UiPath Test Suite –RPA TESTING

Scaling automation is clearly a key contributor to a successful digital transformation. Whether they are software robots that perform business processes or tests that evaluate quality, both contribute to sustainable business growth and help improve operational efficiency.

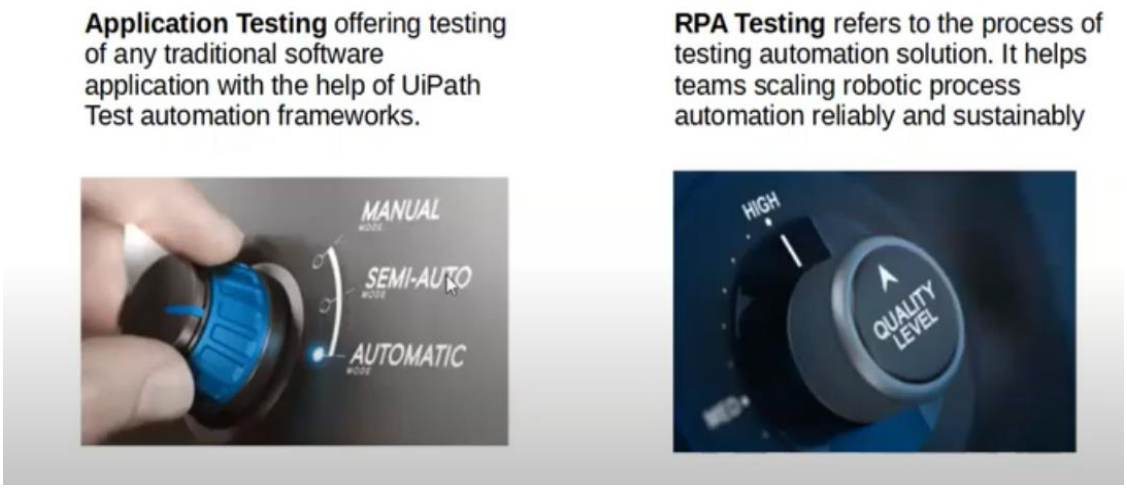
UiPath Test Suite combines the world's leading Robotic Process Automation (RPA) technology with best-of-breed testing capabilities to sustainably accelerate scaling through proactive testing, cross-enterprise collaboration, and a consistent approach to create and deploy automations.

Once you write the Test Cases they are like kind of assets for developers or Testing team for future which will save lot of work, Efforts and time in future for a Bot for any years.

UiPath Test Suite Provides Two Testing parts:

1) Application Testing

2) RPA Testing



UiPath Test Suite – RPA Testing

With the RPA testing we can define the inputs, expected results and the outputs to check whether our automation projects are working properly. We can also view activity coverage during the execution and make sure that the behaviour remains the same while making changes to a workflow.

The business looks to RPA and development looks to build and test automation. They all find success, but it slows as they start to scale and automations begin to break.

Robots break for three primary reasons:

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- Changes to applications in the form of software releases.
- Changes to environments and configurations.
- Lack of thorough testing.

RPA teams can create more resilient robots to scale automations sustainably with comprehensive RPA testing. In addition, RPA tests can be data-driven to ensure robots can handle different data variations before they are deployed to production.

Test teams can automate testing of virtually any software application by empowering them with unified, best-of-breed testing capabilities including mobile, SAP, web, desktop, Citrix, DevOps, and application lifecycle management (ALM) integrations.

Organizations that adopt UiPath for their application testing and RPA needs are taking the first step in creating a world-class automation practice that will accelerate scaling by:

- Centralizing governance by using a common automation platform and approach.
- Building automation momentum by sharing automations between test and RPA teams.
- Ensuring every automation deployed is resilient, compliant, and high performing.
- Sharing skills, experience, and automation resources across your organization.

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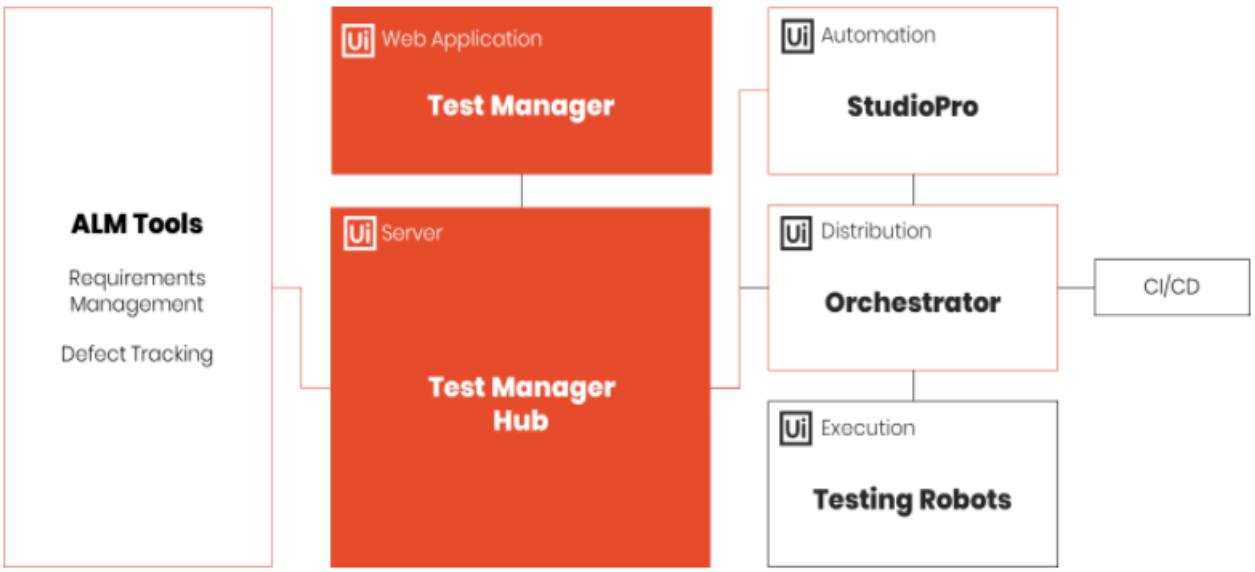
UiPath Test Suite Components:

The following diagram visualizes all tools that come with the UiPath Test Suite and how they integrate with each other.



The UiPath Test Suite contains the following product component:

Studio Pro: It enables you to create automated tests just like you would create RPA workflows.

Orchestrator: Besides the ability to run RPA workflows, Orchestrator is capable of executing test cases from Studio Pro on testing-robots. This can be done in a scheduled manner or build-driven through a CI/CD pipeline.

Test Manager Hub: The main purpose of Test Management Hub is to integrate the UiPath Test Suite with third-party ALM tools. Through its flexible connector architecture, it can be used to integrate any ALM tool that provides a compatible API in order to:

Create bug reports in an external bug tracking systems supplemented with log information and screenshots from test executions.

Test Manager: A web application hosted by Test Management Hub that allows you to manage your testing process. In particular, it covers the following functional areas:

- Linking automated test cases in Studio Pro to manual test cases in Test Manager.
- Assigning test cases to requirements.
- Reporting and dashboards to get a quick overview of your test results.
- Creating defects directly from test results.
- Add documentation to manual test cases with Task Capture.

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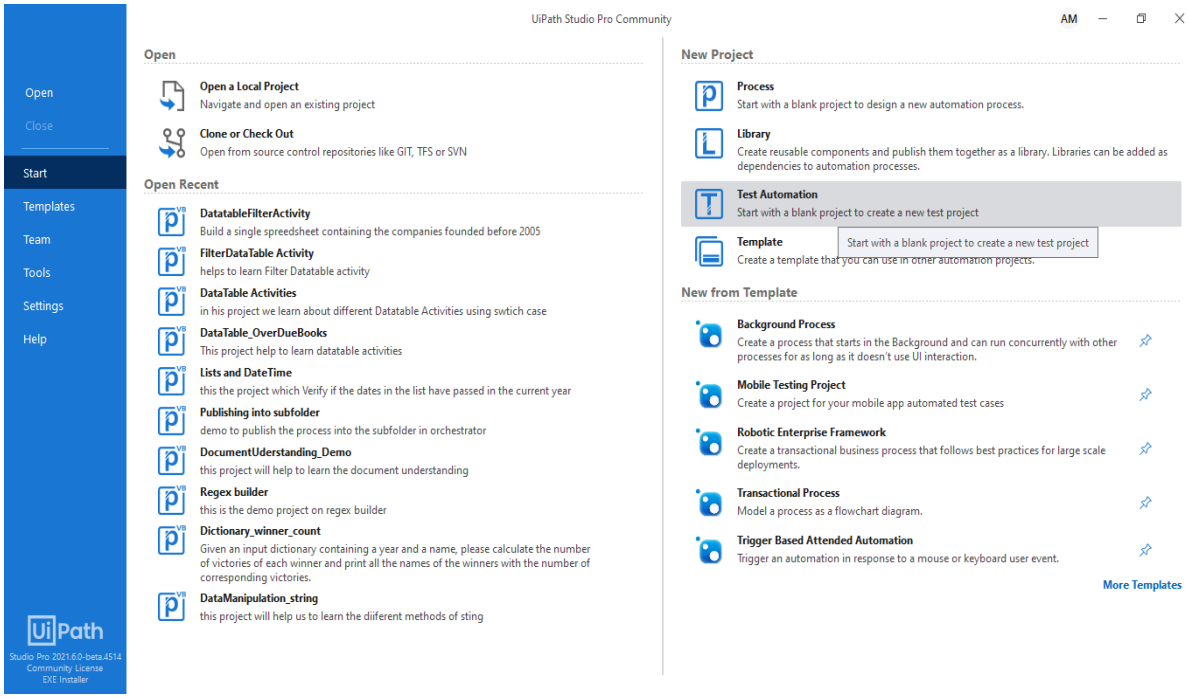
For designing the Test Cases Switch in UiPath Studio Pro

Settings>>License and Profile >> View or change Profile >> UiPath Studio Pro



Testing Activities:

Install package: Uipath.Testing.Activities

The Testing Activity Pack includes activities that enable you to easily verify the systems you are testing. support for RPA Testing does not only let you easily create automated Test Cases for your RPA workflows, it also introduces Activity Coverage, showing you how much of your RPA workflow is covered by the Test cases, as an previously unseen feature in the RPA world.

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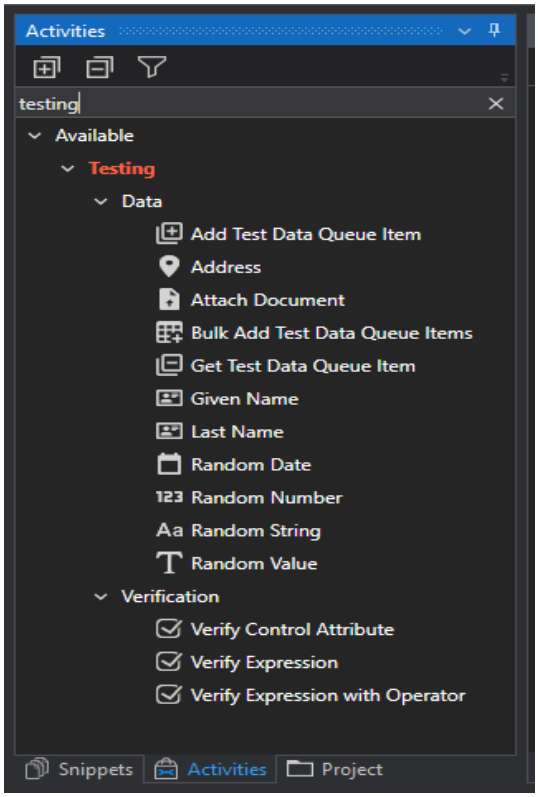

Testing Suite
Verification Activities

Verify Expression

Verifies the truth value of a given expression. An Expression must be supplied in its respective property field.

Verify Expression with Operator

Verifies an expression by asserting it in relation to a given expression with an operator. The expressions tested with this activity must be inserted in their respective property fields.

Verify Control Attribute

Verifies the **output of a given activity** by asserting it in relation to a given expression. The activities tested with this activity must be inserted in the body of the activity and an Expression and Operator must be supplied in their respective property fields.

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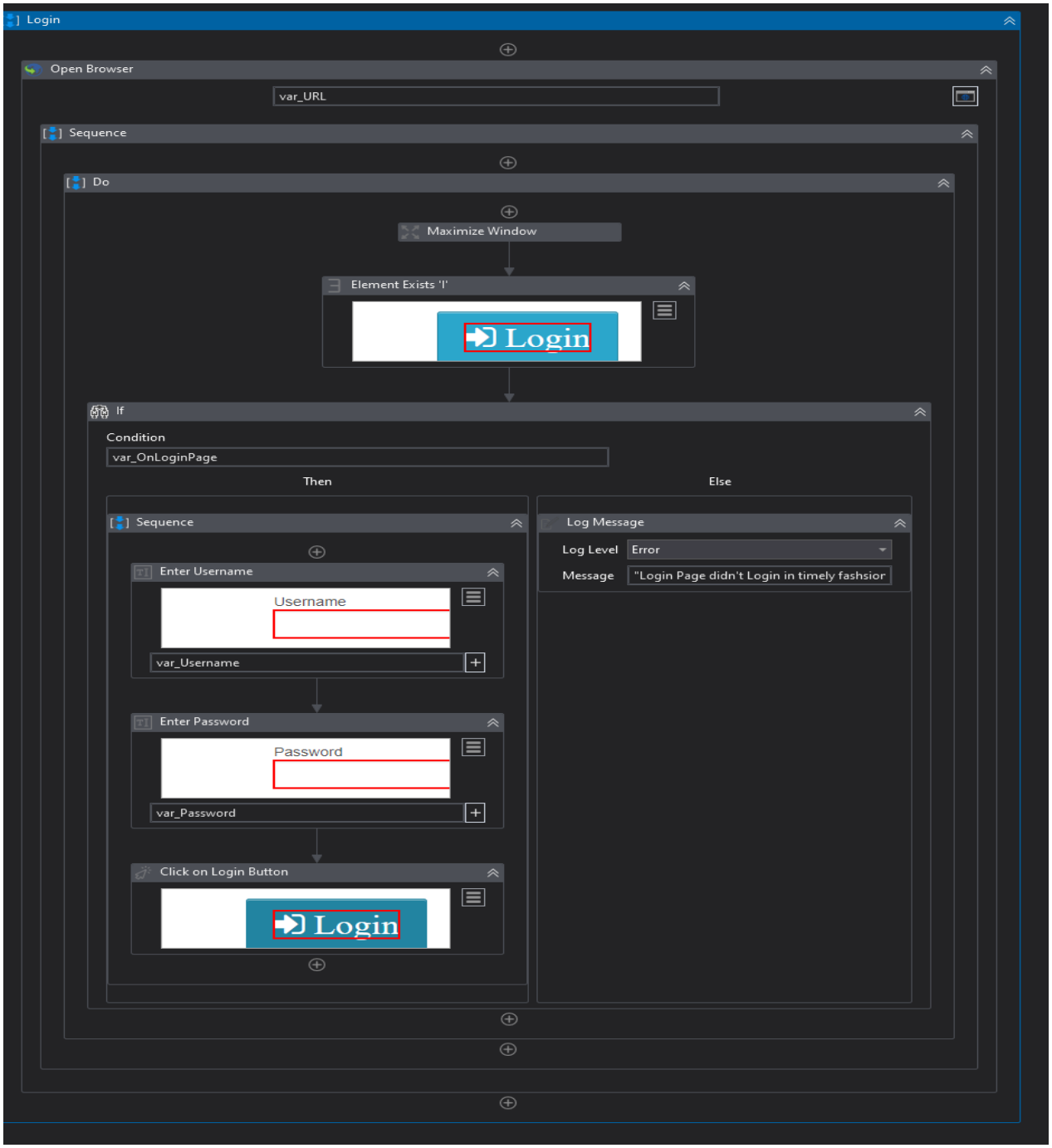
Use Case: RPA Workflow Login into Application Testing the Login Successful or Failed using the UiPath Test Suite.

Dummy Login Page URL: https://the-internet.herokuapp.com/login

Username: tomsmith

Password: SuperSecretPassword!

Simple Workflow design to login into the dummy login page in studio pro



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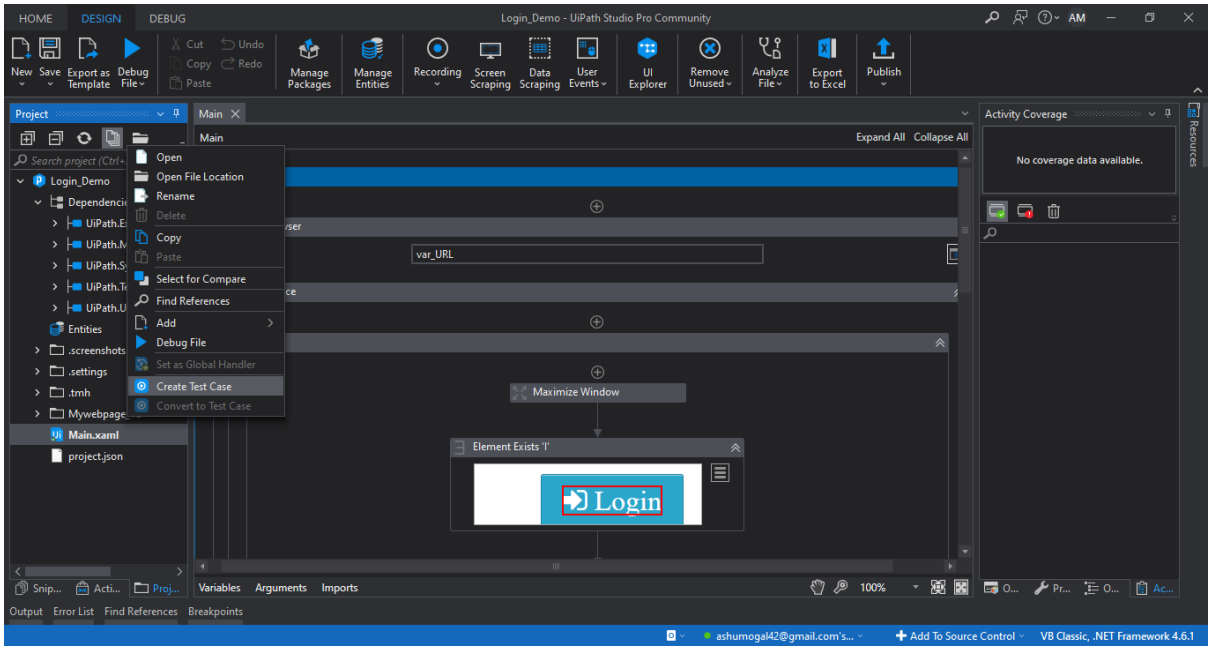
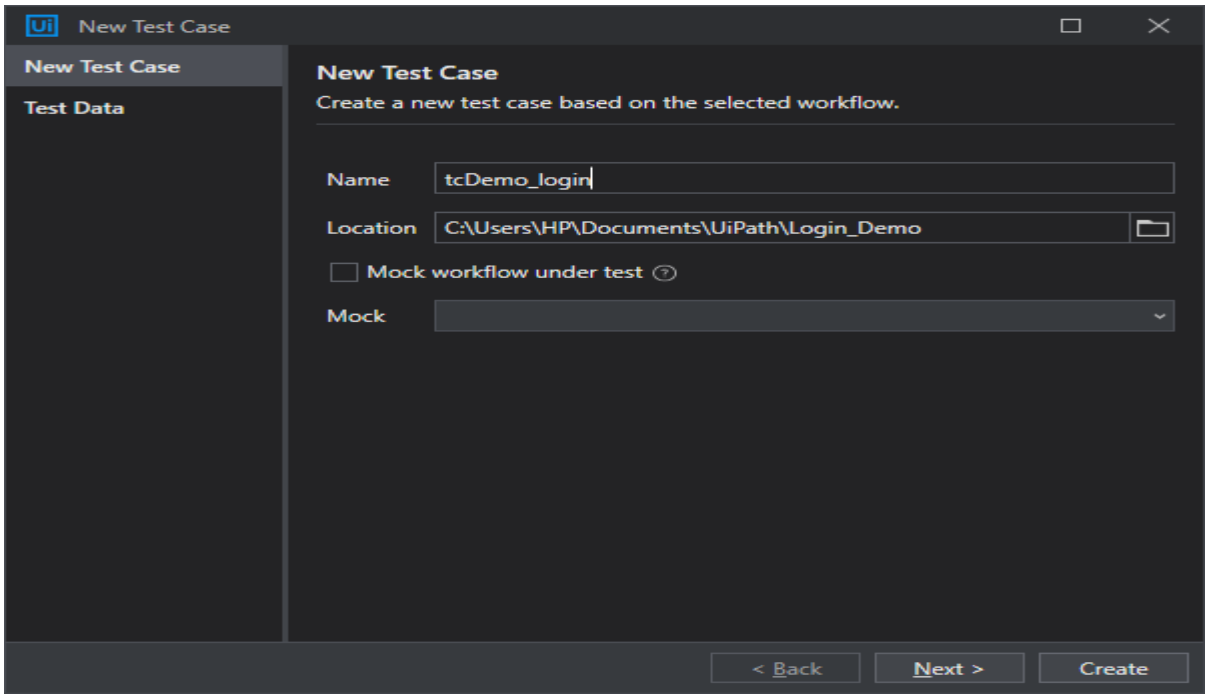
For this Login Application Process Creating the Test cases so that in future any change request comes we simply needs to run the test cases and we will ensure that the flows of process well impact and working as expected. Instead of making the changes in .xaml file.

Creating Test Cases in UiPath Studio Pro:

You can create a test case by invoking a workflow from an existing project.

1. Open your workflow in Studio Pro.
2. In the **Projects** panel, right-click the workflow and choose **Create Test Case**.





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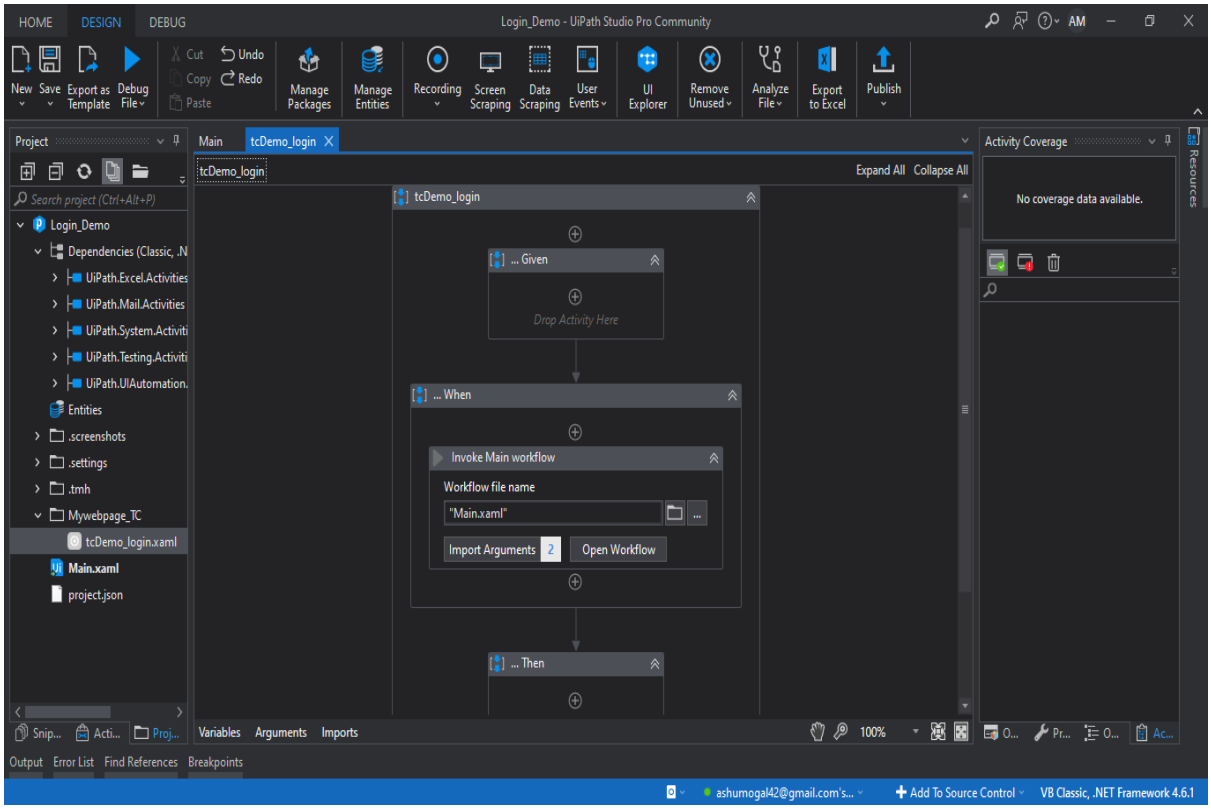
Name: specify the name of test case. (**tcDemo_login**) (Using tc prefix before specifying the name because it will help in folders to recognize the test cases and the process xaml file because both have the same extension .xaml)

Location: specify the location path where you want to save the test case.

Click **next** if you want to add test data.

Click **Create** to confirm changes.
A test case XAML file is created invoking the workflow with the following containers: **Given**, **When**, and **Then**. The file is invoked inside the **Invoke Workflow File** activity, part of the **When** container.



When we want to invoke the main workflow we needs to pass the arguments according to the business needs.

Invoke main workflow>>import Arguments

Arguments Direction

- In − This direction means that the argument can only be used within the given workflow.
- Out − This direction means that the argument can be used to pass data outside the given workflow.
- In/Out − This direction means that the argument can be used within and outside the given workflow.

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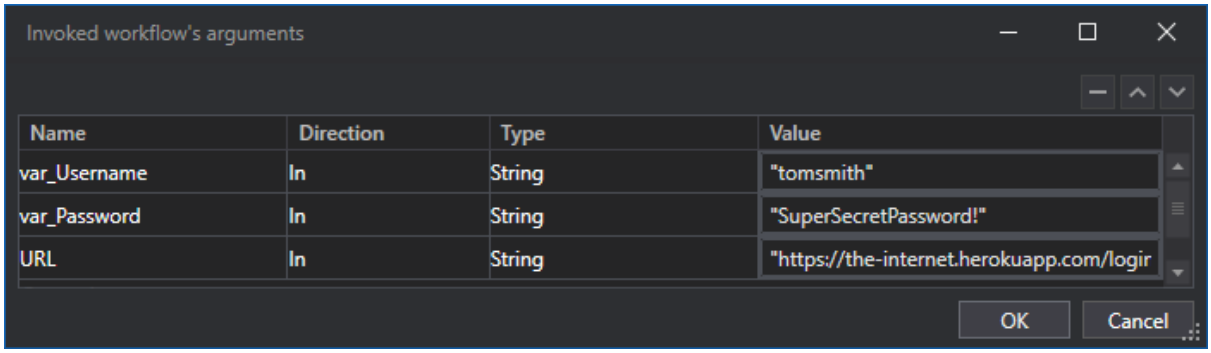
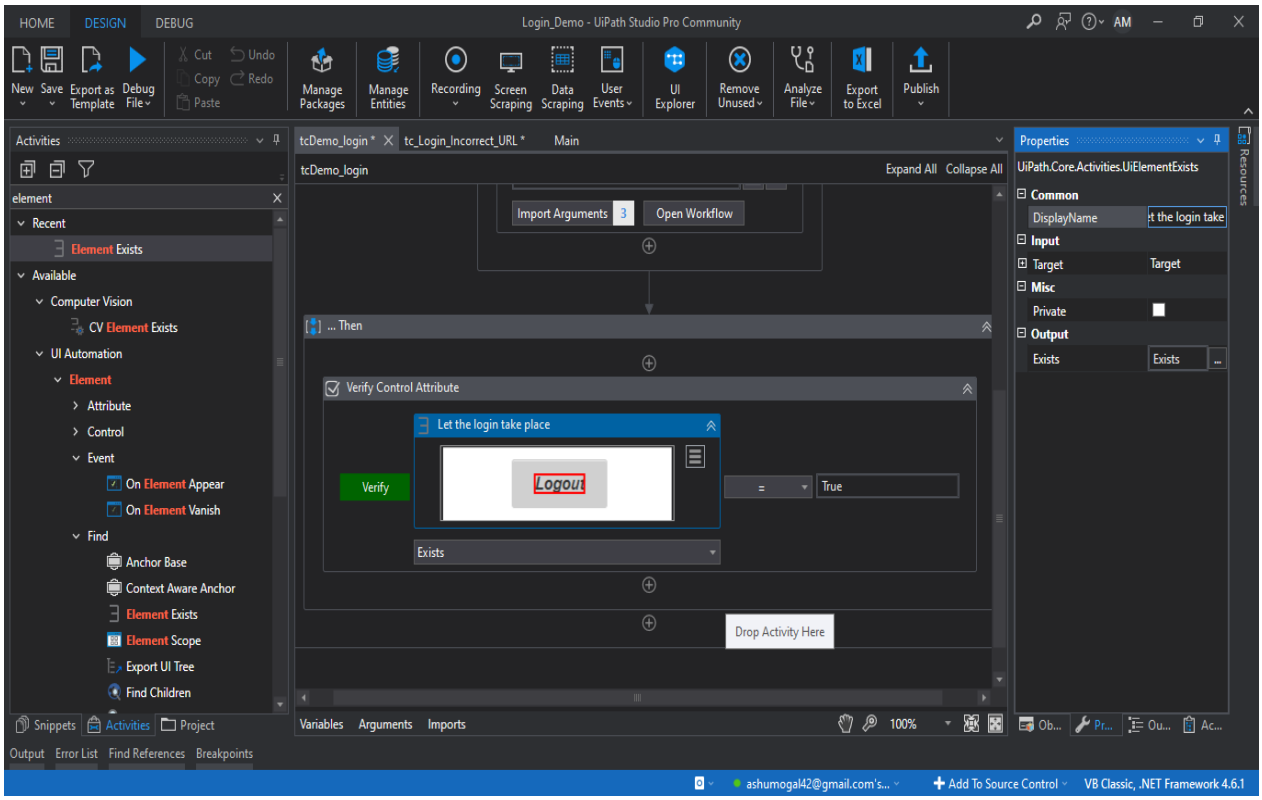


Verify Control Attribute Activity:

Expression - The expression against which you want to verify the output of the activity.

Operator - A drop-down list containing all of the possible mathematical operators you can use to verify the output of the activity.

In Then Block Verifying the Login by using this activity checking whether the login is successful or not if logout button is visible the output produce true Boolean value then my test case is marked as Successful.



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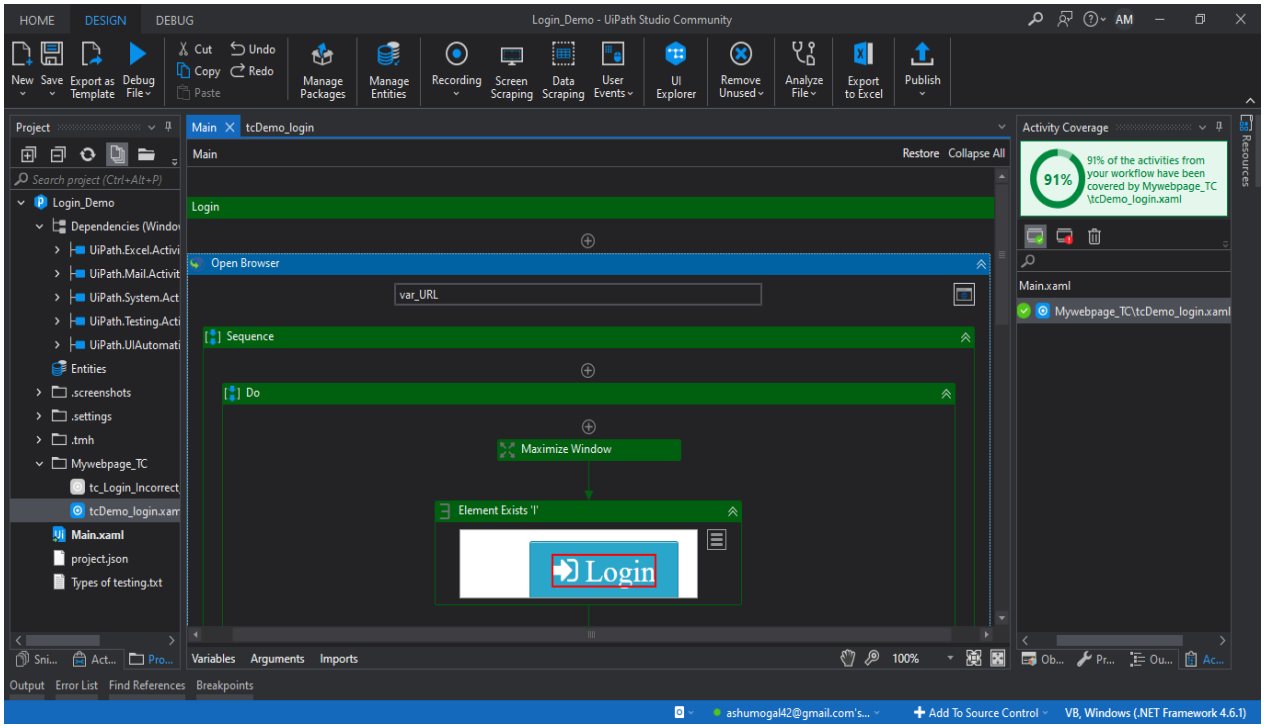
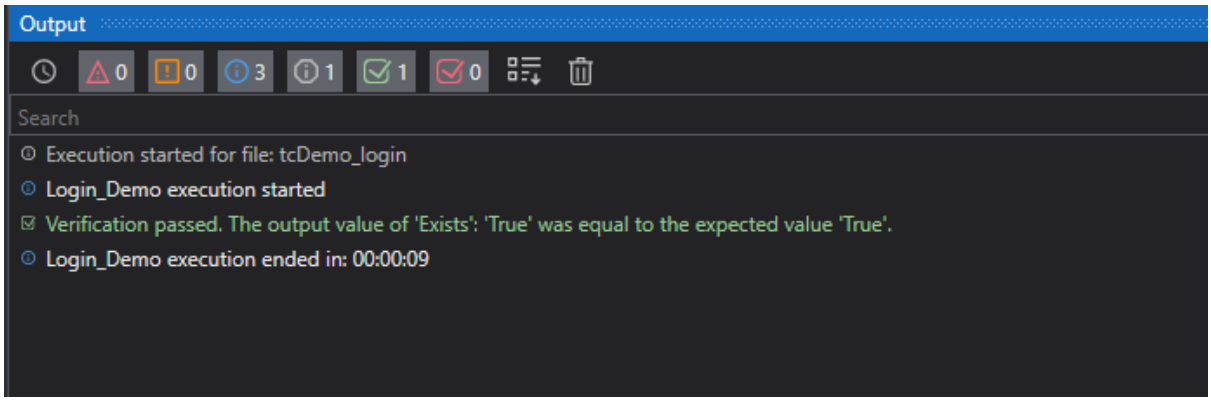
Save the Test case and Run File.

Below Screenshot shows the Test case coverage of the process workflow





Analyzing activity coverage results:

You can analyze the workflow's activity coverage, debug newly created test case and view covered and uncovered activities. To assist your workflow debugging, you can see the traversed path, by opening the **Activity Coverage** panel and double-clicking the test case. You can see the path highlighted in green and any skipped activities in red. Additionally, you

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can quickly identify whether a test case has passed or failed and view the result.

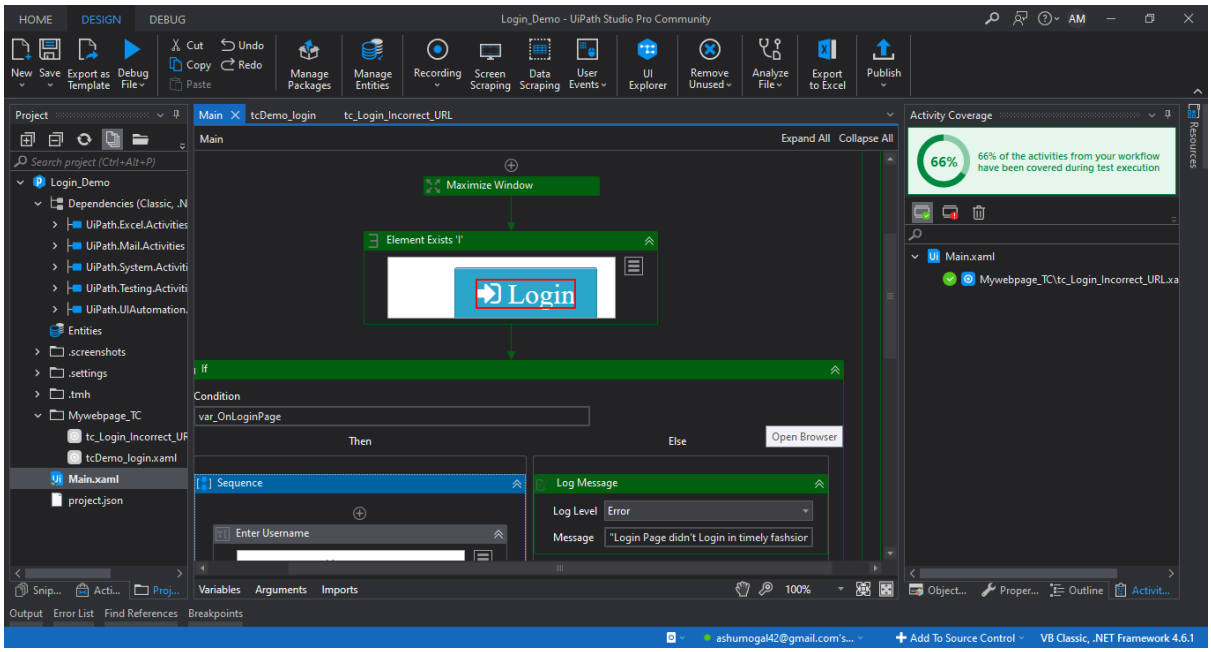
Activity Coverage:

Partial coverage rate:

Created another Test case for incorrect scenario:

tc_Login_incorrect_URL.xaml

Given the incorrect URL to test the else block Activities.



In this Login Application scenario, the activity coverage result shows that 66% of the workflow activities were covered during execution. You can create another test case to follow the execution of different scenarios depending upon your automation needs, you can create separate test cases to cover each scenario during the execution.

Full coverage rate:

The following full coverage rate scenario tests all activities.

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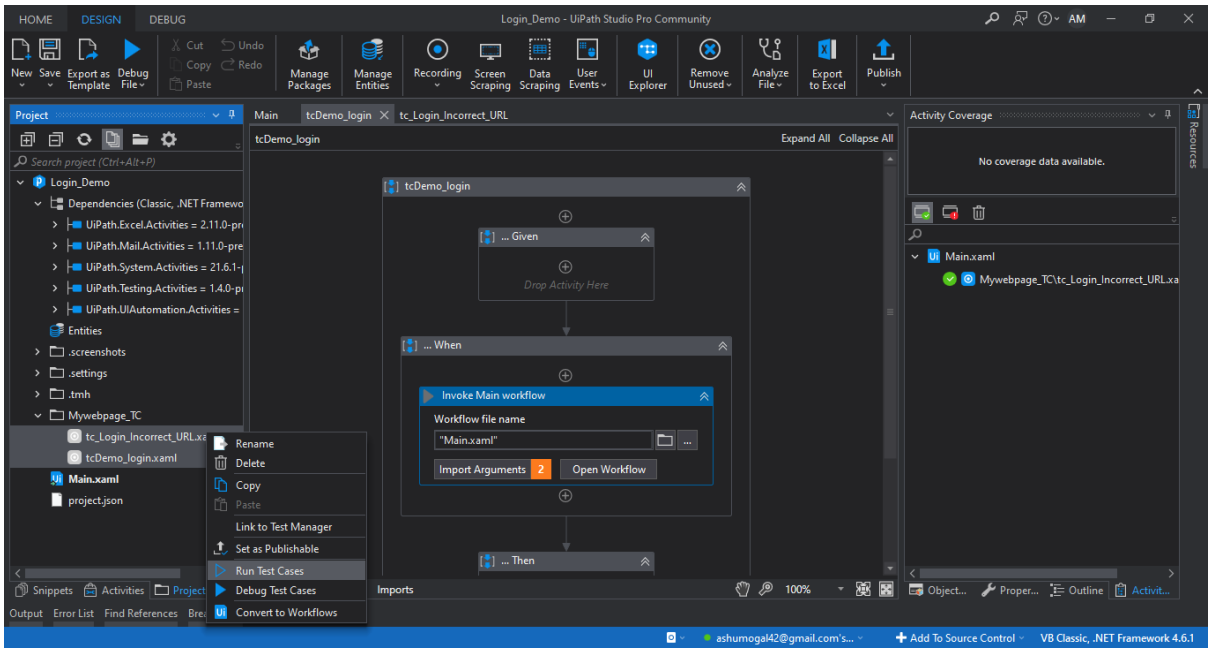
The activity coverage results show a 100% coverage rate, meaning that the data set used in the test case, together with the added activities went through all possible scenarios.



Run the Test Case through orchestrator:

After publish the **main.xaml** file simply by clicking on **publish**

The test cases design will not be published we need to publish the test cases same as the process workflow published.

Publish Test case:

Select Test Case right click on it >> Select set as Publishable

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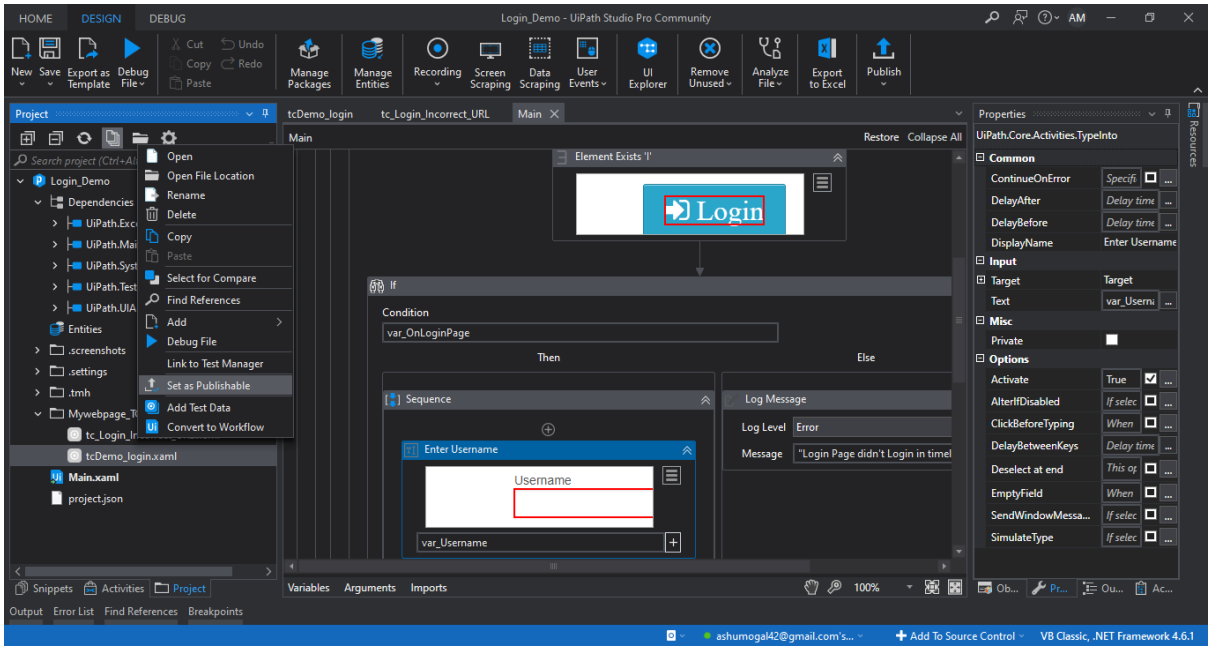
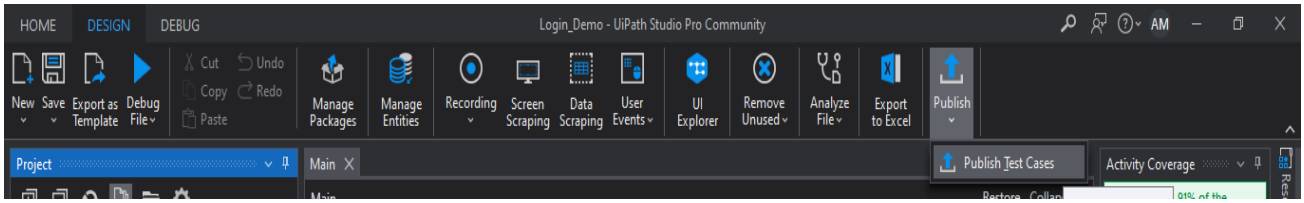
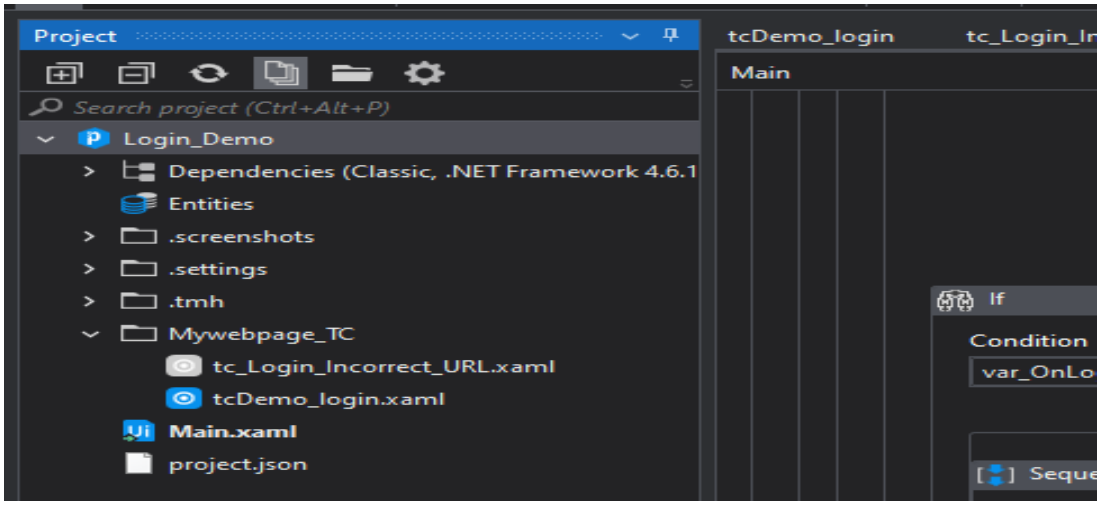


You can also publish **Publish>>Publish Test Cases**



After publishing the test case symbol turns to blue icon



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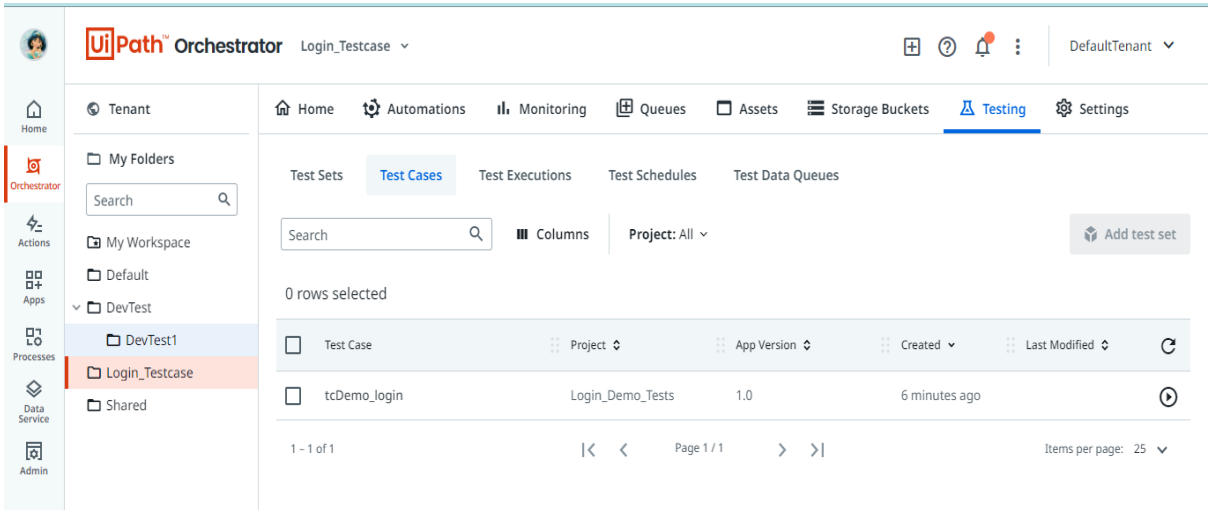
In Orchestrator >>Tenant >>Folder (Login_Testcase) >>Testing



Test sets:

A test set represents a grouping of a number of individual test cases, serving particular purposes (e.g. full regressions, smoke tests, etc.) across any number of projects.

Test Schedules:

Test Schedules, you can plan and define test execution time intervals same like our process scheduling.

Test Data Queues:

Test data queues provide a way to store and manage your test data.

Test suite will help to ensure any modification in the existing application you can run the entire set of test cases before you deploying any additional changes.By ensuring all your test cases are successful you can say that the new change is okay to deploy in the production environment.

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Automate and centralize testing to ensure the quality of every automation and application before they go live. Now you'll be able to launch resilient robots and high-quality software—without testing your patience.

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