Training Academy

User Interface Automation and Project Notebook

reveal group

Course Path

Introduction to Intelligent Automation and UiPath Overview

User Interface Automation and Project Notebook

Microsoft Office Automation

Automation Bootcamp and Intelligent Automaton Demo

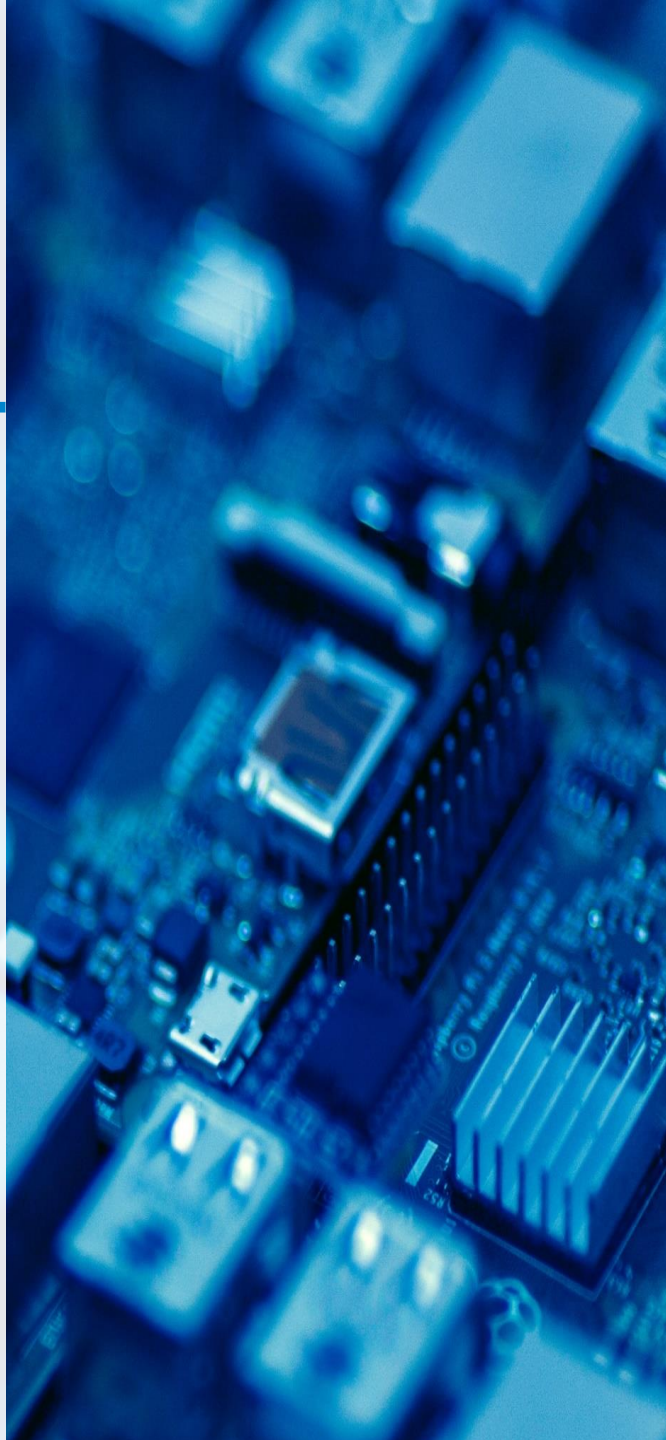
StudioX and Planning Your Automation

Decisions, Iterations and Scenarios with StudioX

Error Handling and Automation Lifecycle

Agenda

1. Recap of Module 2
2. Measuring Automations
3. User Interface Automation with StudioX
4. Recording UI Interactions
5. Troubleshooting and Debugging UI Automations
6. The StudioX Project Notebook
7. Spotlight: RPA Use Cases



Topic 1

Recap of Module 2

How Do Organizations discover Automation Opportunities?

Discovery is an automation Lifecycle stage that enables the RPA Center of Excellence to identify processes (i.e. a predictable, repeatable, series of identifiable actions) that employees engage in.

Discovery can take three forms:

1. **The Scientific Process Discovery** - data-driven automation suggestions based on computer and system logs.

2. **The Crowdsourced Process Discovery** - employees capture and document the process they have expertise in or submit automation ideas.

3. **Operational Diagnostics** - rigorous approach where no stone is left unturned via strategic manual review where list of processes to be assessed is exhaustive and quickly identifies processes with automation potential.

UiPath's Discovery Suite

Task Mining

UiPath Task Mining collects data about the day-to-day procedures in your organization and presents its findings in the form of scientific process maps indicating the best automation ideas. It's set up and managed from UiPath Orchestrator, the platform component for managing RPA.
The Center of Excellence (CoE) Leaders use Task Mining to analyze employee procedures in order to gain the data-driven automation suggestions

Process Mining

UiPath Process Mining brings together your data from multiple IT systems, databases or flat files and seamlessly transforms them into end-to-end process visualizations. You can get a complete visibility of all the activities in your organization and understand their true impact on the company performance
The Center of Excellence (CoE) Leaders and **Business Analysts** use Process Mining to uncover automation opportunities using the IT systems and application data.

Automation Hub

UiPath Automation Hub creates a unique space where Business Users, Subject Matter Experts, and the CoE come together to discover, prioritize and track automation opportunities submitted by the employees.
Automation Hub offers to **the Center of Excellence (CoE),** the **C-Suite** and Business users a space to come together and drive automation opportunities.

Task Capture

UiPath Task Capture integrates with UiPath Automation Hub to collect the process insights and support the employee-driven approach to automation. At the same time, it can be used together with Task Mining and Process Mining to access expert knowledge on processes identified as automation opportunities.
The Center of Excellence (CoE) Leaders and **Subject Matter Experts (SME)** use Task Capture to turn individual expertise into organizational wisdom and accelerate automation.

Discover Pipeline Generation - Reveal Group's approach for ensuring a continuous pipeline of automation opportunities follows four key steps

1 CREATE AN ENTERPRISE HEAT MAP

- **Map** the organizational structure and relative team **sizes**
- **Assign** the **probability** of automation/improvement to each team
- **Assess** the results and use them as a **guide** for undertaking a more detailed assessment of the business

2 CAPTURE A HEALTHY PIPELINE OF OPPORTUNITIES

- Use **"crowd sourcing"** to quickly identify opportunities from known areas
- Undertake a structured **Operational Diagnostic** to methodically assess a department with a team of **trained analysts**
- Perform an **Operational Diagnostic** with a specialized **Process Mining** tool and a trained team to provide a **differentiated** and **scientific** perspective

3 ASSESS, PRIORITIZE & SCHEDULE

- **Assess** the opportunities identified and improvement method proposed against the program success criteria
- **Prioritize** the candidates which provide acceptable ROI
- **Schedule** the candidates to be delivered

4 DELIVER DIFFERENTIATED PERFORMANCE

- Realize significant **value enabled** by a workforce who **methodically** delivers the projects provided through the pipeline
- Use complementary technologies to **extend** the footprint and **accelerate** the automation reach

HumanPath to RobotPath

The Discovery tools are intended to help organizations find automation opportunities and then, with the help of the CoE, automate them. For business users, there is a framework in place, to help understand and document tasks before automation. It's called Human Path to Robot Path.

HumanPath to RobotPath is a framework that helps you think your task through in a visual way. It also helps translate your task as you know it today into "robot language".

- The **HumanPath** is a high-level view of your task put into a sequential manner.
- The **RobotPath** is a detailed view of your task - it's designing the steps the Robot takes to automate your task.

Here are some highlights of what makes the HumanPath to RobotPath framework important in your development process:

- Breaks down your process into visual, logical steps;
- Helps you carve out the scope of what you want to build;
- Outlines key decision points and task automation scenarios;
- Serves as your guide while you build your Robot.

Created Automations using StudioX

- Build Your Unicorn Name
- Send an Email with your Unicorn Name
- Currency Converter

The Blueprint for Scale (BfS) covers the five capability components required for a successful and scalable automation program

Blueprint for Scale

- Vision & Strategy
- Program Governance
- Organization & People
- Capability & Training
- Change Management

- Intake Approach
- Opportunity Assessment

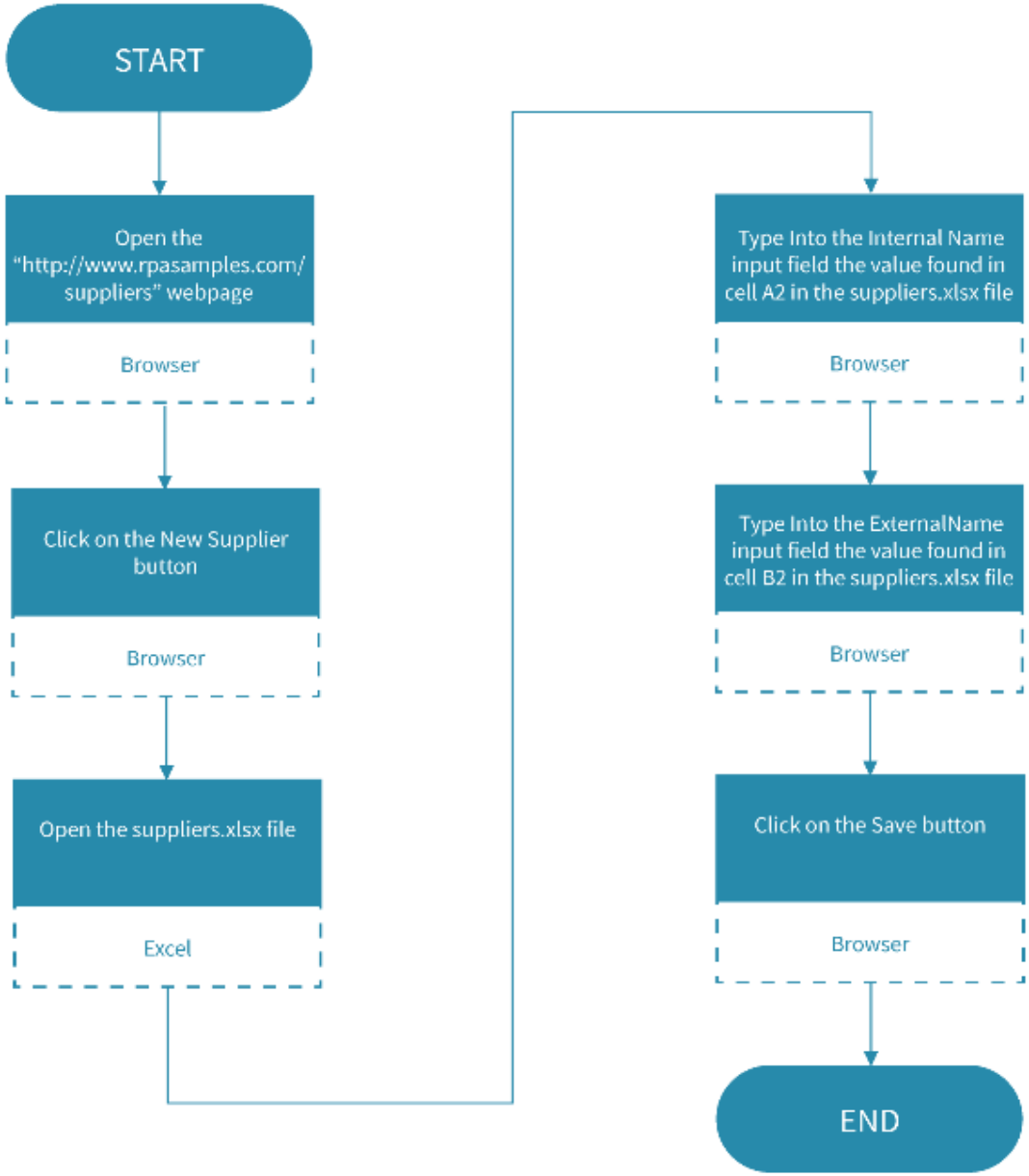
- Application Management
- Technical Infrastructure
- Platform Management

- Delivery Methodology
- Technical Best Practice
- Testing Approach

- Business as Usual
- Support Model
- Permissions & Credential Management

Review Homework:

RobotPath: Enter a New Supplier

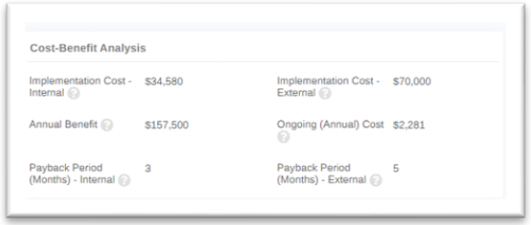


Topic 2

Measuring Automations

Measure: Business Case Building

Business Cases are extremely important to understand the initial measure of the automation being performed manually. This will validate the benefits that are being realized by the automation and help with internal discussions of showcasing the complete benefits of automating manual tasks to the business and executives.



Including Qualitative Factors are important to understand how the automation aligns with the strategy goals of the organization which we call “Process Value Factors”. Organizations typically have a definition for each factor as well as how to grade “Low”, “Medium, and “High”. Calculating these factors differ for each organization. For Example “EOD Processing”

Process Value Drivers

Strategy	Quality	Risk
Medium	Medium	High

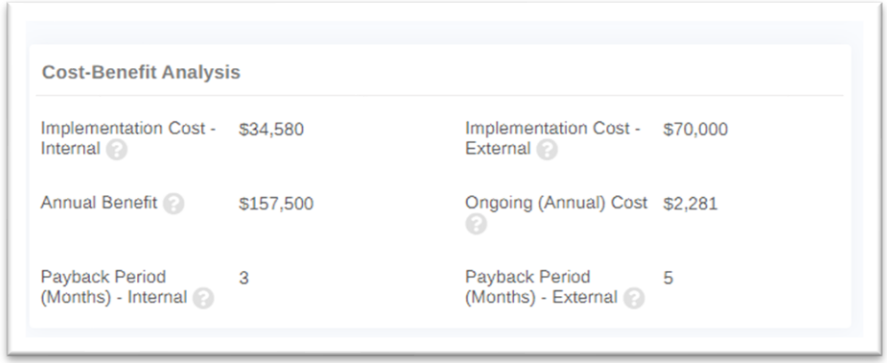
Strategy Alignment (50) X Medium (2) + Risk Mitigation (30) x High (3) + Quality (20) x Medium (2) = 230 Pts

Once the business case is approved, begin triaging based on a combination of Qualitative and Quantitative Factors

Measure: Business Case Building

When Building A Business Case

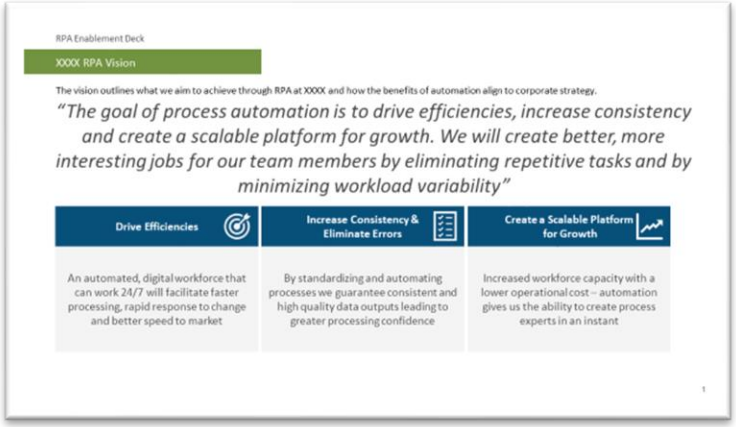
What's the Cost/Benefit?



Cost-Benefit Analysis

Implementation Cost - Internal	$34,580	Implementation Cost - External	$70,000
Annual Benefit	$157,500	Ongoing (Annual) Cost	$2,281
Payback Period (Months) - Internal	3	Payback Period (Months) - External	5

Does this Opportunity align with our Vision?



RPA Enablement Deck

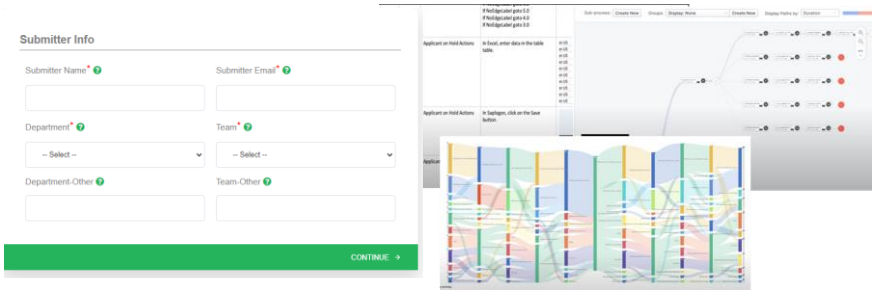
XXXX RPA Vision

The vision outlines what we aim to achieve through RPA at XXXX and how the benefits of automation align to corporate strategy.

"The goal of process automation is to drive efficiencies, increase consistency and create a scalable platform for growth. We will create better, more interesting jobs for our team members by eliminating repetitive tasks and by minimizing workload variability"

Drive Efficiencies	Increase Consistency & Eliminate Errors	Create a Scalable Platform for Growth
An automated, digital workforce that can work 24/7 will facilitate faster processing, rapid response to change and better speed to market	By standardizing and automating processes we guarantee consistent and high quality data outputs leading to greater processing confidence	Increased workforce capacity with a lower operational cost – automation gives us the ability to create process experts in an instant

Will This Open The Door To Other Automation Candidates



Measure: Introducing UiPath Insights

Measuring return on investment and process indicators is something that most companies do. And RPA implementations should be measured both as regular business processes, and also using specific metrics. Monitoring can start with the first RPA implementation and should become an important part of the cycle when companies scale RPA and look for continuous improvement.

UiPath Insights is a powerful, embedded analytics tool that helps you measure, report, and align RPA operations with strategic business outcomes.

Why you may need it: On one side, the RPA operations team wants to measure the success rate of automation and to dig into details like processing speed, volume, and health indicators without the proper tools.

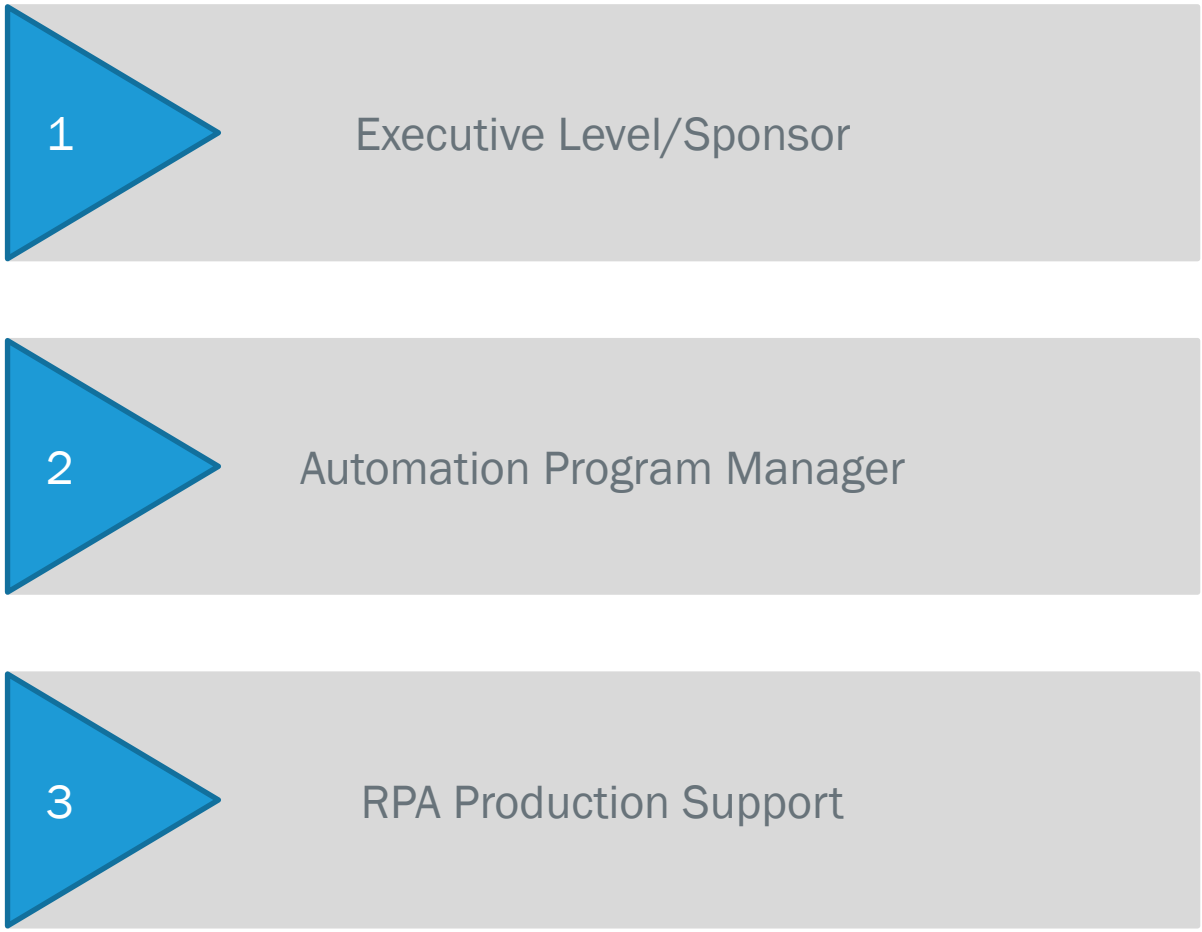
On the other side, business leaders and process owners want to deep dive into individual processes and assess metrics like transaction volumes, performance against SLAs costs avoided and the overall ROI of the investments.

How it works: Embedded AI throughout the product allows the RPA operations team to track and measure RPA performance from errors, utilization or success rates. Then it aggregates all the data into out of the box or customized dashboards such as reports on money saved, time saved, and ROI.

Then leaders across the organization and operations teams can look at data to understand how well the automated processes are working, how bottlenecks can be removed, and inefficiencies improved. Sharing findings in the organization becomes easier and making aligned and guided decisions becomes possible.

Measure: Showing Value and Insights

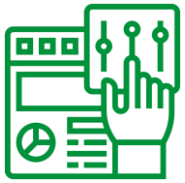
Discussion: What would each level care about?



Topic 3

User Interface Automation with StudioX

What is a User Interface?



A User Interface (UI) is a series of screens, pages, and visual elements - like buttons and input fields - that enable you to interact with an application. StudioX, through its activities pack, mimics the way you interact with applications and recognizes interface elements irrespective of position, resolution, or font size, helping you automate most common UI interactions.

All interactions with the UI can be split into Input (sending or adding something to the application) and Output (getting something from the application). Clicking a button and typing text in a text box are examples of input actions. Getting the text from a browser page is an example of an output action.

Throughout this learning journey, you will interact with a multitude of User Interfaces and there are 2 ways of automating them with StudioX: by adding the activities step-by-step or by using the Web/App Recorder feature of StudioX.

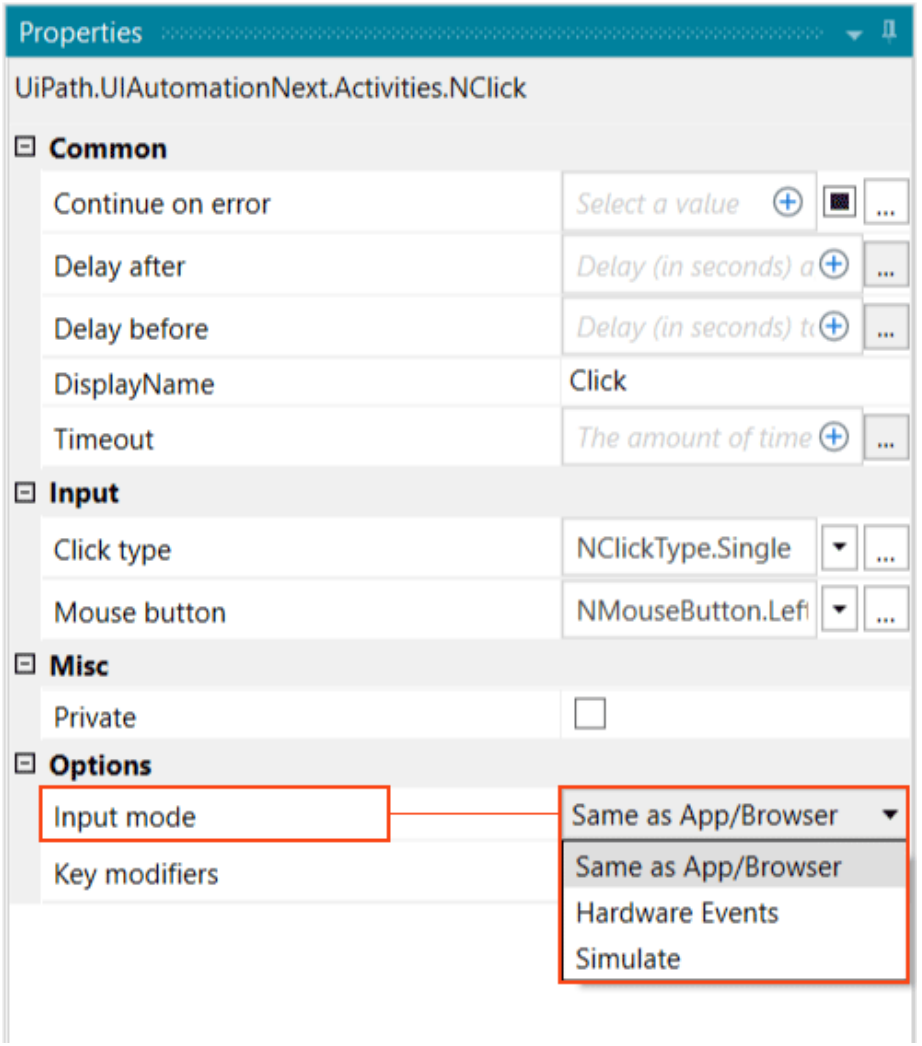
Input Mode Property

You will discover that some UI Automation projects take control of your mouse and you cannot use your machine. To run the project in the background, without affecting your computer use, you can change the activity's Input Mode from the Property panel. There are 2 types: **Hardware Events** and **Simulate**.

- **Hardware Events** - the Hardware Events input mode simulate the action by using the hardware driver. This is the slowest method, it cannot work in the background, but it is compatible with all desktop apps and it's the default mode.
- **Simulate** - the Simulate Input mode is the fastest and works in the background, however, it's limited to certain situations.

For example, the Simulate mode only works with Single Left clicks or if the text to type doesn't include special keys.

Note: The 3rd option **Same as App/Browser**, implies that the action takes the input mode of the Use Application/Browser resource it is nested in.



Demonstration: Adding the activities step-by-step

Demonstrate what are Targets and Anchors, and how a keyboard Shortcut works.

If you wish to reproduce the steps, open the DoubleUI app.

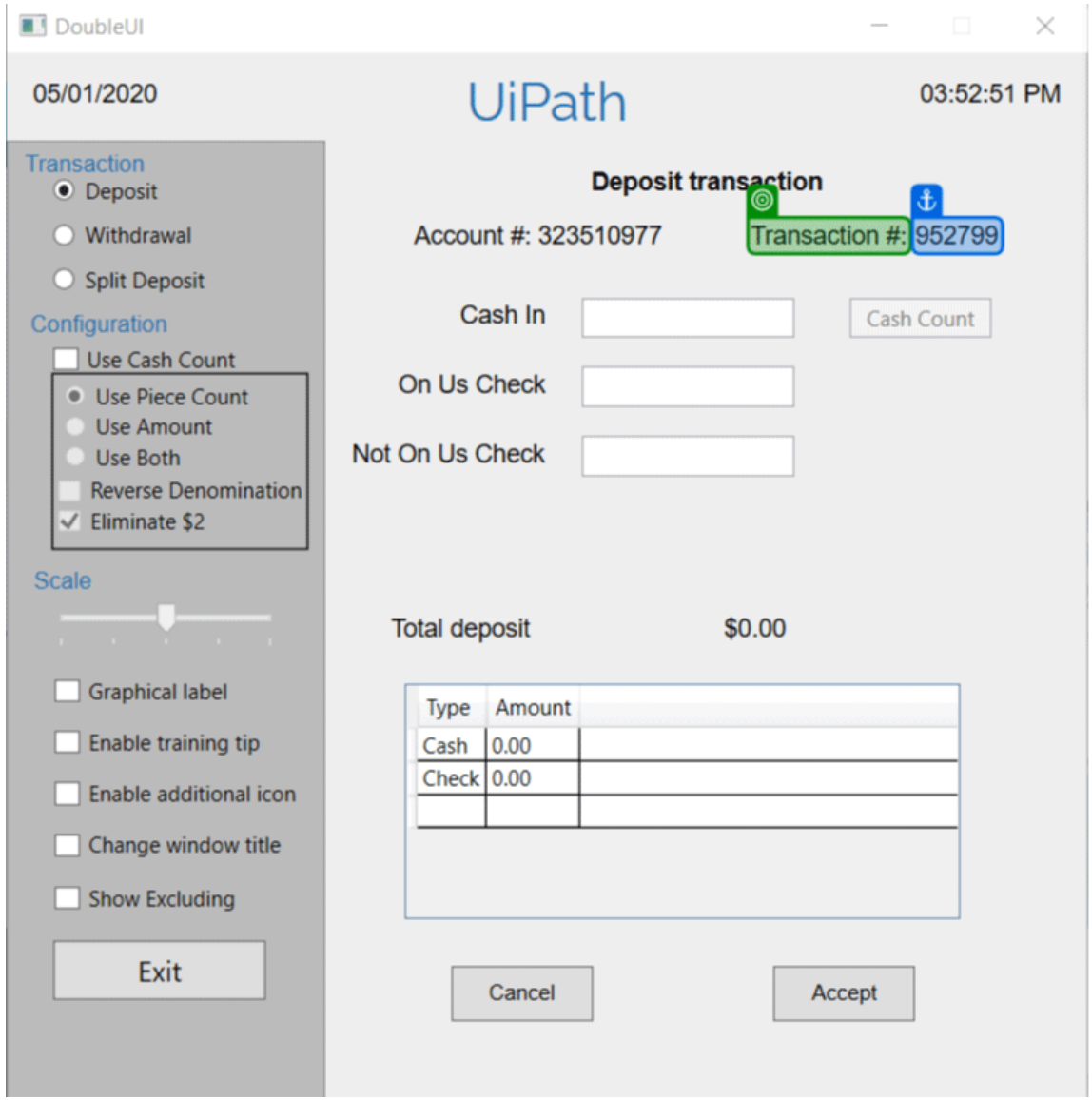
Recap of Resources and Actions Used

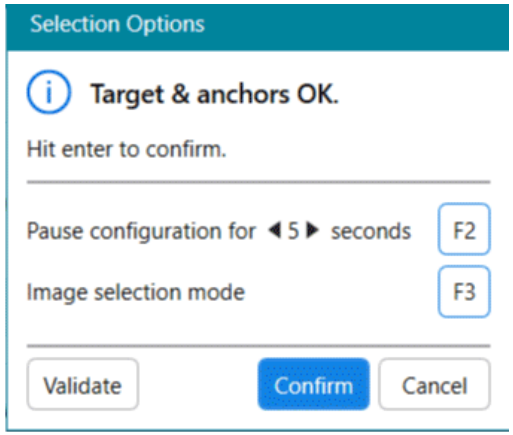
- We start by creating a new **Task Automation project**.
- We add a **Use Application/Browser** resource and indicate the DoubleUI application, that was previously open. The application thumbnail validated that the selection was successful.
- Inside the resource, we add a **Type Into** action. The target is the Cash In input field. The Anchor is automatically created on the "Cash In" label. The value we want to insert is "1000".
- We follow the same steps and add another **Type Into** action that will type "200" in the On Us Check input field.
- We add a **Click** action and indicate the Accept button.
- We add a **Get Text** action an indicate the Transaction number. This value is saved for Later Use.
- Using a **Message Box** we display the value saved.

Knowledge Check: Is the Anchor set correctly for this Get Text Action?

A – Yes

B – No





Knowledge Check: Select all the situations in which you can apply a Simulate Input mode

- ❑ Double click
- ❑ Single – right click
- ❑ Single – left click
- ❑ Type Into (the Google Search bar): “Weather in Hong Kong”
- ❑ Type Into (the Google Search bar): “Weather in New York” + Special Key: Enter

Knowledge Check: Select all the situations in which you can apply a Simulate Input mode (Answer)

❖ Double click

❖ Single – right click

✓ Single – left click

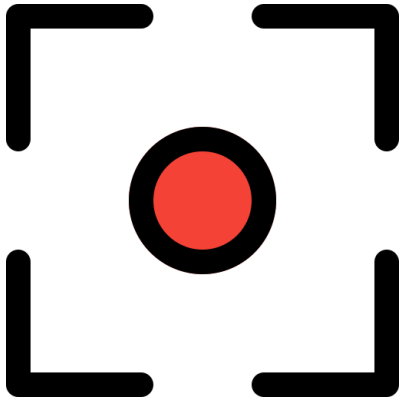
✓ Type Into (the Google Search bar): “Weather in Hong Kong”

❖ Type Into (the Google Search bar): “Weather in New York” + Special Key: Enter

Topic 4

Recording UI Interactions

Using the Web/App Recorder Feature



The second method of automating User Interfaces is using the Web/App Recorder feature. The Recorder is a tool that can help you save a lot of time when automating your business processes. This functionality enables you to easily capture your actions on the screen and translate them into activities in StudioX.

These projects can be modified so that you can easily replay and reuse them in as many other tasks as you need.

All user interface elements are highlighted while you record, as you will discover during the demonstration so that you can be sure the correct buttons, fields, or menus are selected.

Can I use the Recorder on all applications?

The Recorder works only on automating User Interfaces. It will not work for tasks involving Excel, Outlook, Word, or files and folders automation, where you still need to add the activities one by one.

For example, if you work with SAP, the Recorder is a great tool to decrease the time you spend building the automation project. You will still have to add manually the decision-making part of the project.

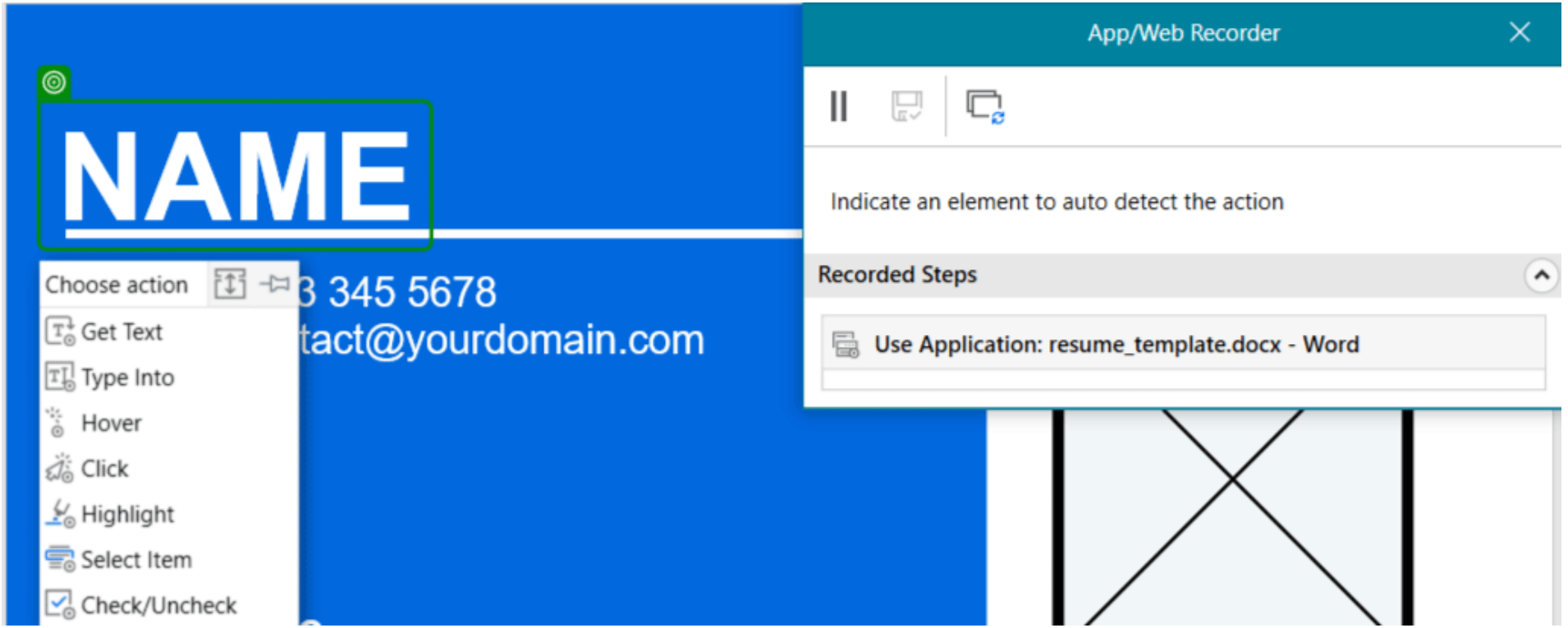
We will demonstrate the Recorder tool on the same exercise as in the previous demo, so make sure you have the DoubleUI application open.

Recap of How to use the Recorder Tool

When you use this tool for the first time, you should start by activating it. You can do that by navigating to **Project > Project Settings > UiAutomationNext > Recorder** and changing the value for Enable Recorder to true.

- Open the application or web browser page you want to automate.
- Click **App/Web** Recorder in the StudioX ribbon.
- In the UiPath Recorder window, select **Record** to indicate the window you want to automate.
- Move the mouse to the window of the application you opened in step 1. When the window is highlighted in blue, click anywhere inside it to indicate it as the application you want to automate.
- Individual elements in the window are highlighted in green as you move the mouse over them.
- To record an action:
  - Click the UI element you want to interact with.
  - If the detected action is not the intended one or the action you want to add cannot be automatically recorded, you can manually select the action to perform, and then click the UI element to interact with.
- After the first action is performed and the activity is generated, repeat the same steps until all the actions are recorded.
- When you are done recording your actions, click Save and Exit to close the Recorder and have the activities added to your project.

Knowledge Check: Let's say you want to replace the word "NAME" with data from an Excel file. Is this the right way to do it?



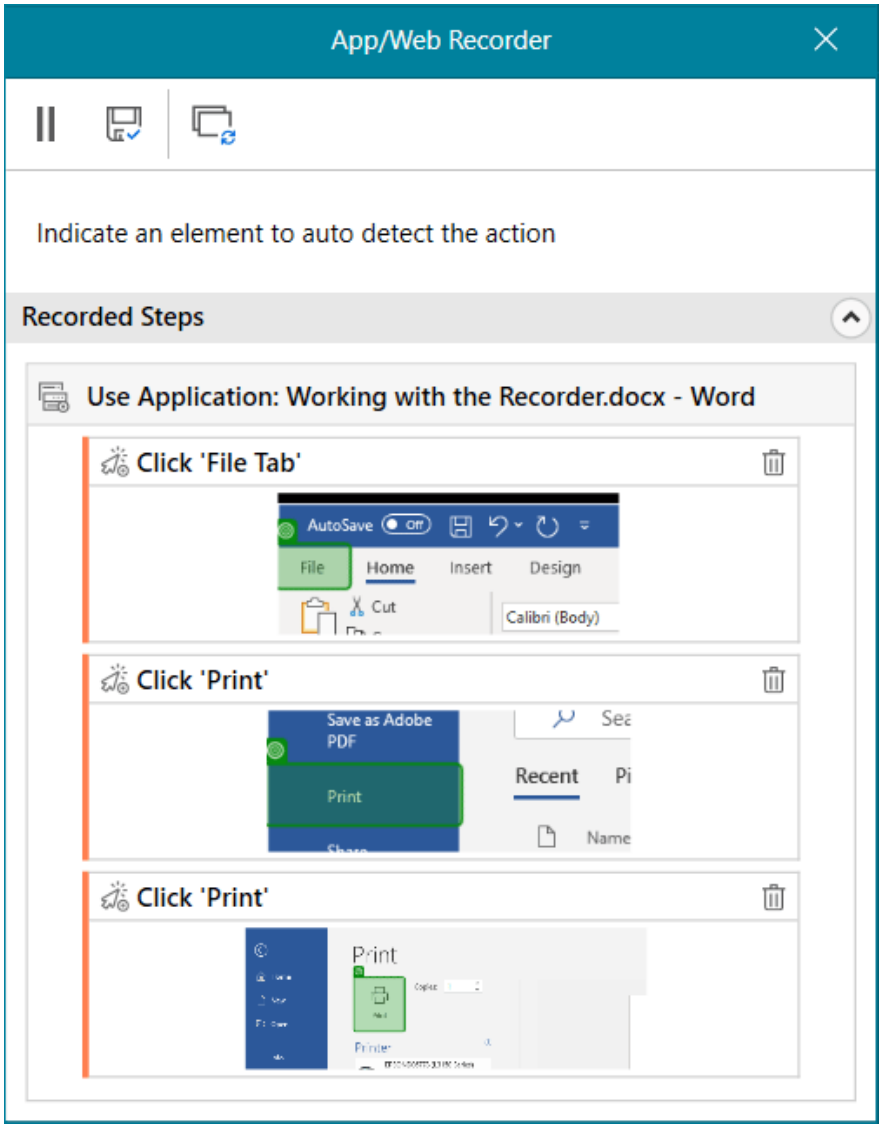
A – Yes

B – No

Knowledge Check: What is the result of this automation and is it working?

A – It's supposed to print the file, but it will not work as for Word there are other activities that should be used.

B – It will print the file and it's working

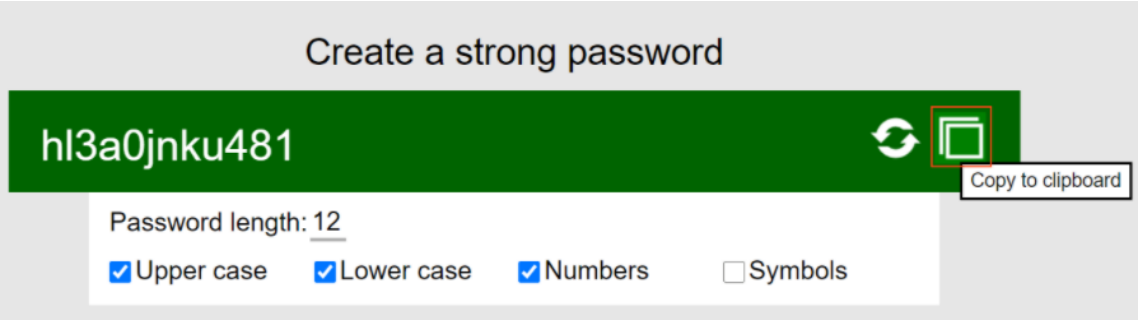


Build an Automation: Generate a Strong Password

Step 1: Open the Password Generator page
https://www.rpasamples.com/passwordgenerator

Step 2: Generate a password with 12 characters and no symbols

Step 3: Click on the Copy to Clipboard button

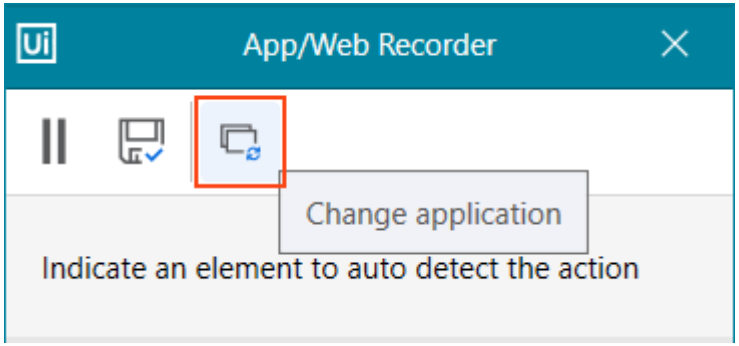


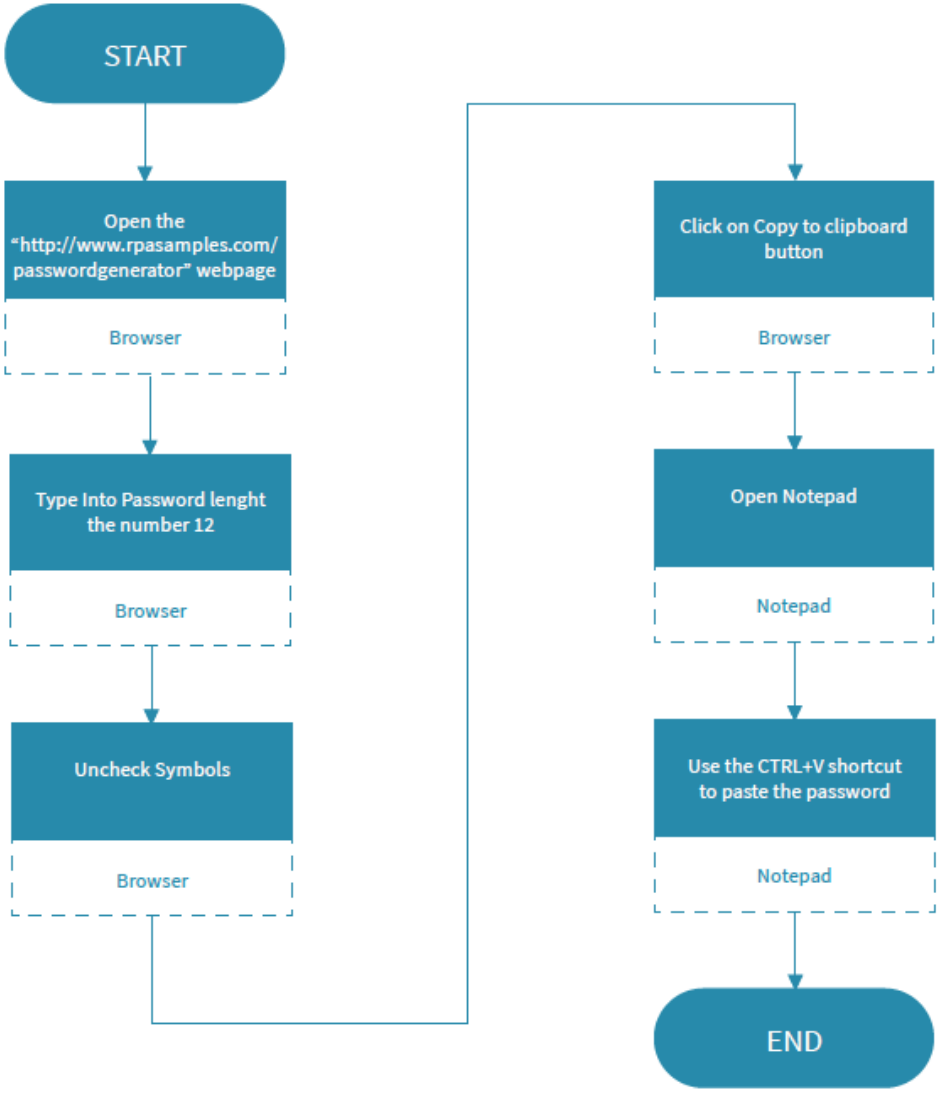
Step 4: Open an empty Notepad window

Step 5: Paste the password inside Notepad using the CTRL+V keyboard shortcut

RobotPath: Generate a Strong Password

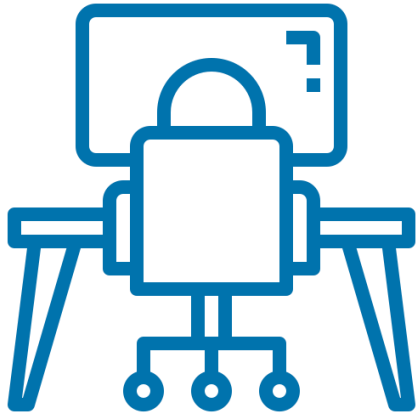
Before jumping to automating this task: you will use 2 applications: an internet browser and Notepad. To switch the applications in Recorder, you will need to click on the **Change application** button.





Discussion

What apps/websites do you use at work that can be automated?



Topic 5

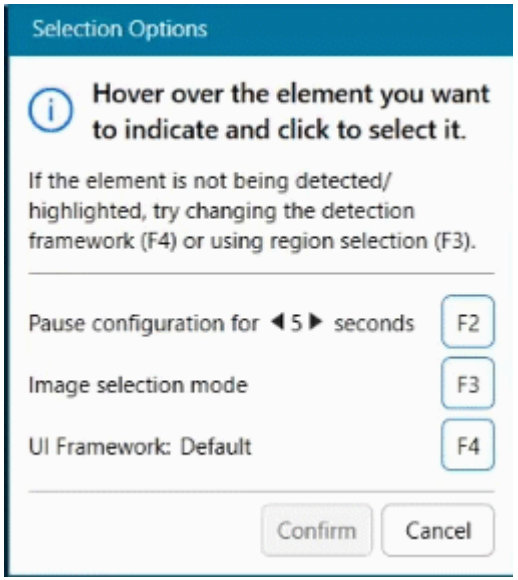
Troubleshooting and Debugging UI Automations

What is Unified Target?

Unified Target is a new framework for UI Automation. Activities like clicking, typing, and most importantly locating the correct elements on the screen, have now been enhanced through this new unified method of targeting UI elements for automation.

There are many technologies or methods out there that facilitate UI interactions such as Selectors, Images, Texts, Computer Vision, and so on. By using a unified framework, all the methods are backing each other up for higher reliability, and this way you can ensure that your Robot will overcome any roadblock caused by weak points in selecting the UI element.

Additionally, another advantage of using a single framework for a similar set of activities is that you can use it throughout your workflows as an out-of-the-box solution. Therefore, you don't need to spend time configuring and considering the particularities of each method used as it is easy to use running in the background.



UI Frameworks:

Unified Target uses a couple of frameworks to identify UI elements. By default, a proprietary framework is used to access the target application window, however, if a target is not detected, StudioX comes with 2 alternatives:

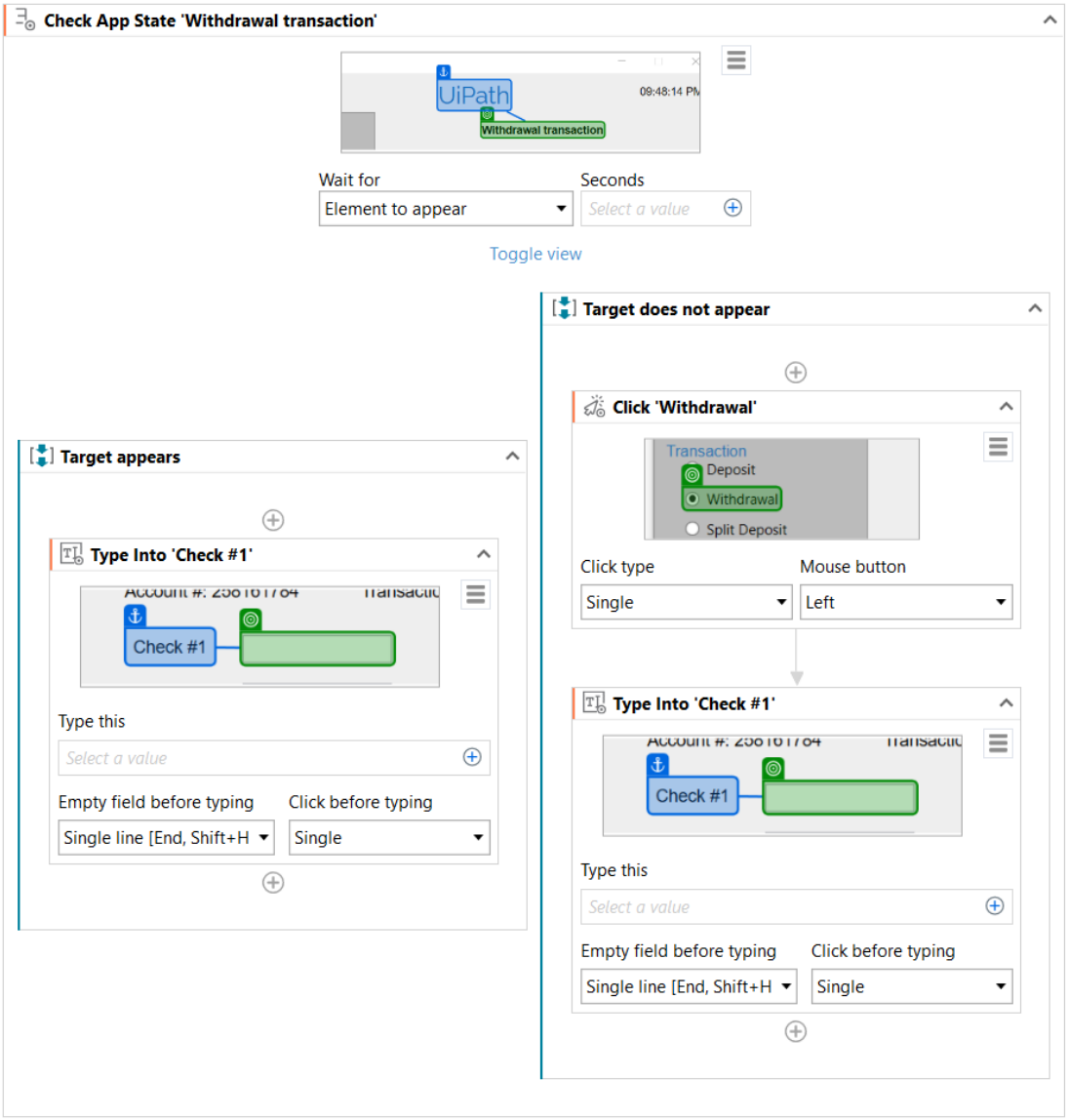
- **Active Accessibility** - for older applications;
- **UIA (Microsoft UI Automation)** - for newer applications.

After you select a target, the option to change the UI Framework is no longer available.

Demo: Validation of target elements

In the demonstration you will discover how you can validate previous selections to improve the accuracy of the UI elements selection regardless of the application used

Troubleshooting and Debugging Features



Check App State

This activity is useful for situations in which you want to check whether the application you are going to automate exists.

Think about different tabs in an application or browser. While adding activities to your workflow, you want to make sure you are targeting the correct app elements or browser tabs. Additionally, in case your element is not found you can add another set of activities to be performed.

To increase the time for the target element to be found before executing the next activities you can update the value of the Wait for option.

Demo: Troubleshooting and Debugging Features

In the demonstration we will show the following features:

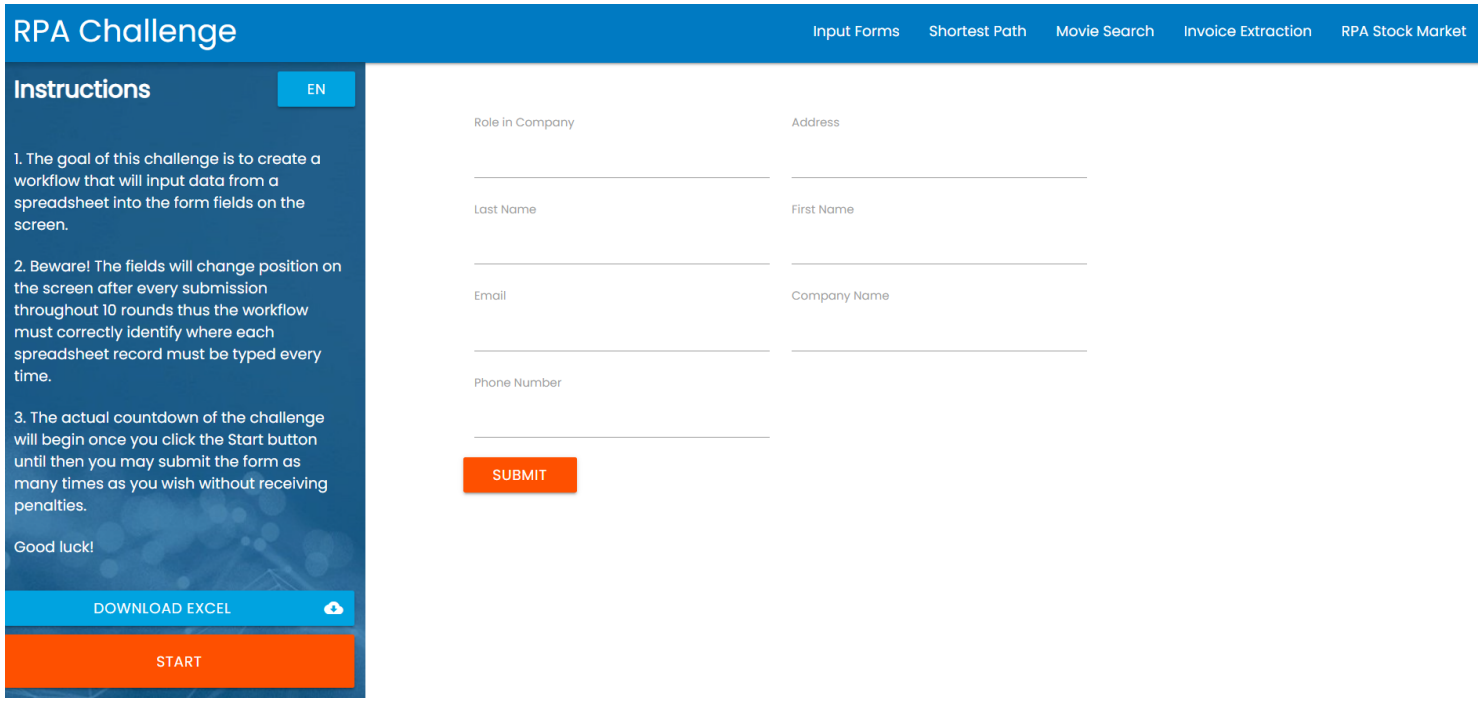
- **Check App State action**
- **Show all matches:** This feature will help you find all the matches for the selected element that can be found in the automated application. You can use this tool to debug your UI descriptors or selections
- **Image selection mode:** This feature can help you select a target or an anchor that is not available with a single click. It can be enabled by pressing the F3 key and you can draw your selection using the bounding box.

Build an Automation: The RPA Challenge

In the previous modules, you learned more about how automating interfaces actually works. It's all about picking the right anchor. Now it's time for you to discover how reliable Unified Target actually is.

The RPA Challenge is one of the most popular RPA exercises, this practice will challenge you at picking the right anchors. The goal of this challenge is to create a workflow that will input data from a spreadsheet into the form fields on the website: https://rpachallenge.azurewebsites.net/ .

But here's the trick: the fields will change position on the screen after every submission. You have 10 rounds to make the workflow correctly identify where each record must be typed in every time.



Build an Automation: The RPA Challenge

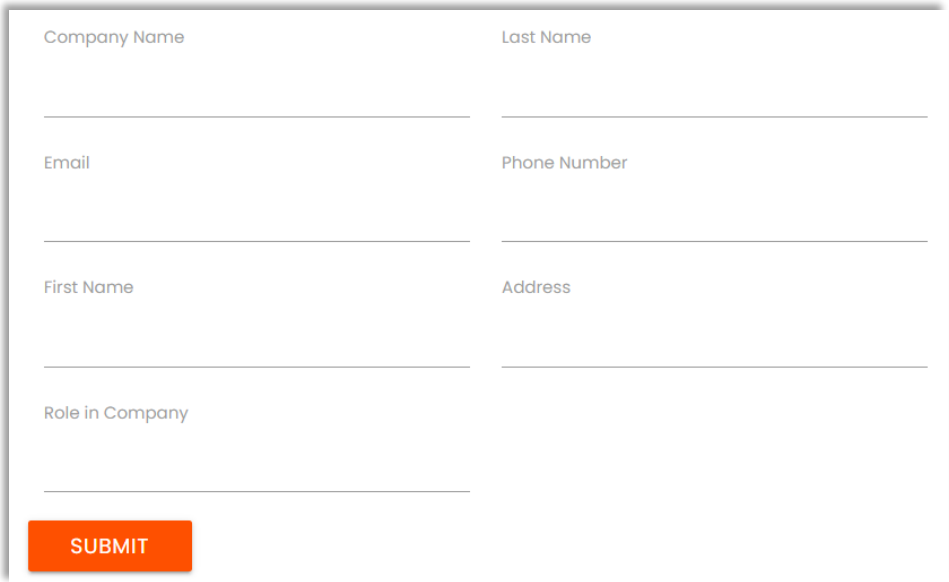
Step 1: Open the RPA Challenge page https://rpachallenge.azurewebsites.net/

Step 2: Download and Open Excel file named Challenge.xlsx file

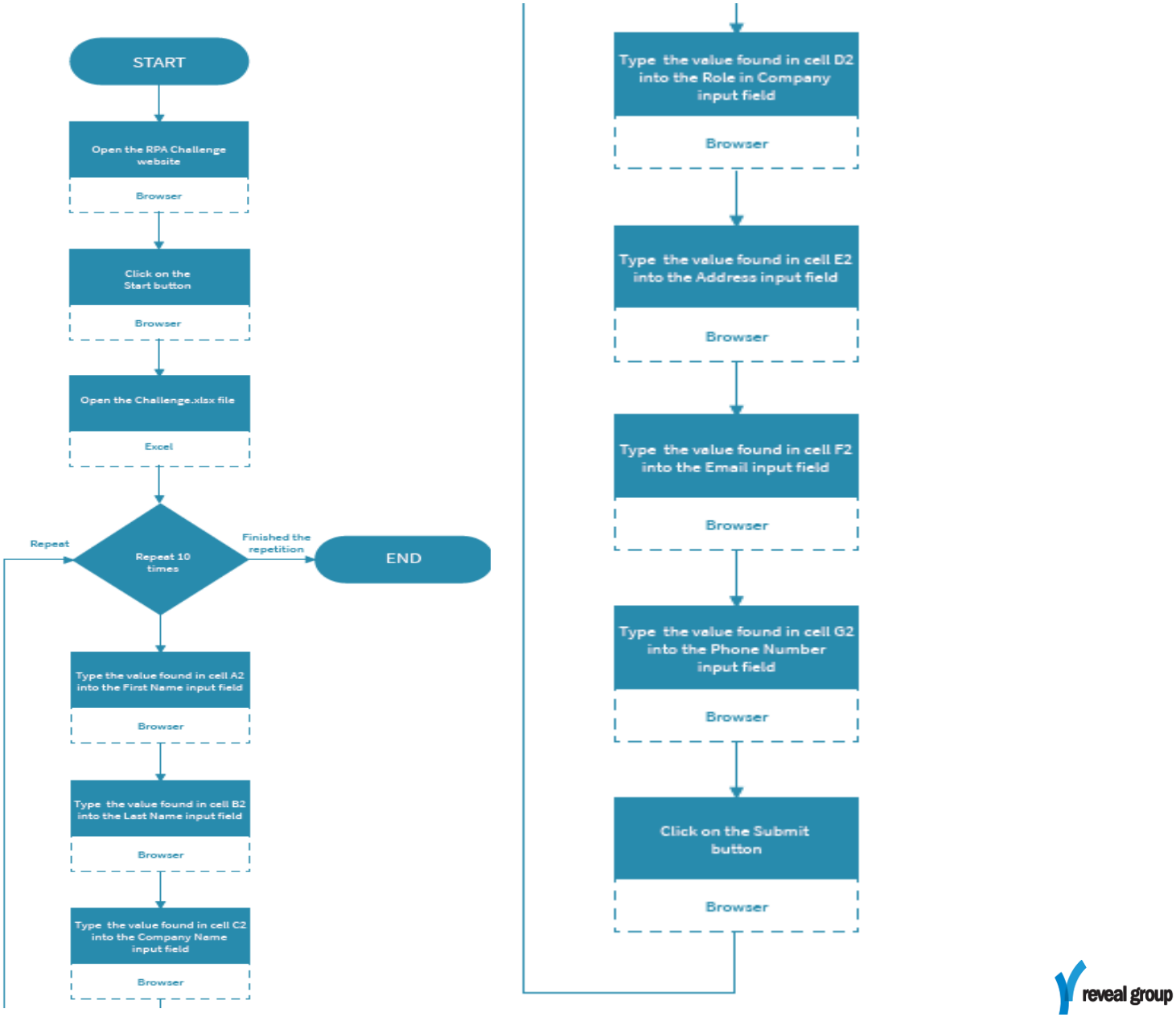
Step 3: Use **Repeat for a Number** action to populate the information in the first row from the Excel file into the RPA Challenge website

Note: Look at the Module 3 files within the RPA Challenge folder for RoboPath

First Name	Last Name	Company Name	Role in Company	Address	Email	Phone Number
John	Smith	IT Solutions	Analyst	98 North Road	jsmith@itsolutions.co.uk	40716543298
Jane	Dorsey	MediCare	Medical Engineer	11 Crown Street	jdorsey@mc.com	40791345621
Albert	Kipling	Waterfront	Accountant	22 Guild Street	kipling@waterfront.com	40735416854
Michael	Robertson	MediCare	IT Specialist	17 Farburn Terrace	mrobertson@mc.com	40733652145
Doug	Derrick	Timepath Inc.	Analyst	99 Shire Oak Road	dderrick@timepath.co.uk	40799885412
Jessie	Marlowe	Aperture Inc.	Scientist	27 Cheshire	jmarlowe@aperture.us	40733154268
Stan	Hamm	Sugarwell	Advisor	10 Dam Road	shamm@sugarwell.org	40712462257
Michelle	Norton	Aperture Inc.	Scientist	13 White Rabbit	mnorton@aperture.us	40731254562
Stacy	Shelby	TechDev	HR Manager	19 Pineapple	sshelby@techdev.com	40741785214
Lara	Palmer	Timepath Inc.	Programmer	87 Orange Street	lpalmer@timepath.co.uk	40731653845



RobotPath: The RPA Challenge



Topic 6

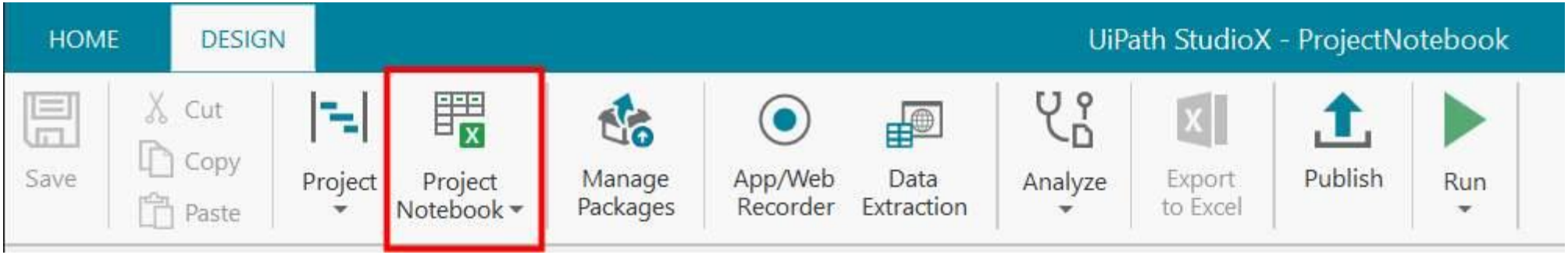
The StudioX Project Notebook

Introduction to Project Notebook

As you progress and get more confident using StudioX you will want to start designing more challenging and complex automation projects. To assist you in your journey of completing tasks faster and easier we introduced the Project Notebook feature which serves as the place where all data manipulation and calculations occur.

It is a space where different operations are performed during execution time, such as the conversion of the date to different formats or the extraction of several values from a text.

You can find the Project Notebook in the StudioX Design Ribbon:



Project Notebook Features

- It is populated with a predefined set of formulas for operations involving Date, Text, Number or File. The first sheet from the Notebook serves as an introductory page and showcases a few usage guidelines whereas the last, Scratchpad, is a sheet where you can introduce your own formulas to use at runtime.

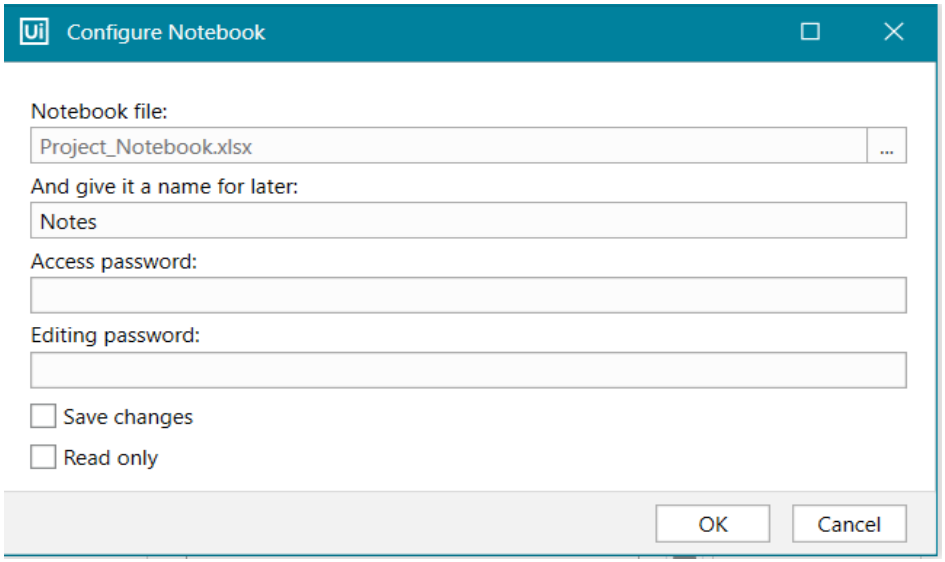
- The Scratchpad sheet allows you to bring in your own formulas to perform operations but it's important to keep in mind that it is a place where data will not be stored for later reference. Its purpose is to only be used for data manipulation during project execution.

- Project Notebook doesn't have to be used alongside a dedicated resource but rather acts as a standalone feature for your operations. This means you can benefit from it in various automation scenarios involving different resources and actions.

Project Notebook Sheets

- **About the Project Notebook Sheet:** This is the first page within the Project Notebook and contains valuable information that will help you get started!
- **Date Sheet:** The Date Sheet has formulas that will come in handy when you, for example, need to add the current date to specific files or the date plus a number of working days. You can also convert text to date when the format is in characters, such as Japanese characters.
- **Text Sheet:** The Text Sheet is a versatile sheet that allows you to trim, replace or extract different pieces of text from a file.
- **Number Sheet:** In your automation projects, you may need to work with sets of data. Use the number sheet to perform certain operations involving numbers, such as cleaning up any unwanted spaces before or after a number or retrieving an integer part of a number.
- **File Sheet:** Formulas within the File sheet will help you manipulate the files you are working with making it easier to perform the much-needed operations.
- **Scratchpad Sheet:** The Scratchpad sheet is a blank canvas where you can bring in formulas that are essential for your automation project. You have the freedom to manipulate data here depending on your automation needs.

Configuring Project Notebook



- **Project Notebook File:** The default Project Notebook is a file named Project_Notebook.xlsx that is created by StudioX in the project folder. You can also upload a different Excel file of your own choice to use as the Project Notebook, but it will not replace the default generated Project_Notebook.xlsx file from the folder
- **Notes:** This is the field where you can enter a name of your choice by which to refer the Project Notebook file when an activity interacts with it. The default name is Notes but you can change it however you want.
- **Access Password:** If the file you are using in your automation project, either the default Project Notebook or a custom one, has an access projection password, you can enter it here so that the file can be accessed at runtime
- **Editing Password:** Same as the Access Password, if your file of interest has an editing password that prevents any changes, you can enter the password here to allow operations inside it.
- **Autosave File:** This option should be selected when you want the file in which you have made certain operations to be saved at the end of the automation. This means that if you are, for example, developing an automation project which involves gathering data from a specific location to put it in a file of your interest, if the option remains unchecked, the file will return to its initial state after project execution. This option is not selected by default so, at the start of your design, make sure you check it if you think you will need it
- **Read Only:** If the file you are using in your project has been locked for editing or has a password, you can still perform data extraction operations in read-only mode. Same as with the Autosave file, this option is not selected by default.

Demo: How Does Project Notebook work?

Now that we have touched on the most important aspects of Project Notebook, let's follow an example where we will showcase how it works!

In order to follow the steps alongside, download the document within the Project Notebook folder on Module 3. Inside you will find:

- The input documents used in the automation project
- The output documents
- The RobotPath document for a better understanding of the task automation

Recap of the Resources and Actions Used

- We started off our automation with a For Each File in Folder activity where we selected the Input folder where we have our files;
- Then, we searched and selected a Write Cell activity to write the file's name in Project Notebook;
- We added a second Write Cell activity to add the file's name without the extension inside the Text sheet;
- We added a third Write Cell activity to replace the Search value with a space;
- We added yet another Write Cell activity to change the Replace value to underscore;
- We selected a Copy File action to copy the file in the Output folder;
- We then selected a Write Cell activity which we placed at the start of our project, before the For Each File in Folder activity to perform an action in which the robot will ask us at runtime which file version number to use. We used the Project Notebook Scratchpad to save the value.
- We edited the Copy File action to select the value we will provide at runtime.
- We hit run and created a new version number of the files.

Knowledge check: Match the features on the left with their corresponding definition

Number Sheet	The sheet where we can use our own formulas
File Sheet	The sheet in which we can find formulas for working with dates
Scratchpad	The sheet containing formulas for extracting a file's name or extension
Text Sheet	The sheet where we find formulas that help us change number formats
Date Sheet	The sheet with formulas for trimming, replacing or extracting parts of text

Knowledge Check: If we want to store information from a particular location to a chosen file, will we be able to do it if the autosave option is off?

A – Yes

B – No, if the Autosave option is not enabled, any information that is populated during runtime will not be stored

Knowledge Check: Which sheet inside the Project Notebook can be used for calculations at runtime but doesn't store data for later use?

Scratchpad

Topic 7

RPA Use Cases

Homework for Next Class

- Fill out the Process Identification Template with details about tasks that you can automate so we can discuss next week!