

Creating A Performance Evaluation Test For An E-Learning Application Using JMeter Involves Several Steps:

Step 1: Setting Up the Environment

1. Install JMeter: Download and install JMeter 5.1.1 version.
2. Install Java Development Kit (JDK): Ensure JDK 8 is installed.

Step 2: Recording Test Scenarios

1. Start JMeter.
2. Create a New Test Plan: Open JMeter and create a new Test Plan.

3. Add Thread Group:

Right-click Test Plan -> Add -> Threads (Users) -> Thread Group.- Define thread properties like number of users, ramp-up period, and loop count.

4. Add HTTP Request Defaults:

Right-click Thread Group -> Add -> Config Element -> HTTP Request Defaults - Set the base URL (www.simplilearn.com).

5. Add HTTP(S) Test Script Recorder :

Right-click Test Plan -> Add -> Add -> Non-Test Elements -> HTTP(S) Test Script Recorder.

- Configure the recorder to listen on a specific port (e.g., 8080).
- Set up your browser to use JMeter as the proxy.

6. Start Recording: Click 'Start' on the HTTP(S) Test Script Recorder.

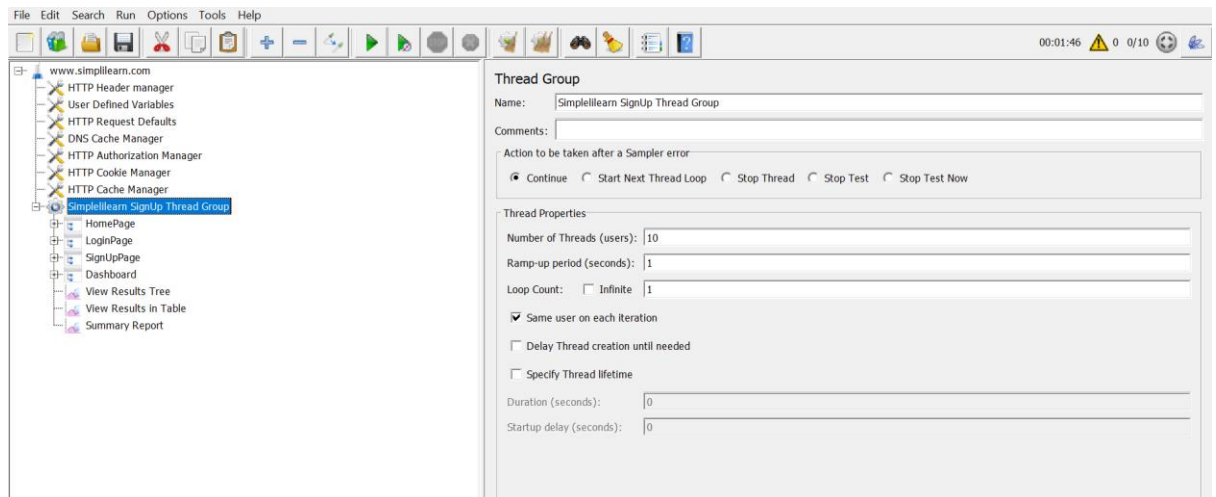
7. Perform User Actions on the E-learning Application: Use the browser configured with the JMeter proxy to navigate through the application.

HomePage → LoginPage → SignUpPage → RegisterForm → Dashboard

8. Stop Recording: Click 'Stop' on the HTTP(S) Test Script Recorder.

Step 3: Test Scripting and Configuration

1. Inspect Recorded Requests: Review the recorded HTTP requests under the Recording Controller.
2. Add Samplers for Dynamic Elements:



3. Parameterize Data: If required, parameterize data

HTTP Request

Name:

Comments:

Basic | Advanced

Web Server

Protocol [http]: Server Name or IP: Port Number:

HTTP Request

POST Path: Content encoding:

☐ Redirect Automatically ☒ Follow Redirects ☒ Use KeepAlive ☐ Use multipart/form-data ☐ Browser-compatible headers

Parameters | Body Data | Files Upload

Send Parameters With the Request:

Name:	Value	URL Encode?	Content-Type	Include Equals?
country_code	IN	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
firstName	Karthick	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
lastName	M	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
phone_no	1234567891	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
user_email	karthick@gmail.com	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
TnCCheckbox	Y	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
user_pwd	Karthick21@	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
redirect_url	https://lms.simplilearn.com	<input checked="" type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>

4. Add Assertions and Validations: Include Response Assertions to verify the correctness of server responses.

Response Assertion

Name:Response Assertion

Comments:

Apply to:

☐ Main sample and sub-samples

☒ Main sample only

☐ Sub-samples only

☐ JMeter Variable Name to use

Field to Test

☐ Text Response

☒ Response Code

☐ Response Message

☐ Response Headers

☐ Request Headers

☐ URL Sampled

☐ Document (text)

☐ Ignore Status

☐ Request Data

Pattern Matching Rules

☐ Contains

☐ Matches

☐ Equals

☒ Substring

☐ Not

☐ Or

Patterns to Test

Patterns to Test

1200

Add

Add from Clipboard

Delete

Custom failure message

1

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HTTP Header manager

User Defined Variables

HTTP Request Defaults

DNS Cache Manager

HTTP Authorization Manager

HTTP Cookie Manager

HTTP Cache Manager

Simpleilearn SignUp Thread Group

HomePage

www.simplilearn.com

LoginPage

https://accounts.simplilearn.com/user/profile/check-gdpr-status

https://accounts.simplilearn.com/user/login?redirect_url=https%3A%2F%2Faccounts.simplilearn.com/user/register?redirect_url=https://lms.simplilearn.com/user/profile/check-gdpr-status

https://accounts.simplilearn.com/user/register-email

https://accounts.simplilearn.com/user/profile/check-gdpr-status

https://accounts.simplilearn.com/validate/register

https://accounts.simplilearn.com/user/register-email

https://accounts.simplilearn.com/user/profile/check-gdpr-status

SignUpPage

https://accounts.simplilearn.com/user/register-email

https://accounts.simplilearn.com/user/profile/check-gdpr-status

https://accounts.simplilearn.com/validate/register

https://accounts.simplilearn.com/user/register-email

https://accounts.simplilearn.com/user/profile/check-gdpr-status

Dashboard

https://lms.simplilearn.com/

https://lms.simplilearn.com/api/lrs/publish

https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%7D

https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%7D

https://lms.simplilearn.com/user/learning/log-firebase-conn-error/

Response Assertion

View Results Tree

View Results in Table

View Results Tree

Name:View Results Tree

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only: ☐ Errors ☐ Successes

Search: ☐ Case sensitive ☐ Regular exp.

Text

www.simplilearn.com

https://accounts.simplilearn.com/user/profile/check-gdpr-st

https://accounts.simplilearn.com/user/login?redirect_url=ht

https://accounts.simplilearn.com/user/register?redirect_ur

https://accounts.simplilearn.com/user/profile/check-gdpr-st

https://accounts.simplilearn.com/user/register-email

Sampler result

Request

Response data

Thread Name:Simpleilearn SignUp Thread Group 1-1

Sample Start:2023-11-01 12:35:04 IST

Load time:990

Connect Time:739

Latency:990

Size in bytes:892

Sent bytes:599

Headers size in bytes:746

Body size in bytes:146

Sample Count:1

Error Count:0

Data type ("text"|"bin"|""):text

Response code:200

Response message:OK

HTTPSampleResult fields:

ContentType: text/html; charset=UTF-8

DataEncoding: UTF-8

Assertion Results

Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: ☐ Errors ☒ Successes

Assertions:

```

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https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/user/login?redirect_url=https%3A%2F%2Fms.simplilearn.com%
https://accounts.simplilearn.com/user/register?redirect_url=https://lms.simplilearn.com/
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/user/register-email
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/validate/register
https://accounts.simplilearn.com/user/register-email
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://lms.simplilearn.com/
https://lms.simplilearn.com/api/lrs/publish
https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert_course_id%22:%
https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert_course_id%22:%
https://lms.simplilearn.com/user/learning/log-firebase-conn-error/

```

Add Listeners: Add appropriate Listeners (View Results Tree, Aggregate Report, etc.) to gather test results.

The screenshot shows the JMeter GUI with the 'View Results Tree' listener configured. The left sidebar shows the test plan structure, including the 'SimpleLearn SignUp Thread Group' and its children: 'HomePage', 'LoginPage', 'SignUpPage', 'Dashboard', 'View Results Tree' (selected), 'View Results in Table', 'Summary Report', and 'Assertion Results'.

The 'View Results Tree' configuration panel shows the following settings:

- Name: View Results Tree
- Comments:
- Write results to file / Read from file:
- Filename:
- Log/Display Only: ☐ Errors ☐ Successes
- Search: Case sensitive ☐ Regular exp.

The 'Text' tab displays the following list of URLs with green checkmarks indicating successful assertions:

- www.simplilearn.com
- https://accounts.simplilearn.com/user/profile/check-gdpr-status
- https://accounts.simplilearn.com/user/login?redirect_url=https%3A%2F%2Fms.simplilearn.com%
- https://accounts.simplilearn.com/user/register?redirect_url=https://lms.simplilearn.c
- https://accounts.simplilearn.com/user/profile/check-gdpr-status
- https://accounts.simplilearn.com/user/register-email
- https://accounts.simplilearn.com/user/profile/check-gdpr-status
- https://accounts.simplilearn.com/validate/register
- https://accounts.simplilearn.com/user/register-email
- https://accounts.simplilearn.com/user/profile/check-gdpr-status
- https://lms.simplilearn.com/
- https://lms.simplilearn.com/api/lrs/publish
- https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert
- https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert
- https://lms.simplilearn.com/user/learning/log-firebase-conn-error/

The 'Sampler result' tab shows the following details for the selected sample:

- Thread Name: SimpleLearn SignUp Thread Group 1-1
- Sample Start: 2023-11-01 12:35:04 IST
- Load time: 990
- Connect Time: 739
- Latency: 990
- Size in bytes: 892
- Sent bytes: 599
- Headers size in bytes: 746
- Body size in bytes: 146
- Sample Count: 1
- Error Count: 0
- Data type ("text"|"bin"|""): text
- Response code: 200
- Response message: OK

The 'HTTPSampleResult fields' tab shows the following details:

- ContentType: text/html; charset=UTF-8
- DataEncoding: UTF-8

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www.simplilearn.com

- HTTP Header manager
- User Defined Variables
- HTTP Request Defaults
- DNS Cache Manager
- HTTP Authorization Manager
- HTTP Cookie Manager
- HTTP Cache Manager
- Simpleilearn SignUp Thread Group
 - HomePage
 - LoginPage
 - SignUpPage
 - Dashboard
 - View Results Tree
 - View Results in Table
 - Summary Report
 - Assertion Results

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename: Browse...

Log/Display Only: ☐ Errors ☐ Successes ☐ Configure

Sample #	Start Time	Thread Name	Label	Sample Tim...	Status	Bytes	Sent Bytes	Latency	Connect TL...
1	12:35:04.004	Simpleilear...	www.simplil...	990	✓	892	599	990	739
2	12:35:04.996	Simpleilear...	https://acco...	2644	✓	66868	1040	1092	750
3	12:35:08.708	Simpleilear...	https://acco...	875	✓	65875	755	633	0
4	12:35:25.540	Simpleilear...	https://acco...	327	✓	63117	780	324	0
5	12:35:25.869	Simpleilear...	https://acco...	1662	✓	66739	1105	330	0
6	12:35:33.569	Simpleilear...	https://acco...	343	✓	56458	736	338	0
7	12:35:33.912	Simpleilear...	https://acco...	948	✓	66738	1105	346	0
8	12:35:34.860	Simpleilear...	https://acco...	326	✓	578	772	326	0
9	12:36:21.462	Simpleilear...	https://acco...	1570	✓	63731	1840	787	479
10	12:36:23.033	Simpleilear...	https://acco...	1479	✓	66738	1105	365	0
11	12:36:30.843	Simpleilear...	https://lms....	1773	✓	809	625	1773	484
12	12:36:32.617	Simpleilear...	https://lms....	262	✓	640	1046	261	0
13	12:36:32.879	Simpleilear...	https://lms....	1290	✓	809	630	1290	0
14	12:36:34.170	Simpleilear...	https://lms....	1258	✓	809	630	1257	0
15	12:36:35.428	Simpleilear...	https://lms....	1260	✓	809	734	1260	0

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Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename: Browse...

Log/Display Only: ☐ Errors ☐ Successes ☐ Configure

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
www.simpl...	1	990	0	990	0.00	0.00%	1.0/sec	0.88	0.59	892.0
https://acc...	4	1683	0	2644	613.56	0.00%	3.0/min	3.28	0.05	66770.8
https://acc...	1	875	0	875	0.00	0.00%	1.1/sec	73.52	0.84	65875.0
https://acc...	1	327	0	327	0.00	0.00%	3.1/sec	188.49	2.33	63117.0
https://acc...	2	956	0	1570	613.50	0.00%	2.4/min	2.37	0.05	60094.5
https://acc...	1	326	0	326	0.00	0.00%	3.1/sec	1.73	2.31	578.0
https://lms...	1	1773	0	1773	0.00	0.00%	33.8/min	0.45	0.34	809.0
https://lms...	1	262	0	262	0.00	0.00%	3.8/sec	2.39	3.90	640.0
https://lms...	2	1274	0	1290	16.00	0.00%	47.1/min	0.62	0.48	809.0
https://lms...	1	1260	0	1260	0.00	0.00%	47.6/min	0.63	0.57	809.0
TOTAL	15	1133	0	2644	640.03	0.00%	9.7/min	5.50	0.14	34774.0

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Assertion Results

Name: Assertion Results

Comments:

Write results to file / Read from file

Filename: Browse...

Log/Display Only: ☐ Errors ☒ Successes ☐ Configure

Assertions:

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www.simplilearn.com
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/user/login?redirect_url=https%3A%2F%2Flms.simplilearn.com%
https://accounts.simplilearn.com/user/register?redirect_url=https://lms.simplilearn.com/
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/user/register-email
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://accounts.simplilearn.com/validate/register
https://accounts.simplilearn.com/user/register-email
https://accounts.simplilearn.com/user/profile/check-gdpr-status
https://lms.simplilearn.com/
https://lms.simplilearn.com/api/lrs/publish
https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert_course_id%22:%
https://lms.simplilearn.com/user/community/forum-access?forum_ids=%7B%22cert_course_id%22:%
https://lms.simplilearn.com/user/learning/log-firebase-conn-error/
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Step 4: Executing the Test

1. Run the Test: Click 'Start' at the top menu to run the test plan.
2. Monitor and Collect Results: While the test is running, monitor JMeter for any errors or failures. Once the test completes, review the listeners for performance data.

Step 5: Analyzing Results

1. Analyze Test Results: Interpret the gathered data to identify performance bottlenecks, response times, errors, etc.

Step 6: GitHub Repository

GitHub repository : <https://github.com/Karthick-Office/Project01.git>

Creating a performance evaluation test for an e-learning application

Using JMeter Project is present under the “JMeter Practice Project” folder in the My GitHub repository