EAST WEST UNIVERSITY
Department of Computer Science & Engineering

Report for Lab Tasks- Load Testing with Apache JMeter:

Course Code: CSE430

Course Title: Software Testing & Quality Assurance

Section: 01

Submitted To:

Dr. Shamim H Ripon
Professor
Department of Computer Science & Engineering

Submitted By:

Umme Mukaddisa

ID: 2022-3-60-317

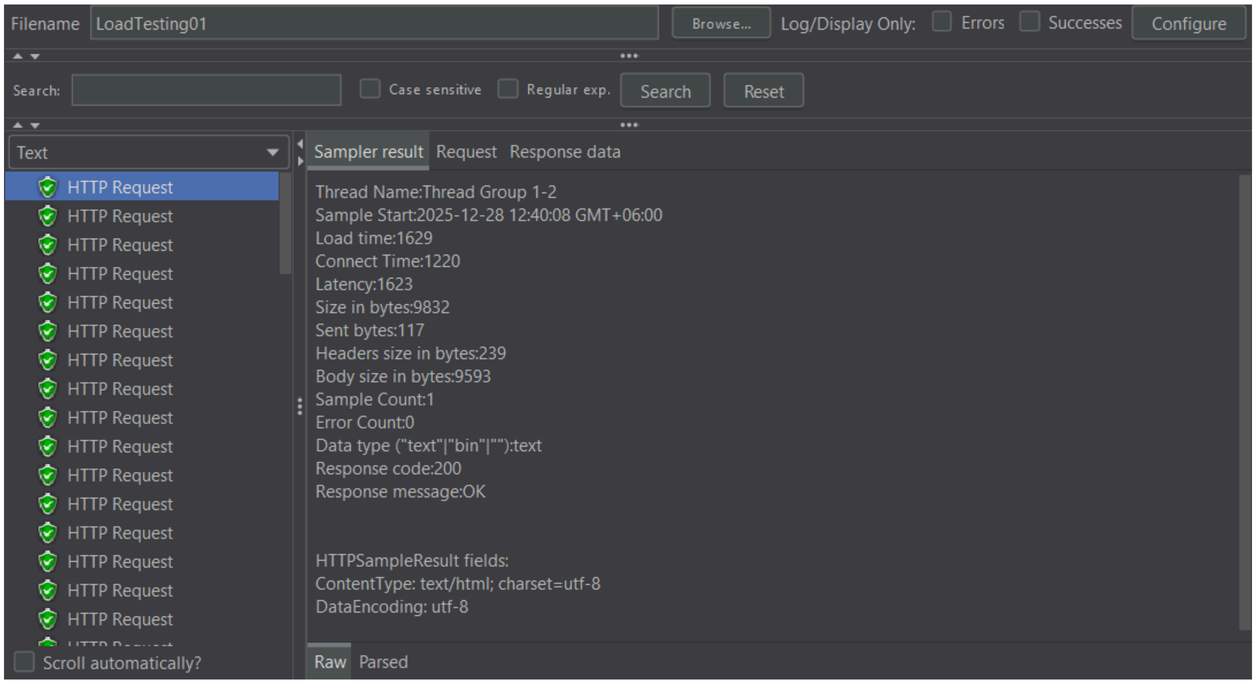
Lab Task-01: (Load Test a Public Website)

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/

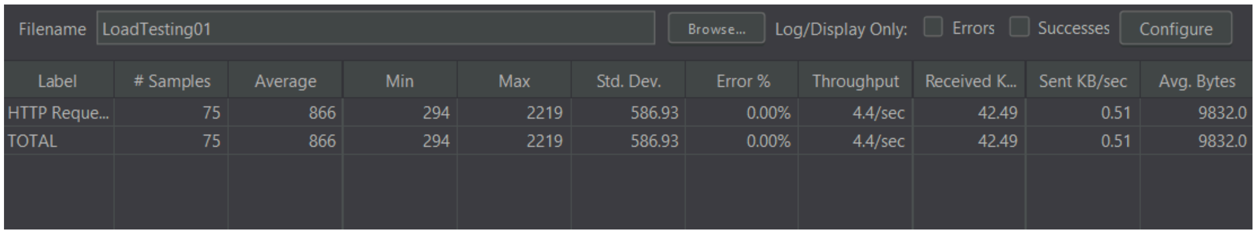
➔ **View Result Tree**



Filename: LoadTesting01

```
Thread Name:Thread Group 1-2
Sample Start:2025-12-28 12:40:08 GMT+06:00
Load time:1629
Connect Time:1220
Latency:1623
Size in bytes:9832
Sent bytes:117
Headers size in bytes:239
Body size in bytes:9593
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
```

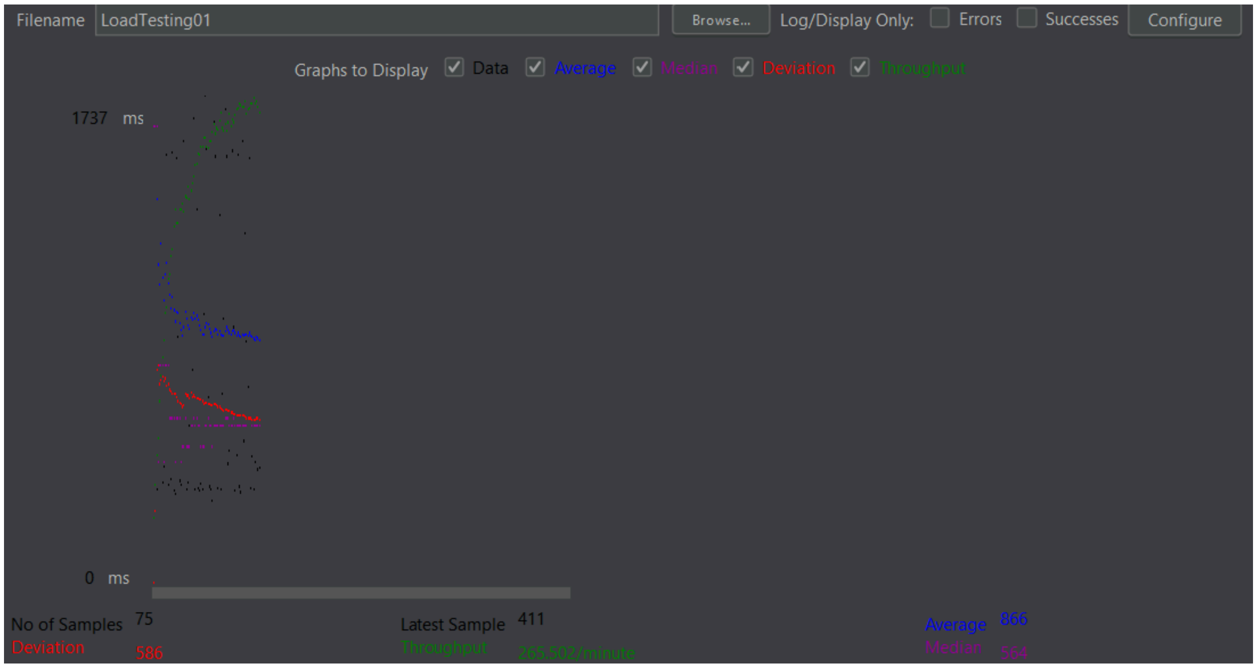
➔ **Summary Report**


Filename LoadTesting01

Log/Display Only: ☐ Errors ☐ Successes

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**



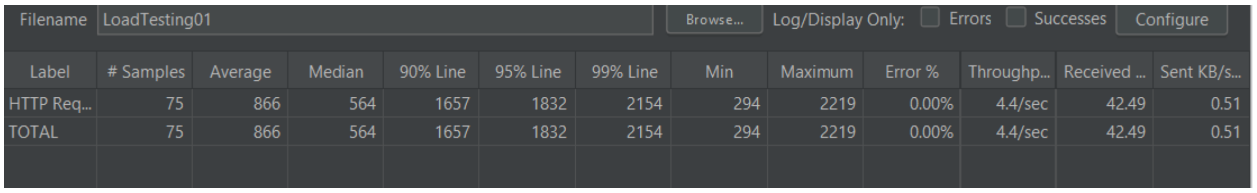
Filename LoadTesting01

Log/Display Only: ☐ Errors ☐ Successes

Graphs to Display ☑ Data ☑ Average ☑ Median ☑ Deviation ☑ Throughput

No of Samples 75
Deviation 586
Latest Sample 411
Throughput 265.502/minute
Average 866
Median 564

➔ **Aggregate Report**


Filename LoadTesting01

Log/Display Only: ☐ Errors ☐ Successes

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.

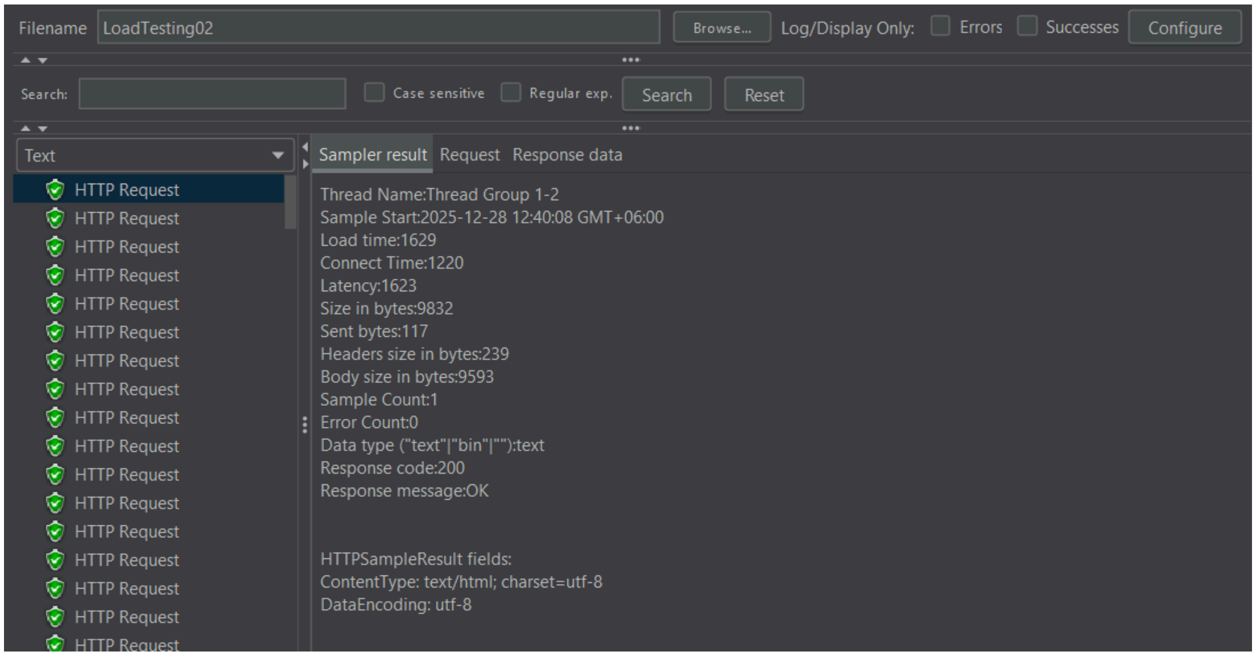
Lab Task-02: (Simulate Login using Fake Store API)

Solution:

Steps to be done:

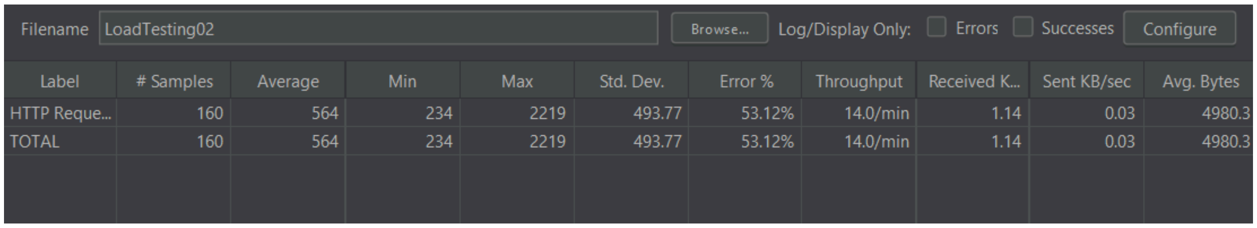
- Method: get
- Path: /get
- Protocol: http
- Port: 80
- Virtual user 5, Ramp-up period 1 second, Loop count 2.
- URl: https://fakestoreapi.com/

➔ **View Result Tree**



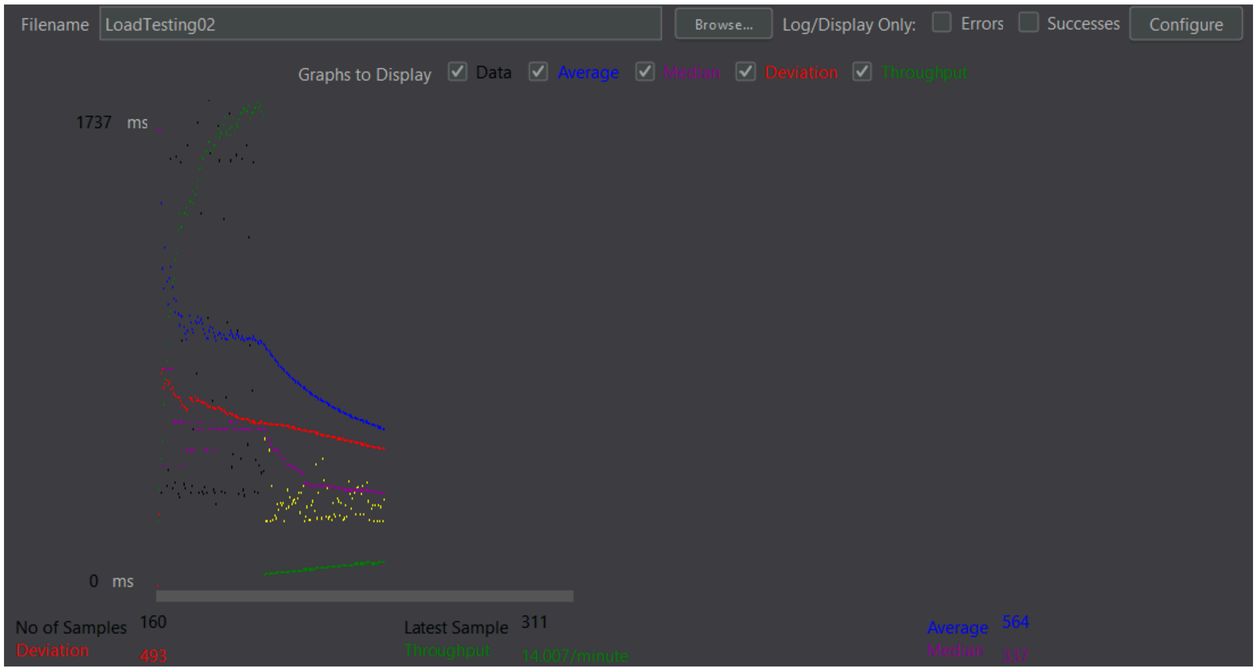
```
Thread Name:Thread Group 1-2
Sample Start:2025-12-28 12:40:08 GMT+06:00
Load time:1629
Connect Time:1220
Latency:1623
Size in bytes:9832
Sent bytes:117
Headers size in bytes:239
Body size in bytes:9593
Sample Count:1
Error Count:0
Data type ("text"|"bin"|""):text
Response code:200
Response message:OK


HTTPSampleResult fields:
ContentType: text/html; charset=utf-8
DataEncoding: utf-8
```

➔ Summary Report



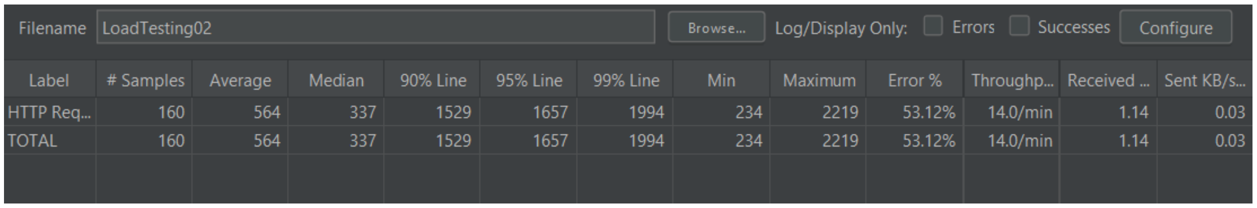
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
HTTP Reque...	160	564	234	2219	493.77	53.12%	14.0/min	1.14	0.03	4980.3
TOTAL	160	564	234	2219	493.77	53.12%	14.0/min	1.14	0.03	4980.3

➔ Graph Report



No of Samples 160
Deviation 493
Latest Sample 311
Throughput 14,007/minute
Average 564
Median 337

➔ Aggregate Report



Filename LoadTesting02
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...	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.

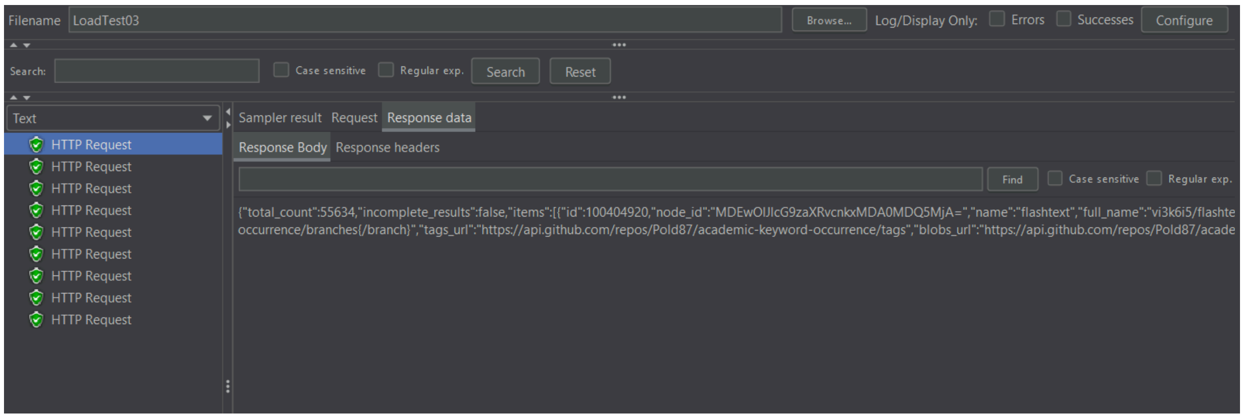
Lab Task-03: (Search Feature Parameterized Test)

Solution:

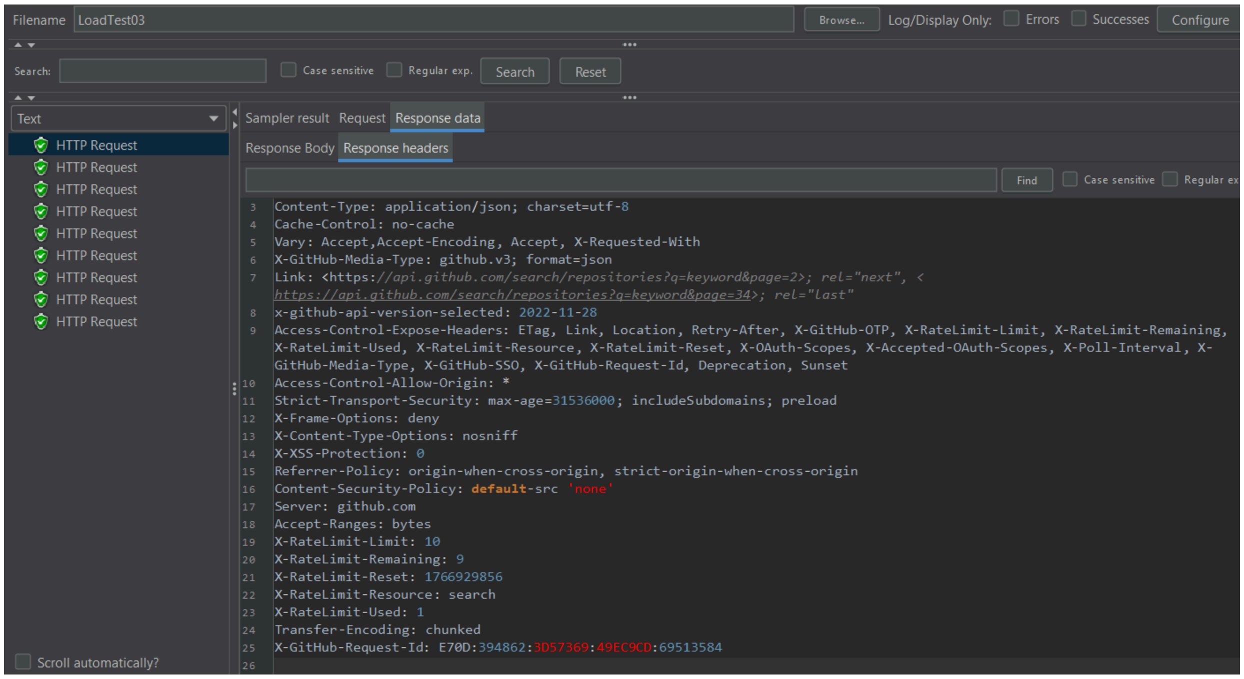
Steps to be done:

- 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**

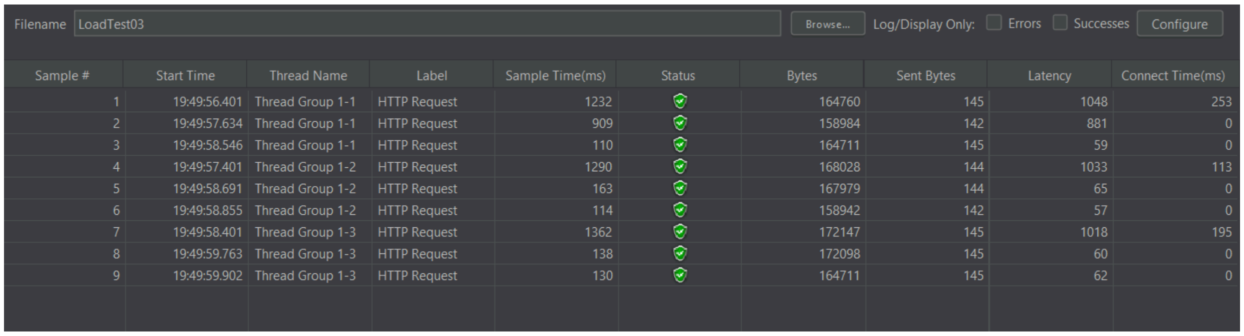


```
{"total_count":55634,"incomplete_results":false,"items":[{"id":100404920,"node_id":"MDEwOlJlcG9zaXRvcnkxMDA0MDQ5MjA=","name":"flashtext","full_name":"vi3k6i5/flashte
occurrence/branches{/branch}","tags_url":"https://api.github.com/repos/Pold87/academic-keyword-occurrence/tags","blobs_url":"https://api.github.com/repos/Pold87/acade
```


Filename LoadTest03
Browse...
Log/Display Only: Errors Successes
Configure
Search: Case sensitive Regular exp. Search Reset
Text
HTTP Request
HTTP Request
HTTP Request
HTTP Request
HTTP Request
HTTP Request
HTTP Request
HTTP Request
HTTP Request
Scroll automatically?
Sampler result Request Response data
Response Body Response headers
Find Case sensitive Regular ex

```
Content-Type: application/json; charset=utf-8
Cache-Control: no-cache
Vary: Accept,Accept-Encoding, Accept, X-Requested-With
X-GitHub-Media-Type: github.v3; format=json
Link: <https://api.github.com/search/repositories?q=keyword&page=2>; rel="next", <
https://api.github.com/search/repositories?q=keyword&page=34>; rel="last"
x-github-api-version-selected: 2022-11-28
Access-Control-Expose-Headers: ETag, Link, Location, Retry-After, X-GitHub-OTP, X-RateLimit-Limit, X-RateLimit-Remaining,
X-RateLimit-Used, X-RateLimit-Resource, X-RateLimit-Reset, X-OAuth-Scopes, X-Accepted-OAuth-Scopes, X-Poll-Interval, X-
GitHub-Media-Type, X-GitHub-SSO, X-GitHub-Request-Id, Deprecation, Sunset
Access-Control-Allow-Origin: *
Strict-Transport-Security: max-age=31536000; includeSubdomains; preload
X-Frame-Options: deny
X-Content-Type-Options: nosniff
X-XSS-Protection: 0
Referrer-Policy: origin-when-cross-origin, strict-origin-when-cross-origin
Content-Security-Policy: default-src 'none'
Server: github.com
Accept-Ranges: bytes
X-RateLimit-Limit: 10
X-RateLimit-Remaining: 9
X-RateLimit-Reset: 1766929856
X-RateLimit-Resource: search
X-RateLimit-Used: 1
Transfer-Encoding: chunked
X-GitHub-Request-Id: E70D:394862:3D57369:49EC9CD:69513584
```

➔ 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.

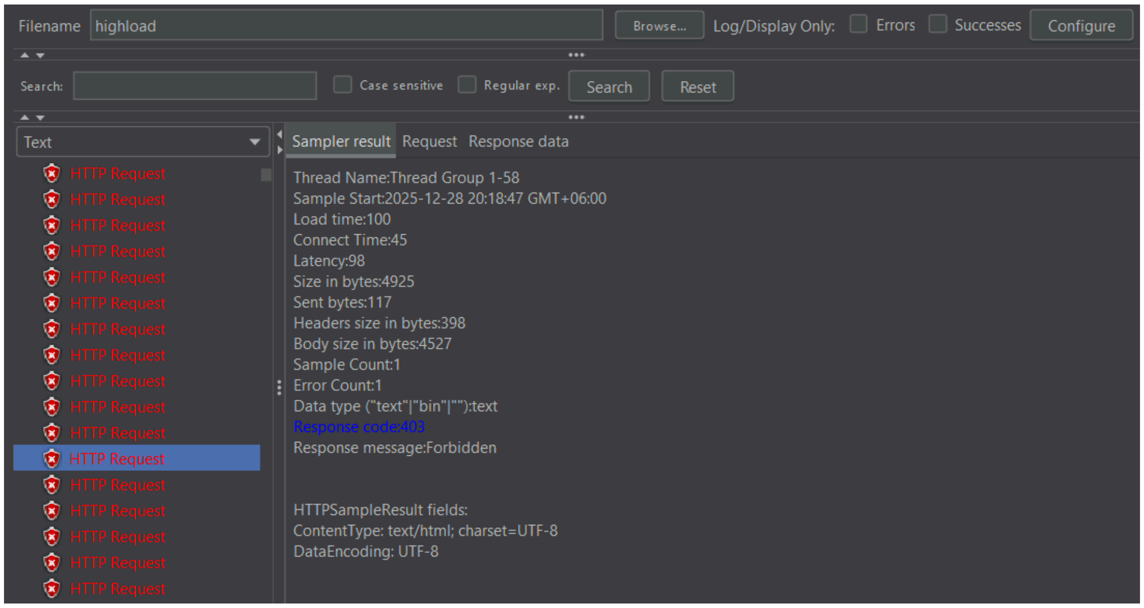
Lab Task-04: (Stress Test with High Load)

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

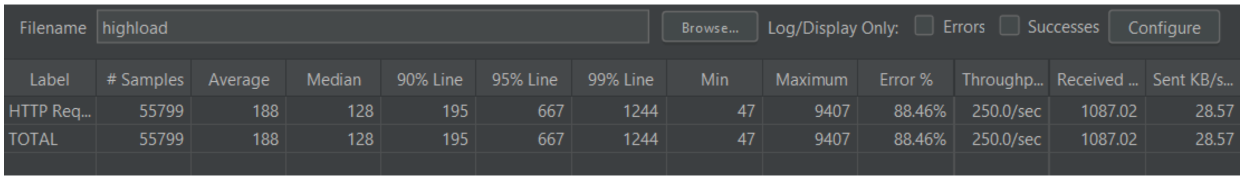
➔ View Result Tree



Filename: highload

```
Thread Name:Thread Group 1-58
Sample Start:2025-12-28 20:18:47 GMT+06:00
Load time:100
Connect Time:45
Latency:98
Size in bytes:4925
Sent bytes:117
Headers size in bytes:398
Body size in bytes:4527
Sample Count:1
Error Count:1
Data type ("text"|"bin"|""):text
Response code:403
Response message:Forbidden


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

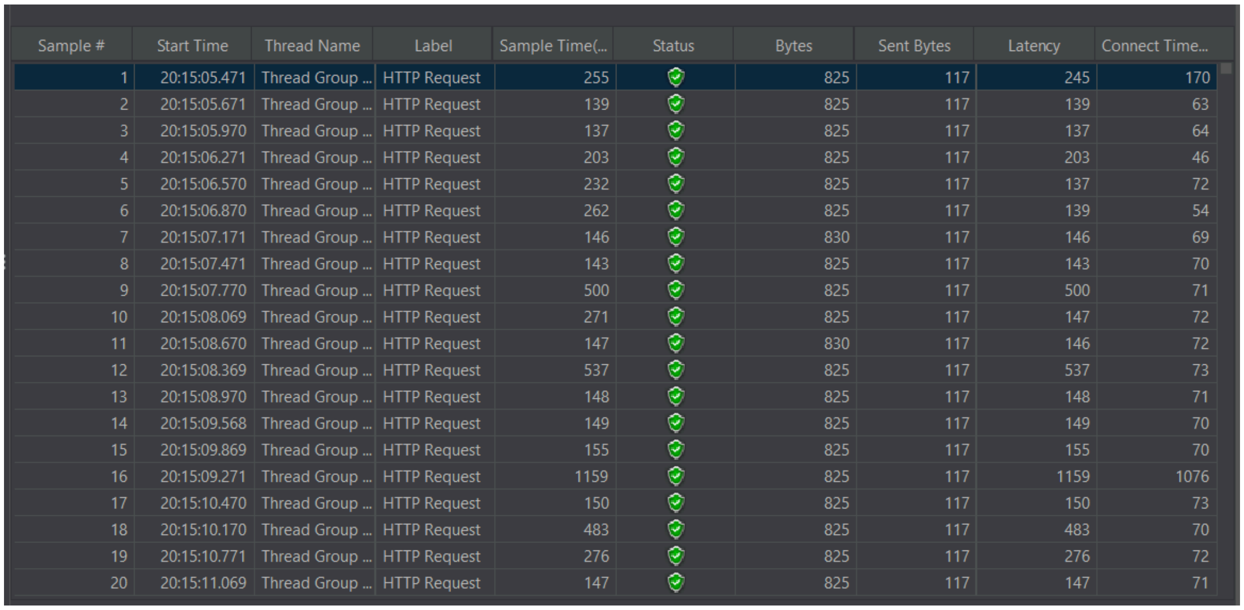
➔ Aggregate Report



Filename: highload

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.