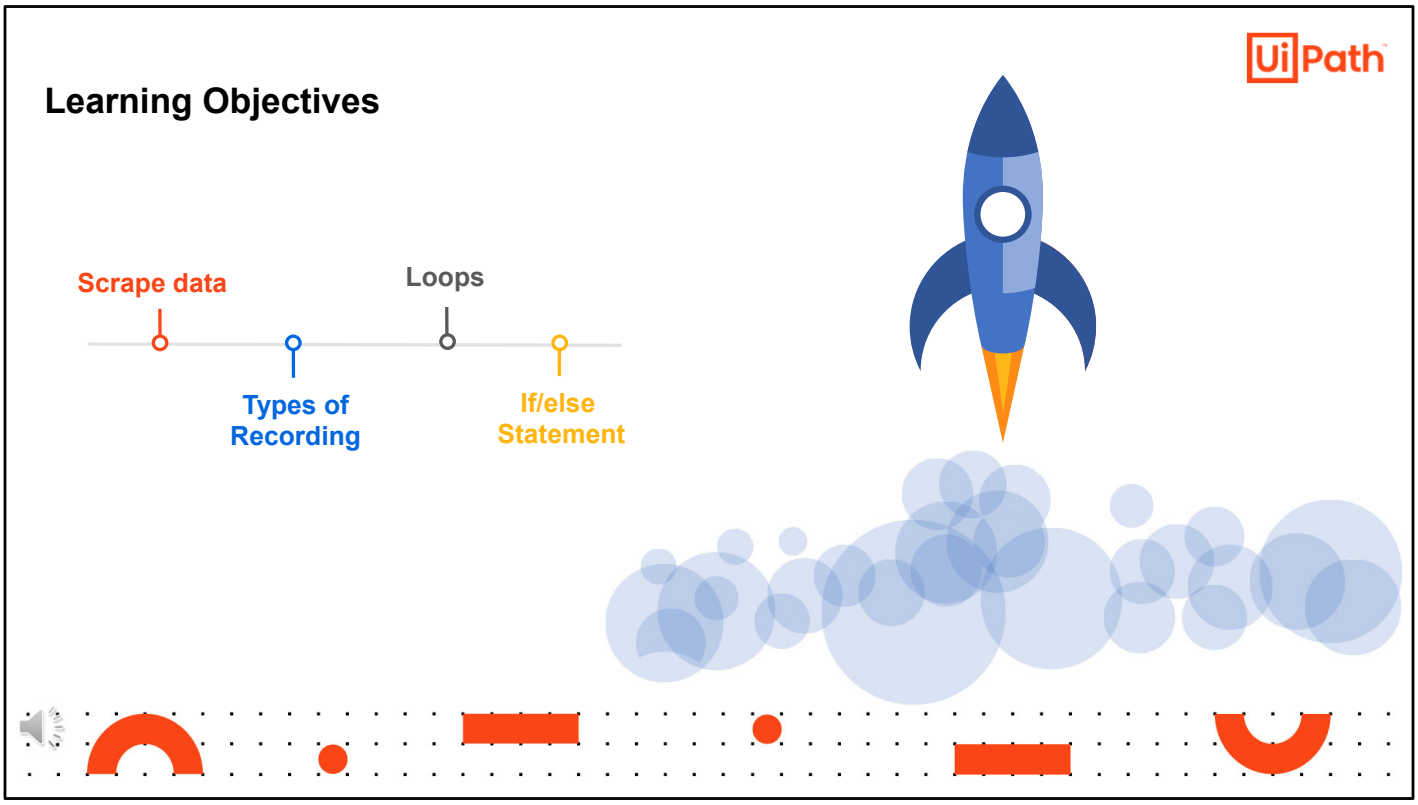
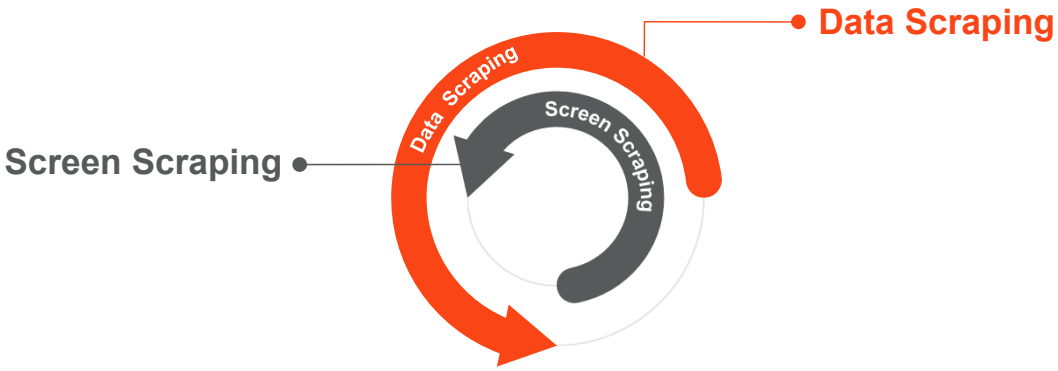


Hello and Welcome back to Step into RPA course.

By the end of this section, you should be able to:
Scrape data using UiPath
Understand the different types of Recording available in UiPath
Describe “Sequences” and “Flowcharts”
Use the most important types of loops available in UiPath, such as While, Do While and For Each
Understand the use of conditional statements, such as If Statements

Capturing Data

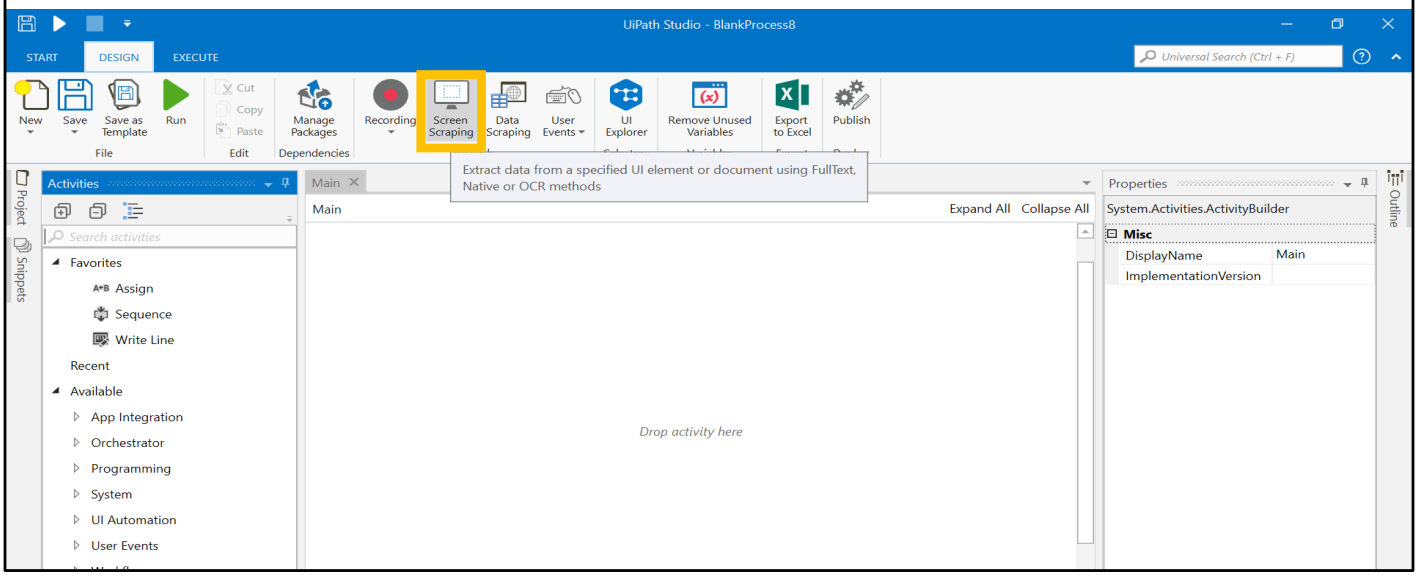
There are two ways to capture data in UiPath Studio



In UiPath, amongst others, the two most common ways that we can use to capture data are Screen Scraping and Data Scraping.

Screen Scraping

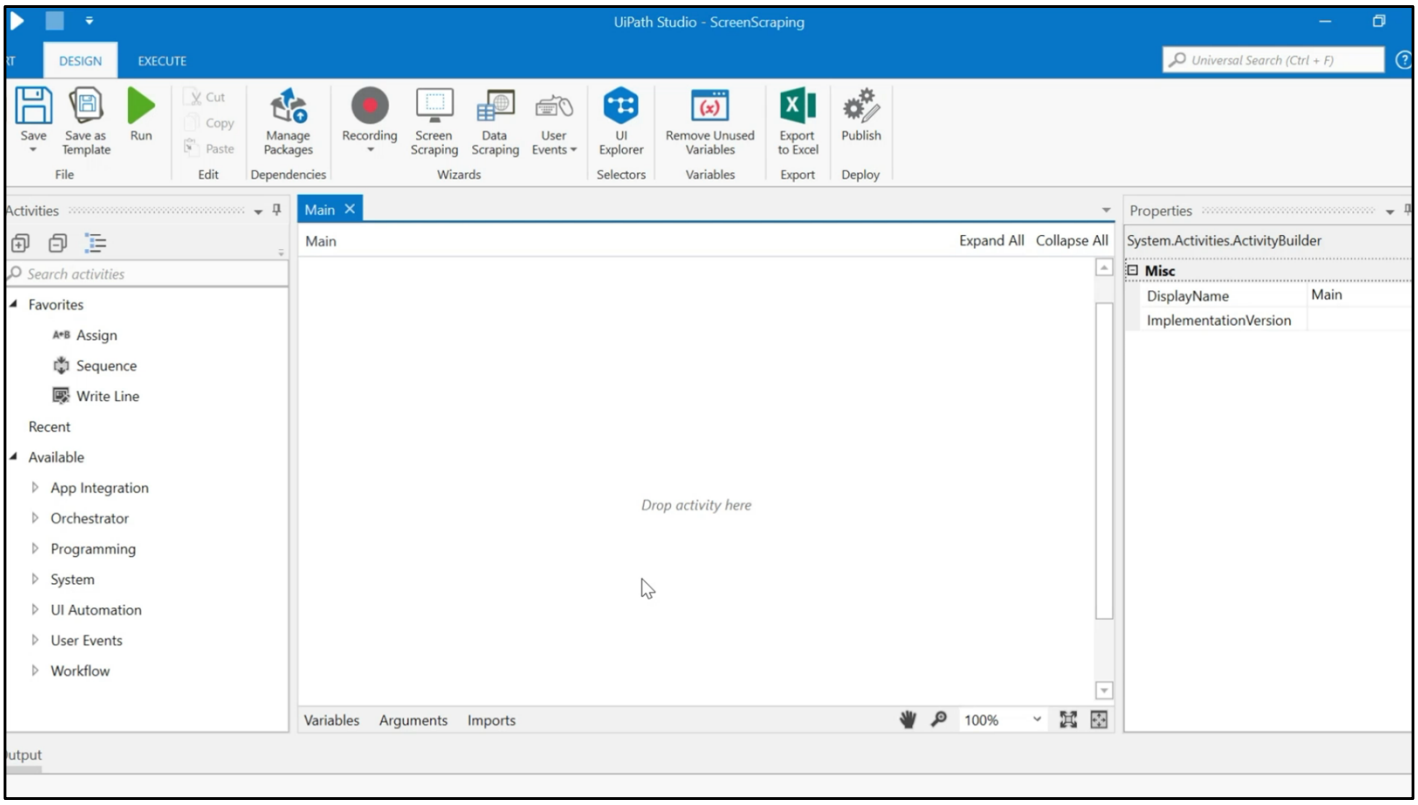
It is used to read the data from the screen. It is capable of scraping both visible and non-visible data on the screen.



Screen scraping is used to read data from the screen. Using different configurations and technologies, it is capable of capturing the data that is visible on the screen, and also data that is non-visible, such as options from a drop-down menu.

You can start screen scraping by selecting the Screen Scraping button from the ribbon. After pressing the button, you can move the mouse pointer on the screen. You will notice that as you move the pointer, areas on the screen get highlighted automatically. This is the magic of screen scraping. Simply put, all the elements that do get highlighted are recognized as individual User Interface elements, and data can be extracted from them.

Try for yourself. Once you decide and click on an individual element, it will be selected.



Once the selection has been made, UiPath Studio will take you to the screen scraping wizard. This is where you will realize the true power of the UiPath product. On the left-hand side is the captured data. On the right-hand side, there is a drop-down menu with three available options: Native, Full text and OCR.

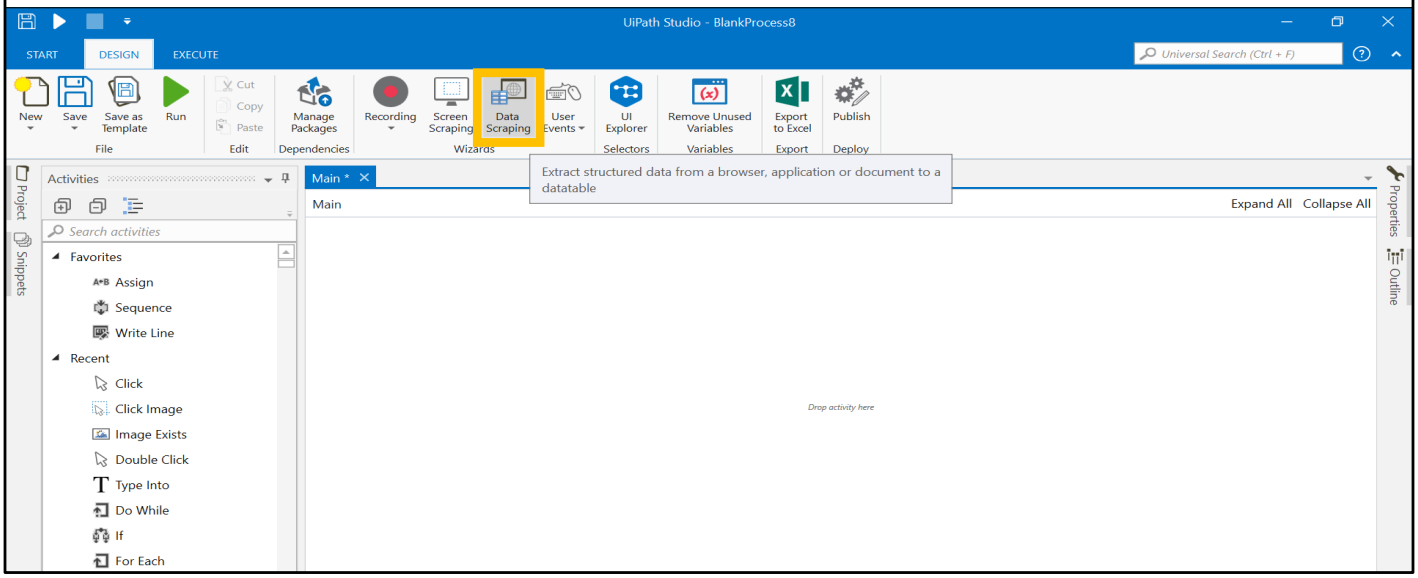
Each one of these 3 options uses a different technology and brings unique advantages.

You should select **Native** when you are scraping text, and you also want to capture its position, font style, and color.
You should select **FullText** when you want to scrape all visible text on the UI object or on the select screen area.
OCR means Optical character recognition. You should select this when you are scraping data from virtual desktops or from UI elements that are not recognized by the other two options.

After selecting the type of screen scraping, proceed to “Finish”. Once completed, a portion of the robot will be created in the UiPath Designer panel.

Data Scraping

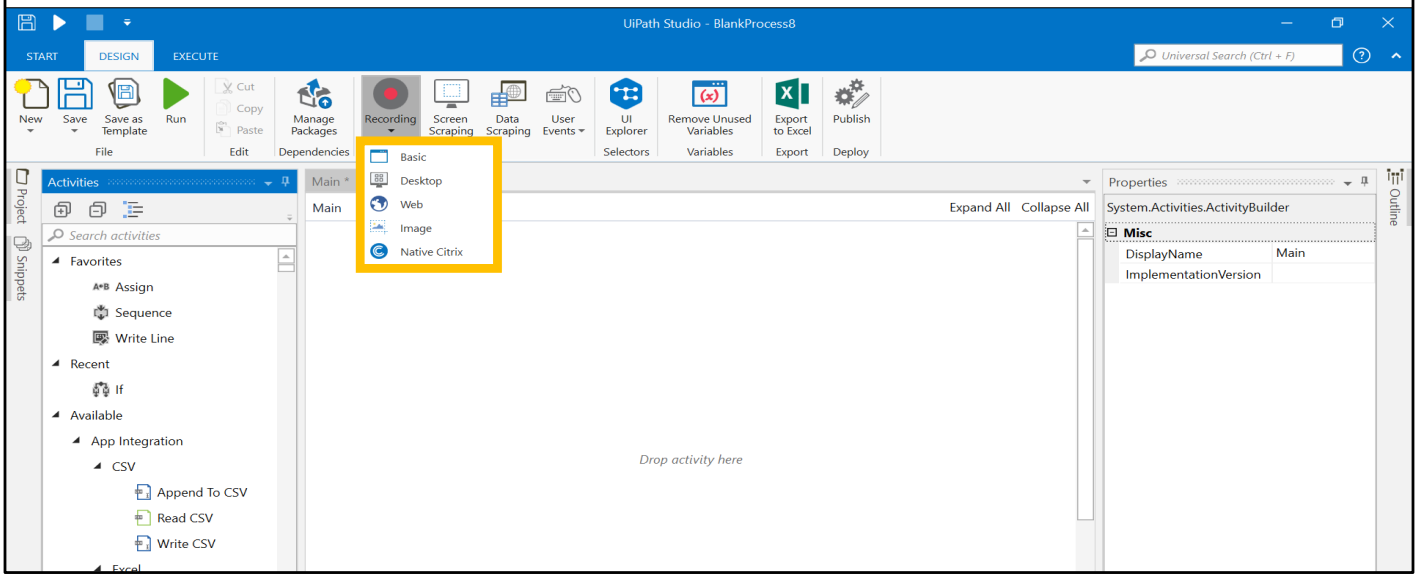
It is the process of extracting structured data from a browser, application, or document to a database, .csv file, or to Excel spreadsheets



Now let's understand **Data Scraping** in UiPath. Data scraping allows you to extract structured information from an application, browser or document to a database or excel file. Structured data is any kind of information presented in a pattern inside a browser, document or application. For example, a list of products on a shopping website, data in excel sheets, and so on.

Recorder in UiPath Studio

You can start by clicking on Record button in the Ribbon. It will give you 5 options to choose from: Basic , Desktop, Web, Image and Native Citrix recorder.

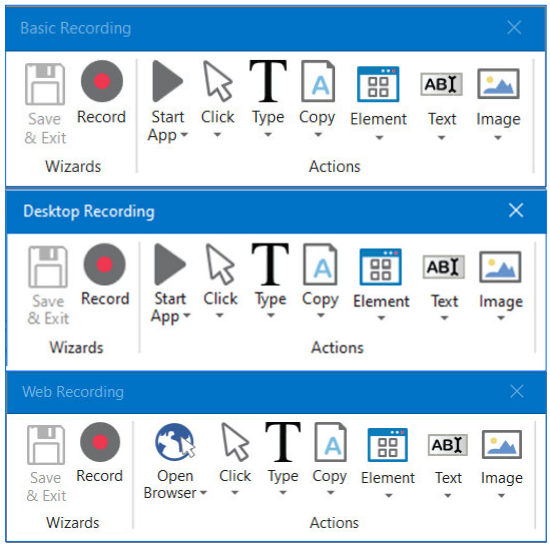


Alright! It's time to delve deeper into the most popular and easy feature in UiPath, known as Recording. This feature does exactly what it says: it records user actions.

Selecting the "Record" option from the Ribbon will give you five options to choose from: Basic, Desktop, Web, Image, and Native Citrix recorder.

Can you guess which type of recording you will be using in your code?

Types of Recording in UiPath Studio



- **Basic Recorder:** A basic recorder for automating desktop applications. It is used when we only want to work with a single-window.
- **Desktop Recorder**: A desktop recorder that captures data from desktop applications when multiple actions are performed in numerous windows.
- **Web Recorder:** It is used to automate user actions performed on websites. You can do web recording using any of the three popular browsers: Internet Explorer, Google Chrome, or Mozilla Firefox.

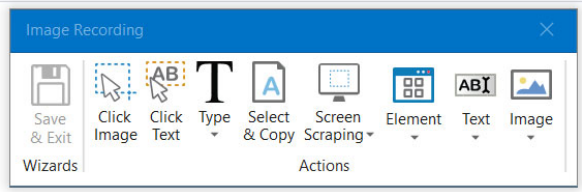
Depending on what you want to record, there are several types of recording available. Let`s discover each and see when it`s best to use it:

Basic Recorder: A basic recorder for automating desktop applications. It is used when we only want to work with a single-window.

Desktop Recorder: A desktop recorder that captures data from desktop applications when multiple actions are performed in numerous windows.

Web Recorder: It is used to automate user actions performed on websites. You can do web recording using any of the three popular browsers: Internet Explorer, Google Chrome, or Mozilla Firefox.

Types of Recording in UiPath Studio



- **Image Recorder:** It records Images for all virtual environments. The automation cannot identify all the applications, and it relies on image recognition. In this type of recording the explicit position of data is required.

- **Native Citrix Recorder:** It is used for Citrix environments that are configured to support UiPath Native Citrix. Once the setup is made, this recorder will work seamlessly on virtual environments, just like the Desktop Recorder works on a regular desktop.

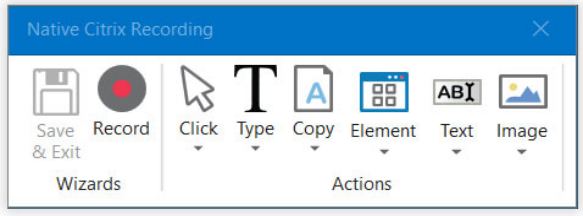


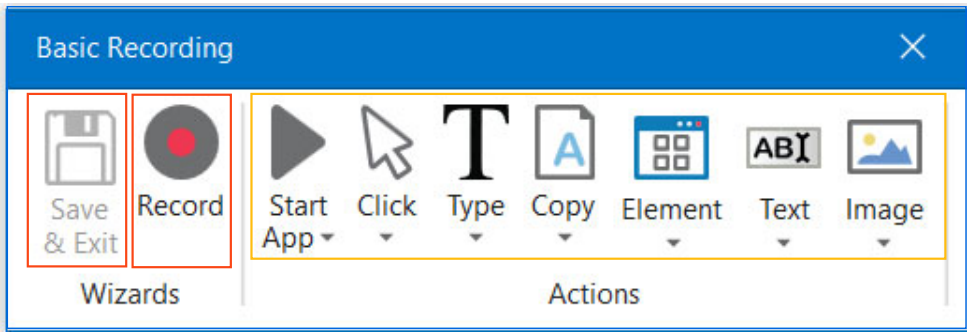
Image Recorder uses Images for all virtual environments. The automation cannot identify all the applications, and it relies on image recognition. In this type of recording the explicit position of data is required.

Native Citrix Recorder: Native Citrix is used for Citrix environments that are configured to support UiPath Native Citrix. Once the setup is made, this recorder will work seamlessly on virtual environments, just like the Desktop Recorder works on a regular desktop.

If this appears too technical and daunting, don't fret. You will be amazed at its simplicity of use, when we create a Robot using this feature later in the course.

Recording Wizard Components

The recording wizard for all Basic, Desktop and Web recorders consist of 3 types of similar components which are **Save & Exit, Record, and Manual recording actions**



Let's now discuss the recording wizard. When you have selected the type of recorder, UiPath Studio will open the recording wizard.
Wizards for all recording types come with their own toolbar, which gives you access to actions particular to that recording types' environment. There are some actions that are common across wizards. The **Desktop**, **Basic** and **Web Recording** wizards are quite similar. Let's see what you can accomplish with these recordings:

Record: It starts automatic recording and captures user actions. To start recording, click on the record button, and the recorder will start capturing user actions. A small window will open which will show a magnified view of the area where the mouse pointer is hovering. The user will see a blue screen with yellow border over the area which is being highlighted. You can continue performing user actions that you want to automate and UiPath will record them. On completion, multiple activities are generated. You will see that the automatic recorder captures the main activities, such as clicking and typing. If it isn't able to capture all of them, you should be able to add them separately, using the Recorder sub-menu.

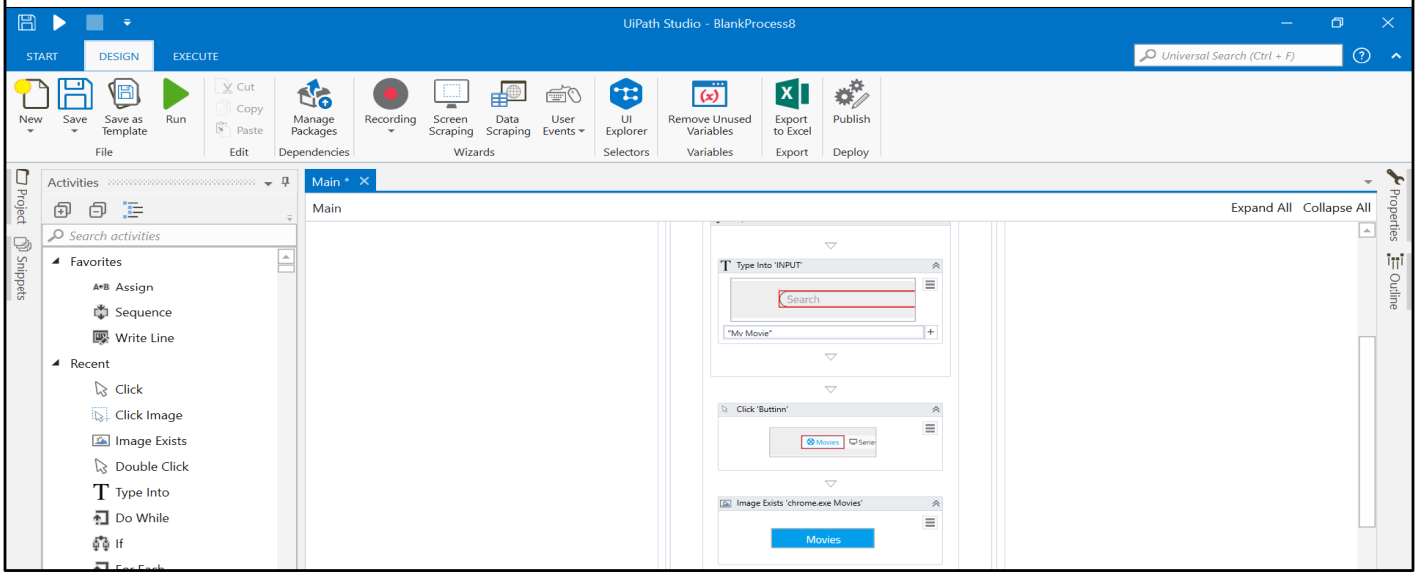
Save & Exit: This option is enabled only when the recorder is ON. It closes the recorder and takes you back to the 'designer' window, displaying the automatically generated activities.

To the right of Record option, there is the **Actions** Wizard**.** It consists of **Start App, Click, Type, Copy, Element, Text and Image options**. As pointed out, these will all

help you add specific actions that were not captured automatically by the Recorder.

Sequence

It is the smallest type of project suitable for linear processes as they enable you to go from one activity to another seamlessly and act as a single block activity.

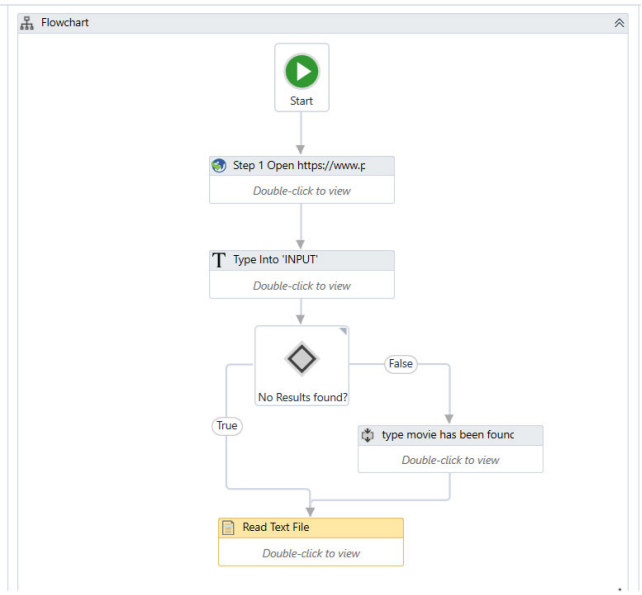


Now, Let's understand Sequences. Technically, what the recorder that we presented earlier does when we hit Save and Exit, is to create a sequence. “Sequences” are the most straightforward type of automation project layout in UiPath Studio. They are suitable for linear processes as they enable you to go from one activity to another seamlessly and act as a single block activity.

A sequence can be created from activities or by clicking “New” followed by clicking “Sequence”

Flowchart

A flowchart is a type of project in UiPath that offers a very good representation of the activities used and the underlying logic. This way, multiple branching and logical operators can be represented very accurately, enabling you to connect activities in multiple ways and create complex business processes.



After Sequence, let's understand Flowcharts. A flowchart is a type of project in UiPath that offers a very good representation of the activities used and the underlying logic. This way, multiple branching and logical operators can be represented very accurately, enabling you to connect activities in multiple ways and create complex business processes.

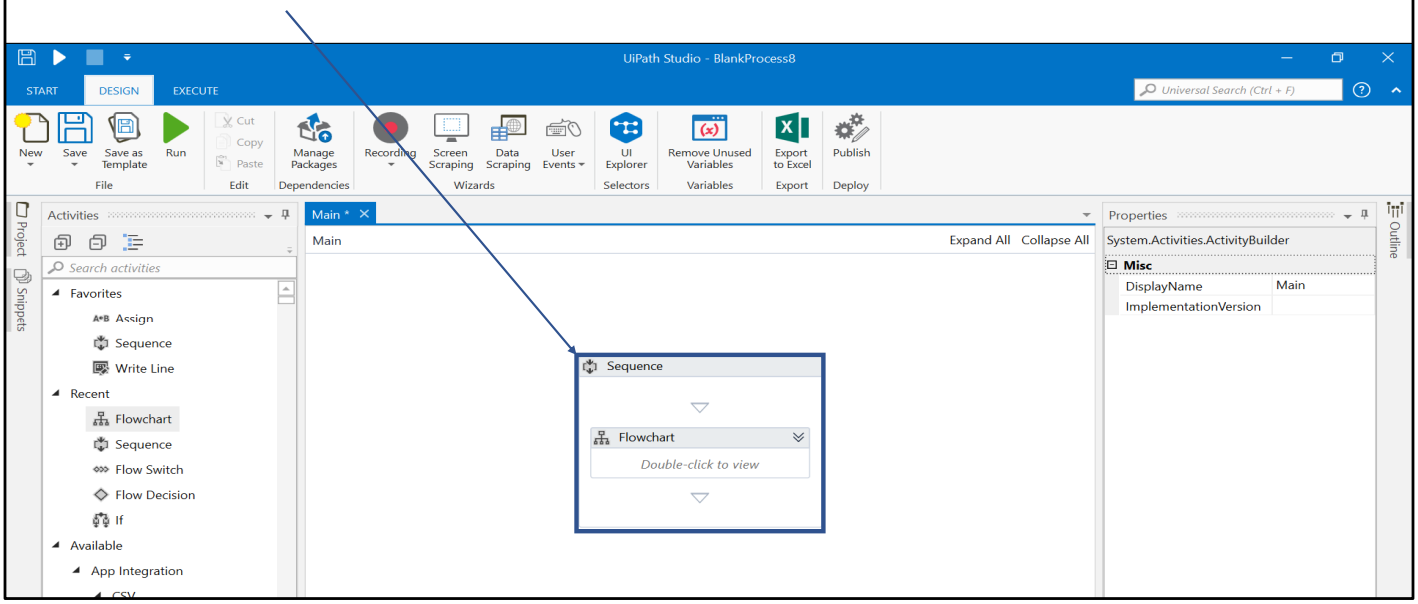
To create a flowchart, you can either search for it in activities or click on New and then click on Flowchart.

When do you use a flowchart?

Flowcharts are best used when the logic needs to be visible and easily understood, as they offer a compelling way of depicting the flow of control/logic when a Robot is being designed and executed.

Nested flowchart and sequences

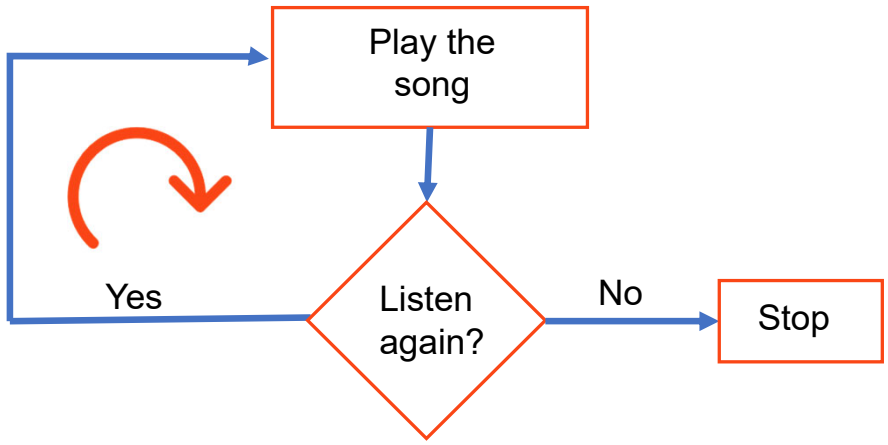
Flowchart nested within a sequence activity



Nesting is vital while creating complex workflows, as it allows a logical division of the program and it promotes re-usability. Although it is technically possible to nest flowcharts and sequences in every way, the only sustainable combination is to use a flowchart to represent the overall logic of the program and to use sequences for different parts inside.

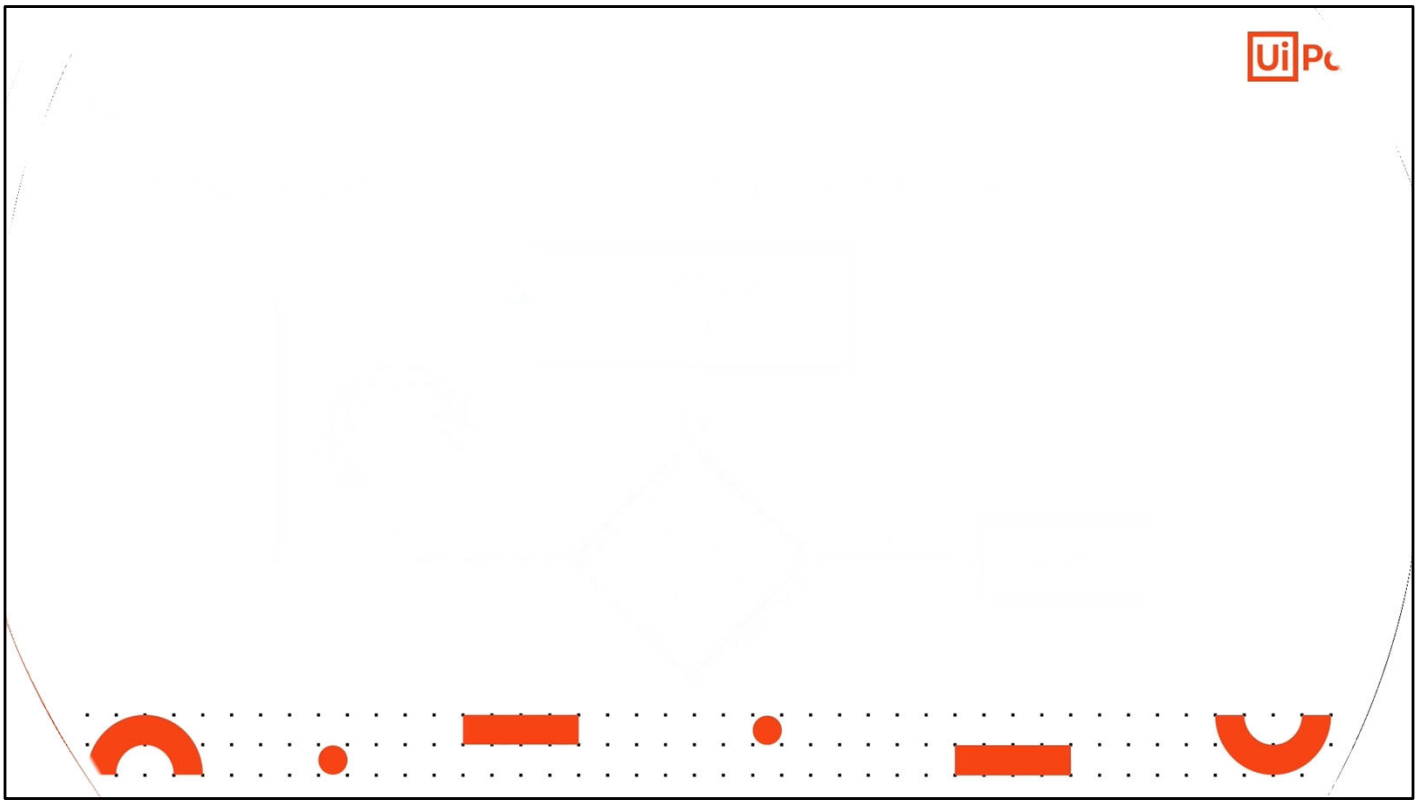
Loop

A loop is a programming structure that repeats a sequence of instructions until a specific condition is met.



A loop is a programming structure that repeats a sequence of instructions until or as long as a specific condition is met. Let me explain this with a real-life example. Let's say you like a particular song. You will play it, and then if you want to listen to it again you can play it again. This is the example of a loop. You can continue doing so until you are bored with it. At the instance when you are bored, you don't want to listen to the song again, and you break out of the loop.

Here "playing the song" is the instruction, "you want to listen to it again" is the condition. As long as the condition is met the song will continue playing.

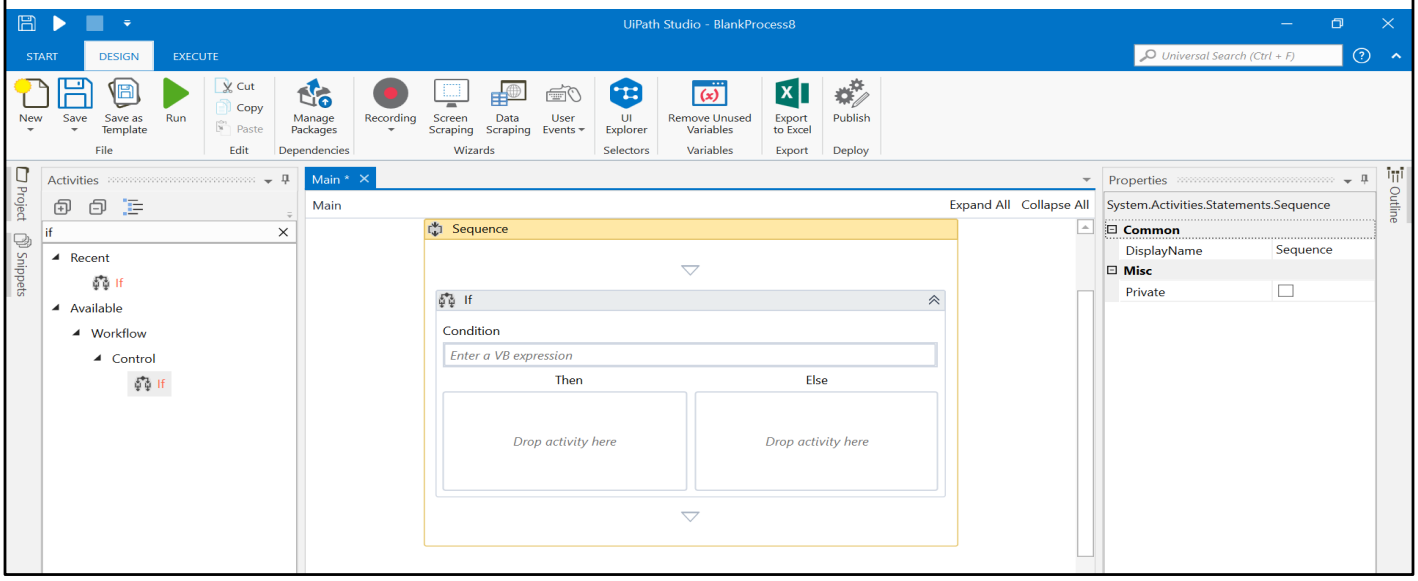


There are three types of loops in UiPath: While, Do While and For Each. Let's checkout each type:

- While loop executes the contained activities while the provided condition is true. It checks the condition at the beginning before getting into the loop.
- Do While loop executes the contained activities first and then checks if the condition is true. Which also means that a Do While loop will be executed at least once even if the condition is not true.
- For Each loop lets you iterate through the elements of lists, datasets, etc and you can perform an action on each element individually.

The If activity

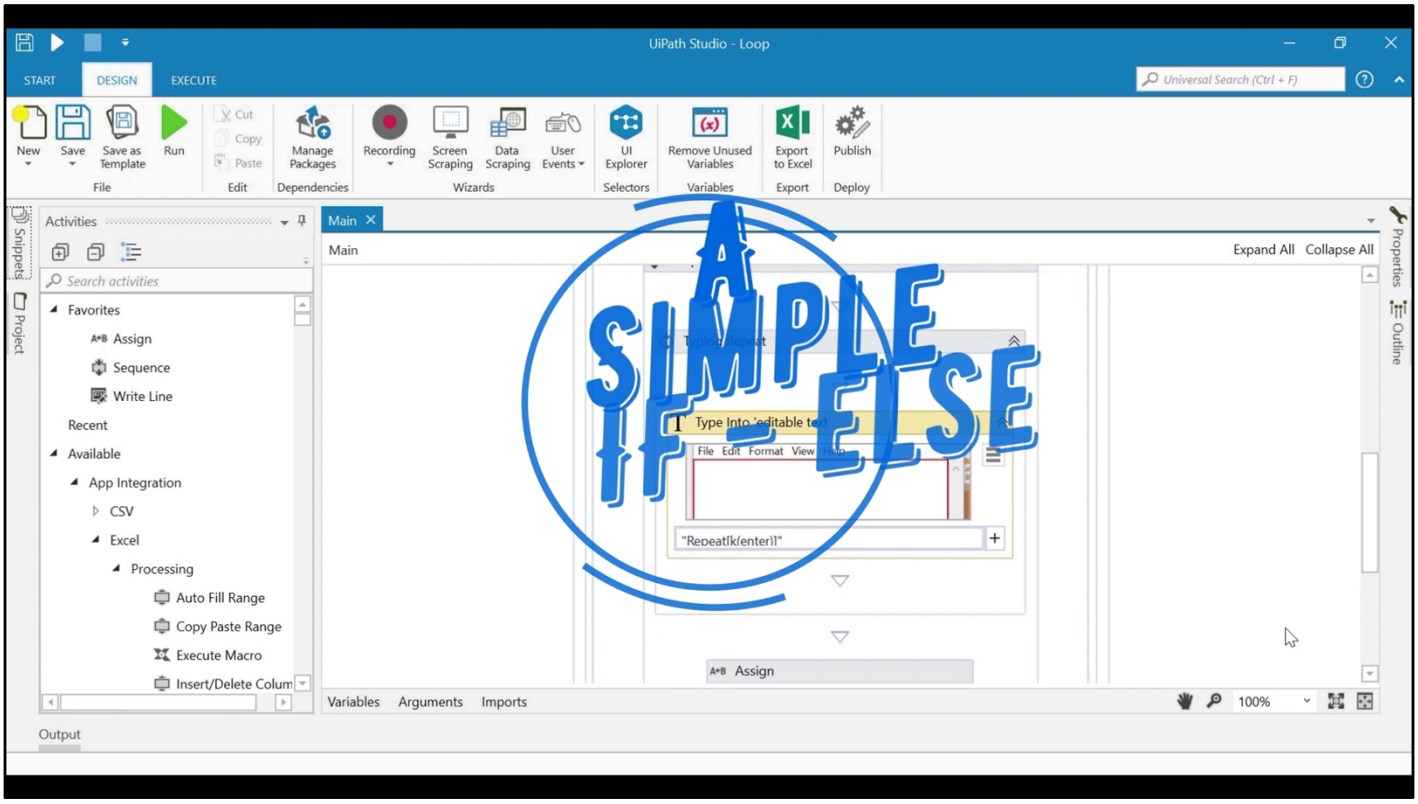
If activity contains a statement with a condition attached, and two sets of instructions as outcomes.



Generically speaking, loops are control flow statements. But they are not the only kind. The **If activity** is what most people think of when they hear control flow statement. It contains a statement with a condition attached, and two sets of instructions as outcomes. The first set of instructions, from the Then section, is executed if the statement is true, while the second one, from the Else section, is executed if the statement is false.

For example - **if** it is raining outside, t**hen** you should carry an umbrella, **else** you can do without it.

In this section, you have learnt some advanced and complex skills like scraping data, recording user activities, workflows, loops, etc. Before UiPath, one would spend years studying Computer Science and still find it difficult to accomplish any of these. However, with UiPath the power to make complicated robots is within everyone's reach.



Now let me demonstrate how to actually develop the robot using UiPath Studio. You may recall the movie example from the beginning of the course. Now we will create a Robot for it. We will apply all the skills that we have learnt so far. I will encourage you to pause the video at appropriate times and create the robot on your UiPath Studio along with me.

There were 6 steps for creating the Robot.

You may recall that we had defined six steps for creating the Robot.
…

The first step is to “Open the website”.
…
Open a browser and, in the address bar, type the name of the website. In the movie example, we can go to “popcornflix.com”
…
Open UiPath Studio and create a new process called “FindaMovie”
Now you can see the designer panel where we will create the workflow for Step 1. There are multiple ways to open a browser and go to a website in UiPath, however we will use the easiest and most popular way. We will use the “Recording” feature.
…
We will use “Web” recording because we are opening a browser with a webpage. Click on Recording and Click on Web to launch the Web Recording wizard.
…
Click the "Open Browser" and click anywhere on the browser where you have opened popcornflix.com. The recorder will automatically gather the URL in the browser. Click OK and Click “save and exit”..
…
You can see the generated workflow in the designer panel. Now it’s time to save it and test it. To save the code, Click “Save” in the Ribbon. To test the code, hit the “Run” button. The Robot will open the webpage and this completes Step 1.
Now lets move to **Step 2**
Here we want the Robot to search for the movie on the website opened in Step 1.
…
On the open webpage you can see the search button.
…
Now Click “Recording” button again, Click Web, hit Record in the wizard and Click the search button on the open webpage.
…
You will see a popup open. Now type the name of the movie and hit “Enter”
…
Now Hit “Escape” on keyboard and Click “Save & Exit” in the recording wizard.
…
You can have created the code for step 2. Again, it’s time to save it and test it. To save the project, Click on “Save” in the Ribbon. To test the code, Click “Run” button. The Robot will open the webpage and search for the movie. This completes Step 2.

Check Your Knowledge

"Now it’s your turn to test what you have learned so far. I will challenge you with 5 questions. You need to answer at least 4 to successfully complete the quiz. Each question will have multiple answers. Its possible that more than one answer may be correct. All the best

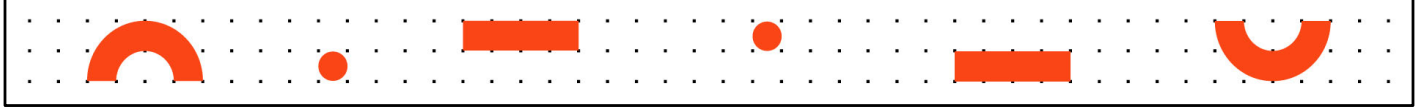
How many screen scraping methods are available in UiPath?

a) 2

b) 3

c) 4

d) 5



How many screen scraping methods are available in UiPath?

a) 2

b) 3

c) 4

d) 5

The correct answer to this question is option **A**

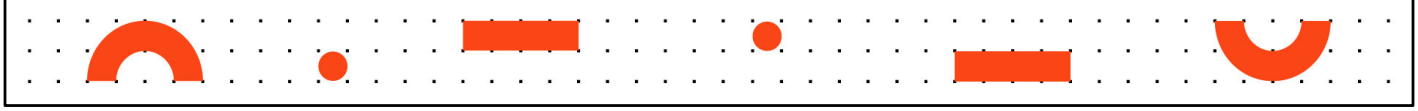
Which type of recording should be used for web automation?

a) Image Recording

b) Web Recording

c) Desktop Recording

d) Native Citrix Recording



Which type of recording should be used for web automation?

a) Image recording

b) Web recording

c) Desktop recording

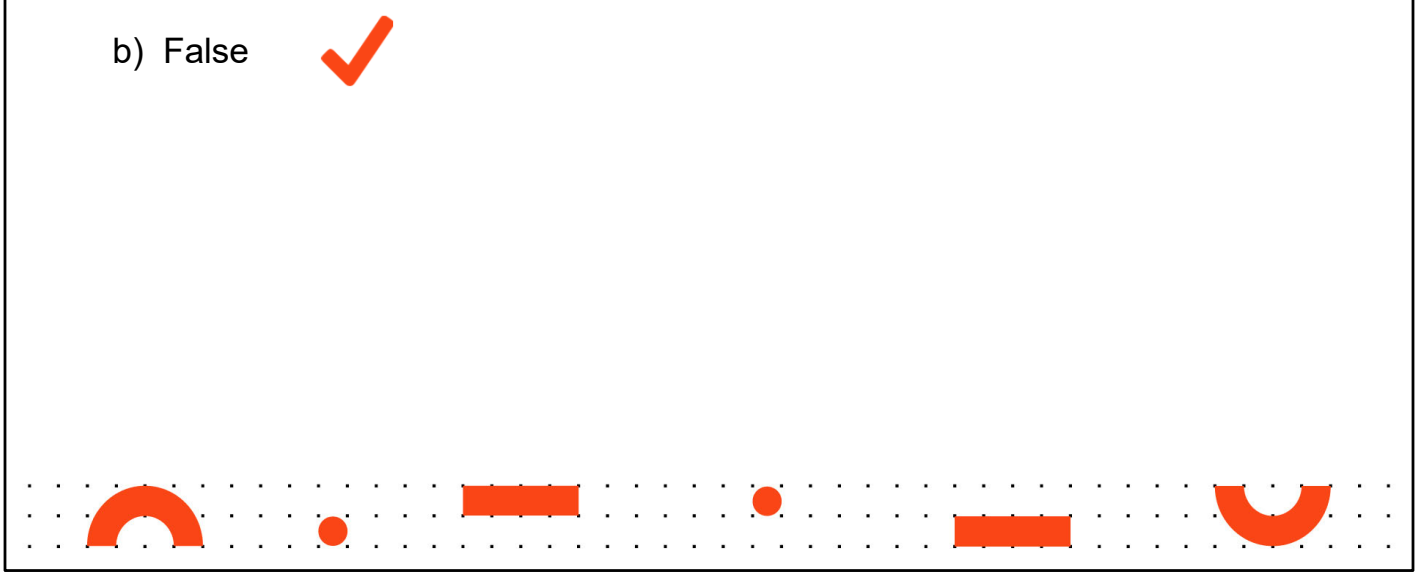
d) Native Citrix recording

The correct answer to this question is option **A**

State true or false? In UiPath, IF activity is a loop?

a) True

b) False



In UiPath, IF activity is a loop?

a) True

b) False

The correct answer to this question is option **B**

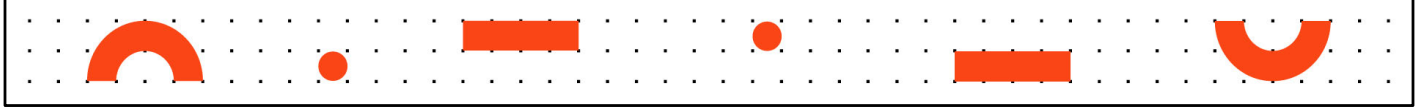
Which of the following loops are available in UiPath?

a) For Each

b) Do While

c) While

d) All of the above ✓



Which of the following loops are available in UiPath?

a) For each

b) Do while

c) While

d) All of the above

The correct answer to this question is option **D**

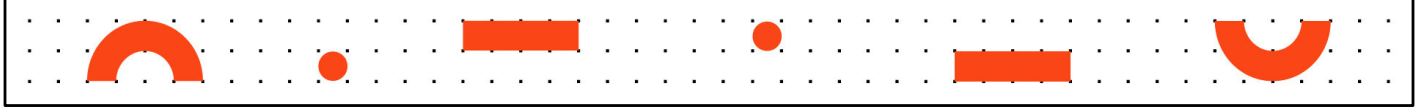
How many types of loops are available in UiPath?

a) 2

b) 3

c) 4

d) 5



How many types of loops are available in UiPath?

a) 2

b) 3

c) 4

d) 5

The correct answer to this question is option **B**

So far, we have discussed…

- Introduction to Data Scraping and Screen Scraping
- Types of Recording
- Flowchart and Sequence
- Creating a Robot for opening a website and searching for a movie

Let’s summarise what we have learnt in this section. We began with learning about data scraping and screen scraping. Then we learnt about UiPath’s most popular feature – Recording. We understood different types of recording followed by Flowcharts & Sequences. We finished the section by creating a Robot which opens up a website and searches for a movie. That brings us to the end of this section! Thank you for watching!