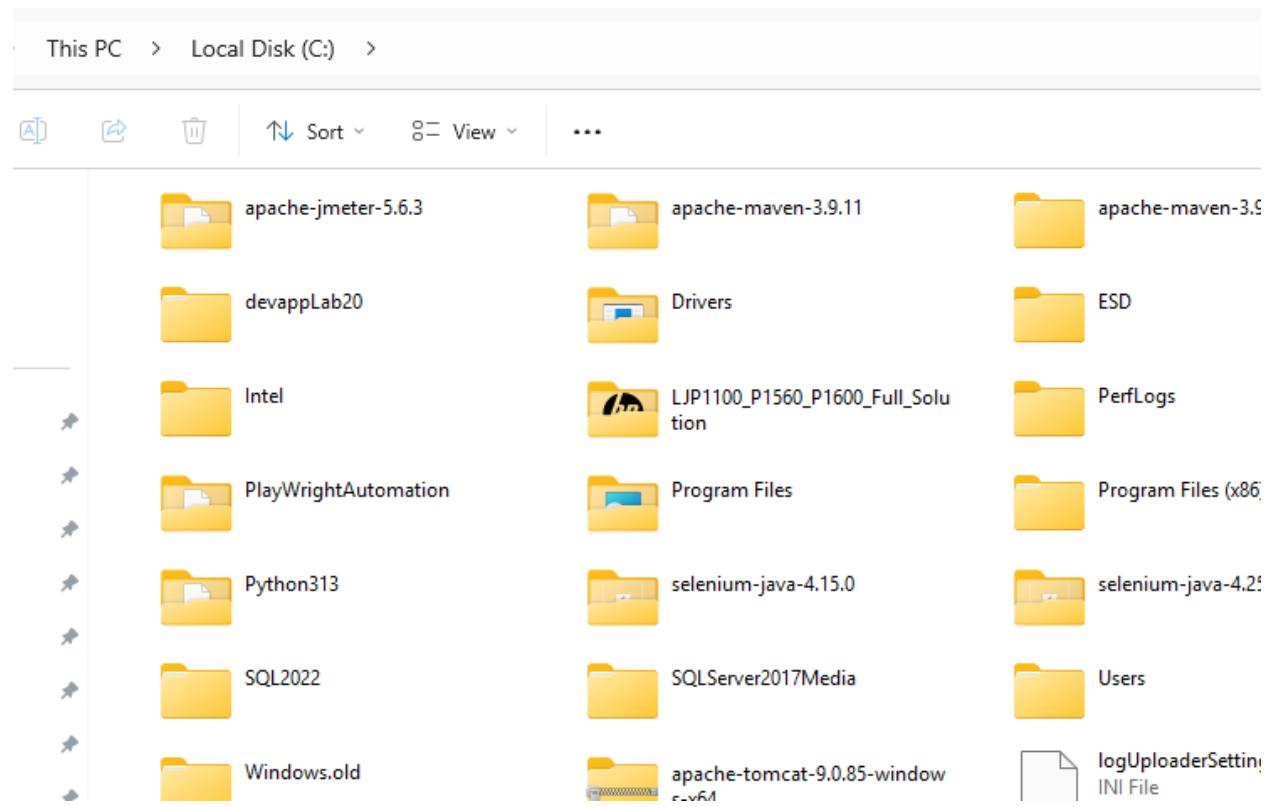


Final Report:

Section 1:

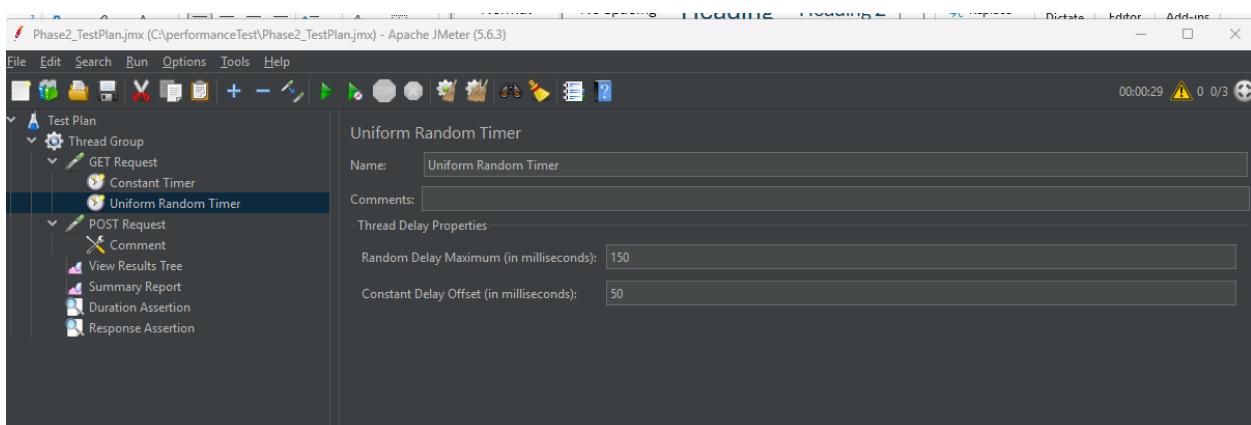
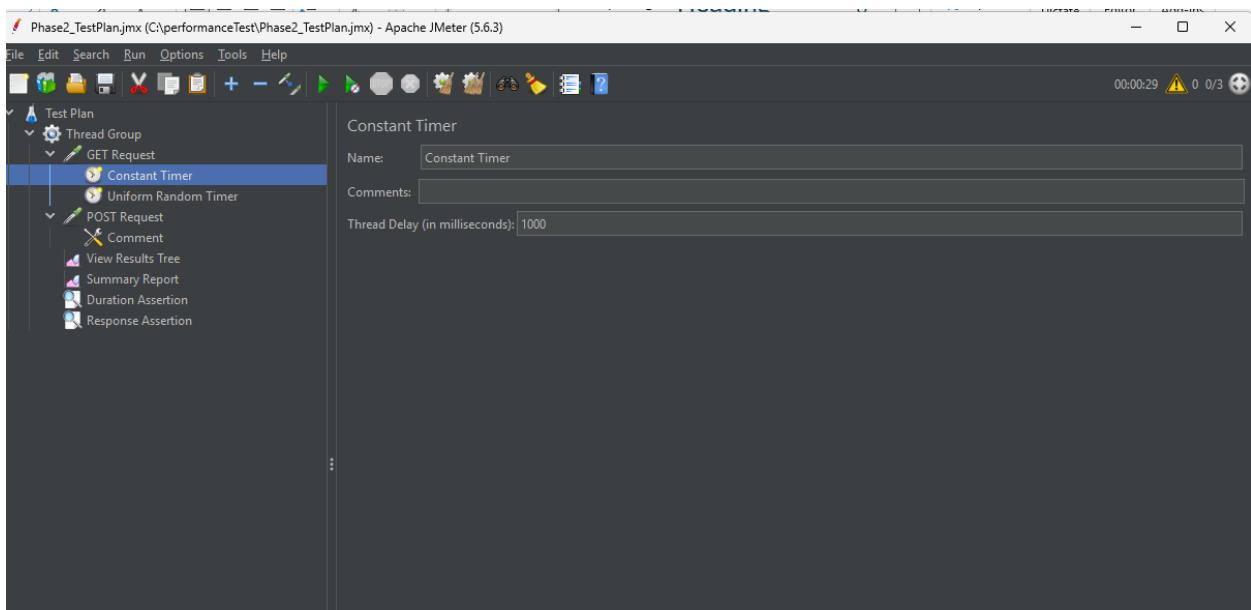
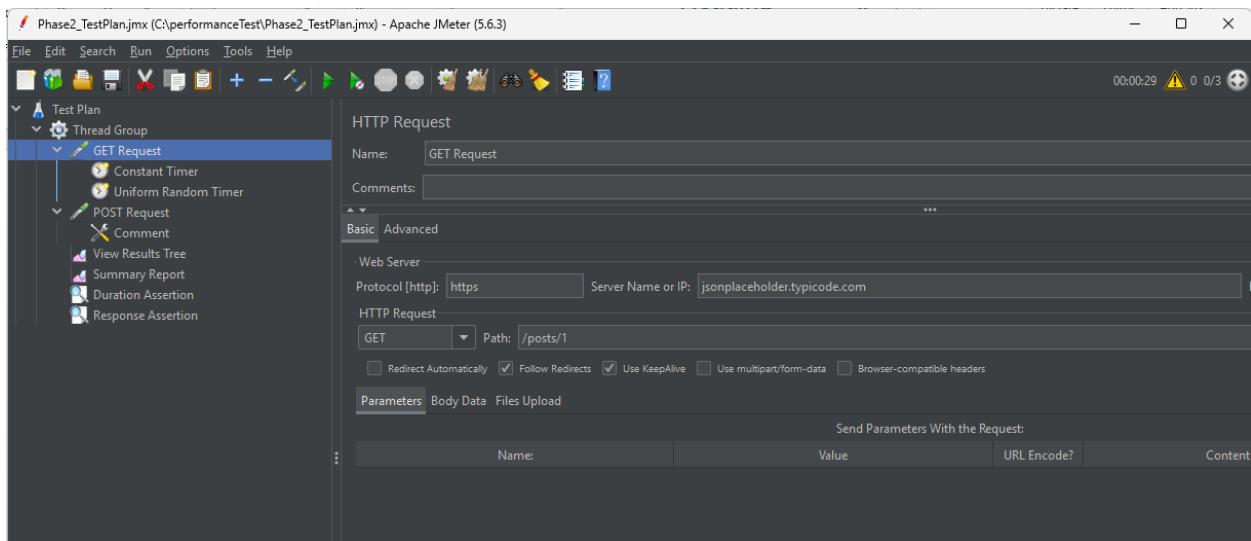


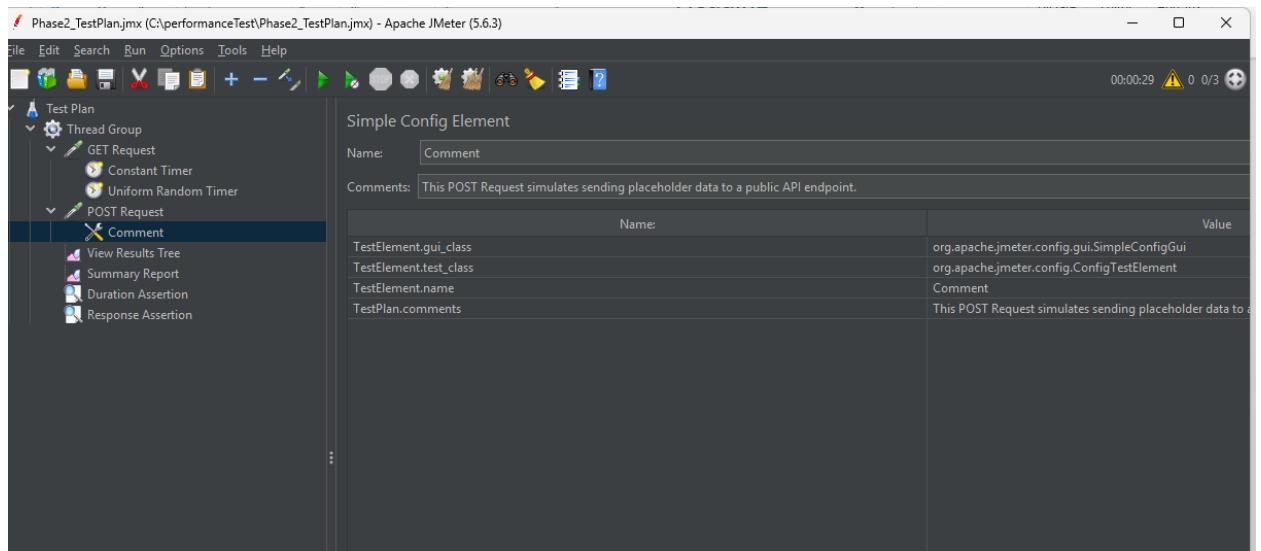
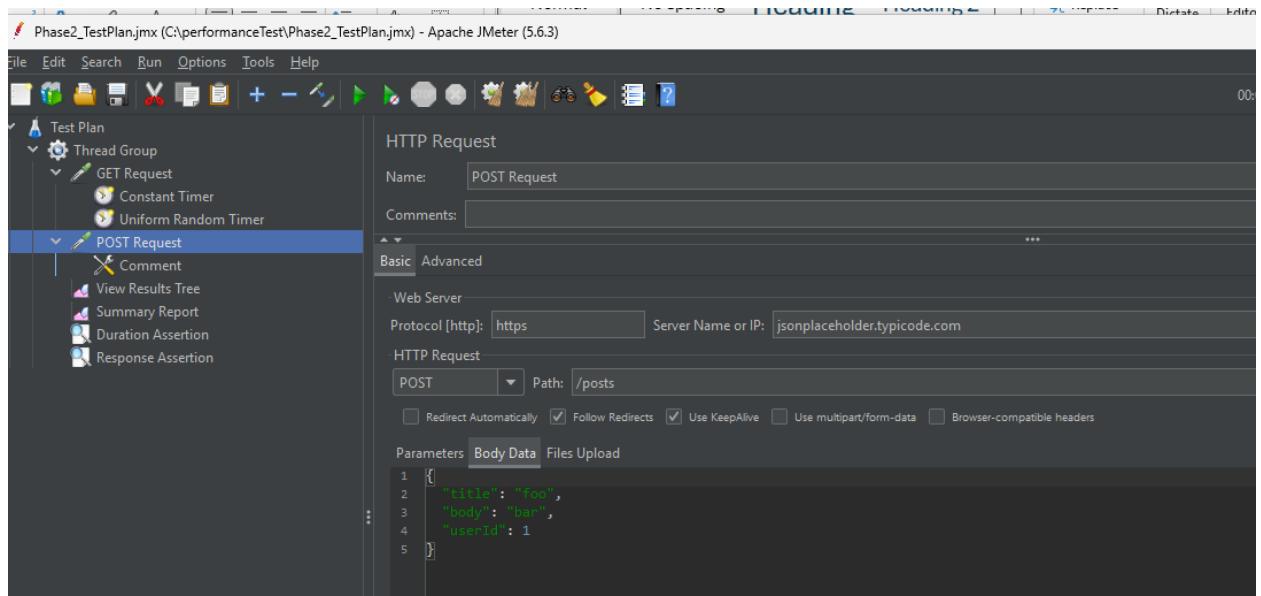
File Explorer (Windows File Explorer) showing the contents of the Apache JMeter 5.6.3 bin directory:

Name	Date modified	Type	Size
examples	2025-09-16 5:03 PM	File folder	
report-template	2025-09-16 5:03 PM	File folder	
templates	2025-09-16 5:03 PM	File folder	
ApacheJMeter	2025-09-16 5:03 PM	Executable Jar File	14 KB
BeanShellAssertion.bshrc	2025-09-16 5:03 PM	BSHRC File	2 KB
BeanShellFunction.bshrc	2025-09-16 5:03 PM	BSHRC File	3 KB
BeanShellListeners.bshrc	2025-09-16 5:03 PM	BSHRC File	2 KB
BeanShellSampler.bshrc	2025-09-16 5:03 PM	BSHRC File	3 KB
create-rmi-keystore	2025-09-16 5:03 PM	Windows Batch File	2 KB
create-rmi-keystore.sh	2025-09-16 5:03 PM	sh_auto_file	2 KB
hc.parameters	2025-09-16 5:03 PM	PARAMETERS File	2 KB
headdump	2025-09-16 5:03 PM	Windows Comma...	2 KB
headdump.sh	2025-09-16 5:03 PM	sh_auto_file	1 KB
jaas.conf	2025-09-16 5:03 PM	CONF File	2 KB
jmeter	2025-09-16 5:03 PM	File	9 KB
jmeter	2025-09-16 5:03 PM	Windows Batch File	9 KB
jmeter.log	2025-10-01 5:12 PM	LOG File	2 KB
jmeter	2025-09-16 5:03 PM	Properties Source ...	58 KB
jmeter.sh	2025-09-16 5:03 PM	sh_auto_file	5 KB
jmeter-n	2025-09-16 5:03 PM	Windows Comma...	2 KB
jmeter-n-r	2025-09-16 5:03 PM	Windows Comma...	2 KB
jmeter-server	2025-09-16 5:03 PM	File	2 KB
jmeter-server	2025-09-16 5:03 PM	Windows Batch File	3 KB
jmeter-t	2025-09-16 5:03 PM	Windows Comma...	2 KB
jmeterw	2025-09-16 5:03 PM	Windows Comma...	1 KB
krb5.conf	2025-09-16 5:03 PM	CONF File	2 KB
lsm4d2.vml	2025-09-16 5:03 PM	VML File	5 KB

Apache JMeter Test Plan (Phase2_TestPlan.jmx) - Apache JMeter (5.6.3) window:

- File menu: File, Edit, Search, Run, Options, Tools, Help.
- Toolbar: New, Open, Save, Print, Run, Stop, Help.
- Left pane: Test Plan tree view showing a Thread Group node expanded, containing:
 - GET Request
 - Constant Timer
 - Uniform Random Timer
 - POST Request
 - Comment
 - View Results Tree
 - Summary Report
 - Duration Assertion
 - Response Assertion
- Right pane: Thread Group configuration panel:
 - Name: Thread Group
 - Comments: Action to be taken after a Sampler error:
 - Continue
 - Start Next Thread Loop
 - Stop Thread
 - Stop Test
 - Stop Test Now
 - Thread Properties:
 - Number of Threads (users): 3
 - Ramp-up period (seconds): 3
 - Loop Count: Infinite
 - Same user on each iteration
 - Delay Thread creation until needed
 - Specify Thread lifetime
 - Duration (seconds): 30
 - Startup delay (seconds):





Phase2_TestPlan.jmx (C:\performanceTest\Phase2_TestPlan.jmx) - Apache JMeter (5.6.3)

File Edit Search Run Options Tools Help

Test Plan

- Thread Group
 - GET Request
 - Constant Timer
 - Uniform Random Timer
- POST Request
 - Comment
 - View Results Tree
- Summary Report
- Duration Assertion
- Response Assertion

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

Search: Case sensitive Regular exp. Search Reset

Text

Sampler result Request Response data

Thread Name: Thread Group 1-1
Sample Start: 2025-10-02 19:28:09 PDT
Load time: 93
Connect Time: 0
Latency: 93
Size in bytes: 1336
Sent bytes: 253
Headers size in bytes: 1321
Body size in bytes: 15
Sample Count: 1
Error Count: 0
Data type ("text"|"bin"|""): text
Response code: 201
Response message: Created

HTTPSampleResult fields:
Content-Type: application/json; charset=utf-8
DataEncoding: utf-8

Phase2_TestPlan.jmx (C:\performanceTest\Phase2_TestPlan.jmx) - Apache JMeter (5.6.3)

File Edit Search Run Options Tools Help

Test Plan

- Thread Group
 - GET Request
 - Constant Timer
 - Uniform Random Timer
- POST Request
 - Comment
 - View Results Tree
- Summary Report
- Duration Assertion
- Response Assertion

Summary Report

Name: Summary Report

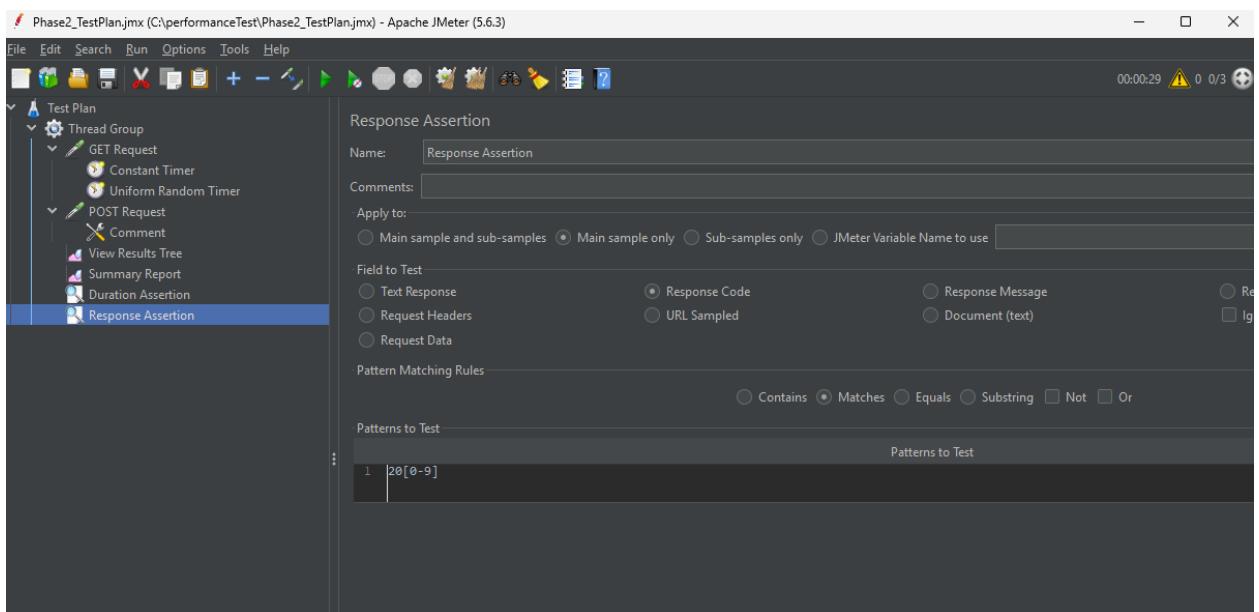
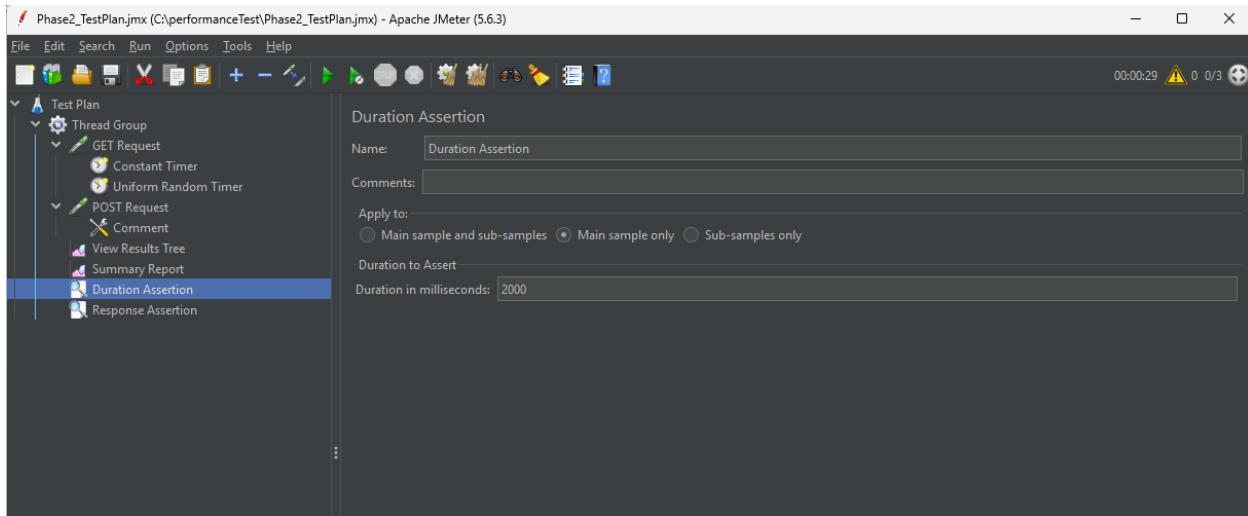
Comments:

Write results to file / Read from file

Filename:

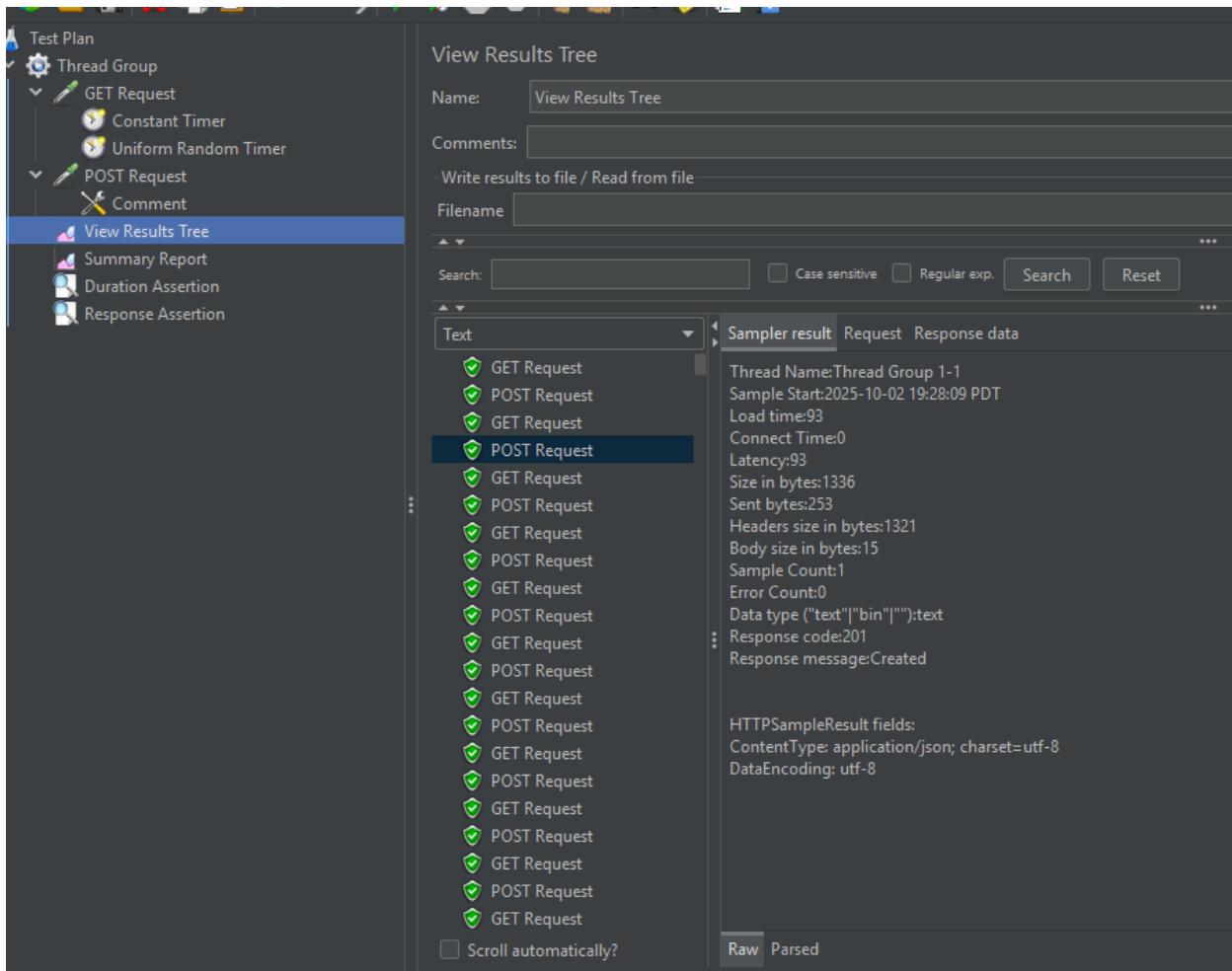
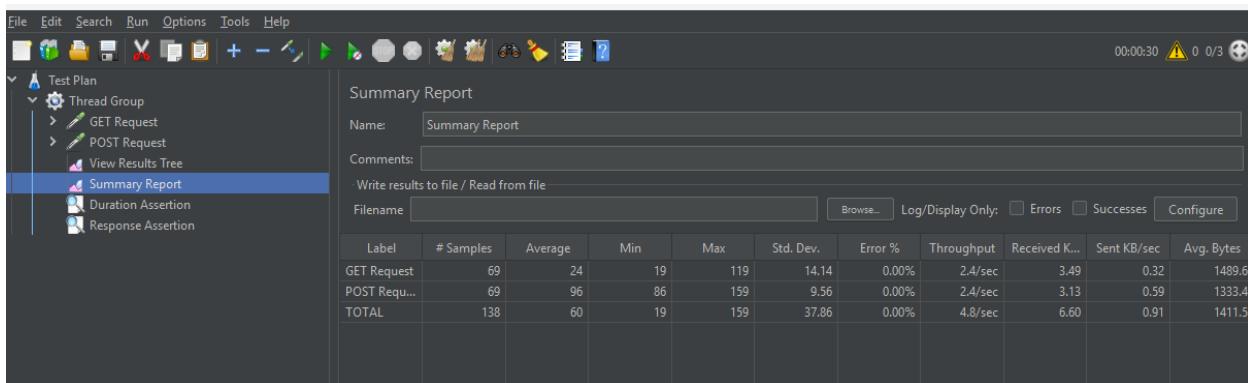
Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K..	Sent KB/sec	Avg. Bytes
GET Request	344	51	12	351	57.53	20.06%	4.3/min	0.18	0.01	2562.5
POST Requ...	344	105	77	197	35.61	20.06%	4.3/min	0.18	0.02	2539.0
TOTAL	688	78	12	351	54.97	20.06%	8.6/min	0.36	0.03	2550.7



Section: 2

ScreenShot of Summary Report:



Section 3: Validation & Analysis:

Duration Assertion is a powerful validation element used to enforce a specific performance requirement: that the server must respond within a predefined time limit.

- **Application:** The Duration Assertion was placed directly under the Thread Group, applying the limit to both the GET and POST samplers.
- **Configuration:** The duration was set to **2000 milliseconds (2 seconds)**.
- **Purpose:** This configuration required the server to complete each GET and POST transaction and return a response code within two seconds. If the response time (Load Time) of any sampler exceeded 2000ms, the assertion would fail, indicating a critical performance bottleneck. The successful test run confirms that the API performed well within this Service Level Agreement (SLA).

Response Assertion, which is the most common way to validate that a request was successfully processed by the server.

- **Function:** The Response Assertion was configured to inspect the **Response Code** field. This is critical because the response code is the most reliable indicator of the transaction outcome.
- **Validation Pattern:** The pattern used was the regular expression **20[0-9]**. This pattern tells JMeter to accept any HTTP status code that starts with

20, including **200, 201, 202**, etc..

- **Necessity:** This flexible pattern was necessary because the GET Request returns **200 OK** (successful retrieval), while the POST Request returns **201 Created** (successful resource creation). Checking for

20[0-9] ensured both successful transaction types would pass the assertion.

Results Analysis: Discuss observed HTTP Response Codes and their meaning (Topic 4)

The successful test run yielded two primary response codes, which are essential for understanding the API's behavior.

Sample	HTTP Code	HTTP Message	Meaning (Topic 4)
GET Request	200	OK	This is the standard response for a successful GET request. It means the server successfully found and delivered the resource requested at the path /posts/1. The client received the expected data in the response body.
POST Request	201	Created	This is the standard response for a successful POST request to a collection endpoint (/posts). It confirms that the server new resource as a result.

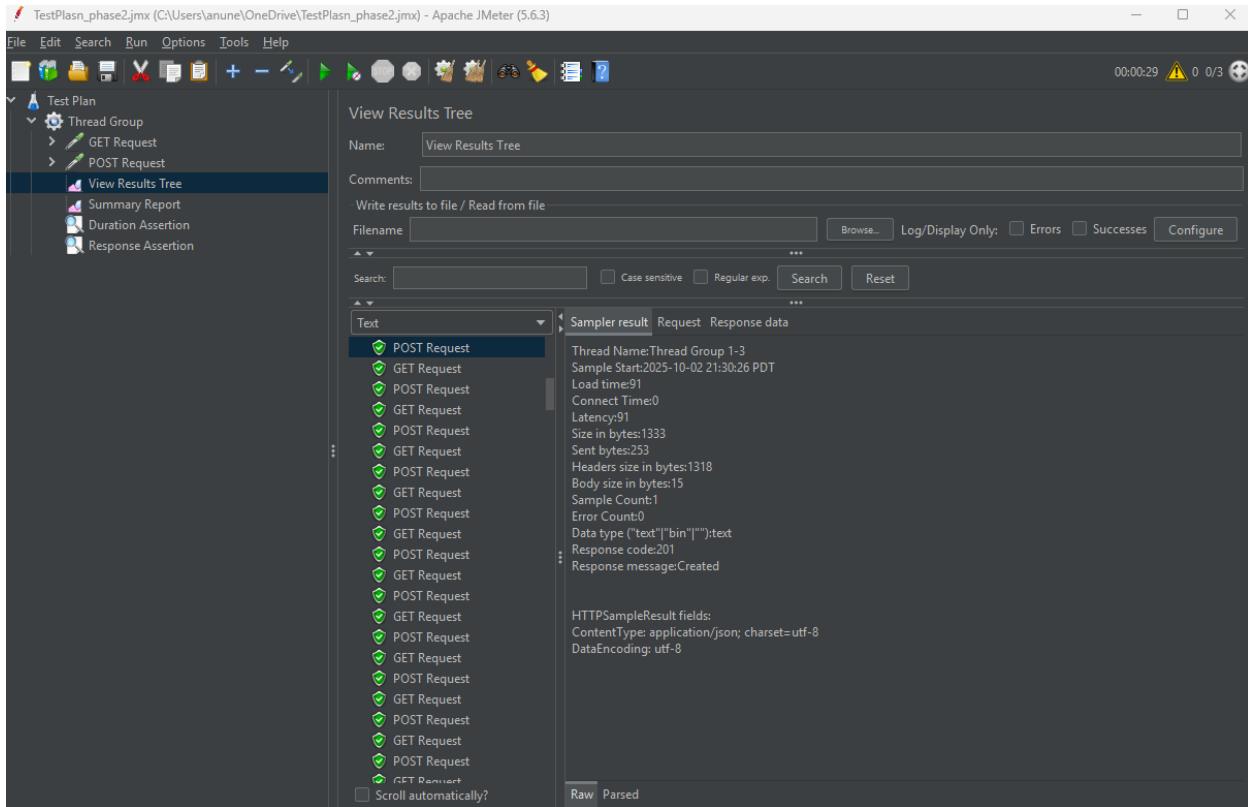
Sample	HTTP Code	HTTP Message	Meaning (Topic 4)
			successfully processed the request body data and created a

Export to Sheets

These results confirm that the API is functioning correctly for both read operations (GET) and write operations (POST). The

2xx family of status codes indicates **Success** and validates that all configured Samplers and the Response Assertion are working as intended.

The screenshot shows the JMeter interface with a Test Plan containing a Thread Group. Under the Thread Group, there are two samplers: a GET Request and a POST Request. The 'View Results Tree' listener is selected. The results tree displays a list of requests, with the 'GET Request' node currently expanded. The expanded node shows detailed information for each request, including Thread Name, Sample Start time, Load time, Connect Time, Latency, Size in bytes, Sent bytes, Headers size, Body size, Sample Count, Error Count, Data type, Response code, and Response message. The response message is consistently 'OK'. At the bottom of the results tree panel, there are tabs for 'Raw' and 'Parsed' data, and a checkbox for 'Scroll automatically?'. The status bar at the top right shows '00:00:29' and '0/0'.



GET (Retrieve): Used to retrieve data from a specified resource. It should only retrieve data and have no other effect on the server (it is *idempotent* and *safe*).

POST (Create): Used to submit data to a specified resource, often resulting in a change in state or the creation of a new resource on the server.

PUT (Update/Replace): Used to entirely **replace** a specified resource with the new data provided in the request body. If the resource does not exist, a PUT request may create it. It is *idempotent*—meaning that making the same request multiple times will have the same final effect.

DELETE(Remove): Used to **remove** a specified resource from the server. Like PUT, DELETE is also *idempotent*; repeatedly requesting the deletion of the same resource yields the same result (the resource remains deleted).

JMeter Template Choice (Topic 10)

For the foundation of this performance test, the **Building a Web Test Plan** template was selected. This template provides a clean, necessary starting structure, including the core **Thread Group** and a **HTTP Request Default** element. This choice streamlined the setup process by allowing immediate focus on configuring HTTP Samplers and adding the required Listeners and Assertions, rather than building the Test Plan structure from scratch.

