

Steps to JMeter Load Testing- Project

Automation Testing Stream

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Contents covered in this document-

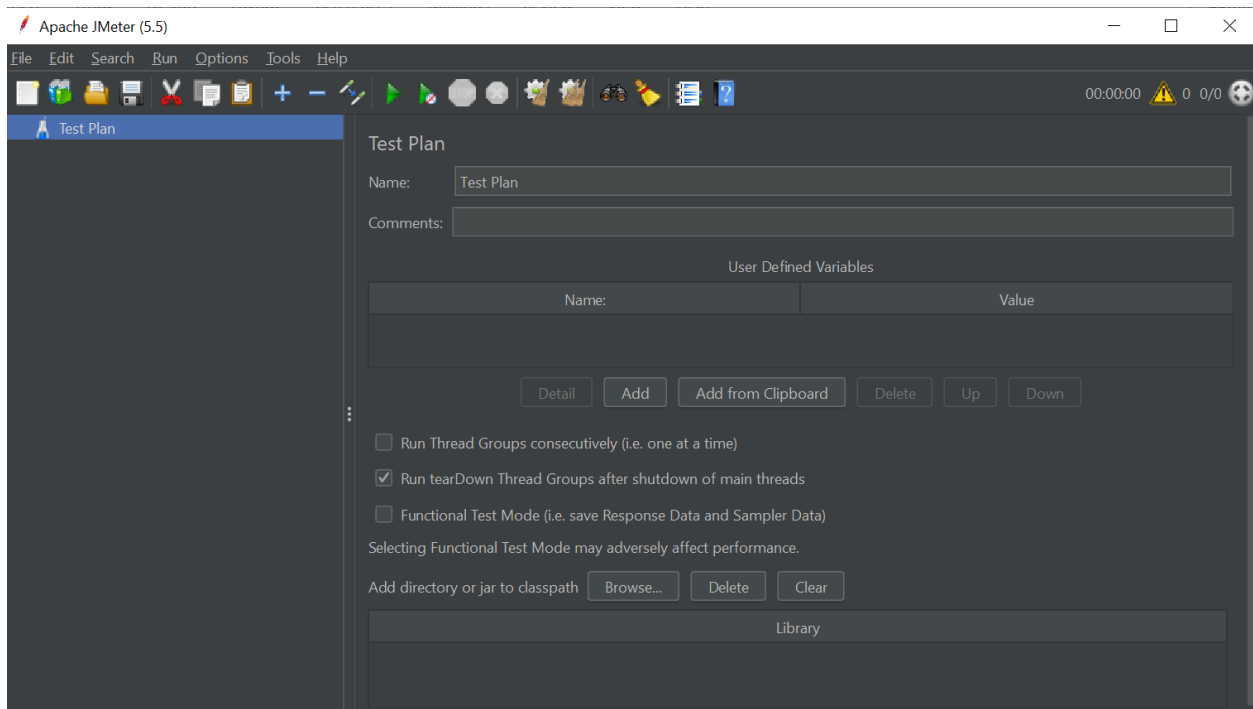
1. Creating a Project- OrangeHRM
2. Creating a Thread Group
3. Creating various HTTP Request(Samplers)
4. Creating a user defined variables-“url” to be accessed globally
5. Added Response Assertions to check
6. Added various listeners including Assertion Results to view results/outputs
7. Firstly, tried running for minimum 20 users
8. Then, started for 50 users
9. Then, increased and started with 100 users
10. Finally, increased and started with 200 users to test Load Testing.
11. And viewed results and noted the execution time for each case.

Step-1: Opening the JMeter file.

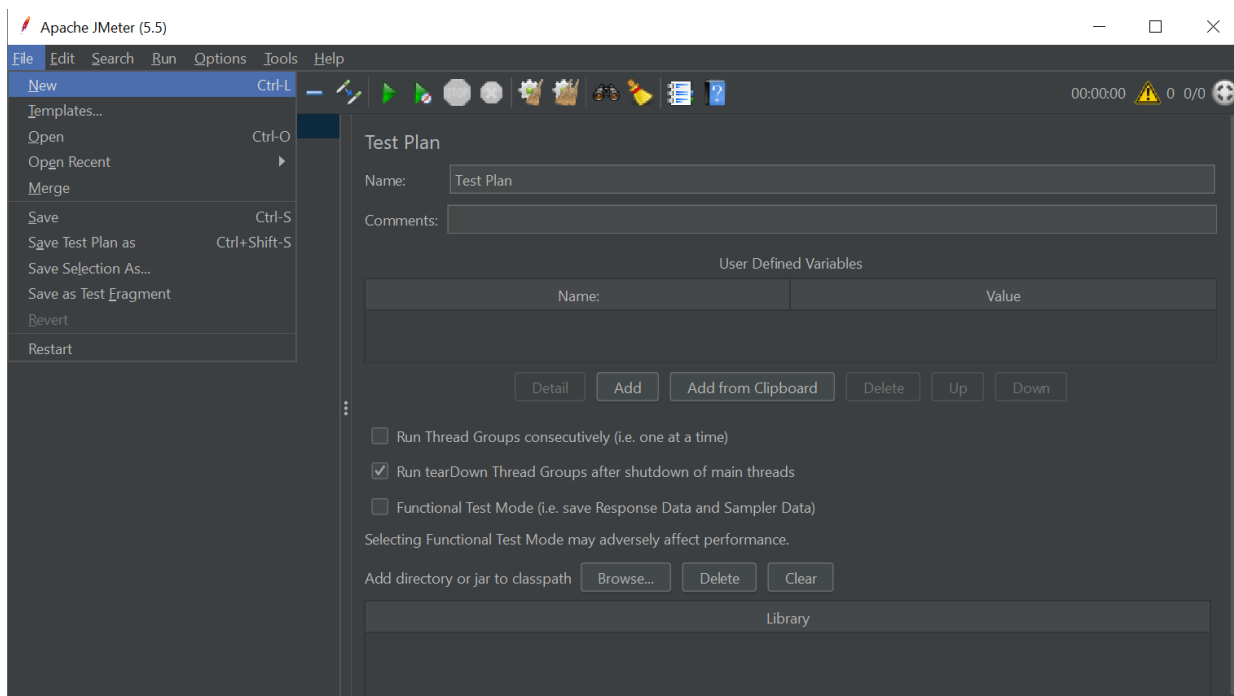
```
C:\WINDOWS\system32\cmd.exe

=====
Don't use GUI mode for load testing !, only for Test creation and Test debugging.
For load testing, use CLI Mode (was NON GUI):
    jmeter -n -t [jmx file] -l [results file] -e -o [Path to web report folder]
& increase Java Heap to meet your test requirements:
    Modify current env variable HEAP="-Xms1g -Xmx1g -XX:MaxMetaspaceSize=256m" in the jmeter batch file
Check : https://jmeter.apache.org/usermanual/best-practices.html
=====
```

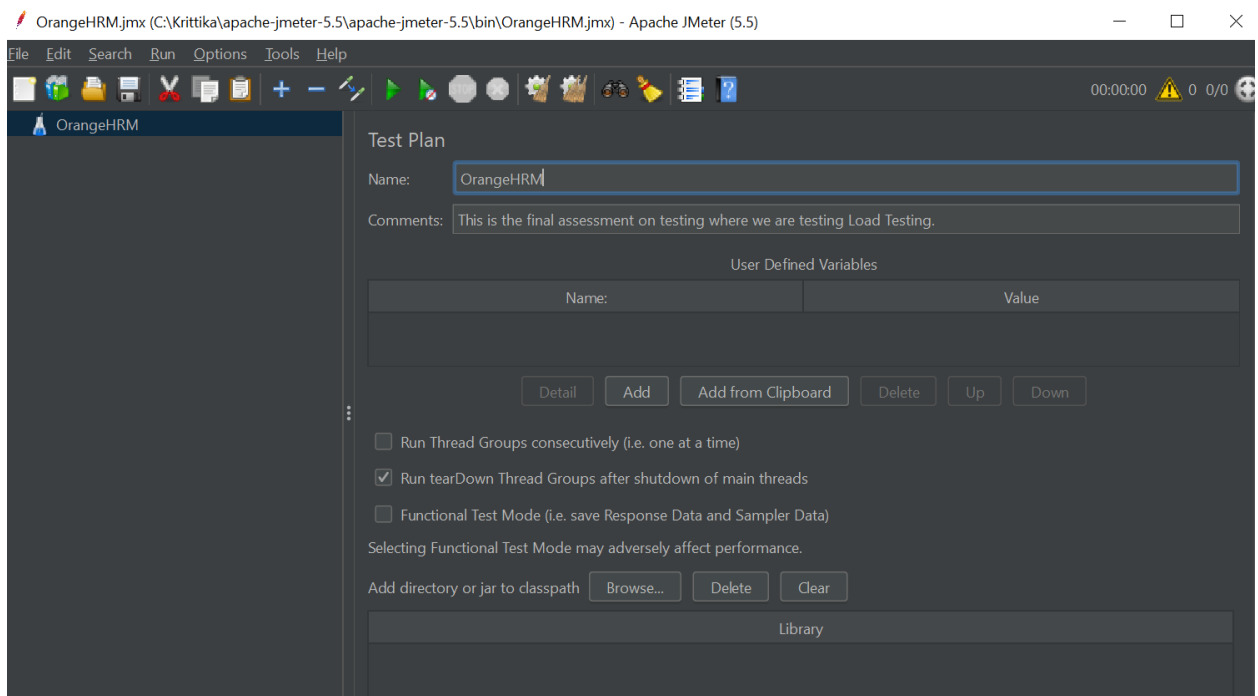
Step-2: Apache JMeter Opens.



Step-3: Creating a New Project.



Step-4: - Adding name of project as OrangeHRM.



Step-5: Now, Creating a global- User Defined variable named “url”.

Name:

Comments:

User Defined Variables	
Name:	Value
url	opensource-demo.orangehrmlive.com

☐ Run Thread Groups consecutively (i.e. one at a time)

☒ Run tearDown Thread Groups after shutdown of main threads

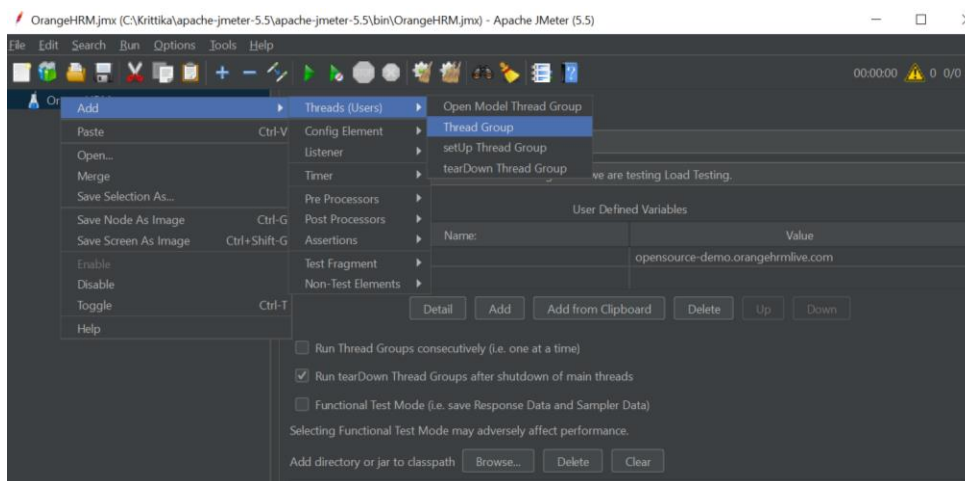
☐ Functional Test Mode (i.e. save Response Data and Sampler Data)

Selecting Functional Test Mode may adversely affect performance.

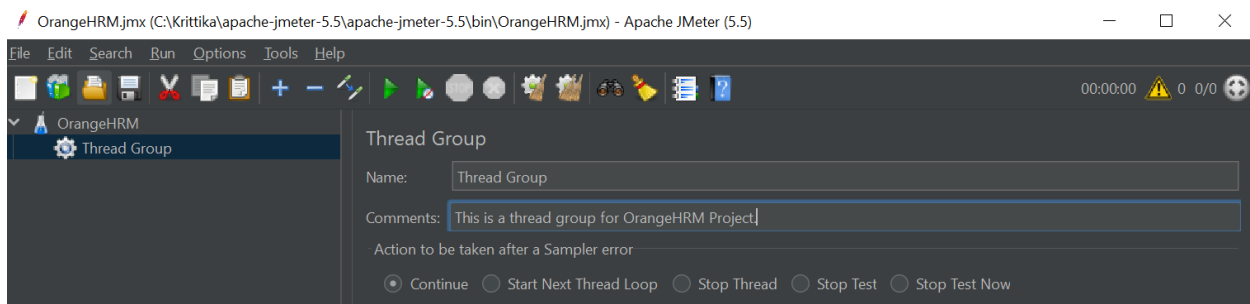
Add directory or jar to classpath

Library

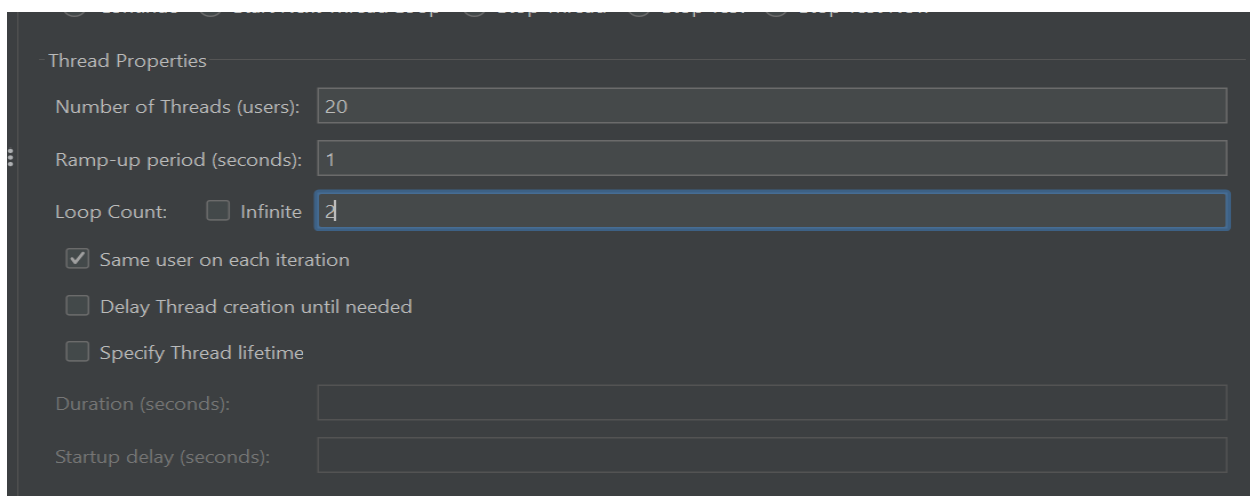
Step-6: Creating a New Thread Group for Project- OrangeHRM.



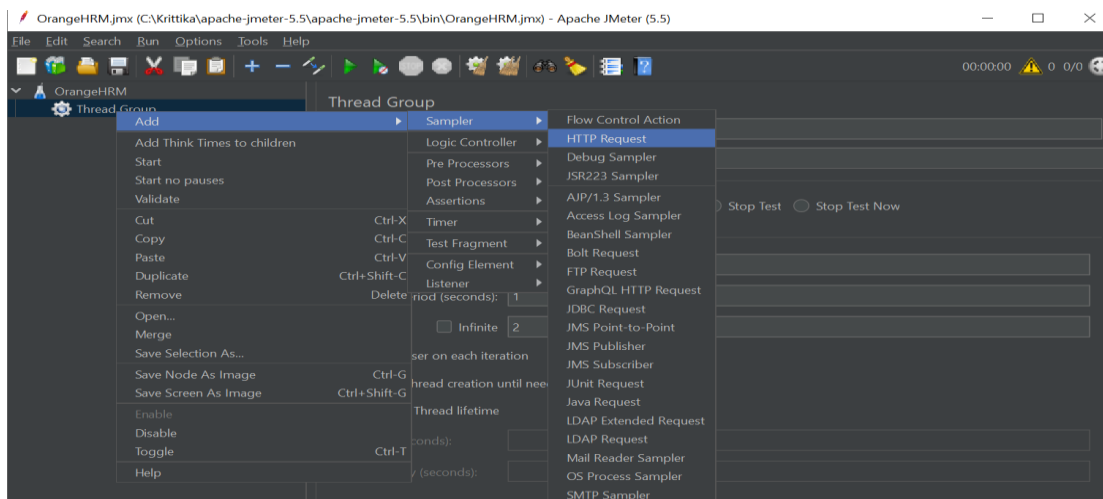
Step-7: Created Thread Group and added comments.



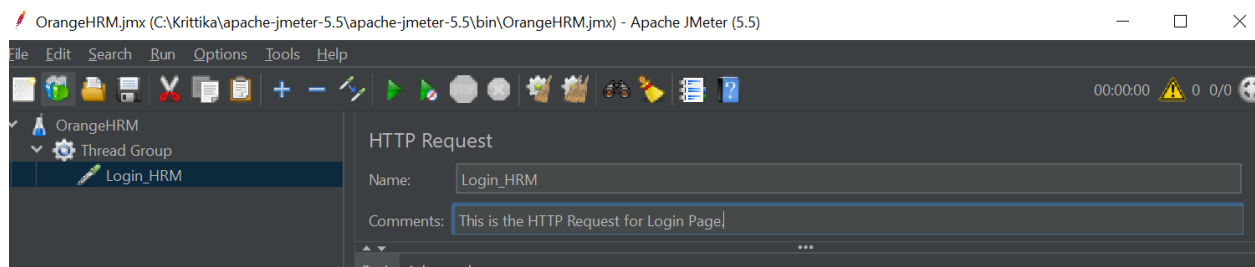
Step-8: Created Thread Group with following Credentials.



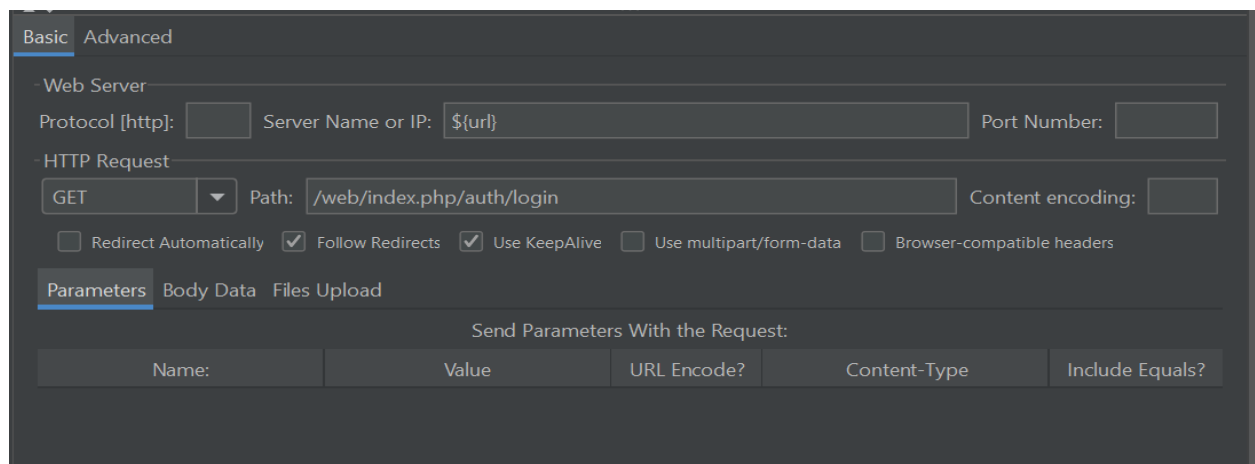
Step-9: Added Samplers for the thread group of the project of type-“HTTP Request”.



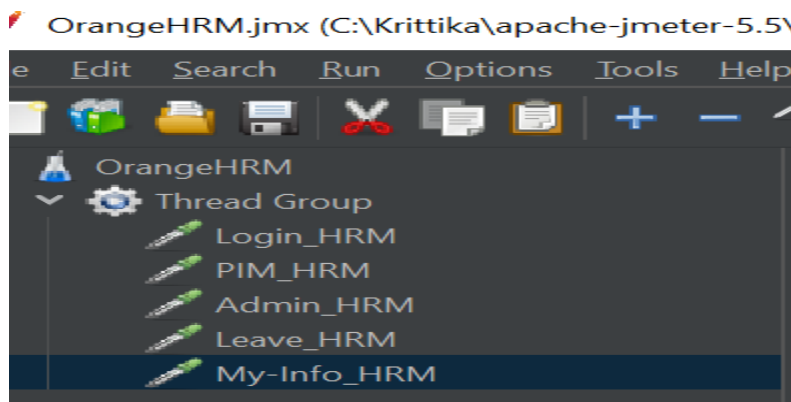
Step-10: After adding sampler, given the names of the HTTP Request and added the comments.



Step-11: Implementing User Defined variable for “url” created under project.

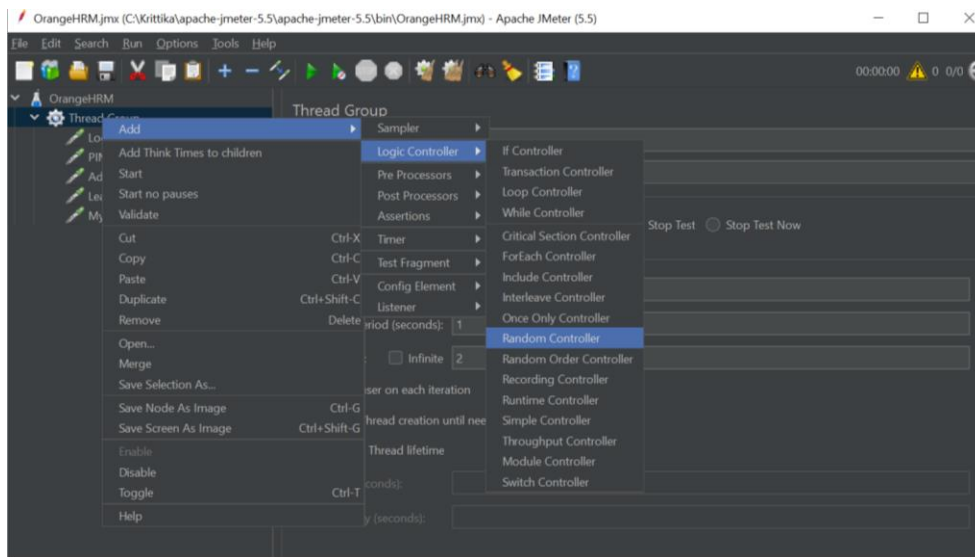


Step-12: Similarly, added different HTTP Request for Thread Group.



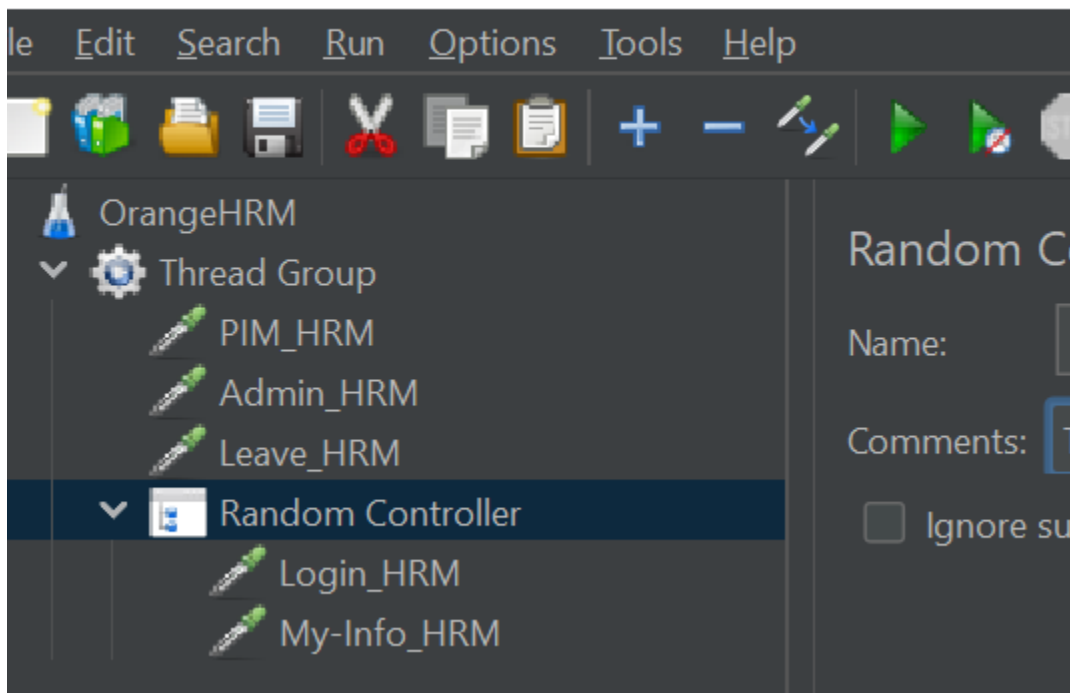
Similarly, added other Samplers- HTTP Request and given them names, added comments and also implemented the user defined variable-“url” for all Samplers.

Step-13: After adding samplers, now adding the Random Controllers from Logic Controllers.



Step-14: Added two HTTP Request- Login_HRM and My-Info_HRM, under the Random Controller.

OrangeHRM.jmx (C:\Krittika\apache-jmeter-5.5\apache-jmeter-5.5



Step-15: After that added comments to the random controller.

Random Controller

Name:

Comments:

☐ Ignore sub-controller blocks

Step-16: Added Constant Timer for PIM_HRM successfully.

OrangeHRM.jmx (C:\Krittika\apache-jmeter-5.5\apache-jmeter-5.5\bin\OrangeHRM.jmx) - Apache JMeter (5.5)

File Edit Search Run Options Tools Help

00:00:00 0 0/0

OrangeHRM

- Thread Group
 - PIM_HRM
 - Constant Timer
 - Admin_HRM
 - Leave_HRM
 - Random Controller
 - Login_HRM
 - My-Info_HRM

Constant Timer

Name:

Comments:

Thread Delay (in milliseconds):

Step-17: Now, successfully added Response Assertion to check for various Assertion criteria.

OrangeHRM.jmx (C:\Krittika\apache-jmeter-5.5\apache-jmeter-5.5\bin\OrangeHRM.jmx) - Apache JMeter (5.5)

File Edit Search Run Options Tools Help

00:00:00 0 0/0

OrangeHRM

- Thread Group
 - PIM_HRM
 - Constant Timer
 - Admin_HRM
 - Leave_HRM
 - Random Controller
 - Login_HRM
 - My-Info_HRM
 - Response Assertion

Response Assertion

Name:

Comments:

Apply to:

☐ Main sample and sub-samples ☒ Main sample only ☐ Sub-samples only ☐ JMeter Variable Name to use

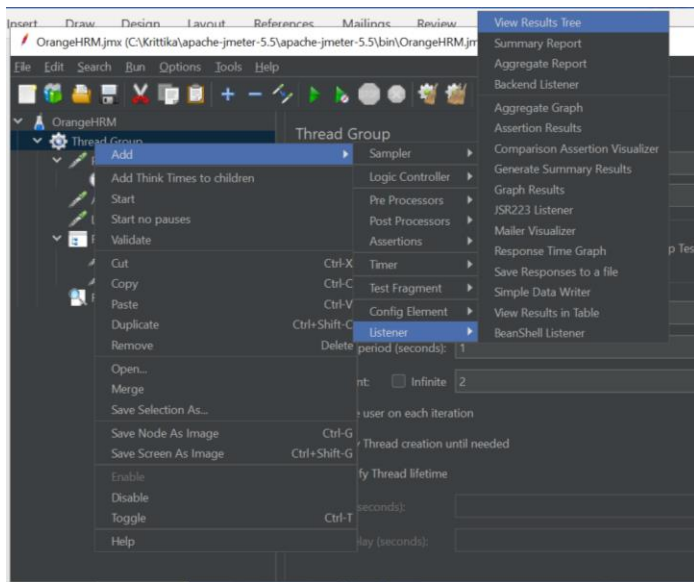
Field to Test

☒ Text Response ☐ Response Code ☐ Response Message ☐ Response Headers

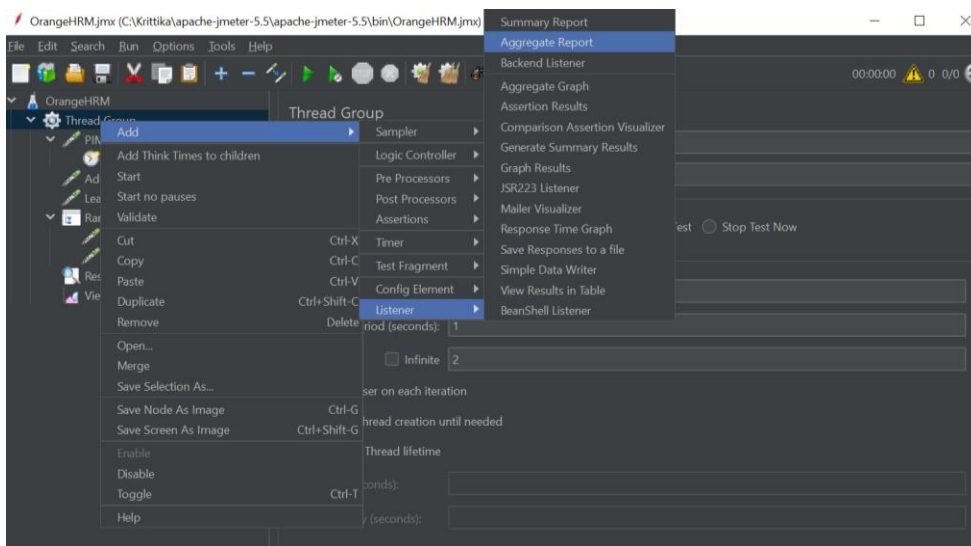
☐ Request Headers ☐ URL Sampled ☐ Document (text) ☐ Ignore Status

☐ Request Data

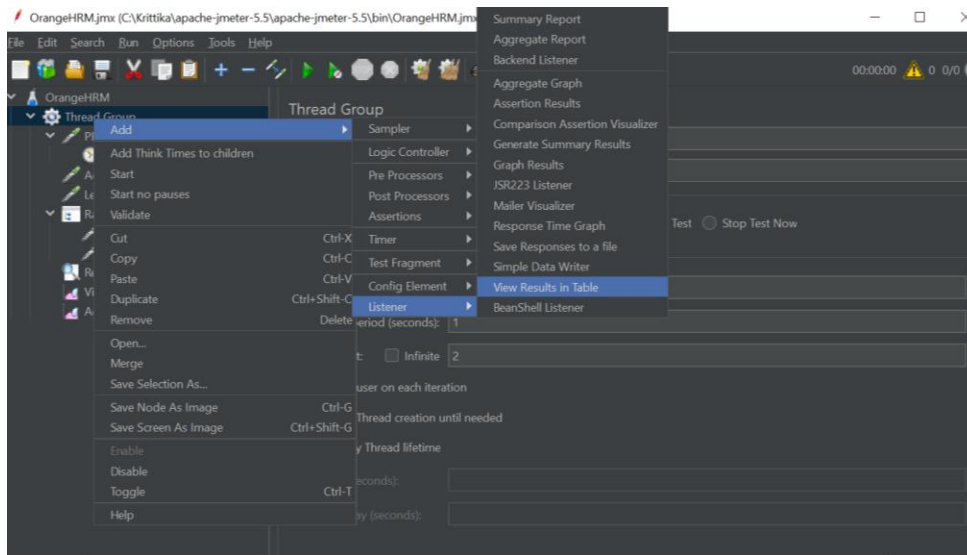
Step-18: Successfully added Listeners- “View Results Tree”, which shows result in tree format.



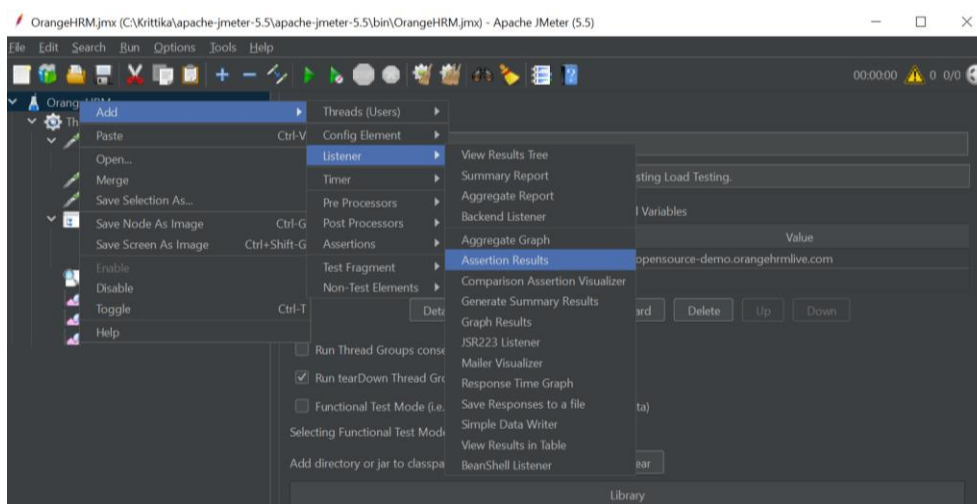
Step-19: Successfully added Listeners- “Aggregate Report”, which shows result aggregately.



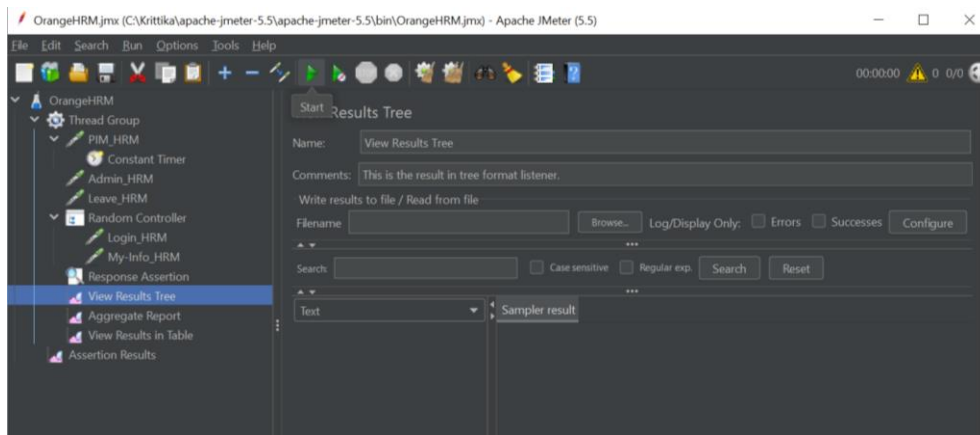
Step-20: Successfully added Listeners- “View Results in table”, which shows result in table.



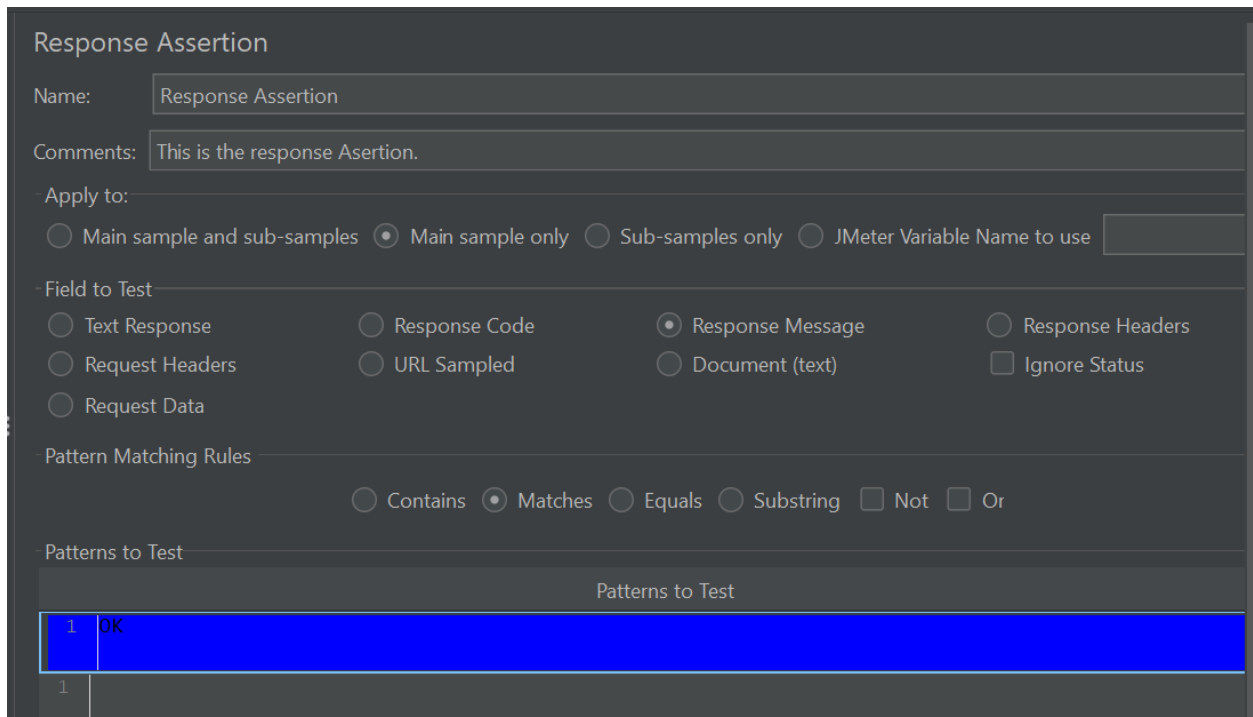
Step-21: Finally added the Assertion Results for the project OrangeHRM to view the assertion response results.



Step-22: Finally started with the Start Button on the top.



Step-23: After Starting, checked for the Response Assertion, and selected and added fields accordingly.



Step-24: Finally executed all Samplers request and viewed it in “View Results in Tree”.

Comments: This is the result in tree format listener.

Write results to file / Read from file

Filename Browse... Log/Display Only: ☐ Errors ☐ Success

Search: ☐ Case sensitive ☐ Regular exp. Search Reset

Text

Sampler result Request Response data

Thread Name:Thread Group 1-3
Sample Start:2022-10-06 12:56:16 IST
Load time:1492
Connect Time:166
Latency:330
Size in bytes:6570
Sent bytes:503
Headers size in bytes:2628
Body size in bytes:3942
Sample Count:1
Error Count:0
Data type ("text"|"bin"|""):text
Response code:200
Response message:OK

Step-25: Finally executed all Samplers request and viewed it in “Aggregate Report”.

Aggregate Report

Name: Aggregate Report

Comments: This is the aggregate report.

Write results to file / Read from file

Filename Browse... Log/Display Only: ☐ Errors ☐ Successes Configure

Label	# Sam...	Average	Median	90% Li...	95% Li...	99% Li...	Min	Maxim...	Error %	Throu...	Receiv...	Sent K...
PIM_H...	40	4572	1698	10595	10607	10829	1371	10829	0.00%	2.4/sec	15.50	1.19
Admin...	40	1016	908	1348	1505	1995	804	1995	0.00%	2.5/sec	16.08	1.24
Leave_...	40	947	935	1015	1055	1334	831	1334	0.00%	2.5/sec	16.13	1.23
Login_...	19	1234	605	1021	5906	5930	481	5930	0.00%	1.2/sec	5.81	0.39
My-Inf...	21	3570	1177	9456	9932	10317	784	10317	0.00%	1.3/sec	8.55	0.65
TOTAL	160	2249	960	6368	10337	10607	481	10829	0.00%	8.4/sec	52.16	3.95

Step-26: Finally executed all Samplers request and viewed it in “View Results in Table”.

The screenshot shows the OrangeHRM application interface. On the left, a tree view lists various components: Thread Group, PIM_HRM, Admin_HRM, Leave_HRM, Random Controller, Login_HRM, My-Info_HRM, View Results Tree, Aggregate Report, View Results in Table (highlighted), Response Assertion, and Assertion Results. The main window displays the 'View Results in Table' widget configuration. It includes fields for Name (View Results in Table), Comments (This is the View in tables listener), and a section for writing results to file. Below this is a table with 14 rows of data, each representing a sample. The table columns are Sample #, Start Time, Thread Name, Label, Sample Tim..., Status, Bytes, Sent Bytes, and Late. All status icons are green, indicating successful results.

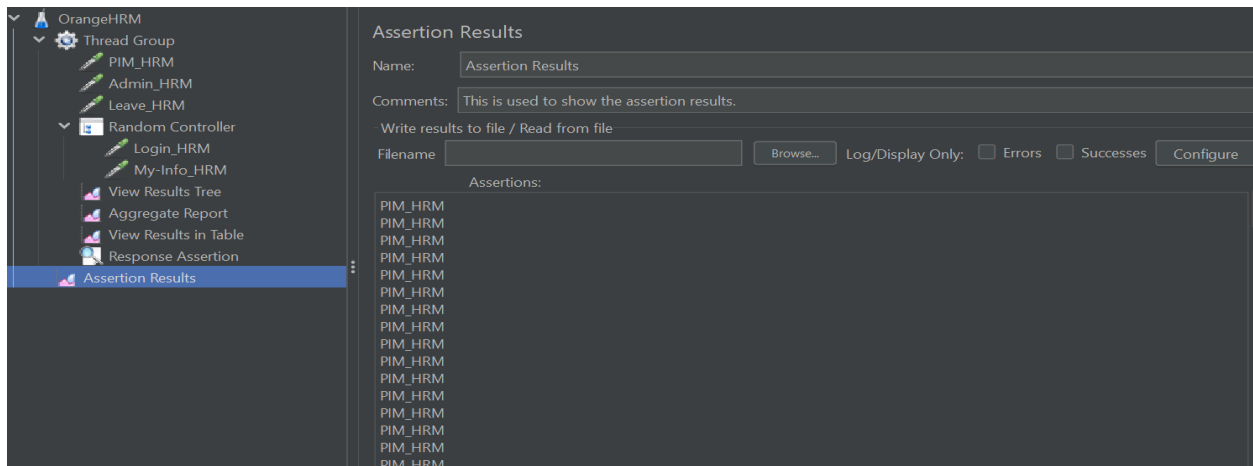
Sample #	Start Time	Thread Name	Label	Sample Tim...	Status	Bytes	Sent Bytes	Late
1	12:56:16.746	Thread Grou...	PIM_HRM	1371	✓	6559	503	
2	12:56:16.653	Thread Grou...	PIM_HRM	1529	✓	6572	503	
3	12:56:16.592	Thread Grou...	PIM_HRM	1596	✓	6561	503	
4	12:56:16.699	Thread Grou...	PIM_HRM	1492	✓	6570	503	
5	12:56:16.794	Thread Grou...	PIM_HRM	1584	✓	6546	503	
6	12:56:16.902	Thread Grou...	PIM_HRM	1482	✓	6563	503	
7	12:56:16.855	Thread Grou...	PIM_HRM	1580	✓	6566	503	
8	12:56:17.043	Thread Grou...	PIM_HRM	1469	✓	6568	503	
9	12:56:16.993	Thread Grou...	PIM_HRM	1601	✓	6571	503	
10	12:56:16.948	Thread Grou...	PIM_HRM	1676	✓	6558	503	
11	12:56:17.093	Thread Grou...	PIM_HRM	1605	✓	6555	503	
12	12:56:17.292	Thread Grou...	PIM_HRM	1426	✓	6550	503	
13	12:56:17.242	Thread Grou...	PIM_HRM	1564	✓	6558	503	
14	12:56:17.343	Thread Grou...	PIM_HRM	1469	✓	6550	503	

Step-27: If the Response Assertions fails then it fails in the output of Assertion Results.

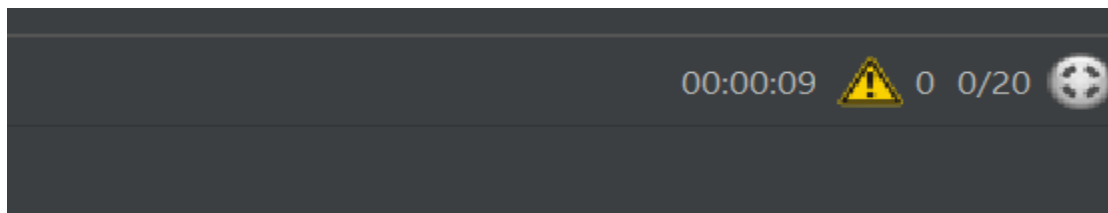
The screenshot shows the 'Assertion Results' widget configuration in OrangeHRM. It includes fields for Name (Assertion Results), Comments (This is used to show the assertion results.), and a section for writing results to file. Below this is a list of assertions. The first assertion is for 'Leave_HRM' and shows a failure: 'Response Assertion : Test failed: message expected to equal /'. The second assertion is for 'My-Info_HRM' and also shows a failure: 'Response Assertion : Test failed: message expected to equal /'. The output is displayed in a text area with a dark background and light text.

```
Assertions:
/
Leave_HRM
Response Assertion : Test failed: message expected to equal /
***** received : O[[[K]]]
***** comparison: O[[[k]]]
/
Leave_HRM
Response Assertion : Test failed: message expected to equal /
***** received : O[[[K]]]
***** comparison: O[[[k]]]
/
My-Info_HRM
```

Step-28: If the Response Assertions passes then it passes in the output of Assertion Results.



Step-29: This is the total execution time for the 20 users to check for Load Testing.

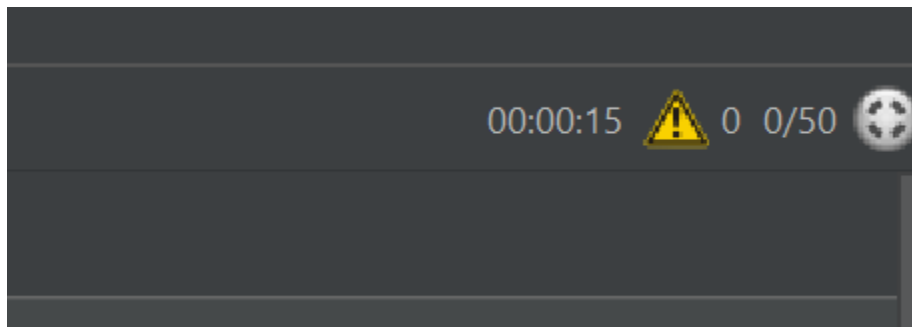


Step-30: This is execution status for the 50 users to check for Load Testing.

The screenshot shows the 'View Results in Table' panel in OrangeHRM. The top bar displays a timer at '00:00:15', a yellow warning icon, and the text '0 0/50' followed by a circular arrow icon. The panel includes a 'Name' field with 'View Results in Table', a 'Comments' field with 'This is the View in tables listener.', and a 'Write results to file / Read from file' section with a 'Filename' field and a 'Browse...' button. The 'Log/Display Only' section has checkboxes for 'Errors' and 'Successes', and a 'Configure' button. Below this is a table with 14 rows of test results.

Sample #	Start Time	Thread Name	Label	Sample Tim...	Status	Bytes	Sent Bytes	Late
1	13:04:02.405	Thread Grou...	PIM_HRM	1341	✓	6575	503	
2	13:04:02.465	Thread Grou...	PIM_HRM	1293	✓	6573	503	
3	13:04:02.434	Thread Grou...	PIM_HRM	1503	✓	6553	503	
4	13:04:02.449	Thread Grou...	PIM_HRM	1511	✓	6547	503	
5	13:04:02.511	Thread Grou...	PIM_HRM	1489	✓	6574	503	
6	13:04:02.584	Thread Grou...	PIM_HRM	1453	✓	6571	503	
7	13:04:02.625	Thread Grou...	PIM_HRM	1471	✓	6576	503	
8	13:04:02.544	Thread Grou...	PIM_HRM	1676	✓	6553	503	
9	13:04:02.644	Thread Grou...	PIM_HRM	1674	✓	6556	503	
10	13:04:02.523	Thread Grou...	PIM_HRM	1900	✓	6559	503	
11	13:04:02.725	Thread Grou...	PIM_HRM	1712	✓	6566	503	
12	13:04:02.765	Thread Grou...	PIM_HRM	1721	✓	6576	503	
13	13:04:02.496	Thread Grou...	PIM_HRM	2010	✓	6550	503	
14	13:04:02.684	Thread Grou...	PIM_HRM	1840	✓	6548	503	

Step-31: This is the total execution time for the 50 users to check for Load Testing.

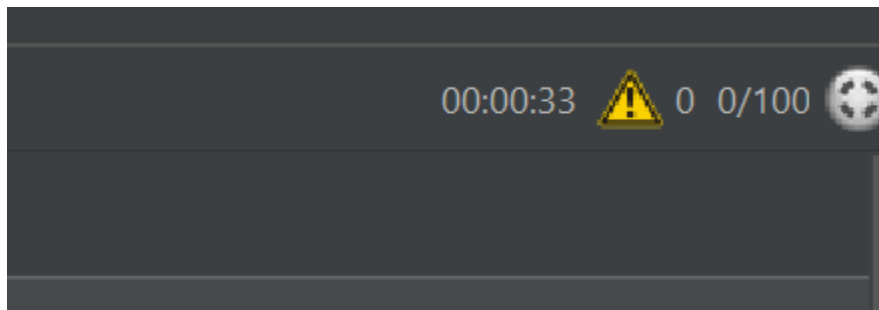


Step-32: This is execution status for the 100 users to check for Load Testing.

A screenshot of a load testing application's main window. The top status bar shows a timer at '00:00:33', a yellow warning triangle icon, and '0 0/100'. Below the status bar, there is a section titled 'View Results in Table' with a text input field containing 'View Results in Table' and a comments field containing 'This is the View in tables listener.' Below this, there is a section for 'Write results to file / Read from file' with a 'Filename' input field, a 'Browse...' button, and a 'Log/Display Only:' section with checkboxes for 'Errors' and 'Su'. The main part of the window is a table with 9 columns: 'Sample #', 'Start Time', 'Thread Name', 'Label', 'Sample Tim...', 'Status', 'Bytes', 'Sent Bytes', and 'Late'. The table contains 13 rows of data, all with a green checkmark in the 'Status' column.

Sample #	Start Time	Thread Name	Label	Sample Tim...	Status	Bytes	Sent Bytes	Late
1	13:02:20.768	Thread Grou...	PIM_HRM	1448	✓	6560	503	
2	13:02:20.736	Thread Grou...	PIM_HRM	1501	✓	6548	503	
3	13:02:20.783	Thread Grou...	PIM_HRM	1492	✓	6577	503	
4	13:02:20.721	Thread Grou...	PIM_HRM	1584	✓	6566	503	
5	13:02:20.752	Thread Grou...	PIM_HRM	1567	✓	6569	503	
6	13:02:20.752	Thread Grou...	PIM_HRM	1627	✓	6567	503	
7	13:02:20.798	Thread Grou...	PIM_HRM	1649	✓	6556	503	
8	13:02:20.845	Thread Grou...	PIM_HRM	1671	✓	6577	503	
9	13:02:20.783	Thread Grou...	PIM_HRM	1758	✓	6577	503	
10	13:02:20.813	Thread Grou...	PIM_HRM	1728	✓	6571	503	
11	13:02:20.892	Thread Grou...	PIM_HRM	1694	✓	6553	503	
12	13:02:20.828	Thread Grou...	PIM_HRM	1769	✓	6565	503	
13	13:02:20.813	Thread Grou...	PIM_HRM	1794	✓	6576	503	

Step-33: This is the total execution time for the 100 users to check for Load Testing.



Step-34: This is execution status for the 200 users to check for Load Testing.

A screenshot of a load testing interface showing the execution status for 200 users. The interface has a dark theme. At the top, there is a toolbar with various icons. To the right of the toolbar, a timer shows '00:00:57', followed by a yellow warning triangle icon, '0' and '0/200', and a circular icon with four arrows. Below the toolbar, the text 'View Results in Table' is displayed. Underneath, there is a 'Name:' field with the value 'View Results in Table'. Below that is a 'Comments:' field with the text 'This is the View in tables listener.'. Further down, there is a section for 'Write results to file / Read from file' with a 'Filename' input field and a 'Browse...' button. To the right of this section, there are checkboxes for 'Log/Display Only:', 'Errors', and 'Su'. Below these controls is a table with 9 columns: 'Sample #', 'Start Time', 'Thread Name', 'Label', 'Sample Tim...', 'Status', 'Bytes', 'Sent Bytes', and 'Late'. The table contains 14 rows of data, all showing a status of 'Success' (indicated by a green checkmark icon).

Sample #	Start Time	Thread Name	Label	Sample Tim...	Status	Bytes	Sent Bytes	Late
1	13:04:53.556	Thread Grou...	PIM_HRM	1724	Success	6548	503	
2	13:04:53.551	Thread Grou...	PIM_HRM	1749	Success	6573	503	
3	13:04:53.570	Thread Grou...	PIM_HRM	1748	Success	6568	503	
4	13:04:53.566	Thread Grou...	PIM_HRM	1807	Success	6572	503	
5	13:04:53.530	Thread Grou...	PIM_HRM	1843	Success	6568	503	
6	13:04:53.536	Thread Grou...	PIM_HRM	1961	Success	6568	503	
7	13:04:53.562	Thread Grou...	PIM_HRM	2245	Success	6549	503	
8	13:04:53.541	Thread Grou...	PIM_HRM	2266	Success	6566	503	
9	13:04:53.615	Thread Grou...	PIM_HRM	2194	Success	6558	503	
10	13:04:53.611	Thread Grou...	PIM_HRM	2199	Success	6550	503	
11	13:04:53.547	Thread Grou...	PIM_HRM	2268	Success	6564	503	
12	13:04:53.576	Thread Grou...	PIM_HRM	2240	Success	6575	503	
13	13:04:53.580	Thread Grou...	PIM_HRM	2291	Success	6568	503	
14	13:04:53.625	Thread Grou...	PIM_HRM	2268	Success	6552	503	

Step-35: This is the total execution time for the 200 users to check for Load Testing.

