

IT314 - SOFTWARE ENGINEERING



Non-Functional Testing

Topic: PlayBox - All In One OTT Platform

GroupID : 8

Guided by Prof. Saurabh Tiwari

Load Testing with JMeter

Overview

In JMeter, load testing is performed to evaluate the performance of a system under various conditions. A JMeter Test Plan must include a **Listener** to capture and showcase the results of performance test execution. Listeners provide the response details in various forms such as trees, tables, graphs, and log files. Results can also be saved for future reference.

Types of JMeter Listeners

Some common types of listeners provided by JMeter are:

- **Summary Report**
 - **Aggregate Report**
 - **Aggregate Graph**
 - **View Results Tree**
 - **View Results in Table**
-

Parameters in a Summary Report

The **Summary Report** in JMeter provides detailed insights into test execution. Below is an explanation of each parameter:

1. Label

- Represents the **name or URL** for a specific HTTP(s) request.
- If the "Include group name in label?" option is enabled, the **Thread Group name** is prefixed to each label.

2. Samples

- Indicates the **number of virtual users** per request.

3. Average

- The **average response time** (in milliseconds) taken by all the samples for a specific label.

4. Min

- The **shortest time** taken by a sample for the specific label.

5. Max

- The **longest time** taken by a sample for the specific label.

6. Standard Deviation (Std. Dev.)

- Represents the **variation or inconsistency** in response times.
- A smaller standard deviation indicates more consistent performance.
- **Best Practice:** This value should be less than or equal to half of the average response time.

7. Error%

- The **percentage of failed requests** for a specific label.

8. Throughput

- Indicates the **number of requests processed per second** by the server.
- Calculated from the start of the first sample to the end of the last sample.
- **Higher throughput is better.**

9. KB/Sec

- Represents the **amount of data (in KB)** downloaded from the server during test execution.
- Essentially, it is **Throughput measured in Kilobytes per second.**

Benefits of Organized Load Testing Results

1. **Clarity:** Well-defined parameters make it easier to analyze the test performance.
2. **Comparison:** Helps in benchmarking results over multiple tests.
3. **Future Reference:** Stored results aid in tracking performance improvements.

Test – HTTP GET Request of all the pages

Web-Pages:

1. home
2. login
3. userProfile
4. browseMovies
5. Apocalypse Z movie
6. admin dashboard
7. create movie
8. create genre
9. update movie
10. review comments
11. aboutUs

Home page:

a)100 user:

Summary Report

Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
home	100	756	370	4309	807.49	0.00%	18.8/sec	66.10	5.08	3592.3
TOTAL	100	756	370	4309	807.49	0.00%	18.8/sec	66.10	5.08	3592.3

b)200 user:

Summary Report

Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
home	200	30629	379	72923	25487.88	6.50%	2.7/sec	9.24	0.67	3535.7
TOTAL	200	30629	379	72923	25487.88	6.50%	2.7/sec	9.24	0.67	3535.7

c)225 user:

Summary Report

Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
home	225	44760	659	72920	20950.49	36.89%	3.1/sec	10.16	0.57	3396.8
TOTAL	225	44760	659	72920	20950.49	36.89%	3.1/sec	10.16	0.57	3396.8

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	18.8
200	2	1	200	6.50	2.7
300	2	1	225	36.89	3.1

Login page:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
login	100	514	362	1613	185.65	0.00%	38.6/sec	135.12	10.85	3587.8
TOTAL	100	514	362	1613	185.65	0.00%	38.6/sec	135.12	10.85	3587.8

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
login	200	33132	379	73129	26224.73	7.00%	2.7/sec	9.30	0.71	3557.5
TOTAL	200	33132	379	73129	26224.73	7.00%	2.7/sec	9.30	0.71	3557.5

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
login	225	44430	675	72959	19851.76	39.56%	3.1/sec	10.08	0.57	3376.2
TOTAL	225	44430	675	72959	19851.76	39.56%	3.1/sec	10.08	0.57	3376.2

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	38.6
200	2	1	200	7	2.7
300	2	1	225	39.56	3.1

userProfile page:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	100	648	360	1707	279.99	0.00%	36.6/sec	129.11	10.43	3613.4
TOTAL	100	648	360	1707	279.99	0.00%	36.6/sec	129.11	10.43	3613.4

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	200	31546	357	73801	26679.75	3.50%	2.7/sec	9.26	0.73	3559.9
TOTAL	200	31546	357	73801	26679.75	3.50%	2.7/sec	9.26	0.73	3559.9

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
userProfile	225	44493	674	72849	20492.17	38.22%	3.1/sec	10.18	0.59	3396.4
TOTAL	225	44493	674	72849	20492.17	38.22%	3.1/sec	10.18	0.59	3396.4

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	36.6
200	2	1	200	3.50	2.7
300	2	1	225	38.22	3.1

browseMovies:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
browseMovies	100	601	366	1416	252.09	0.00%	38.7/sec	136.19	10.95	3606.3
TOTAL	100	601	366	1416	252.09	0.00%	38.7/sec	136.19	10.95	3606.3

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
browseMovies	200	31709	359	73804	26820.64	3.50%	2.6/sec	9.20	0.72	3563.5
TOTAL	200	31709	359	73804	26820.64	3.50%	2.6/sec	9.20	0.72	3563.5

c)250 user

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 KB/sec	Sent KB/sec	Avg. Bytes
browseMovies	250	36773	373	73098	22931.55	32.40%	3.4/sec	10.94	0.65	3332.0
TOTAL	250	36773	373	73098	22931.55	32.40%	3.4/sec	10.94	0.65	3332.0

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	38.7
200	2	1	200	3.50	2.6
300	2	1	250	32.40	3.4

admin dashboard:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
admin dashboar...	100	643	360	3430	409.23	0.00%	25.8/sec	91.72	8.12	3636.8
TOTAL	100	643	360	3430	409.23	0.00%	25.8/sec	91.72	8.12	3636.8

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
admin dashboar...	200	31655	379	73160	26470.87	5.00%	2.7/sec	9.34	0.80	3588.4
TOTAL	200	31655	379	73160	26470.87	5.00%	2.7/sec	9.34	0.80	3588.4

c)250 user

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 KB/sec	Sent KB/sec	Avg. Bytes
admin dashboar...	250	38234	364	73182	22990.43	31.20%	3.4/sec	11.04	0.73	3361.4
TOTAL	250	38234	364	73182	22990.43	31.20%	3.4/sec	11.04	0.73	3361.4

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	25.8
200	2	1	200	5.00	2.7
300	2	1	250	31.20	3.4

create movie:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create movie	100	569	370	1393	228.27	0.00%	41.1/sec	145.68	12.67	3632.5
TOTAL	100	569	370	1393	228.27	0.00%	41.1/sec	145.68	12.67	3632.5

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create movie	200	29861	367	72903	25324.62	7.00%	2.7/sec	9.33	0.77	3552.1
TOTAL	200	29861	367	72903	25324.62	7.00%	2.7/sec	9.33	0.77	3552.1

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create movie	225	34541	368	72910	24121.17	22.22%	3.0/sec	10.10	0.73	3415.6
TOTAL	225	34541	368	72910	24121.17	22.22%	3.0/sec	10.10	0.73	3415.6

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	41.1
200	2	1	200	7.00	2.7
300	2	1	225	22.22	3.0

create genre:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create genre	100	514	360	1311	189.82	0.00%	42.6/sec	150.93	13.05	3632.0
TOTAL	100	514	360	1311	189.82	0.00%	42.6/sec	150.93	13.05	3632.0

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create genre	200	30710	362	72872	25908.03	6.00%	2.7/sec	9.30	0.77	3558.3
TOTAL	200	30710	362	72872	25908.03	6.00%	2.7/sec	9.30	0.77	3558.3

c) 225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
create genre	225	33899	358	72881	24064.14	22.22%	3.0/sec	10.08	0.72	3413.2
TOTAL	225	33899	358	72881	24064.14	22.22%	3.0/sec	10.08	0.72	3413.2

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	42.6
200	2	1	200	6.00	2.7
300	2	1	225	22.22	3.0

update movie:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
update movie	100	561	368	1387	212.39	0.00%	39.3/sec	141.50	14.04	3687.5
TOTAL	100	561	368	1387	212.39	0.00%	39.3/sec	141.50	14.04	3687.5

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
update movie	200	30711	357	72859	26157.76	6.00%	2.7/sec	9.45	0.90	3608.1
TOTAL	200	30711	357	72859	26157.76	6.00%	2.7/sec	9.45	0.90	3608.1

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
update movie	225	36392	15374	51856	13358.91	55.11%	4.3/sec	13.10	0.69	3141.3
TOTAL	225	36392	15374	51856	13358.91	55.11%	4.3/sec	13.10	0.69	3141.3

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	39.3
200	2	1	200	6.00	2.7
300	2	1	225	22.22	3.0

review comments:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
review comments	100	551	361	1803	233.51	0.00%	42.4/sec	150.59	13.24	3640.7
TOTAL	100	551	361	1803	233.51	0.00%	42.4/sec	150.59	13.24	3640.7

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
review comments	200	30172	363	72875	25660.55	6.00%	2.7/sec	9.32	0.79	3564.9
TOTAL	200	30172	363	72875	25660.55	6.00%	2.7/sec	9.32	0.79	3564.9

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
review comments	225	34547	368	72920	24112.99	22.22%	3.0/sec	10.12	0.74	3418.7
TOTAL	225	34547	368	72920	24112.99	22.22%	3.0/sec	10.12	0.74	3418.7

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	42.4
200	2	1	200	6.00	2.7
300	2	1	225	22.22	3.0

aboutUs:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
aboutUs	100	539	364	1302	205.40	0.00%	40.4/sec	142.13	11.35	3605.2
TOTAL	100	539	364	1302	205.40	0.00%	40.4/sec	142.13	11.35	3605.2

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
aboutUs	200	30499	358	72907	25993.33	5.50%	2.7/sec	9.27	0.71	3538.2
TOTAL	200	30499	358	72907	25993.33	5.50%	2.7/sec	9.27	0.71	3538.2

c)225 user

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 KB/sec	Sent KB/sec	Avg. Bytes
aboutUs	225	34527	361	72901	24366.80	21.78%	3.0/sec	10.06	0.67	3396.9
TOTAL	225	34527	361	72901	24366.80	21.78%	3.0/sec	10.06	0.67	3396.9

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	40.4
200	2	1	200	5.50	2.7
300	2	1	225	21.78	3.0

Apocalypse Z movie:

a)100 user

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 KB/sec	Sent KB/sec	Avg. Bytes
Apocalypse Z m...	100	517	358	1276	194.46	0.00%	37.5/sec	133.23	11.93	3640.0
TOTAL	100	517	358	1276	194.46	0.00%	37.5/sec	133.23	11.93	3640.0

b)200 user

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 KB/sec	Sent KB/sec	Avg. Bytes
Apocalypse Z m...	200	29731	364	72842	25174.54	8.00%	2.7/sec	9.30	0.79	3552.1
TOTAL	200	29731	364	72842	25174.54	8.00%	2.7/sec	9.30	0.79	3552.1

c)225 user

Summary Report

Name:

Summary Report

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only:

☐ Errors

☐ Successes

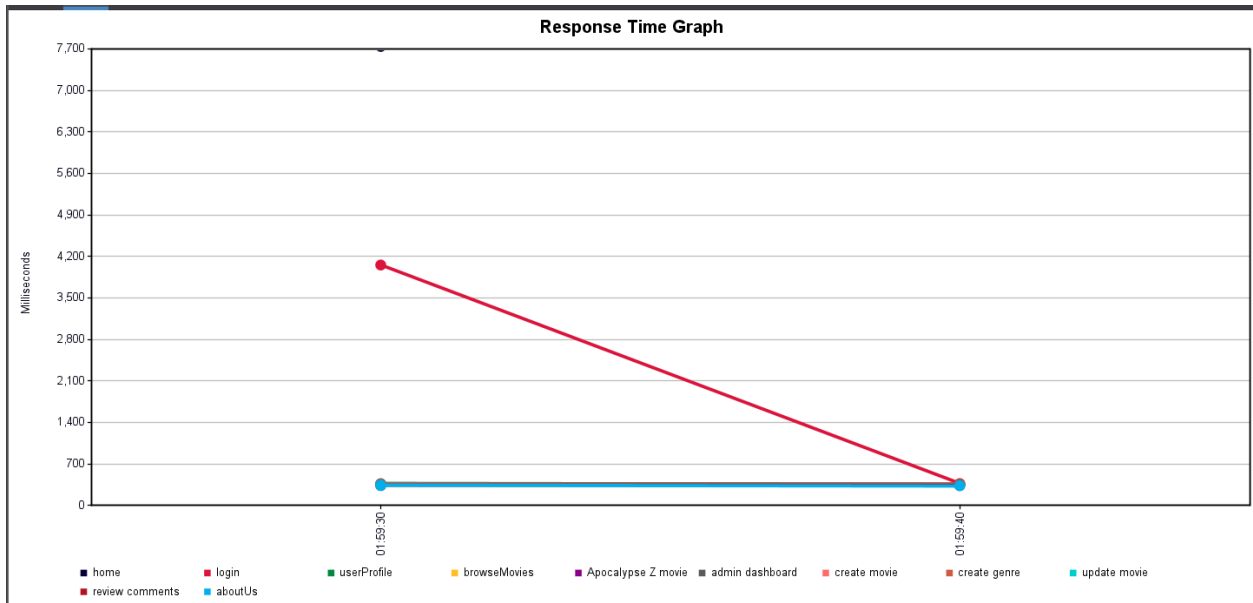
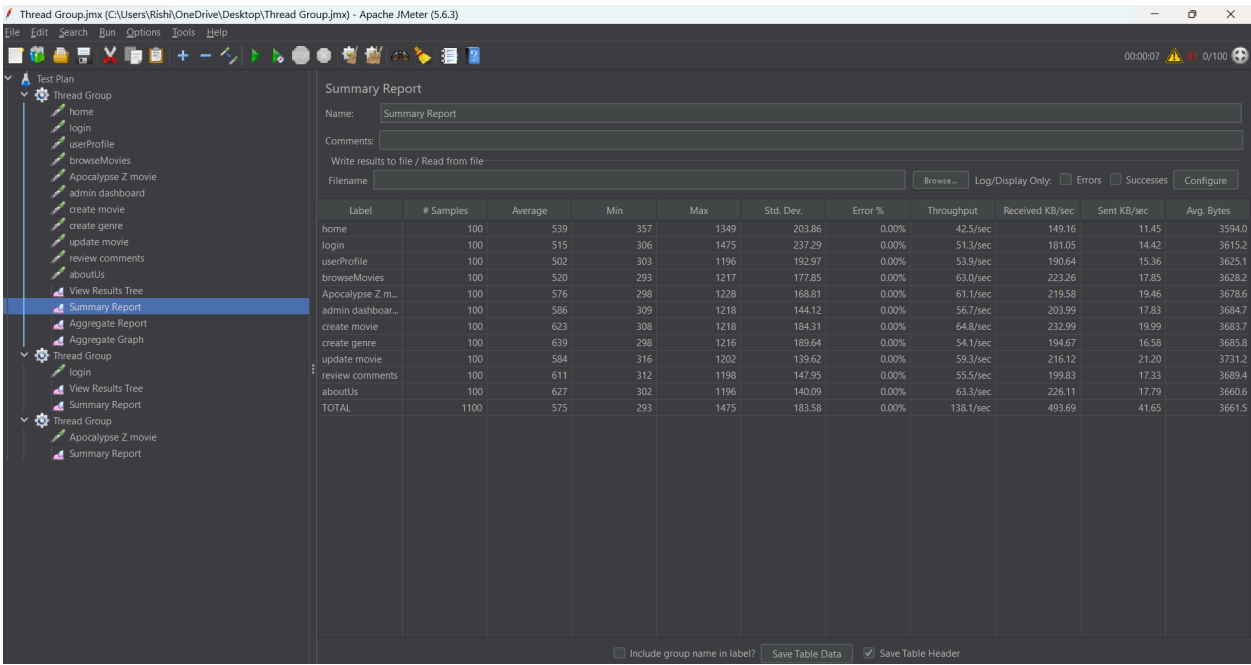
Configure

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
Apocalypse Z m...	225	33322	365	72905	24577.77	20.44%	3.0/sec	10.16	0.77	3439.5
TOTAL	225	33322	365	72905	24577.77	20.44%	3.0/sec	10.16	0.77	3439.5

Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	100	0	37.5
200	2	1	200	8.00	2.7
300	2	1	225	20.44	3.0

Average Analysis:

a)100 user



b)300 user

Thread Group.jmx (C:\Users\Rish\OneDrive\Desktop\Thread Group.jmx) - Apache JMeter (5.6.3)

File Edit Search Run Options Tools Help

00:01:48 0/300

Test Plan

- Thread Group
 - home
 - login
 - userProfile
 - browseMovies
 - Apocalypse Z movie
 - admin dashboard
 - create movie
 - create genre
 - update movie
 - review comments
 - aboutUs
 - View Results Tree
 - Summary Report
 - Aggregate Report
 - Aggregate Graph
- Thread Group
 - login
 - View Results Tree
 - Summary Report
- Thread Group
 - Apocalypse Z movie
 - Summary Report

Summary Report

Name: Summary Report

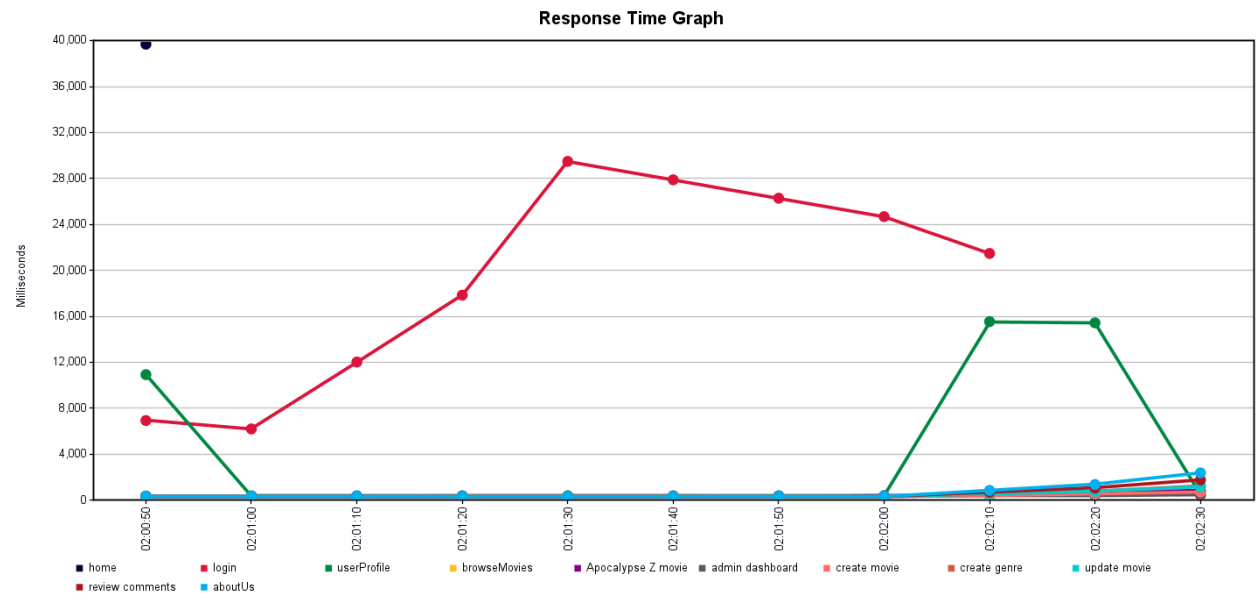
Comments:

Write results to file / Read from file

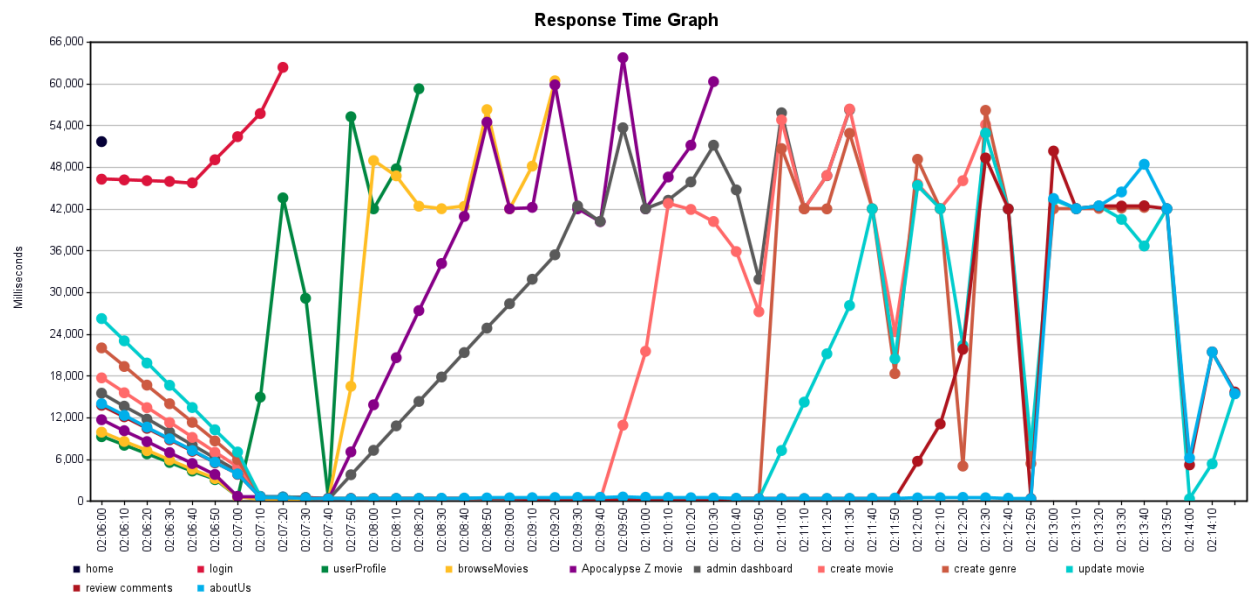
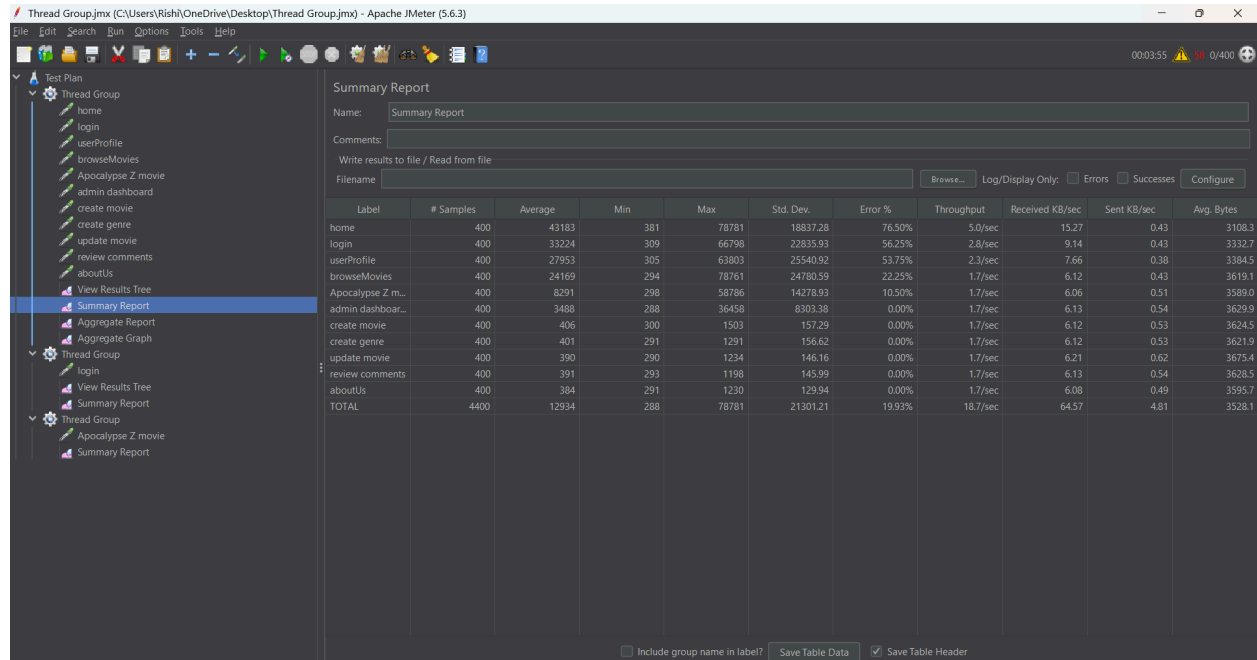
Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
home	300	40163	362	78786	22650.26	61.33%	3.8/sec	11.92	0.48	3252.4
login	300	22386	303	60840	21499.79	11.00%	2.9/sec	9.86	0.72	3501.6
userProfile	300	2061	297	15733	4710.40	0.00%	2.9/sec	10.13	0.82	3600.7
browseMovies	300	405	292	1277	170.99	0.00%	2.9/sec	10.13	0.82	3598.9
Apocalypse Z m...	300	395	288	1202	151.55	0.00%	2.9/sec	10.23	0.92	3636.5
admin dashboar...	300	389	288	1180	136.41	0.00%	2.9/sec	10.23	0.91	3633.3
create movie	300	403	294	1190	154.32	0.00%	2.9/sec	10.22	0.89	3630.1
create genre	300	414	293	1263	181.70	0.00%	2.9/sec	10.19	0.88	3627.1
update movie	300	403	287	1244	159.11	0.00%	2.9/sec	10.34	1.03	3679.8
review comments	300	400	297	1221	161.10	0.00%	2.9/sec	10.21	0.90	3631.8
aboutUs	300	394	293	1169	139.54	0.00%	2.9/sec	10.12	0.81	3600.5
TOTAL	3300	6165	287	78786	15664.98	6.58%	30.6/sec	107.01	8.75	3581.1

☐ Include group name in label? ☒ Save Table Header



c)400 user



Number of Users	Ramp-up Period	Loop Count	Total Samples(Users*Loops)	Average Error(%)	Throughput
100	2	1	1100	0.00	138.1
300	2	1	3300	6.58	30.6
400	2	1	4400	19.93	18.7

→ At 300 user threads, the system shows a manageable error rate of 6.5%, but at 330 user threads, the error rate rises significantly to 12.89%, indicating the system's stress limit is near 300 users. This suggests the system begins to struggle under increasing load beyond this point, compromising its performance.

- Conclusion:

→ Non-functional testing like load/stress testing focused on the test the performance of web services using Apache JMeter with JHTTP requests(i.e HTTP GET).The aim was to check how well the system works, how much load it can handle, and how quickly it responds under different conditions.

