MODULE - 2

RPA PLATFORMS

RPA PLATFORMS

There is growing demand for RPA, especially in industries that need large scale deployments. The major markets for RPA are banking and finance, healthcare and pharmaceuticals, telecom and media, and retail. A few key vendors, their client market, and company specifications are mentioned in the following sections.

1. Automation Anywhere

Automation Anywhere helps to automate business processes for companies. They focus on RPA, cognitive data (machine learning and natural language processing), and business analytics. Their bots are capable of handling both structured as well as unstructured data. The system has three basic components:

1. A development client for the creation of a bot
2. A runtime environment for the deployment of a bot
3. A centralized command system for handling multiple bots, analyzing their performance

2. UiPath

UiPath is an RPA technology vendor who designs and delivers software that helps automate businesses. The RPA platform consists of three parts:

- UiPath Studio to design the processes
- UiPath Robot to automate tasks designed in UiPath Studio
- UiPath Orchestrator to run and manage the processes

3. Blue Prism

Blue Prism aims to provide automation that enterprises can use according to their needs. Blue Prism aims to do this by providing automation that is scalable, configurable, and centrally managed. It sells its software through its partners, some of which are Accenture, Capgemini, Deloitte, Digital Workforce Nordic, HPE, HCL, IBM, TCS, Tech Mahindra, Thoughtonomy, and Wipro

4. WorkFusion

WorkFusion offers automation that is based on RPA and machine learning. It delivers software as a solution for automating high volume data. WorkFusion enables man and machine to work in tandem while managing, optimizing, or automating tasks

5. Thoughtonomy

Thoughtonomy delivers software that helps automate business and IT processes. It uses Blue Prism and other automation software and customizes it.

6. KOFAX

Kofax's Kapow RPA platform is capable of automating and delivering processes that are repetitive and rule-based. It uses Robots for extracting and consolidating information. The software platform consists of a management console to deploy and manage bots, Robot performance, and a monitoring system. Kofax's software, however, doesn't have machine learning

ABOUT UI PATH

UiPath is an RPA vendor that provides software to help organizations automate their business processes. The company aims to do away with repetitive and tedious tasks, allowing humans to engage in more creative and inspiring activities. UiPath was founded by Daniel Dines, who is the CEO. Today, its software is being widely used to automate business processes. However, the IT sector is also gradually embracing UiPath's software. Major clients of UiPath in the industry include BFSI, Telecom and media, healthcare, retail and consumer, and manufacturing. With UiPath automation software, one can configure software Robots to mimic human action on the user interface of computer systems.

COMPONENTS OF RPA

The basic components of the UiPath RPA platform are in line with what was explained in Components of RPA, these components are necessary for enterprise deployment. The components of the UiPath platform are:

1. UiPath Studio

UiPath Studio helps users with no coding skills to design Robotic processes in a visual interface. It is a flowchart-based modeling tool. Thus, automation is faster and more convenient. Multiple people can contribute to the same workflow.

2. UiPath Robot

UiPath Robot runs the processes designed in UiPath Studio. It works in both attended (working only on human trigger) and unattended environments (self-trigger and work on their own).

3. UiPath Orchestrator

UiPath Orchestrator is a web-based platform that runs and manages Robots. It is capable of deploying multiple Robots, and monitoring and inspecting their activities.

THE FUTURE OF AUTOMATION

Throughout the history of human civilization, there has been many major turning points in innovation and discoveries that have instilled awe as well as fear in the minds of people, so much so that the word Luddite (used for people who were strongly opposed to the introduction of textile mills during the First Industrial Revolution for fear of losing their livelihoods) has now become synonymous with all people who are against new technologies, be it industrialization, automation, or computerization. The buzzword today is the Fourth Industrial Revolution - the current age where technology is embedded within societies and even the human body - be it Robotics, 3D printing, nanotechnology, Internet of Things, or autonomous vehicles. This will fundamentally change the way we live, work, and interact with one another

Technological changes and innovations are taking place today at an unprecedented pace and scope and are having an impact on many disciplines. Technological innovation has reached a stage where machines have now entered the realm of what was once considered exclusively human. For these reasons, there is a wide section of people who fear this age of Robots. While the arguments over how much of our lives will be taken over by Robots are endless, what cannot be denied is that Robots are here to stay. There are various advantages of automation today; there are also fears surrounding its advancement, which are not completely unfounded. As mentioned earlier, this time automation is capable of impacting a wide range of disciplines. Thus, unlike in the past where only blue collar jobs were at risk of being replaced by machines, this time even white collar jobs are believed to be at risk. While this is not untrue, reports suggest that only around 5% of the total jobs may be totally replaced by automation. For other jobs, automation will only replace a part of the job and not completely take over. There are, of course, those jobs in the 5% category that run the risk of being completely automated. These are the jobs that are routine, repetitive, and predictable. A few examples are telemarketing, data entry operation, clerical work, retail sales, cashiers, toll booth operators, and fast food jobs. However, like in the past, people should be able to find a way to adapt to the changes. With each generation, humans become smarter, more adaptable to change, and also progressive. Also, with automation mostly taking over routine and tedious tasks, humans are provided the opportunity to make better use of their capabilities - be it reasoning, emotional intelligence, or their creativity. What we can do is not fret over the inevitable rather prepare for it. One way of doing so is to start changing the pattern of

education. The next generation should be taught how to recognize and adapt to changes quickly. An important aspect of their education should be to learn how to learn.

RECORD AND PIAY

The facility of recording user steps on a computer and playing them back has made Robotic Process Automation (RPA) highly successful. Without this feature, the adoption of the technology might have been very slow and it would have been seen as another automation/scripting tool.

1. UiPath stack

In order to make the UiPath platform fully operational at an enterprise level, there are various components that need to be in place. There are three basic components in UiPath:

- UiPath Studio
- UiPath Robot
- UiPath Orchestrator

The UiPath platform is available in two variations:

1. Enterprise Edition: This edition is suitable for large companies starting their RPA projects and looking to scale their Robot deployments in the future. It is integrated with UiPath Orchestrator (we will discuss UiPath Orchestrator later). This version can be updated by visiting the UiPath website and by downloading the newest version of the UiPath platform installer. Running the installer automatically replaces all the old files without modifying any of your settings.

2. Community Edition: This is suitable for individual developers and small organizations with fewer employees. The Community Edition is always up-to-date, and it automatically updates itself as soon as a new version is available. The Community Edition can be used to learn UiPath free of cost.

2. UiPath Studio

UiPath Studio is the development environment of UiPath. It is the primary tool to develop UiPath Robots. It can be used to configure steps of a task or launch a full recorder to record a sequence of steps. The recording facility in the Studio is a game-changing feature for RPA tools. Its simplicity lets even nontechnical business users design/record steps of a process. This studio lets the user configure Robots, that is, develop steps to perform tasks visually. Most of the configuration and coding in UiPath is visual. By using the drag-drop facility from the toolbox, you may write a whole sequence of workflows to perform a set of tasks by Robots. These steps look like a data flow diagram and are very easy to understand. It is one

of the simplest visual flow diagramming tools. Most of the time, in an enterprise environment you will receive process maps to understand the flow of work, which you will use to develop Robots. The studio gives the same look and feel as a workflow. The designer gives you full control of the execution order and actions taken, also known as activities. An activity or action includes clicking a button, writing and reading a file, and so on.

3. UiPath Robot

UiPath Robot is a Windows service that can open interactive/non-interactive window sessions to execute processes or a set of steps, developed or recorded using UiPath Studio. Sometimes, it is also called an execution agent as it executes automation projects, or a runtime agent as it executes instructions generated by developing or recording processes in UiPath Studio. The most acceptable nomenclature is Robot. These Robots can be controlled by Orchestrator, which is part of the Enterprise Edition. There is an option at installation to de-link these Robots from Orchestrator and work independently on the desktop. When installed in user mode, these Robots have the exact same rights as the user. If you opted for Orchestrator, you can control Robots irrespective of whether it is installed on a user machine, in user mode, or on a server.

Types of Robots

The following are types of Robots:

- **Attended**: It operates on the same workstation as a human to help the user accomplish daily tasks. It is usually triggered by user events. You cannot start a process from Orchestrator on these type of Robots, and they cannot run under a locked screen.
- **Unattended**: It can run unattended in virtual environments and can automate any number of processes. In addition to the Attended Robot's capabilities, this Robot is responsible for remote execution, monitoring, scheduling, and providing support for work queues.
- **Free**: It is similar to Unattended Robots, but can be used only for development and testing purposes, not in a production environment. These types of Robots are built to suit different automation needs, such as back or front office scenarios.

4. UiPath Orchestrator

UiPath Orchestrator is a server-based application that lets you orchestrate your Robots, hence the name Orchestrator. It runs on a server and connects to all the Robots within the network, whether Attended, Unattended, or Free. It has a browser-based interface that enables the orchestration and management of hundreds of Robots with a click. Orchestrator lets you

manage the creation, monitoring, and deployment of resources in your environment, acting in the same way as an integration point with third-party applications.

Orchestrator's main capabilities:

- It helps in creating and maintaining the connection between Robots
- It ensures the correct delivery of the packages to Robots
- It helps in managing the queues
- It helps in keeping track of the Robot identification
- It stores and indexes the logs to SQL or Elasticsearch

DOWNLOADING AND INSTALLING UIPATH STUDIO

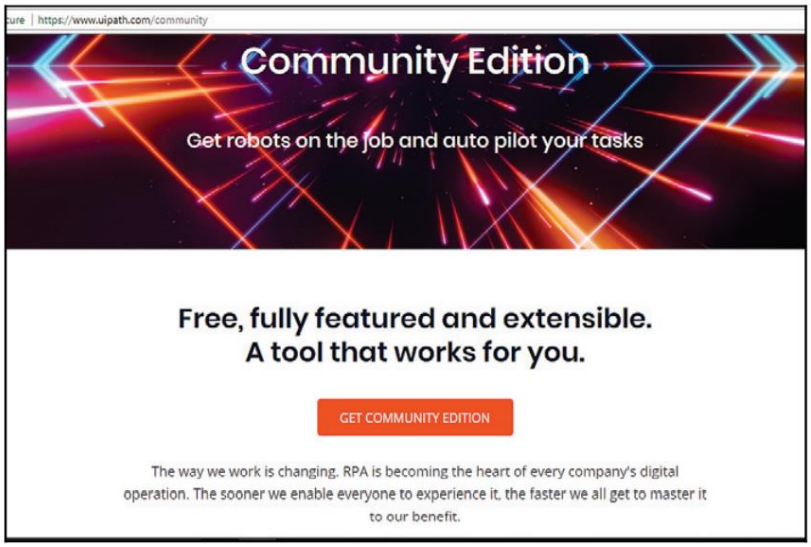
To learn UiPath, you need the software. Fortunately, UiPath has provided multiple options to learn and use the platform. You may get a free trial for 60 days, which is the fully working Enterprise Edition, or you may opt for the Community Edition, which is free for learning purposes. Commercial use, however, is not allowed.

The UiPath Community Edition has the following features:

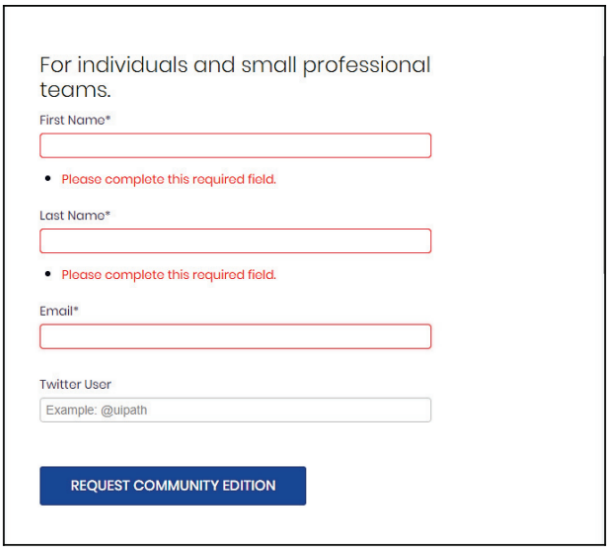
- Auto update
- No server integration
- Community forum for support
- Online self-learning
- No complex installation required
- Online activation is mandatory

To get your Community Edition of UiPath Studio, type the following link in your browser: www.UiPath.com/community

1. A Community Edition page opens. Click on Get Community Edition:

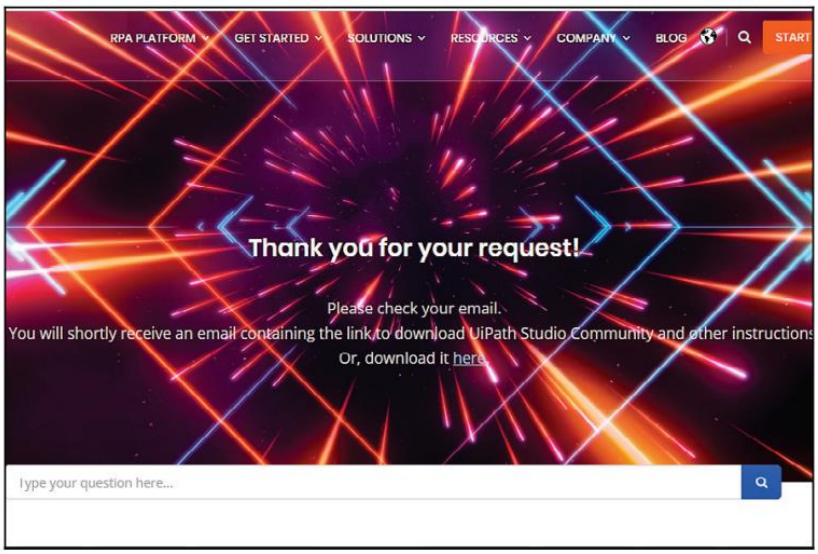


2. On the next page, you must register yourself in order to download the Community Edition. So, use the correct details and remember them because the same email will be used to activate the software. Fill in the following details: First Name*, Last Name*, and Email*. Filling in the Twitter User field is not mandatory, but it is good to provide it:

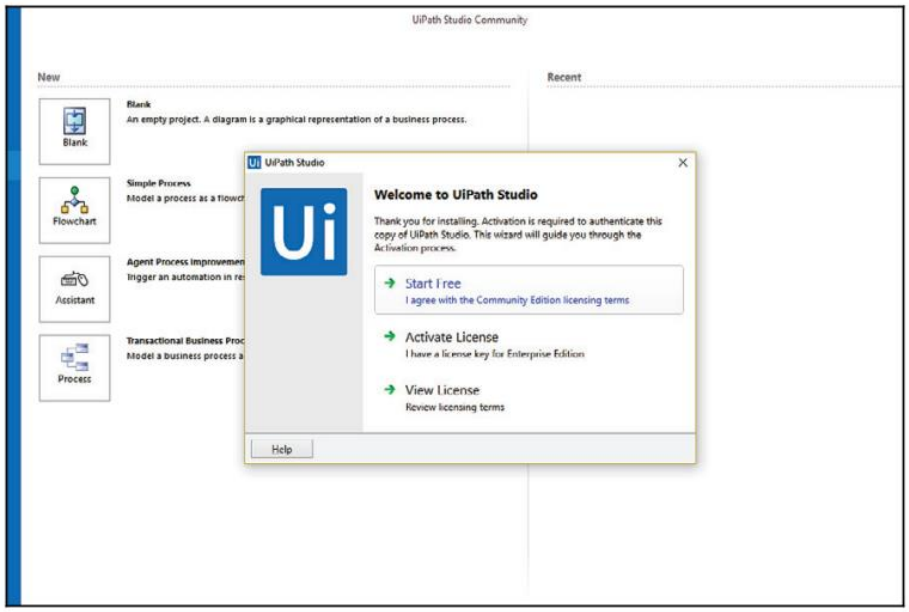


Click on REQUEST COMMUNITY EDITION.

3. You will be directed to a page that requests you to check your email for downloading the link. Click on the link to download UiPath Studio. You may also directly download UiPath Studio. Just click on the word here in download it here, as shown in the following screenshot:



4. Once the download is complete, open the downloaded file, UiPathStudioSetup.Exe.
5. The installation will then begin. Once the installation is complete, a welcome message will be displayed. Click on the Start Free option



6. Then, as requested, enter your Email Address once again and click on Activate. Please remember to use the same email ID that you used to download the software. This email ID will be bound to the computer. The activation will happen online. An offline activation option is not available for the Community Edition.
7. A message will then be displayed on the screen informing you of the successful installation. Close this window

LEARNING UI PATH STUDIO

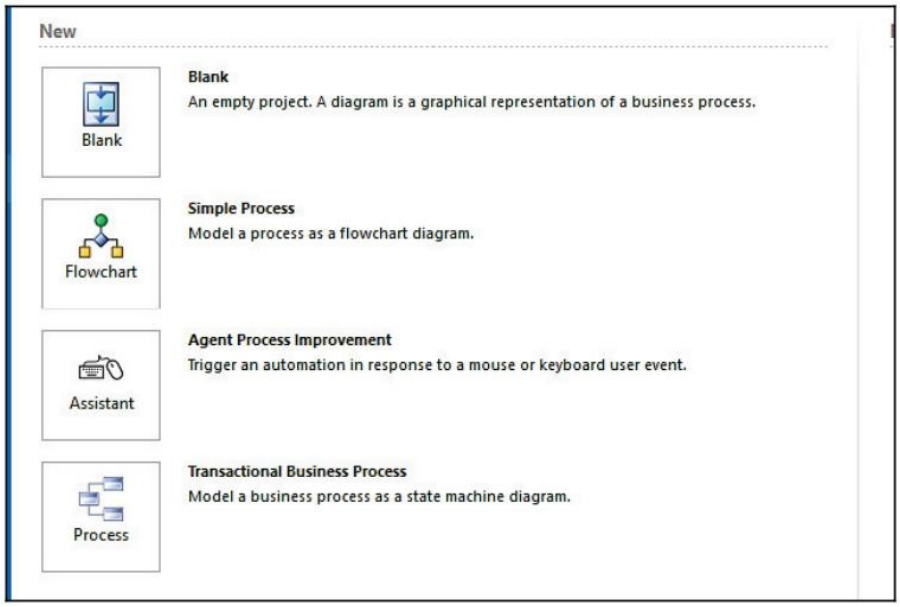
The UiPath Studio platform helps to design Robotic processes with a visual interface. Automation in UiPath Studio requires no or very little prior programming knowledge. It is a Flowchart-based modeling tool. Thus, automation is faster and more convenient. The presence of a visual signal that points out errors in the model, along with the recorder, which performs what users execute, makes modeling much easier.

1. Projects

The main types of project supported by UiPath Studio are as follows:

- **Sequence**: This is suitable for simple actions or tasks. It enables you to go from one activity to another, without interfering with your project. It consists of various activities. Creating sequences is also useful for debugging purposes. One activity from a particular sequence can easily be tracked. The Basic type of project can be started using the Blank option in the start tab and then adding the sequence in the diagram from the toolbox.
- **Flowchart**: This is suitable for dealing with more complex projects. It enables you to integrate decisions and connect activities. To start this kind of project, choose the Flowchart - Simple Process option from the new project menu.

- **Assistant**: This is suitable for developing attended or Front Office Robots: sometimes these Robots are called assistants. To start this kind of project, choose the Assistant - Agent Process Improvement option from the new project menu.
- **State machine**: This is suitable for very large projects that use a finite number of states in their execution, triggered by a condition. To start this kind of project, choose the Process - Transaction Business Process option from the new project menu



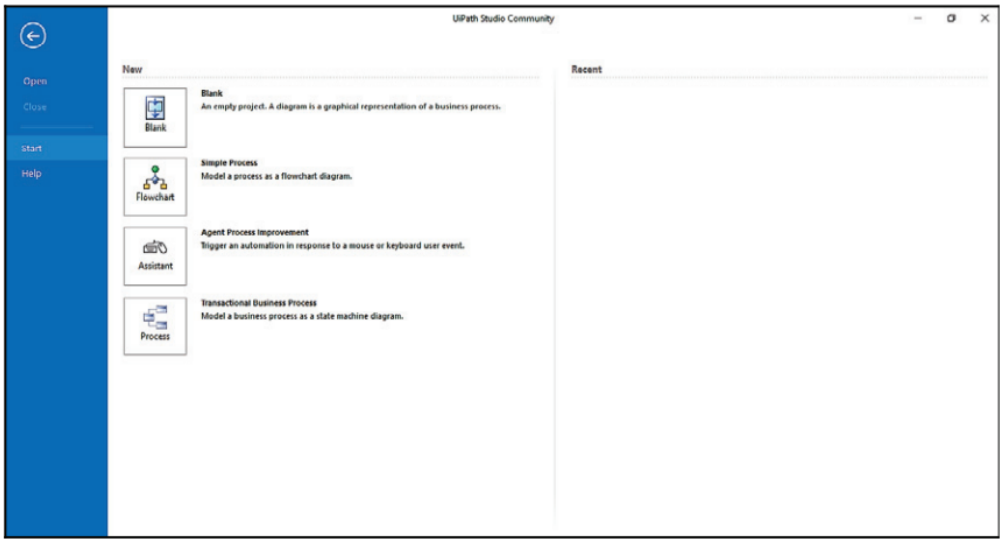
Please remember, the four types of project mentioned in the preceding screenshot are only available in the Start tab of the studio. However, if you click on the New option in the DESIGN tab, you only get three options:

- Sequence
- Flowchart
- State Machine.

The preceding options selected from the DESIGN tab's New menu become part of an existing project and are referred to as a diagram. UiPath Studio basically helps in automating various tasks through the designing of projects. A project is a graphical representation of any rule-based business process. It is usually in Flowchart form. One can design projects by customizing and defining the various steps, known as activities, ranging from a simple click to entering particular data.

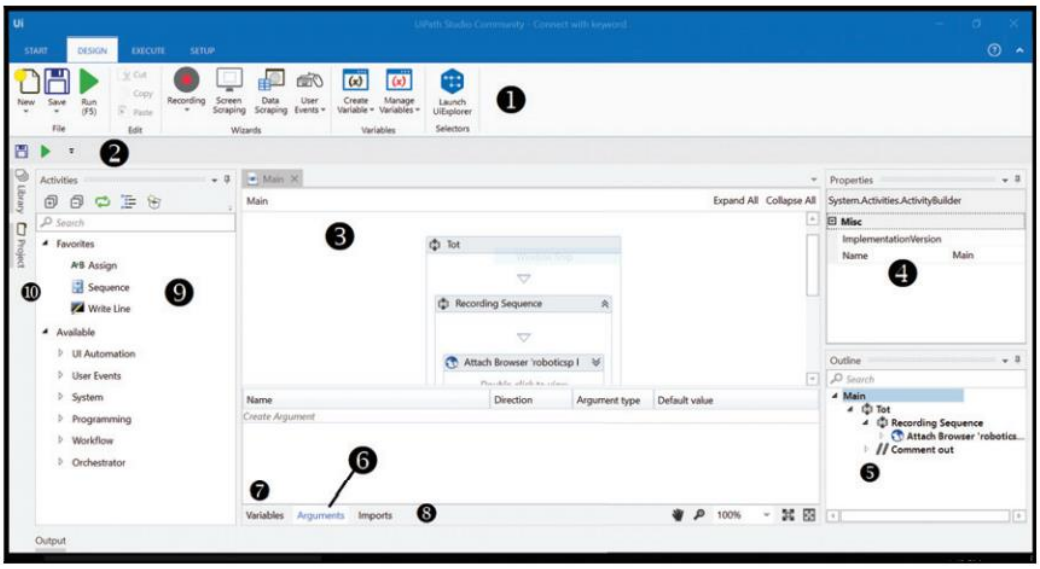
THE USER INTERFACE

When you first open UiPath Studio, you are directed to the page shown in the following screenshot:

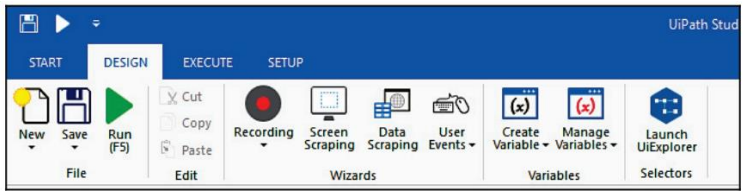


Start tab of UiPath Studio

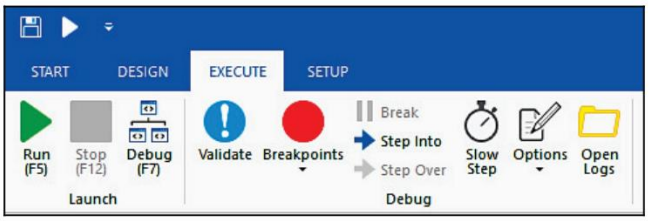
You can either open an old project or create a new one. Let us say we are making a new project. We click on Blank and name it. We will then be directed to a screen, which will display the following:



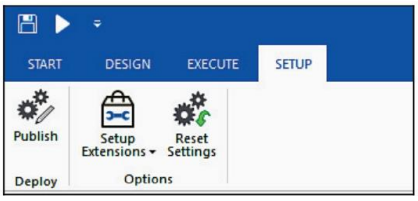
1. **The Ribbon:** This panel located at the top of the user interface and consists of four tabs:
   - **START**: This is used to start new projects or to open projects previously made.
   - **DESIGN**: This is to create new sequences, Flowcharts, or ribbon, or to manage variables:



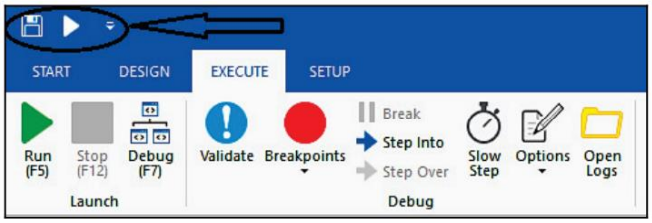
   - **EXECUTE**: This is used to run projects or to stop them, and also to debug projects:



- **SETUP**: This panel is for deployment and configuration options; it has three tools available: Publish: This is used to publish a project or create a shortcut for it and schedule tasks Setup Extensions: This is used to install extensions for Chrome, Firefox, Java, and Silverlight Reset Settings: This is used to reset all settings to defaults:



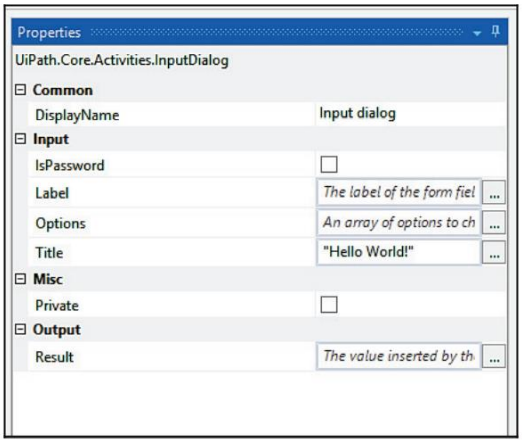
2. **Quick Access Toolbar :** This panel gives the user a shortcut to the most used commands. One can also add new commands to this panel. This is located above the Ribbon on the user interface. The Quick Access Toolbar has been circled in the following screenshot and is indicated by the arrow:



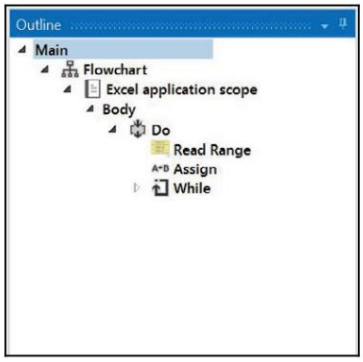
It can be moved above or below the Ribbon. By default, there are two buttons available, Save and Run, which are also available in the DESIGN tab of the Ribbon

3. **Designer panel :** This is the panel where one defines the steps and activities of the projects. It is where a developer does most of the things to record activities or manually drop activities on the canvas. In UiPath, this is equivalent to the code windows of Microsoft Visual Studio. When we develop a Robot, this is the window where we will be organizing various activities in a flow or chain to accomplish a task. The project a user makes is clearly displayed on the Designer panel and the user has the option of making any changes to it.
4. **Properties panel :** The panel located on the right-hand side of the user interface is for viewing the properties of the activities and for making any changes, if required. You need

to select an activity first and then go to the Properties panel to view or change any of its properties



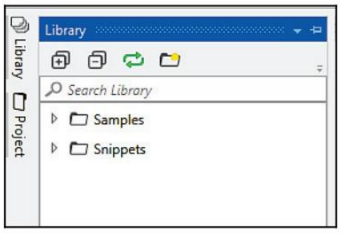
5. **Outline panel :** As the name suggests, this panel gives a basic outline of the project. The activities that make up the workflow are visible in this panel. Using this, you may see a high-level outline of the project and you can drill down to see deeper. This panel is especially helpful of large automation projects, where one may otherwise have a tough time going through it:



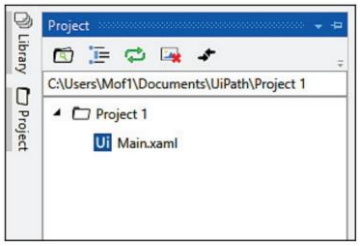
6. **Arguments panel :** While variables pass data from one activity to another in a project, arguments are used for passing data from one project to another. Like variables, they can be of various typesdString, Integer, Boolean, Array, Generic, and so on. Since arguments are used to transfer data between different workflows, they also have an added property of direction. There are four types of direction: In Out In/Out Property These depend on whether we are giving or receiving data to or from another workflow.
7. **Variable panel:** This allows the user to create variables and make changes to them. This is located below the Designer panel. In UiPath Studio, variables are used to store multiple types of data ranging from words, numbers, arrays, dates, times, and timetables. As the name suggests, the value of the variable can be changed. An important point to note is that variables can only be created if there is an activity in the Designer panel. To create

new variables, you can go to the DESIGN tab on the Ribbon and click on create variable, then choose the type of variable. Otherwise, one can simply go to the Variable panel located below the Designer panel and create a variable. Also, if one renames a variable in the Variables panel, the variable is renamed in every place it is used in the workflow. The Scope of the variable shows where the variable is located

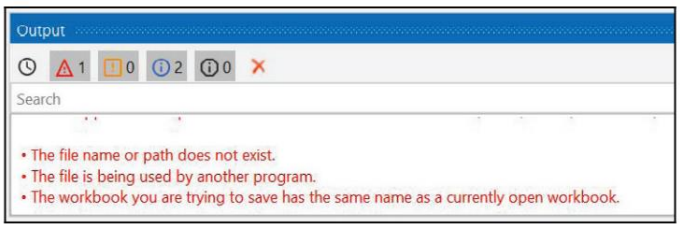
8. **Activity panel :** Located on the left-hand side of the user interface, this panel contains all the activities that can be used in building the project. The activities can easily be used in making a project by simply dragging and dropping the required activity into the required location in the Designer panel.
9. **Library panel :** With this panel, you can reuse automation snippets. It is located on the extreme left-hand side of the Designer panel.



10. **Project panel :** With the Project panel, you can view the details of your current project and open it in a Windows Explorer window. It is located on the extreme left-hand side of the design panel, below the Library panel:



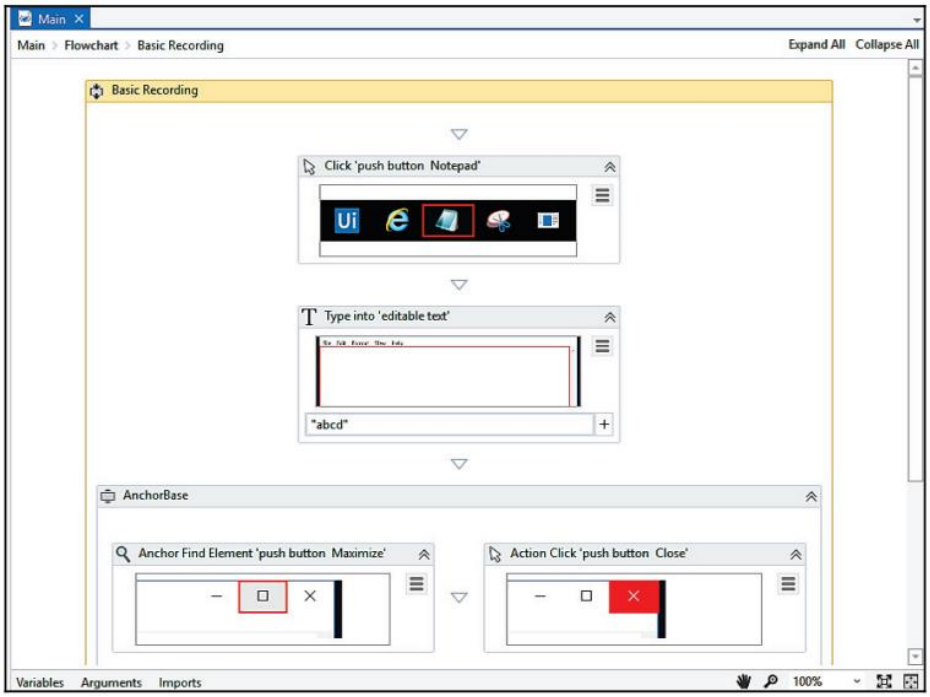
11. **Output panel :** This panel displays the output of the log message or write line activities. It also displays the output during the debugging process. This panel also shows errors, warnings, information, and traces of the executed project. It is very helpful during debugging. The desired level of detail can be changed in Execute | Options | Log activities:



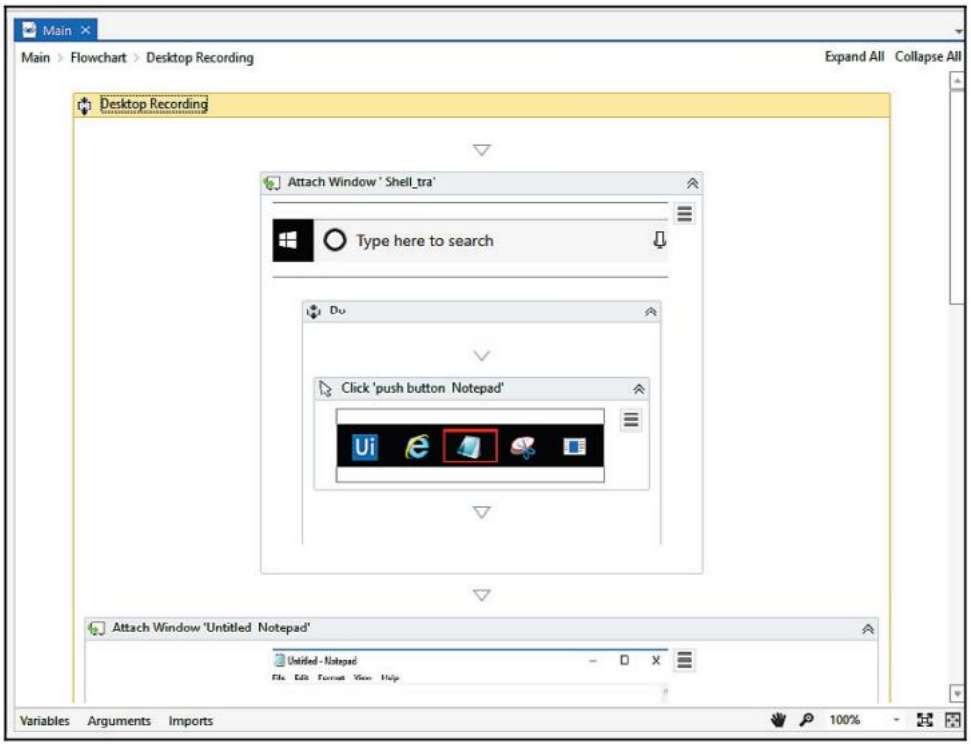
TASK RECORDER

The task recorder is the main reason for RPA's success. With the task recorder, we can create a basic framework for automation. The user's actions on the screen are recorded by the recorder and turned into a recording sequence in the current project. That's how Robots are able to mimic human actions. The recording is collection of execution steps that has to be taken, on the applications in the scope, in order to accomplish a task. These steps can be recorded one by one (manually) by pointing it on the screen or many steps in a go that is, automatically. There are four types of recording in UiPath Studio:

1. **Basic:** Basic recorder is used to record activities on the desktop. This type of recorder is used for single activities and simple workflows. The actions here are self-contained and not contained in separate windows, as shown in the following screenshot



2. **Desktop :** The desktop recorder, like the basic recorder, is used to record activities on the desktop. However, it is used to record and automate multiple actions and complex workflows. Each activity here is contained in an Attach Window component, as shown in the following screenshot. The Attach Window component is especially important to ensure that other windows of the same application do not interfere in the workflow. UiPath uses the name of the app, the title of the window, and the currently opened file to locate and identify the correct window. However, there may be cases where, for example, two untitled Notepads are open on the screen. Without Attach Window, UiPath may select the wrong Notepad, thus causing errors.



3. **Web:** The web recorder, as the name suggests, is used to record actions on web applications and browsers
4. **Citrix:** Citrix is used to record virtual machines, VNC, and Citrix environments. This recording allows only keyboard, text, and image automation.

Some actions are recordable while others are not:

- **Recordable actions**: Left-click on buttons, check boxes, drop-down lists, and other GUI elements. Text typing is also recordable.
- **Actions that cannot be recorded**: Keyboard shortcuts, mouse hover, right-click. Modifier keys such as Ctrl and Alt cannot be recorded.

There are two types of recording:

- **Automatic recording:** This is for recording multiple actions in one go. This is a very good feature for preparing a solid foundation for automating a task. It can be invoked with the Record icon available in basic, desktop, and web recorders. The Citrix recorder does not support automatic or multiple step recording. A few types of action cannot be recorded using automatic, for example, hotkeys, right click, double-click, and a few more. For all these activities, you should use a single step recorder, also know as a manual recorder.
- **Manual recording:** This type of recording is used to record each step one at a time and hence offers more control over the recording. Also, it can record all actions that cannot be recorded using automatic recording such as keyboard shortcuts, mouse

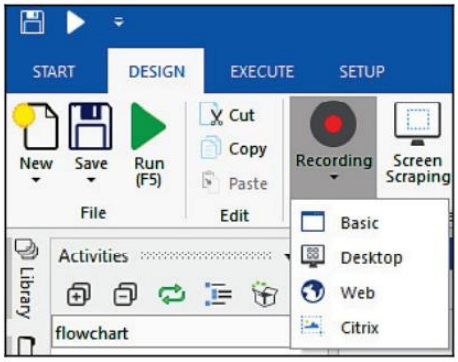
hover, right-click, modifier keys, such as Ctrl and Alt, finding text from apps, and many other activities. While the desktop, basic, and web recorders can automatically record multiple actions and manually record single actions on the screen, the Citrix recorder can only record a single action (manual recording)

The operations that can be completed with the help of recording are as follows:

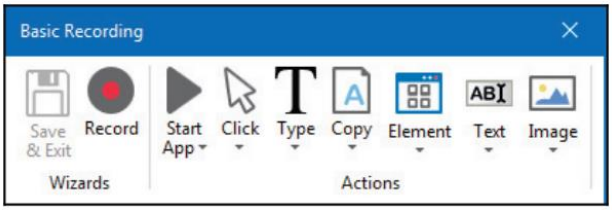
- Click (clicking a UI element: button, image, or icon)
- Type (typing any value into the available text field)
- Copy and paste

We can see a Recording icon at the top of the user interface on the DESIGN tab of the Ribbon, as shown in the following screenshot:

After clicking on this Recording icon, a list of the recording types are displayed, as shown in the following screenshot:

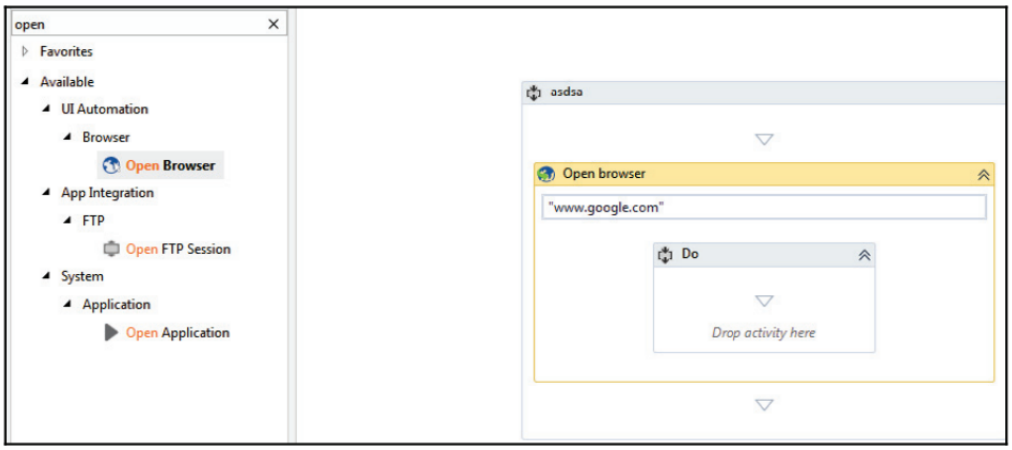


Clicking on each type of recording will result in the display of a recording panel with features specific to the type of recording. When clicking on Basic from the recording options, then the recording panel that appears looks as follows



The panel that appears in the previous screenshot contains features specific to Basic Recording. For example; Start App, Click, Type, Copy, and so on. Start App: This is used to start an application. When we left-click on this option, we are asked to point to an application

that we want to open. When we are done, we can click on the Save & Exit option. The following screenshot shows the recorded sequence. As we can see in the screenshot, an open FYQMPSFSFYF program appears. This is the title of the application. Below it, the path of this application is shown. As mentioned previously, the features that appear in the panel are specific to the type of recording. In case of web recording, there is an option of Open Browser rather than Open Application

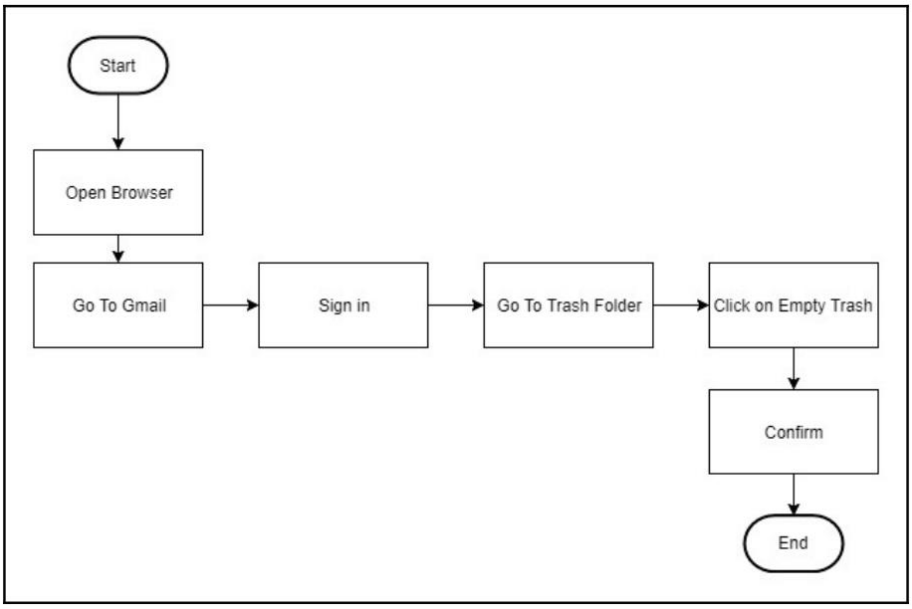


Click: Another option is Click, which is used to click on a UI element. This feature is used as a mouse input. That is, it is used for clicking, checking, or selecting an item. When we click on this option, we are asked to indicate the location of the UI element we want to click. We can change the type of click to right-click or double-click in the Click Type property from the Properties panel. Type: Another option shown in the recording panel is Type. As the name suggests, it is used for typing something inside the indicated element. Say, for example, you want to type something in Command Prompt. All you need to do is to indicate the area where you want to type. Then, you need to type your input in the popup that appears for typing. Checking the empty field box (shown in the following screenshot) ensures that text written in the past (if any) will be emptied, leaving you with only the current text you have typed:

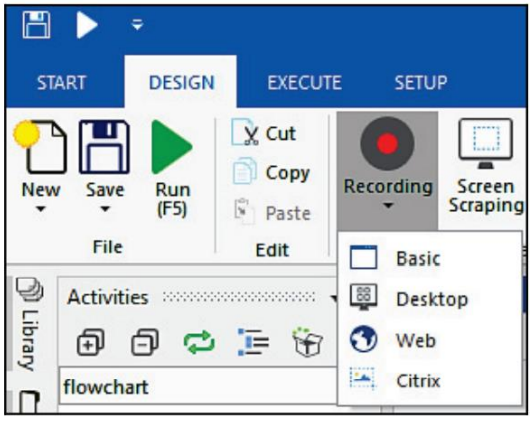
STEP-BY-STEP EXAMPLES USING THE RECORDER

1. Emptying trash in Gmail

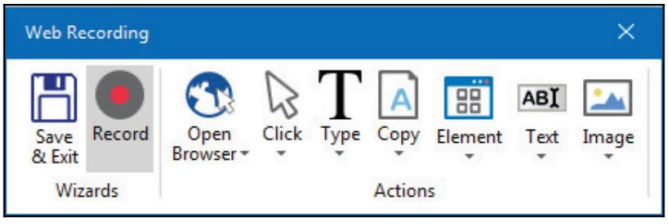
This is an example of how we can empty a folder in Gmail with the help of a UiPath Robot, solely on the basis of recording. To do this, we are going to record all the actions that have to be performed to empty this Trash folder so that our Robot understands the sequence to be performed. We can see the process flow of this simple activity in the following diagram:



we begin with a blank project in UiPath Studio and then choose Web recorder from the Recording drop-down list:



We have to click on the Recording option and select the type of recording. As discussed before, we will use Web recording for this process since we are working on a website. Just click on the Recording icon at the top of the page. From the four types of recording that appear, choose Web recording. A Web Recording panel will appear, as shown in the following screenshot:



Notice Open Browser between Record and Click; this is available with web recorder to record steps in browser-based applications.

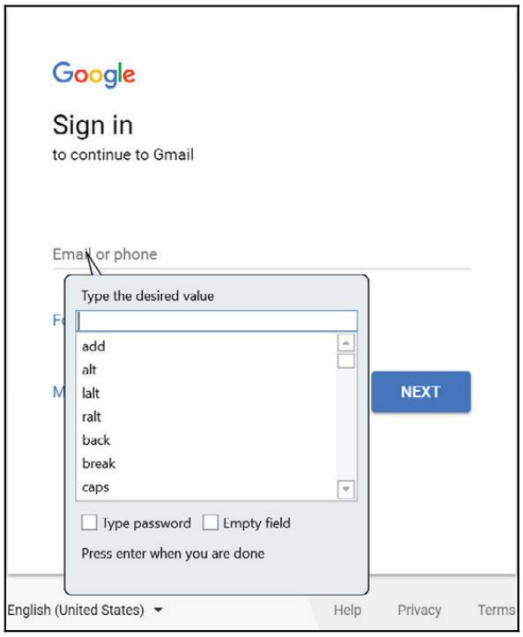
Preparation: Open your favorite browser, navigate to IUUQTHNBJMDPN, and keep this browser open

The following are the six steps in our process flow:

1. **Open Browser**: Although we have already opened Gmail in the browser, we did not record that step. Here, we will note that step in the recorder using the Open Browser button in the recorder. A drop-down menu will appear. Again, choose Open Browser from the drop-down menu. It will ask to highlight the browser, highlight the already opened browser and click on the top of the browser.
2. **Go to gmail.com**: You will be prompted to enter the URL of the website to navigate to. Type *gmail.com* and press OK:

Please remember the first step will merely make note of the steps in the recording but will not do anything on the screen. From the next step onwards, we will use the already opened gmail.com.

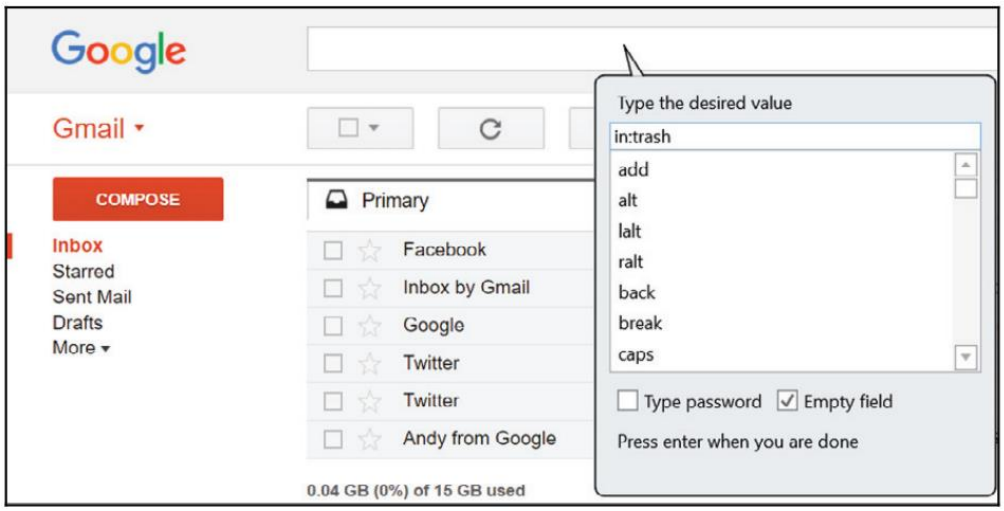
3. **Sign In**: Start recording by clicking on the Record icon of the recording panel. Go to the already open Gmail and click on the Email or Phone field. UiPath will pop up a prompt for typing the email:



Type *email* in the box provided by the UiPath recorder and press *Enter*. The Gmail textbox will automatically fill up with your typed content. Click on the *NEXT* button of the Gmail interface; it will also get recorded. Now, you have recorded an entry in the password field. For simplicity, you may type the password in the prompt provided by UiPath. In a real-world environment, you will select the Type password checkbox if you are entering a password.

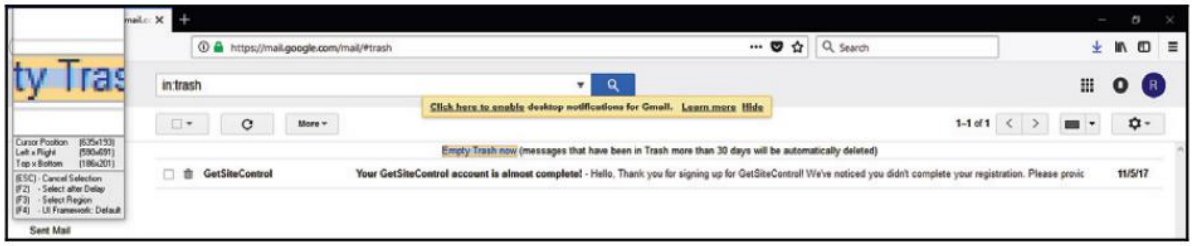
Type your password in the text field of the popup that appears. Then, click NEXT to log in to your account. Clicking on the NEXT button will also get recorded.

4. **Locate Trash Folder:** In this step, we have to click on the search box of Gmail and type *in:trash* in the UiPath prompt and hit Enter:



Now, click on the Search button beside the search box. It will also get recorded automatically and the Trash folder will appear.

5. **Click on Empty Trash now:** Once you are done with clicking on the Trash action, You can see a link showing Empty Trash now. Hover mouse on this link and it will get highlighted, click on it to delete all the messages in the Trash folder:



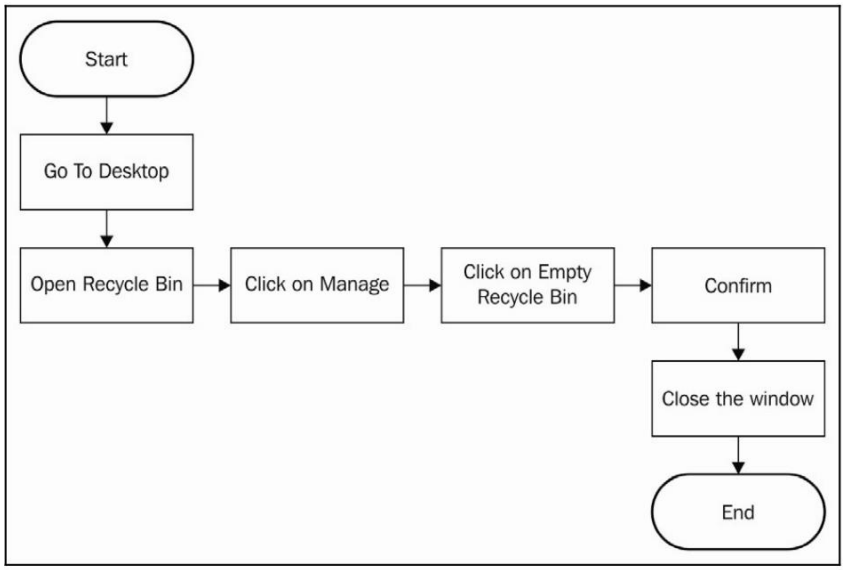
6. **Confirm:** When you click on Empty Trash now, a confirmation dialog will appear asking your permission for the action. Just confirm your action by clicking on the OK button.

After clicking on any button, the recorder may display a dialog for using the Indicate Anchor. In that case, just click on the Indicate Anchor button and indicate the element

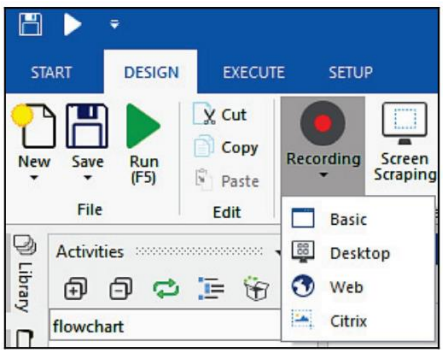
adjacent to the button you want to click. This is used to confirm the location of the element on which you are performing the action. In the indicate anchor wizard, we have to indicate the adjacent button, that is, the Cancel button, so that the recorder will identify that the button is adjacent to Cancel. Now recording is complete, press Esc to get to the recording dialog. Click on the Save & Exit button. Then, in UiPath Studio, you can see a recording sequence in the Designer panel. Rename it to *empty trash*. This will help in easy recognition of the purpose of the sequence

2. Emptying Recycle Bin

We are going to automate emptying the Recycle Bin. There are various steps that are involved. Let's map the process of how to empty the Recycle Bin



Open UiPath Studio and choose a blank project. Since we are working in the recorder, and since we are working on the desktop and not a web application, we are required to choose the desktop recorder:



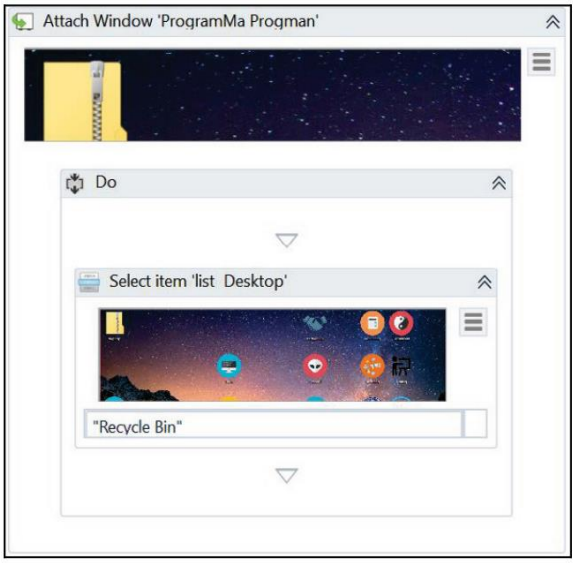
Start the recorder and simply perform the following steps:

1. Go to the desktop by pressing the Windows + D keys.
2. Open Recycle Bin by clicking on Recycle Bin and then pressing Enter key.

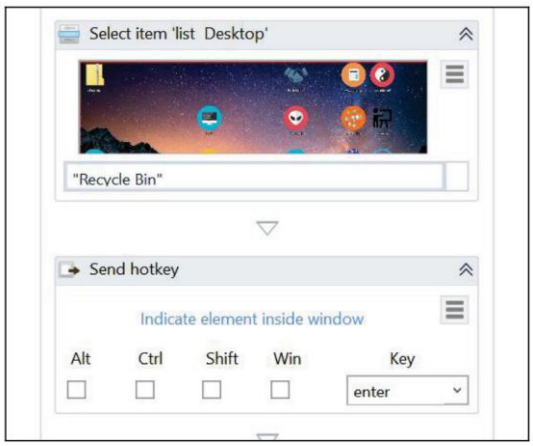
3. Click on the Manage tab of the recycle bin folder.
4. Click on the Empty Recycle Bin button.
5. Confirm by clicking on the Yes button in the dialog box.
6. Close the Recycle Bin folder by pressing the cross button.
7. Press the Esc key and Save & Exit the recorder

Now your recording is ready to view, let's examine each step recorded:

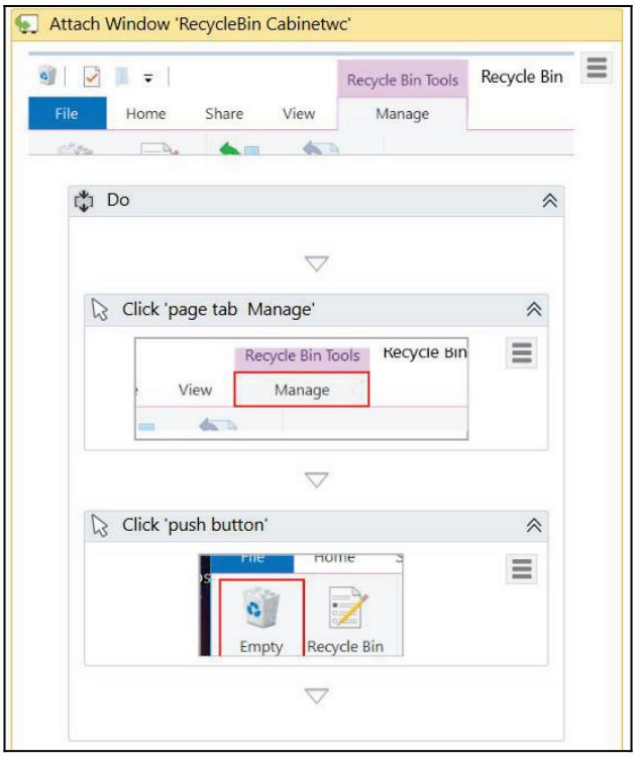
1. ***Go to the desktop by pressing Windows + D keys***: This step is not recorded. Please note that the recorded steps attach themselves to an application, and execute commands for that application, so the next step (Open Recycle Bin) will be executed on the desktop whether you are there or not.
2. Open Recycle Bin by clicking on Recycle Bin and then pressing the Enter key - We can see the recorded step in the following screenshot:



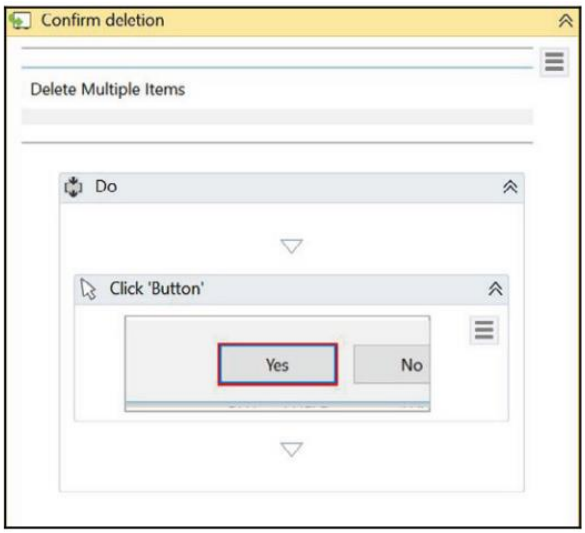
Please note that only selecting the Recycle Bin is recorded, not the Enter key. We should manually add that step. Search for *send hotkey* in the Activities window and insert it into the workflow just below the Select item 'list Desktop' step, as shown in the following screenshot



Click on the Manage tab of the Recycle Bin folder: This is recorded as it is and so is the fourth step, click on the Empty Recycle Bin button:



Confirming by clicking on the Yes button on the dialog box is also recorded smoothly:



In the last step, closing the Recycle Bin folder by pressing the cross button, you may have to indicate an anchor.

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Question Bank

Chapter 1: RPA Platforms:

1. What is Automation? Explain.
2. What can be automated?
3. What should be automated?
4. List and Explain the various techniques available for automation.
5. What is RPA? What can RPA do?
6. List the major industries that benefit from RPA.
7. List and explain the benefits of RPA.
8. With a neat diagram explain the components of RPA.
9. Explain the some of the key vendors of RPA
10. Explain UiPath and its RPA platform in detail.

Chapter 2: Record and Play:

1. Explain the UiPath Stack
2. List and explain the different types of robots.
3. Explain the process of downloading and installing UiPath Studio.
4. List and explain the different types of projects in UiPath Studio.
5. List the controls/panel available in UiPath Studio.
6. Explain the Designer Panel in UiPath Studio.
7. Explain the Properties Panel in UiPath Studio.
8. Explain the Output Panel in UiPath Studio.
9. Explain the Variable Panel in UiPath Studio.
10. Explain the Argument Panel in UiPath Studio.
11. Explain the four types of recording in UiPath Studio.
12. Differentiate between Automatic and Manual recording.
13. Explain the options available in the recording panel.
14. List and Explain the Input Methods.
15. List and Explain the Output Methods.
16. Explain in detail the steps involved to automate the task of Emptying trash in Gmail.
17. Explain in detail the steps involved to automate the task of Emptying Recycle Bin.

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