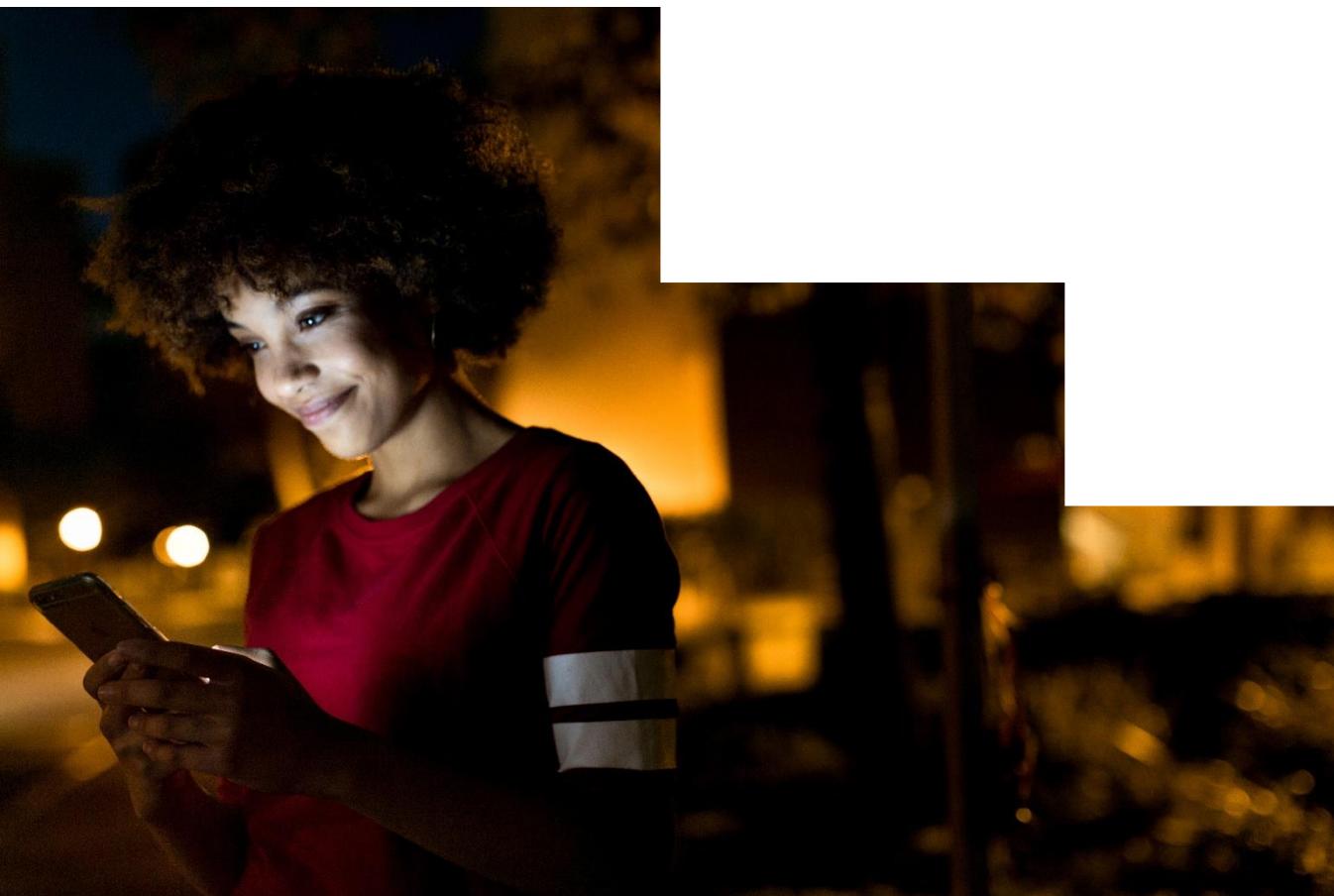
Robotic Process Automation in a Day

Lab 8 – Web automation using Power Automate
Desktop

90 mins

April 2023

Applies to Power Automate Desktop v. 2.31.105.23101 ([more](#))



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Lab Overview

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 – Web automation using Power Automate Desktop**
 - Web data scraping and writing to Microsoft Excel.
 - Test and run this process.

Prerequisites

Please complete **lab 1.1, pre-requisite task 3: Start per user plan with attended RPA trial license** and **lab 1.3, installation of Power Automate Desktop**. To use Power Automate 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 in Power Automate Desktop which will write the values of variables that we already created earlier into a Microsoft Excel file.

1. In Power Automate Desktop, Edit Enter an invoice flow you created by clicking ... icon and select **Edit**.

Flows

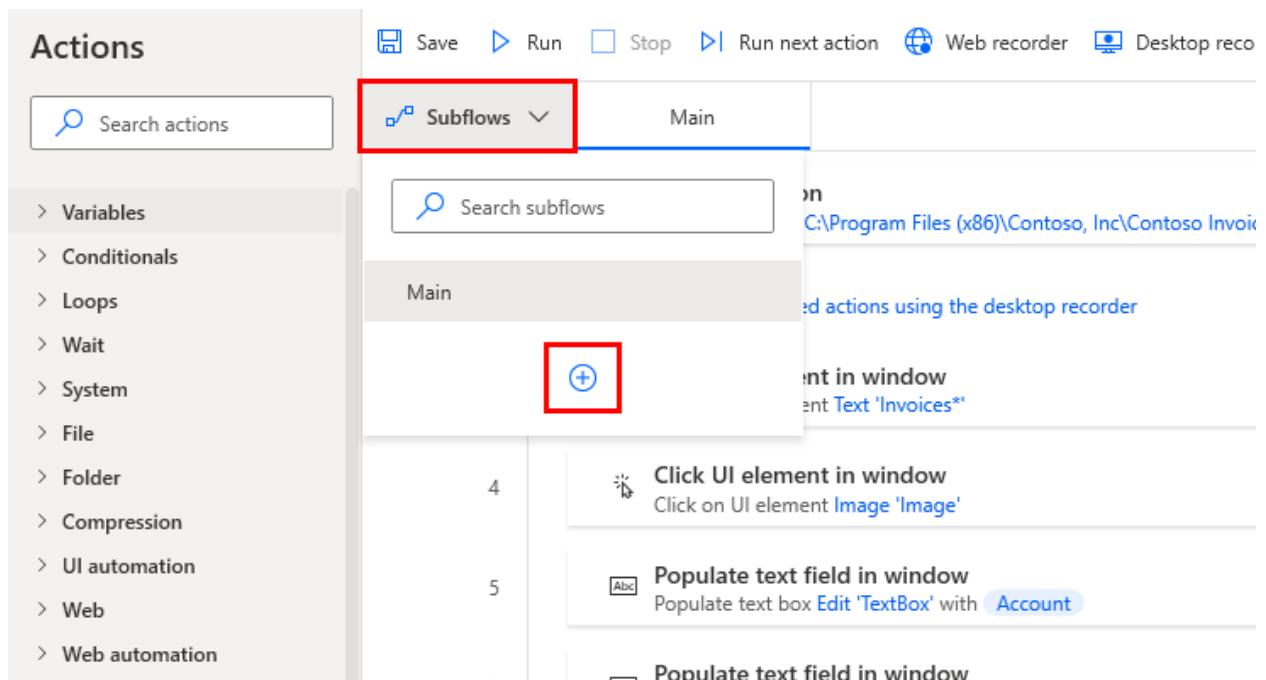
| Name | Modified | Status |
|--|---|---|
|   Enter an invoice |    |   |

 **Edit**

 Rename

 Delete

2. Click Subflows >  to create a subflow for Enter an invoice.

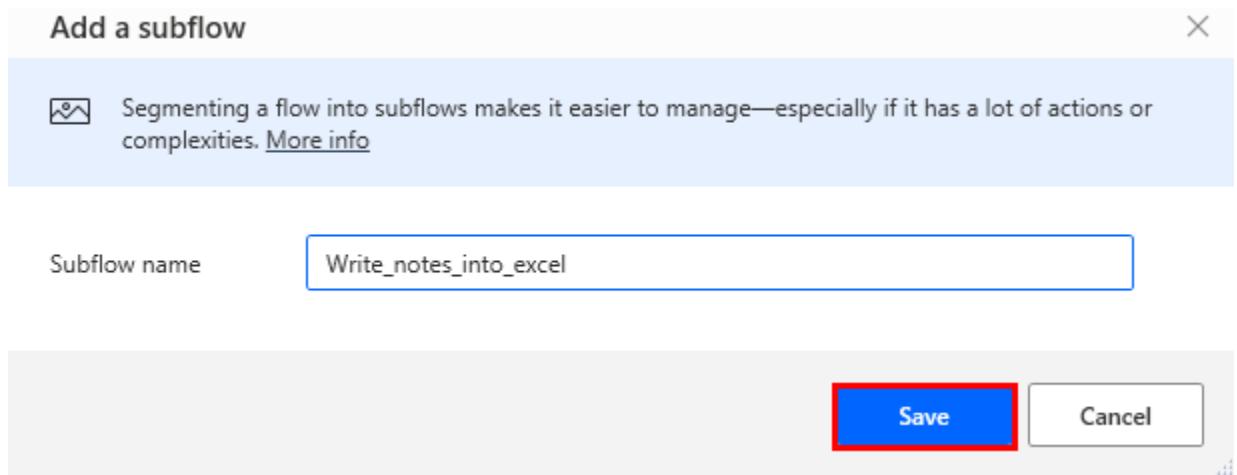


The screenshot shows the Power Automate Actions pane. The 'Subflows' tab is highlighted with a red box. Below it, the 'Main' tab is selected. On the right, there's a list of actions. A red box highlights the '+' button in the top right corner of the action list area. The actions listed are:

- 4 Click UI element in window
Click on UI element Image 'Image'
- 5 Populate text field in window
Populate text box Edit 'TextBox' with Account
- Populate text field in window

3. Name it Write_notes_into_excel. Click Save.

Note: Subflows' names can't have spaces.

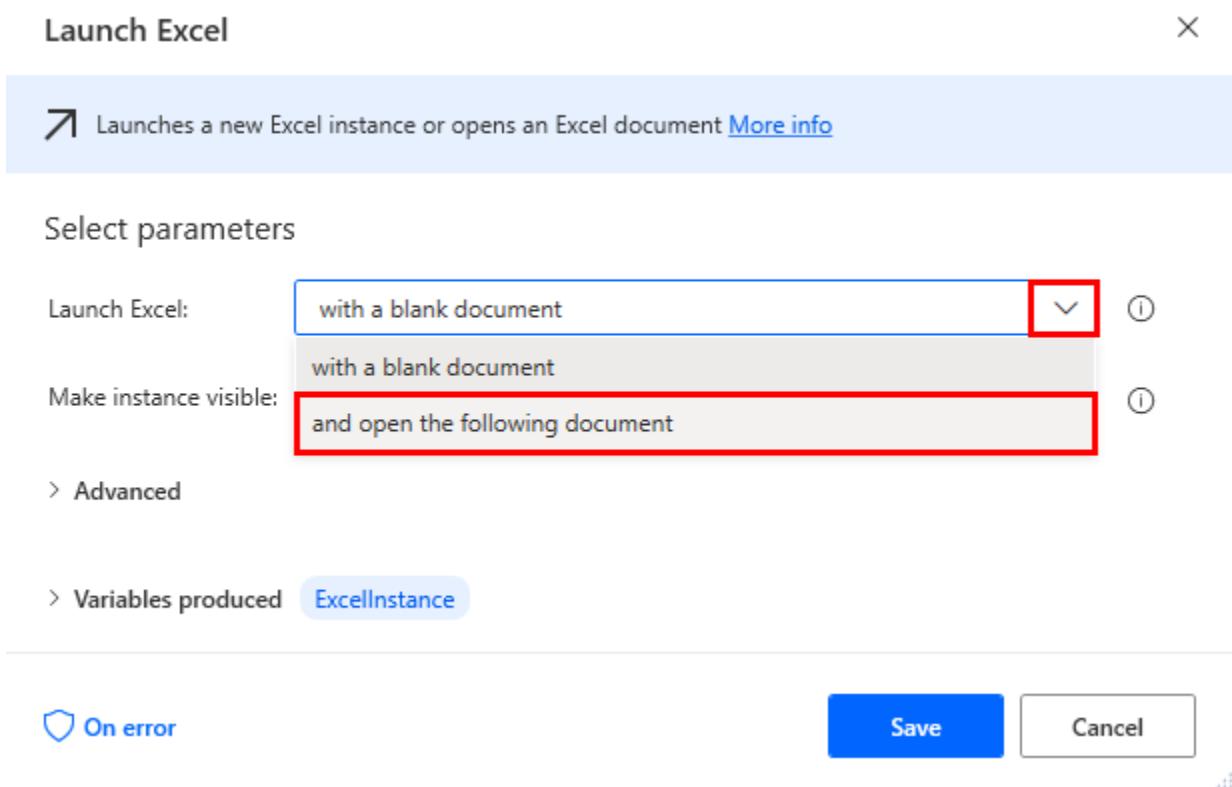


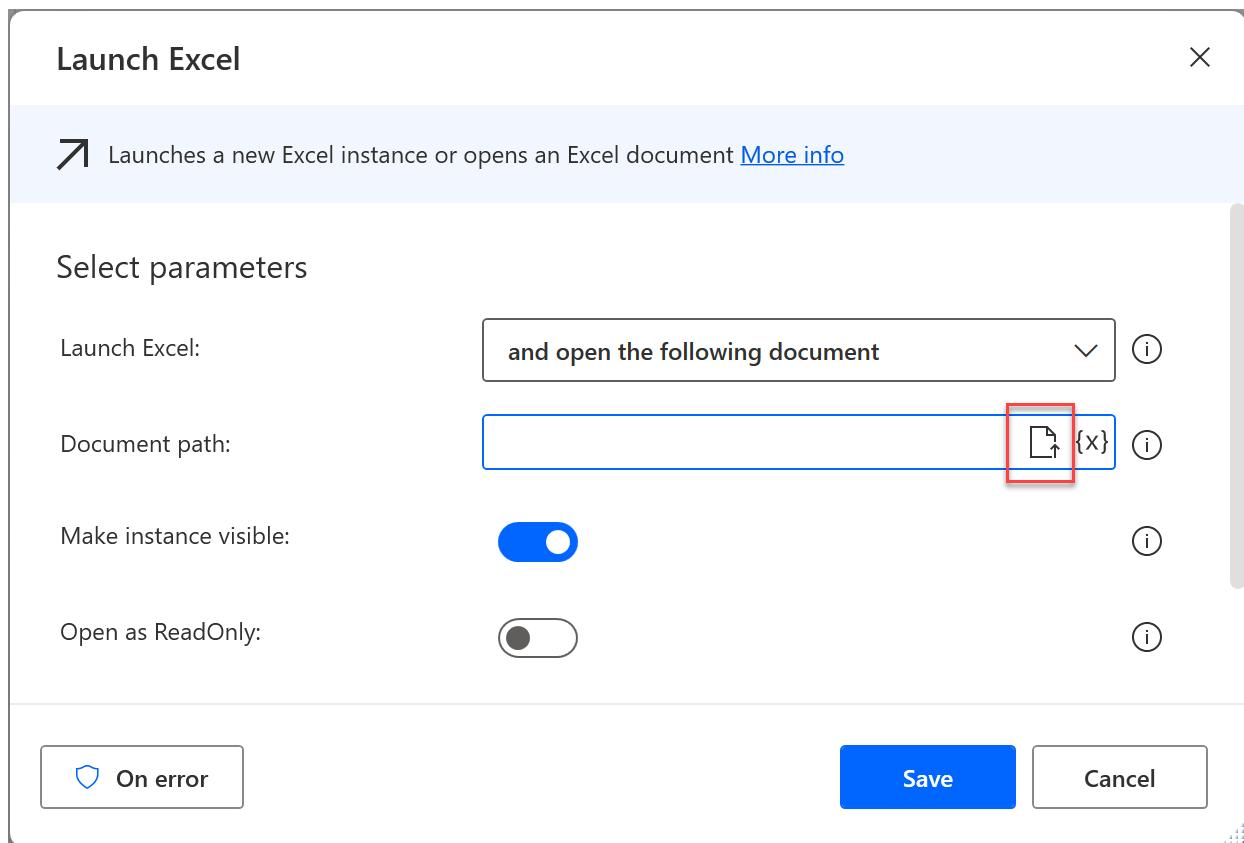
The dialog box has a title 'Add a subflow' and a close button 'X'. It contains a note: 'Segmenting a flow into subflows makes it easier to manage—especially if it has a lot of actions or complexities.' with a 'More info' link. Below is a 'Subflow name' input field containing 'Write_notes_into_excel'. At the bottom are 'Save' and 'Cancel' buttons, with 'Save' highlighted by a red box.

4. Drag and drop the Launch Excel Action from the Excel folder.

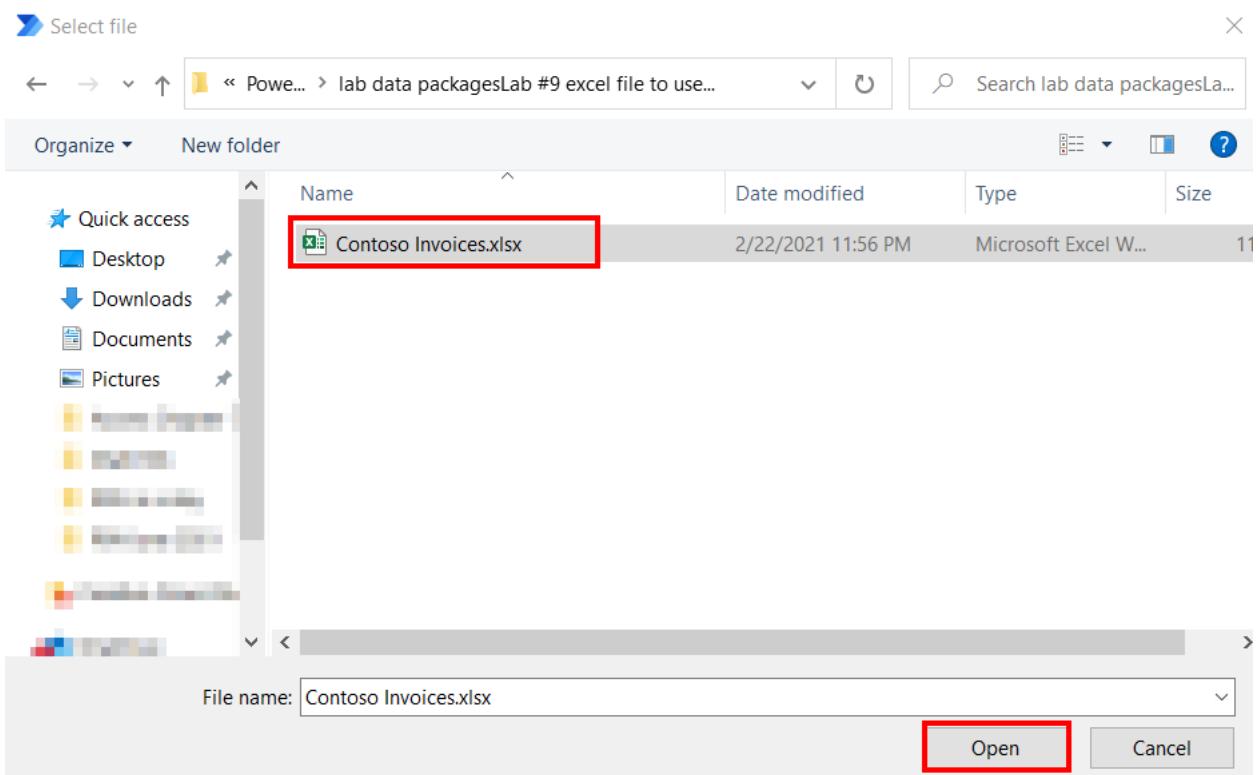
The screenshot shows the Power Automate Actions pane. On the left, there's a sidebar with a search bar labeled "Search actions". Below it is a list of categories: Variables, Conditionals, Loops, Flow control, Run flow, System, Workstation, Scripting, File, Folder, Compression, UI automation, HTTP, Browser automation, Excel, Advanced, and Database. The "Excel" category is expanded, and the "Launch Excel" action is selected, highlighted with a red box. A large red arrow points from this selection towards the main workspace area. The main workspace has tabs at the top: Subflows (with a dropdown arrow), Main, and Write_notes_into_excel (which is active and underlined). In the center of the workspace, there's a blue circular icon containing a laptop and a hand cursor, with the text "You don't have any actions here yet" and a message below it: "To get started, drag and drop actions to this pane or use the recorder to capture the actions".

5. Set Launch Excel to and open the following document and click on the Select File icon.

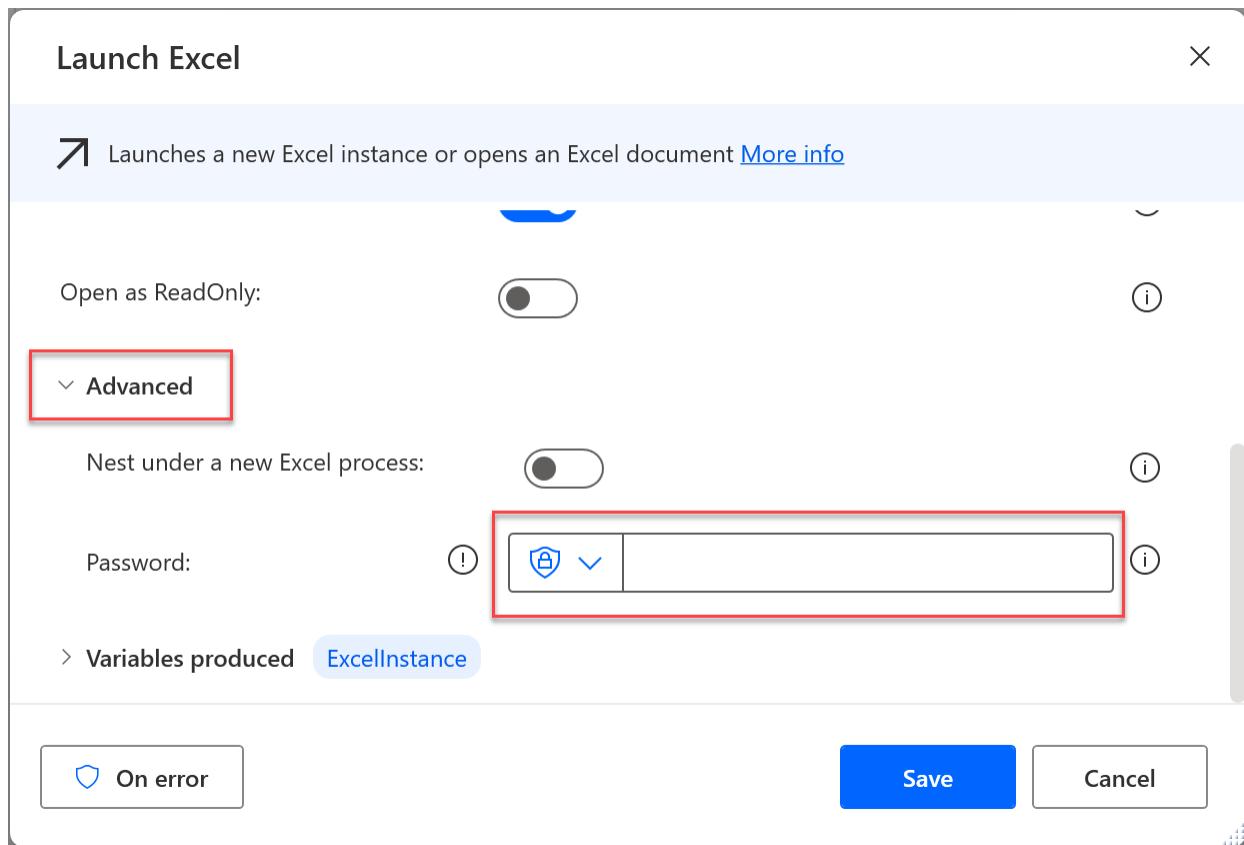




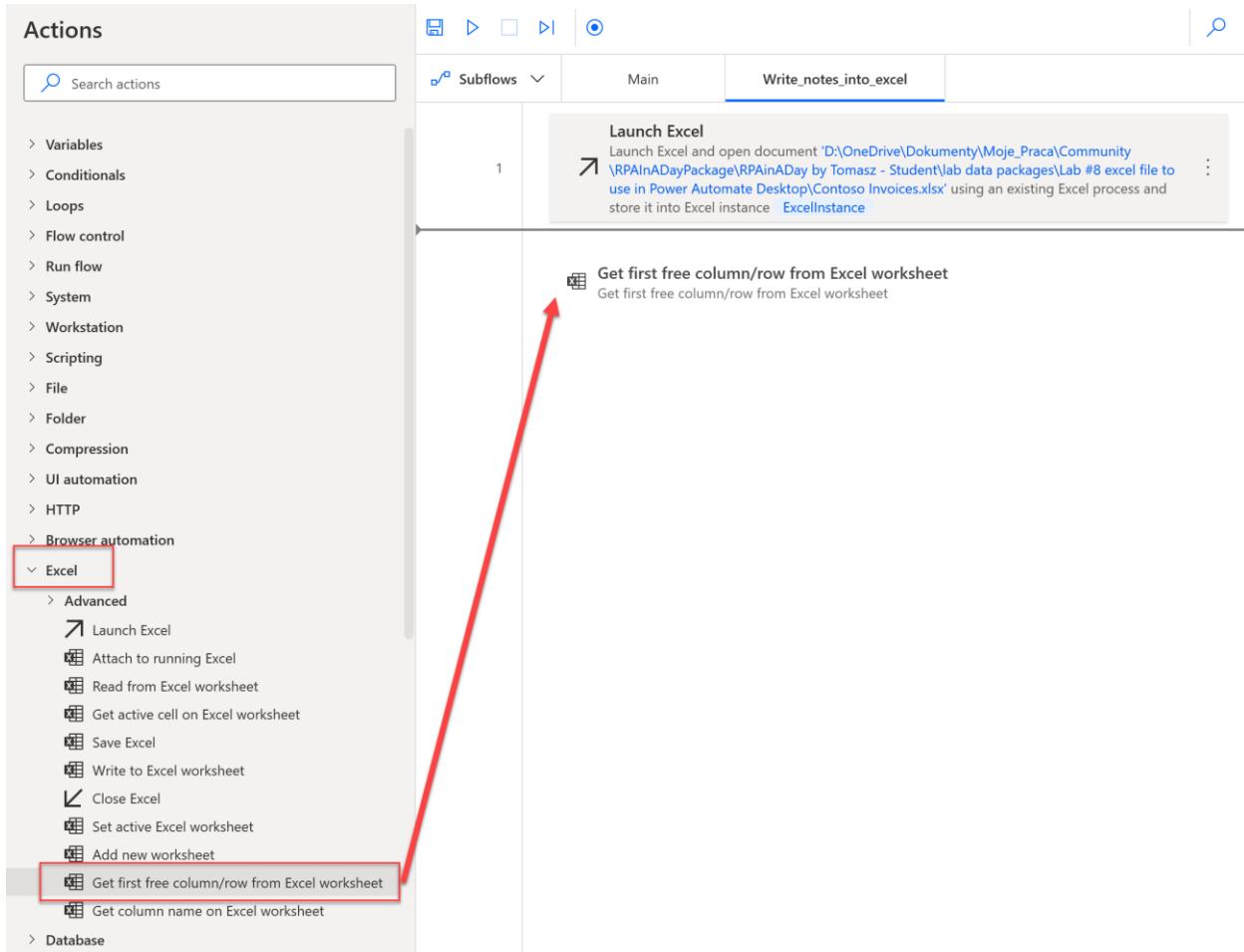
6. Save the file **Contoso Invoices.xlsx** that you can find inside **lab data packages/Lab #9 excel file to use in Power Automate Desktop** folder to the folder of your choice, then browse for it in this dialog, select it and click **Open**.



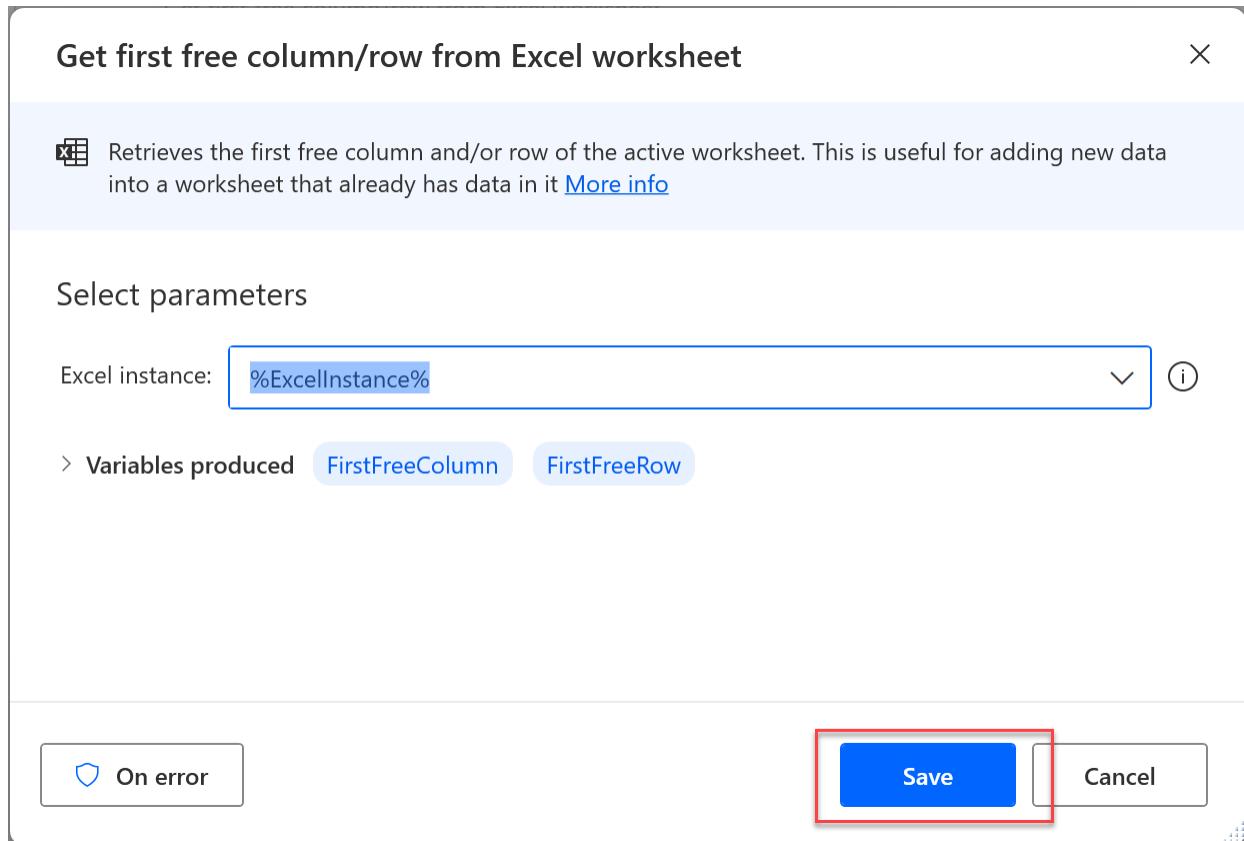
7. **Information Only** – Our spreadsheet does not contain a password. However, if our spreadsheet did, we could provide a **password** in this field. Then click **Save**.



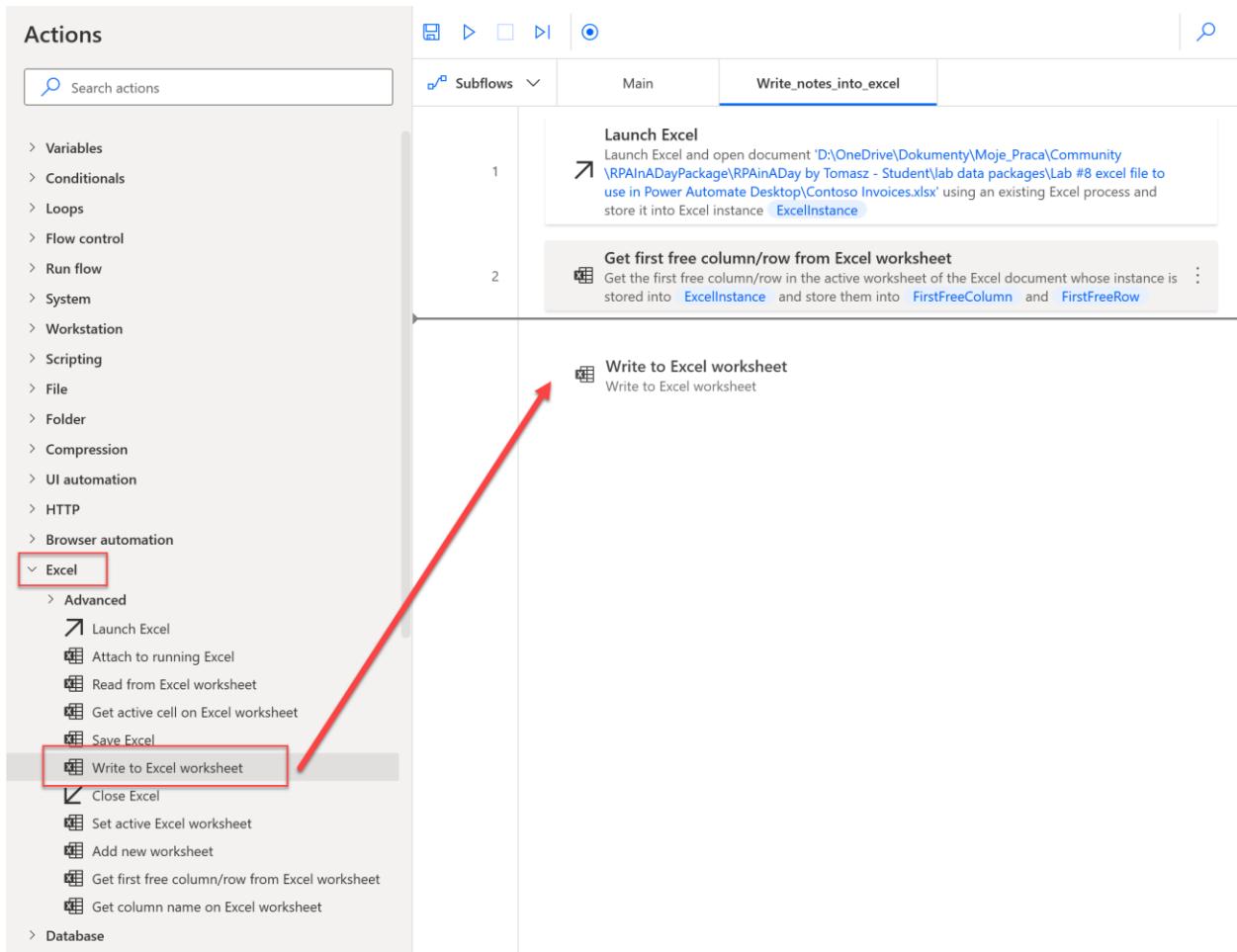
8. Drag and drop the **Get first free column/row from Excel worksheet** action from the **Excel** folder.



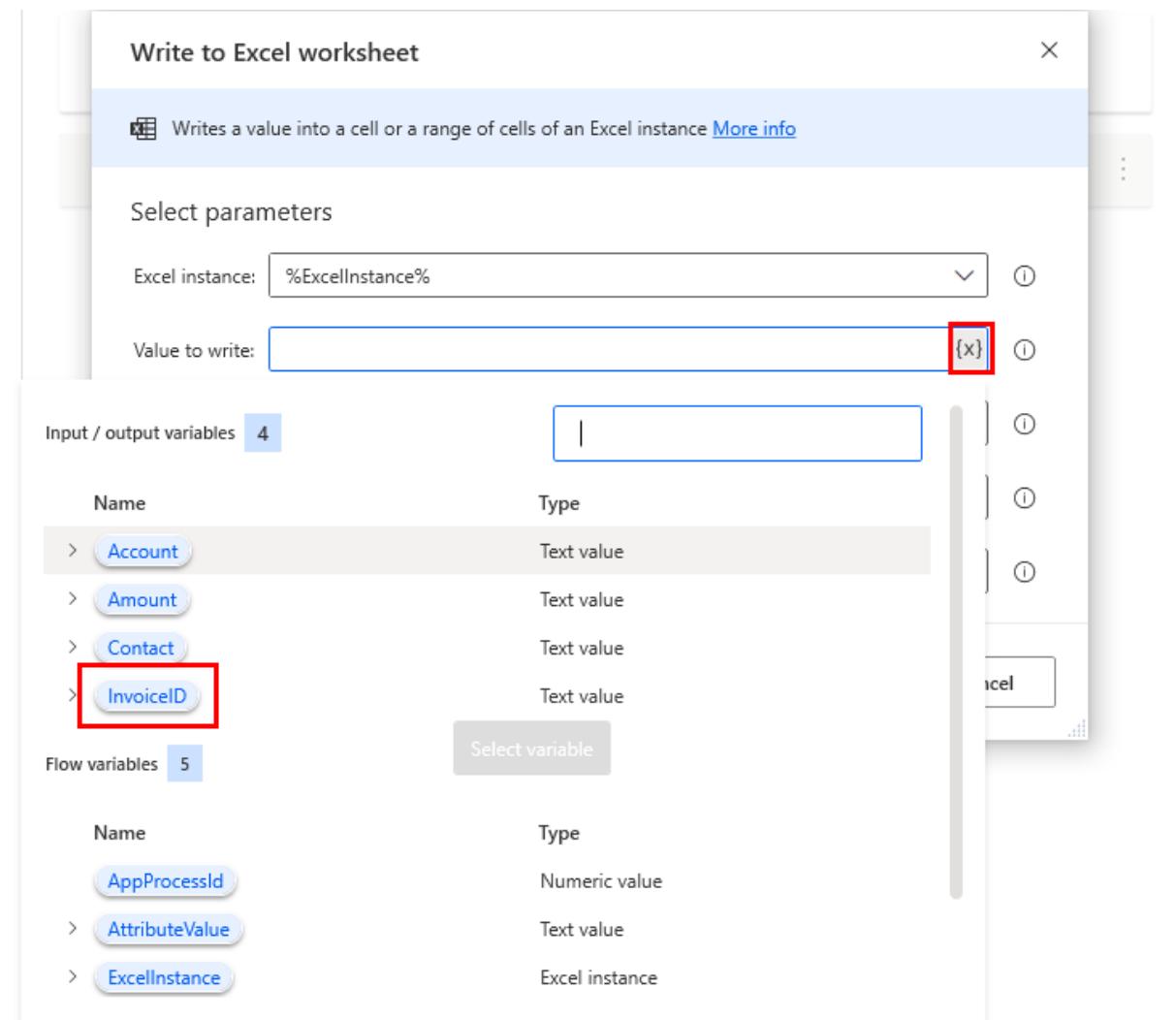
9. In the Action Properties, we will use the default settings for this action. Click **Save** to add it to the design surface. This action will retrieve the number of the first free row and the first free column and store them into variables.



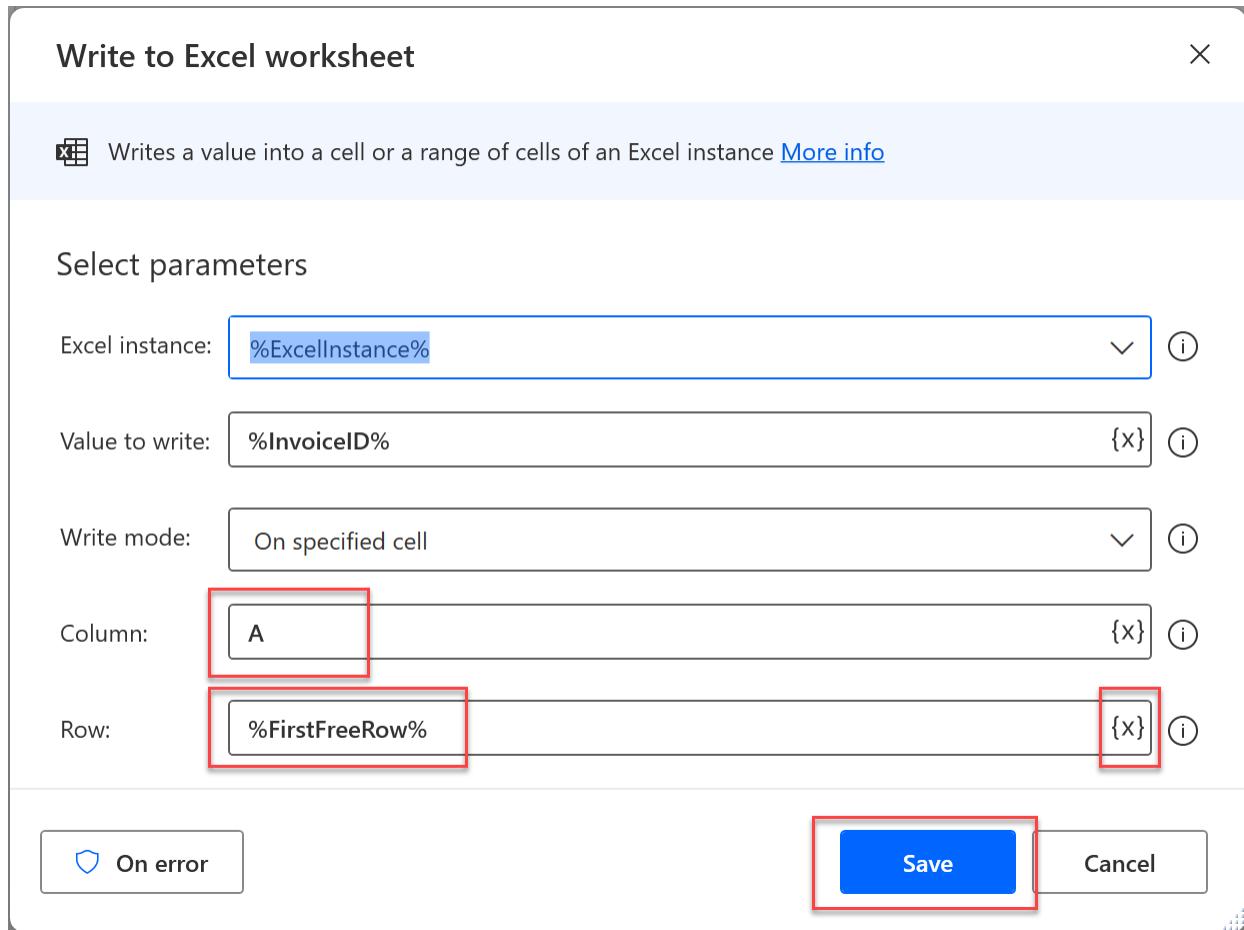
10. Drag and drop the **Write to Excel Worksheet** action from the **Excel** folder.



11. In the Action Properties, in Value to write, open the Available Variables by clicking on the {x} icon, double click InvoiceID.



12. Enter A and in field **Column**, then in **Row**, click on the corresponding **{x}** icon, and select **%FirstFreeRow%**. Click **Save**



13. Repeat the three previous steps, writing values of variables to cells as the table below.
 For all Columns, Row must be set to %FirstFreeRow%.

| Value to Write | Column | Row |
|----------------|--------|----------------|
| %Account% | B | %FirstFreeRow% |
| %Contact% | C | %FirstFreeRow% |
| %Amount% | D | %FirstFreeRow% |

14. When all the steps above have been completed, your subflow for writing notes into Excel should look like this:

The screenshot shows a Power Automate Desktop interface with a subflow titled "Write_notes_into_excel". The subflow contains the following steps:

- Launch Excel**: Launch Excel and open document 'D:\OneDrive\Dokumenty\Moje_Praca\Community\RPAInADayPackage\RPAinADay by Tomasz - Student\lab data packages\Lab #8 excel file to use in Power Automate Desktop\Contoso Invoices.xlsx' using an existing Excel process and store it into Excel instance `ExcelInstance`.
- Get first free column/row from Excel worksheet**: Get the first free column/row in the active worksheet of the Excel document whose instance is stored into `ExcelInstance` and store them into `FirstFreeColumn` and `FirstFreeRow`.
- Write to Excel worksheet**: Write the value `InvoiceID` into cell in column 'A' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Account` into cell in column 'B' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Contact` into cell in column 'C' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Amount` into cell in column 'D' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.

15. Click the **Save** button and then go back to your Main flow by clicking **Main**.

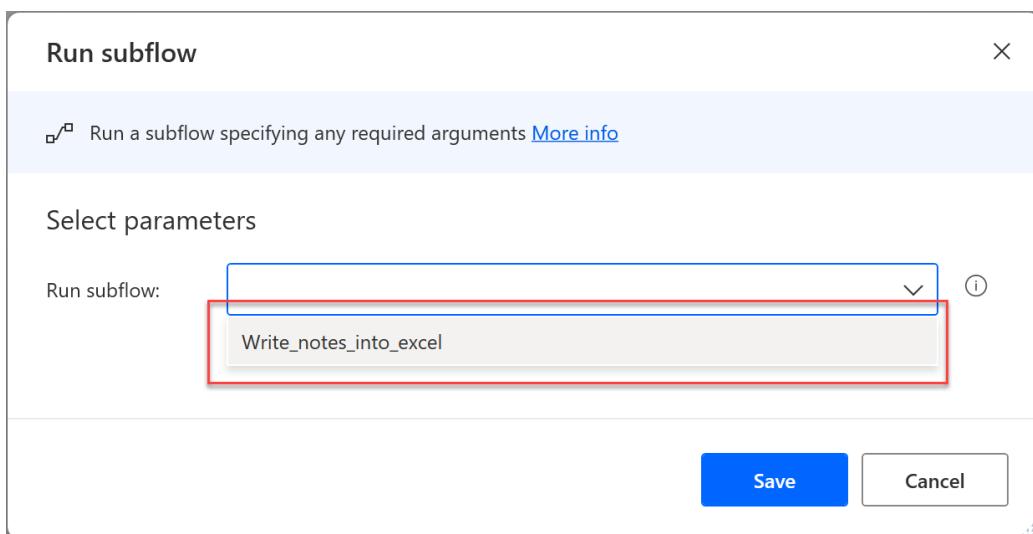
The screenshot shows the Power Automate Desktop flow editor interface. At the top, there are navigation icons (Back, Forward, Home, Search) and a dropdown menu for 'Subflows'. Below this, the flow is titled 'Main' and has a subflow titled 'Write_notes_into_excel'. The main flow consists of six numbered steps:

1. **Launch Excel**: Launch Excel and open document 'D:\OneDrive\Dokumenty\Moje_Praca\Community\RPAInADayPackage\RPAinADay by Tomasz - Student\lab data packages\Lab #8 excel file to use in Power Automate Desktop\Contoso Invoices.xlsx' using an existing Excel process and store it into Excel instance `ExcelInstance`.
2. **Get first free column/row from Excel worksheet**: Get the first free column/row in the active worksheet of the Excel document whose instance is stored into `ExcelInstance` and store them into `FirstFreeColumn` and `FirstFreeRow`.
3. **Write to Excel worksheet**: Write the value `InvoiceID` into cell in column 'A' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
4. **Write to Excel worksheet**: Write the value `Account` into cell in column 'B' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
5. **Write to Excel worksheet**: Write the value `Contact` into cell in column 'C' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
6. **Write to Excel worksheet**: Write the value `Amount` into cell in column 'D' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.

16. Drag and drop the Run subflow action from Flow Control folder under Step 12.

The screenshot shows the Power Automate Flow Designer interface. On the left, the 'Actions' pane is open, displaying various categories like Variables, Conditionals, Loops, and Flow control. The 'Flow control' category is expanded, and the 'Run subflow' action is selected, highlighted with a red box and a red arrow pointing towards the flow. The main workspace shows a sequence of steps numbered 1 to 12. Step 12 is the 'Run subflow' action, which has a red box around it and a red arrow pointing to its 'End of autogenerated actions using the recorder' connector. The flow starts with 'Run application' (step 1), followed by several UI interactions (steps 2-5), then text population (steps 6-7), dropdown selection (step 8), attribute retrieval (step 9), conversion (step 10), and another UI interaction (step 11). Step 12 ends at the 'End of autogenerated actions using the recorder' connector.

17. Call Write_notes_into_excel subflow you just created. Then click Save.



18. Click on the **Save** button to save the flow.



19. You can now run your flow by clicking Run.

20. After the automation run, check the Excel file and you will see the following entry should have been added:

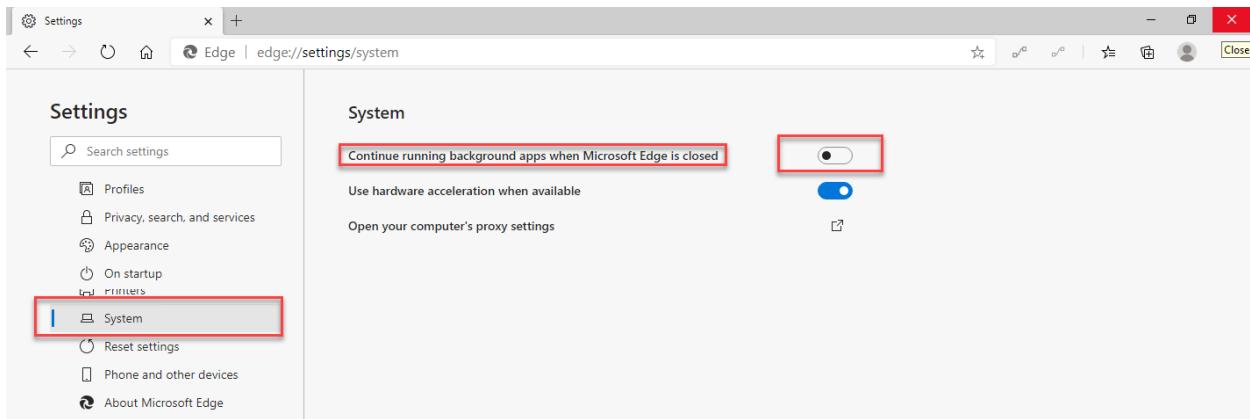
1026 | WingTip Toys | b.friday@wingtiptoy.com | \$500.00

Note: You may see a different invoice ID here.

Exercise 2 - Advanced Power Automate Desktop features

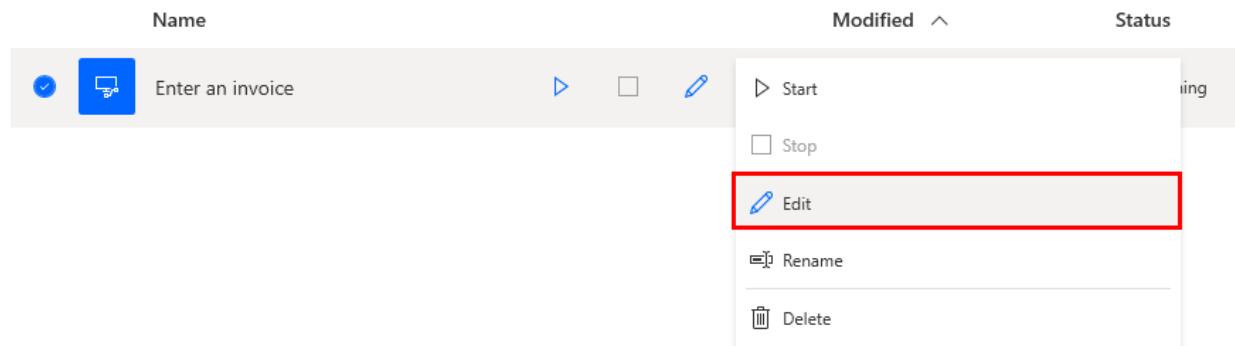
In this exercise, we will use the web automation to convert the total amount into another currency and add that converted to the Excel document.

1. Open Microsoft Edge (Chromium), enter this in the browser URL address bar:
edge://settings/system. This will bring you to the **Settings** then **System** page. Uncheck **Continue running background apps when Microsoft Edge is closed**. Close all browser tabs and sessions before you proceed.

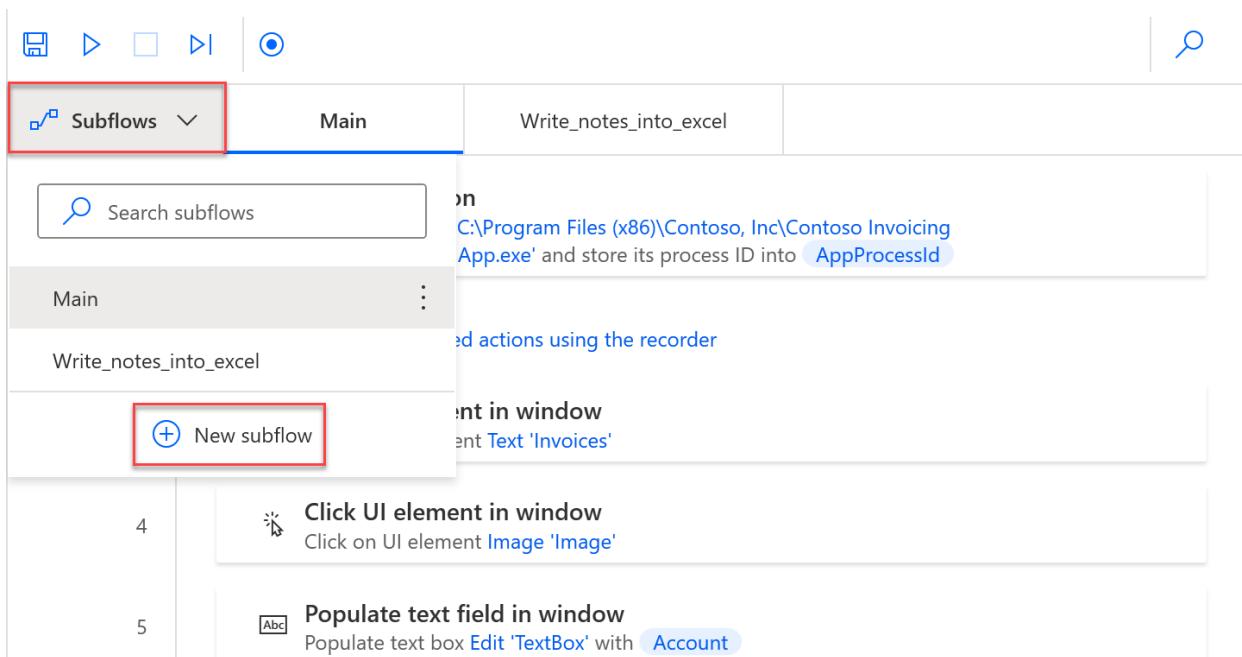


2. In Power Automate Desktop, Edit **Enter an invoice** flow you created by clicking ... icon and select **Edit**.

Flows

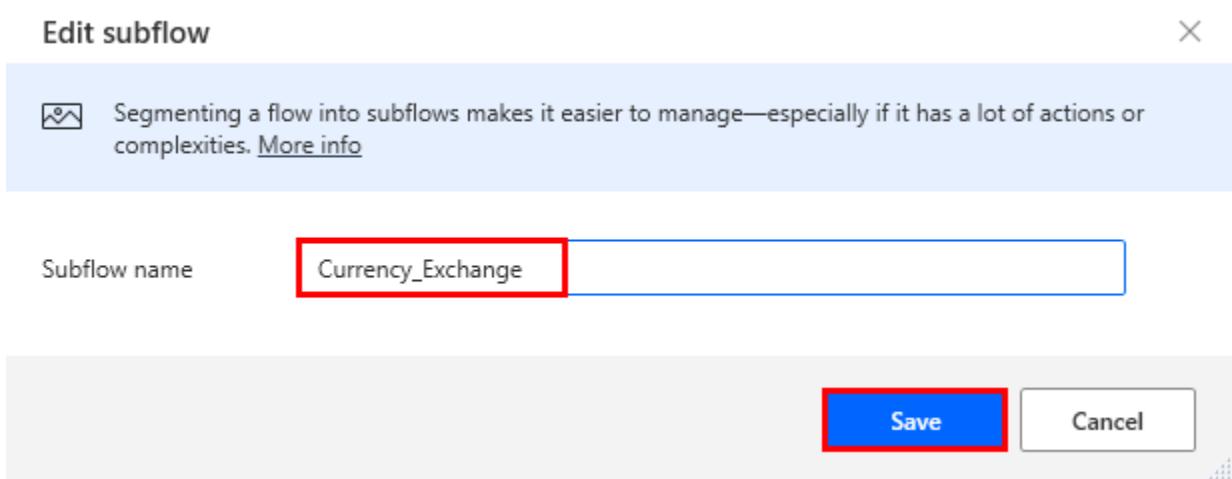


3. Click Subflow >  to create a the second subflow for Enter an invoice.

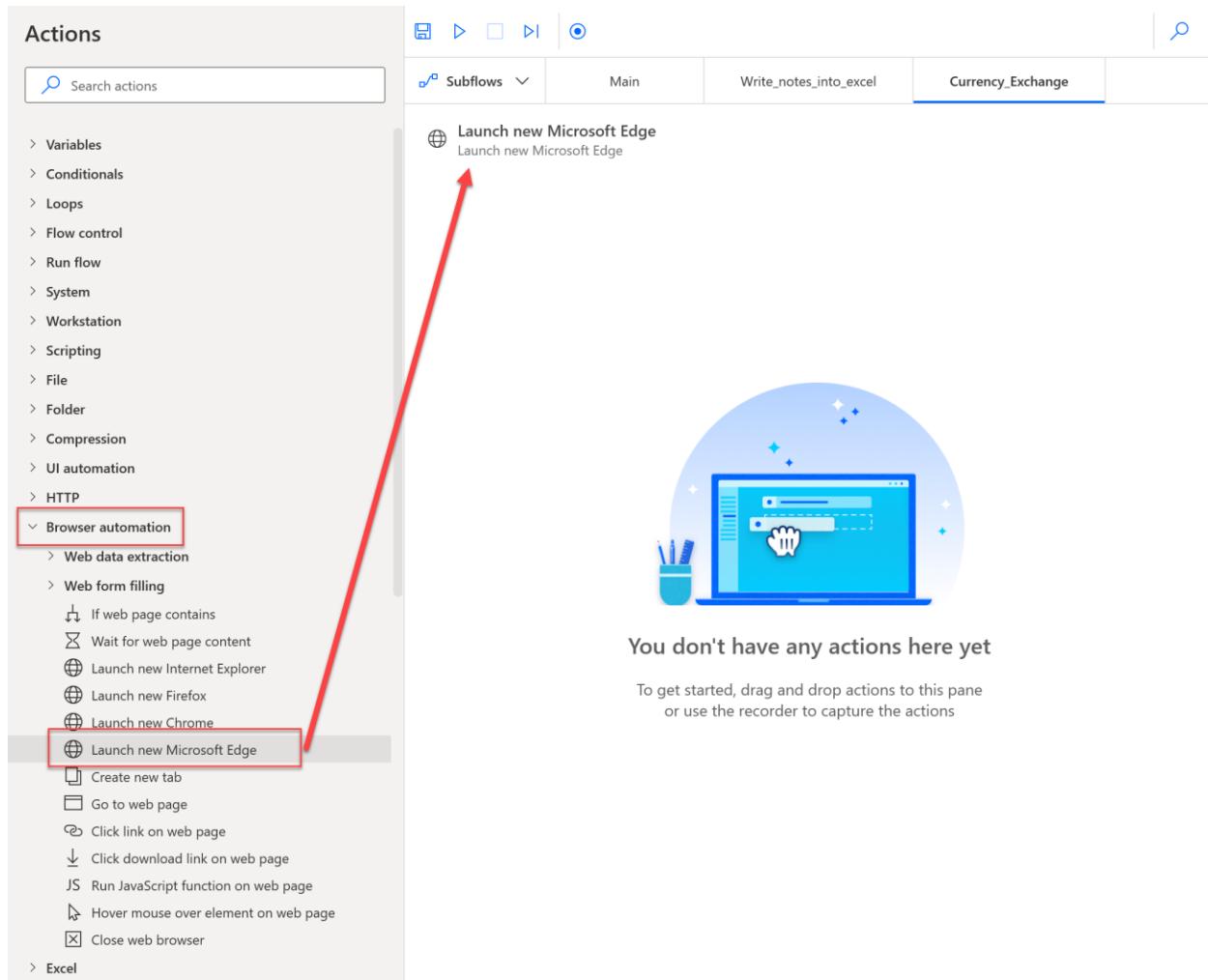


4. Call your Subflow **Currency_Exchange**. Click Save.

Note: Subflow name can't have spaces

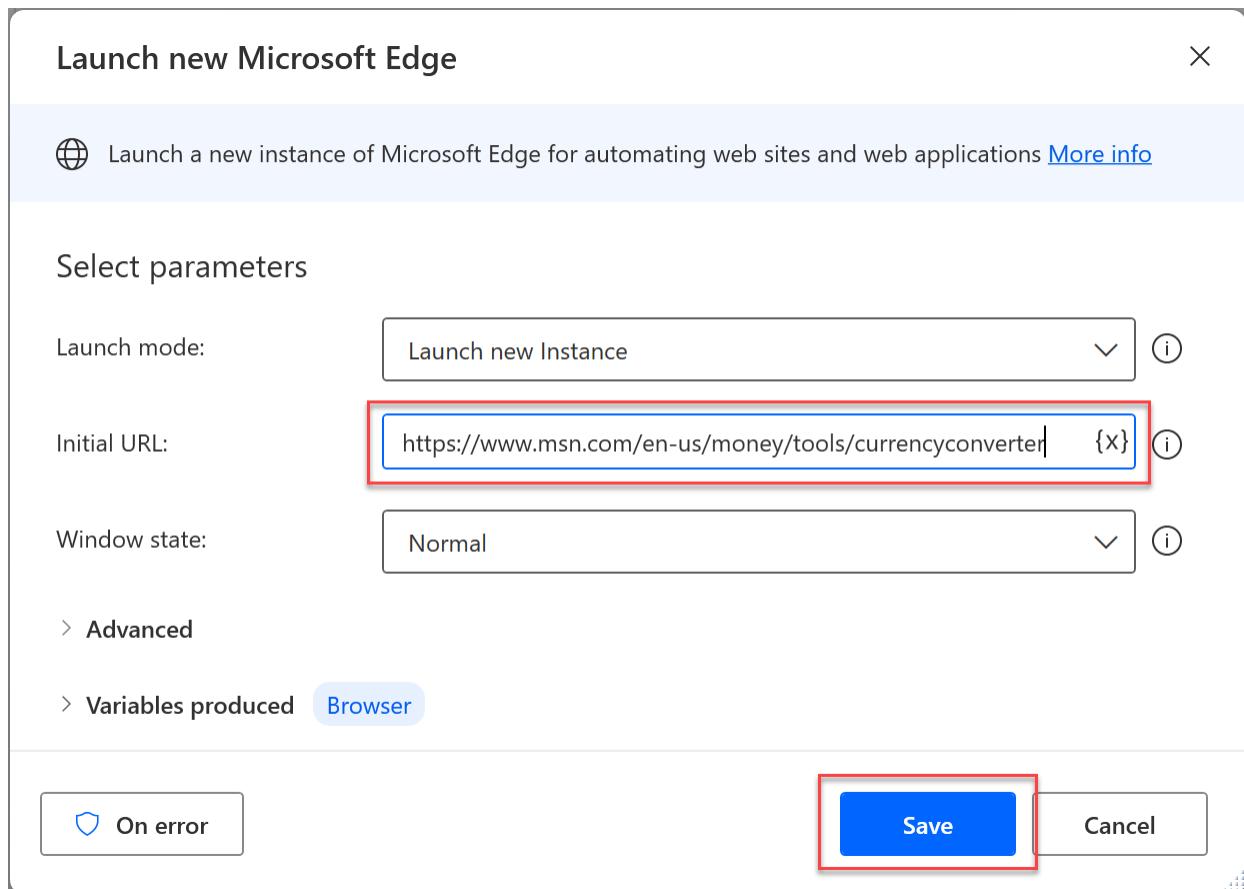


5. Drag and drop the Launch new Microsoft Edge Action from the **Browser automation** folder into the workspace.



6. In the **Initial URL** field enter: <https://www.msn.com/en-us/money/tools/currencyconverter>

7. Click **Save**.



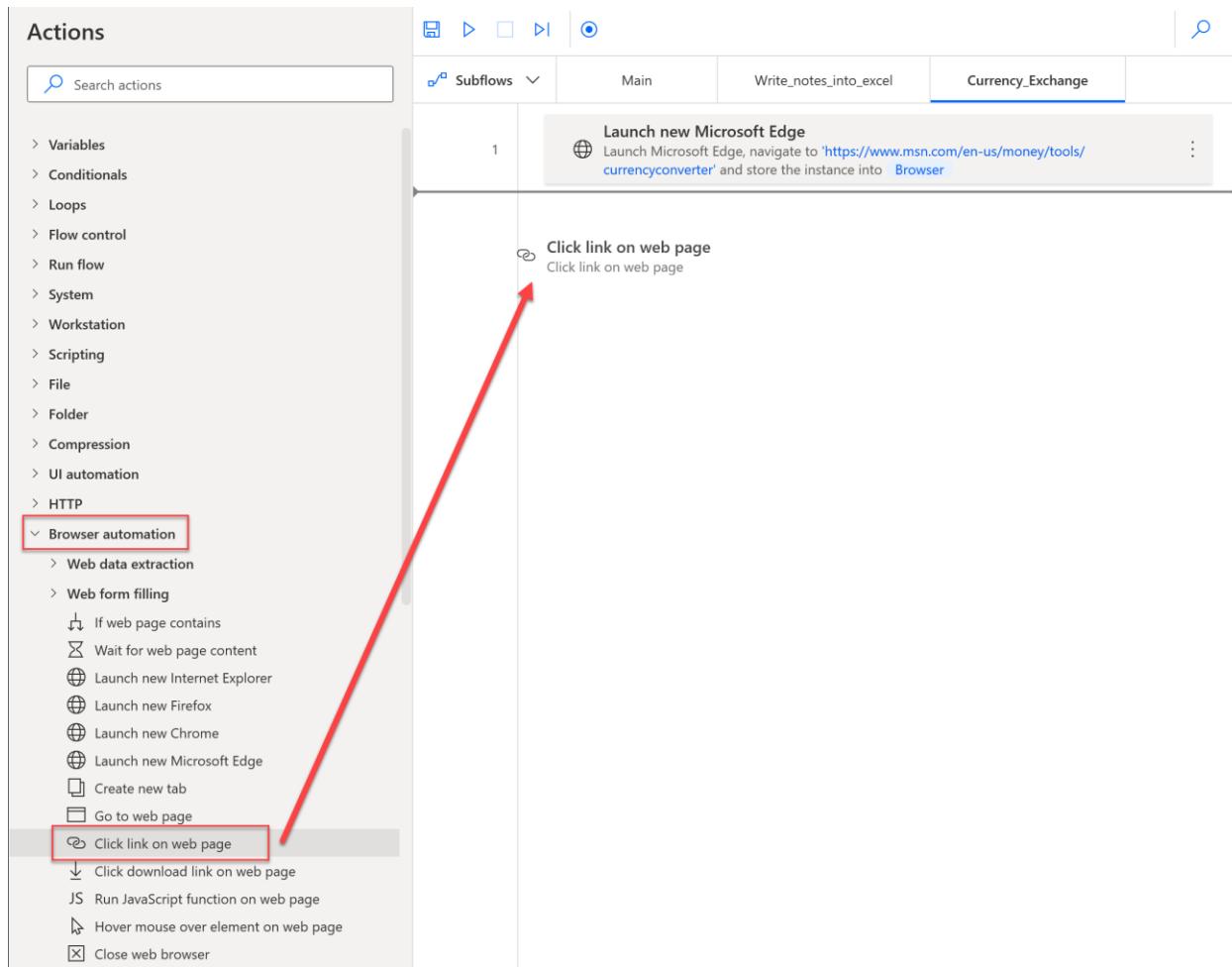
8. Open an Edge web browser and navigate to www.msn.com/en-us/money/tools/currencyconverter

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

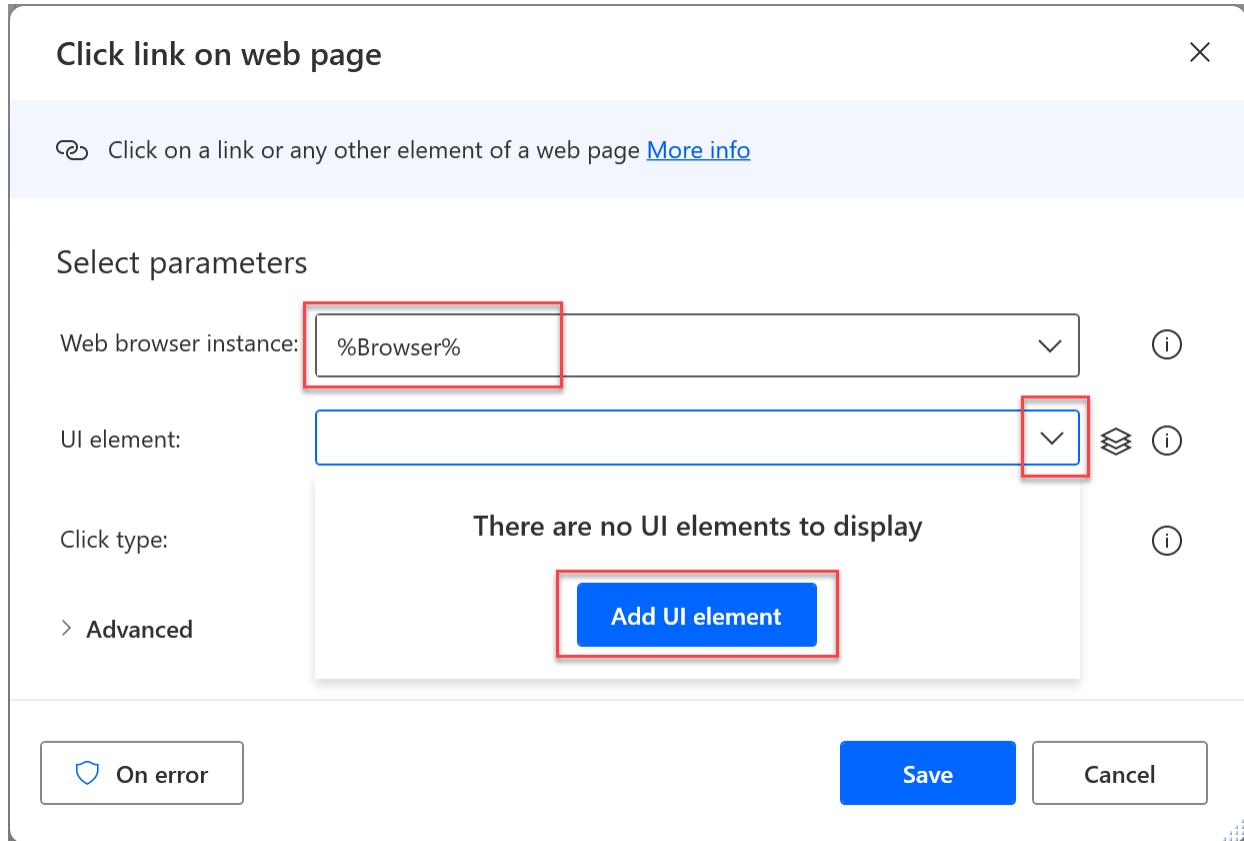
The screenshot shows the msn money website interface. At the top, there's a navigation bar with links like Today, My Watchlist, Markets, Cryptocurrencies, Investing Ideas, Currency Converter (which is highlighted in blue), Investing, Personal Finance, Real Estate, and a search bar. Below the navigation is a row of popular stock tickers: AAPL (-1.37%), STZ (-0.51%), BTC (+3.00%), AMZN (-0.73%), JPM (-0.24%), ETH (+9.79%), BA (+0.54%), BCE (+0.01%). A user profile 'Tomasz' is visible on the right. The main content area features a 'Currencies' section with a table of exchange rates and a 'Currency Converter' tool. The converter shows 1 USD = 0.9974 EUR. The 'From' field is set to 'USD \$ - United States Dollar' and the 'To' field is set to 'EUR € - Europe Euro'. An input box shows '\$1.00' which is converted to '€0.9974'. Below the converter are buttons for timeframes (1D, 5D, 1M, 3M, YTD, 1Y, 3Y, 5Y, Max) and range sliders for Day Range (0.9966 to 1.0017) and 52 Week Range (0.84 to 1.01).

9. Now we will enter the total amount value from AI builder model as the US dollar amount, into the website input textbox to lookup the converted value.

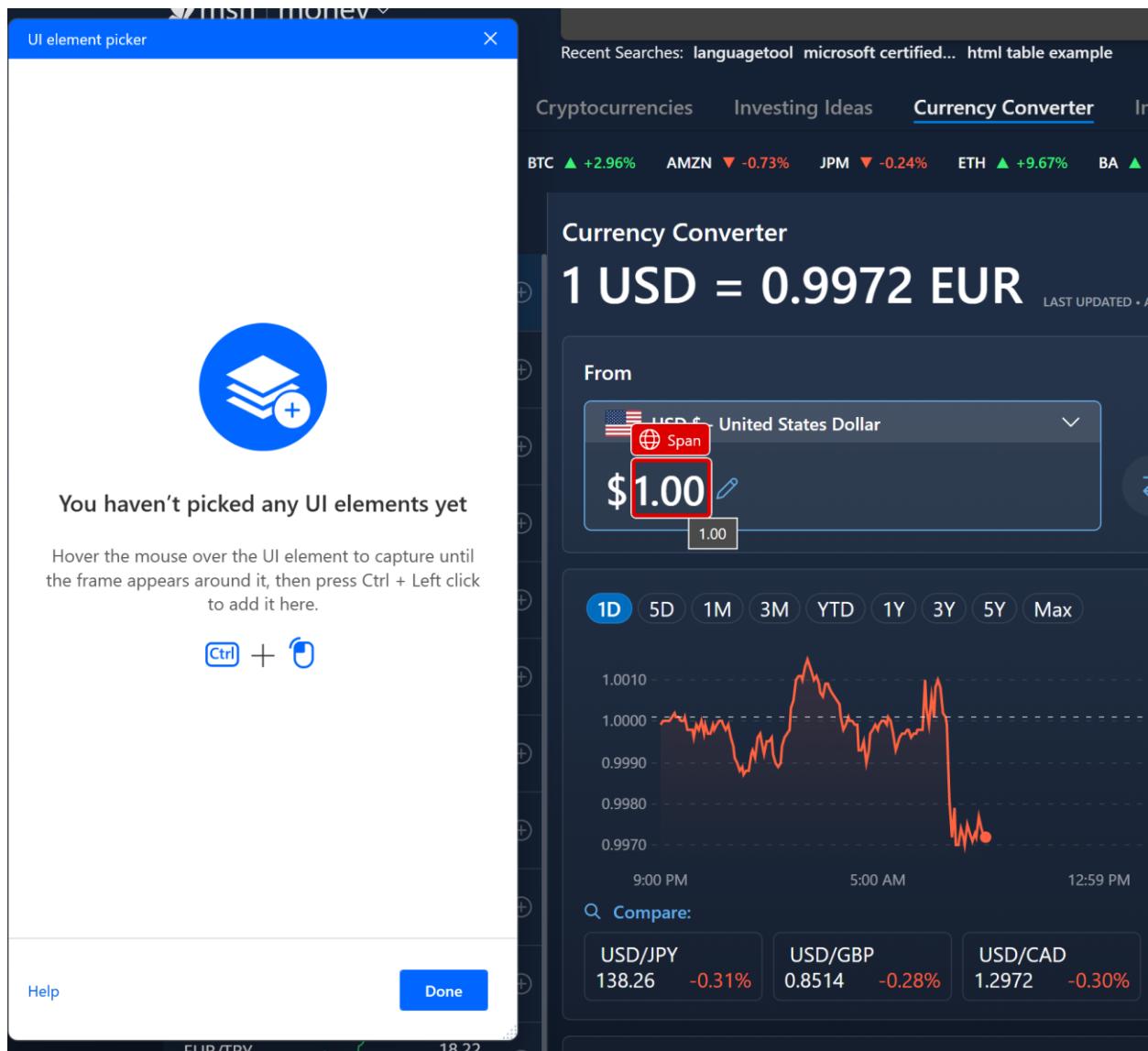
10. First, we need to enable input on the currency field on the website. To do that, we need to click it with mouse. Select **Click link on web page** action from **Browser automation** group.



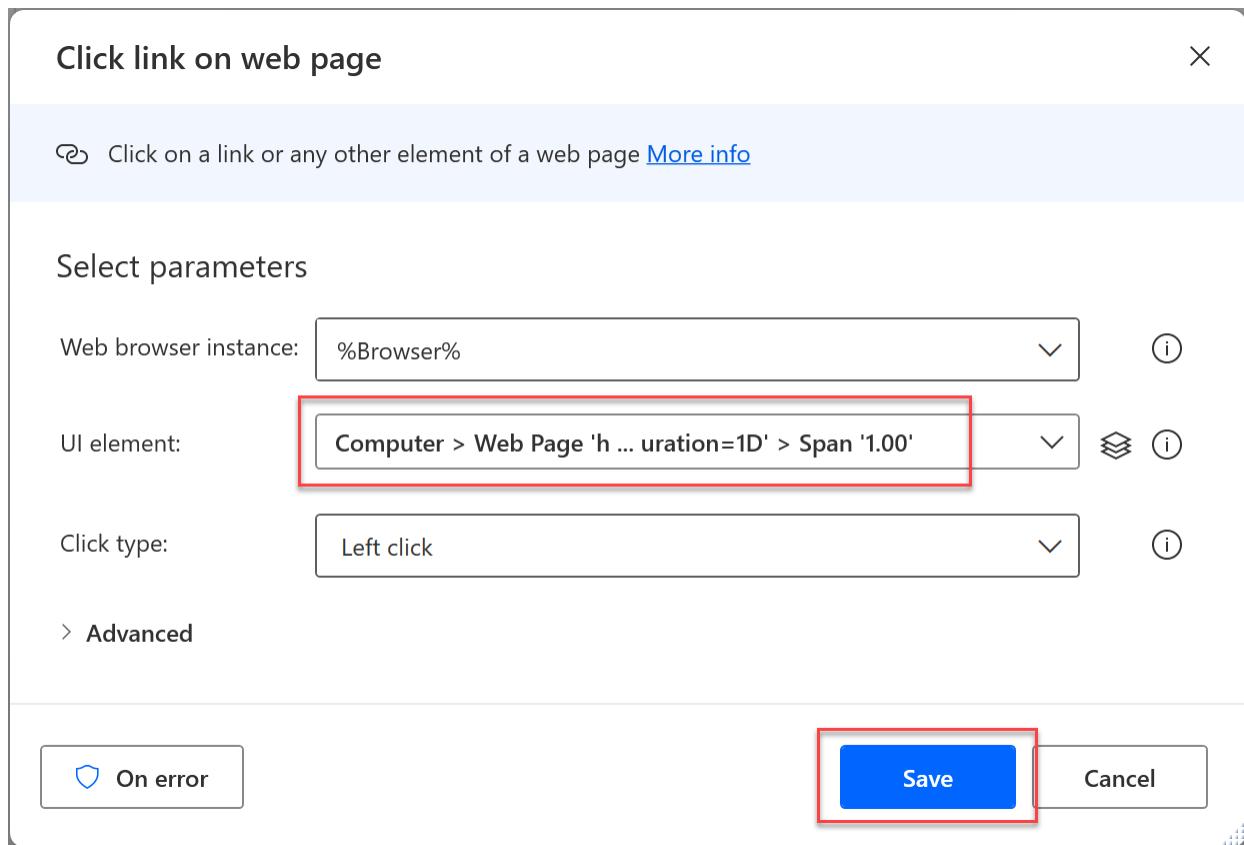
11. The **Web Browser Instance** is already populated with the **%Browser%** instance.
12. We need to identify the textbox UI element on the webpage that takes US dollar as input. To do that, click on the **UI element textbox** and then click on **Add a new UI element** to be able to capture the element.



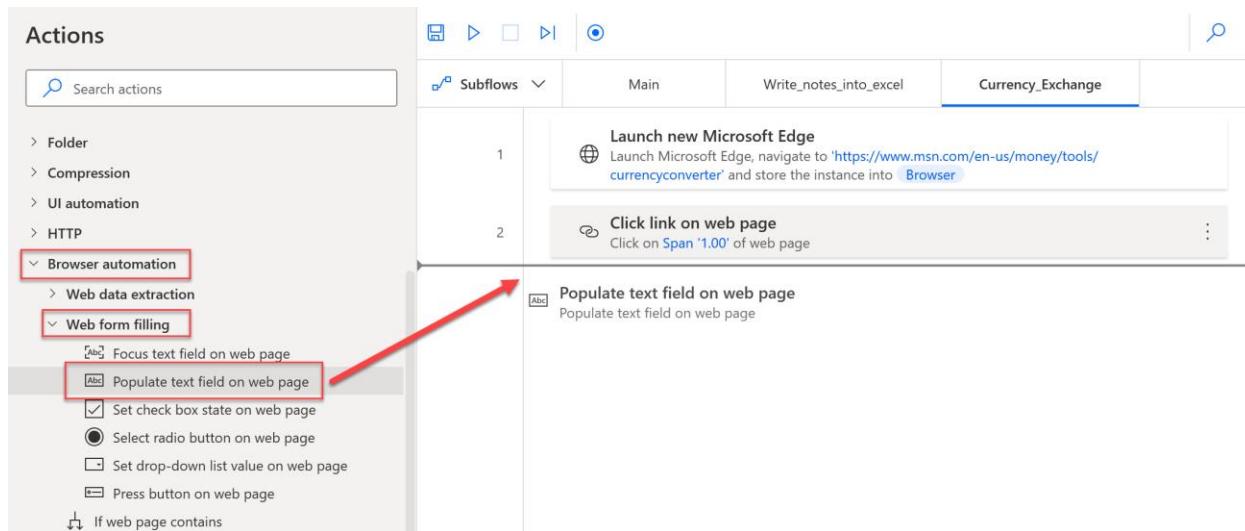
13. Having done this, a small Tracking session window will show up to capture UI element. Open the browser webpage, and you will see a red rectangle appear in the webpage while hovering the mouse over different elements. Move the mouse over the text field containing the US dollar value and hold the **Control** on your keyboard and **Left-Click** using mouse to select the element.



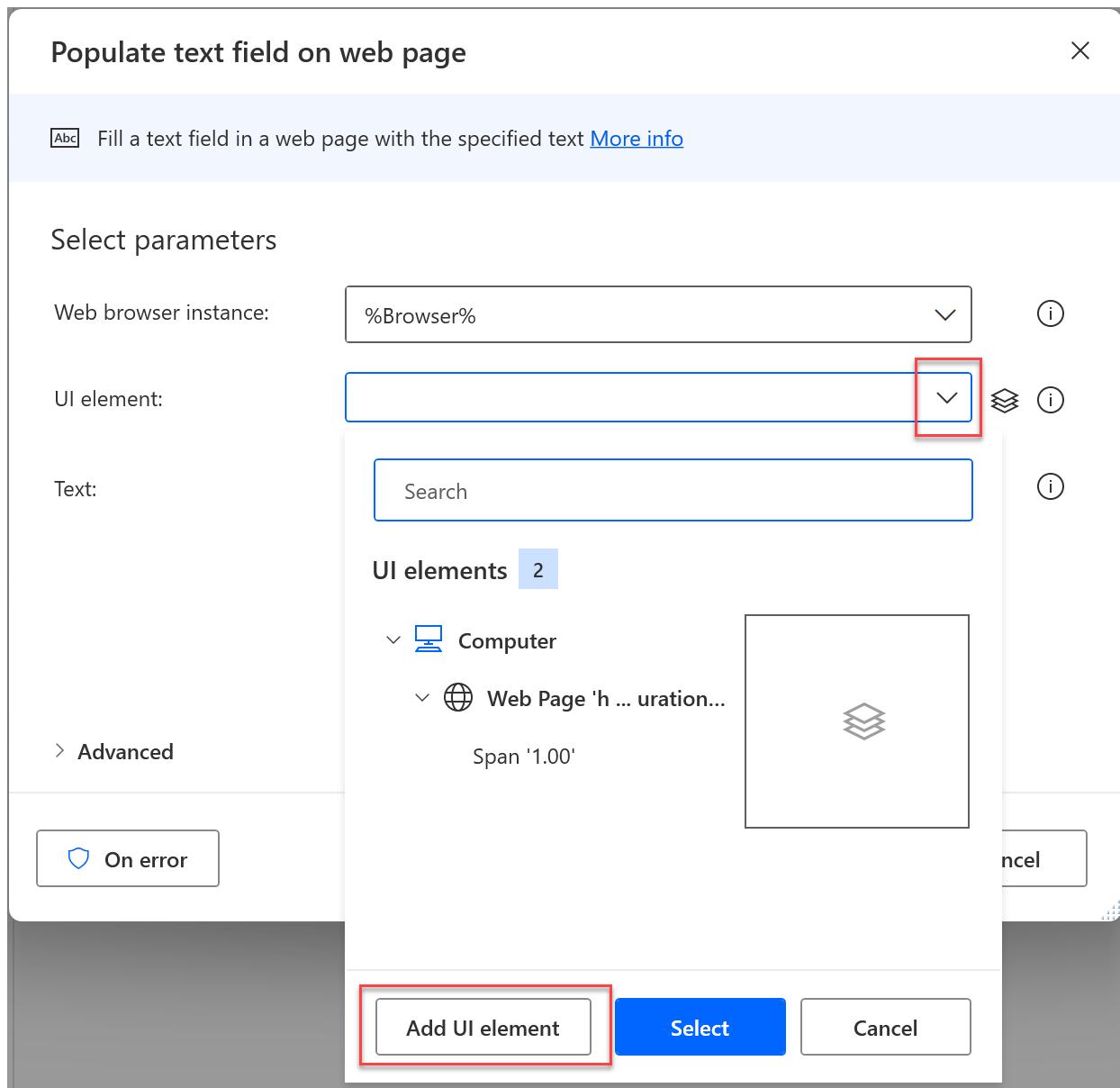
14. Once you selected the element, you will see the value appearing in **UI element** field.
Click **Save**.



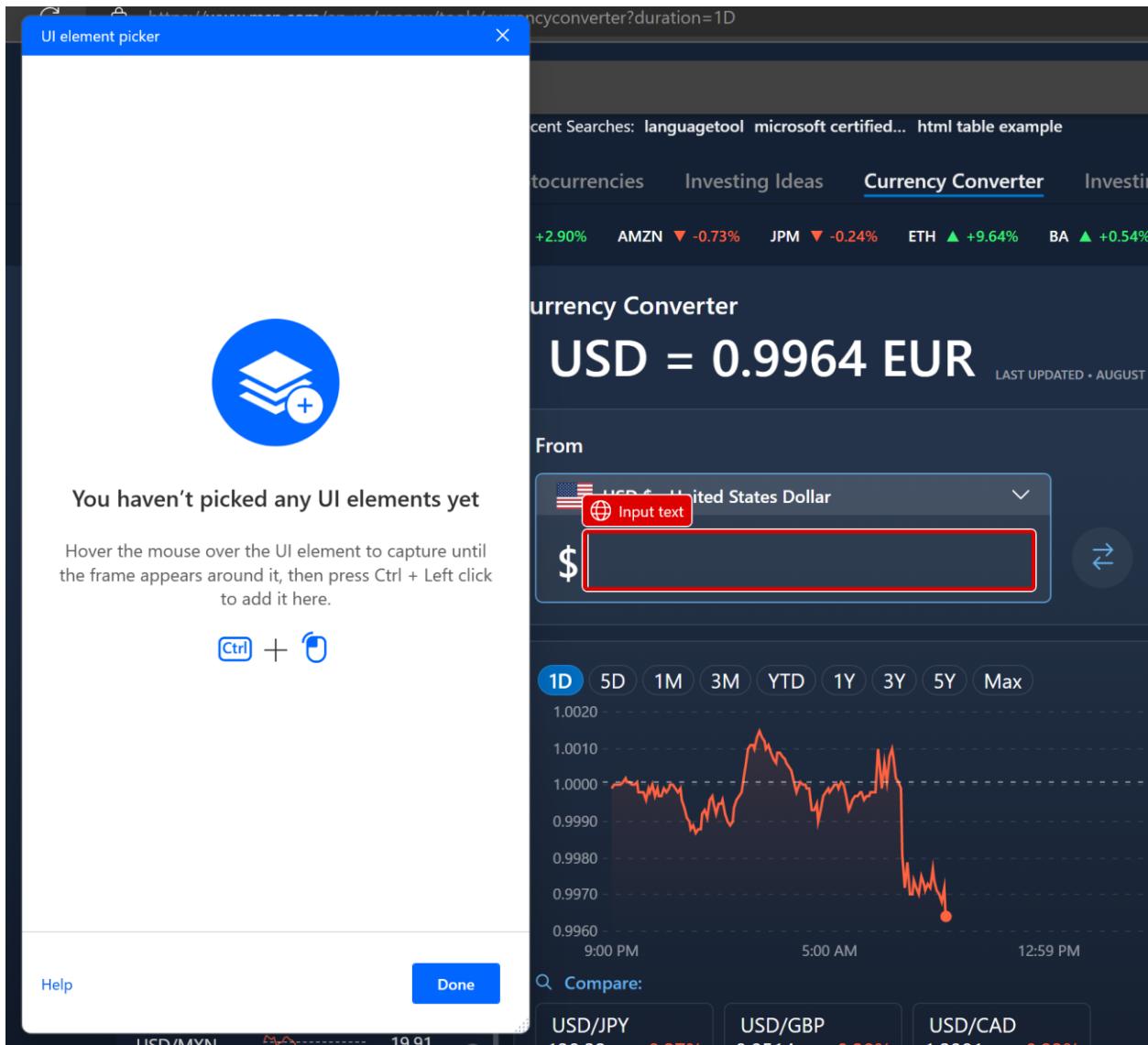
15. Add another action which will send the previous Total amount input value into this UI element field. Use **Populate text field on web page** action from **Web form filling** sub-group.



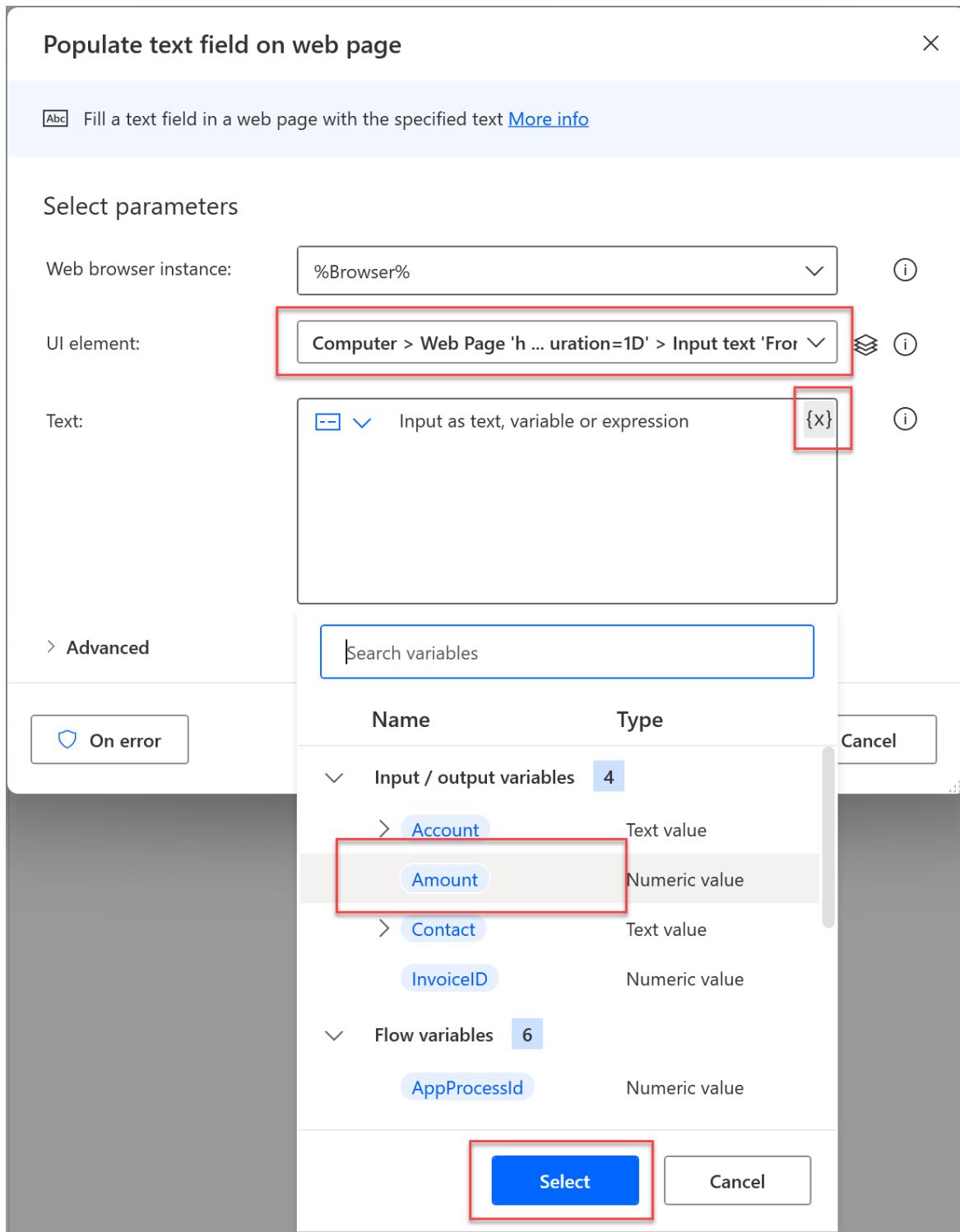
16. Again, click Add UI element button to grab the input field that appeared after the value was clicked on the website.



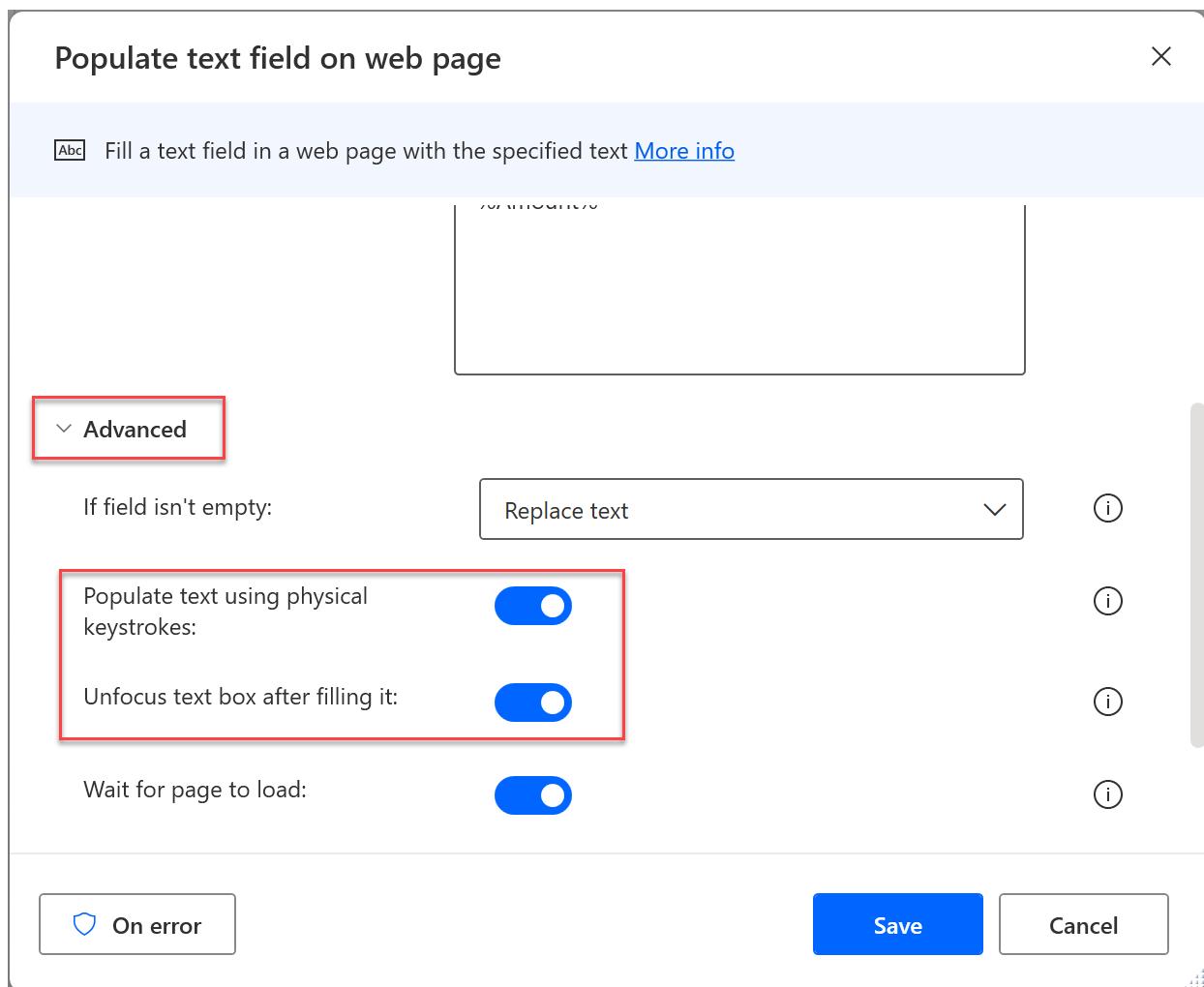
17. Hover over the input field. Once a red mask appears showing the type of the UI element (Input text) hold the **Control** on your keyboard and **Left-Click** it using mouse to select the element.



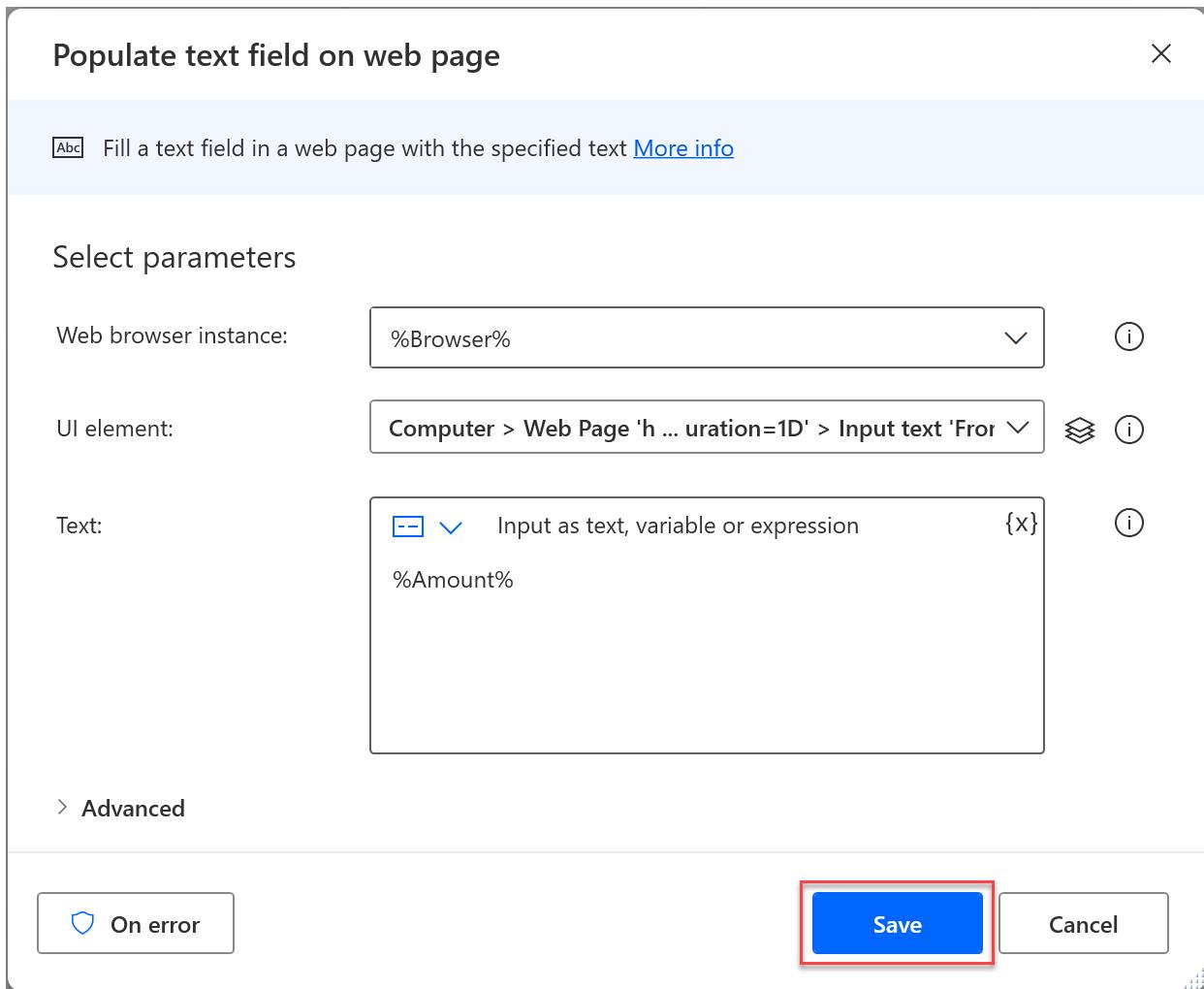
18. You can notice that the selector was recorded and is now present inside the **UI element** field. Next select the **{x}** icon in **Text** field, then choose **Amount** value and press **Select** button.



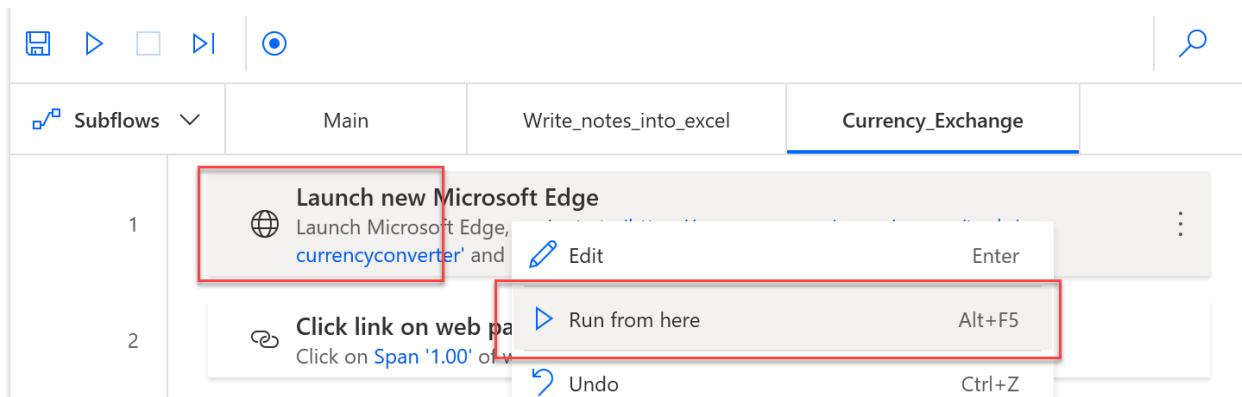
19. Under Advanced turn on settings: **Populate text using physical keystrokes** and **Unfocus text box after filling it**.



20. Select **Save** button.



21. Now we can test this subflow by selecting the first action in the subflow, right click and select Run from here.

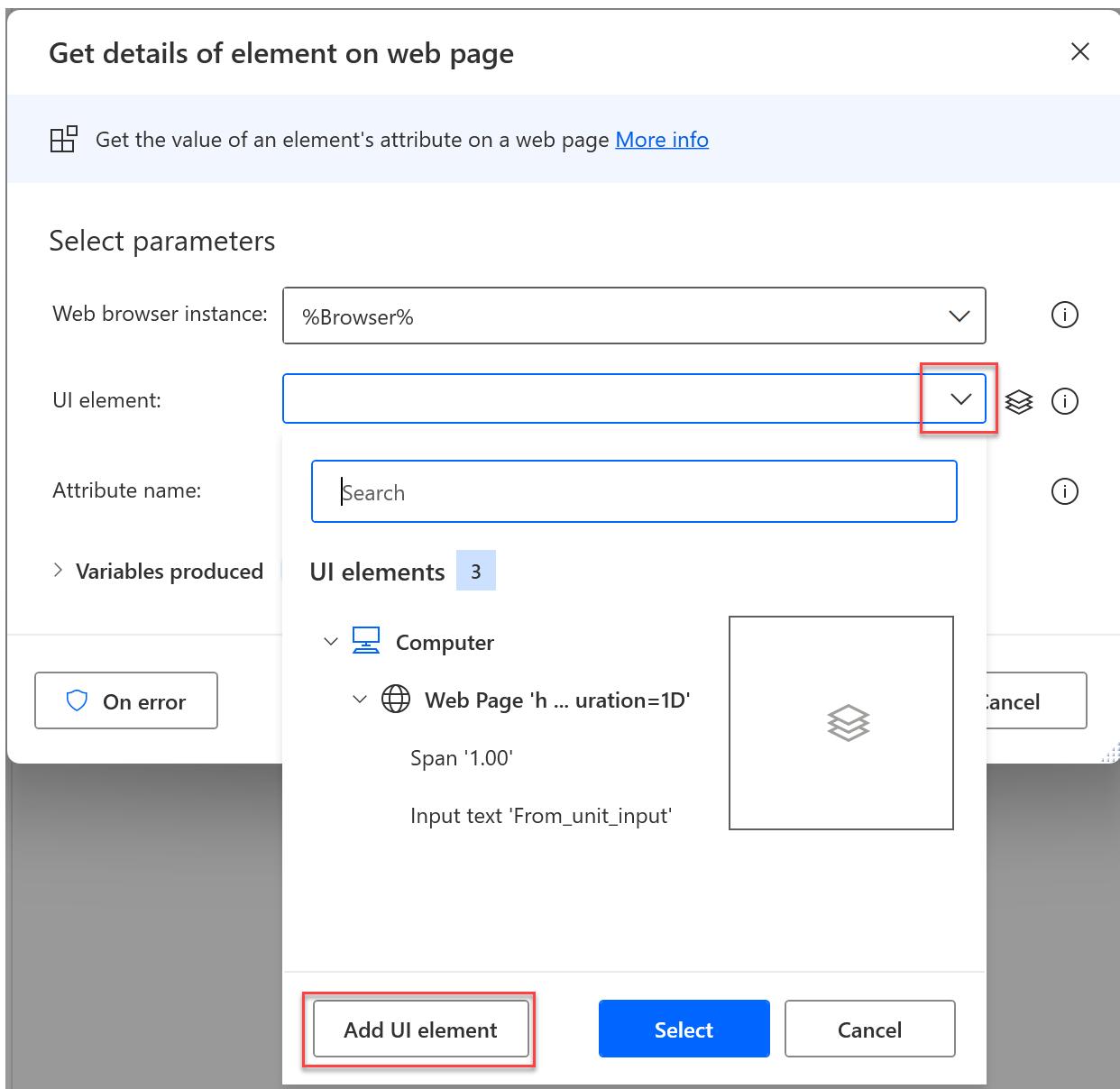


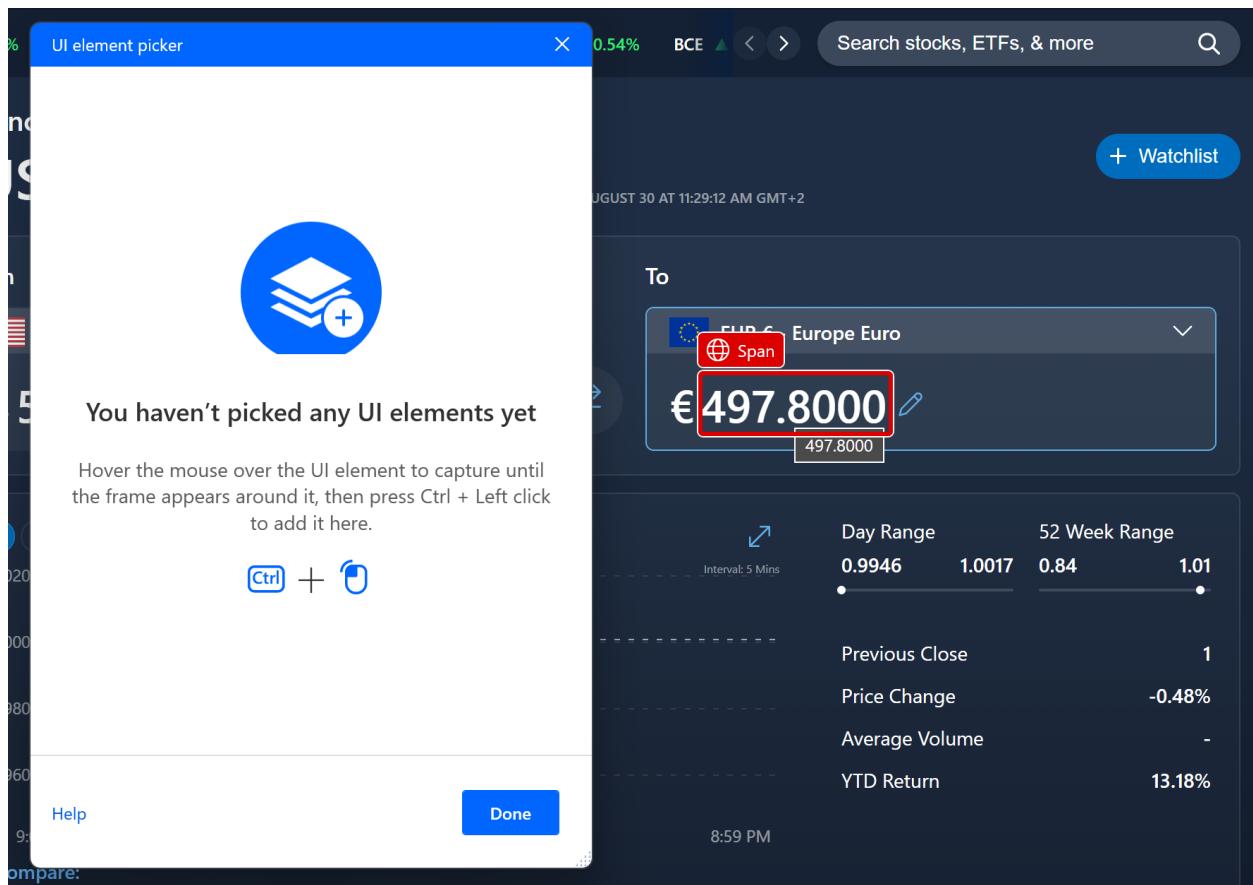
22. You should see the automation run and convert \$500 amount (the default amount value) into another currency

The screenshot shows a currency converter interface. At the top, there are stock market tickers: BTC +2.94%, AMZN -0.73%, JPM -0.24%, ETH +9.64%, BA +0.54%, BCE +. The search bar says "Search stocks, ETFs, & more". Below the header, it says "Currency Converter" and displays the exchange rate "1 USD = 0.9954 EUR" last updated on August 30 at 11:26:01 AM GMT+2. The "From" field is set to "USD \$ - United States Dollar" with an amount of "\$ 500.00". The "To" field is set to "EUR € - Europe Euro" with a converted amount of "€ 497.7000". A "Watchlist" button is also visible.

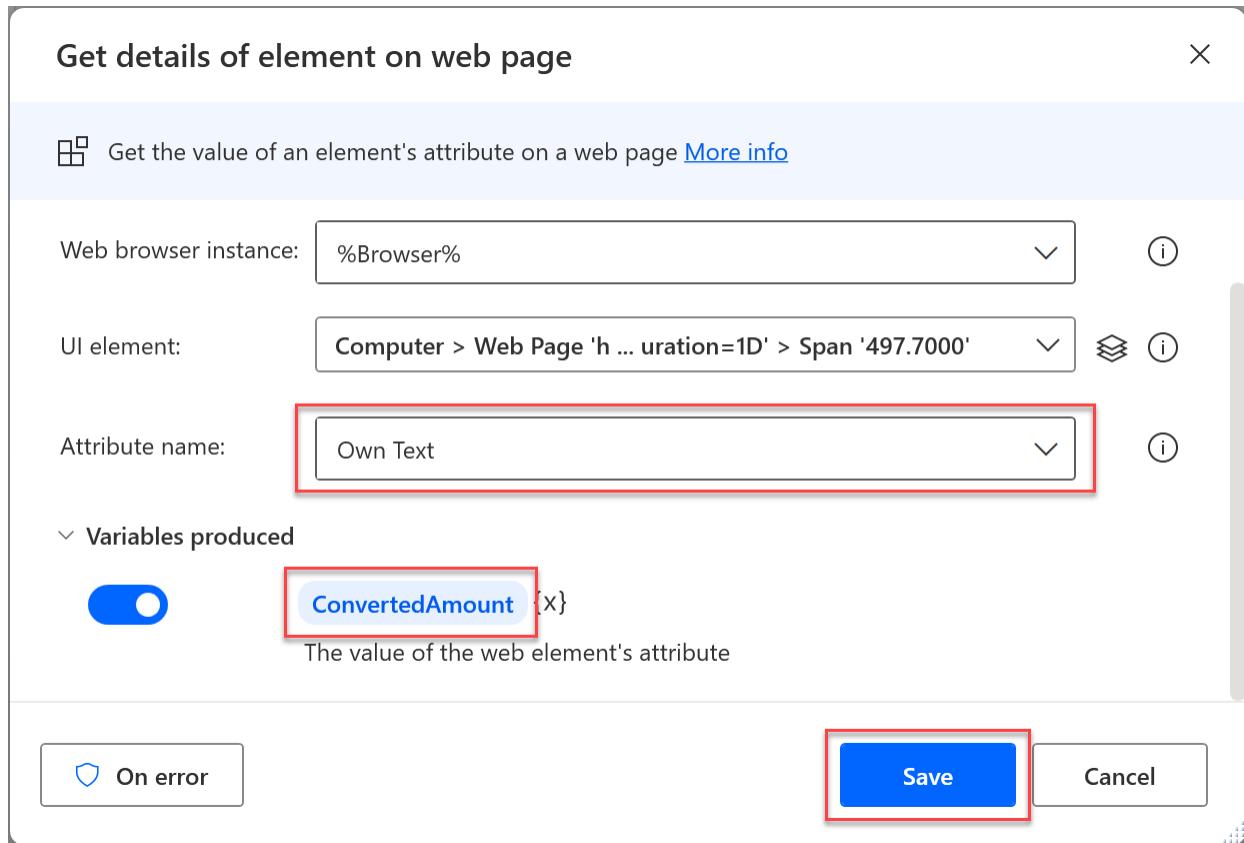
23. The next step is we will capture the real time converted value from the website. We will use the **Get details of element on web page** action in the **Web data extraction** subfolder to select the converted value (Euro) using the same method described above.

The screenshot shows the Power Automate Actions pane. On the left, under "Actions", the "Browser automation" folder is expanded, and the "Web data extraction" subfolder is also expanded. The "Get details of element on web page" action is highlighted with a red box and a red arrow points to it from the left sidebar. In the main pane, a flow is shown with three steps: 1. Launch new Microsoft Edge, 2. Click link on web page, and 3. Get details of element on web page. Step 3 is currently selected.

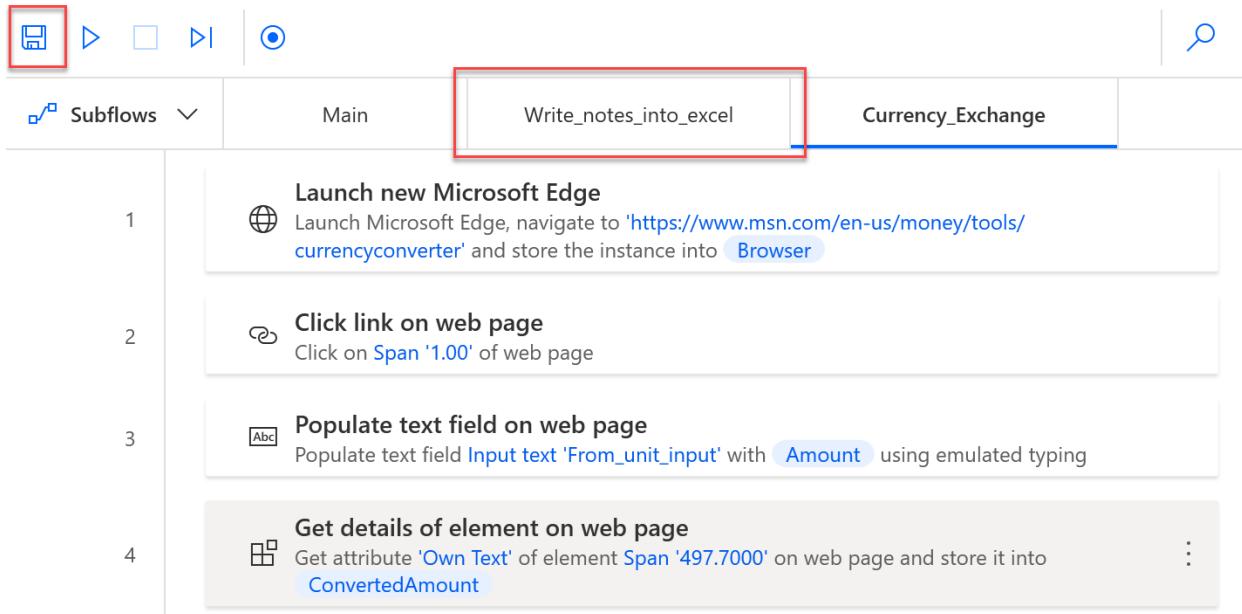




24. Change the Variables produced from %AttributeValue% to %ConvertedAmount% by clicking into %AttributeValue%. Once you're done, click Save.



25. Click **Save**. Then go back to **Write_notes_into_excel** subflow you created in exercise 1 by clicking **Write_notes_into_excel**.



26. Add the Write to Excel Worksheet action from the Excel folder under Step 6.

The screenshot shows the Power Automate Designer interface. On the left, the 'Actions' pane is open, displaying various categories like Folder, Compression, UI automation, HTTP, Browser automation, and Excel. Under Excel, the 'Advanced' section is expanded, showing actions such as Launch Excel, Attach to running Excel, Read from Excel worksheet, Get active cell on Excel worksheet, Save Excel, and Write to Excel worksheet. The 'Write to Excel worksheet' action is highlighted with a red box and has a red arrow pointing to its use in the main workflow.

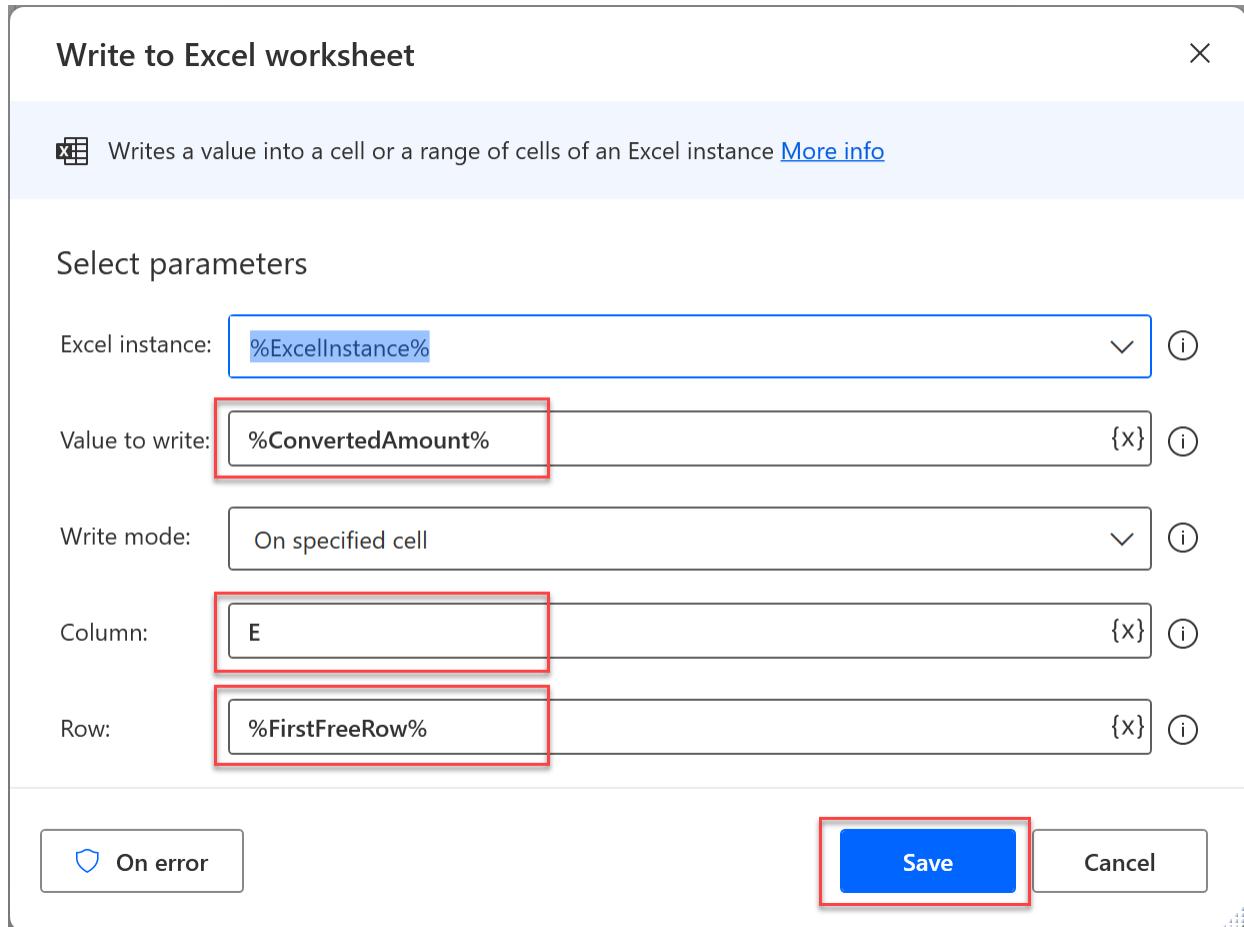
The main workspace shows a workflow titled 'Main' with the subflow 'Write_notes_into_excel'. The workflow consists of the following steps:

- Launch Excel**: Launch Excel and open document 'D:\OneDrive\Documenty\Moje_Pracza\Community \RPAinADayPackage\RPAinADay by Tomasz - Student\lab data packages\Lab #8 excel file to use in Power Automate Desktop\Contoso Invoices.xlsx' using an existing Excel process and store it into Excel instance `ExcelInstance`.
- Get first free column/row from Excel worksheet**: Get the first free column/row in the active worksheet of the Excel document whose instance is stored into `ExcelInstance` and store them into `FirstFreeColumn` and `FirstFreeRow`.
- Write to Excel worksheet**: Write the value `InvoiceID` into cell in column 'A' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Account` into cell in column 'B' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Contact` into cell in column 'C' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write the value `Amount` into cell in column 'D' and row `FirstFreeRow` of the Excel instance `ExcelInstance`.
- Write to Excel worksheet**: Write to Excel worksheet.

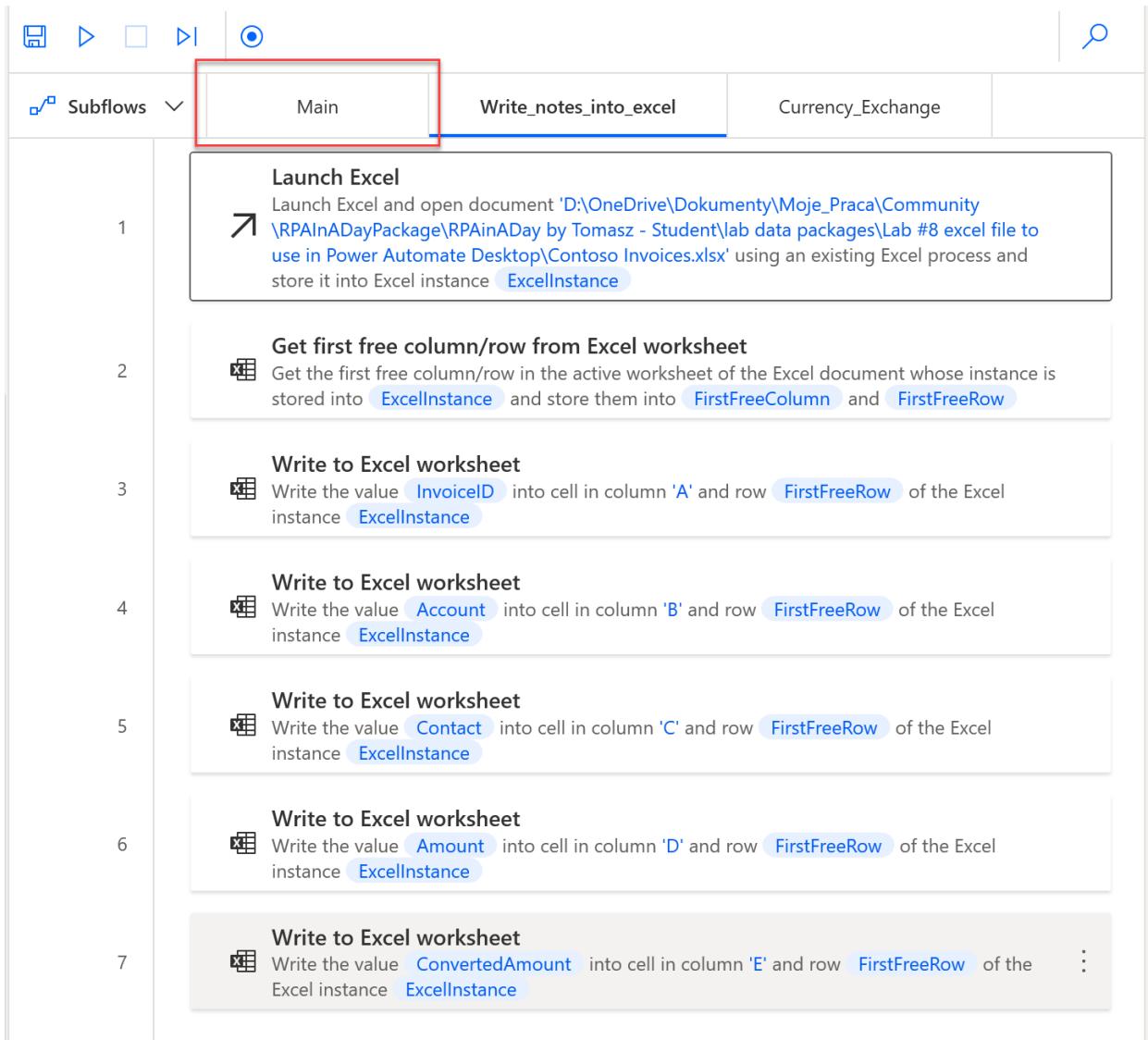
27. Writing values of variables to cells as the information below.

- **Value to write:** %ConvertedAmount%
- **Column:** E
- **Row:** %FirstFreeRow%

And click **Save**.



28. Now we will add the **Currency_Exchange** subflow into the **Main** flow before **Write_notes_to_excel** subflow. Go back to your Main flow by clicking **Main**.



29. Add a Run subflow action from Flow Control folder as Step 12 of your process.

Note: this subflow should be called prior to the **Write_notes_to_excel** subflow call.

The screenshot shows the Power Automate Actions pane. On the left, there's a tree view of categories: Variables, Conditionals, Loops, Flow control, Run flow, System, Workstation, Scripting, File, Folder, Compression, UI automation, HTTP, Browser automation, Excel, Database, Email, Exchange, and Outlook. The 'Flow control' category is expanded, and its sub-items are listed: Comment, End, Exit subflow, Get last error, Go to, Label, On block error, Run subflow (which is highlighted with a red box), Stop flow, and Wait. On the right, a list of steps is shown, numbered 1 to 13. Step 12 is highlighted with a red arrow pointing to it, indicating where the 'Run subflow' action should be inserted. Step 12 is labeled 'Run subflow Write_notes_into_excel'.

| Step | Action |
|------|--|
| 1 | Run application Run application 'C:\Program Files (x86)\Contoso, Inc\Contoso Invoicing\LegacyInvoicingApp.exe' 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' |
| 4 | Click UI element in window Click on UI element Image 'Image' |
| 5 | Populate text field in window Populate text box Edit 'TextBox' with Account |
| 6 | Populate text field in window Populate text box Edit 'TextBox' 2 with Contact |
| 7 | Populate text field in window Populate text box Edit 'TextBox' 3 with Amount |
| 8 | Set drop-down list value in window Select option(s) using regular expression 'Invoiced' in Combo Box 'ComboBox' |
| 9 | Get details of the UI element in window Get attribute 'Own Text' of UI element Text '1026' and store it into AttributeValue |
| 10 | Convert text to number Convert text AttributeValue to number and store it into InvoiceID |
| 11 | Click UI element in window Click on UI element Image 'Image' 2 |
| 12 | End of autogenerated actions using the recorder Run subflow |
| 13 | Run subflow Write_notes_into_excel |

30. Call **Currency_Exchange** subflow you just created. Then click **Save**.

The screenshot shows the 'Run subflow' dialog box. It has a title bar 'Run subflow' and a close button 'X'. Below the title is a section labeled 'Call subflow:' with a dropdown menu. The dropdown menu shows two options: 'Write_notes_into_excel' and 'Currency_Exchange'. The 'Currency_Exchange' option is highlighted with a red box.

31. Click on the **Save** button to save the flow.



32. You can now run your whole main flow by clicking **Run**.



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

| | | | | |
|------|--------------|--------------------------|----------|-------|
| 1026 | WingTip Toys | b.friday@wingtiptoys.com | \$500,00 | 498,3 |
|------|--------------|--------------------------|----------|-------|

Check your knowledge

Lab 8

5 mins

1. Which of the following can you use as your Subflow name?

- A. Currency exchange
- B. Currency Exchange
- C. Currency_exchange
- D. All of the above

Answer: C. Currency_exchange. 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 clicking UI element dropdown, you need to select _____ to be able to capture the element.

- A. Add a new UI element
- B. Save
- C. Browser
- D. None of the above

Answer: A. Add a new UI element - You need to click 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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