2) Second link-Tricentis Tosca Fundamentals – Optimizing test automation with centralized test data (AS2):--In this two Part—I and II

Part I-lesson1

Test Sheet Creation

Definition of TestSheet Creation:

A "Test Sheet" typically refers to a structured document or template used in software testing to outline the test cases, test data, and expected results. It serves as a guide for testers to execute tests systematically.

Here we will focus on Centralizing our Test data and Testcases by Introducing Test Sheets and Templates.

We will also learn about API TESTING.

Lesson Challenge

Subject: TestSheet Creation

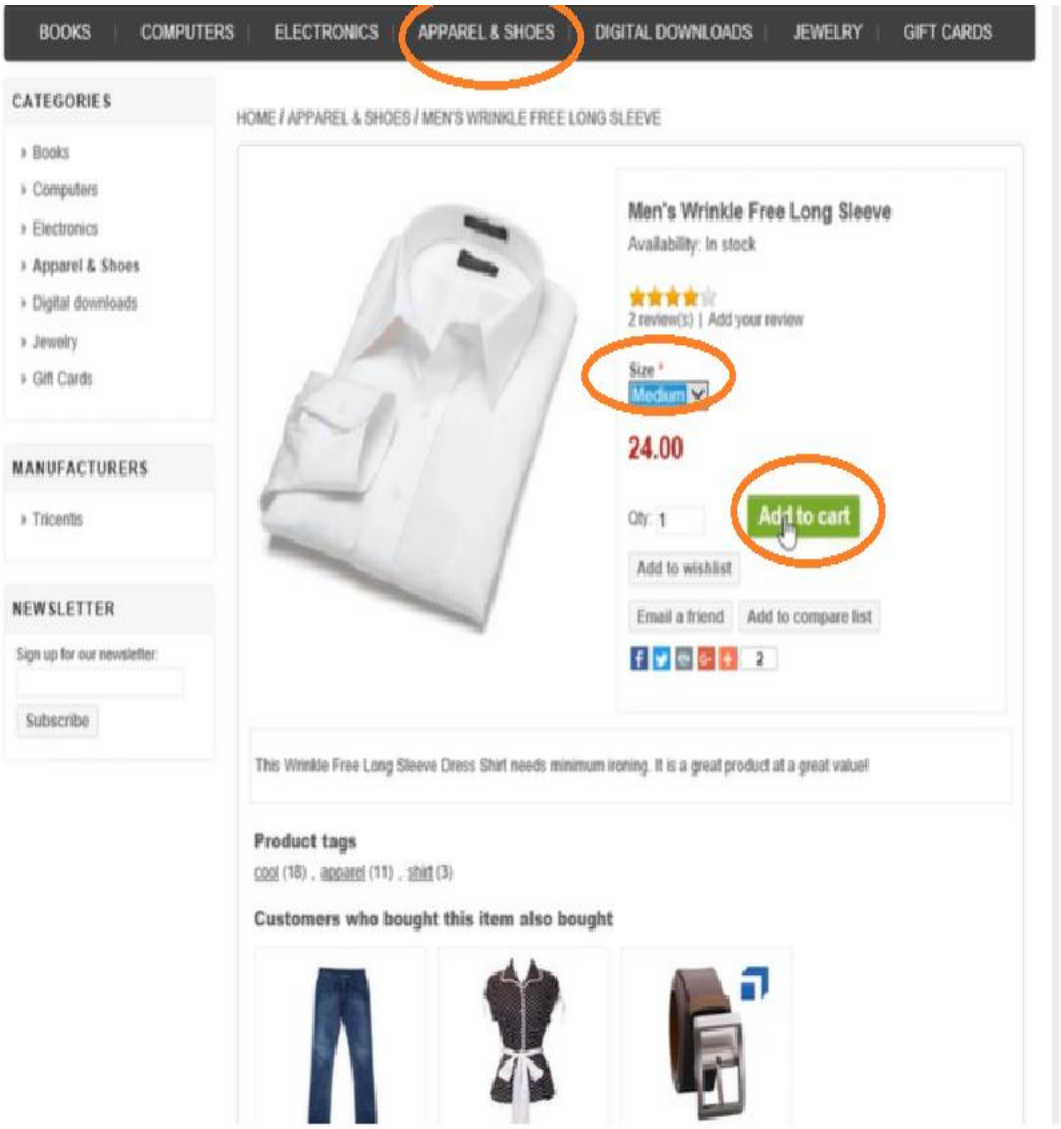
Dear Tester,

Your assignment is to test the size selector functionality in our WebShop.
Your first step is to gather all the information that will be needed
for testing.

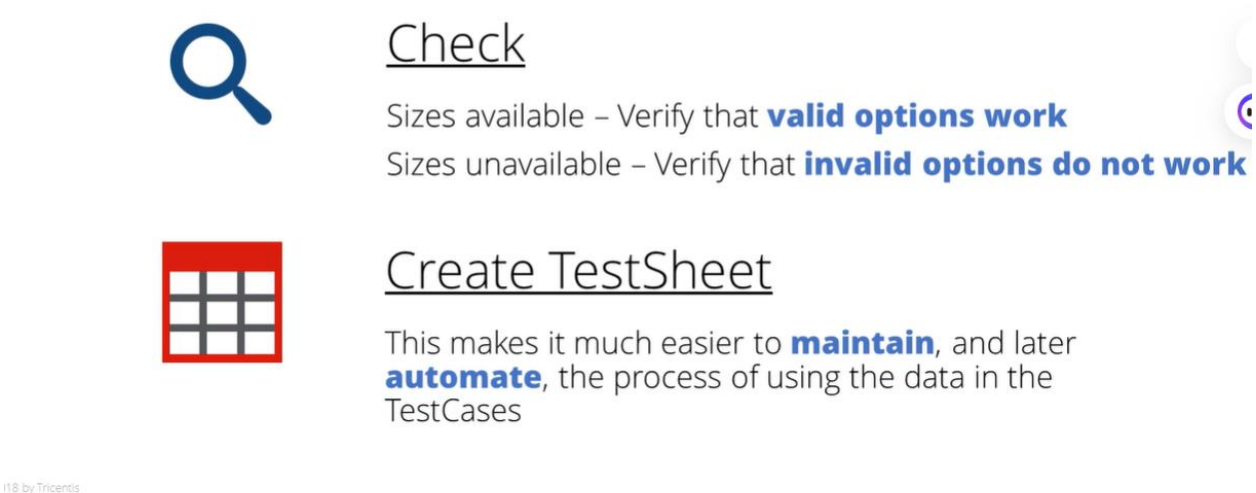
Sincerely,

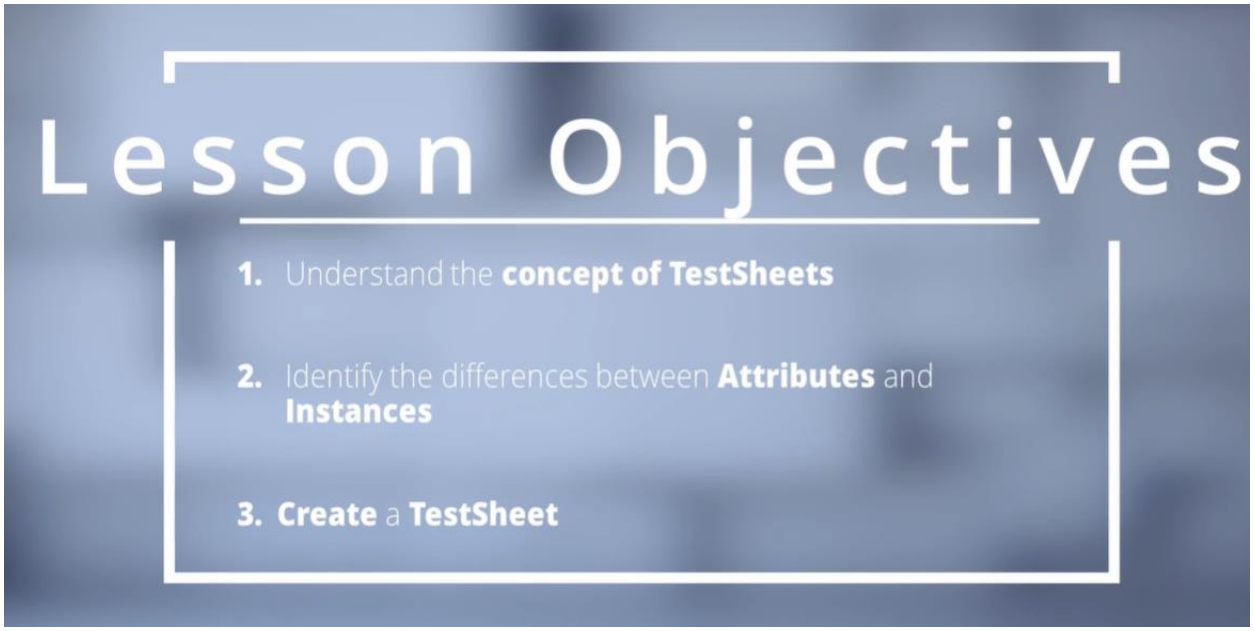
Your Test Manager

This is our Requirement:



So we need to check this both positive and negative testcases with the help of Test Sheet.





What TestSheet Defination:

Definition

TestSheet

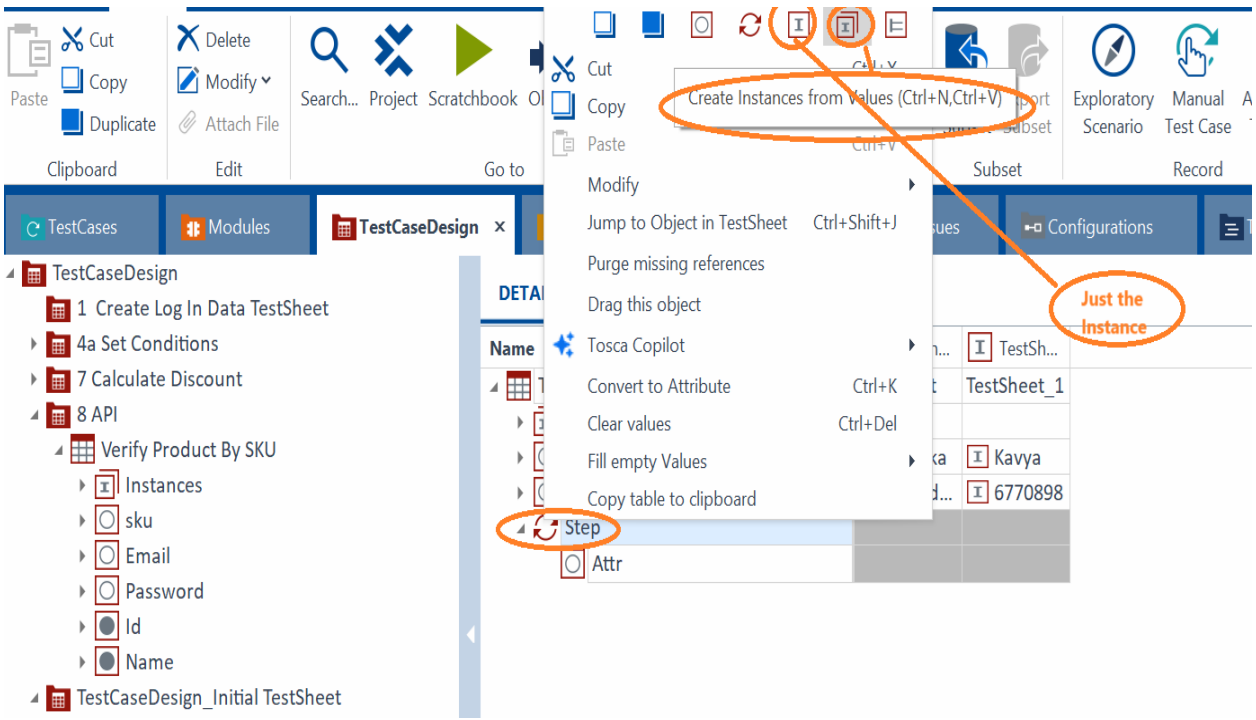
Basic framework of TestCaseDesign

It consists of **Attributes** and **Instances** which have their own values

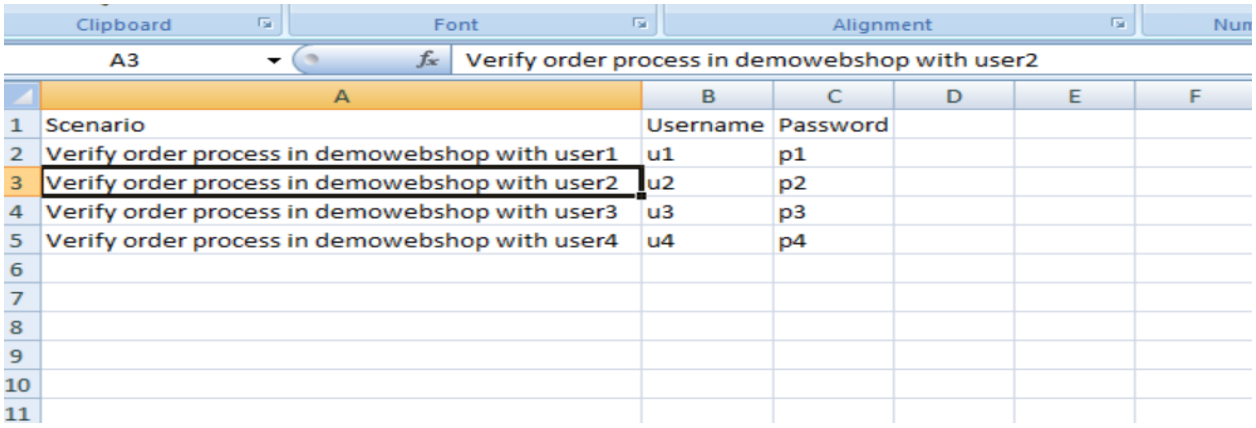
These elements specify the different combinations of the different **TestCases** in a structured way

---

Explain them in detail:



In General our Excel sheet:--Row wise it will pass the DATA

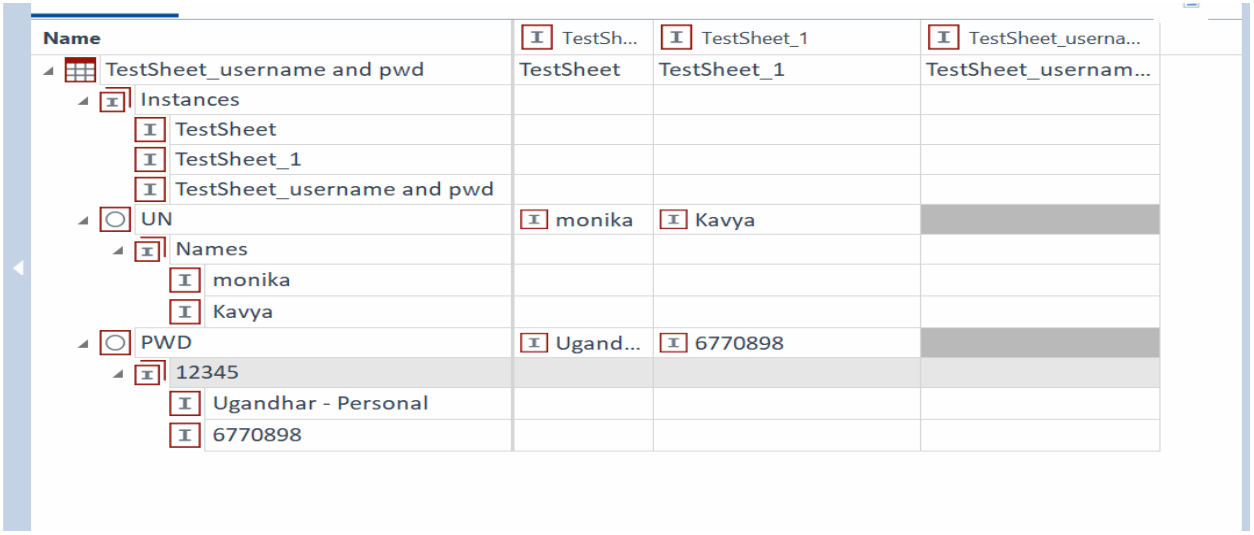


Clipboard | Font | Alignment | Num

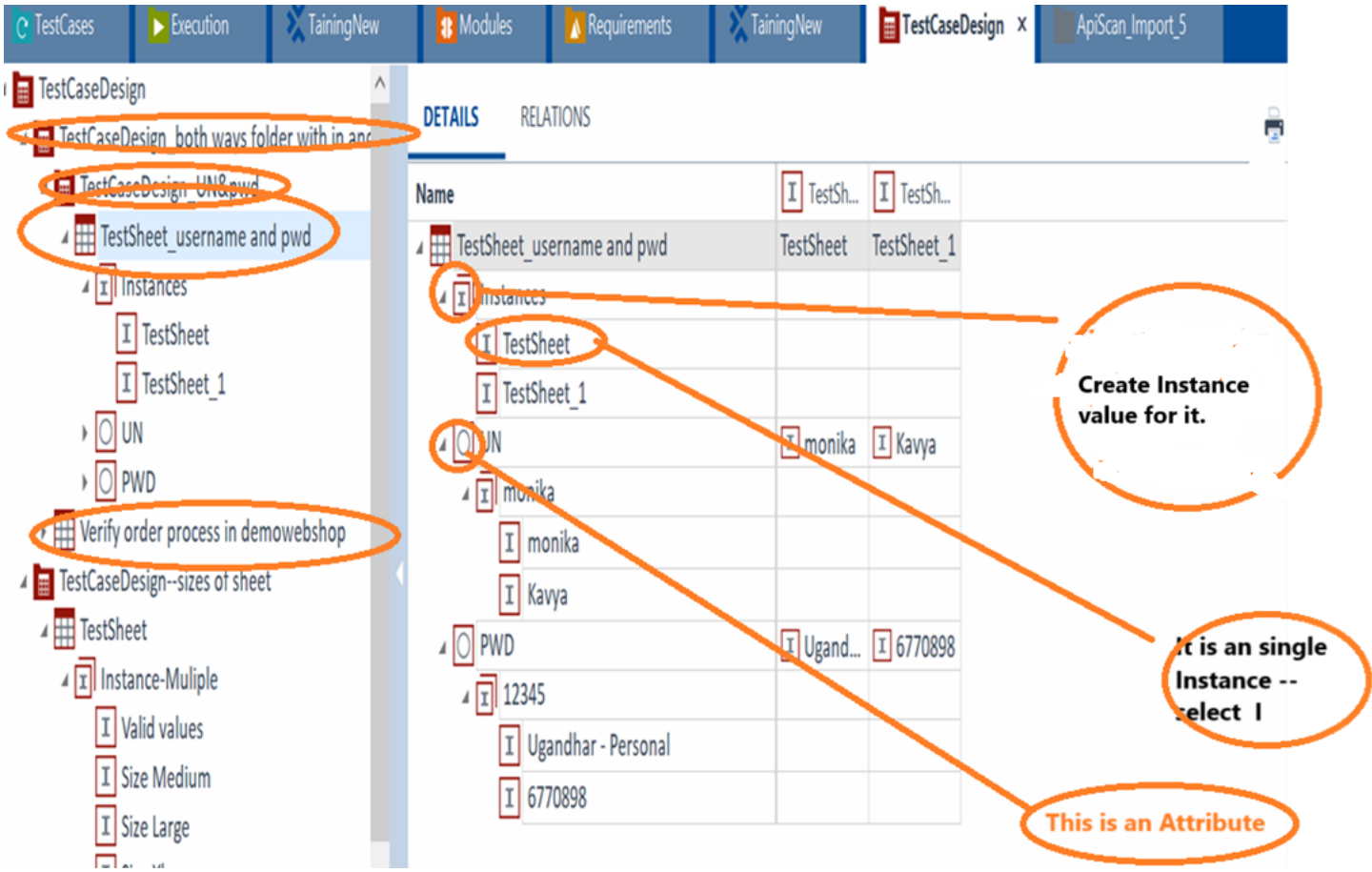
A3 | Verify order process in demowebshop with user2

	A	B	C	D	E	F
1	Scenario	Username	Password			
2	Verify order process in demowebshop with user1	u1	p1			
3	Verify order process in demowebshop with user2	u2	p2			
4	Verify order process in demowebshop with user3	u3	p3			
5	Verify order process in demowebshop with user4	u4	p4			
6						
7						
8						
9						
10						
11						

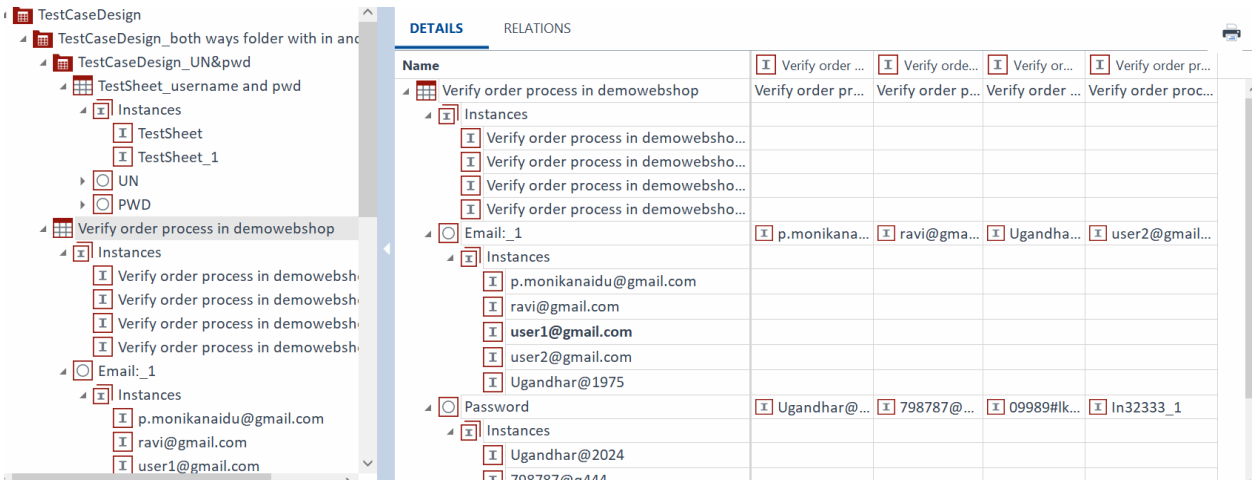
Now in TOSCA—Column wise it will pass the DATA



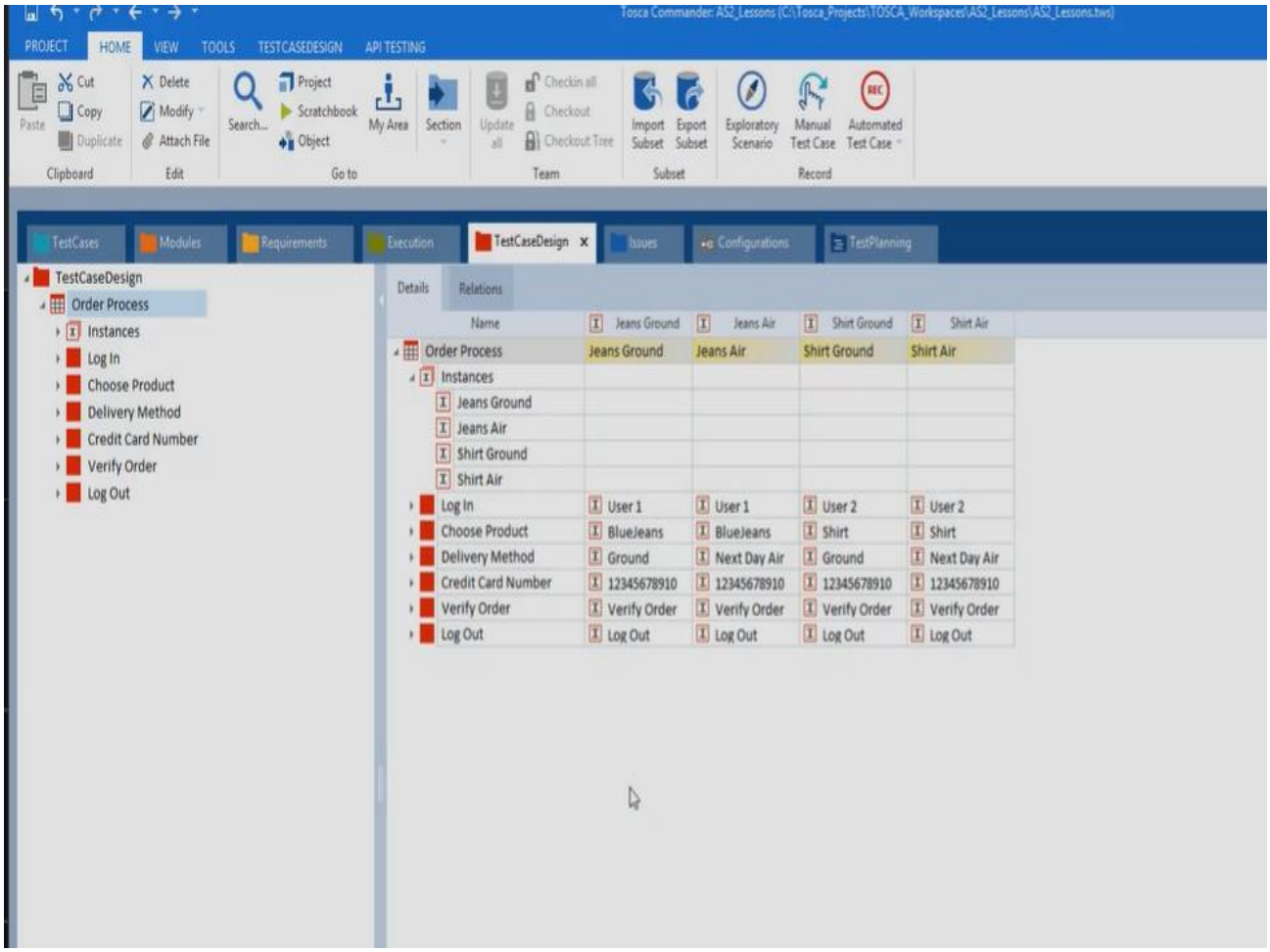
Name	TestSh...	TestSheet_1	TestSheet_userna...
TestSheet_username and pwd	TestSheet	TestSheet_1	TestSheet_usernam...
Instances			
TestSheet			
TestSheet_1			
TestSheet_username and pwd			
UN	monika	Kavya	
Names			
monika			
Kavya			
PWD	Ugand...	6770898	
12345			
Ugandhar - Personal			
6770898			



Then this is another example:



What is there in video just as an Example:



Our Sizes TestSheet

Attribute

Sizes

Instances

Valid: **S**, **M**, **L**

Invalid: **XL**

Definitions

Attribute

Expresses the **feature** of an object, person or functionality

e.g. hair color

Instance

Expresses the different **variants** of an Attribute

e.g. blond, brown, black

More Detail:

Functions

Attributes

Describe the **overall feature**

Parent Attribute can be seen as an **organizational element** for the SubAttributes

Functions

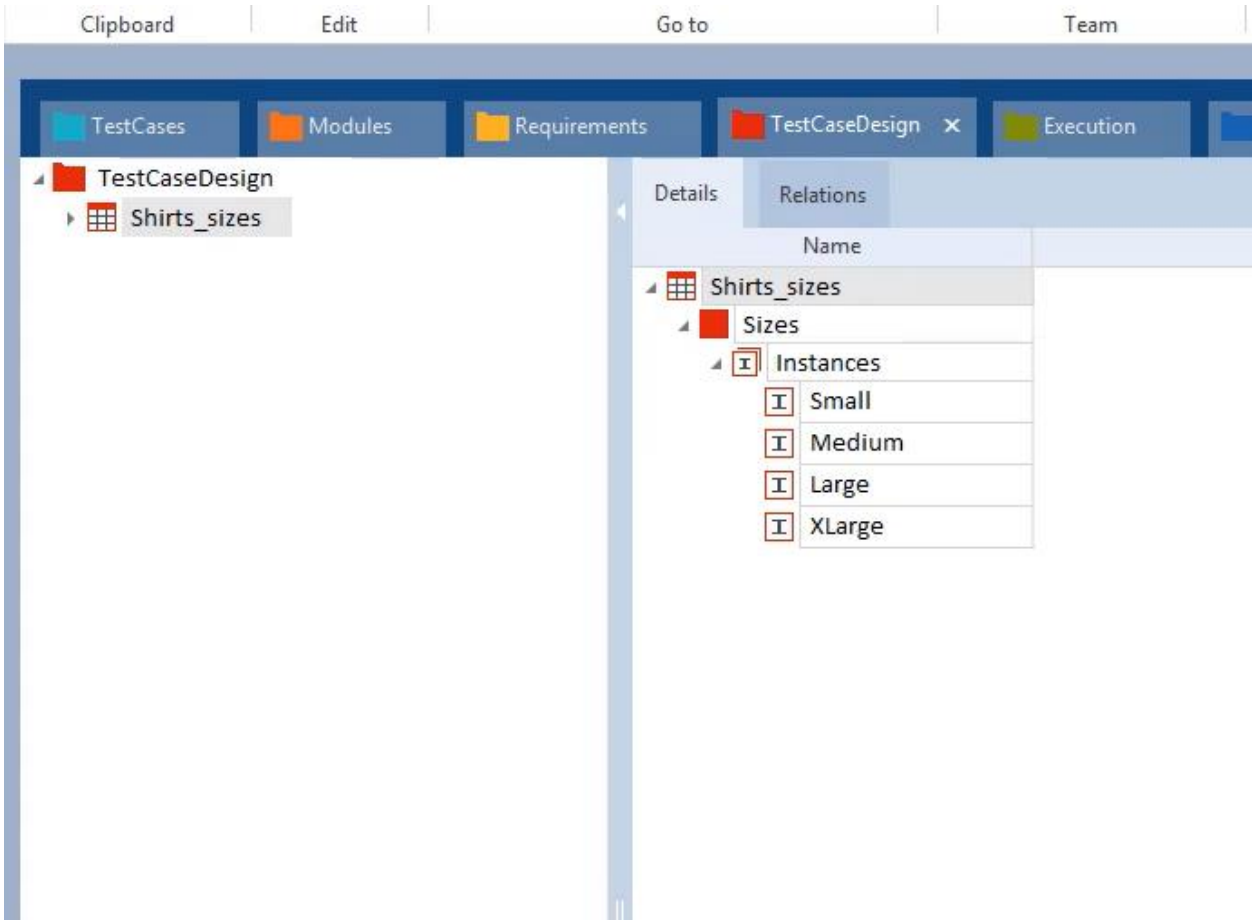
Instances

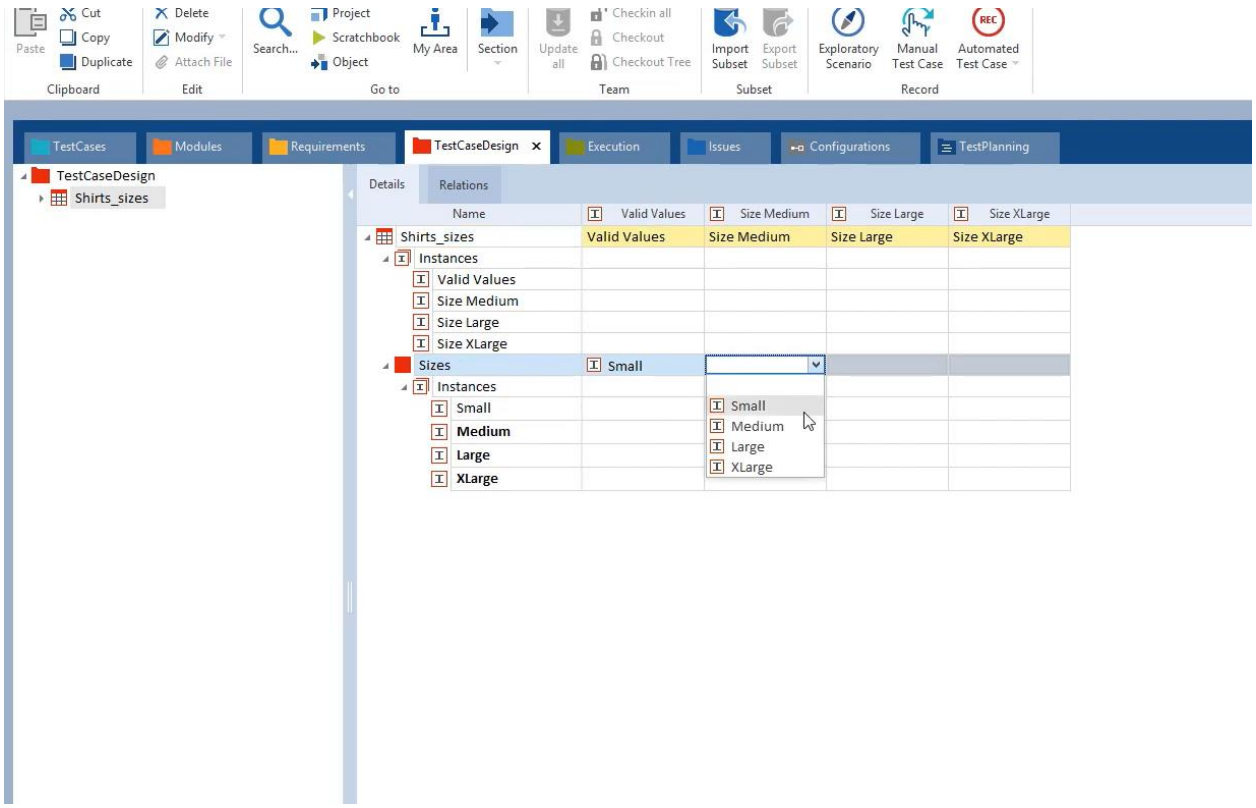
Can be placed on:

The **TestSheet level**, where they represent the **individual TestCases**

The **Attributes level**, where they represent the **variants of the Attribute** to which they are attached

Now Exercise-1





Invalid Instance vs Failed TestCase

Invalid Instance

Indicates that the TestCase should be **verifying** that the **correct error message** is shown when an Invalid Value is entered

Failed TestCase

Results when the values we are trying to verify are **different** from the **values expected** in the System Under Test

Useful Shortcuts

CTRL N T	Create new **TestSheet**
CTRL N A	Create new **Attribute**
CTRL N I	Create new **Instance**

Lesson -02 Templates

The Template will create a series of slightly different Test Cases that use the Template Test Case as a starting point.

Recap

Task

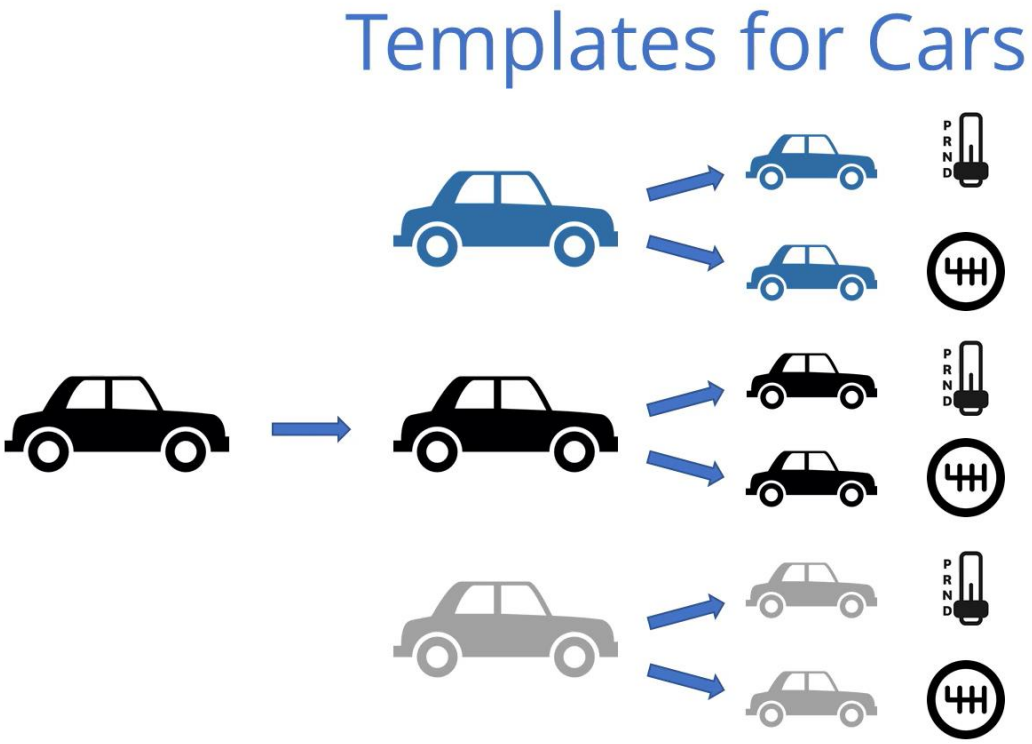
Test the **size selector** function

Individual TestCases?
Even with Libraries **repetitive process**
Also each TestCase requires **individual maintenance**

Solution: Create **TestCase Template**

Very important: This Test case Template automatically create number of Testcases using the Test data contained in the Test Sheets.

Explain:



Definition

Template

Designed to **contain all possible paths** of a particular TestSheet

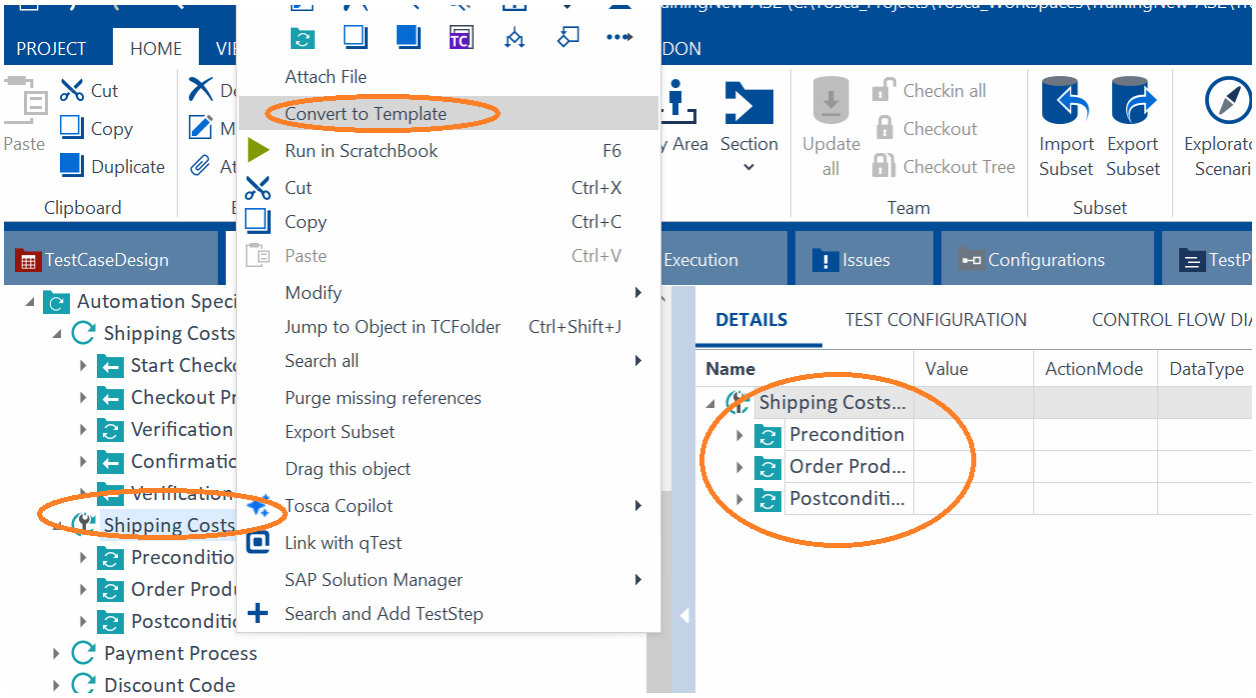
Allows to quickly **add**, **modify** or **remove** TestCases

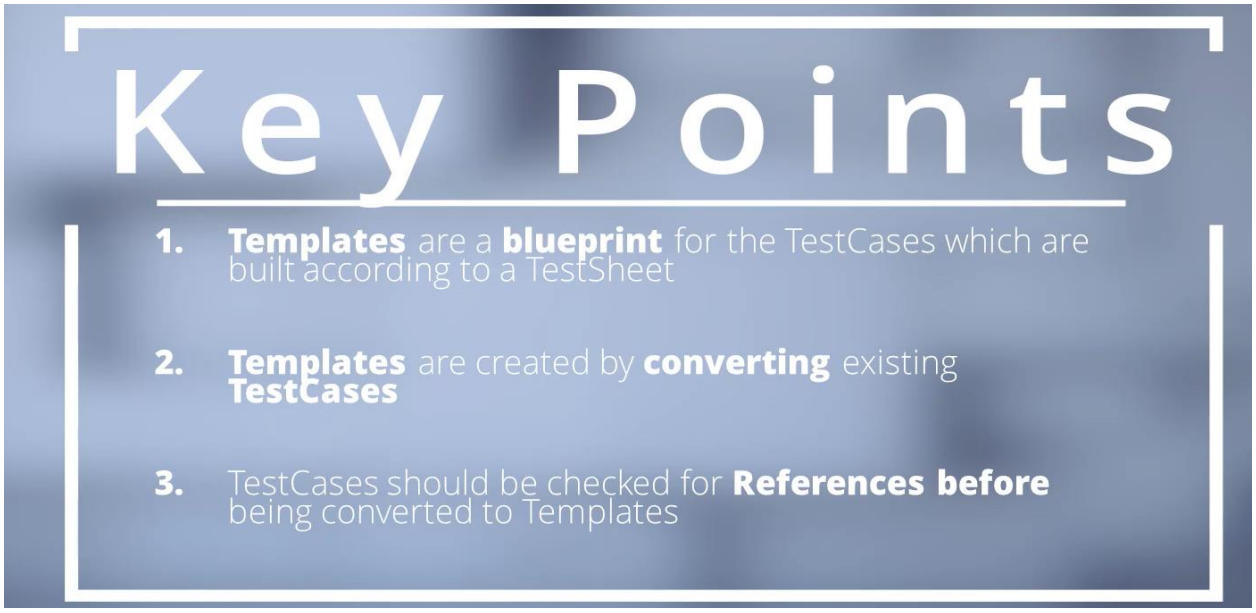
Modifications will feed through to **all of the TestCases**

Covers the **risk areas** of our SUT in a time-efficient way

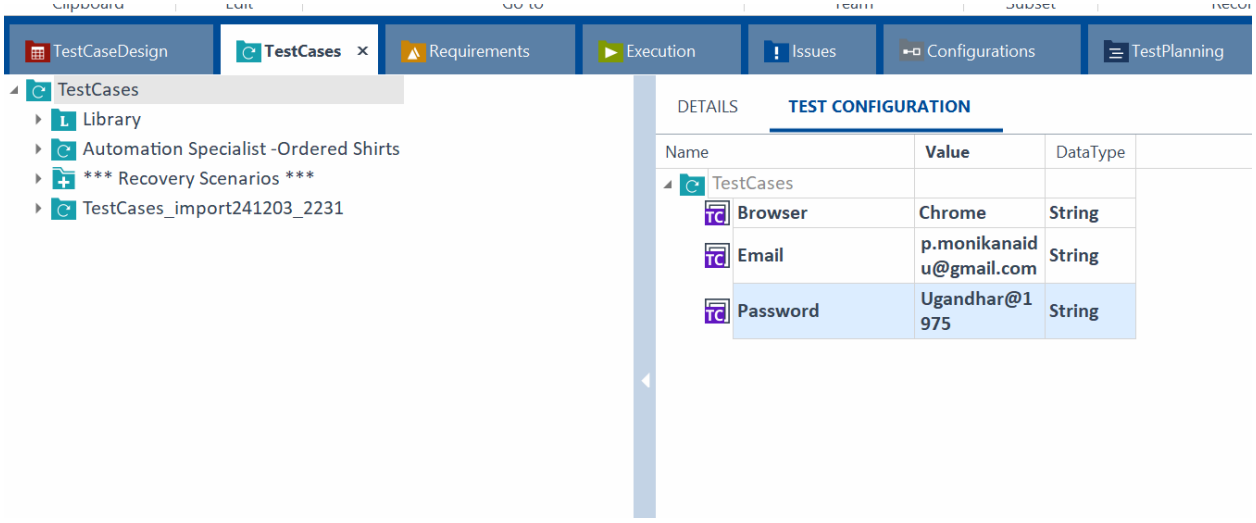
Now create a Test case and call References form the library or from Automation specialist.

Then you can convert this Test Case in to Template and vice versa (Remove references or not your choice)

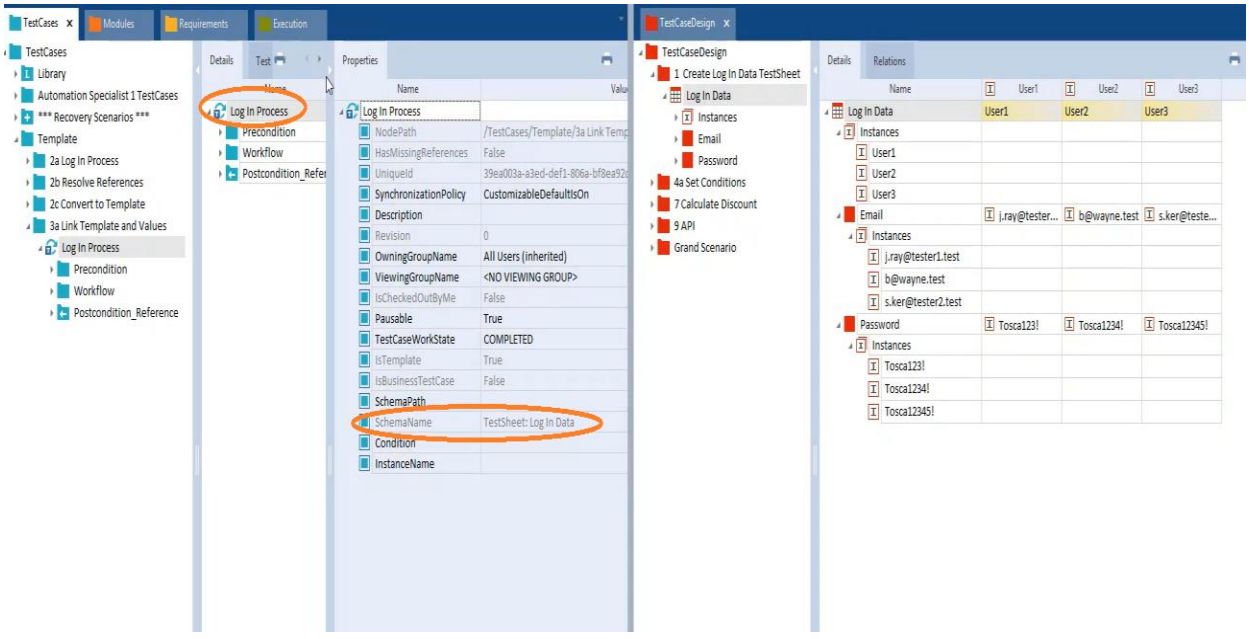

PROJECT
HOME
Cut
Copy
Paste
Duplicate
Clipboard
Attach File
Convert to Template
Run in ScratchBook F6
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Modify
Jump to Object in TCFolder Ctrl+Shift+J
Search all
Purge missing references
Export Subset
Drag this object
Tosca Copilot
Link with qTest
SAP Solution Manager
Search and Add TestStep
Section
Update all
Checkin all
Checkout
Checkout Tree
Team
Import Subset
Export Subset
Subset
TestCaseDesign
Execution
Issues
Configurations
Automation Speci
Shipping Costs
Start Check
Checkout Pr
Verification
Confirmatic
Shipping Costs
Precondition
Order Prod
Postconditi
Payment Process
Discount Code
DETAILS
TEST CONFIGURATION
Name
Value
ActionMode
DataType
Shipping Costs...
Precondition
Order Prod...
Postconditi...


Key Points
1. Templates are a blueprint for the TestCases which are built according to a TestSheet
2. Templates are created by converting existing TestCases
3. TestCases should be checked for References before being converted to Templates

Now create TCP at the Testcase level:



Now you need to link Testsheet to Testcase and values from testcsheet also like username and pwd---Please cross check it in Schema name-TESTSHEET name you can see.



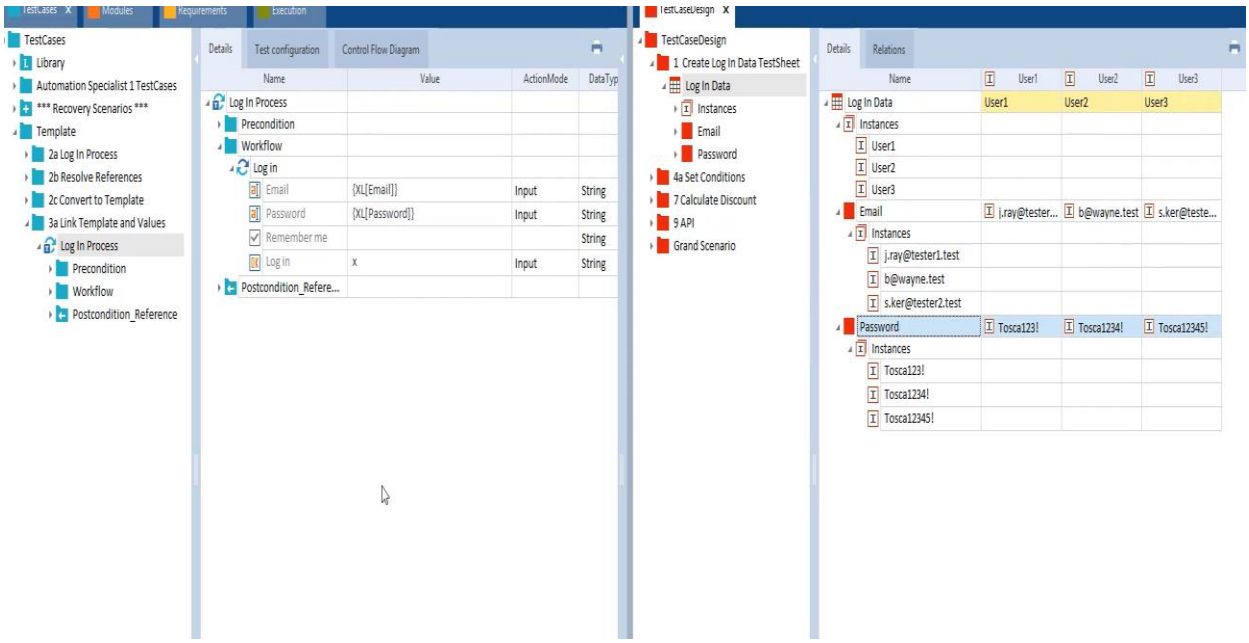
Username and pwd dragged—show them

You can directly write the formula too.

Email ID--{XL[Value - Email]}

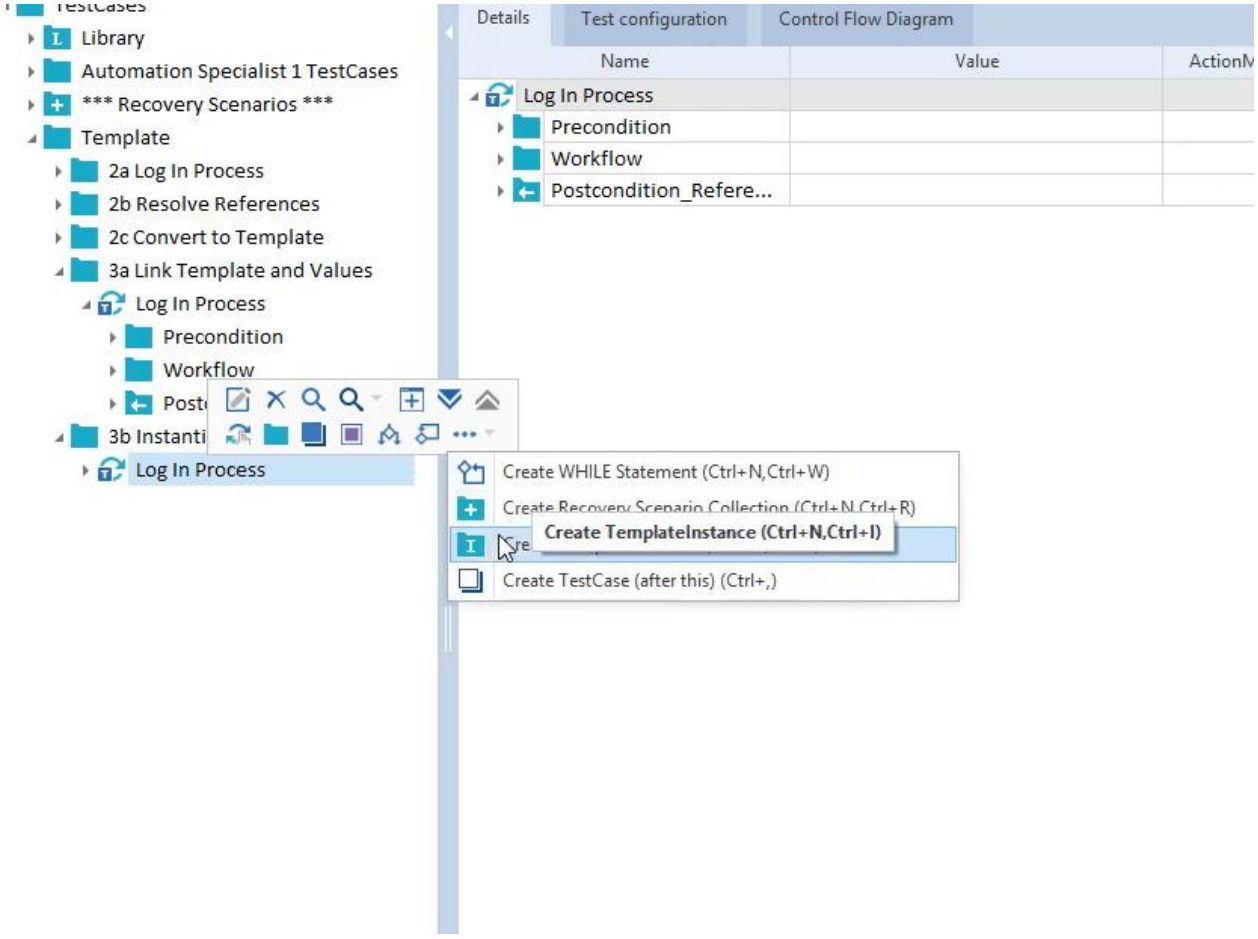
Password--{XL[PWD]}

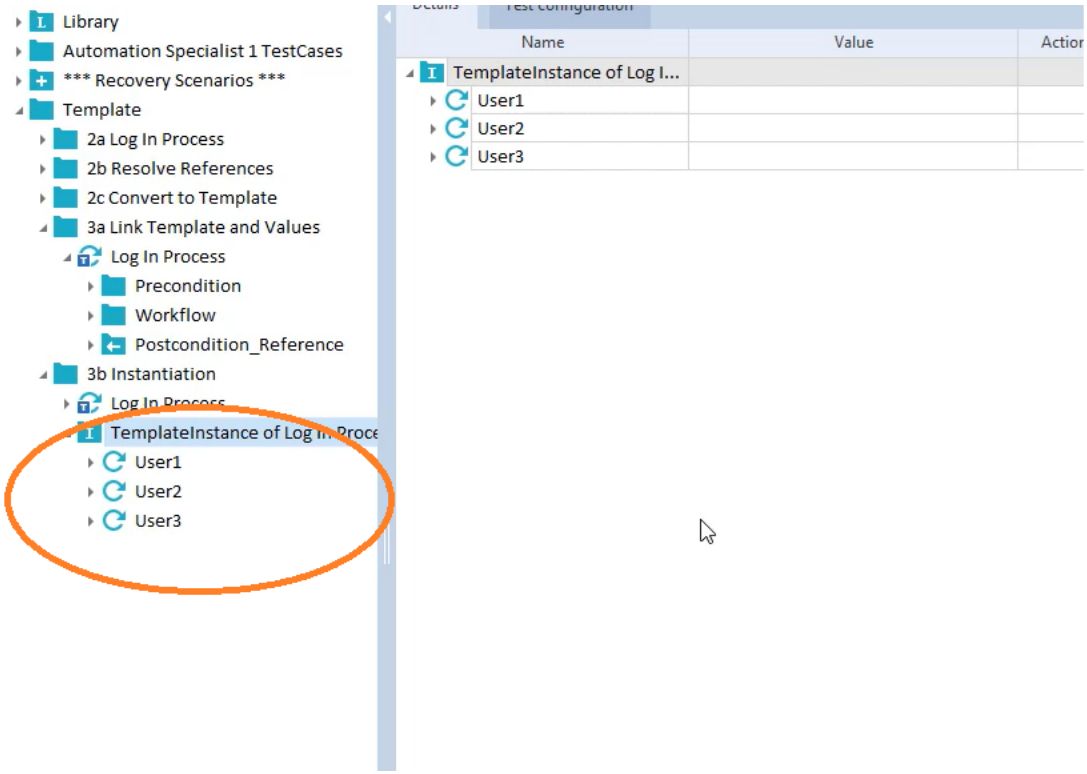
Note—only valide Data it will take but not invalid data.



Then you need to Executatible instances with the help of

Your Testcase:

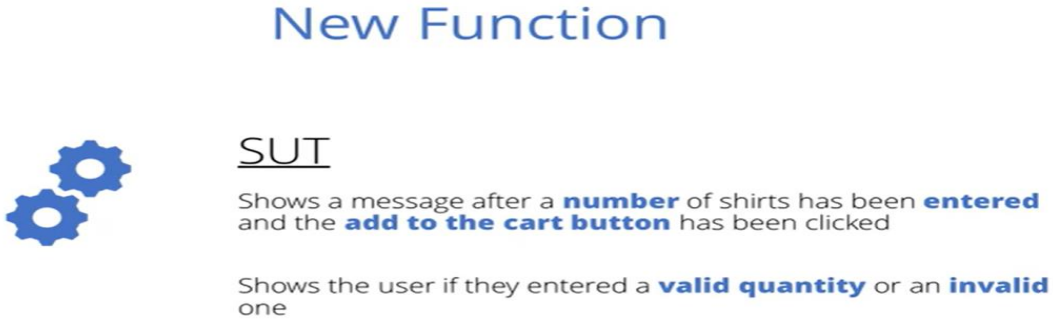

Library
Automation Specialist 1 TestCases
*** Recovery Scenarios ***
Template
2a Log In Process
2b Resolve References
2c Convert to Template
3a Link Template and Values
Log In Process
Precondition
Workflow
3b Instanti
Log In Process
Details
Test configuration
Control Flow Diagram
Name
Value
Log In Process
Precondition
Workflow
Postcondition_Refere...
Create WHILE Statement (Ctrl+N,Ctrl+W)
Create TemplateInstance (Ctrl+N,Ctrl+I)
Create TestCase (after this) (Ctrl+,)



How many user you have that many can be seen here.

And Run this in the Scratch Book and view results.

Lesson 04-Modifications of Template

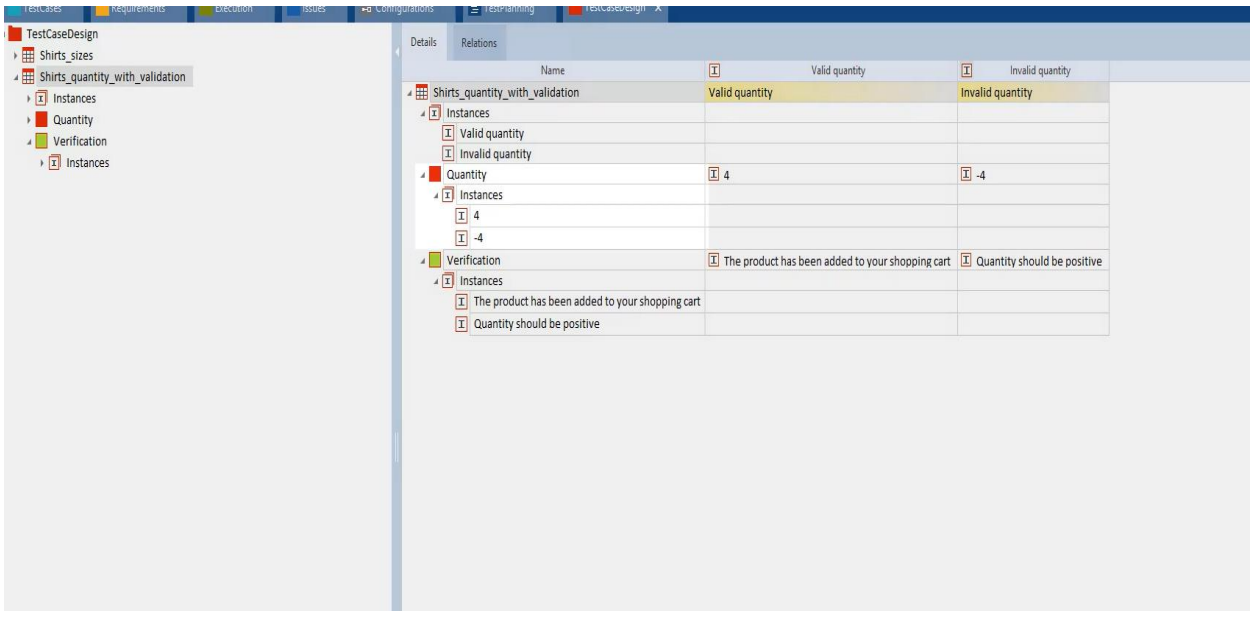


Add to Cart

This feature adds to a part of the SUT that was already tested

You have Modules, Templates, TestCases and TemplateInstances

A new TestSheet, including the **Verification Attributes** that are needed to verify the message from the SUT



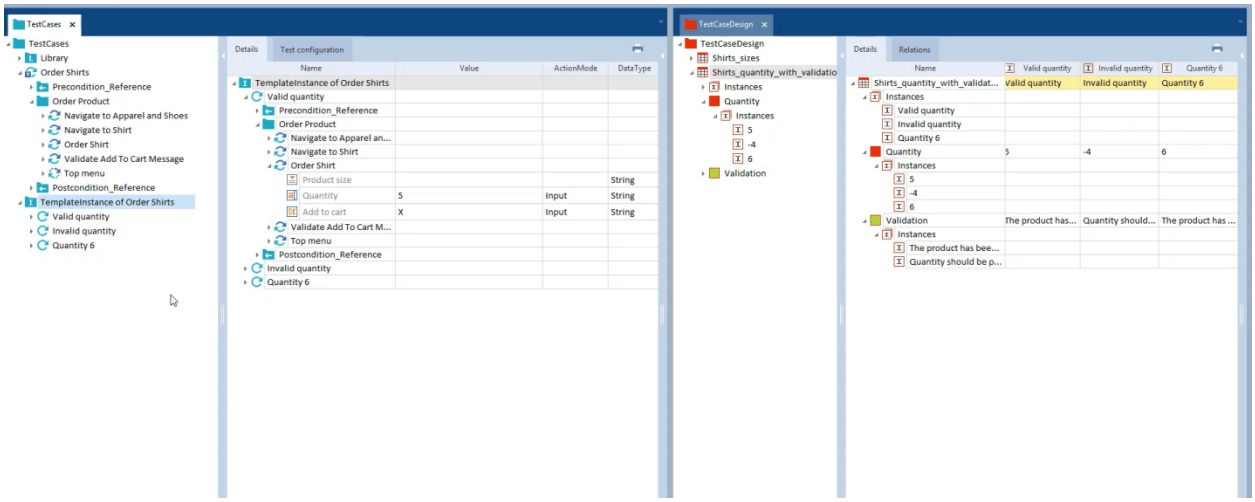
Remember

XL Links

Once the TestSheet has been linked, we need to take care of the XL links

If the **Attributes** and **Instances** have been named **exactly the same way** in both the old and the new TestSheet, then Tosca will **update** the links **automatically**

These should, however, be **carefully checked**



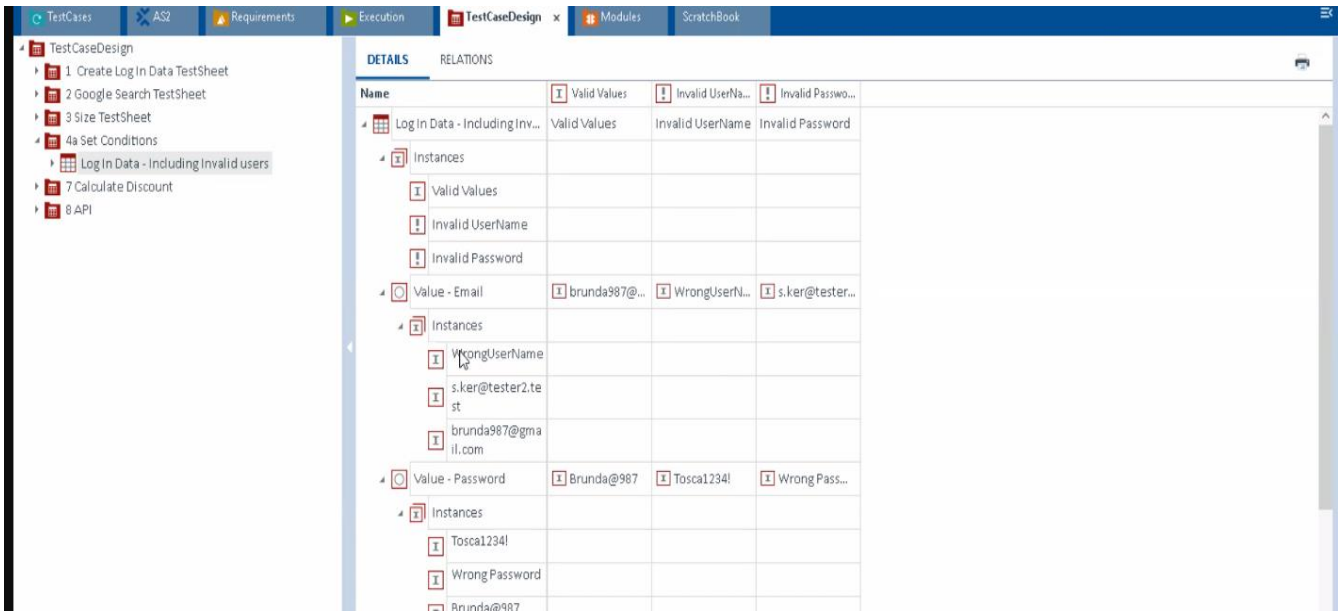
Lesson -05 Conditions

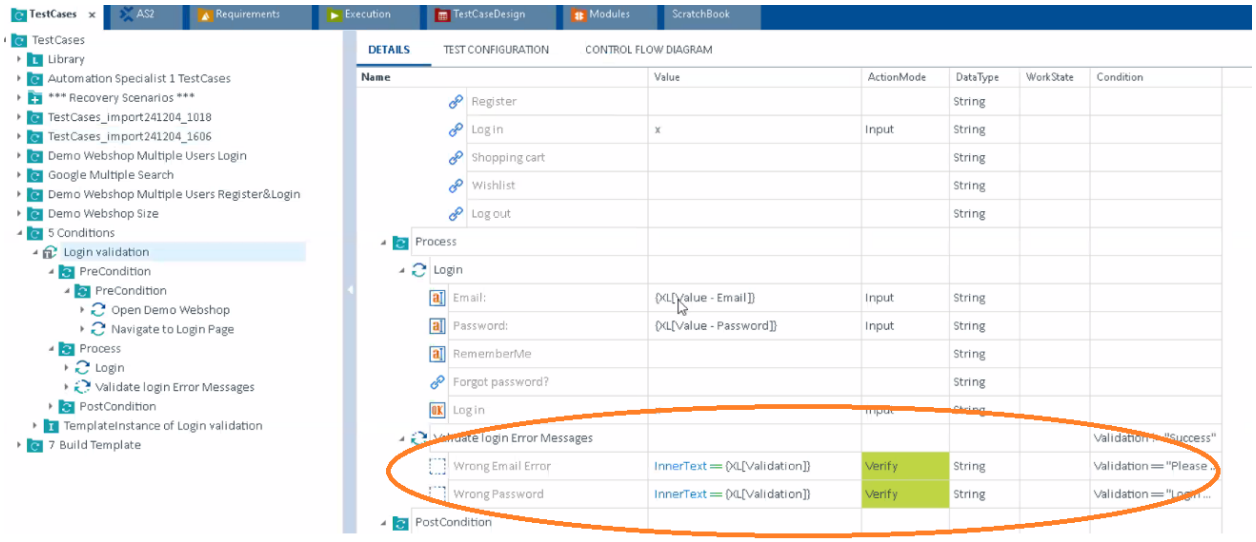
Conditions

Conditions instruct Tosca on when to use (or not to use) certain **TestStepFolders**, **TestSteps** or **Values**

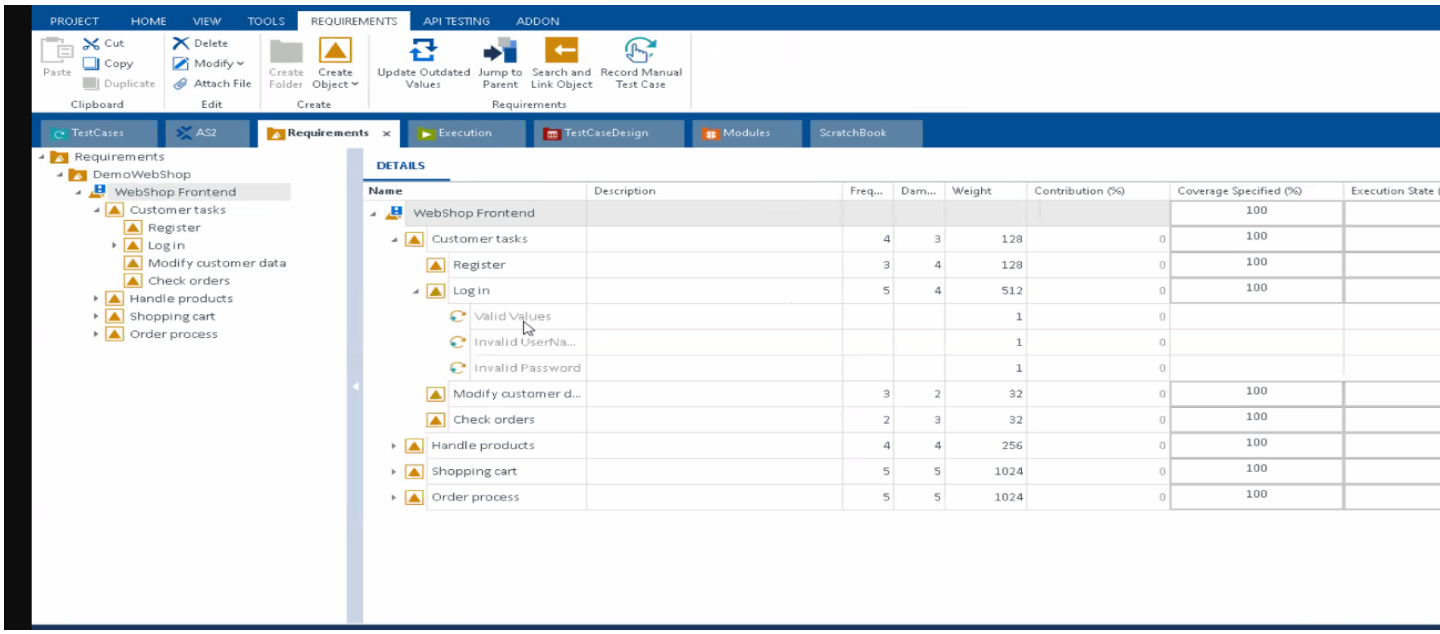
A Condition on a **TestStepFolder** acts as a rule for when that **entire Folder** would be run

A Condition on a **TestStepValue** is applicable on that **specific Value**





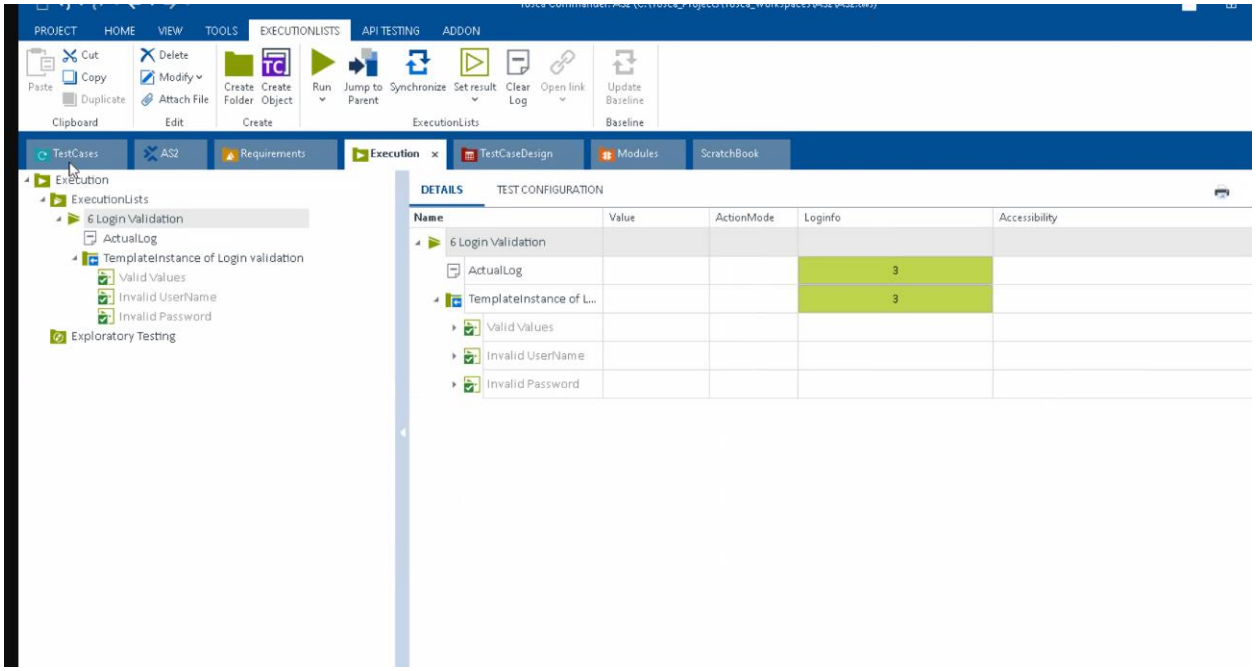
Lesson -06 Run &Report Automated

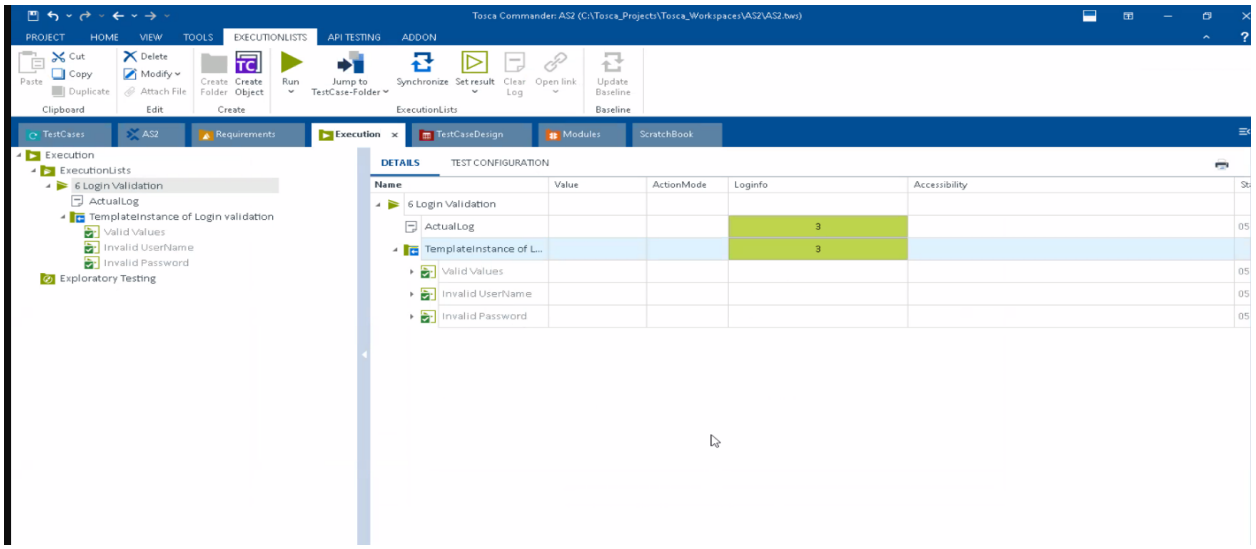


Lesson -07 Build Templates and links ----Similar we do

(Like Earlier we Link Test Cases →Requirement

And Execution-→Requirement)



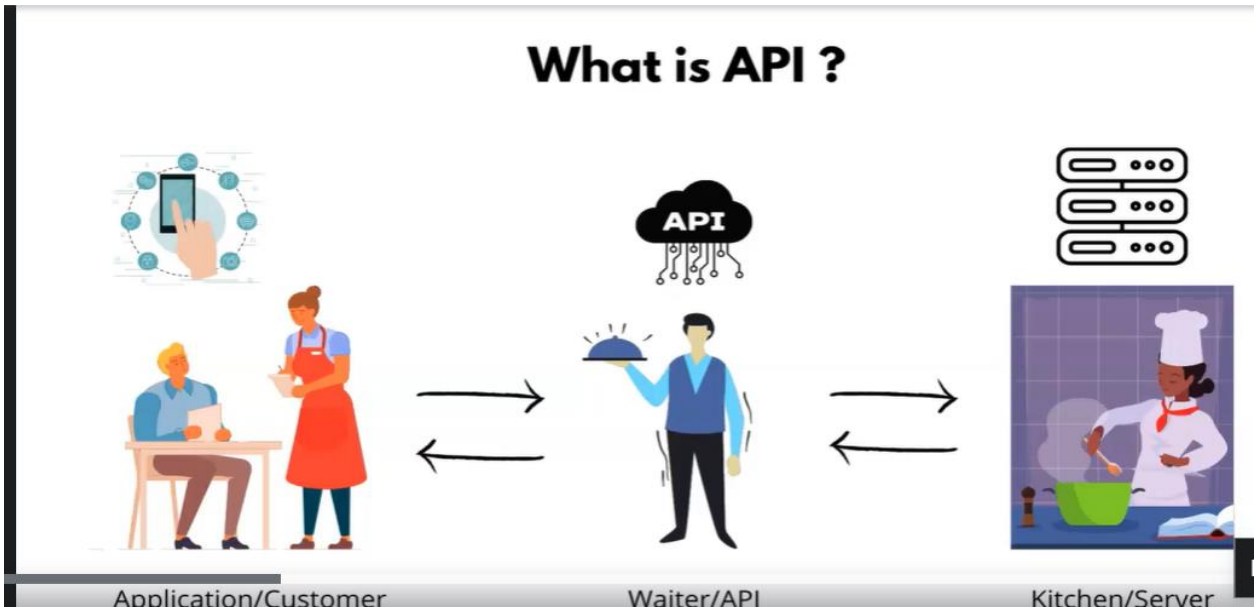


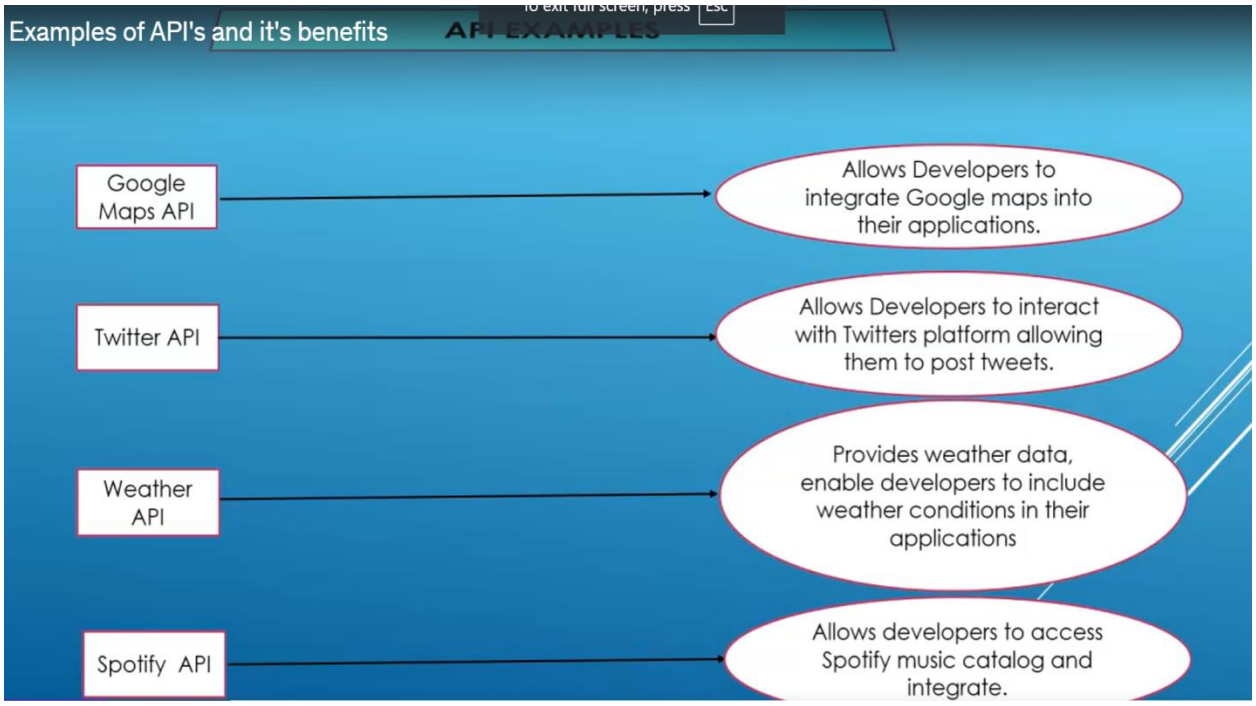
Assignment for AS2:=

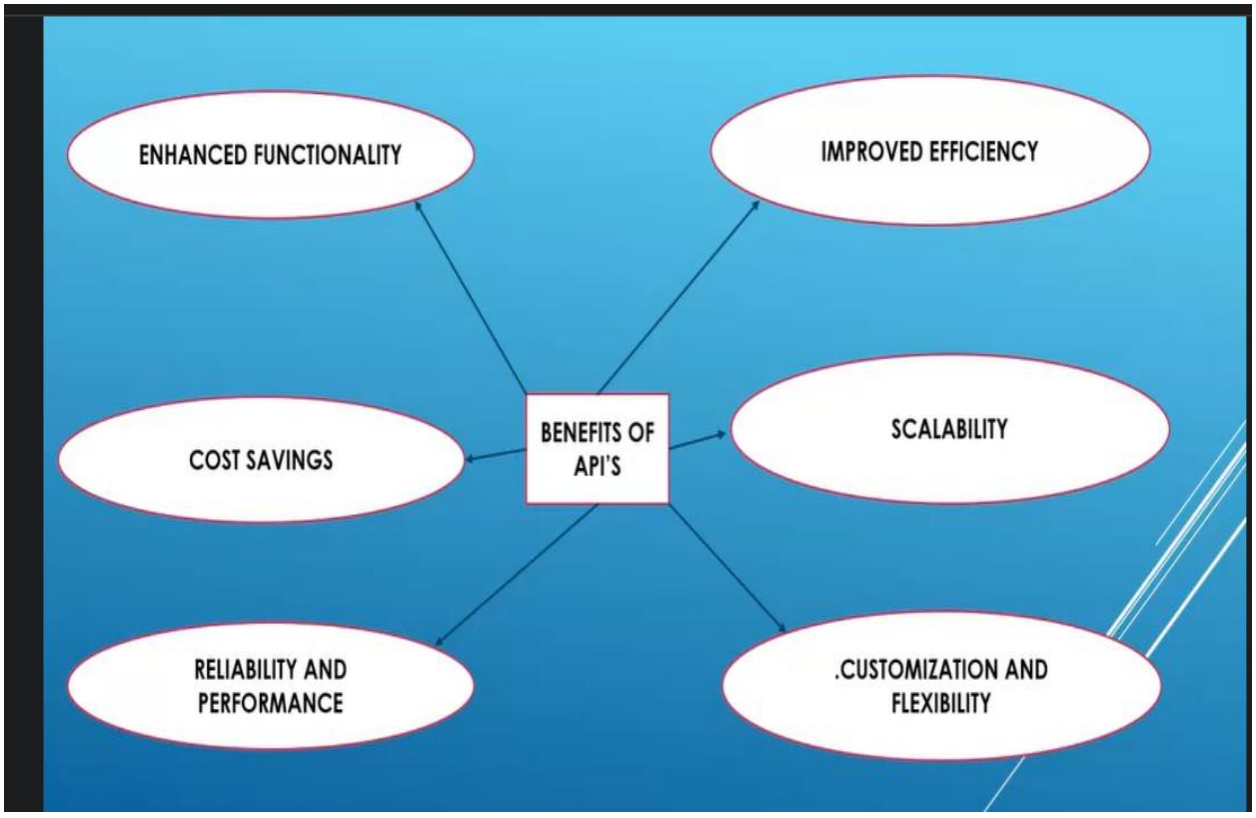
https://thinking-tester-contact-list.herokuapp.com/

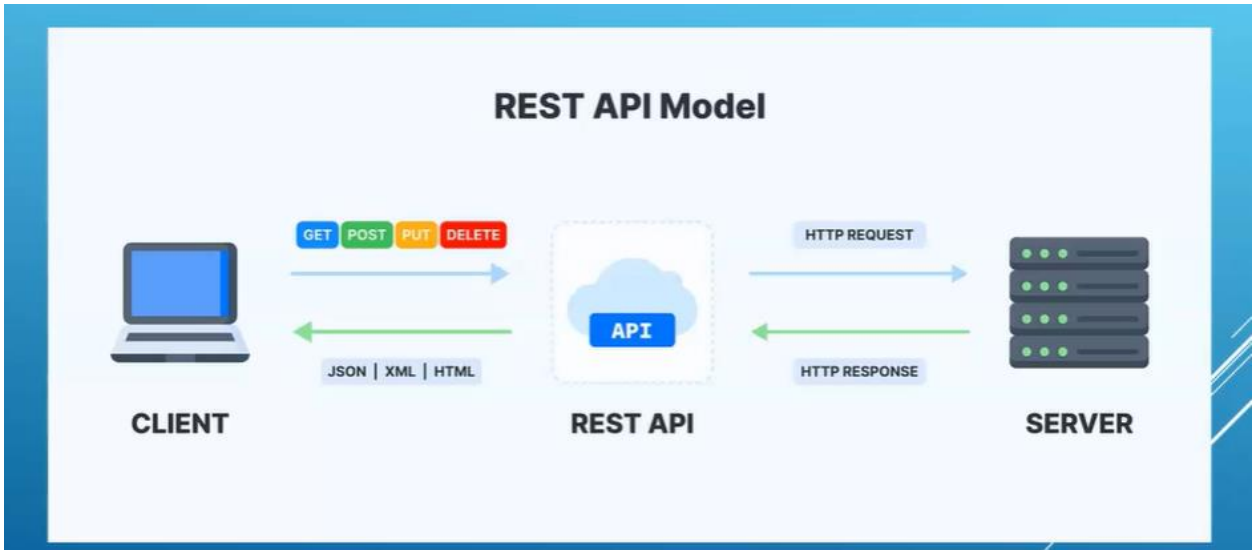
Lesson -08 API's

II)API TESTING(Application Programming Interface)---Full Basic to Advance:

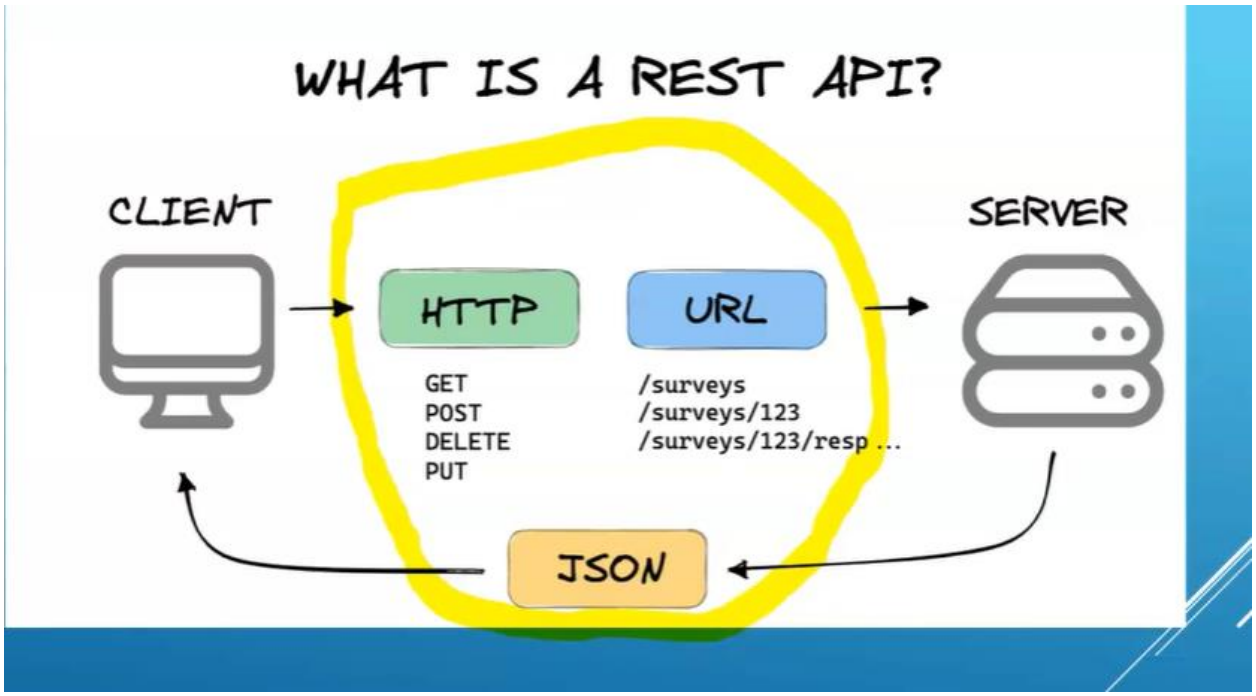


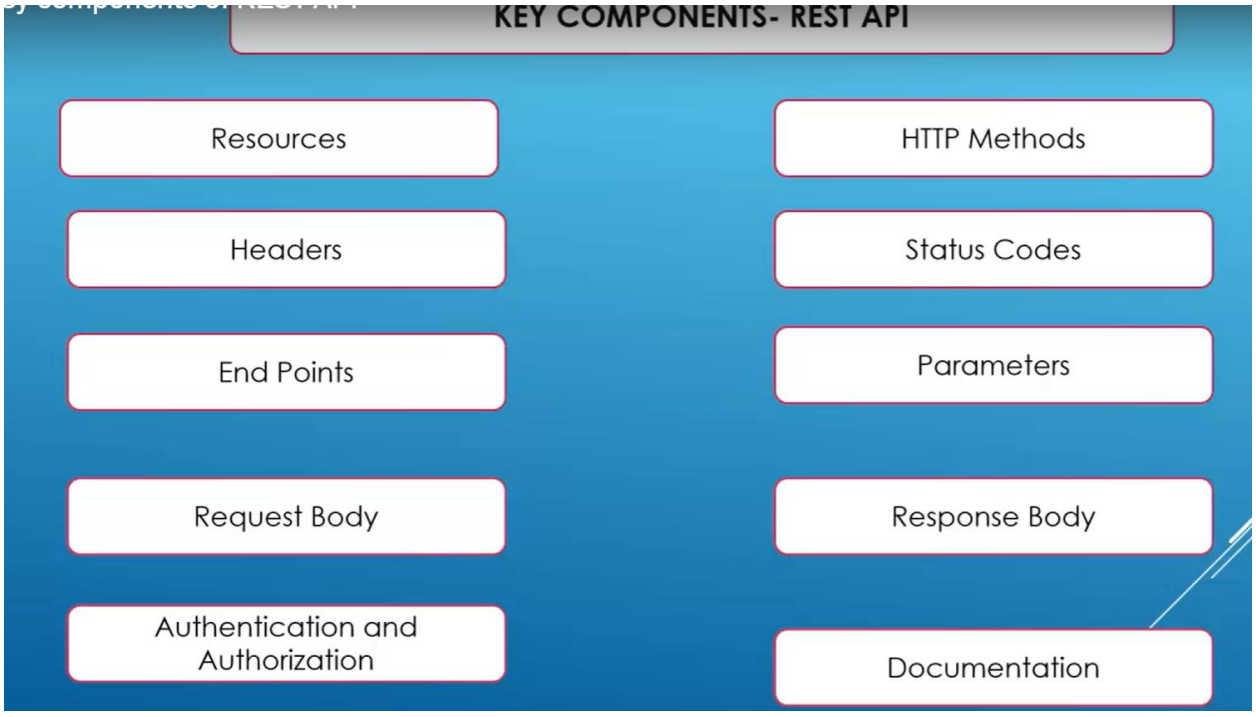

Examples of API's and it's benefits
API EXAMPLES
Google Maps API
Allows Developers to integrate Google maps into their applications.
Twitter API
Allows Developers to interact with Twitters platform allowing them to post tweets.
Weather API
Provides weather data, enable developers to include weather conditions in their applications
Spotify API
Allows developers to access Spotify music catalog and integrate.

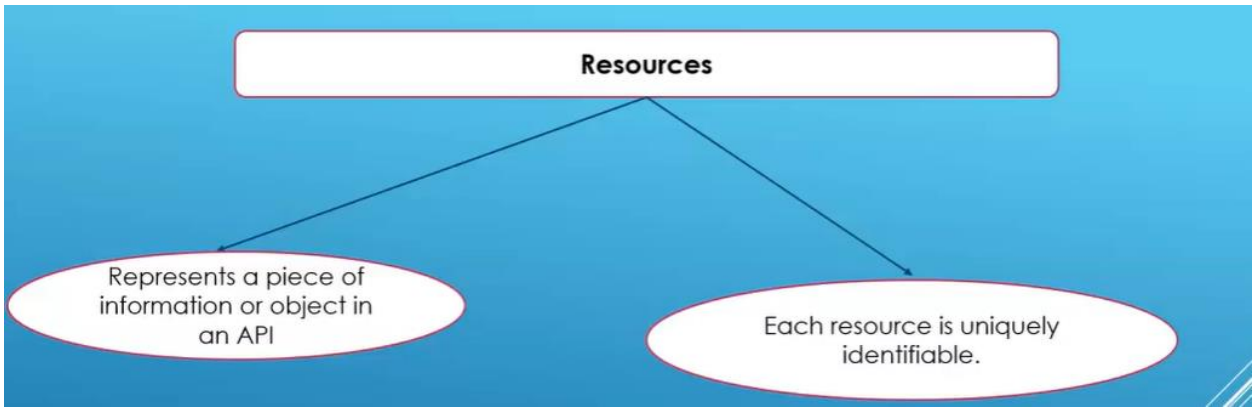

ENHANCED FUNCTIONALITY
IMPROVED EFFICIENCY
COST SAVINGS
BENEFITS OF API'S
SCALABILITY
RELIABILITY AND PERFORMANCE
.CUSTOMIZATION AND FLEXIBILITY



REST is a type of API. Not all APIs are REST, but all REST services are APIs.




KEY COMPONENTS- REST API
Resources
HTTP Methods
Headers
Status Codes
End Points
Parameters
Request Body
Response Body
Authentication and Authorization
Documentation


Resources
Represents a piece of information or object in an API
Each resource is uniquely identifiable.

Examples:

Resources

- **Definition**: The main entities that the API interacts with, such as users, posts, comments, etc.
- **URI**: Resources are identified using Uniform Resource Identifiers (URIs), typically in the form of `/resource_name`.

Example of a Resource

Let's consider an example of a "User" resource in a REST API.

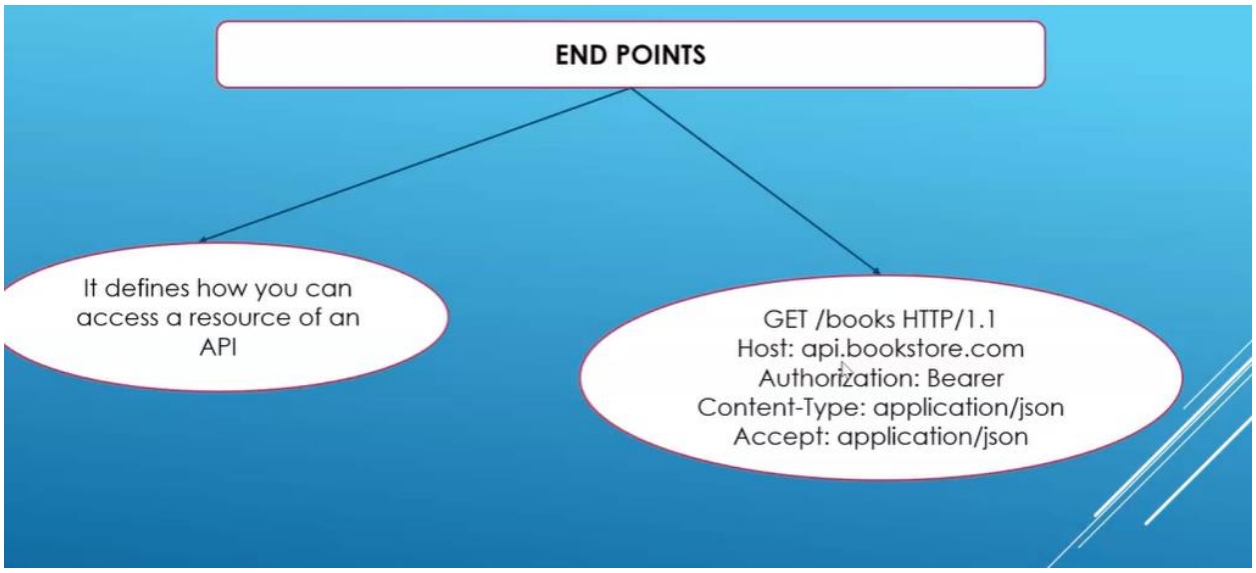
Resource URL

- **Collection of Users**: `https://api.example.com/users`
- **Single User**: `https://api.example.com/users/123`

One more Example:

2. HTTP Methods

- **GET**: Retrieve data from the server (e.g., fetch a list of users).
- **POST**: Submit data to the server to create a new resource (e.g., create a new user).
- **PUT**: Update an existing resource with new data (e.g., update user details).
- **DELETE**: Remove a resource from the server (e.g., delete a user).



Example Endpoints

Get all books: GET /books https://api.bookstore.com/books

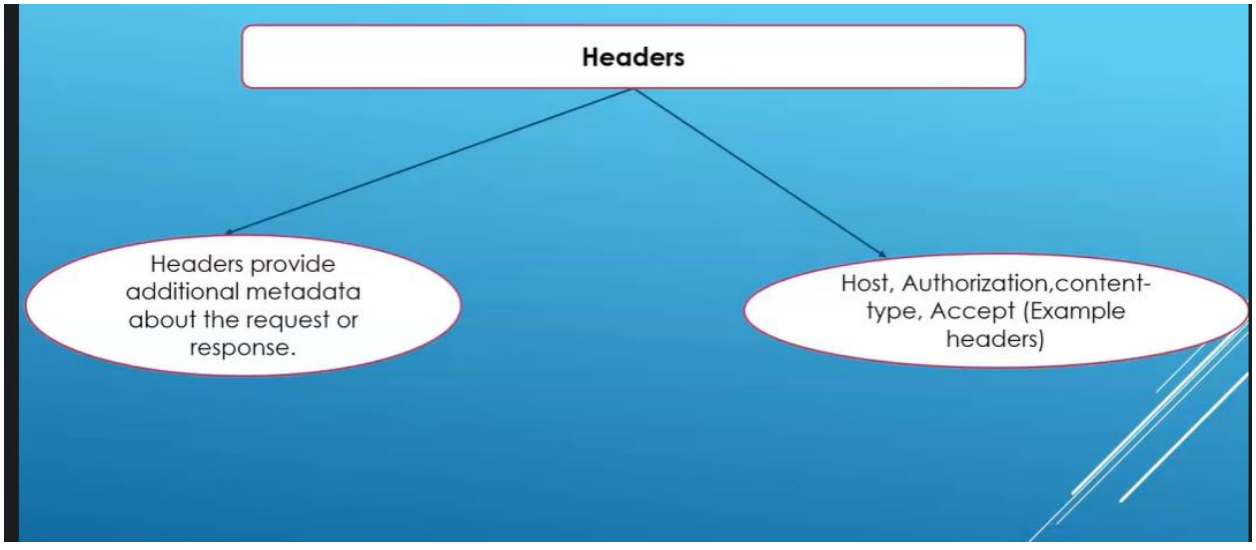
Get a specific book: GET /books/{bookId} https://api.bookstore.com/books/1234

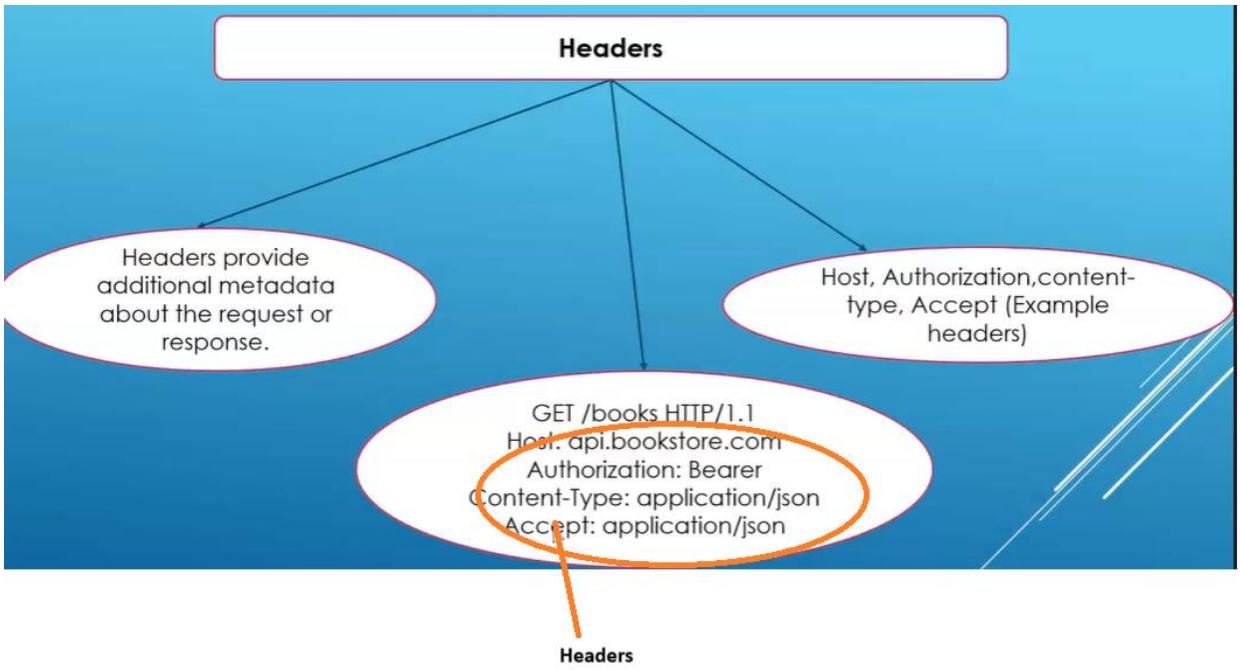
Create a new book: POST /books https://api.bookstore.com/books/7896

End Points

Update a book: PUT /books/{bookId}

Delete a book: DELETE /books/{bookId}





Request:

Sample POST Request Message to create a new user in an API

POST /users HTTP/1.1

Host: api.example.com

Authorization: Bearer your_token_here

Content-Type: application/json

Accept: application/json

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/91.0.4472.124 Safari/537.36

{"name": "John Doe", "email": "john.doe@example.com" }

Now—Server Response:

Sample Response message from the Server

HTTP/1.1 201 Created Date: Mon, 24 Jun 2024 12:00:00 GMT

Content-Type: application/json

Content-Length: 123

Location: https://api.example.com/users/1

Server: Apache/2.4.41 (Ubuntu)

{ "id": 1, "name": "John Doe", "email": "john.doe@example.com", "created_at": "2024-06-24T12:00:00Z" }

Path Parameters:--single or multiple say her abc/345

Path Parameters:

Example

Get a specific book: GET /books/{bookId}

URL: https://api.bookstore.com/books/abc/345

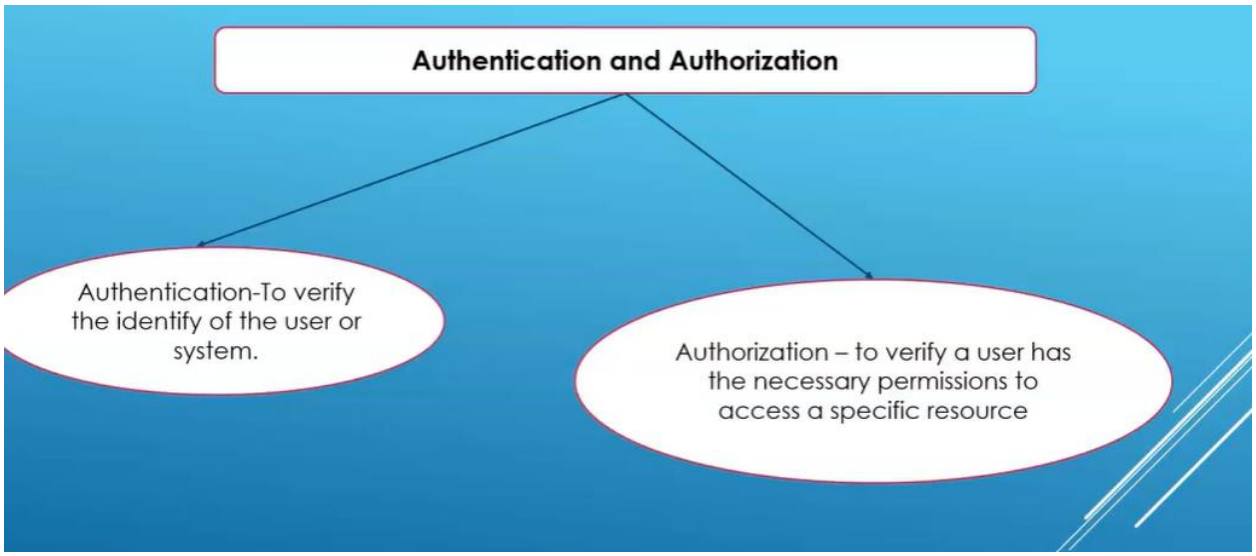
Query Parameters

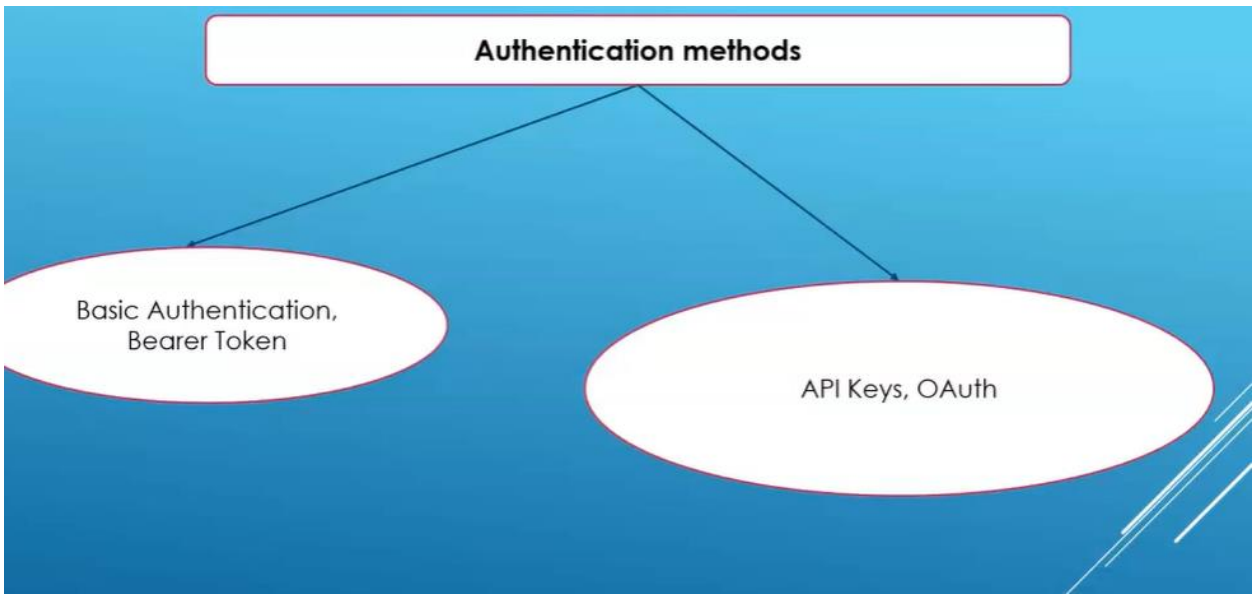
Example

Get all books with optional filters: GET /books

URL: https://api.bookstore.com/books?page=2&limit=10&sort=title&filter=available

Here, page, limit, sort, and filter are query parameters.





Status codes

201 status code –created a new resource and the request is successful.

200 status –successful request.

400 status code in the response message

404 –not found

415 –unsupported media type

500 –Internal server error—

501 –Not Implemented—the server doesn't support the functionality

503—service unavailable—the server is not ready to handle the request due to overloading

---

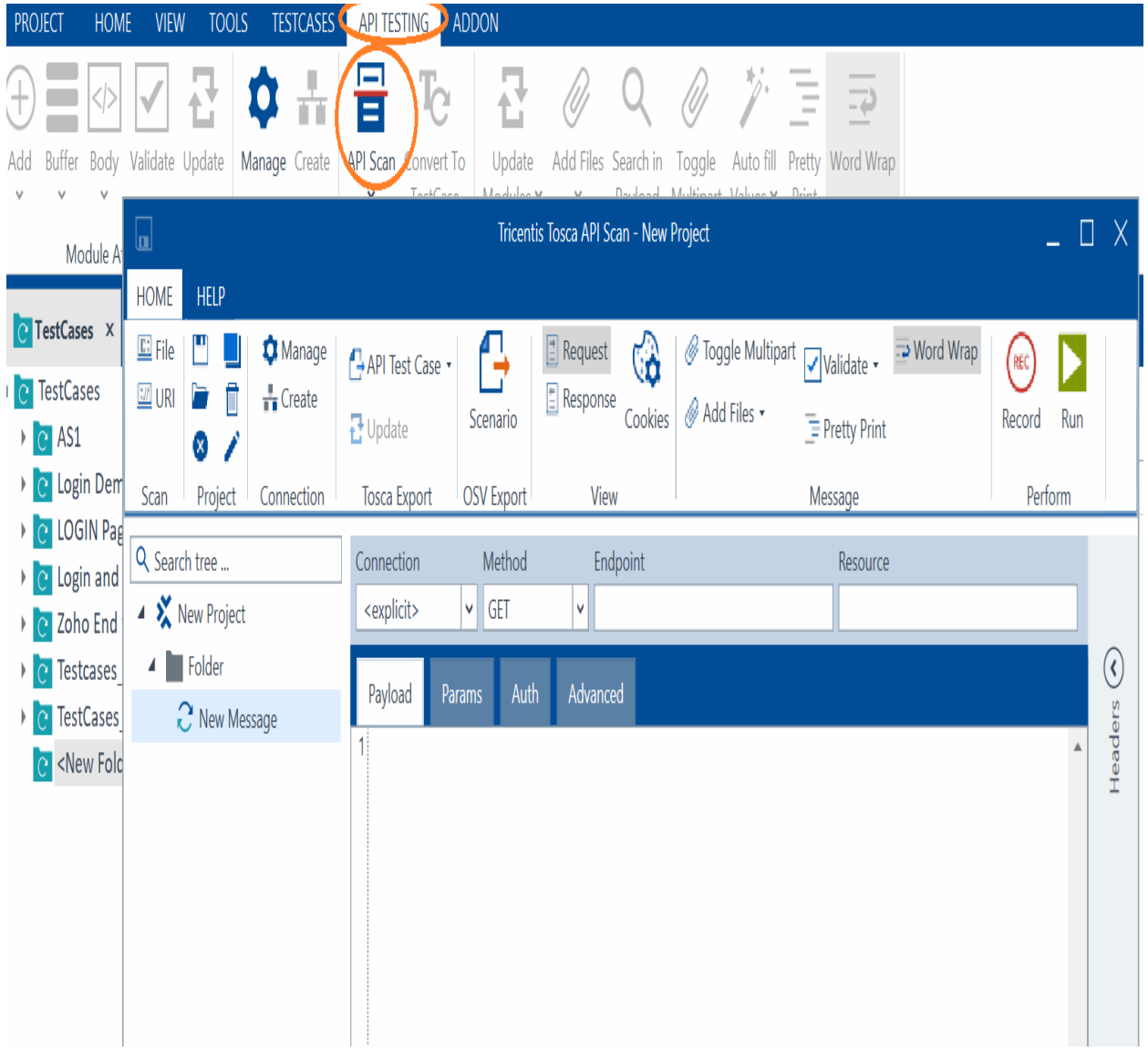
Now we start TOSCA-API TESTING:

Sample API Testing:--You can search in Goole:

Best site:--Use it

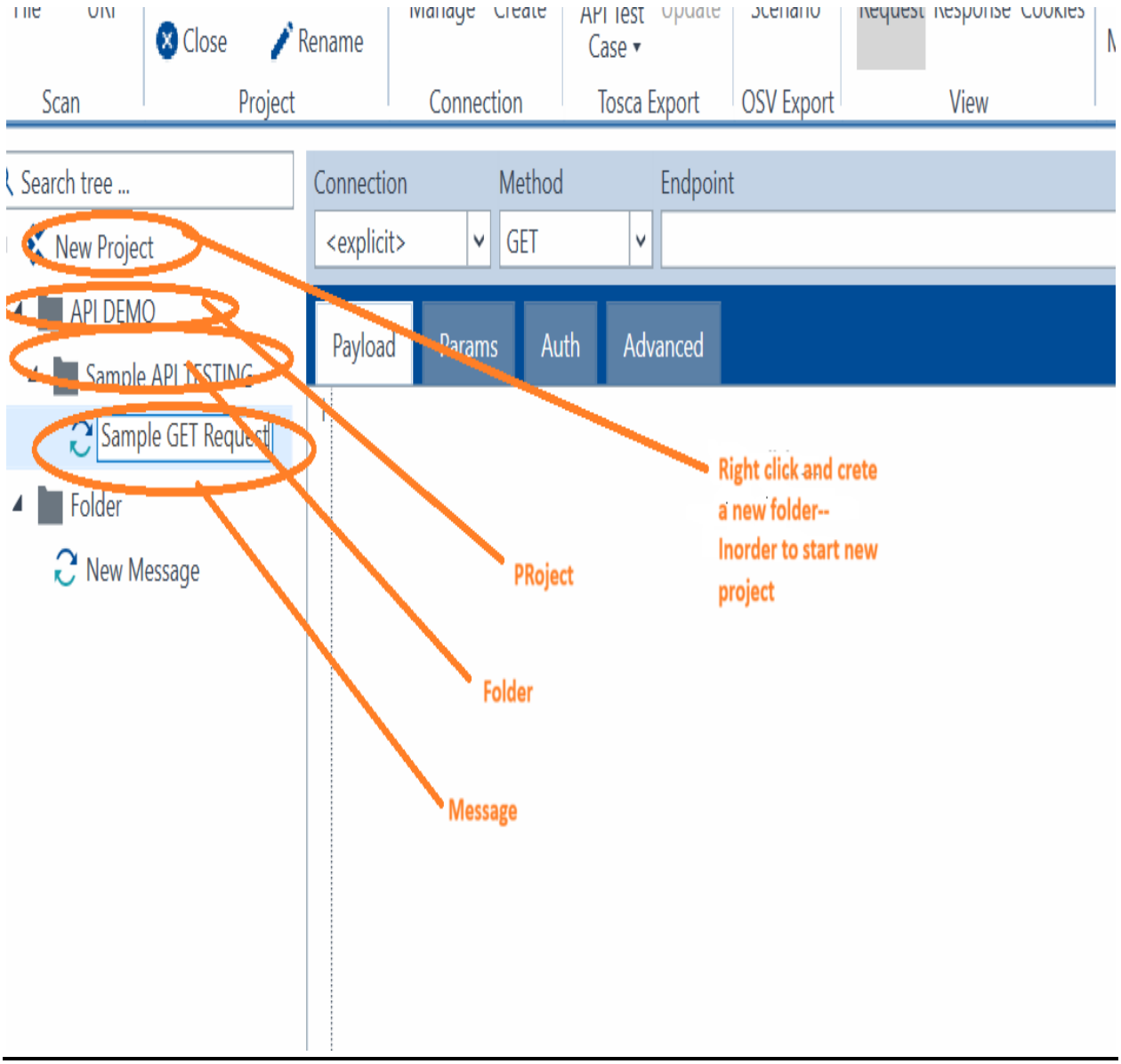
https://reqres.in/

<u>Now in TOSCA:</u> Go to API TESTING and select API Scan we see the below window.

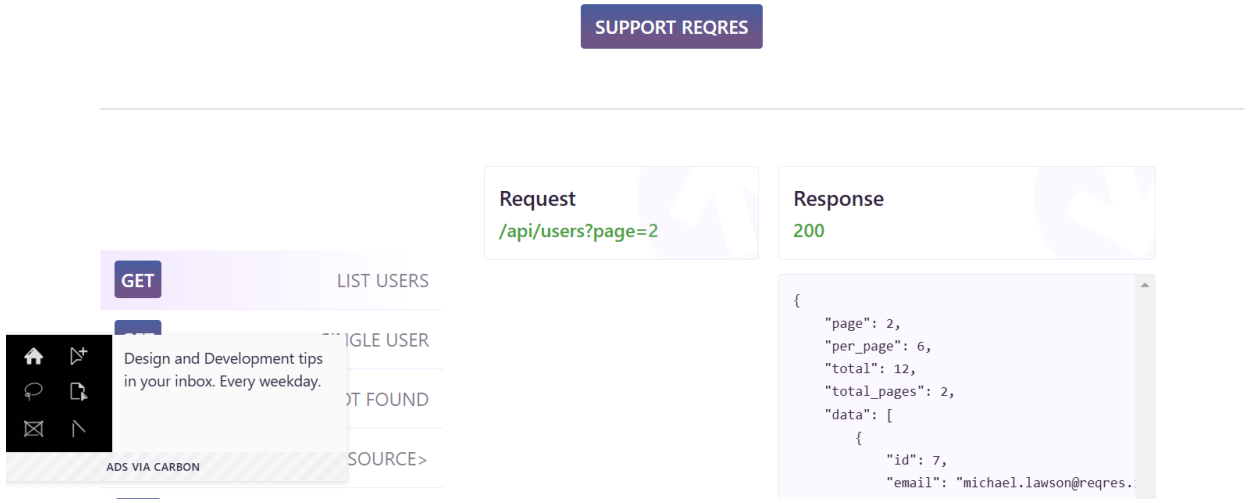


Now start create in it:

1)Sample-GET

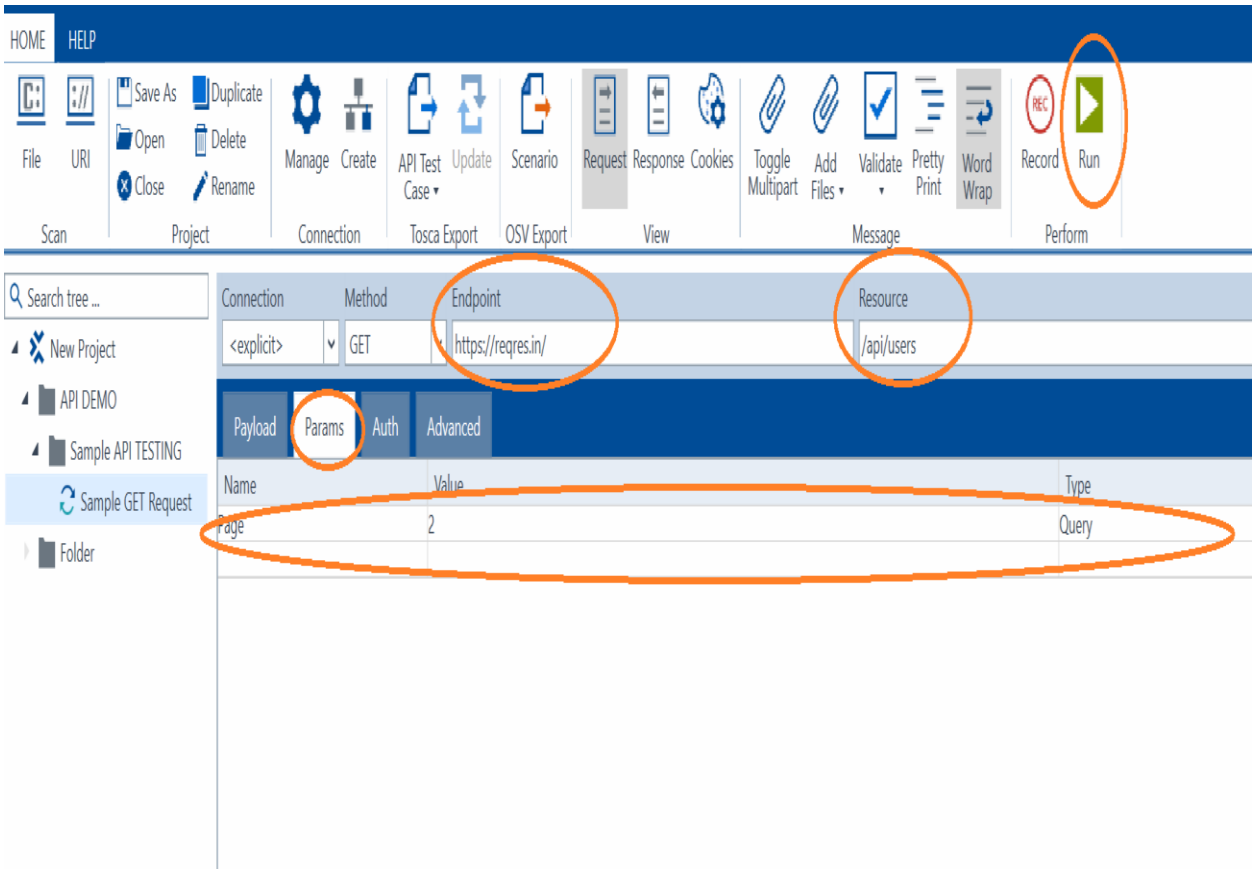


Example this:



https://reqres.in/----From this page

/api/users?page=2-------how to pass in TOSCA and run see



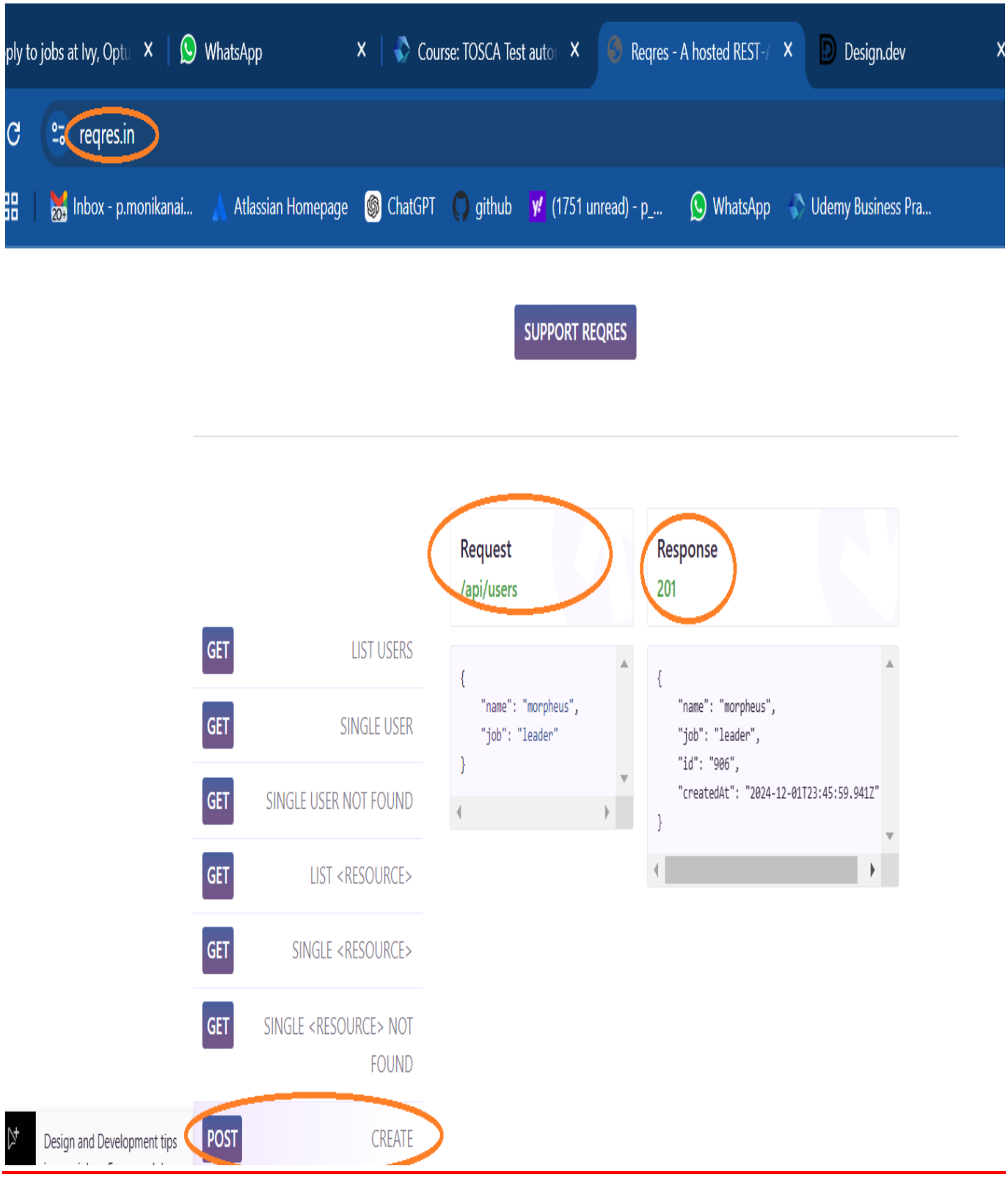
And Run and verify the results.

you can save it on Desktop .

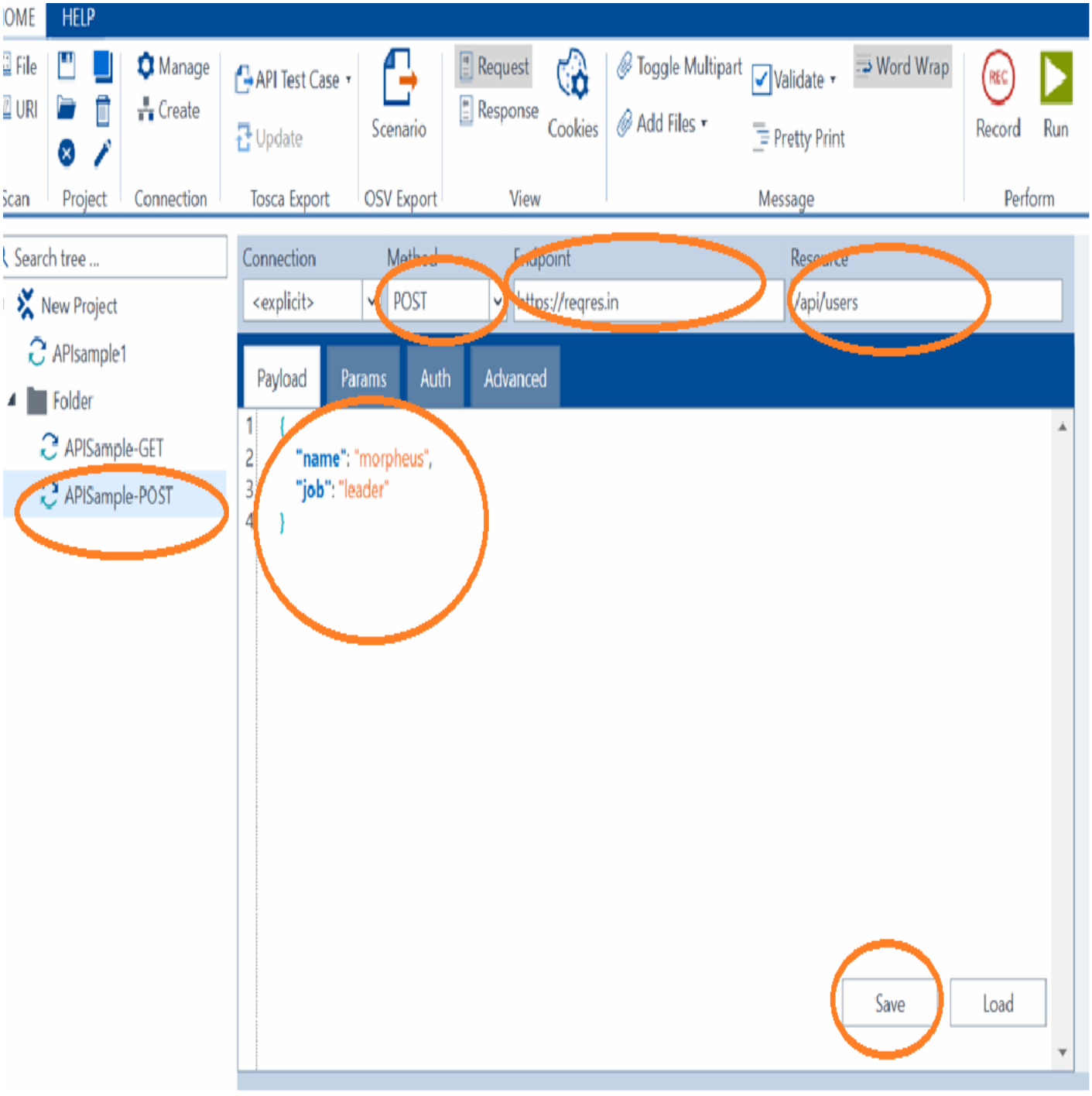
All the rest the same way---Explain them in Detail.

2) Sample-POST

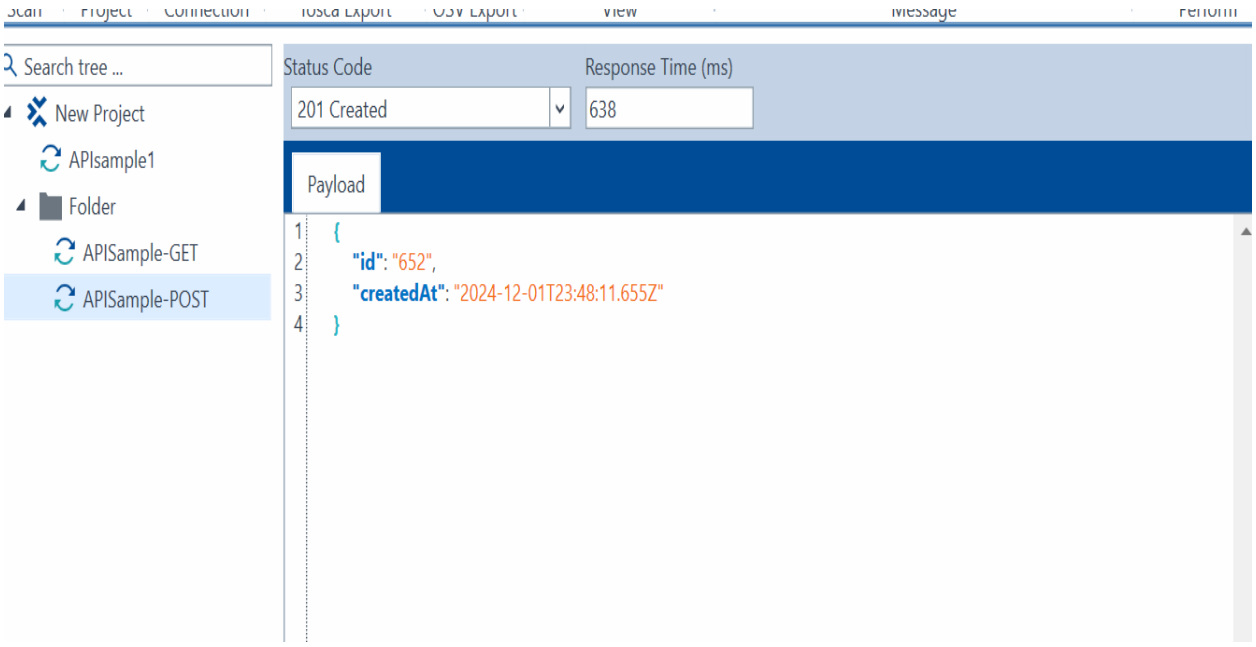
Now get Post Request and perform the same as GET:


ply to jobs at Ivy, Optu
WhatsApp
Course: TOSCA Test auto
Reqres - A hosted REST-/
Design.dev
reqres.in
Inbox - p.monikanai...
Atlassian Homepage
ChatGPT
github
(1751 unread) - p_...
WhatsApp
Udemy Business Pra...
SUPPORT REQRES
Request
/api/users
Response
201
{
"name": "morpheus",
"job": "leader"
}
{
"name": "morpheus",
"job": "leader",
"id": "906",
"createdAt": "2024-12-01T23:45:59.941Z"
}
GET LIST USERS
GET SINGLE USER
GET SINGLE USER NOT FOUND
GET LIST <RESOURCE>
GET SINGLE <RESOURCE>
GET SINGLE <RESOURCE> NOT FOUND
POST CREATE
Design and Development tips

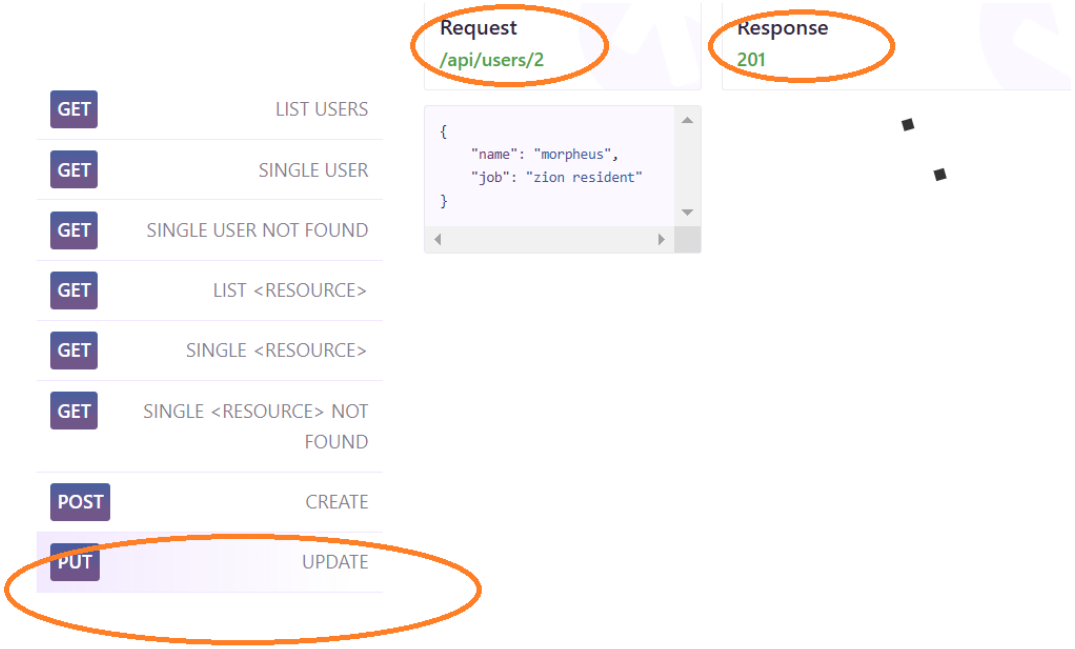
In TOSCA:

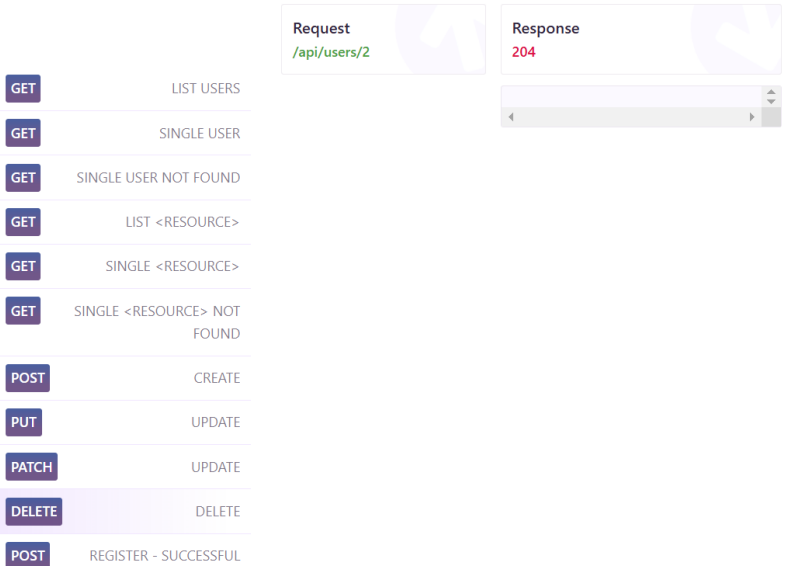

HELP
File
URI
Manage
Create
API Test Case
Update
Scenario
Request
Response
Cookies
Toggle Multipart
Add Files
Validate
Pretty Print
Word Wrap
Record
Run
Project
Connection
Tosca Export
OSV Export
View
Message
Perform
Search tree ...
New Project
APIsample1
Folder
APISample-GET
APISample-POST
Connection
<explicit>
POST
https://reqres.in
/api/users
Payload
Params
Auth
Advanced
{
"name": "morpheus",
"job": "leader"
}
Save
Load

See the response



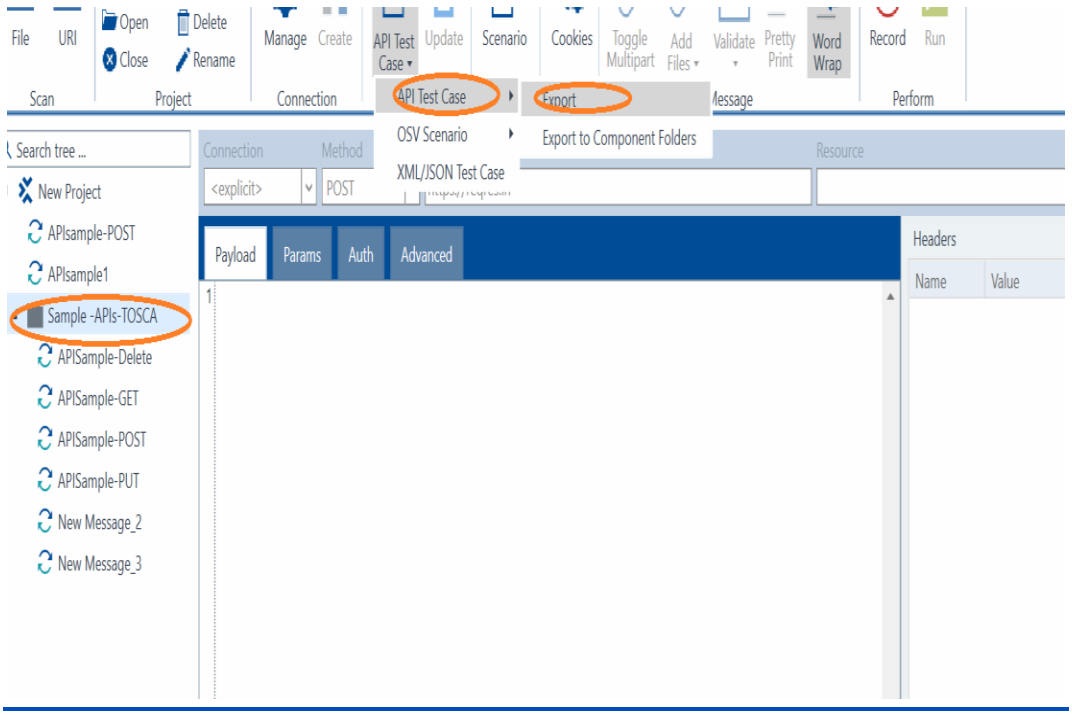
3) Sample PUT and DELETE



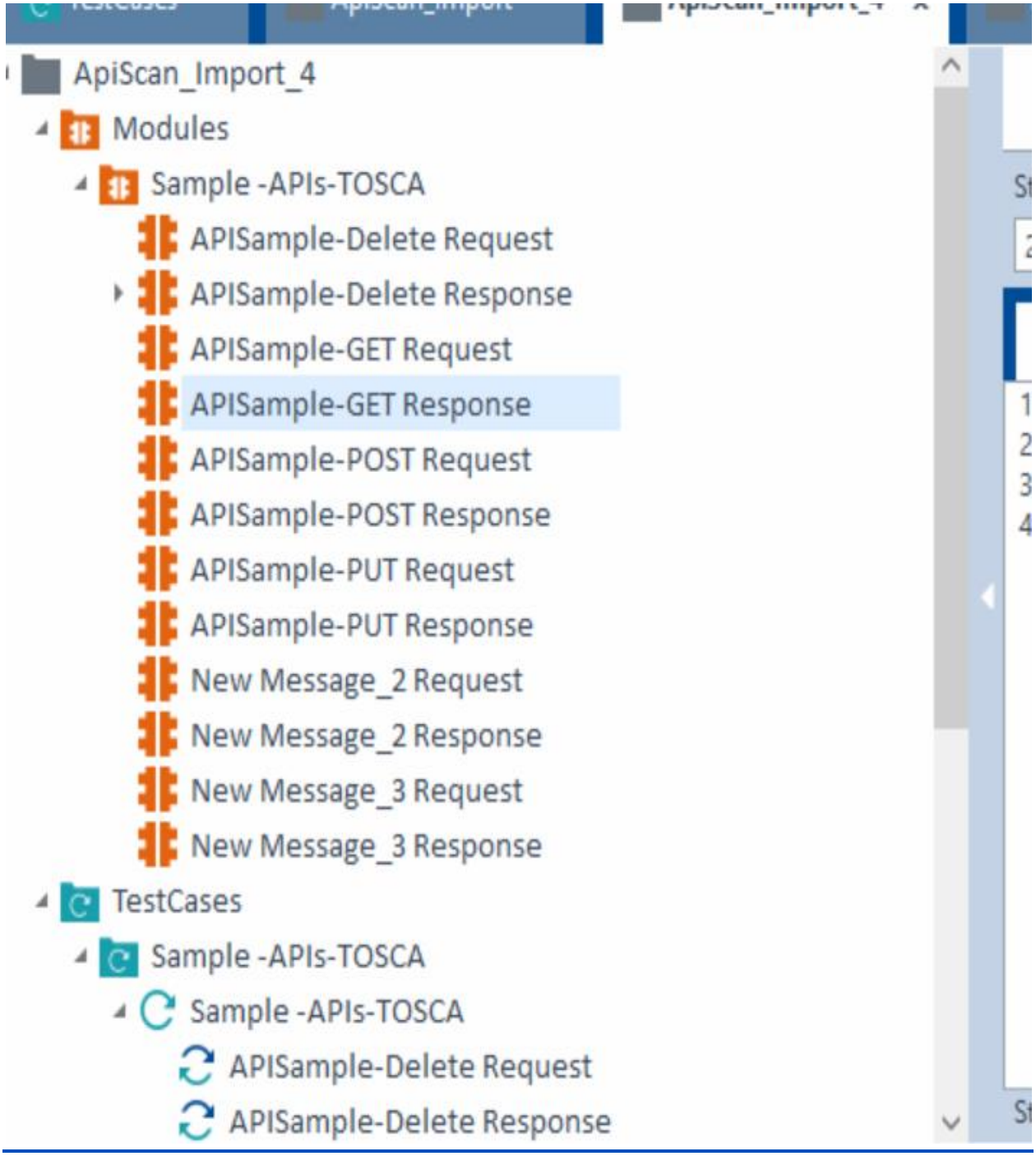


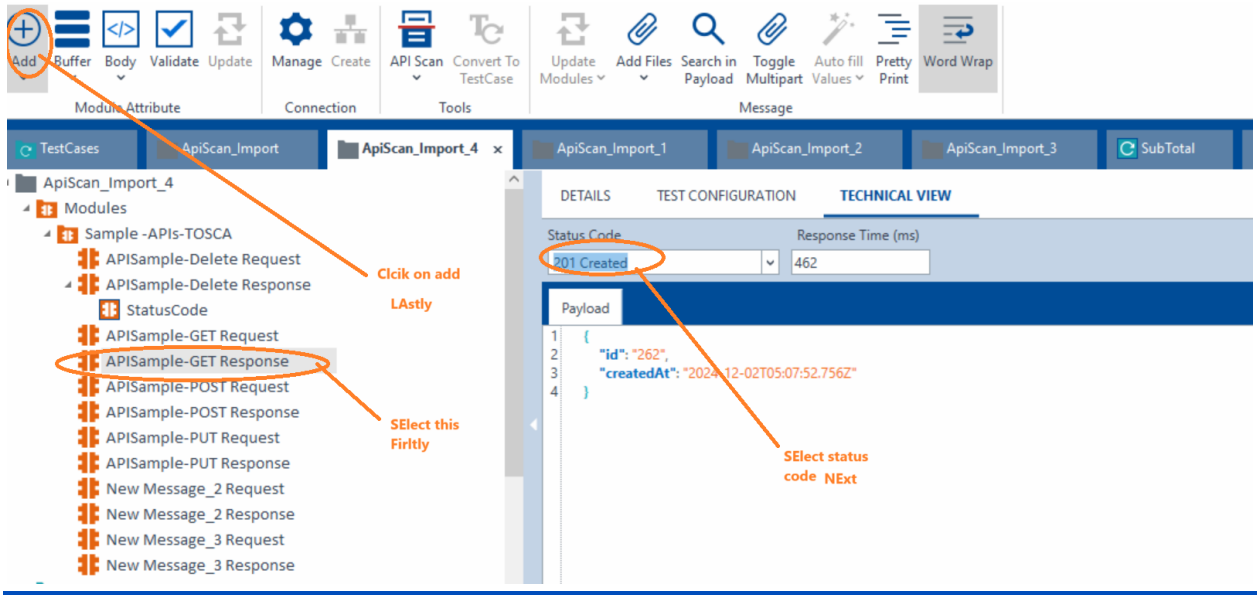
4) Automation of sample test cases- response message validation—Under your Tosca Modules

Once done we Export our folder

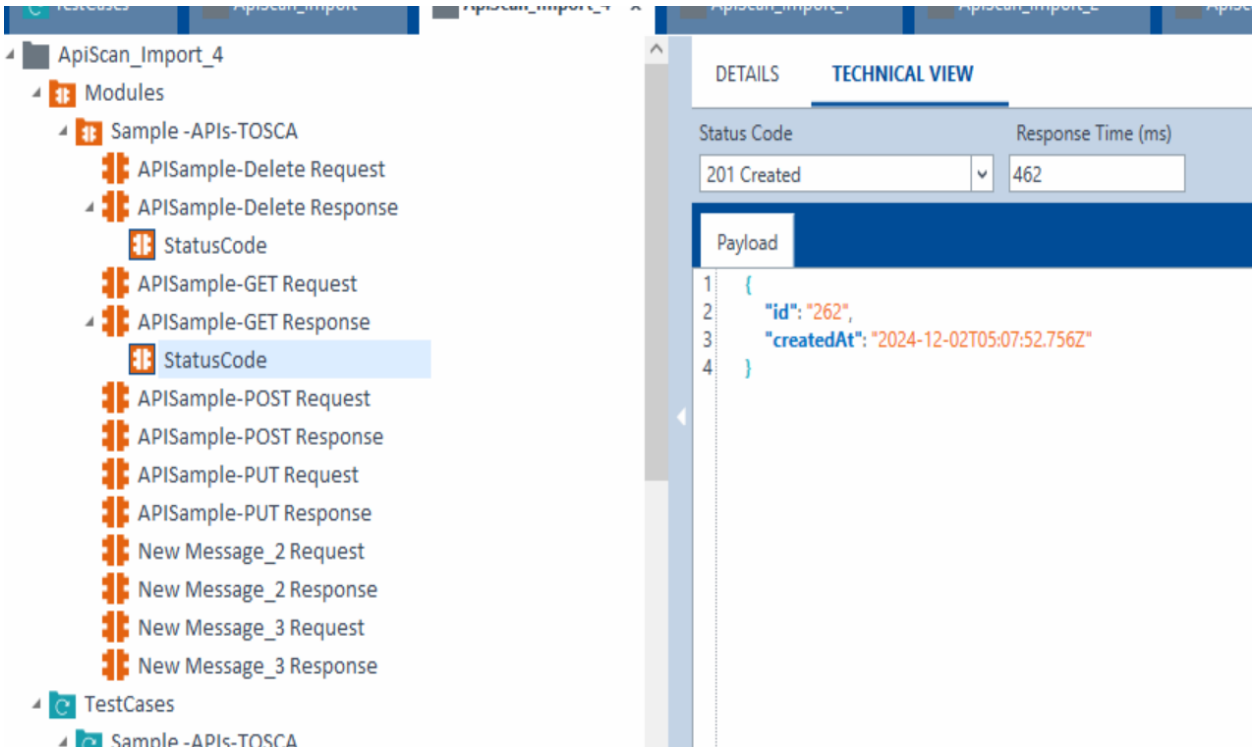


WE get this---Explain Request and Response

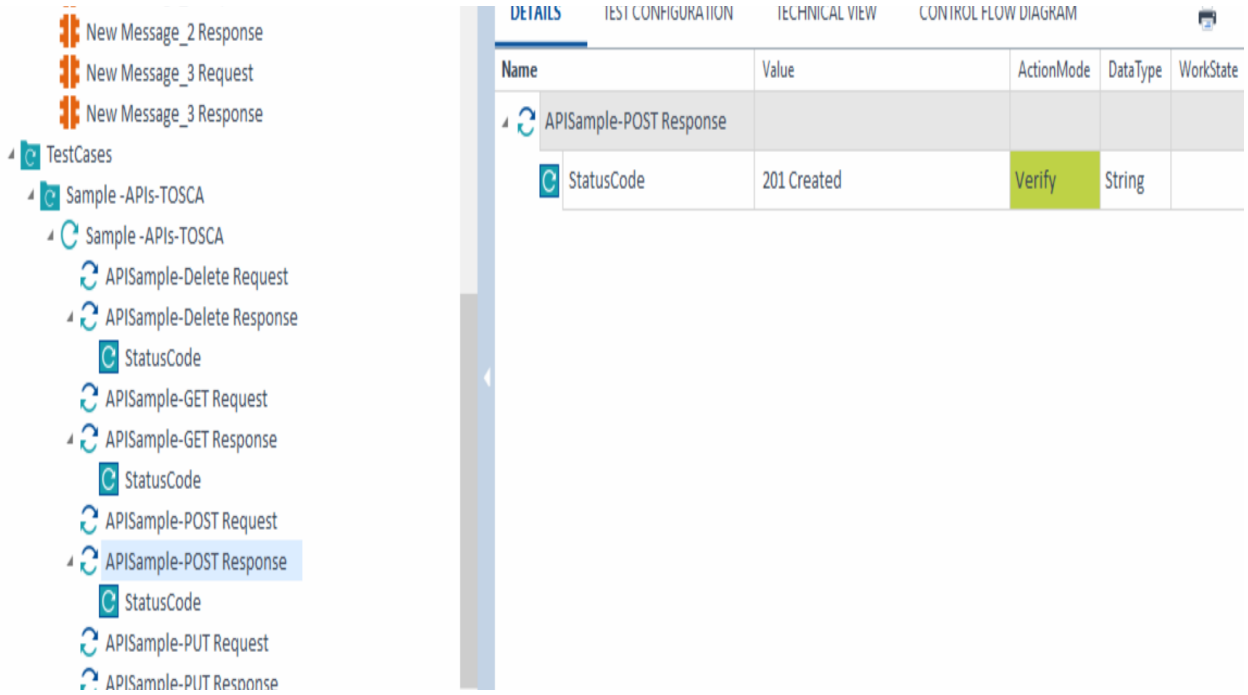




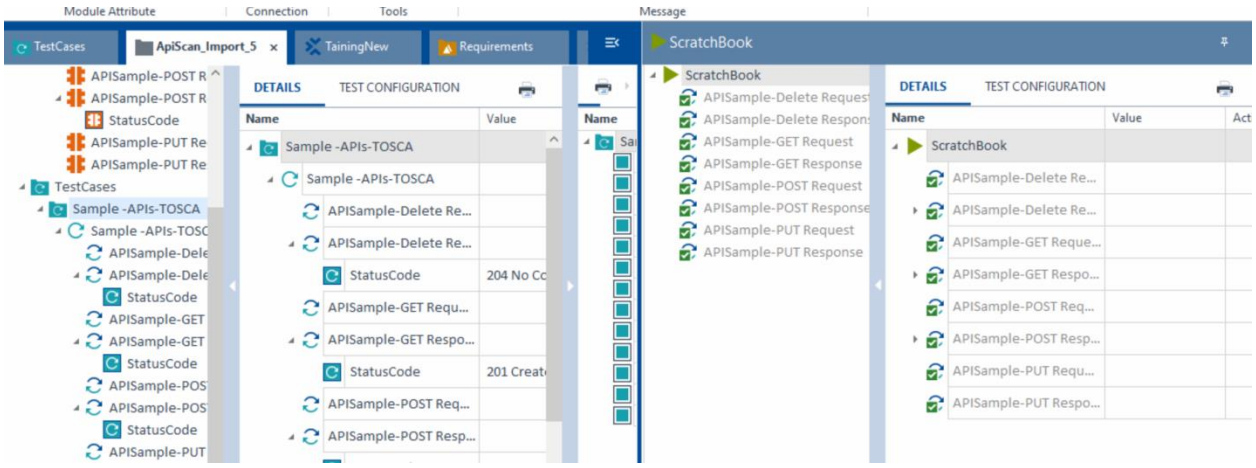
See Status code is being added:



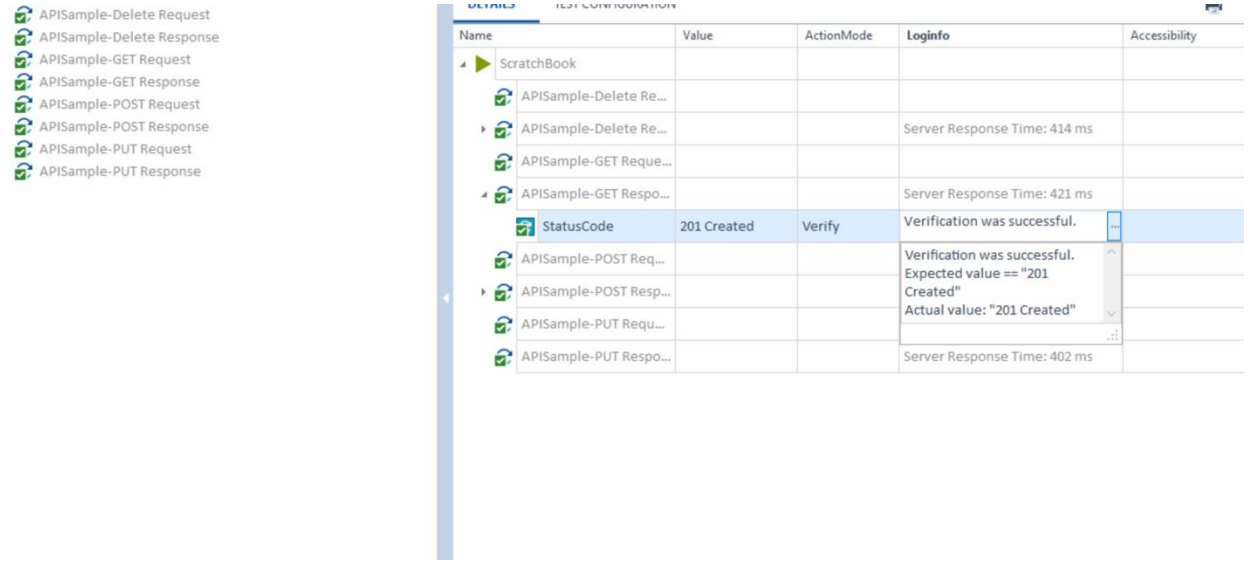
Now you can see Status code under Test case –Show them both shortcut method and video method



Now you can run and see the results as your previous TC how we were running till now:

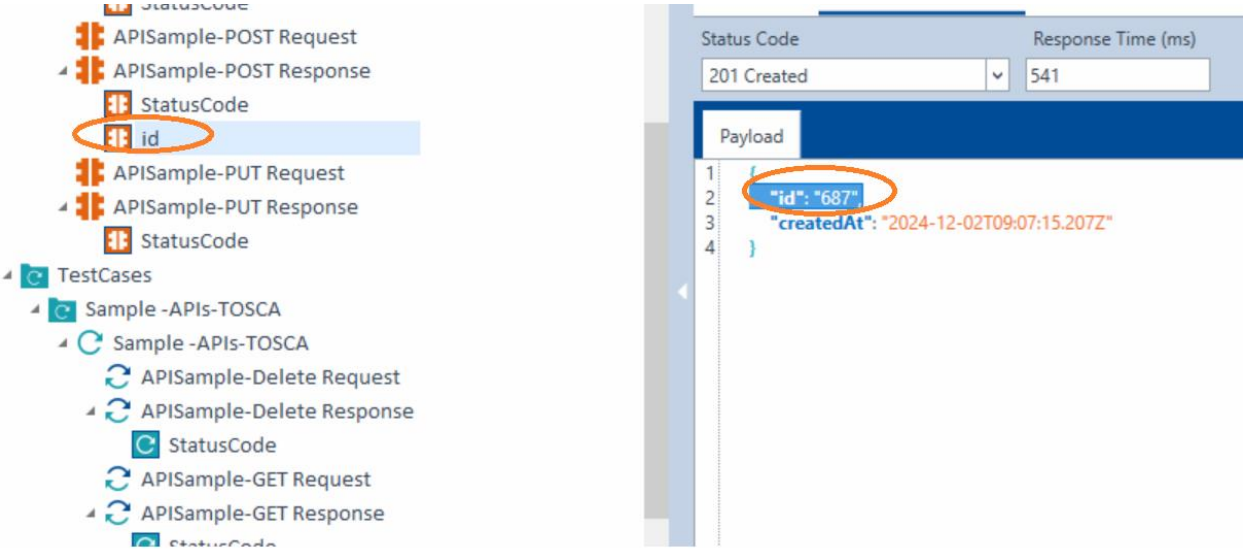


Explain in detail:

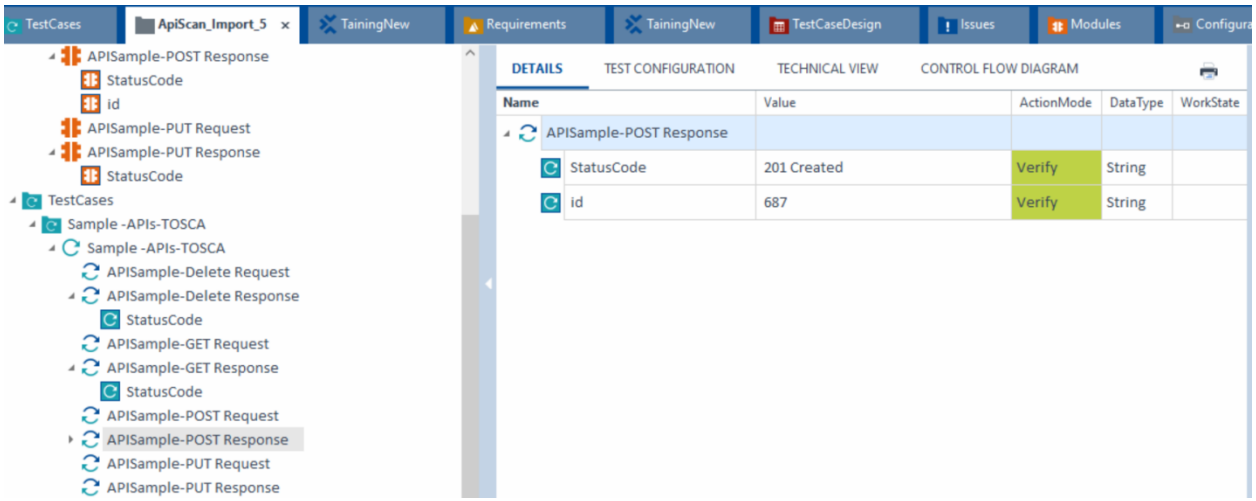


Additional Things— like you want to add few more fields and validate them you can do it.

Say ID or email etc add it in the similar way and validate it in the test case.

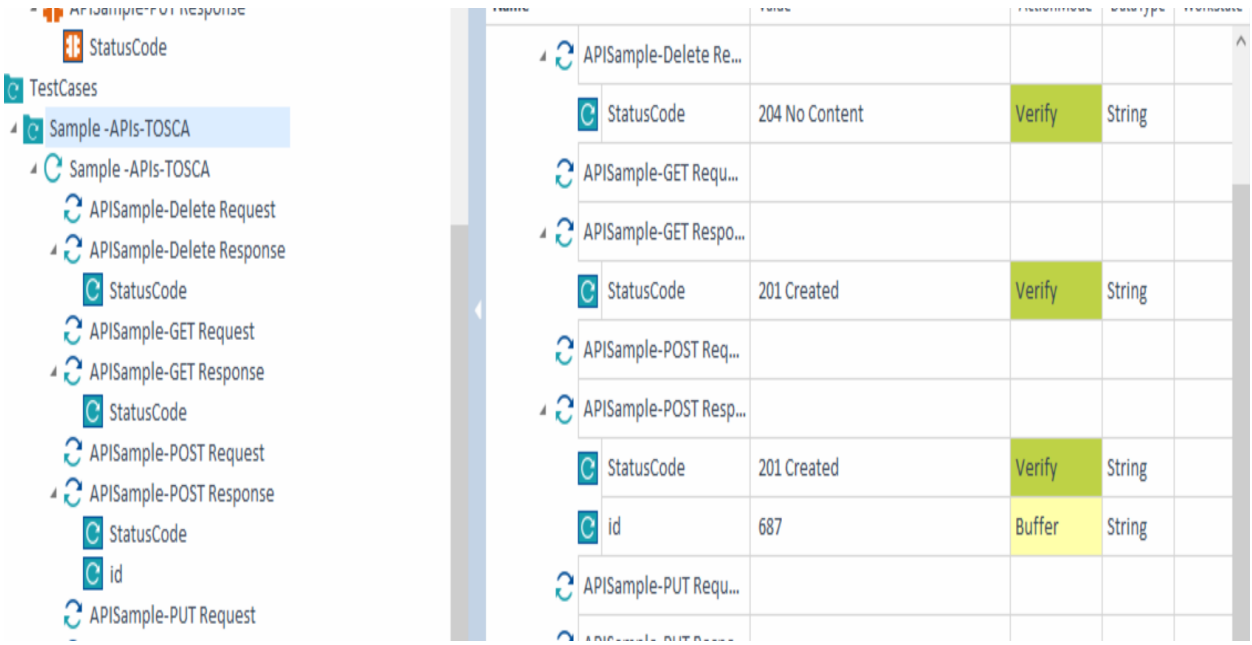


Now you can verify this way and run and check too.



Tell them what happens Action Mode—Verify as it is Dynamic value---so we need to change it to Buffer.

You can validate anything or whole response body can also be validated in case you need it.



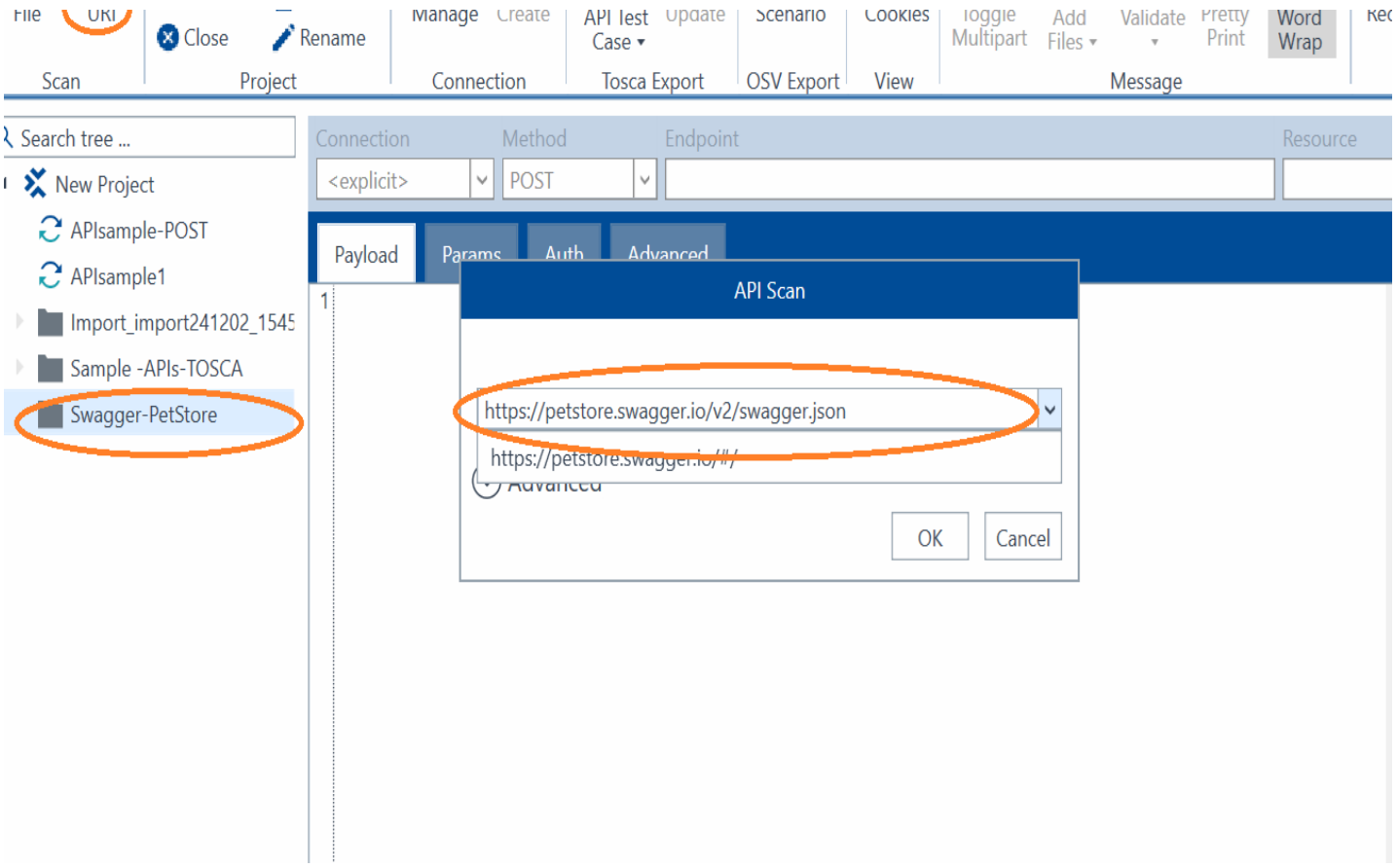
5)Scan API through Swagger URI - Automation of API tests

Login to :

https://petstore.swagger.io/#/

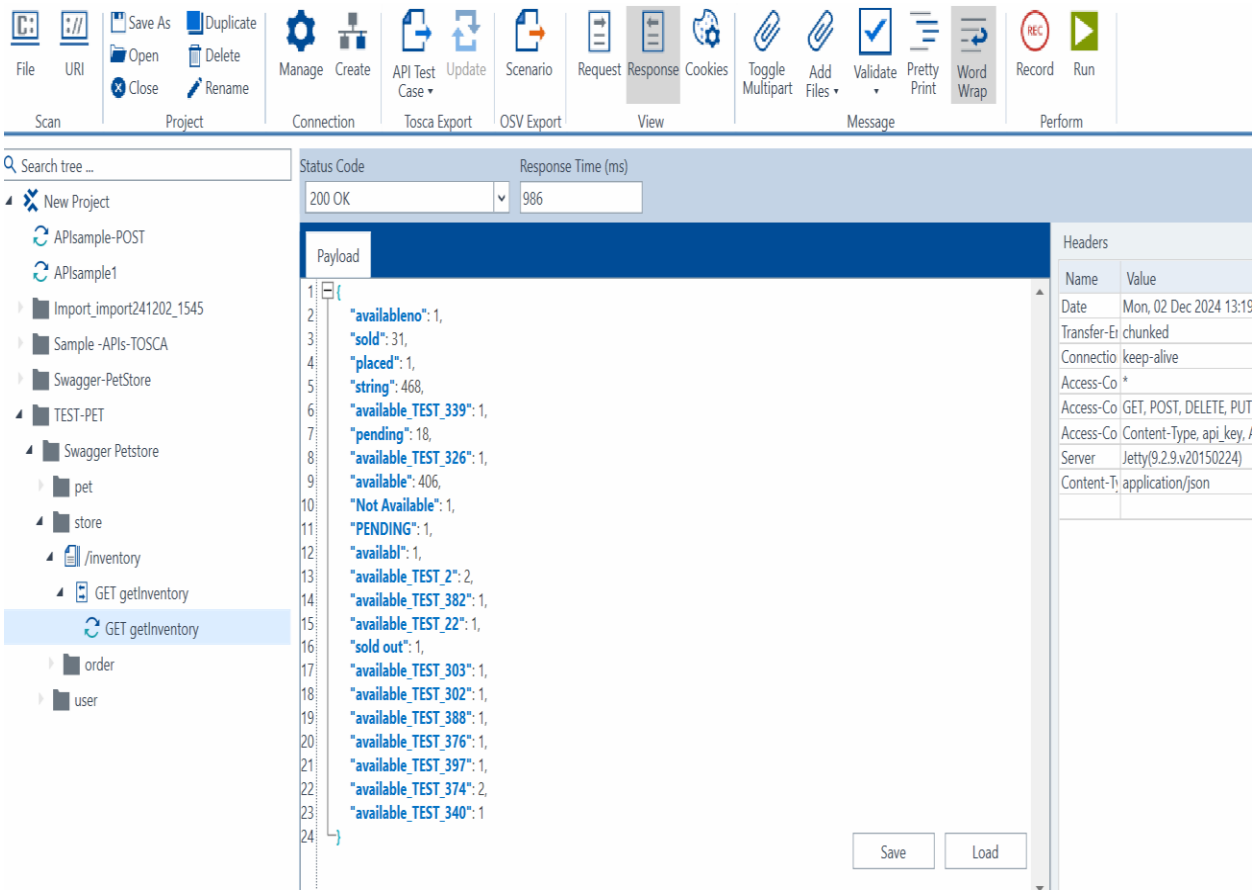
OR

you have a Swagger.json file you can call directly and perform the same action.



Once you done then same Run All API's and Export to Tosca and validate it etc same are above.

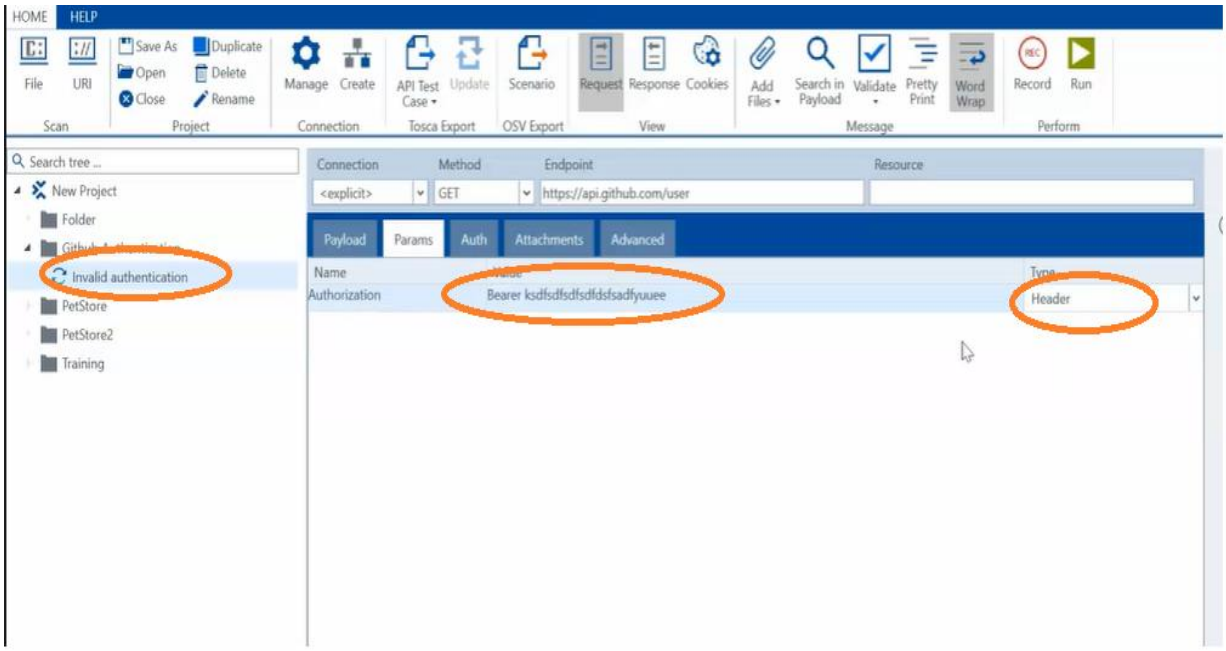
Note: Where every the body as per your API's you need to add you must add



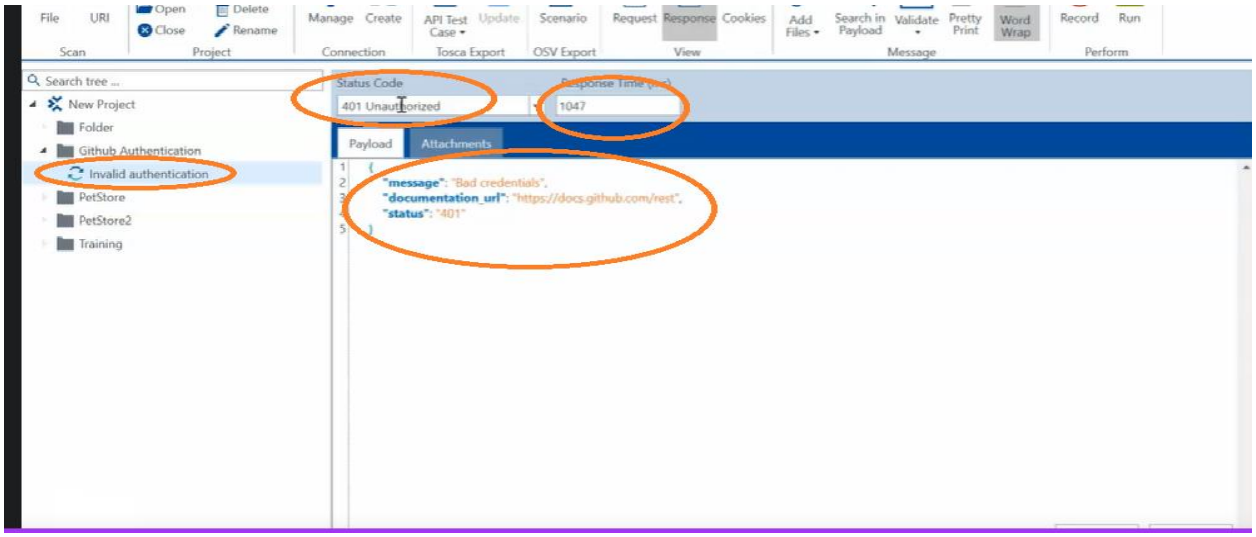
5)Real time with REST API's-In GITHUb

Github Authentication---Show them the Test case of Github and use it in TOSCA as above what we have done.

Explain Below Example:-



When you run invalid message see—



==========The End of AS2==========