Report for Lab Tasks- Load Testing with Apache JMeter:

Course Code: CSE430

Course Title: Software Testing & Quality Assurance

Section: 01

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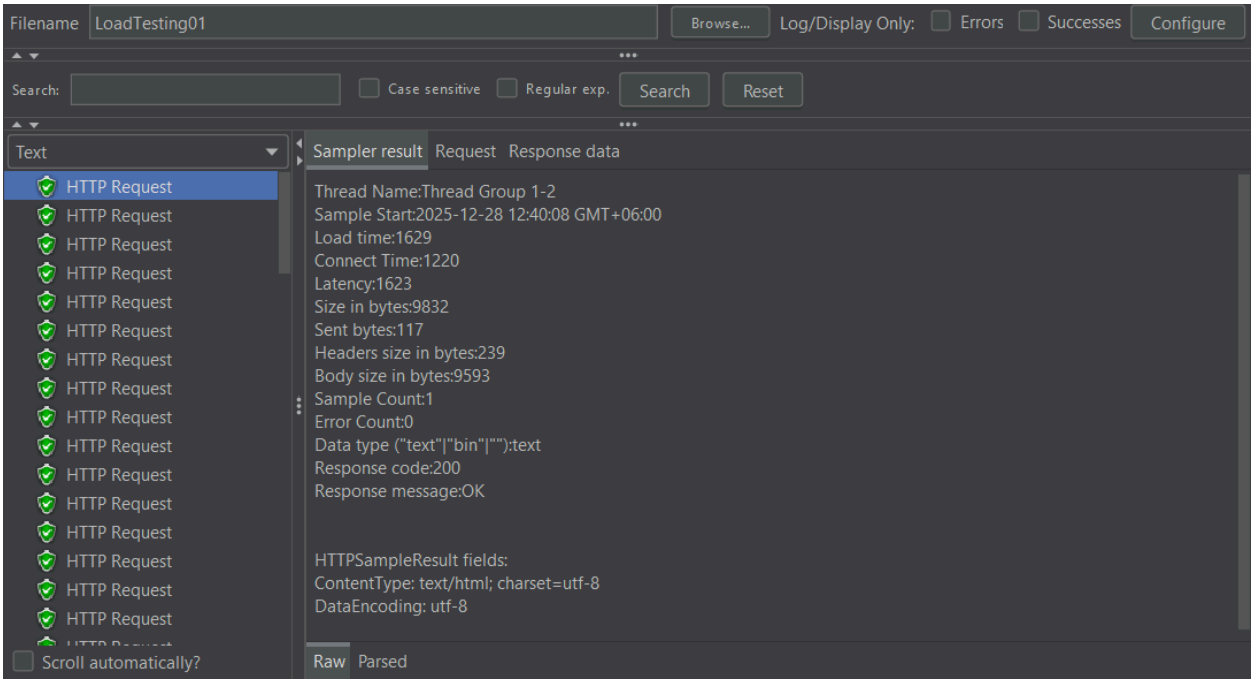
Lab Task-01: (Load Test a Public Website)

Solution:

Steps to be done:

- Method: get
- Path: /
- Protocol: https
- Port: 443
- Virtual user 25, Ramp-up period 15 second, Loop count 3.
- URl: https://httpbin.org/

➔ View Result Tree

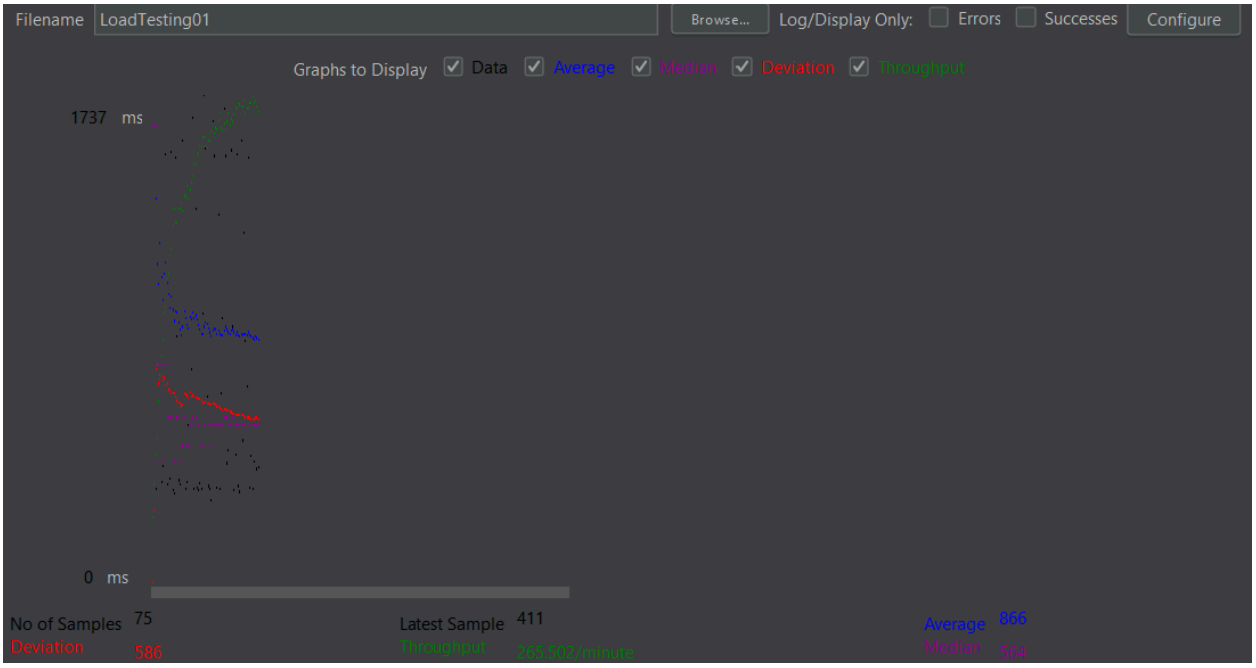


➔ Summary Report

Filename LoadTesting01 Browse... Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
HTTP Reque...	75	866	294	2219	586.93	0.00%	4.4/sec	42.49	0.51	9832.0
TOTAL	75	866	294	2219	586.93	0.00%	4.4/sec	42.49	0.51	9832.0

➔ Graph Results



➔ Aggregate Report

Filename LoadTesting01 Browse... Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughp...	Received ...	Sent KB/s...
HTTP Req...	75	866	564	1657	1832	2154	294	2219	0.00%	4.4/sec	42.49	0.51
TOTAL	75	866	564	1657	1832	2154	294	2219	0.00%	4.4/sec	42.49	0.51

Using the Aggregate Report it has been observed that,

- The average response time was observed to be **866 ms** under moderate load.Which means 90% of requests were served within **866 ms.**

- The error percentage was **0.00%**, indicating no errors were observed during the test, indicating stable system behavior.The system maintained a throughput of **X requests per second**, demonstrating its ability to handle concurrent user requests efficiently.

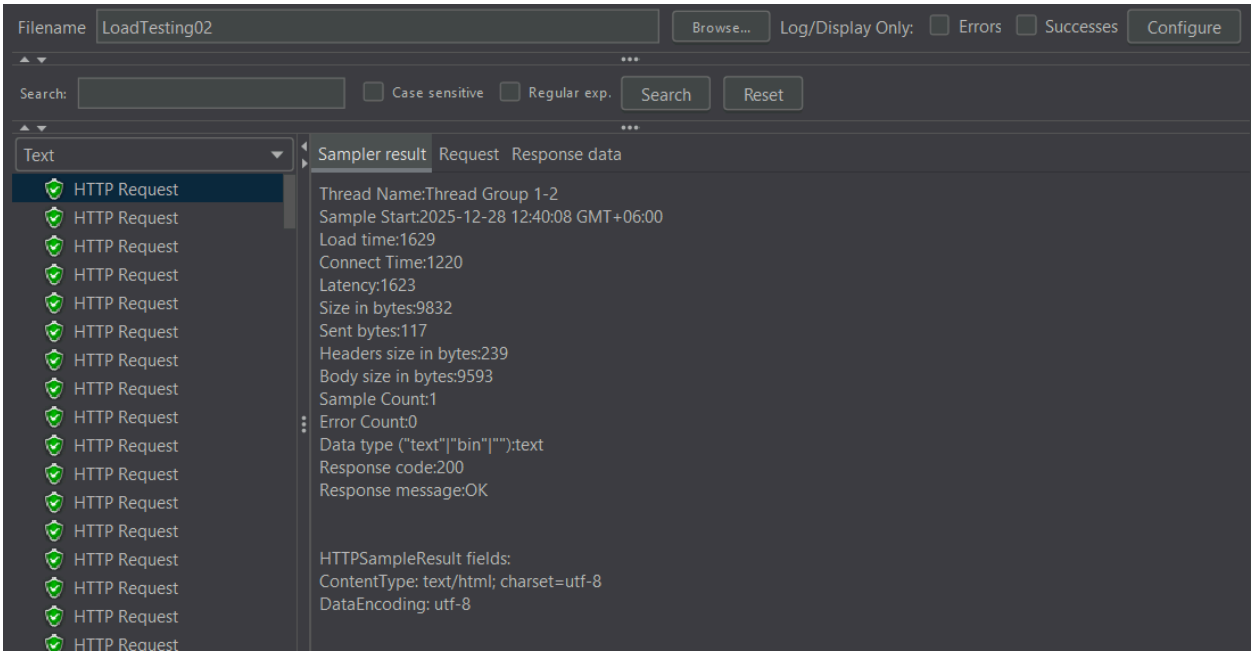
Lab Task-02: (Simulate Login using Fake Store API)

Solution:

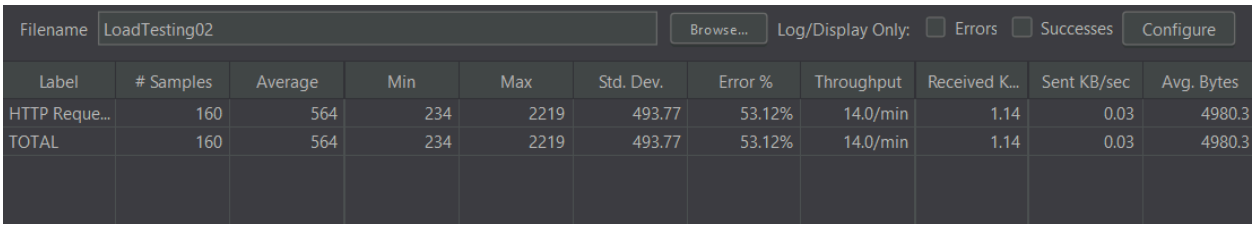
Steps to be done:

- Method: get
- Path: /get
- Protocol: http
- Port: 80
- Virtual user 5, Ramp-up period 1 second, Loop count 2.
- URl: https://fakestoreapi.com/

➔ View Result Tree

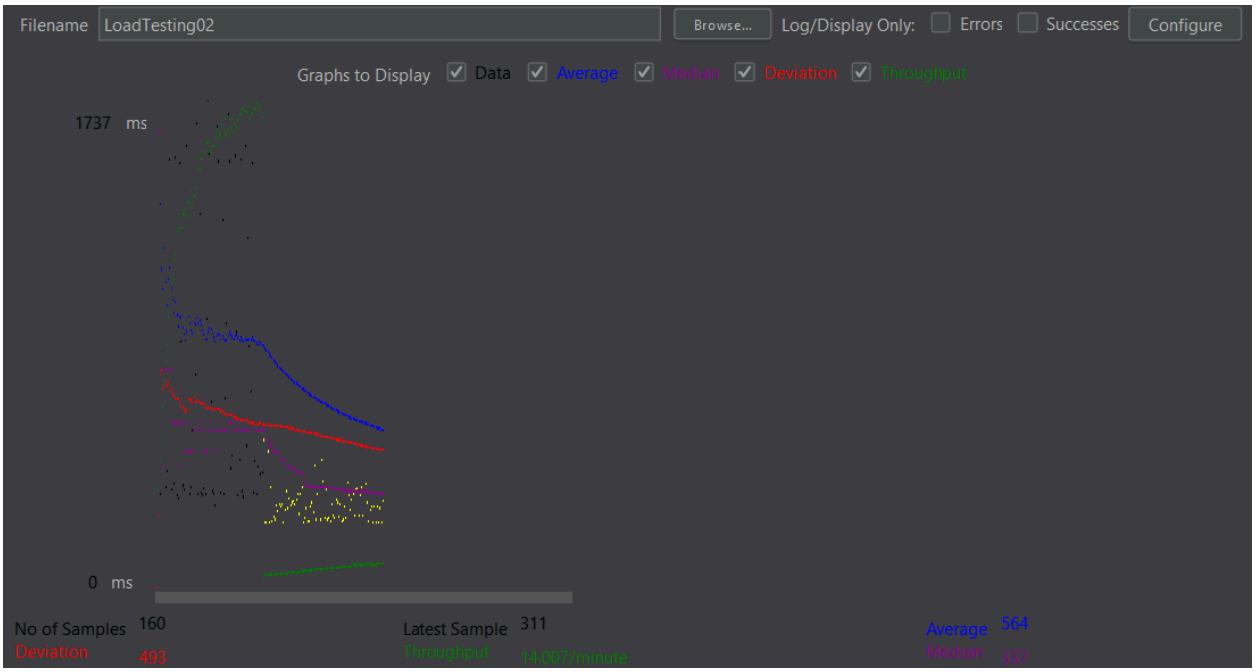


➔ Summary Report

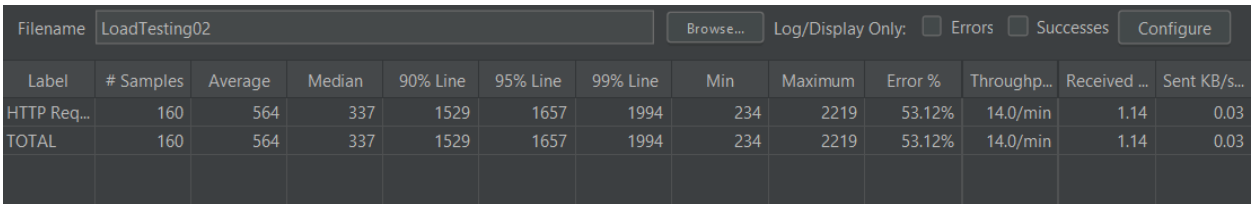


Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
HTTP Reque...	160	564	234	2219	493.77	53.12%	14.0/min	1.14	0.03	4980.3
TOTAL	160	564	234	2219	493.77	53.12%	14.0/min	1.14	0.03	4980.3

➔ Graph Report



➔ Aggregate Report



Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughp...	Received ...	Sent KB/s...
HTTP Req...	160	564	337	1529	1657	1994	234	2219	53.12%	14.0/min	1.14	0.03
TOTAL	160	564	337	1529	1657	1994	234	2219	53.12%	14.0/min	1.14	0.03

Since the given URL (https://fakestoreapi.com/) has **no login page** so we can not validate login success & token response.

But if we load test it then the result would be:

Using the Aggregate Report it has been observed that,

- The average response time was observed to be **564 ms** under moderate load.
- The error percentage was **53.12%**, indicating errors were observed during the test.

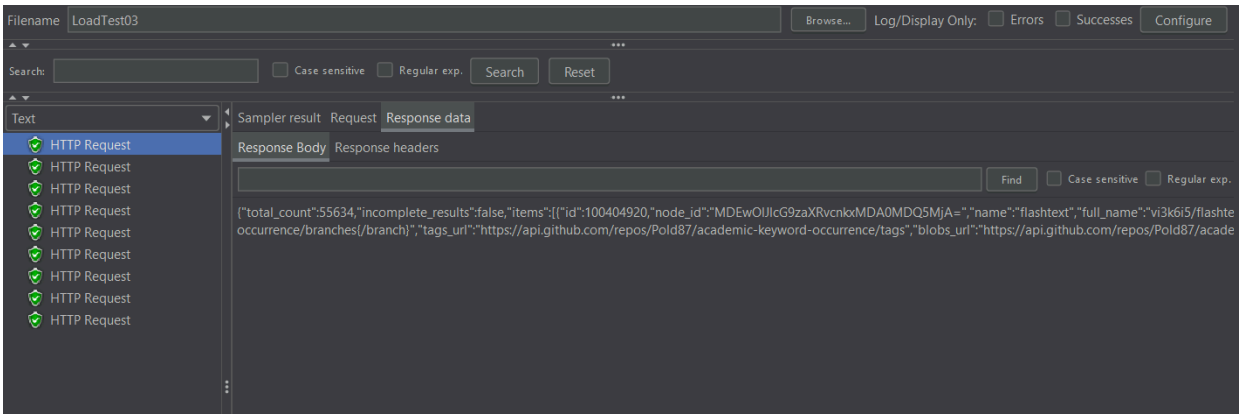
Lab Task-03: (Search Feature Parameterized Test)

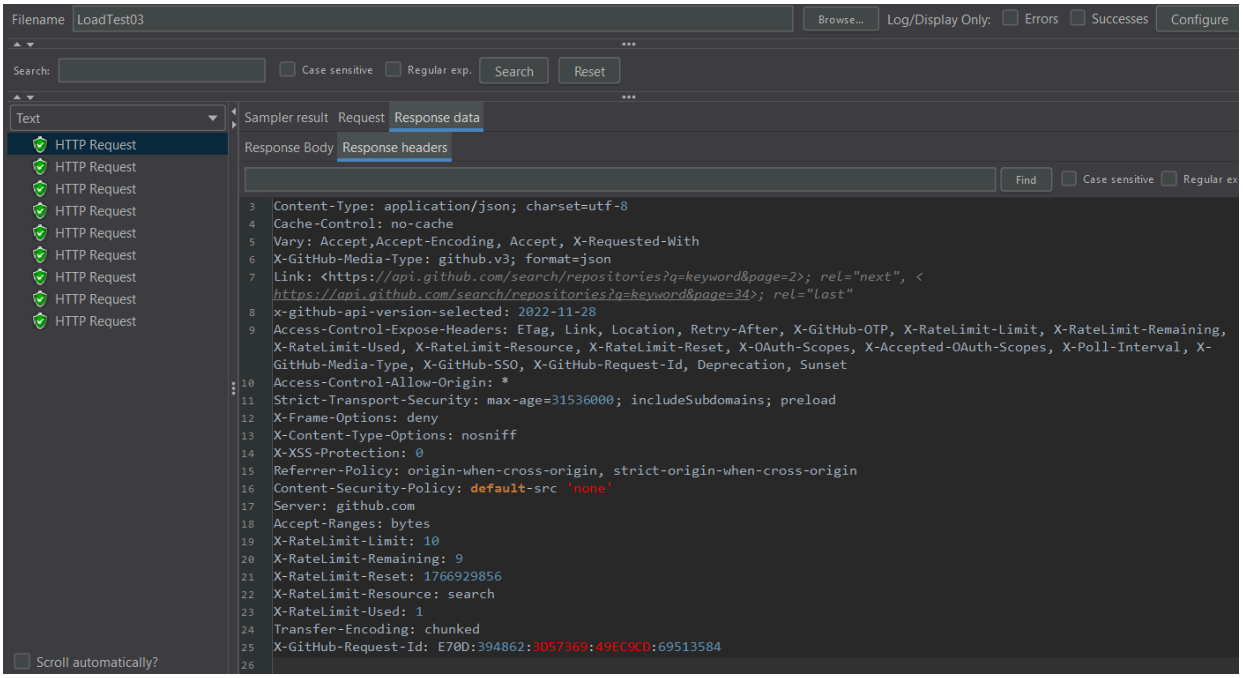
Solution:

Steps to be done:

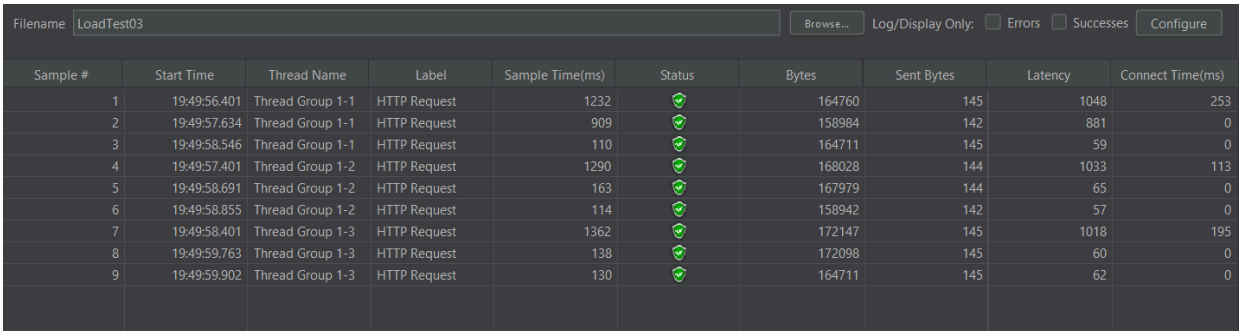
- Method: get
- Path: /search/repositories?q=${keyword}
- CSV file name: keywords.csv
- Protocol: https
- Virtual user 3, Ramp-up period 3, Loop count 3.
- URl: api.github.com

➔ **View Result Tree**





➔ View Results in Table



Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
1	19:49:56.401	Thread Group 1-1	HTTP Request	1232		164760	145	1048	253
2	19:49:57.634	Thread Group 1-1	HTTP Request	909		158984	142	881	0
3	19:49:58.546	Thread Group 1-1	HTTP Request	110		164711	145	59	0
4	19:49:57.401	Thread Group 1-2	HTTP Request	1290		168028	144	1033	113
5	19:49:58.691	Thread Group 1-2	HTTP Request	163		167979	144	65	0
6	19:49:58.855	Thread Group 1-2	HTTP Request	114		158942	142	57	0
7	19:49:58.401	Thread Group 1-3	HTTP Request	1362		172147	145	1018	195
8	19:49:59.763	Thread Group 1-3	HTTP Request	138		172098	145	60	0
9	19:49:59.902	Thread Group 1-3	HTTP Request	130		164711	145	62	0

The GitHub API search was performed using **keywords.csv** & the results were validated for **correctness** across all parameterized inputs.

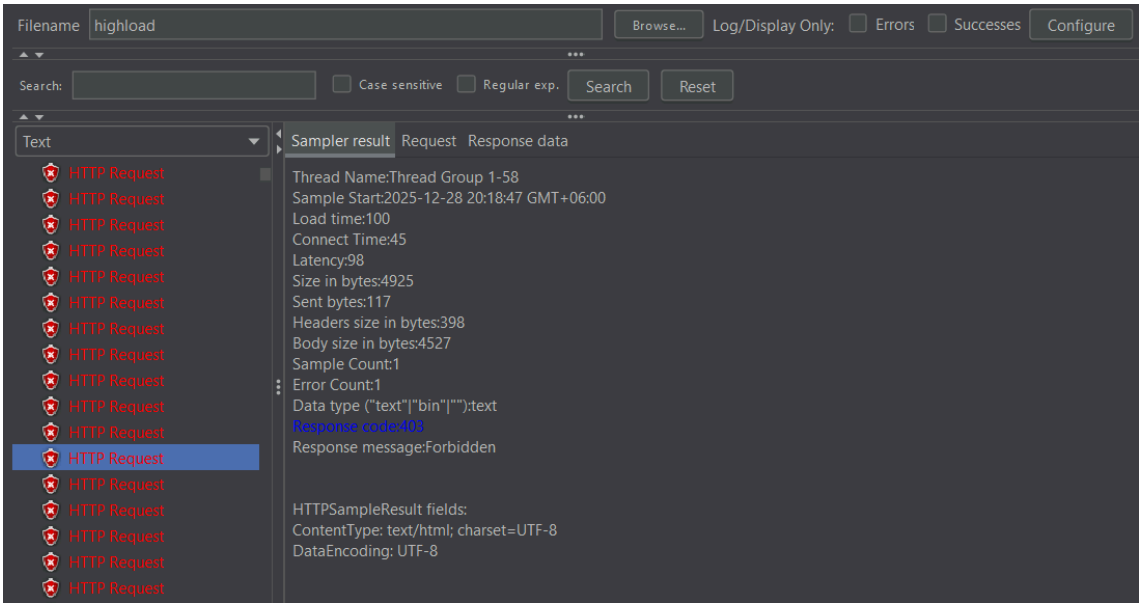
Lab Task-04: (Stress Test with High Load)

Solution:

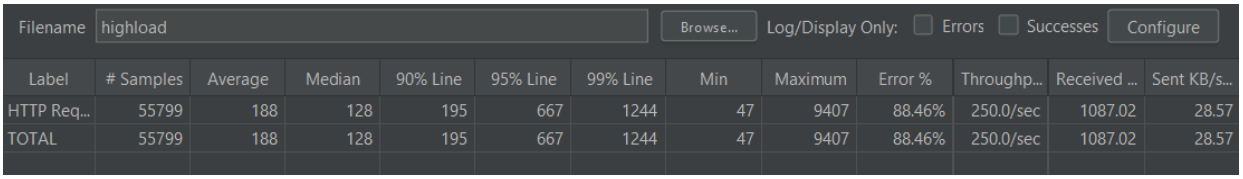
Steps to be done:

- Method: get
- Path: /
- Protocol: http
- Port: 80
- Virtual user 100, Ramp-up period 30, Loop count Infinite(120).
- URl: www.example.com

➔ View Result Tree

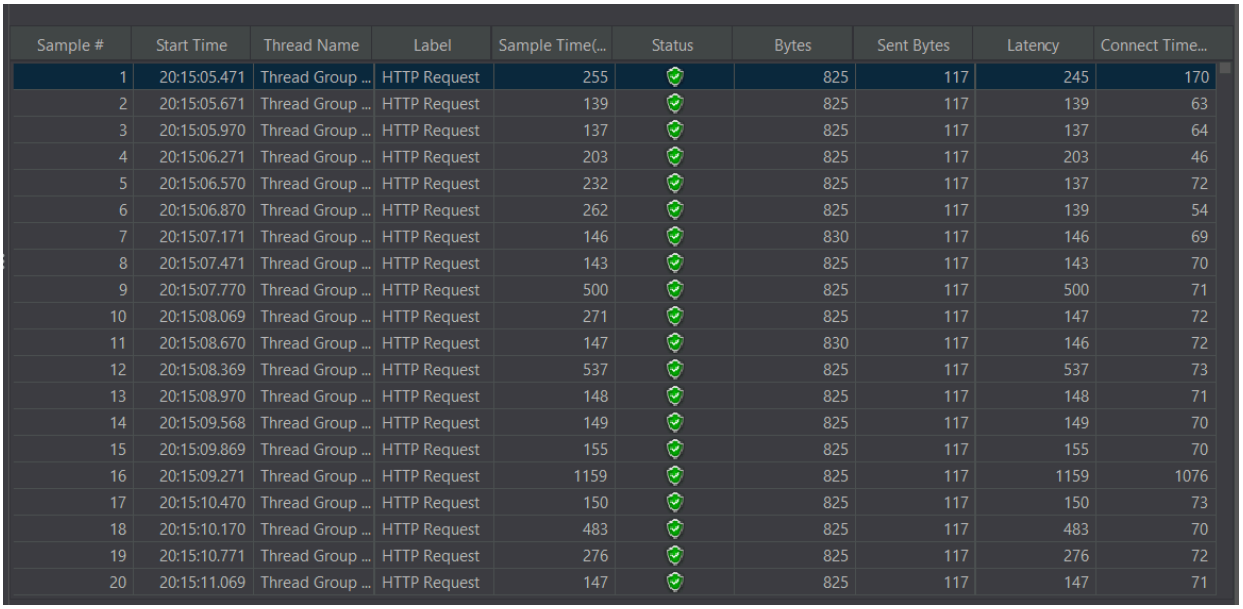


➔ Aggregate Report



Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughp...	Received ...	Sent KB/s...
HTTP Req...	55799	188	128	195	667	1244	47	9407	88.46%	250.0/sec	1087.02	28.57
TOTAL	55799	188	128	195	667	1244	47	9407	88.46%	250.0/sec	1087.02	28.57

➔ **View Results in Table**



Sample #	Start Time	Thread Name	Label	Sample Time(...	Status	Bytes	Sent Bytes	Latency	Connect Time...
1	20:15:05.471	Thread Group ...	HTTP Request	255		825	117	245	170
2	20:15:05.671	Thread Group ...	HTTP Request	139		825	117	139	63
3	20:15:05.970	Thread Group ...	HTTP Request	137		825	117	137	64
4	20:15:06.271	Thread Group ...	HTTP Request	203		825	117	203	46
5	20:15:06.570	Thread Group ...	HTTP Request	232		825	117	137	72
6	20:15:06.870	Thread Group ...	HTTP Request	262		825	117	139	54
7	20:15:07.171	Thread Group ...	HTTP Request	146		830	117	146	69
8	20:15:07.471	Thread Group ...	HTTP Request	143		825	117	143	70
9	20:15:07.770	Thread Group ...	HTTP Request	500		825	117	500	71
10	20:15:08.069	Thread Group ...	HTTP Request	271		825	117	147	72
11	20:15:08.670	Thread Group ...	HTTP Request	147		830	117	146	72
12	20:15:08.369	Thread Group ...	HTTP Request	537		825	117	537	73
13	20:15:08.970	Thread Group ...	HTTP Request	148		825	117	148	71
14	20:15:09.568	Thread Group ...	HTTP Request	149		825	117	149	70
15	20:15:09.869	Thread Group ...	HTTP Request	155		825	117	155	70
16	20:15:09.271	Thread Group ...	HTTP Request	1159		825	117	1159	1076
17	20:15:10.470	Thread Group ...	HTTP Request	150		825	117	150	73
18	20:15:10.170	Thread Group ...	HTTP Request	483		825	117	483	70
19	20:15:10.771	Thread Group ...	HTTP Request	276		825	117	276	72
20	20:15:11.069	Thread Group ...	HTTP Request	147		825	117	147	71

Using the Aggregate Report it has been observed that,

The average response time was **188 ms**, **throughput** reached **255 requests/sec** & high **error rate (~88.46%)** was observed. This indicates that while the server responded quickly for successful requests, it **could not handle the full load**, resulting in many failed requests under peak traffic.

Lab Task-05: (Analyze Test Results)

Solution:

We have taken **Lab Task-04** which is **“Stress Test with High Load”** for analyzing the test results.

After analyzing the previous test scenario it has been shown that the average response time remained low at 188 ms but the high error percentage (~88.46%) reveals that the server experienced severe bottlenecks under high concurrency. Throughput peaked at 255 requests/sec but the large number of errors suggests the system requires optimization to handle stress conditions reliably.