1. Write about the state machine, screen scraping, Data scraping and OCR techniques.

**State Machines:**

A state machine is a type of automation that uses a finite number of states in its execution. It can go into a state when it is triggered by an activity, and it exits that state when another activity is triggered.

There are two activities that are specific to state machines, namely [**State**](https://activities.uipath.com/docs/state) and [**Final State**](https://activities.uipath.com/docs/final-state)**,** found under **Workflow > State Machine**.

**Screen Scraping:**

Output or screen scraping methods refer to those activities that enable you to extract data from a specified UI element or document, such as a .pdf file.

They are of three different types:

1. **FullText** is the default method, it is fast and accurate, yet unlike the **Native** method, it cannot extract the screen coordinates of the text.
2. Both these methods work only with desktop applications, but the **Native** method only works with apps that are built to render text with the Graphics Device Interface (GDI).
3. **OCR** is not 100% accurate but can be useful to extract text that the other two methods could not, as it works with all applications including Citrix. Studio uses two OCR engines, by default: Google Tesseract and Microsoft Modi.

**Data Scraping:**

Data scraping enables you to extract structured data from your browser, application or document

to a database, .csv file or even Excel spreadsheet.

The scraping wizard can be opened from the **Design** tab, by clicking the **Data Scraping** button.

**OCR Activities:**

In some situations, certain applications are not compatible with the usage of normal scraping or UI automation technologies. Activities in UiPath Studio which use OCR technology scan the entire screen of the machine, finding all the characters that are displayed. This enables the user to create automations based on what can be seen on the screen, simplifying automation in virtual machine environments.

[**Double Click OCR Text**](https://activities.uipath.com/docs/double-click-ocr-text), [**Click OCR Text**](https://activities.uipath.com/docs/click-ocr-text) and [**Hover OCR Text**](https://activities.uipath.com/docs/hover-ocr-text) use OCR to scan the screen of the machine for text and perform actions relative to it.

[**Get OCR Text**](https://activities.uipath.com/docs/get-ocr-text) extracts a string and its information from an indicated UI element using the OCR screen scraping method.

[**Find OCR Text Position**](https://activities.uipath.com/docs/find-ocr-text) searches for a given string in an UI element and returns a UIElement variable which contains the said string.

[**OCR Text Exists**](https://activities.uipath.com/docs/ocr-text-exists) checks if a text is found in a given UI element by using OCR technology and returns a boolean variable that is true if the text exists and false otherwise.