MODULE 4 QB -PP

1) Implement the attach window activity manually by attaching a notepad window and write some text into it.

Ans)

1. **Finding and Attaching Windows:**

The Attach Window activity can be found in the Activities panel. This activity is generally used to attach an already opened window.

2. **Implementing the Attach Window Activity:**

In this example, we are going to attach a Notepad window and then write some text into it:

1. Create a blank project and give it a meaningful name.

2. Drag and drop the Attach Window activity on the main Designer panel. Connect the Attach Window activity to the Click activity.

3. Double-click on the Attach Window activity. Click on Click Window on Screen and indicate the Notepad window. The Notepad window is now attached to the previous activity.

4. For the sake of completeness, we are going to add a Type into activity. Just drag and drop the Type into activity, inside the Attach Window activity. Click on the Indicate element inside window and locate the Notepad window where you want to write the text. Write the text in the Text property of the Type into the activity.

5. Hit the Run button.

2) List the different activities that help in finding the controls. Explain any 4 activities.

Ans) Following are the activities that help in finding the controls:

1. Anchor base
2. Element Exists
3. Element scope
4. Find children
5. Find element
6. Find relative element
7. Get ancestor
8. Indicate on screen

(Better learn all 6 from below for safety. Remaining 2 are there in other questions)

1. Element Exists:

- This control is used to check the availability of the UI element.
- It checks if the UI element Exists or not.
- It returns a Boolean result.
- If the UI Element Exists, then it returns true: otherwise, it returns false.

2. Element scope:

- This control is used to attach a UI element and perform multiple actions on it.
- You can use a bunch of actions within a single UI element.
- Drag and drop the Element scope control and double-click on this control.

3. Find element:

- This control is used to find a particular UI element.
- It waits for that UI element to appear on the screen and returns it back.

4. Find relative element:

- This control is similar to the Find element control.
- The only difference is that it uses the relative fixed UI element to recognize the UI element properly.
- Just drag and drop this control, and indicate the UI element by clicking on Indicate on screen.

5. Get ancestor:

- This control is used to retrieve the ancestor of the specified UI element.
- You have to supply a variable to receive the ancestor element as output.
- You can specify the variable name in the Ancestor property of the Get ancestor control.
- Just drag and drop this control and indicate the UI element by clicking on Indicate on screen.

6. Indicate on screen:

- This control is used to indicate and select the UI element or region at runtime.
- It gives flexibility to indicate and select the UI element or region while running the workflow.
- You just have to drag and drop this control in your project.

3) What are the three techniques through which we can wait for a control?

Ans) There are three techniques through which we can wait for a control.

They are:

1. Wait Element Vanish
2. Wait Image Vanish
3. Wait attribute

1. Wait Element Vanish:

- This activity is used to wait for a certain element to disappear from the screen.
- Let us see an example where the Wait Element Vanish activity is in use:

1. Create a Blank project and give it a meaningful name.

2. Drag and drop a Flowchart activity on the Designer panel. Also, drag and drop the Wait Element Vanish activity on the Designer panel. Set this activity as the Start node.

3. Double-click on the Wait Element Vanish activity, then indicate on the screen which element needs to vanish.

2. Wait Image Vanish:

- The Wait Image Vanish activity is similar to the Wait Element Vanish activity.
- This activity is used to wait for an image to disappear from the UI element.
- The only difference between the Wait Element Vanish and the Wait Image Vanish activities is that the former is used to wait for an element to disappear, while the latter is used to wait for an image to disappear.

3. Wait attribute:

- This activity is used to wait for the value of the specified element attribute to be equal to a string.
- We have to specify the string explicitly:

1. Drag and drop a Flowchart activity on the Designer panel. Next, drag and drop the Wait attribute on the Designer panel. Now, right-click on the Wait attribute activity and set it as the Start node.

2. Double-click on the Wait attribute activity. We have to specify three values: attribute, element and text property. We also have to specify the element on which we have to supply the value.

4) Explain anchor base activity with an example.

Ans) This control is used for locating the UI element by looking at the UI element next to it. This activity is used when we do not have a reliable selector.

1. Drag and drop a Flowchart activity on the Designer panel of a blank project.

2. Also, drag and drop an Anchor base control from the Activities panel.

3.Connect the Anchor base control with Start.

4. Double-click on the Anchor base control.

5. There are two activities that we have to supply to the Anchor base control: Anchor and action activities.

6. Drag and drop the Anchor base activity (for example; Find Element activity) in the Anchor field and Action activity (for example; Type into) in the Drop Action Activity Here field of the Anchor base control.

5) What are the different mouse activities and keyboard activities in UiPath studio? Explain with example.

Ans)

Mouse activities:

Those activities that involve interaction with the mouse fall under the category of mouse activities.
There are three mouse activities in UiPath Studio:

1. Click activity

2. Double-click activity

3. Hover activity

1. The Click activity:

When we have to click on a UI element on the screen, we generally use the Click activity.

1. Drag and drop a Flowchart on the Designer panel.

2. Search for mouse in the search bar of the Activities panel.

3. Drag and drop the Click activity. Right-click on the Click activity and select Set as Start Node.

4. Double-click on the Click activity. Click on Indicate on screen and indicate the UI element you want to click on.

2. The Double-click activity:

- The Double Click activity is similar to the Click activity.
- It just performs the double-click action.
- Using the Double click activity in your project is almost the same as click.
- You have to use the Double click activity instead of the Click activity and indicate the UI element.

3. The Hover activity:

The Hover activity is used to hover over a UI element.

1. Drag and drop a Flowchart on the Designer panel.

2. Search for mouse in the search bar of the Activities panel.

3. Drag and drop the Hover activity. Right-click on the Hover activity and select Set as Start Node.

4. Double-click on the Hover activity. Click on Indicate on screen to indicate the UI element you want to hover on.

5. That's it. We are done. Hit the Run Button to see the result.

Keyboard activities:

While automating tasks, we have to deal with keyboard activities a lot of a time.
In UiPath Studio, the following are keyboard activities:
a. Send hotkey

b. Type into

c. Type secure text

a. Send Hotkey:

This activity is used to send keystrokes from the keyboard as an input to the screen.
Example- Using Send hotkey activity to scroll the Flipkart main page:

1. Drag and drop a Flowchart on the Designer panel.

2. Search for keyboard in the search bar of the Activities panel. Drag and drop a Send hotkey activity.

3. Right click on the Send hotkey activity and select Set as Start Node.

4. Double-click on the Send hotkey activity. Click on the Indicate on screen and indicate the required page.

5. You can assign any key by marking the checkboxes.

6. You can also specify the key by selecting a key from the drop-down list. In our example, we have chosen the down key.

b. Type into activity:

- This activity is used to type the text into the UI element. It also supports special keys.
- The Type into activity is quite similar to the Send hotkey activity.
- We have to send the keystrokes along with the special keys.
- You can use this activity by simply dragging and dropping the Type into activity, and specifying the keystrokes and the special keys by clicking on the + icon and choosing the key from the drop-down list (if you wish to send special keys also).
- You also have to Indicate on screen the area where you want the text to be typed.

c. Type secure text:

This activity is used to send secure text to the UI element.
It sends the string in a secure way:

1. Drag and drop a Flowchart on the Designer panel.

2. Search for keyboard in the search bar of the Activities panel.

3. Drag and drop the Type secure text activity. Right-click on the Type secure text activity and select Set as Start Node.

4. Create a variable of type SecureString.

5. Now, double-click on the Type secure text activity and specify the variable's name in the SecureText property of the Type SecureText activity.

6. You also have to indicate on the screen by clicking on Indicate on screen.

6) Explain the following activities with an example.

a) element exists:

Ans)

- This activity is used to ensure that the required Element Exists.
- It is used to ensure that the element we are looking for exists in this context.
- This is a good way of checking whether the activity exists or not.

b) find children:

Ans)

- This control is used to find all the children UI elements of a specified UI element.
- It also retrieves a collection of children UI elements.
- Drag and drop the Find children control from the Activities panel.
- Double-click on it to indicate the UI element that you want to specify.
- You can indicate it by clicking on Indicate on screen.

c) find element:

Ans)

- This control is used to find a particular UI element.
- It waits for that UI element to appear on the screen and returns it back.

7) Explain the different types of handling events.

Ans)

An event occurs when some action is performed. There are different types of events:

1. Element triggering event
2. Image triggering event
3. System triggering event

1. Element triggering events:

This type of event deals with clicking and keypress events.

a. Click trigger
b. Key Press Trigger

a. Click trigger:

- This event occurs when a specified UI element is clicked.
- Before using the Click trigger, we have to use the Trigger Scope Activity.
- Without Trigger Scope Activity, the Click trigger cannot be used.
- Double-click on Trigger Scope Activity. Drag and drop the Click trigger inside Trigger Scope Activity.

b. Key Press Trigger:

- This event is similar to the Click trigger.
- A Key press trigger event occurs when keystrokes have been performed on some particular UI element.
- It calls the Event handler when it is triggered.
- While using Key press trigger event you have to specify the key or combination of keys.

2. Image Triggering Events:

- The Click image trigger is an image triggering event.
- Click image trigger, as the name suggests, is used for when we click an image.
- You just have to use the Click image trigger event inside the Trigger Scope Activity and indicate the image.
- Upon clicking the indicted image in the Click image trigger event, the event handler will be called.

3. System Triggering Events:

The following are System triggering events:

a. Hotkey trigger
b. Mouse trigger
c. System trigger

a. Hotkey trigger:

- This event is raised when special keys are pressed.
- You have to use this event inside the Trigger Scope Activity.
- Specify the special key or combination of keys.
- Also, provide the event handler that will be called when the event occurs.

b. Mouse trigger:

- This event is fired when the mouse button is pressed.
- Use this event inside the Trigger Scope Activity and specify the Mouse button: Either the left mouse button, middle mouse button or the right mouse button.

c. System trigger:

- This event is used when you have to use all of the keyboard events, all of the mouse events or both.

8) List and explain four types of recording in UiPath Studio.

Ans)

There are four types of recording in UiPath Studio:

a. Basic recording

b. Desktop recording

c. Web recording

d. Citrix recording

a. Basic recording:

- This is used to record the actions of applications that have a single window.
- Basic Recording uses a full Selector.
- It works better for applications performing a single action.
- It is not suitable for applications with multiple windows.
- There are two types of selectors - partial selectors and full selectors.
- The Basic recording uses full selectors.

b. Desktop recording:

- This is similar to Basic recording with the added advantage of working with multiple actions.
- It is most suitable for automating Desktop applications.
- Desktop recorder generates Partial selectors.
- The Partial selectors, have a hierarchical structure.
- They are split into parent child views for recognizing the UI element properly.

c. Web recording:

- Web Recording can be done by using the Web recorder.
- For recording web actions, the UiPath extension for that browser should be installed.
- Otherwise, you will not able to automate tasks or actions using Web recording.
- You just have to click on the Setup icon and then click on Setup Extensions.
- Now, choose your browser and click on it.
- The UiPath extension will be added to your specified browser.
- Web Recording is similar to Desktop Recording.
- You just have to record the actions and save it.

d. Citrix recording:

- When dealing with the Remote Desktop connection, methods such as Basic Recording and Desktop Recording cannot be used.
- In an RDP environment, images will be sent from one desktop to another, and will be mapped by analyzing the position of the pointer of the mouse button.
- Hence, Basic and desktop recording cannot be used, as these recording techniques fail to interact with the images.
- In a Citrix environment, we have the Click Text and Click Image activities, using which we can work with images easily.

9) Illustrate Screen scraping and explain the different Screen scraping methods.

Ans)

- Screen Scraping is a method of extracting data from documents, websites and PDFs.
- It is a very powerful method for extracting text.
- We can extract text using the Screen Scraper wizard.
- The Screen Scraper wizard has three scraping methods:
  a. Full Text
  b. Native
  c. OCR

a. Full text:

- The Full text activity is used to extract information from various types of documents and websites.
- It has a 100% accuracy rate.
- It is the fastest method among all three methods.
- It even works in the background.
- It is also capable of extracting hidden text.
- However, it is not suitable for Citrix environments.

b. Native:

- This is similar to the Full text method but has some differences.
- It has a slower speed than the Full text method.
- It has a 100% accuracy rate, like the Full text method.
- It does not work in the background.
- It is capable of extracting the text's position.
- It cannot extract hidden text.
- It also does not work with a Citrix environment.

c. OCR:

- This method is used when the previous two methods fail to extract information.
- It uses the two OCR engines: Microsoft OCR and Google OCR.
- It has also a scale property: you can choose the scale level as per your need.

Let us consider an example of extracting text from the UiPath website's main page:

1. Create a Blank project and give it a meaningful name.

2. Log on to the UiPath website by logging in to www.uipath.com in your browser.

3. Drag and drop a Flowchart activity on the Designer panel.

4. Click on the Screen Scraping icon and locate the area from which you want to extract the information.

5. Just choose an area on the UiPath website.

6. A window will pop up stating that the AUTOMATIC method failed to scrape this UI Element.

7. By default, the Screen Scraper Wizard chooses the best scraping method to extract data, but it failed to do so in our case.

8. Try choosing another method. We shall choose the Full text method. This too will fail.

9. Next, choose the Native method. This will also fail.

10. This time, choose the OCR Scraping method. You can clearly see the extracted text.

10) Explain the types of OCR.

Ans)
There are two OCRs available in UiPath Studio:

1. Microsoft OCR
2. Google OCR

- Microsoft's OCR is known as MODI.
- Google's OCR is called Tesseract.
- OCR is not limited to only these two types. You are free to use another type of OCR.

The advantages of Google OCR include the following:

- Multiple language support can be added in Google OCR.
- Suitable for extracting the text from a small area.
- It has full support for color inversion.
- It can filter only allowed characters.

The advantages of Microsoft OCR include the following:

- It is useful for extracting text that other methods cannot successfully do.
- It works with all applications, including Citrix.

11) Write a short note on the following:

a) Selectors:

Ans)

- Sometimes, it is very slow to deal with selectors while working with them.
- This is because a selector has attributes, title and class properties.
- When we select a UI element using the selector, it stores all these properties.
- Different instances of an application may have different properties of a UI element.
- The selector fails to recognize the same UI element of another instance of the application.
- We can easily fix this problem by using wildcard characters or by attaching it to a live element.
- Two wildcard characters are available with UiPath:

  1. The question mark symbol '?' which replaces one character

  2. The asterisk symbol '*' which replaces a number of characters

b) Scope of the variable:

Ans)

- Sometimes we create a variable inside a Sequence or Do activity.
- The scope of the variable is limited to only that activity.
- When we try to access a variable from outside its scope, it cannot be accessed.
- We have to change the scope of the variable.

c) Delay:

Ans)

- In some situations, we have to wait for a particular action.
- For example, when opening the Outlook application, it needs to connect to the server (for synchronization).
- When it is opened, it takes some time (the UI element is not stable at this stage).
- In the meantime, the robot's activity is waiting for the UI element to be stable so that it can perform the action.
- After waiting for some time, if the UI element is not stable, it results in an error because the activity cannot find the UI element.
- Thus, we have to add a Delay activity to ensure that the UI element is stable for action.
- Specify the time for the delay in the expression text box of the Delay activity.
- This activity will delay the process for the specified period of time.