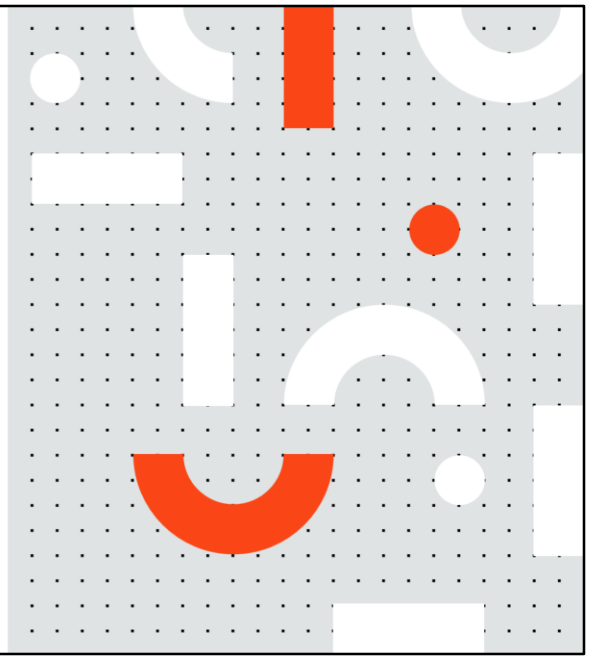
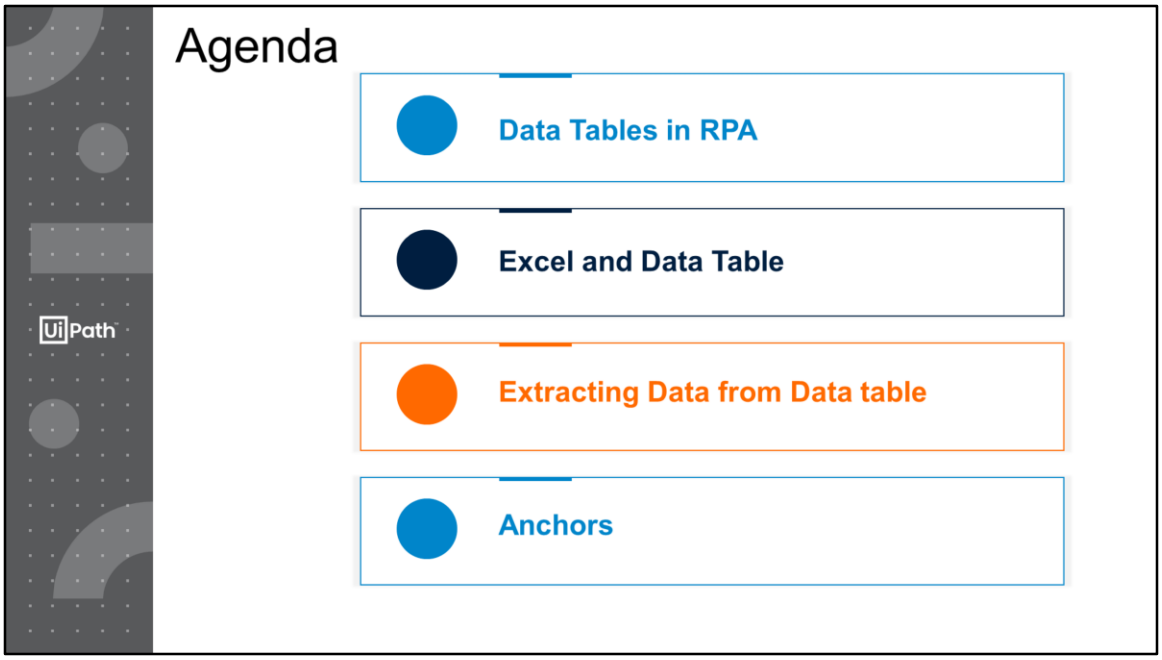
RPA Design & Development v1.1

Lesson 12 Excel Data Table and PDF



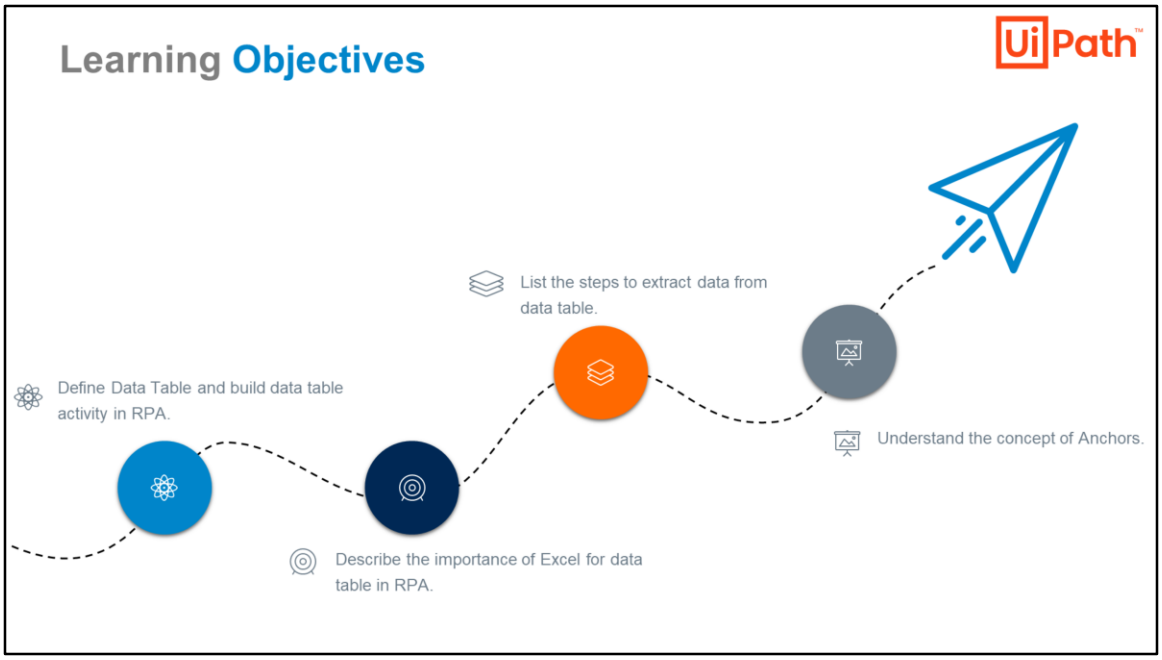
Module Objectives:
Students should be able to understand these methodologies in this chapter:

- Excel Data Table Automation in Studio
- Understand and apply automation to understand the Excel Data Table & PDF



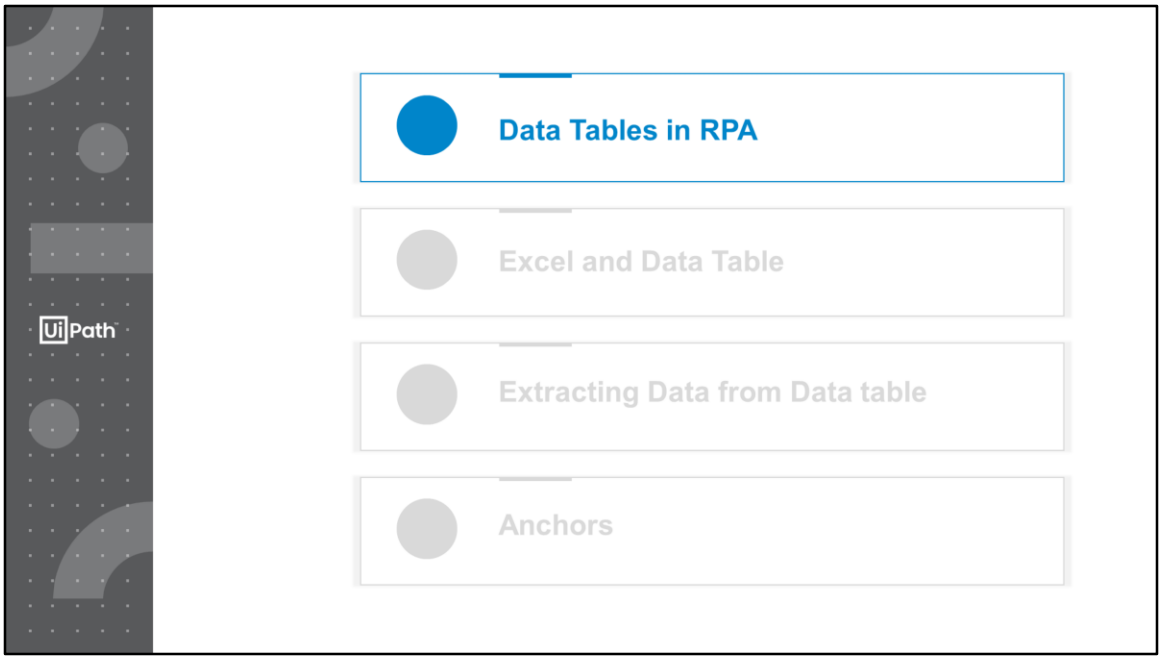
We will learn and cover these points in this lesson Data Tables in RPA

- Basics of Excel and Data Table
- Extracting Data from Data table
- Anchors

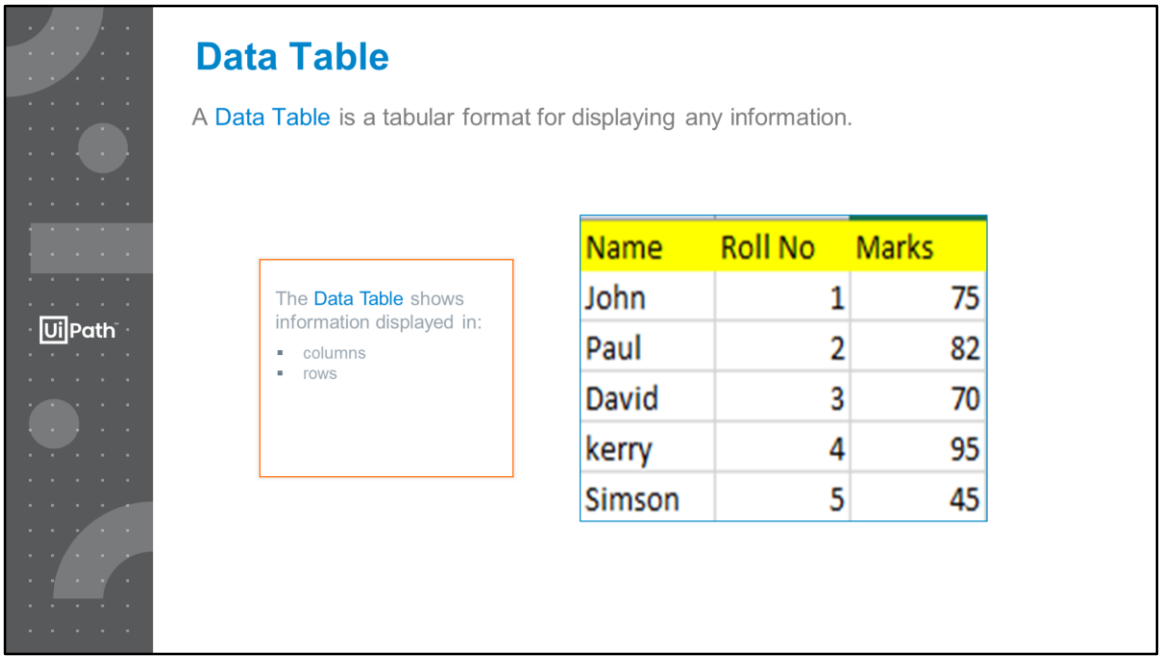


At the end of this chapter, people will able to understand the Excel Data Table and PDF implementation in RPA.

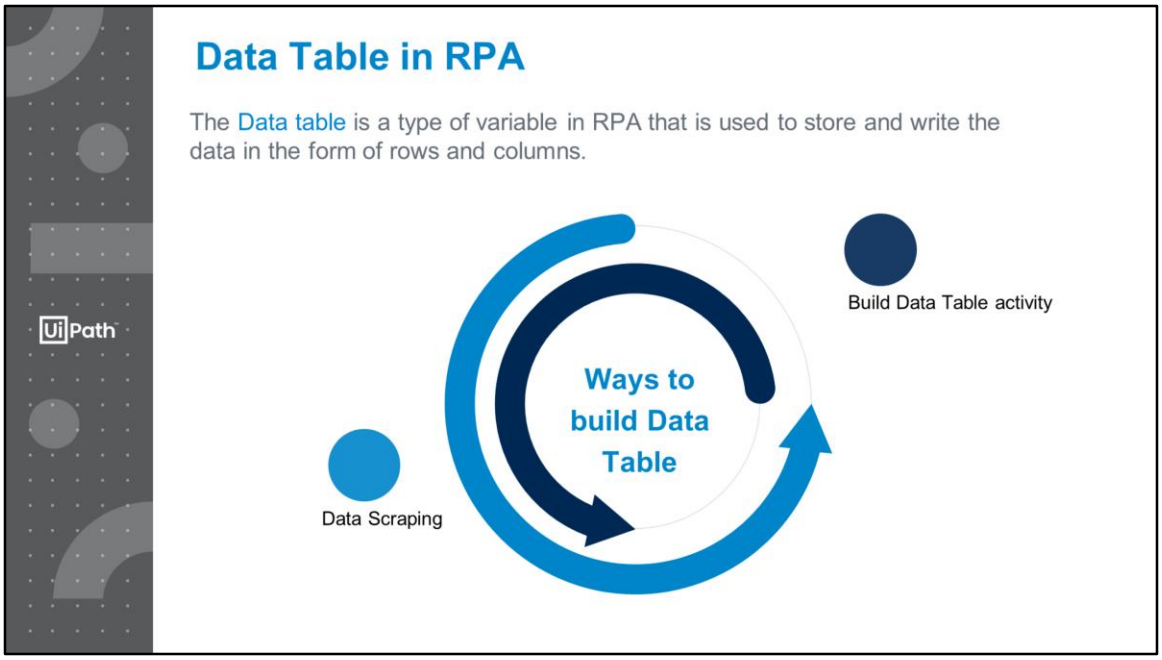
- Describe the importance of Excel for data table in RPA
- List the steps to extract data from data table
- Understand the concept of Anchors



In this topic, we will learn about Data Tables in RPA.

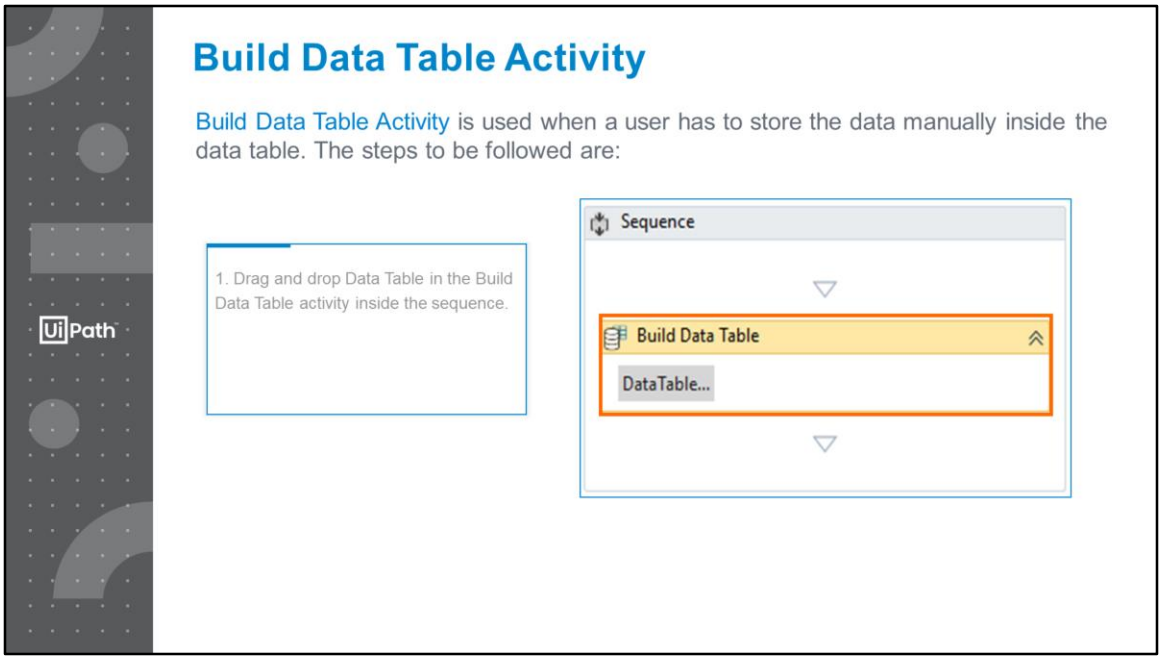


It is a collection of data, resources or information where you can insert or set any information that is displayed in the tabular form. It contains the data in rows and columns form. For example Excel, CSV, etc.



The Data table is a type of variable in RPA that is used to store and write the data in the form of rows and columns. It represents the information of data as a database in a spreadsheet. The variables enable us to migrate data from one database to another. After that, we can easily extract the information by data store or website. In UiPath, you can create or build a Data Table in one of the two ways:

- Build Data Table activity
- Data Scraping



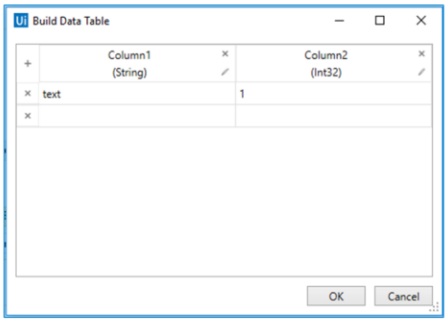
It is used when a user has to store the data manually inside the data table. The steps to be followed are:

1. You can drag and drop sequence. After that, you can insert or drag the build Data Table activity inside the sequence to create a process of a data table.

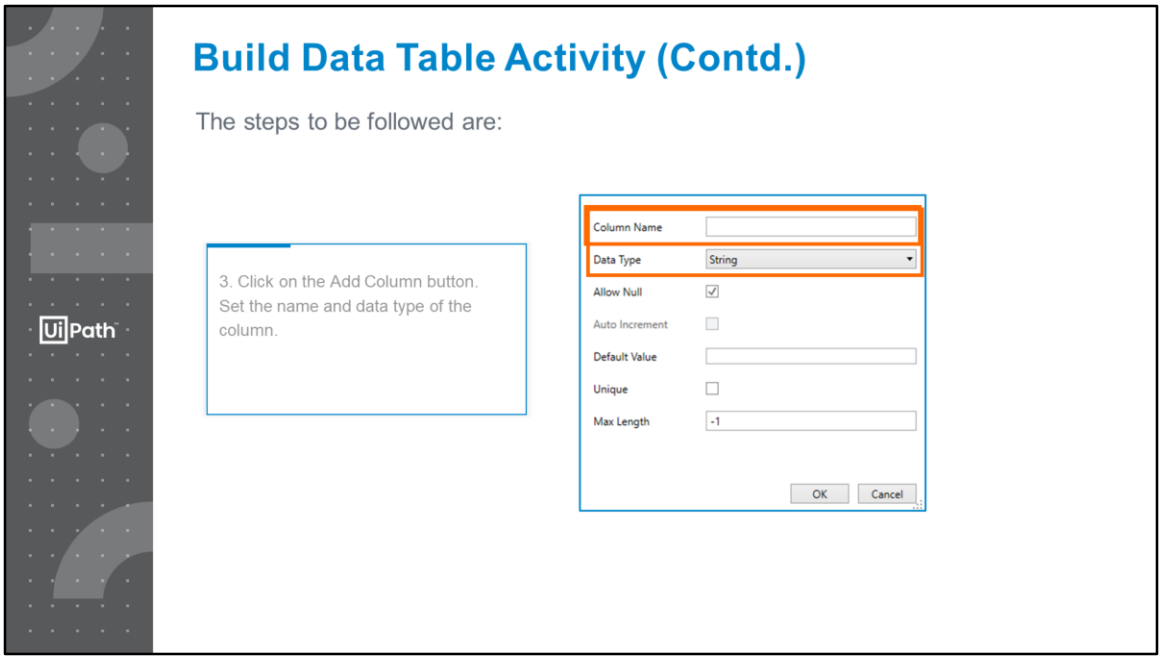
Build Data Table Activity (Contd.)

The steps to be followed are:

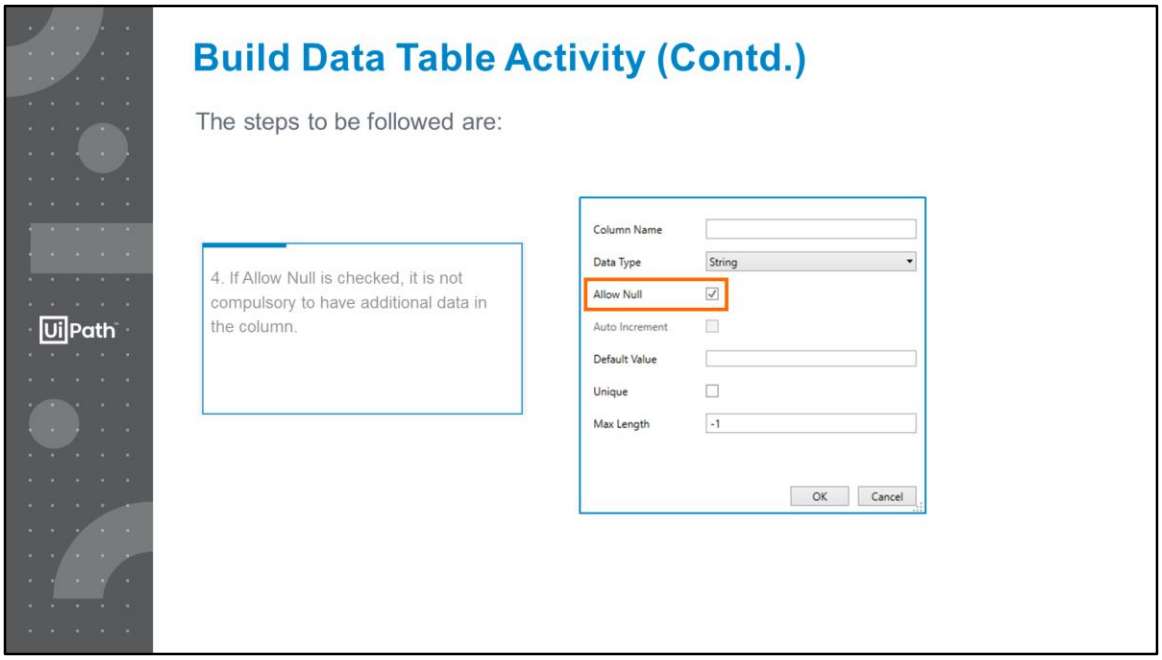
2. Click on the Data Table; A pop up will appear on the UiPath project screen.



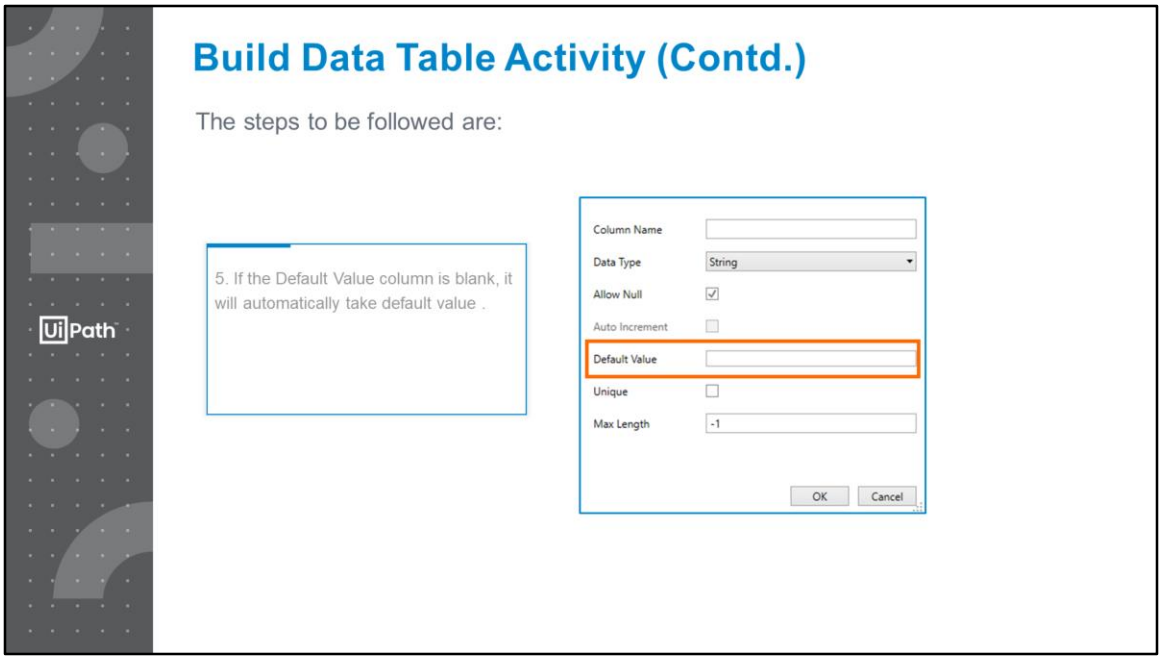
The steps to be followed are:
2. When we click on the data table, we will get a pop up on the UiPath project screen.



The steps to be followed are:
3. We can add a new column by clicking on the add column button and setting the name & data type in the column.

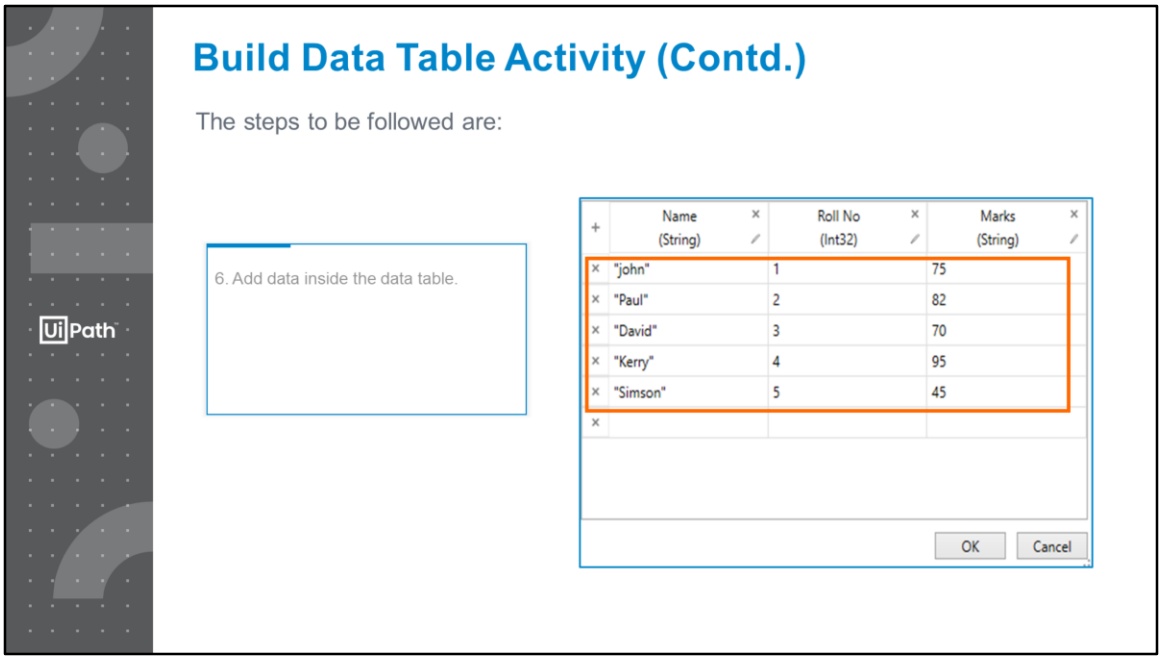


4. In the ordinary case, the Allow Null is checked or ticked then it is not compulsory for additional data to be inside the column, but if it is unchecked then we again add data into the same.

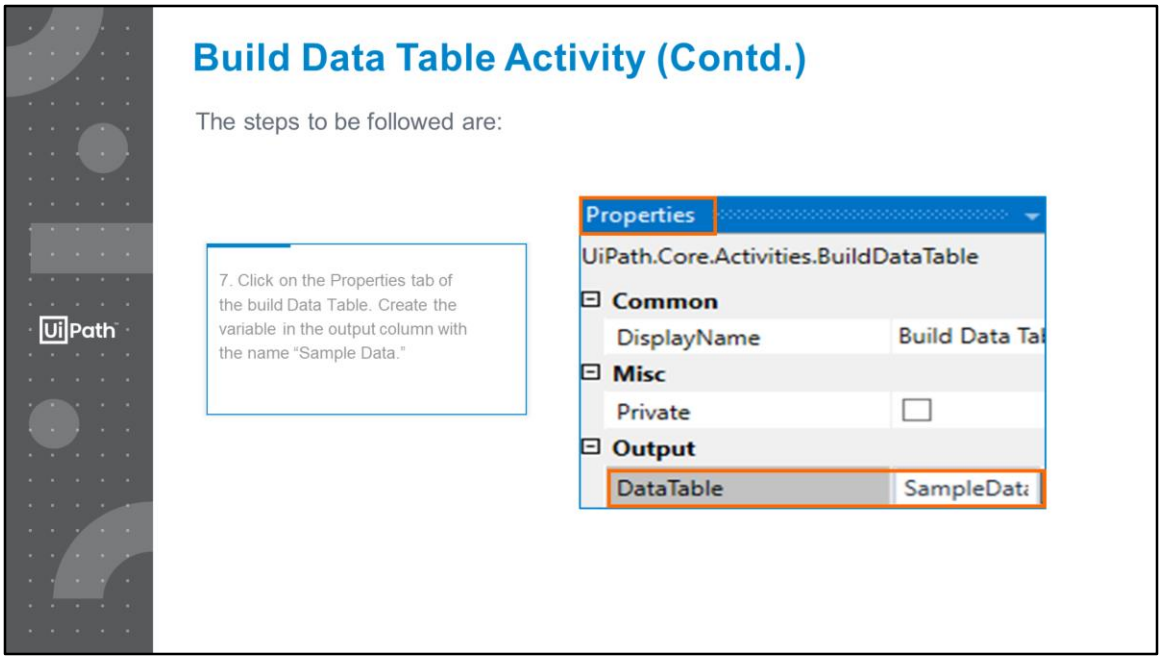


5. The Default value means if that column is blank, then it will automatically take default value inside it.

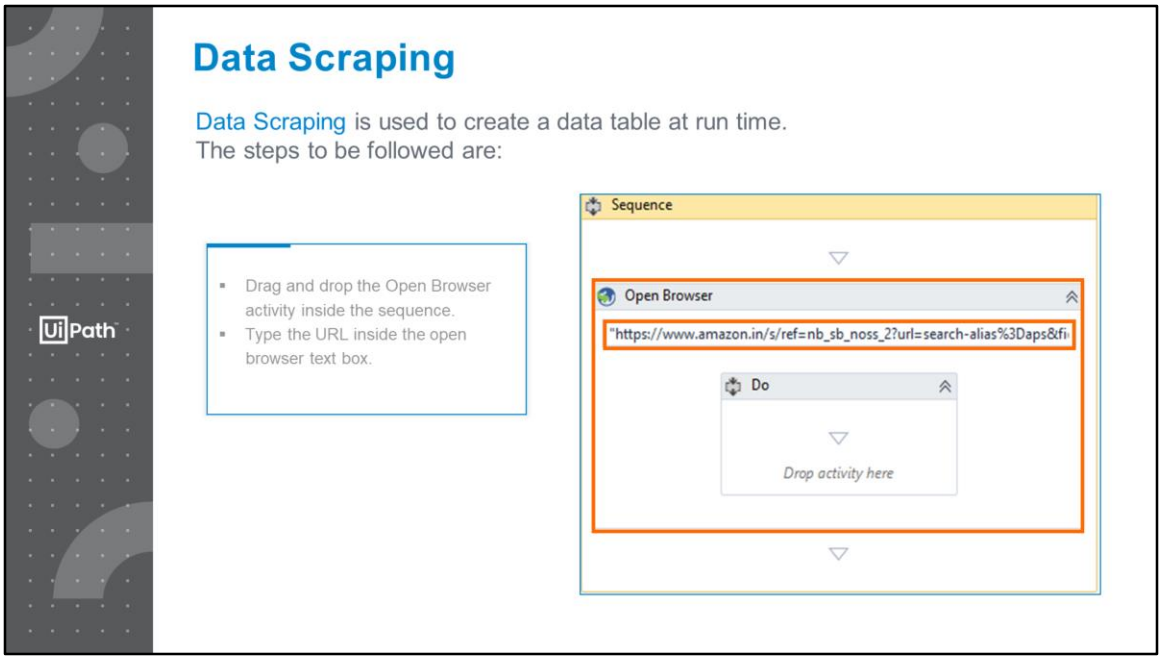
- **Max Length:** The number of characters allows the columns, and if you do not want to apply the length of maximum data, then you can set the default value -1 which is also a set of the default values.
- **Unique:** If the dataset is selected for a specific value then you can create or develop unique data in the data table.
- **Auto Increment:** When you set the Data Type in the form of int32 then the checkbox display on the screen after this the data automatically increase every time by new row activity with 1 new row.



The steps to be followed are:
6. We can add several data inside the data table.



The steps to be followed are:
7. Click on the properties tab of the build Data Table and create the variable in the output column with the name "Sample Data."

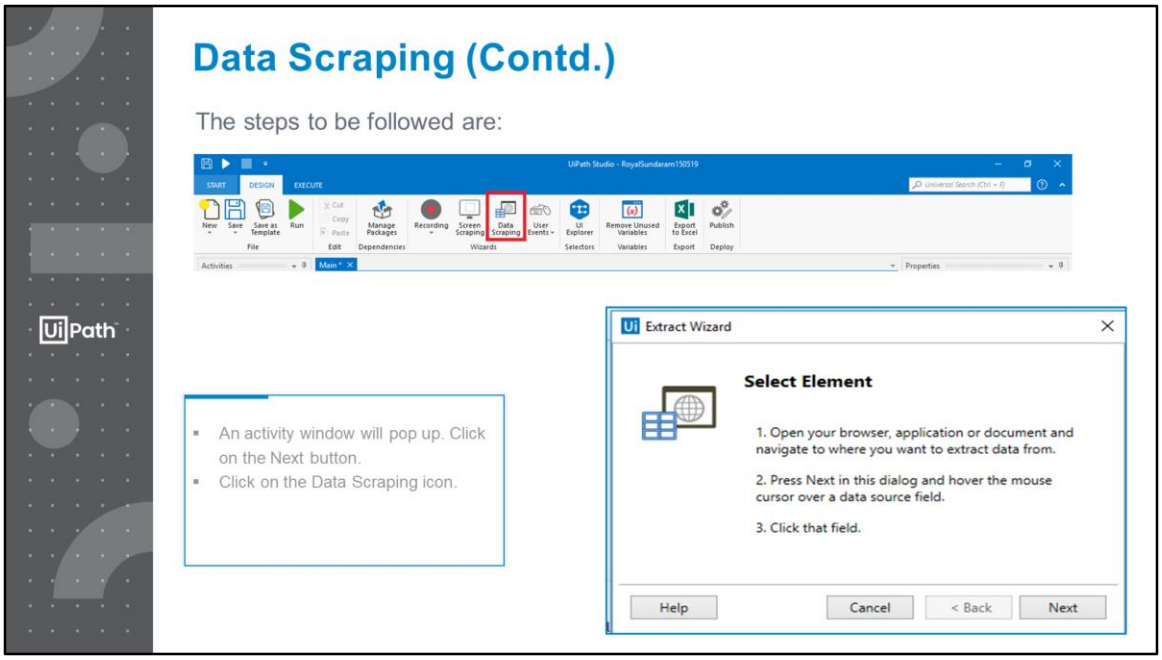


It is used to create a data table at run time. It can extract all the pattern-based data and store it into the form of the data table automatically. When you build a project, it enables you to extract data from a browser, document, Excel file, .CSV file and an application to a database.

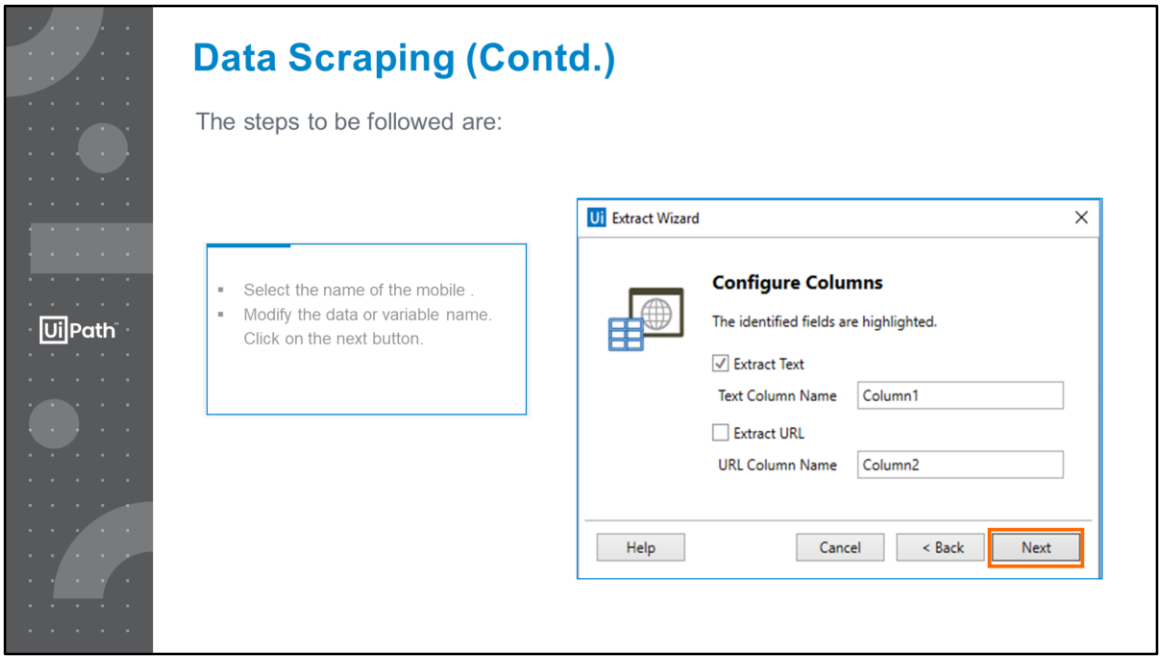
With the help of these Steps, let us create a data table and store data inside it, using Data Scraping activity.

Let us consider extracting Data from Amazon website.

I. Drag and drop the open browser activity inside the sequence.
II. Type the URL inside the open browser text box.
III. URl:
https://www.amazon.in/s/ref=nb_sb_noss_2?url=search-alias%3Daps&field keywords=iPhone



IV. Click on the Data Scraping icon on the top left corner of UiPath Studio. Then an activity window will pop up which showing as a next button. You can click on it and START the next activity data scraping.

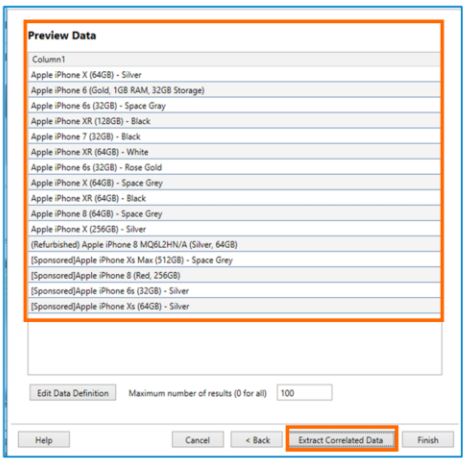


V. Now there is a pointer that indicates on the screen. So, you can choose the name of the mobile with that pointer; then it will ask to show the second similar element from the screen.
VI. You can also modify the data or a variable name of the columns and then click next.

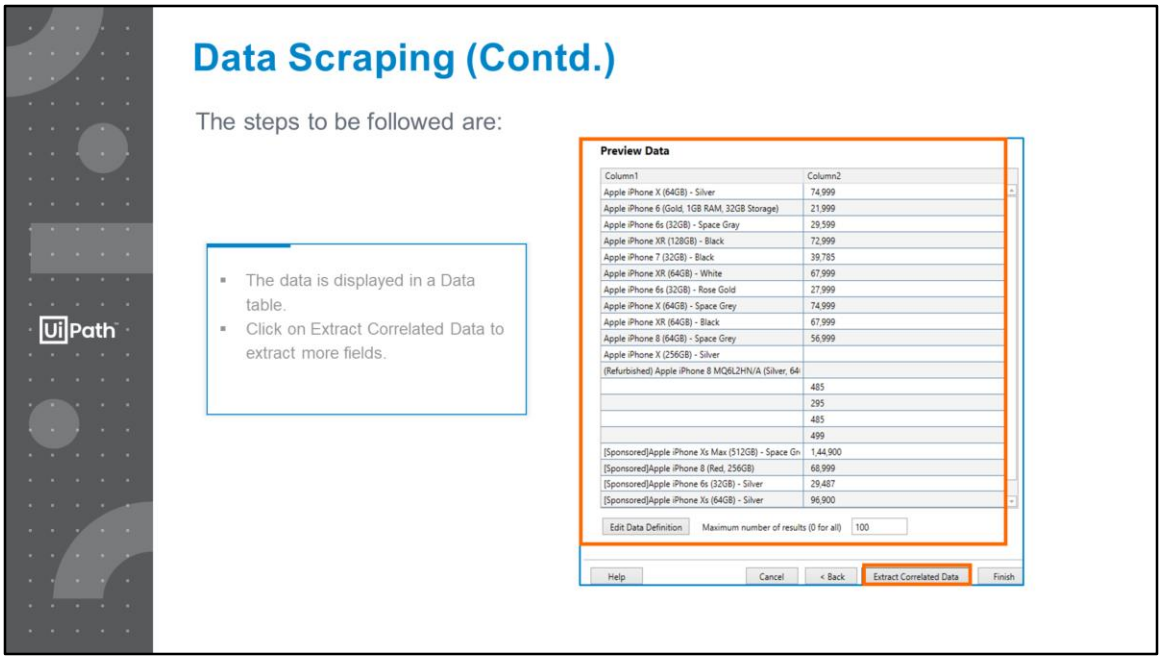
Data Scraping (Contd.)

The steps to be followed are:

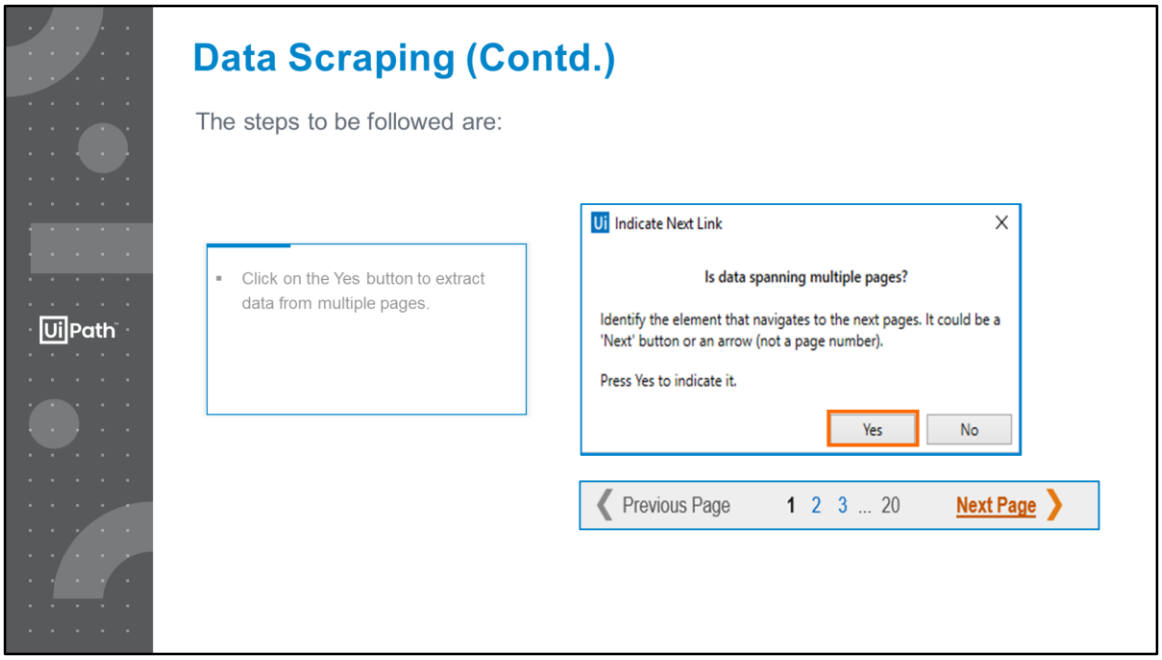
- Data is displayed in one column table.
- Click on Extract Correlated Data to extract the second field, price.



VII. The data is represented in a tabular form which shows only one column because we extract only one field. To add more fields then you click on the “Extract Correlated Data” and extract the price in the same way as we have extracted the name of the mobile, laptop or datatbale.



VIII. It is now appearing as a Data table, and in case we want to extract more fields we would click on Extract Correlated Data.

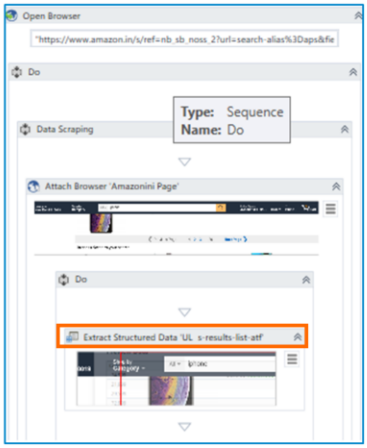


IX. If you require to extract the data by various pages, then you can click on the next section and get the data by click on the next page button.

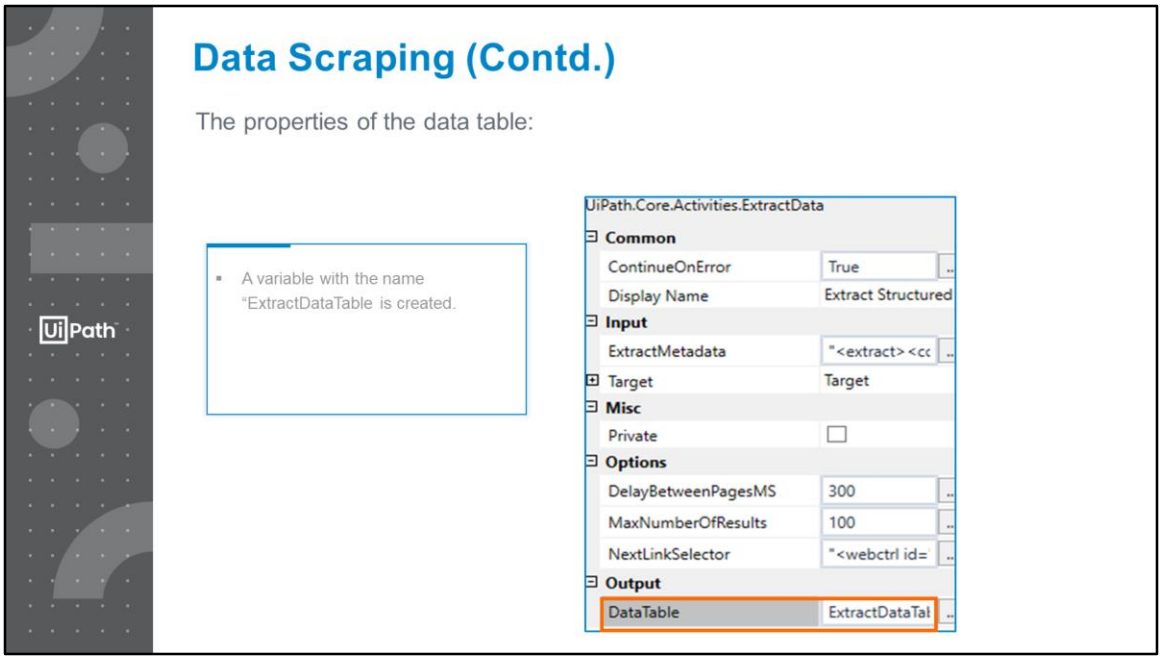
Data Scraping (Contd.)

The screenshot displays how the Studio will look:

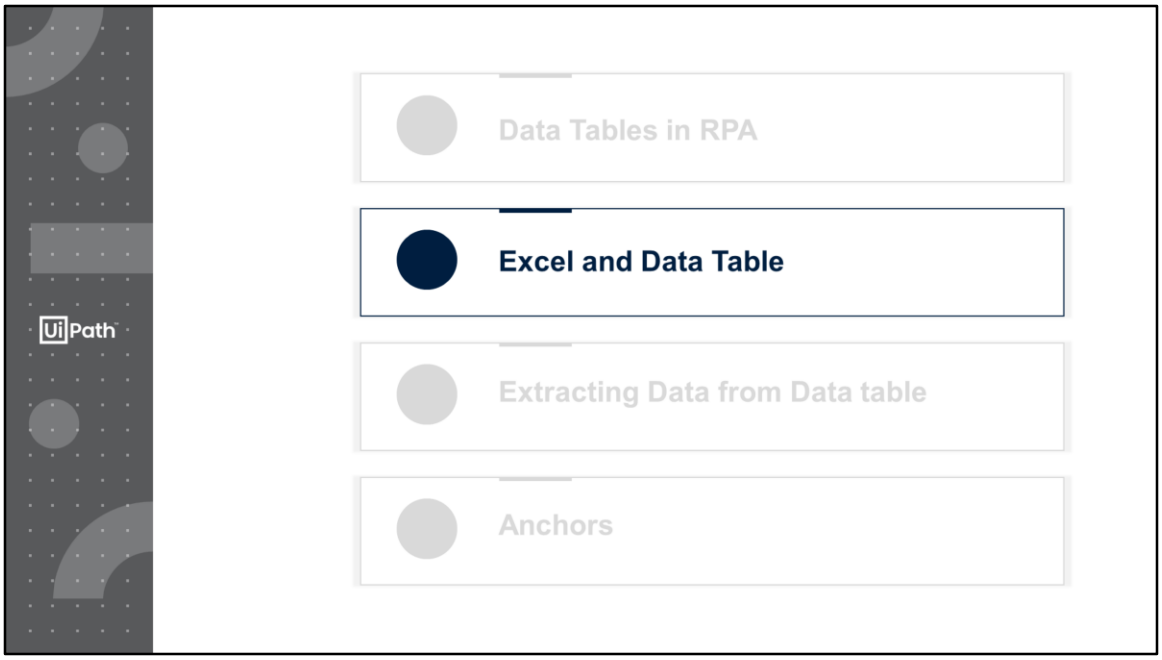
- Click on the Extract Structured Data to see the properties of the data table.



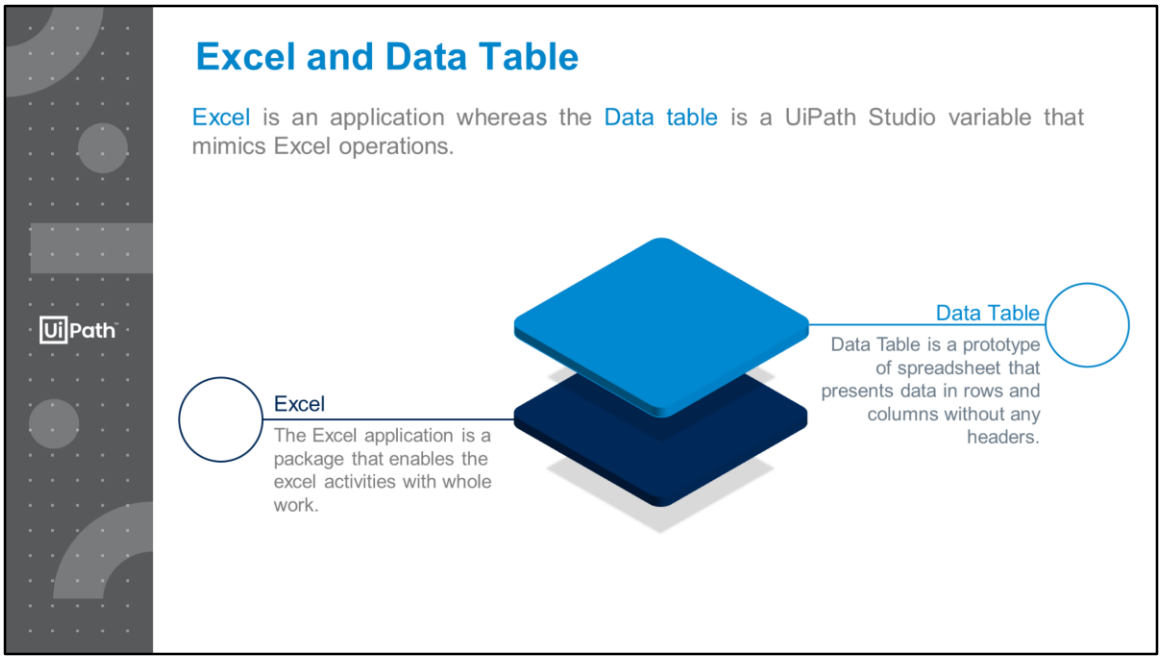
X. Click on the **Extract Structured Data** inside the Do block and see the properties.



XI. It has automatically created a variable with the name "ExtractDataTable."

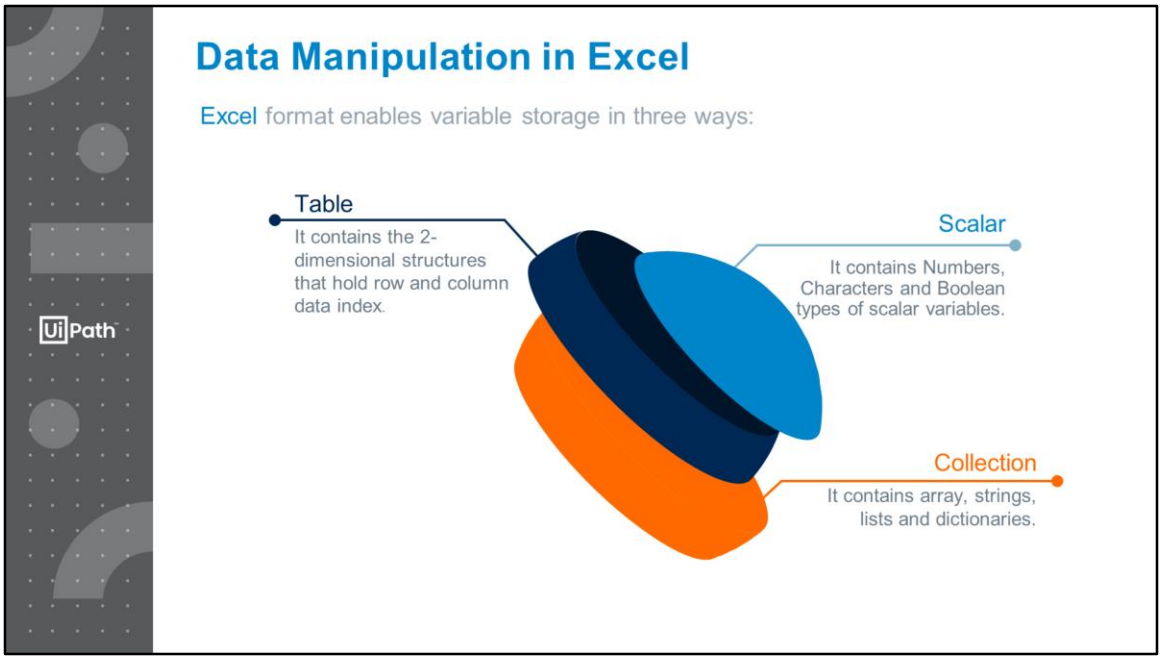


In this topic, we will learn about Excel and Data Table.



In UiPath Studio, Data Table is a prototype of spreadsheet data that represents the row and column without any headers. The Excel application is a package that enables the excel activities with whole work. Apart from this, it specifies the .xlsx file where you want to work.

You can start with the data table, if you don't have MS office on your laptop, desktop. The Container properties of the data table make Excel application activity for each process such as Read Range, Append Range, Read cell, Write range, Sort Table. Along with these, other types of data table activities that can be done are: Get row item, Build data table, Data Table, For Each Row and Add data row.

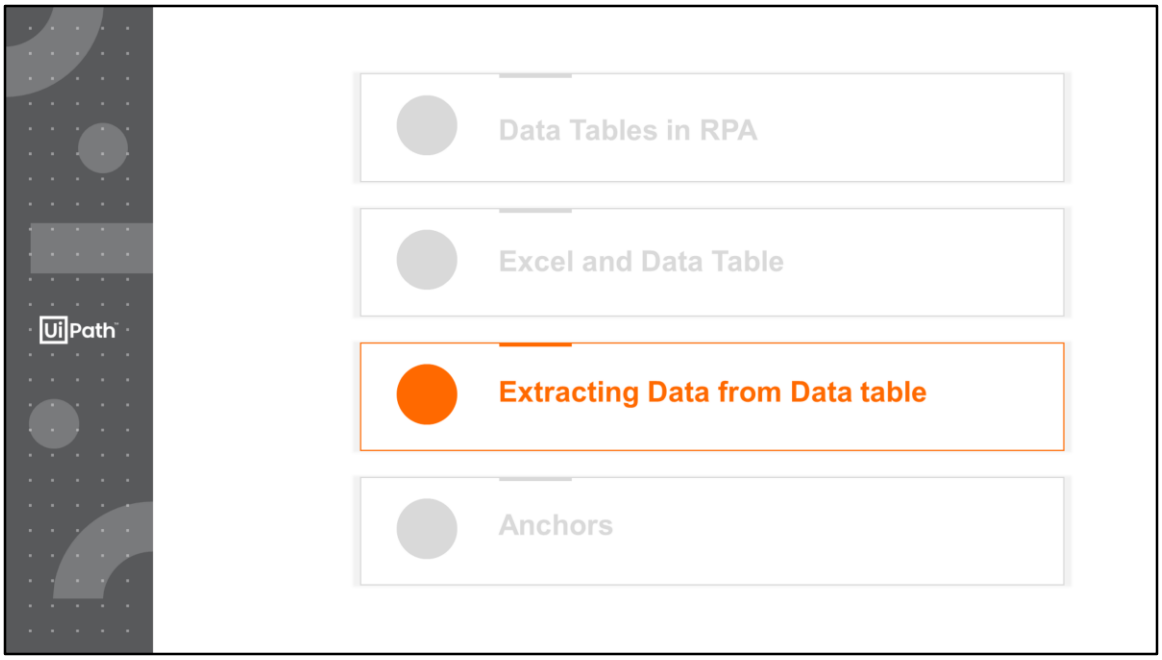


Data Manipulation is the most straightforward process in UiPath. Excel format enables variable storage in three ways:

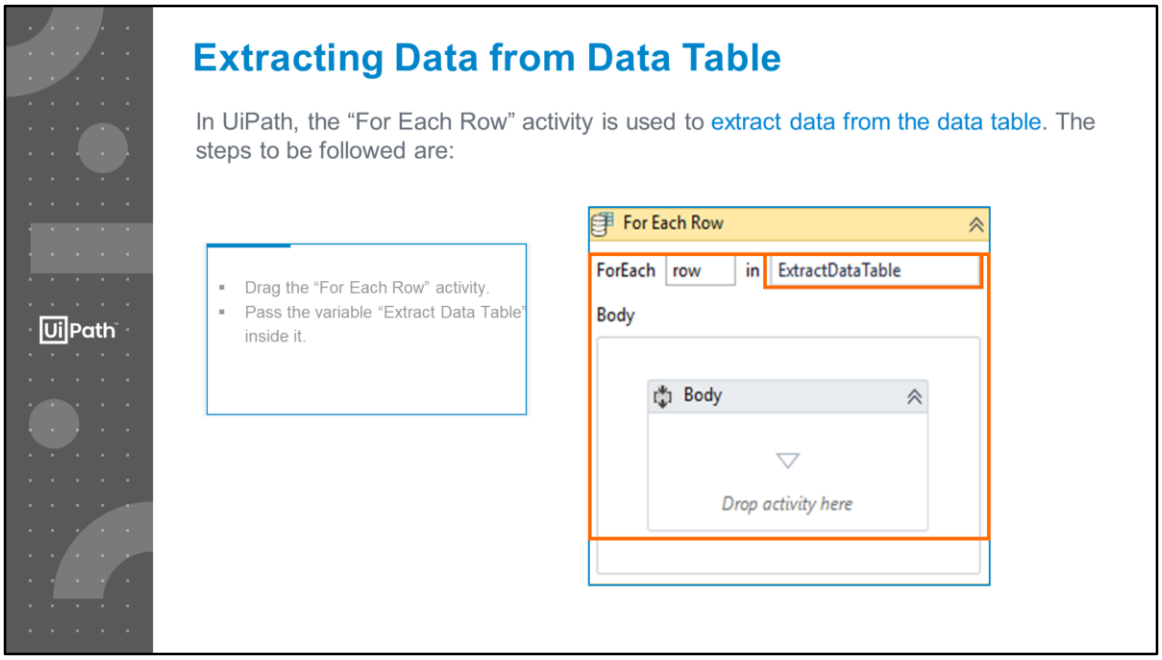
A. Scalar: It contains Numbers, Characters and Boolean types of scalar variables.

B. Collections: The collection is a process which allows array, strings, and lists that is a collection of dictionaries, and character variable. It is useful to extract the data in the Excel spreadsheet and orchestrator queues.

C. Tables: It contains the 2-dimensional structures that hold the row and column data index. Additionally, it allows the GenericValue variable which represents the including text, date, times, basic types of data, and numbers.

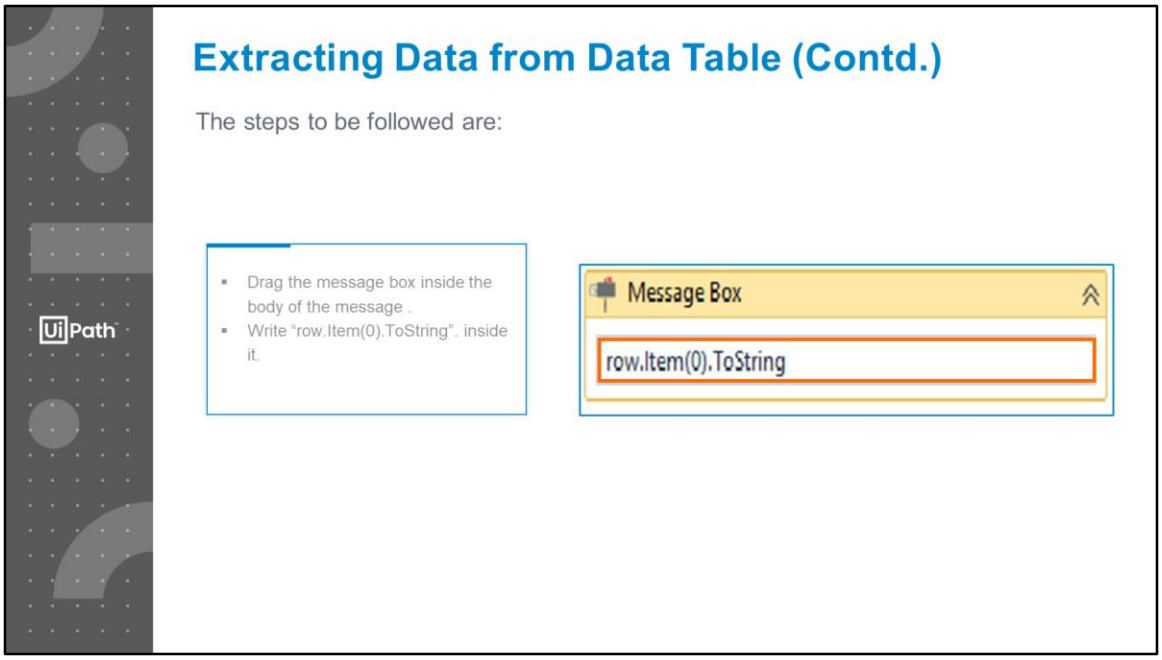


In this topic, we will learn about Extracting Data from Data Table.

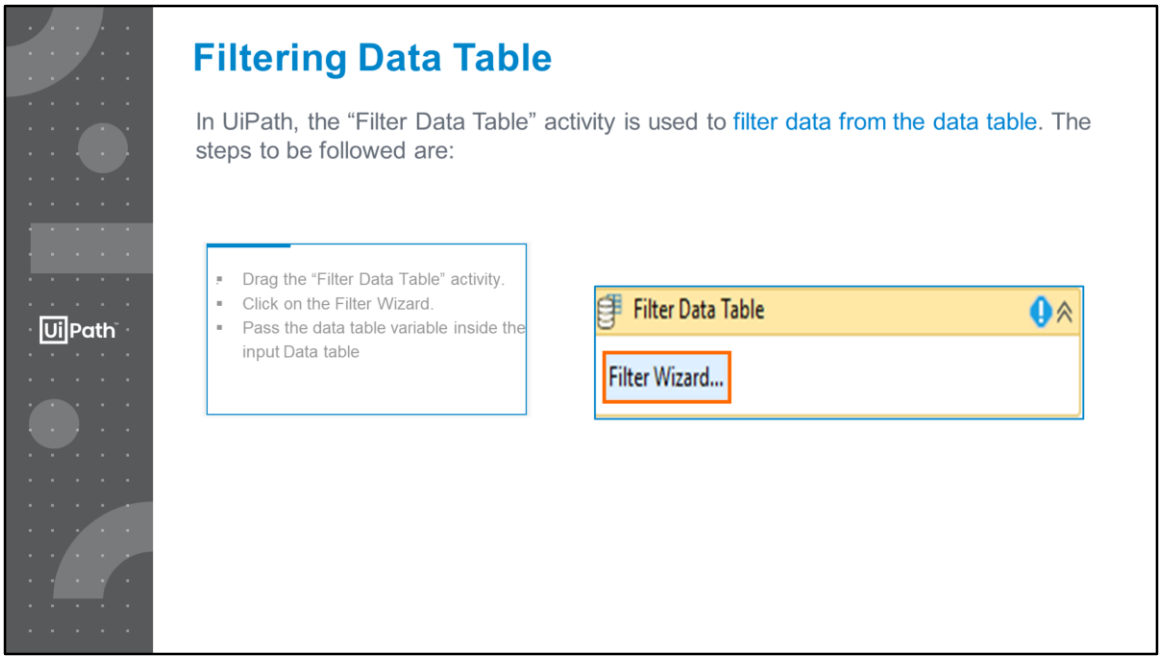


In UiPath, the "For Each Row" activity is used to extract data from the data table. The "For Each Row" activity is a loop that can accept only data table variable. It is mainly used to iterate the data row by row from the data table. These Steps to iterate the Data:

a) Drag the "For Each Row" activity and pass the variable Extract Data table inside it.



b) Drag the message box or Write Line inside the body of the message and write the line to see the value of row "row.Item(0).ToString".



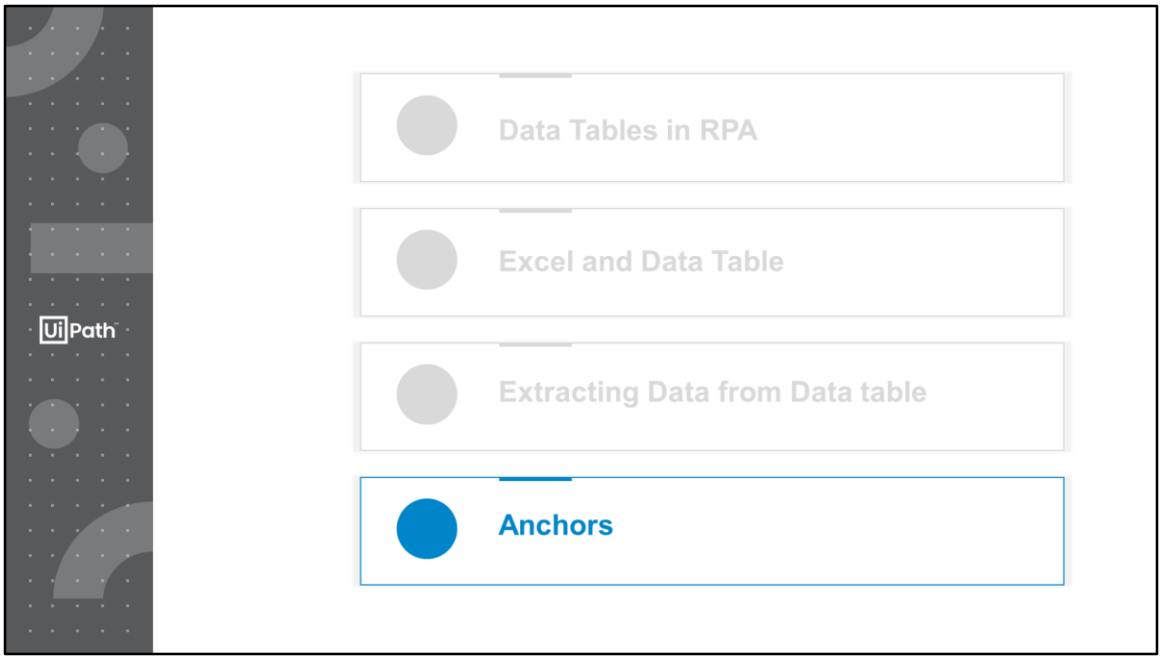
It is the fastest way to filter the data inside the data table based on specific conditions. It can keep or delete rows based on the right conditions. With the help of these steps, you can quickly filter data in the data table

Note: It only supports the data table variable and to use this, we need to ensure that the data table has data.

1. Drag the filter data table activity.
2. Click on the Filter wizard and pass the data table variable inside the input Data table.

Inside the output data table, the user can pass the same variable or different variable in which the user wants to store data according to his requirement.

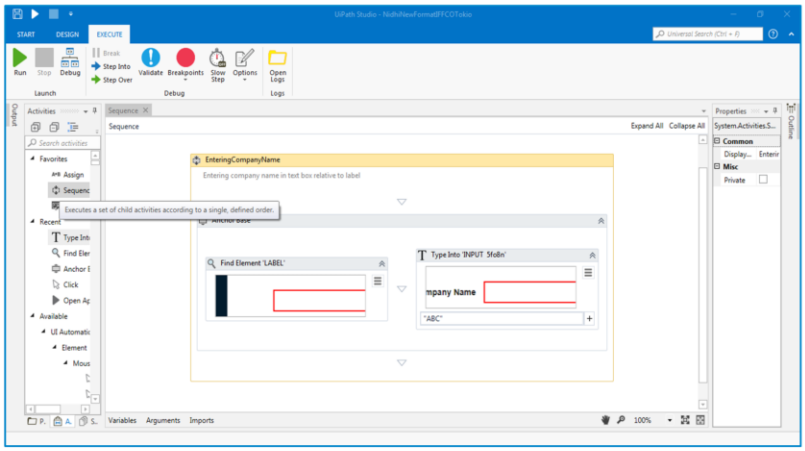
We need to ensure that the output variable must be a data table.



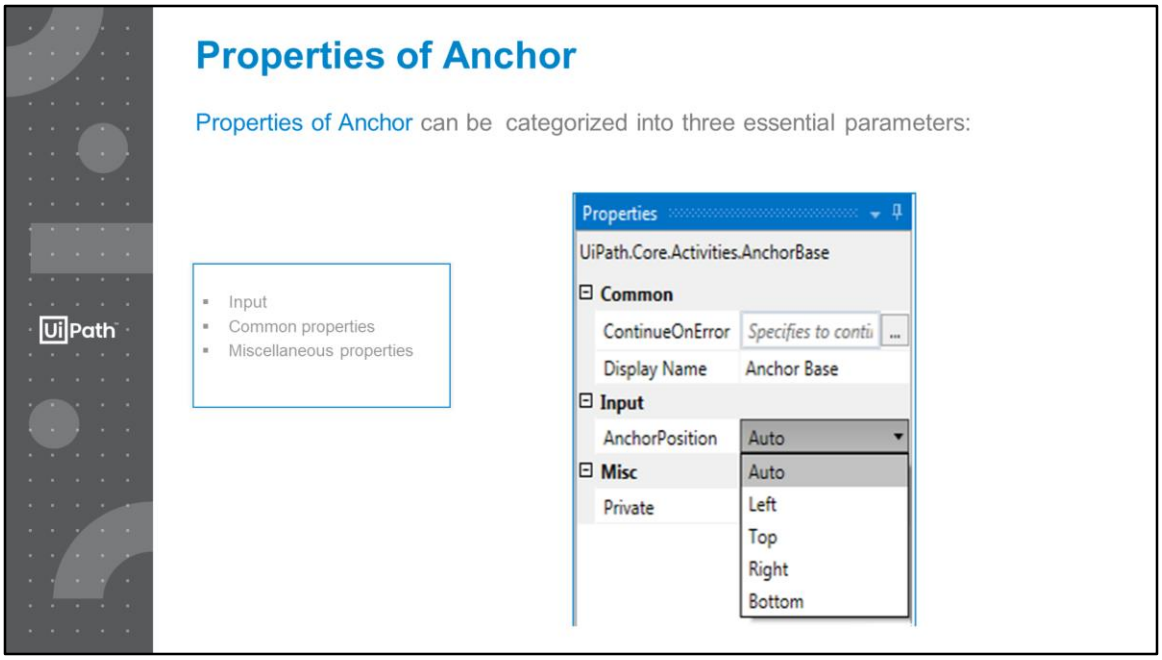
In this topic, we will learn about Anchors.

Anchor

In UiPath, the term Anchor is used to describe a process that enables the user to catch or recognize the relative element of that element.



In UiPath, the term Anchor is described as a method that should be used when a constant selector is not available in the data table. The anchor is an efficient process that ensures that we are capable of catching or recognizing the relative element of that element.



There are different properties of anchor base which can be categorized into three essential parameters based on Input, Common properties, and Miscellaneous properties.

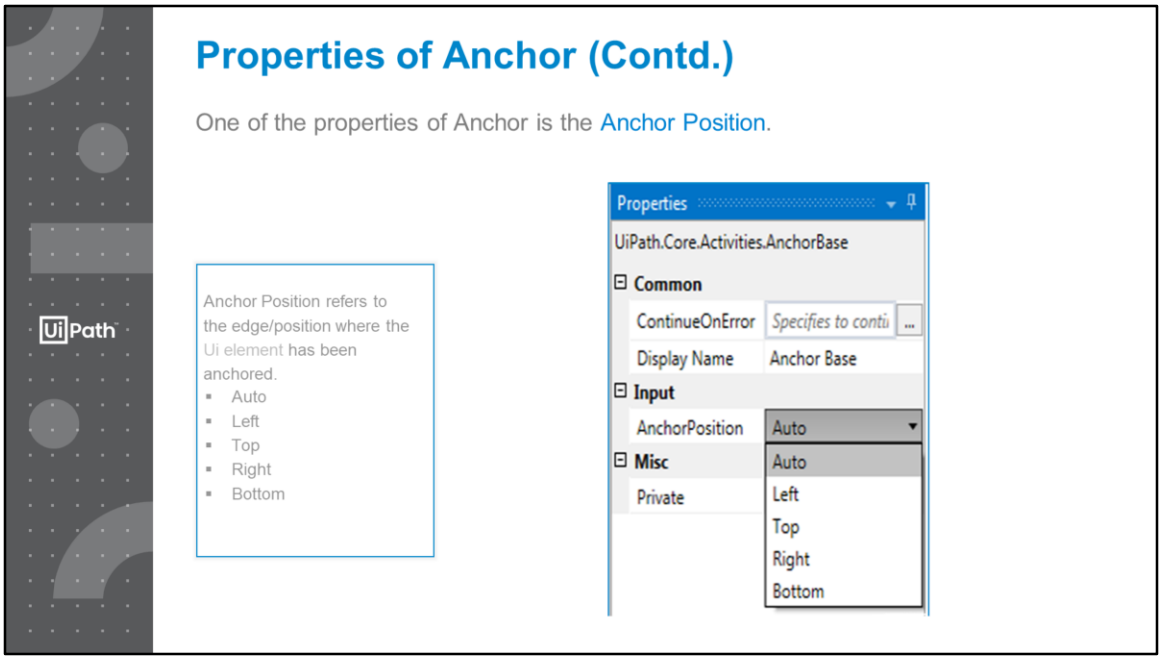
A. Input: It refers to the specific area or place where the UI element is to be referred. The anchor position defines a significant portion of the input.
Anchor Position refers to the edge of the UI element that has been anchored.

B. Common: Under the Common section, there are two properties "ContinueOnError" & "Display name."

- ContinueOnError is a common property for many activities, It Accepts Boolean values, so there are only two options which we can enter here – True or False. If we enter a true: The execution of the process will continue whether there's an error or not but if we enter false or leave it blank: The execution of the process stops, an error is thrown.
- Display name as the name suggests it shows the name of the

activity we are using.

C. Misc: Misc has a property called "private," if we select private, then it works for logging levels. When we do logging, it gives a detailed description of the work, but when we select private here, the logging values will no more retain at the verbose level. In simple terms the values of arguments or variables will no longer be descriptive, it will show fewer details in log.



The anchor position defines a significant portion of the input. Anchor Position refers to the edge of the UI element that has been anchored.

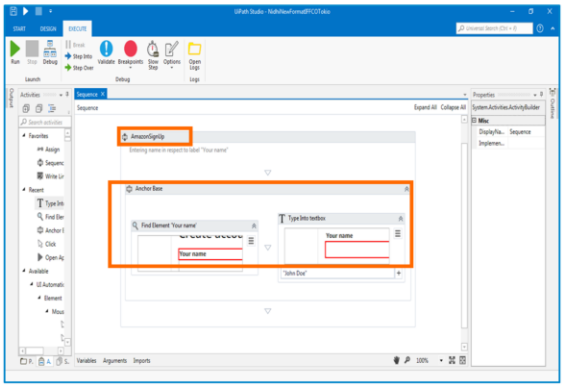
- **Left:** The left portion to the UI Element is used to search.
- **Right**: The right portion of the UI element is used to search.
- **Top:** The top portion of the UI element is used to search
- **Bottom:** The bottom portion of the UI element is used to search.

Use of Anchors in PDF

The default direction for the anchor position is first left, right and then bottom.

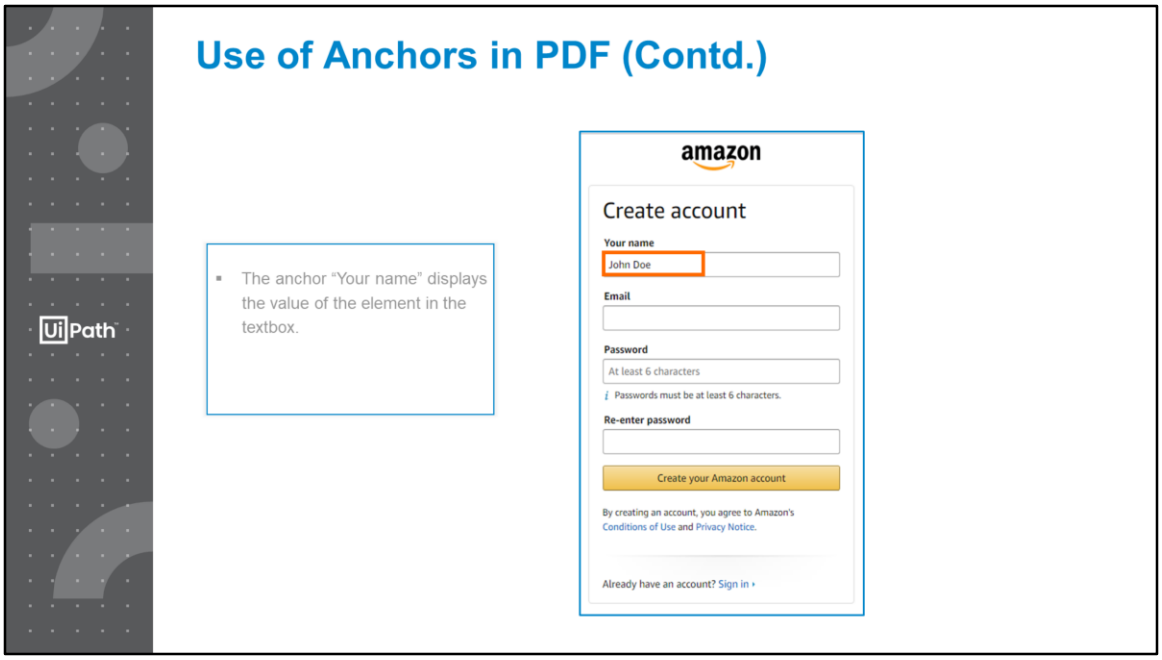
For an example:

- Open Amazon login page.
- Sign in with credentials and details.
- Use the label “Your name” as an anchor.

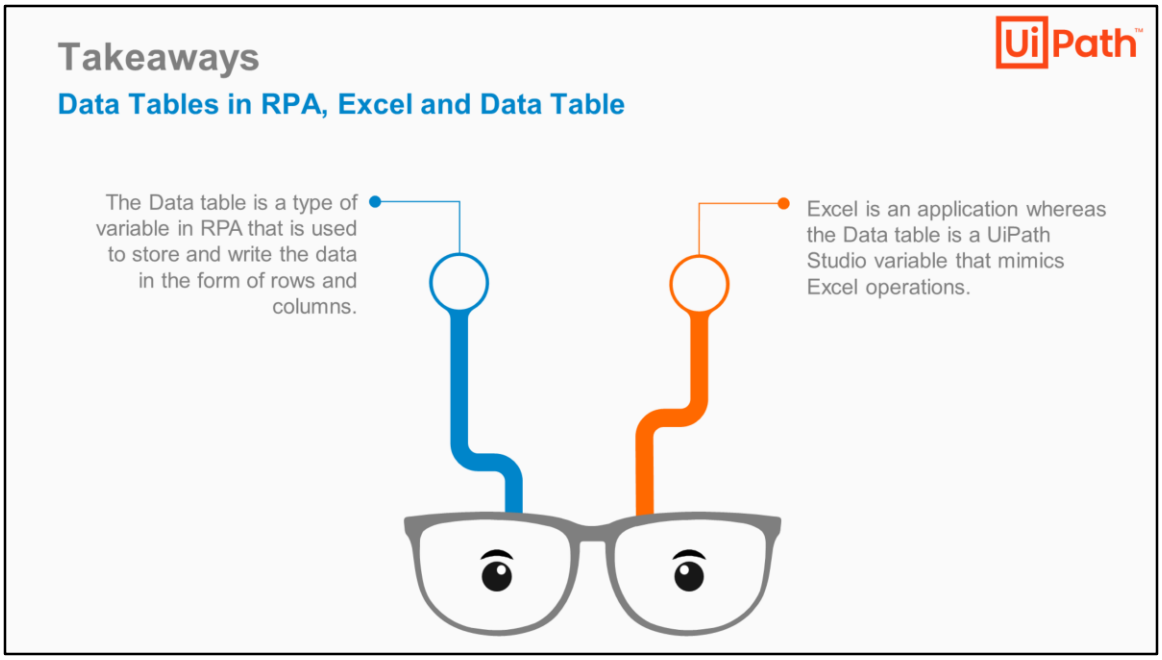


The auto model plays a crucial role in deciding the anchor position. We ignore the bottom portion. The default direction for the anchor position is first left, right and then bottom. We generally prefer Right, Left and then Bottom direction for an anchor position and select the closest one.

Let us understand the activity through an example using a workflow. Let us consider amazon URL and the login page to sign in with credentials and details. In this workflow, we have considered your name label as an anchor to type into the textbox below it.



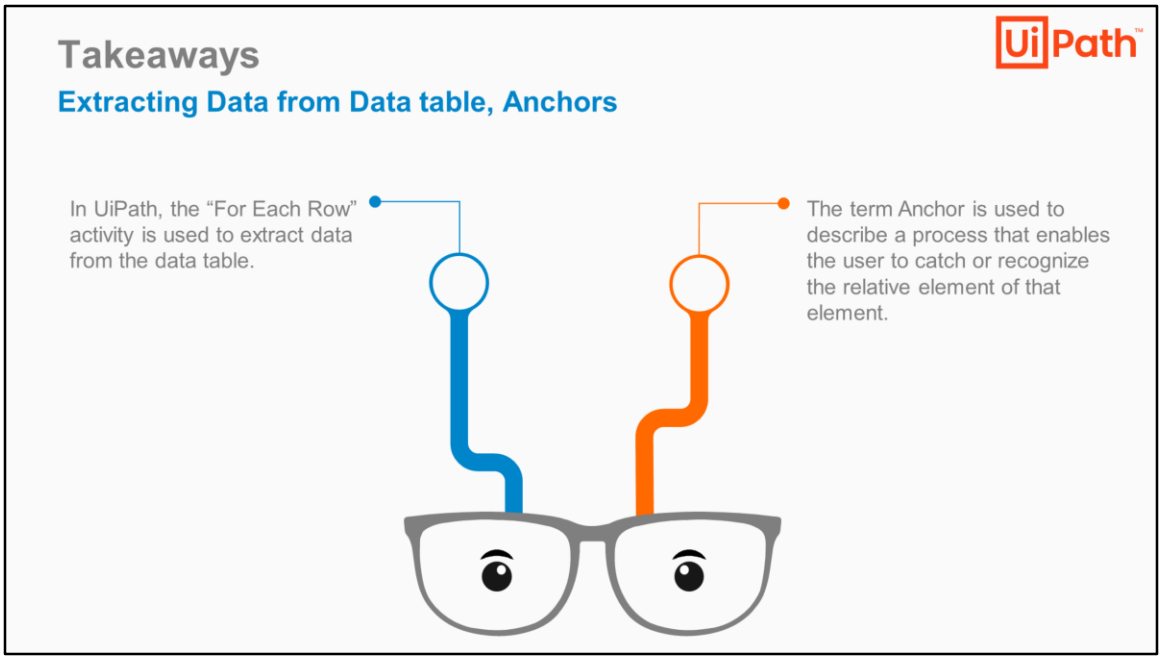
The anchor "Your name" displays the value of the element (John Doe) in the login textbox.



The point of the Recap & Summary section is to go through the most important points covered in the lesson, after the students had the chance to see them in practice and obtain a consolidated view.

The teacher should use facilitation questions to help the students map the key points and offer a safe space to get questions and comments from them.

Some examples of facilitation questions:
1. What are the two ways in which Data table can be created?
2. When is the Build Data Table Activity used?
3. In how many ways can variable be stored in Excel format?

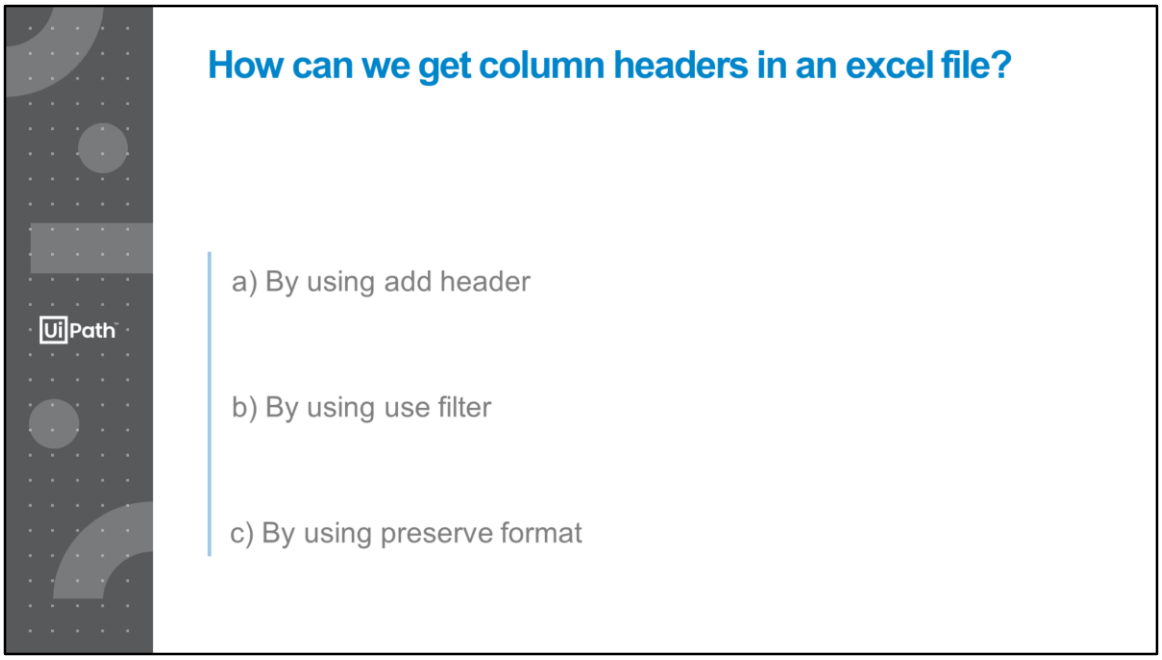


The point of the Recap & Summary section is to go through the most important points covered in the lesson, after the students had the chance to see them in practice and obtain a consolidated view.

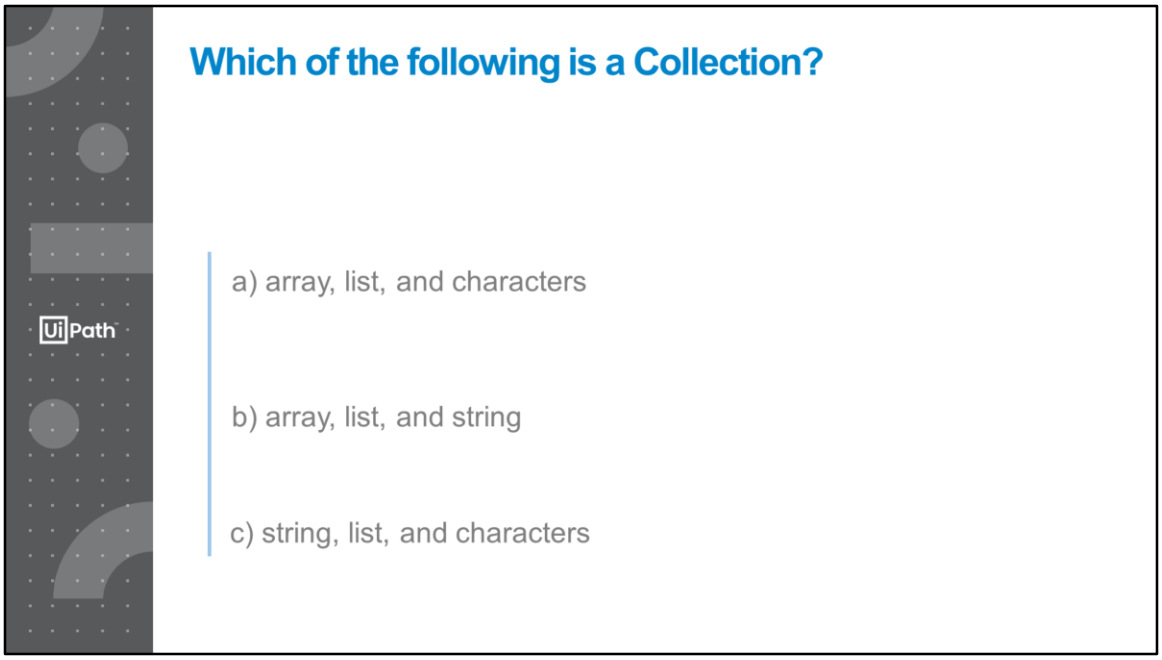
The teacher should use facilitation questions to help the students map the key points and offer a safe space to get questions and comments from them.

Some examples of facilitation questions:
1. How is data extracted from data table?
2. What are the properties of Anchor?
3. How many Anchor positions are there?

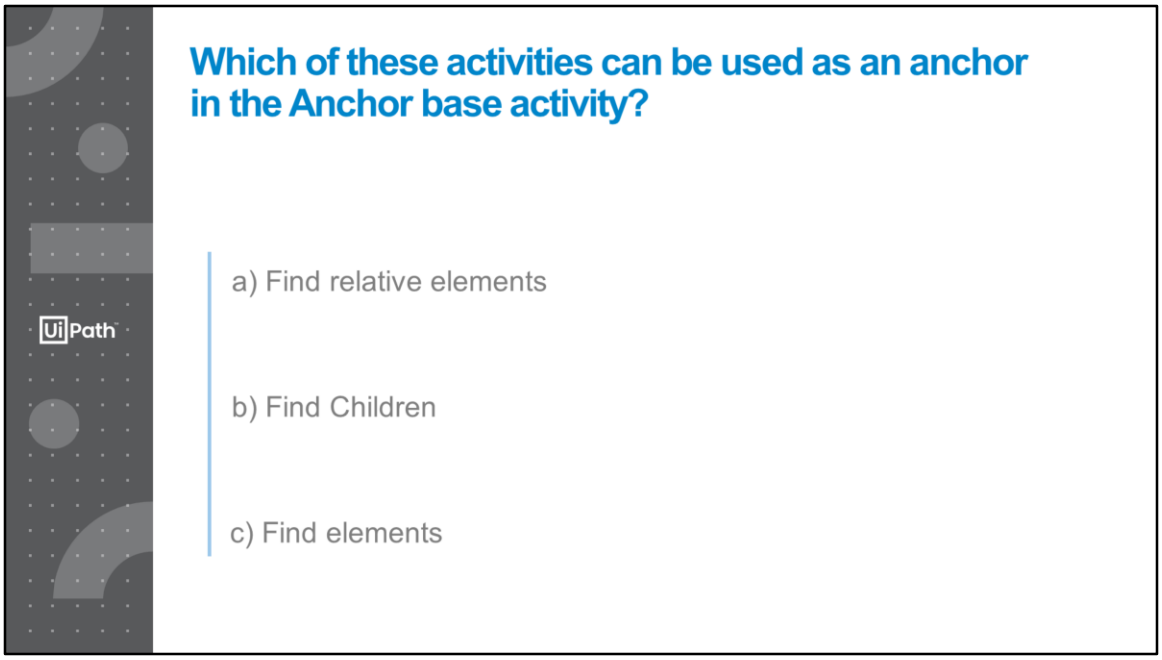
Q&A
Now it’s your turn. What’s on your mind after learning this lesson?



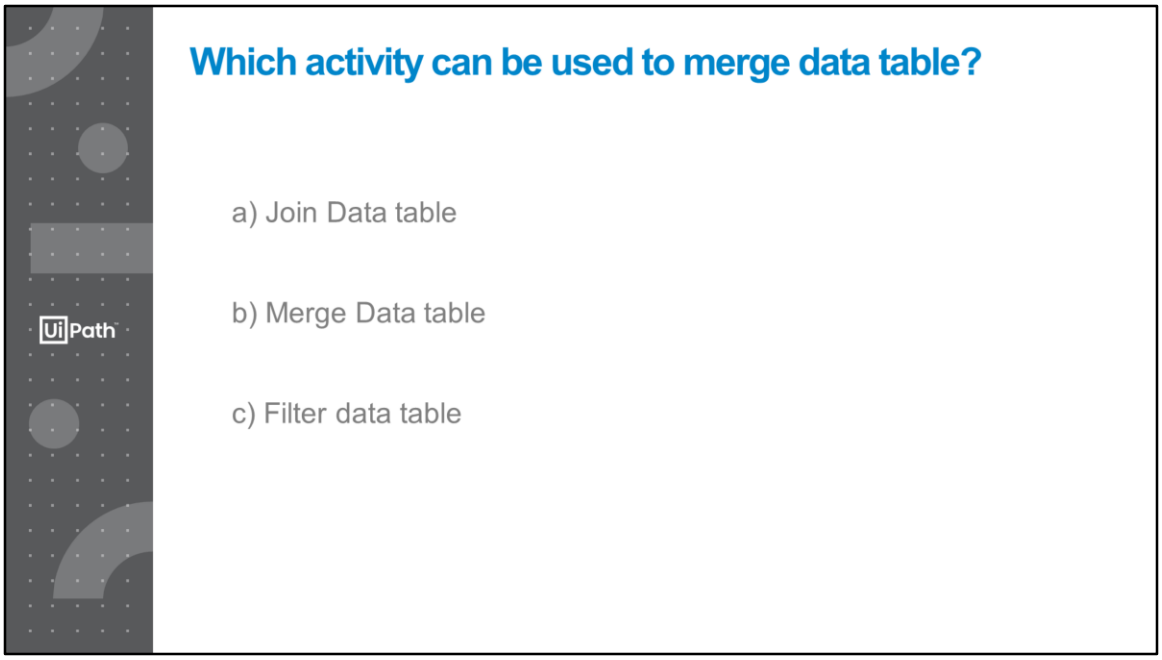
Correct answer: a) We can get column headers in an excel file by using add header.



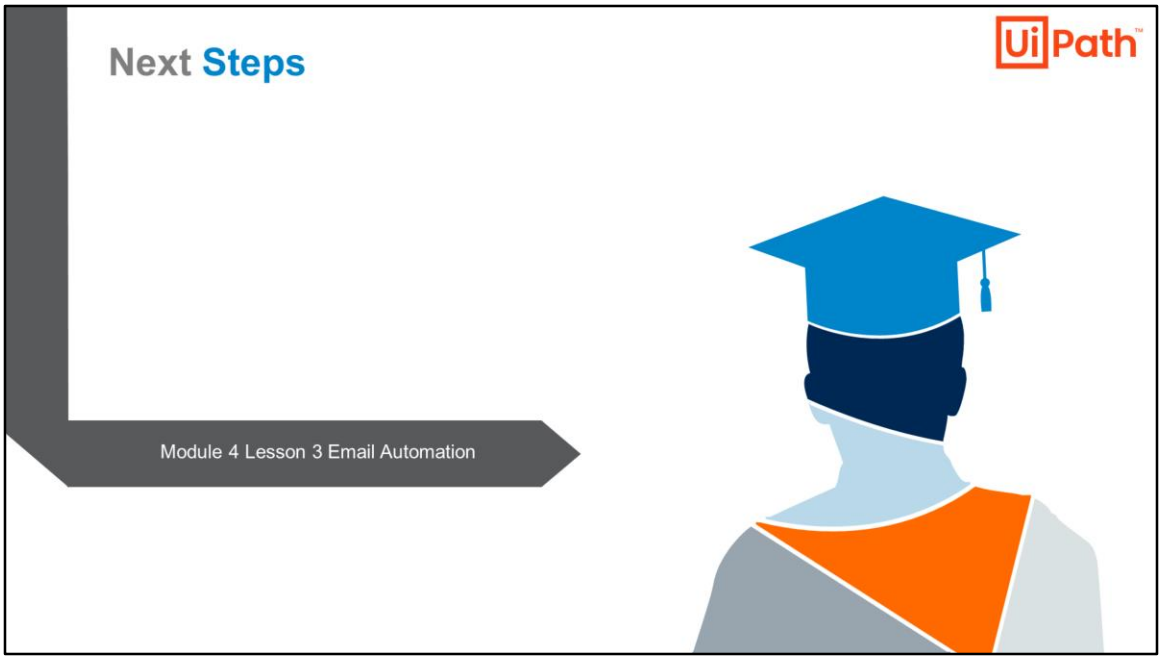
Correct answer: b) array, list, and string are Collections.



Correct answer: c) Find elements can be used as an anchor in the Anchor base activity.



Correct answer: b) Merge Data table activity can be used to merge data table.



In the next lesson, we will be covering Email Automation.