Training Academy

Decisions

Iterations, and Scenarios with StudioX

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

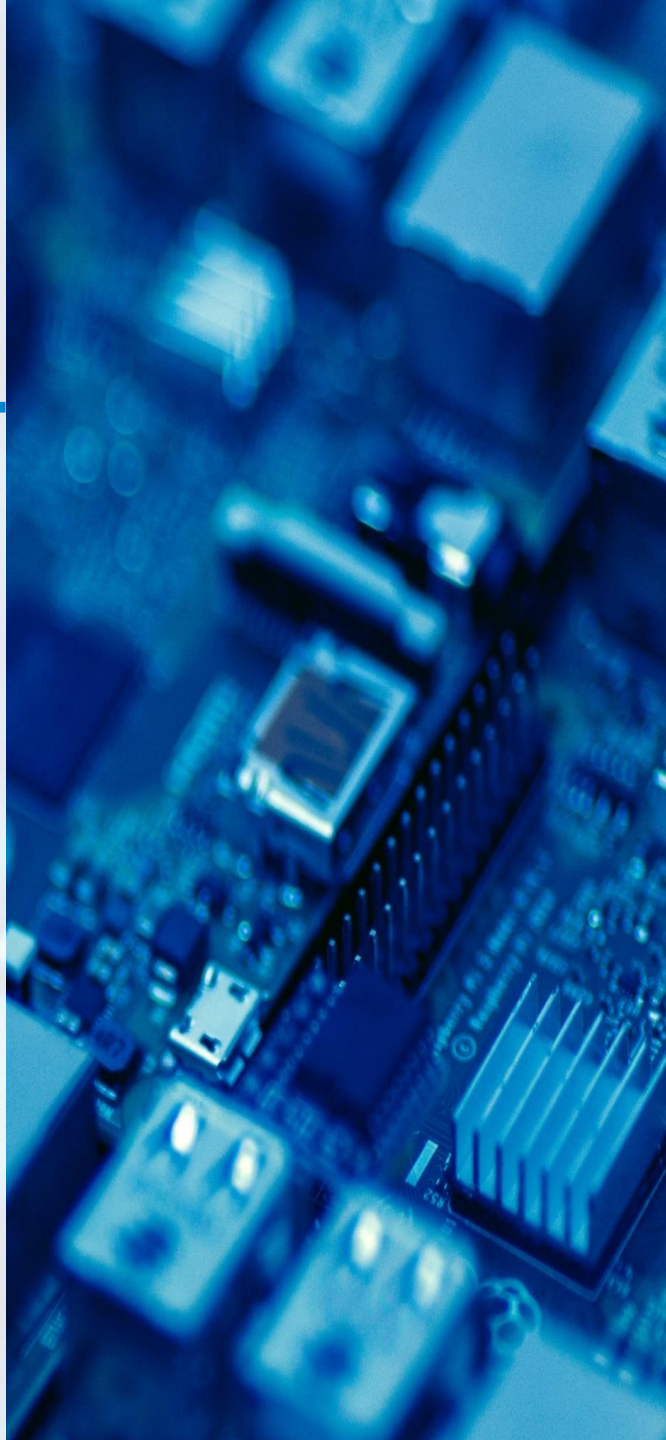
StudioX and Planning Your Automation

Decisions, Iterations and Scenarios with StudioX

Error Handling and Automation Lifecycle

Agenda

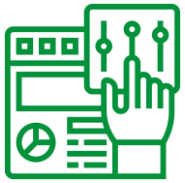
1. Recap of Module 3
2. Decisions
3. Iterations
4. Scenarios
5. Build Automation: The RPA Challenge with Iterations
6. Spotlight: Deliver Automation Projects and RoboManager
7. Build Automation: Working With Multiple Templates



Topic 1

Recap of Module 3

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.

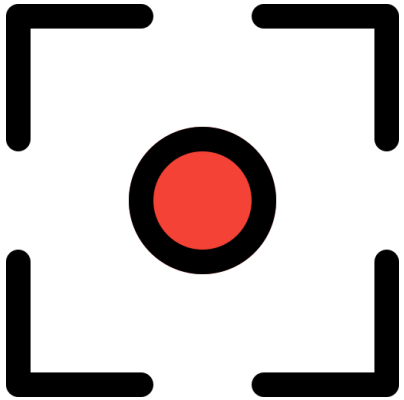
This mimics the way you interact with applications and recognizes interface elements irrespective of position, resolution, or font size, helping you automate most common UI interactions.

All interactions with the UI can be split into Input (sending or adding something to the application) and Output (getting something from the application).

There are TWO ways of automating them with StudioX:

1. Adding the activities step-by-step
2. Using the Web/App Recorder feature of StudioX.

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.

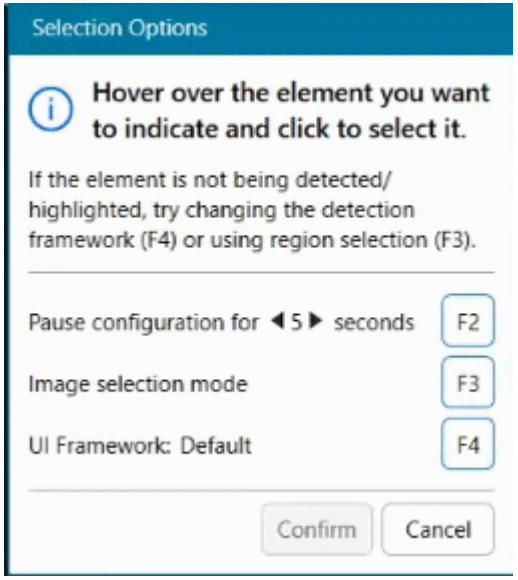
We will demonstrate the Recorder tool on the same exercise as in the previous demo, so make sure you have the DoubleUI application open.

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.

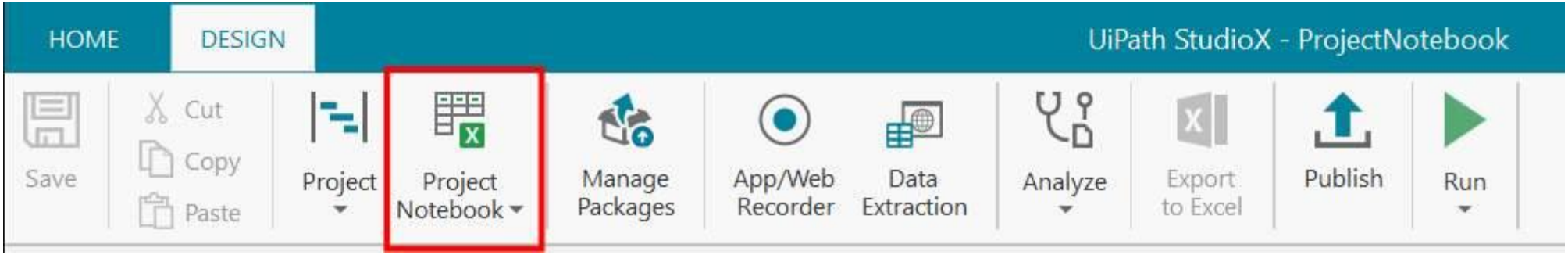
After you select a target, the option to change the UI Framework is no longer available.

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:



Review Homework from Previous Class

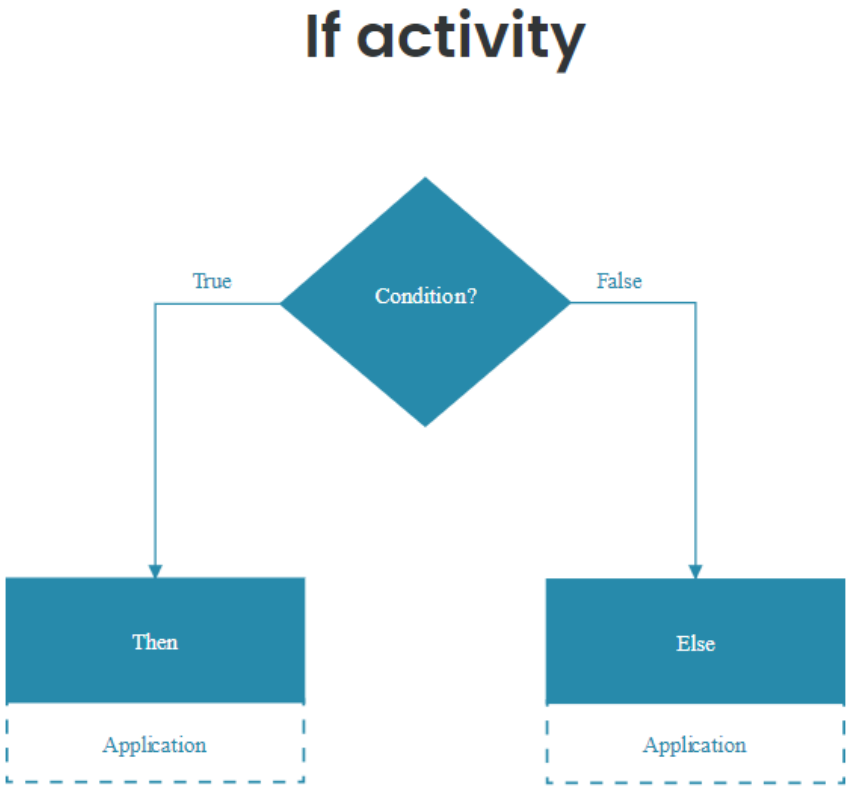
- Discuss automation ideas!

Topic 2

Decisions

As a business user, taking decisions is a big part of your job. Let's see how you can translate some of those decisions for a Robot to perform

At some point in a task, a decision needs to be taken because the Robot has reached a step where one or more options are available. Depending on the answer given, the Robot will follow certain steps and ignore others. Without decisions, different paths would not be available for the Robot. This means that the solutions created would not be realistic.



What is If activity?

Found under Common activities, the If activity is used when we want the Robot to choose between two options, under a certain condition. The condition can be also formulated as a question: "Is cell B4 empty?". If the answer is true, then yes, the Robot will perform the following actions, else, the answer is false (the cell B4 is not empty), meaning the Robot will perform another set of actions.

This type of activity works only when the answer to the questions is Yes or No, or True and False.

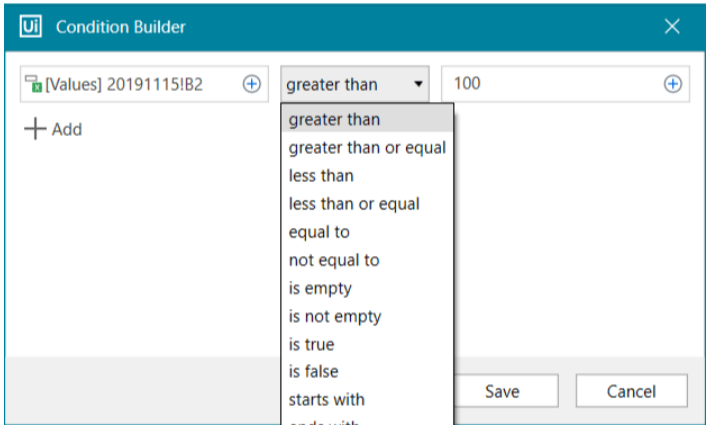
If Activity Features

Condition builder

First, select a value form the menu for the field on the left. You can select data from applications added to cards in your project (cells in Excel, fields in Outlook messages), use output value of another activity that you previously saved for later, enter text or numbers.

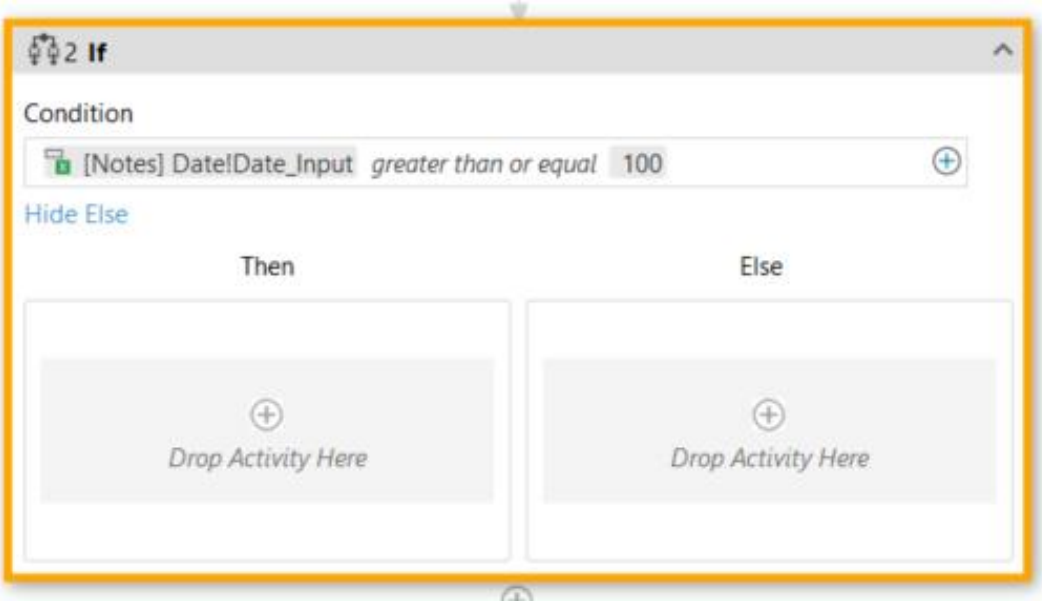
Second, select an operator from the drop-down menu in the middle to evaluate the first value: greater than, greater than or equal, less than, less than or equal, equal to, not equal to, is empty, is not empty, is true, is false, starts with, ends with, contains.

Third, if applicable, select a second value with which to compare the first value from the menu for the field on the right. For example “The value in the Excel cell B2 is greater than 100”.



If Condition

The IF condition represents the question, for example: is this cell’s value Greater than 100?”. You add the condition using the Condition Build, found on the right side of the field.



Then

THEN points to what the robot should do if the answer to the question is true (“Yes, the cell’s value is greater than 100”).

Else

ELSE points to what to do if the answer to the question is false. (“No, the cell’s value is not greater than 100”).

Demo: Decisions - If Activity

In the demonstration we will show a step-step-by-step demo to get started with using the if activity

In order to follow the steps at the same time, download the files below:

- The Double UI dummy bank teller app
- The Decisions Excel file
- The RobotPath – Decisions - If

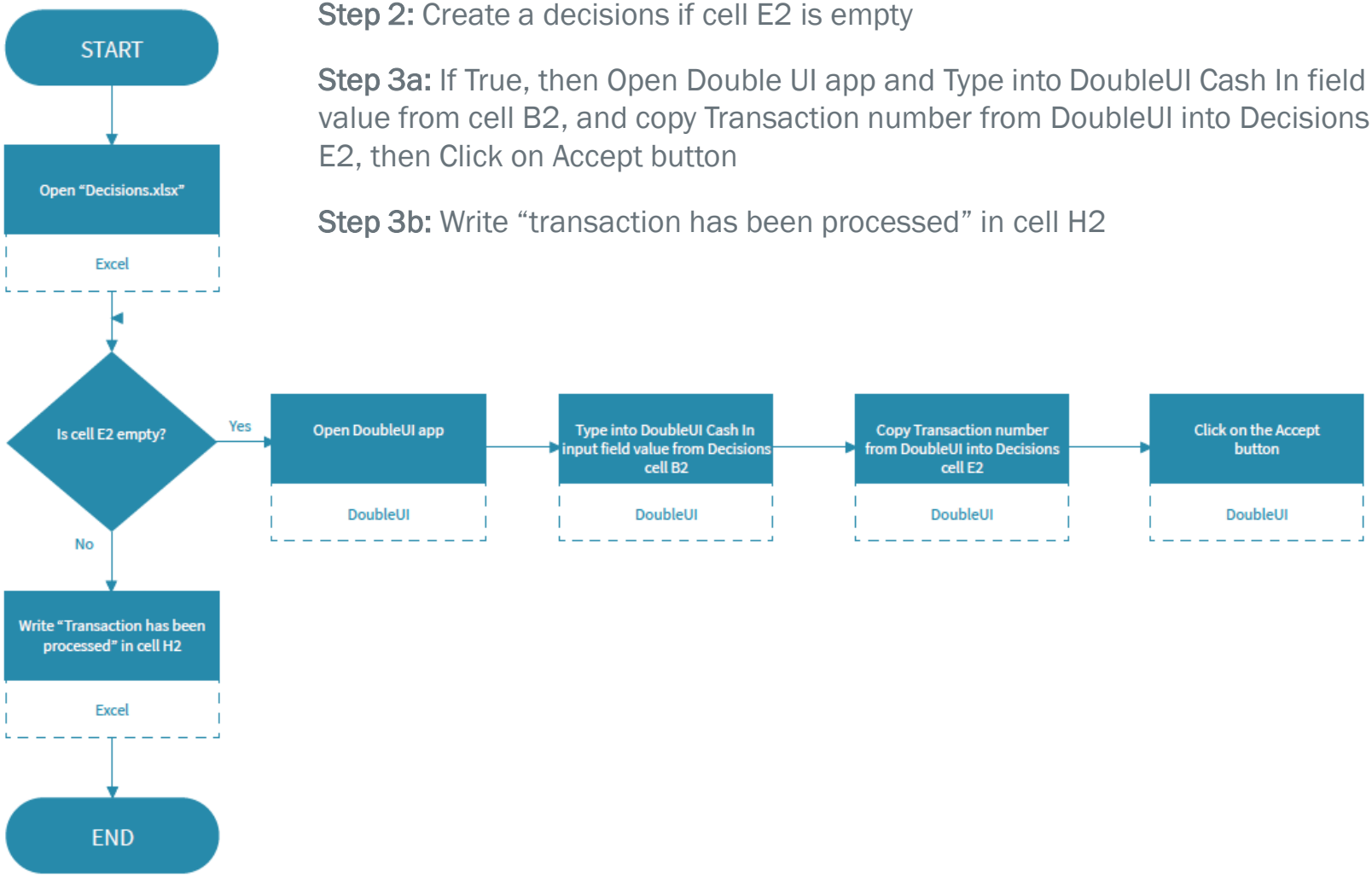
RobotPath: Decisions - If

Step 1: Opens “Decisions.xlsx” file

Step 2: Create a decisions if cell E2 is empty

Step 3a: If True, then Open Double UI app and Type into DoubleUI Cash In field the value from cell B2, and copy Transaction number from DoubleUI into Decisions cell E2, then Click on Accept button

Step 3b: Write “transaction has been processed” in cell H2



Recap of the Resources and Actions Used

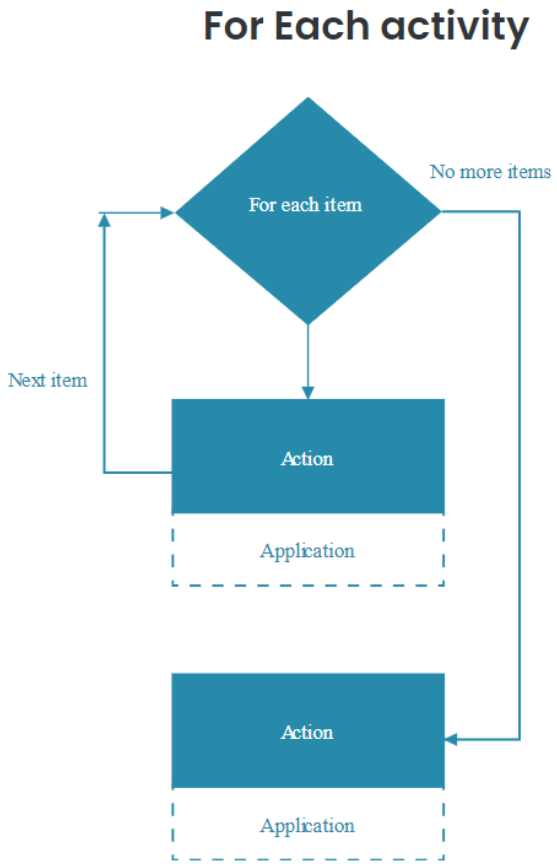
- As a prerequisite, we open the Double UI application and the Decisions Excel file.
- We start by creating a new **Task Automation project**.
- We add a **Use Excel File** resource and select "Decisions.xlsx" from a local folder.
- Inside the **Use Excel File** resource, we add an **If activity**, and using the **Condition Builder** we select the cell E2 and set the condition to "Is empty".
- Inside the **Then** field, we add a **Use Application resource** and indicate the Double UI app.
- Inside the Use Application resource we add:
  a. A **Type Into** activity. Indicate the Double UI's Cash In input field as the place to type in and **Indicate** in the Decisions file the cell B2 as the value to be typed in.
  b. Under the Type Into, a **Get Text** activity. We indicate the Transaction number from the Double UI app, and we **Indicate** in the Decisions file the cell E2 as the place to save the text.
  c. Under the Get Text activity, a **Click** activity. We indicate the Accept button from the Double UI app. Make sure you select the whole button, not just the "Accept" text.
- Inside the **Else** field, we add a **Write Cell** activity. Using the **Text option**, we write "Transaction has been processed" and we indicate as **Indicate** in the Decisions file the cell H2 as the place to write.

Topic 3

Iterations

As a business user, you sure need to work with a succession of Excel rows, files or emails. Let's see how we can make the robot go through all the Excel rows, files or emails.

By now, you surely wondered how can you make the robot go through all the rows of an Excel file, rather than just indicating a specific cell. This action is called an iteration. It makes the robot repeat a set of actions for all the rows in an Excel file range. It can also repeat a set of actions for all the files in a folder or all the emails in an Outlook folder.



What is For Each activity?

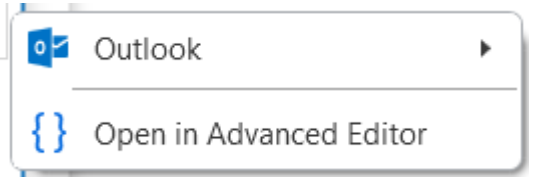
StudioX provides 3 types of For Each activities, that interact with different applications:

1. **Excel For Each Row** - this action makes the robot iterate through the rows of an Excel file range.
2. **For Each Email** - this action makes the robot iterate through the emails from an Outlook Folder. You can create filters, to work only on unread emails or emails that were sent from a specific address.
3. **For Each File In Folder** - this action makes the robot iterate through all the files from a folder and its subfolders. You can also filter the files the robot will pick by name or extension. Or pick the order in which the files enter the iteration.

ForEach Activity Features

CurrentMail

CurrentMail refers to the current email that enters the iteration



In emails from

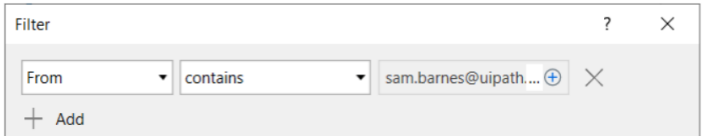
Here you indicate in which folder the emails are found. For example “Inbox”.

Limit emails to first

You can pick a number of emails to be processed. Maybe you are downloading attachments from the emails and you are interested only in the first 23.

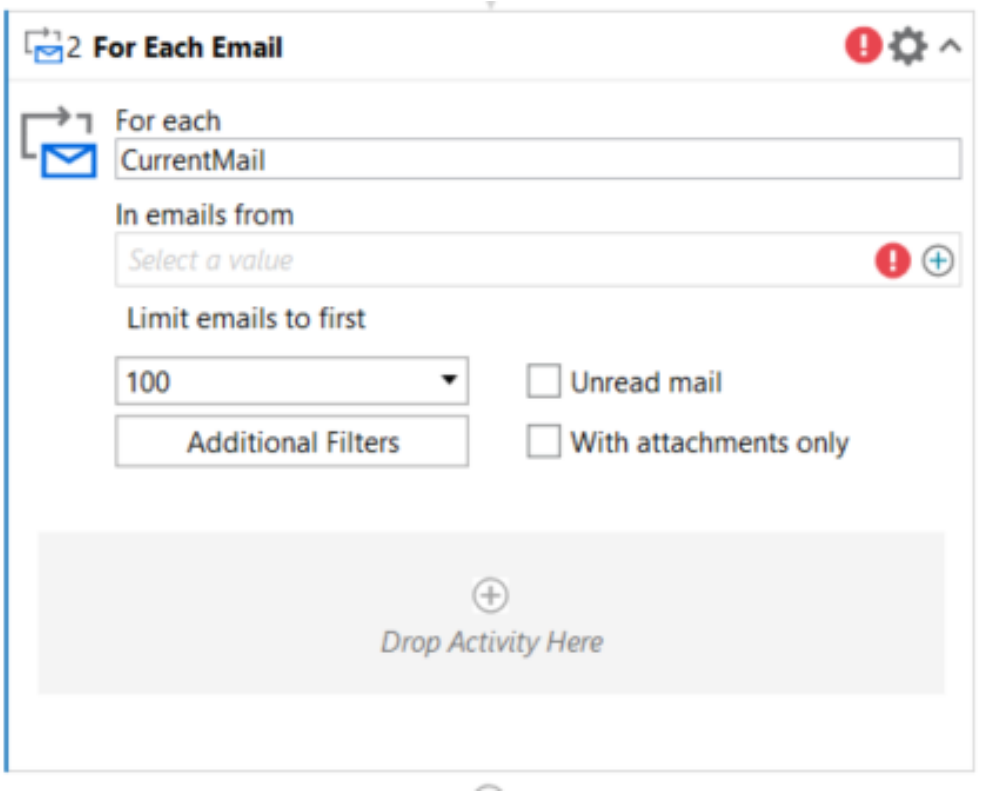
Additional Filters

In this window, you can create filters similarly how you would create If conditions. The example below show that the robot will iterate through emails sent by sam.barnes@uipath.com.



Unread emails

You can choose to process only the unread emails, but additional filters help you be more specific with which emails enter the iteration.



Drop Activity Here

All the actions that you want to be performed by the robot on the emails go here.

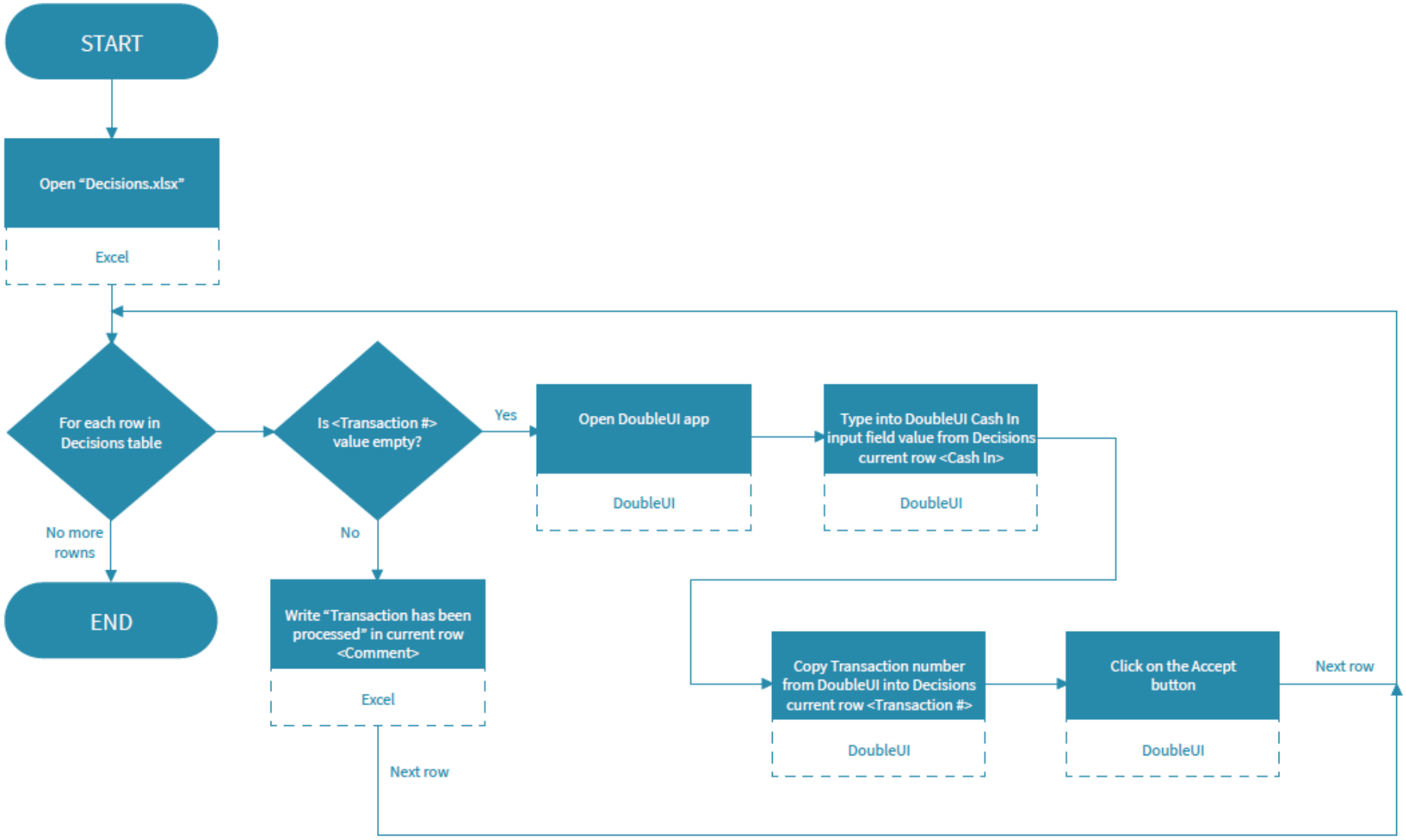
Demo: Iterations - ForEach

In the demonstration we will show a step-step-by-step demo to get started with using the ForEach activities.

In order to follow the steps at the same time, download the files below:

- The Double UI dummy bank teller app
- A .zip file containing the StudioX project used in the Decisions demo
- The Decisions Excel file
- The RobotPath – Iterations – ForEach

RobotPath: Iterations - ForEach

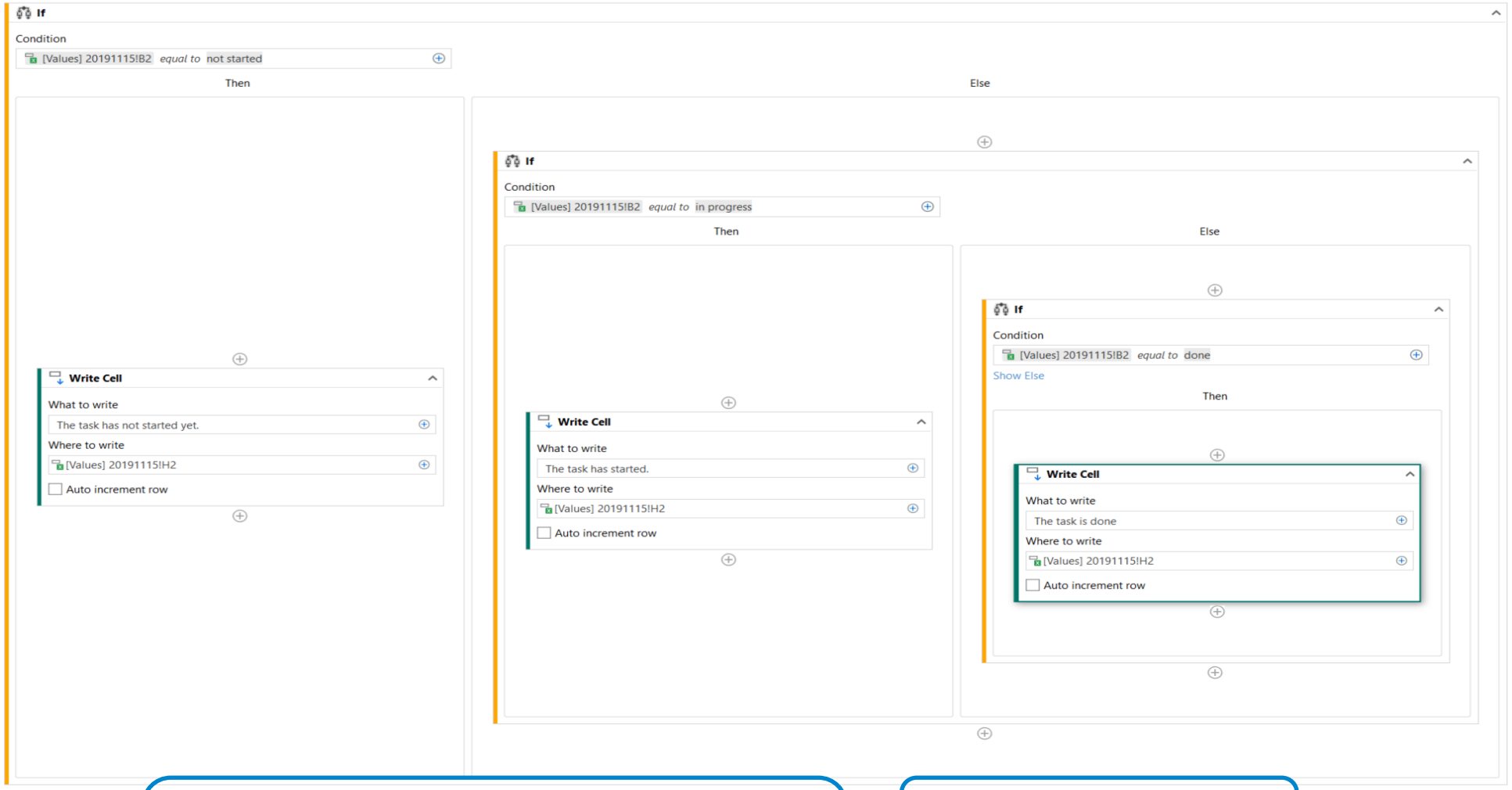


Recap of the Resources and Actions Used

- As a prerequisite, we open the Double UI application, and the StudioX project used in the If demo.
- Inside the Use Excel File Resource, right **before the If activity**, we add an **Excel For Each Row** action and indicate from the 20191115 Sheet, the table Decisions.
- Drag the **whole If** activity inside the Excel For Each Row.
- Using the **Condition Builder**, we modify the If condition by replacing the cell E2 with the **Current Row** value "Transaction #"
- Inside the If activity:
  a. In the **Type Into** activity, **replace** the cell B2 with the Current Row value "Cash In",
  b. In the **Get Text** activity, **replace** the cell E2 with the Current Row value "Transaction #",
  c. In the **Write Cell** activity, **replace** the cell H2 with the Current Row value "Comment".

Note: In order to skip an item in an iteration, sometimes the filters might not be enough, and you will need to skip an item from an iteration. And you can do that, in 2 ways: you can either skip just those items that meet a certain condition with the **Skip Current** action or exit the iteration and move on to the next activity with the **Exit Loop** action.

Knowledge Check: What is this robot doing?



A – The robot checks the same Excel B2 cell against 3 different values, “not started”, “in progress” and “done”. Based on which condition is true, the robot will write a different message in the H2 cell.

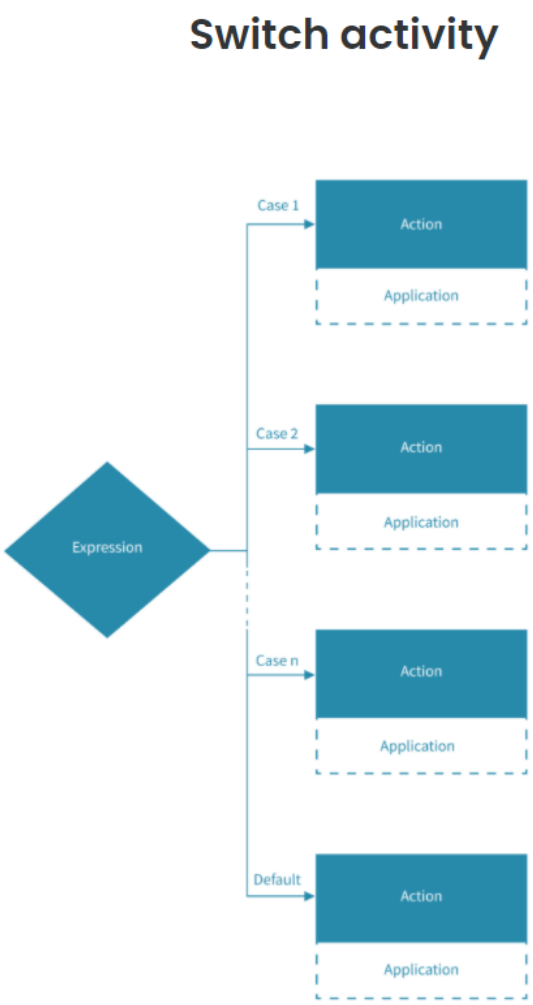
B – I am not sure, there are a lot of activates there

Topic 4

Scenarios

As a business user, sometimes, you have to control the actions based on a certain value. Let's see how you can build a robot that will switch between actions on a case value.

When the value of one item determines different courses of action for the robot, you can use the Switch activity.



What is Switch activity?

Found under Common activities, the Switch activity is used when we have an item (an Excel cell, a file extension, the subject of an email, etc) whose value determines different outcomes.

If we look at the knowledge check example, the condition also can be formulated as a question: "What is the value of cell B2?". The expression is the cell B2 and the cases are the different values the cell could take: "not started", "in progress" or "done". There can be a number of cases, but there is always a Default case that will cover all the different values that are not taken individually as cases.

This activity works when you know exactly the values the expression could take.

Switch Activity Features

Expression

The expression is the item the robot will look at, in our case the cell A1 from Scratchpad sheet.

Default

The Default case covers all the values that do not need to branch out.

Case Value

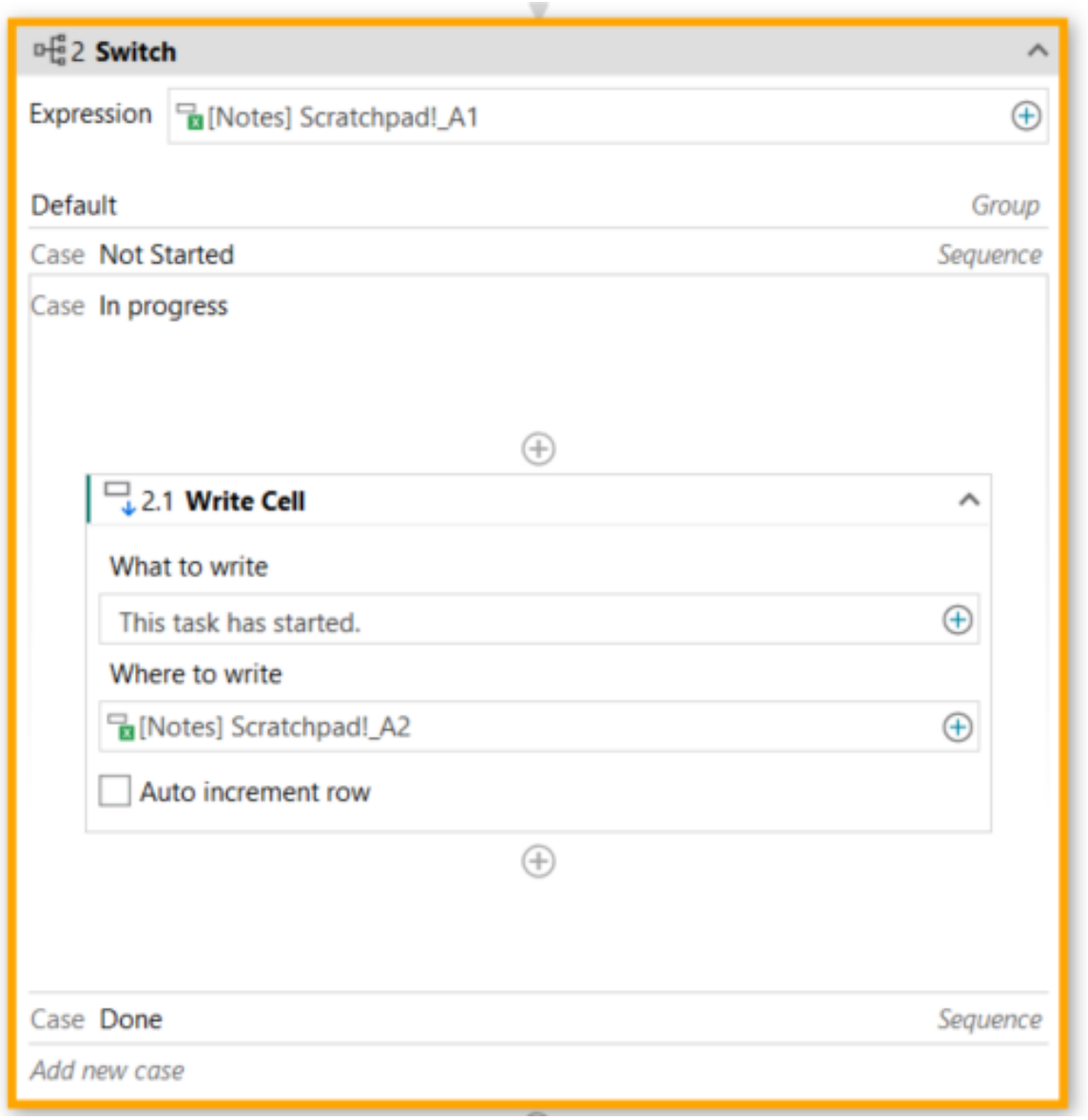
The case values are the item's values that determine a particular path for the robot to take.

Case actions

Under each case, you create the series of actions that need to be performed if the Expression has the respective case value.

Add a new case

You can add a new case at any moment. If there are no more cases, you can continue the automation project.



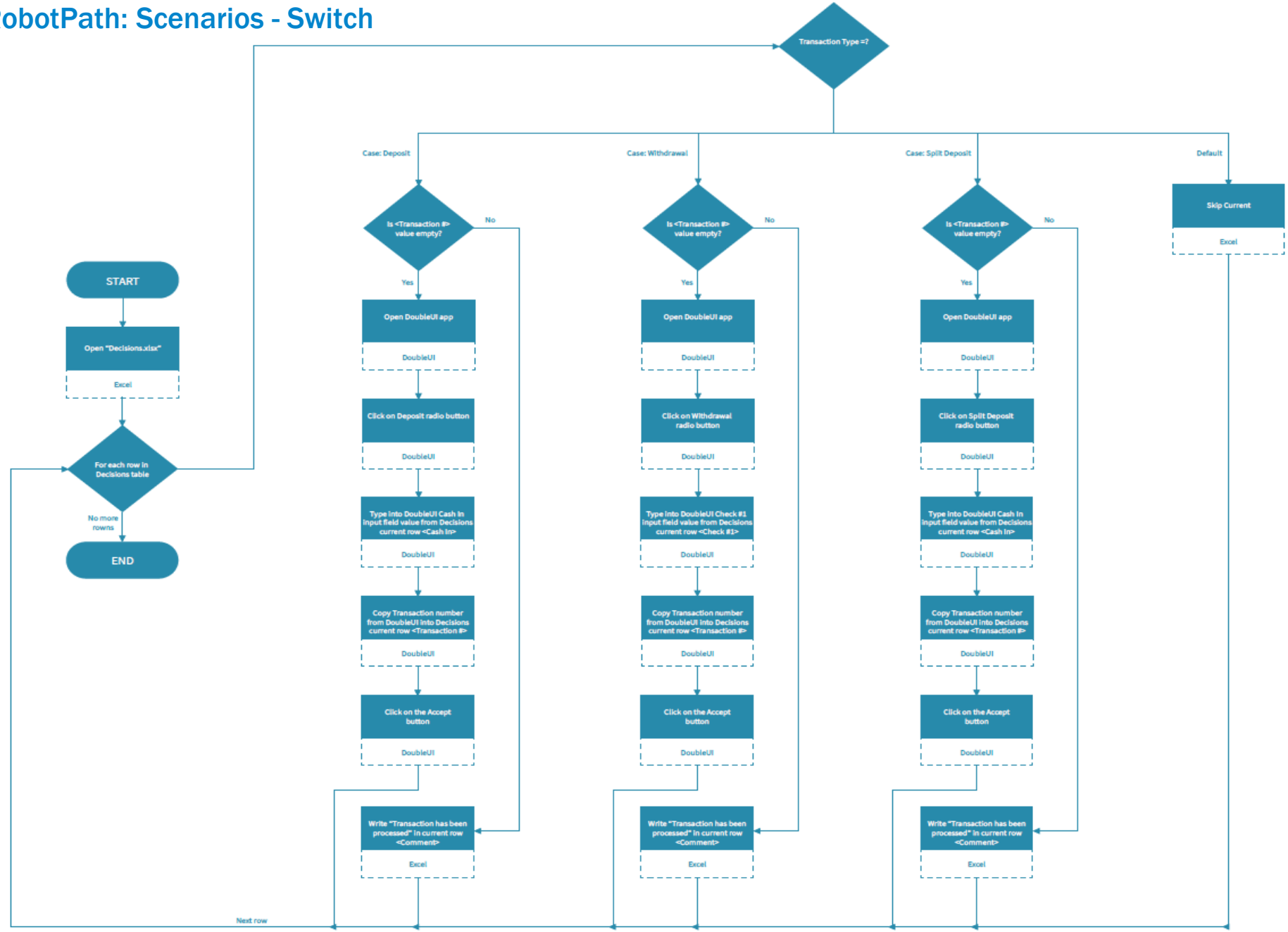
Demo: Scenarios - Switch

In the demonstration we will show a step-step-by-step demo to get started with using the Switch activities.

In order to follow the steps at the same time, download the files below:

- The Double UI dummy bank teller app
- A .zip file containing the StudioX project used in the Iteration demo
- The new Decisions Excel file
- The RobotPath – Scenarios - Switch

RobotPath: Scenarios - Switch



Recap of the Resources and Actions Used

- As a prerequisite, we open the Double UI application and the Iterations - ForEach - StudioX Project.
- Inside the Excel For Each File action, before the **If activity** we add a **Switch** action and create three cases: Deposit, Withdrawal, Split Deposit.
- Inside the **If** action, before the Type Into actions, we add a Click actions
- We drag the If activity inside the **Deposit case** and copy and paste the **If action** inside the **Withdrawal** and **Split Deposit cases**.
- In the **Deposit Case**, we indicate as the target for the **Click action**, the Deposit radio button from Double UI.
- In the **Withdrawal Case**, we indicate as the target for the **Click action**, the Withdrawal radio button from DoubleUI. We change the target for the **Type Into** action to the Check #1 input field from DoubleUI, and update the value to be typed to "Check #1".
- In the **Split Deposit Case**, we indicate as the target for the **Click action**, the Split Deposit radio button from Double UI.
- In the **Default Case**, we add a **Skip Current** action.

Topic 5

Build Automation: The RPA Challenge with Iterations

Build an Automation: The RPA Challenge with Iterations

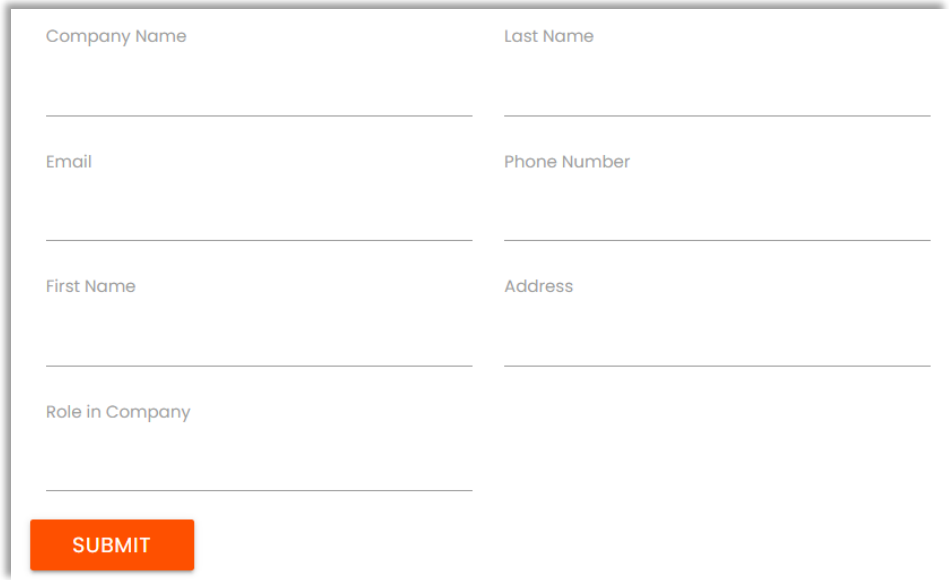
Step 1: Open the RPA Challenge page https://rpachallenge.azurewebsites.net/

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

Step 3: Use **Excel for Each Row** action to go through all the rows of the Excel file and populate the form on the RPA Challenge website

Note: Look at the Module 4 files within the RPA Challenge with Iteration folder for RoboPath

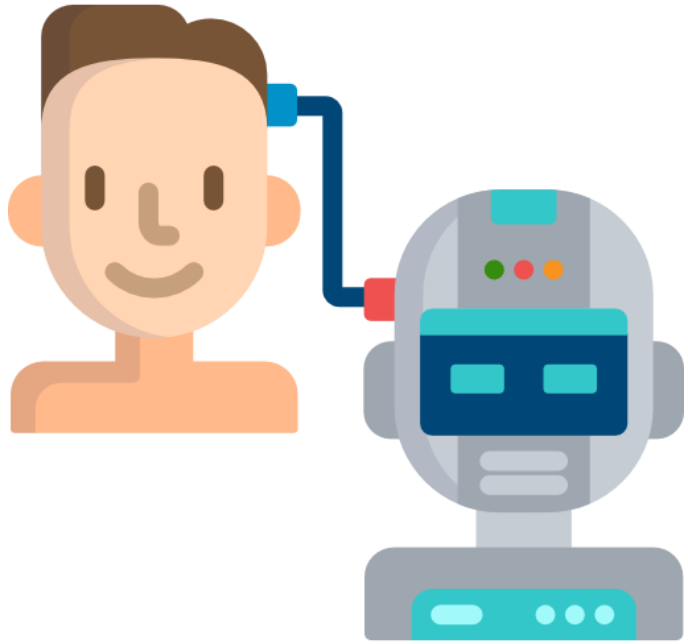
First Name	Last Name	Company Name	Role in Company	Address	Email	Phone Number
John	Smith	IT Solutions	Analyst	98 North Road	jsmith@itsolutions.co.uk	40716543298
Jane	Dorsey	MediCare	Medical Engineer	11 Crown Street	jdorsey@mc.com	40791345621
Albert	Kipling	Waterfront	Accountant	22 Guild Street	kipling@waterfront.com	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 with Iterations

Group Discussion

- What are some more complex tasks that you can think of where decisions, iterations, and scenarios are required?
- How can you use decisions, iterations, and scenarios?
- Do you find RPA more valuable after learning about these functions?



Topic 6

Deliver Automation Projects and RoboManager

Blueprint for Scale (BfS) covers 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

Homework for Next Class

- Personal Task Automation - build your personal automation (Human Path/Robot Path)
- OR Use the below Topic 7 as Practice

Topic 7

Build Automation: Working With Multiple Templates

Build Automation: Working With Multiple Templates

This automation consists of automating tasks that involves Word templates. The goal is to update multiple templates with one robot. We will repurpose a robot created to automate one Word Template to accommodate the iteration with the instructions found below.

Step 1: The robot checks for one row if a resume is needed, and if it is, the resume type specified in the Excel file is copied in another folder, and then it gets processed.

Step 2: Iterate through all the rows in the Excel file and process the resumes if needed

To build this robot we will use:

- an **Excel For Each Row** action, to make the robot go through all the rows from the Spreadsheet;
- a modified version of the **Automating Word Templates** automation

In Module 4, within the Working With Multiple Templates folder, you will find the following files:

- A "Pictures" folder that contains all the pictures that will be used;
- A "Resume Templates" folder that contains all the word templates that will be used;
- An "Edited Resumes" folder which will contain all the processed resumes;
- The Resume_Data.xlsx file that contains all the information needed for editing the templates.
- RoboPath – Working with Multiple Templates

RobotPath: Working With Multiple Templates