Non Functional Testing

Parameters:

1. Performance Testing : Website's performance on increasing the number of users, **Stress** and **Load** testing.
2. Vulnerability Testing : Is the website safe. What are the security aspects.
3. Compatibility Testing : Is the website compatible with different browsers and systems(Linux,Windows).

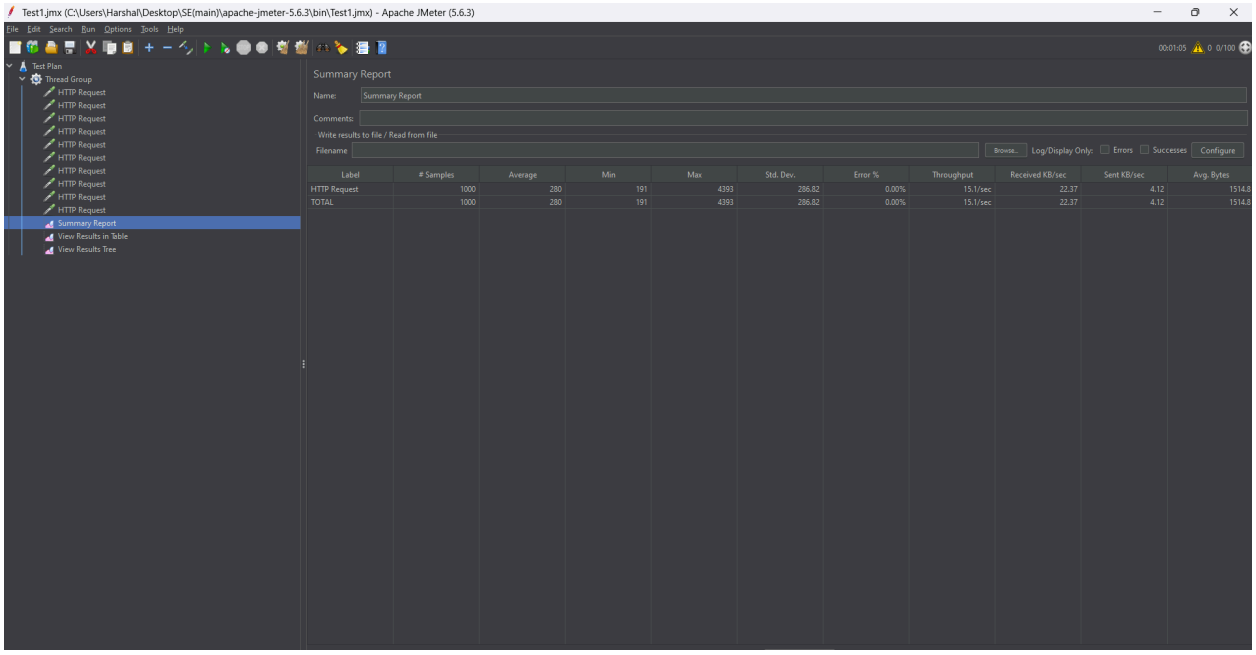
This are the following main parameter we are working on with non-functional tests.

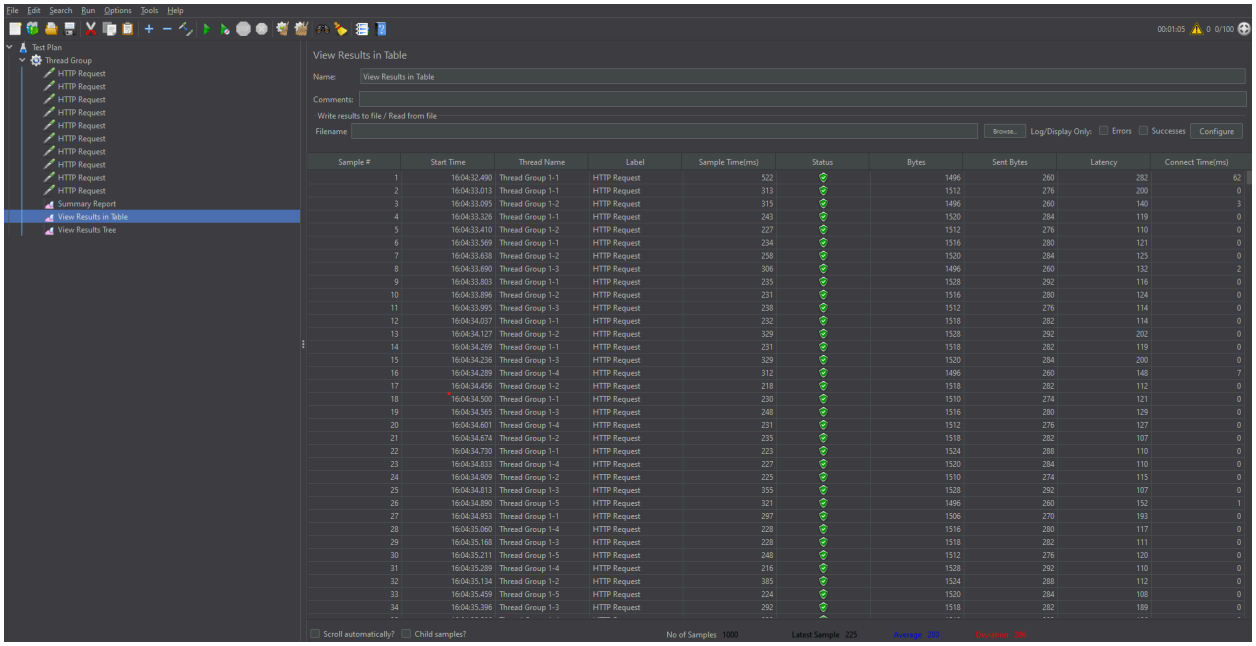
Load Testing

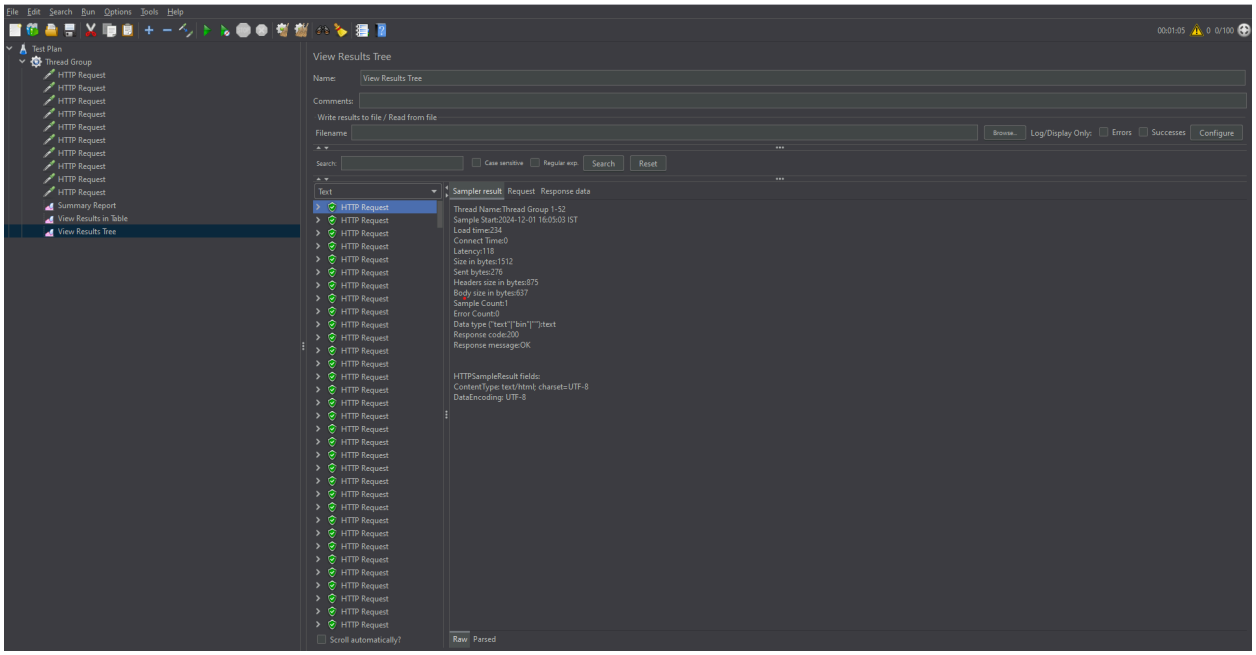
We have performed load testing for different numbers of users(threads) under normal conditions to check the number of users our website can handle . We have used HTTP GET and HTTP POST methods for this check. The following here are the attached screenshots from the Apache Jmeter software.

Software used : https://jmeter.apache.org/download_jmeter.cgi

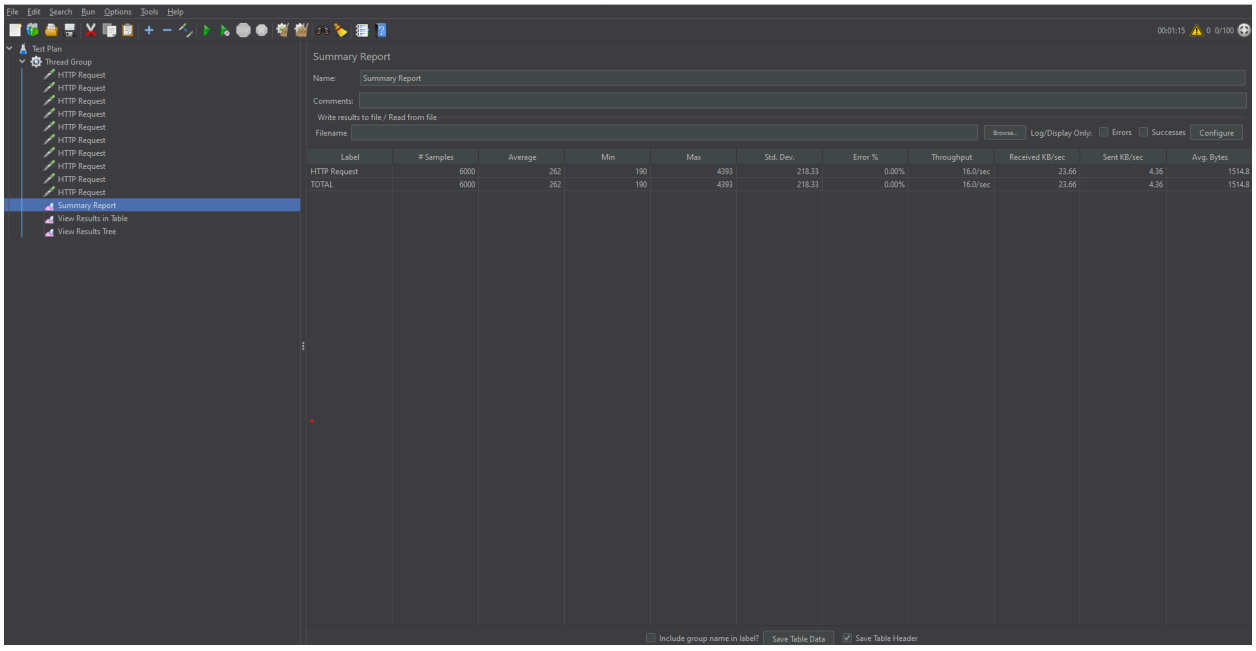
Test 1 : For 100 users

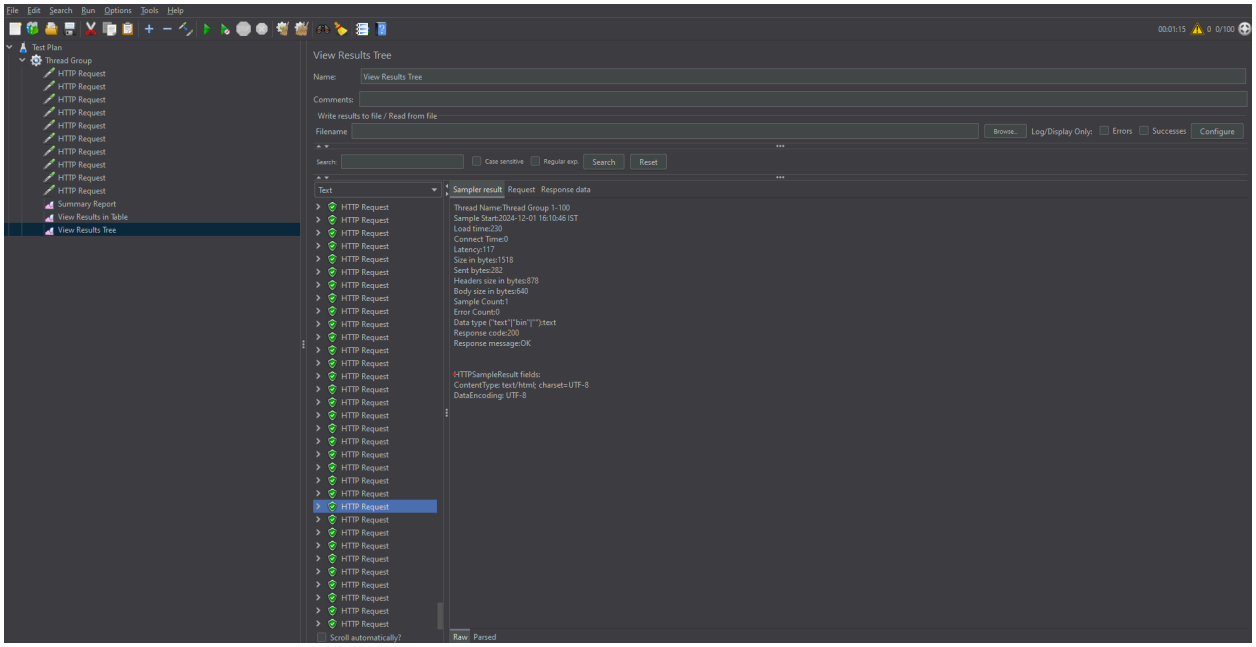


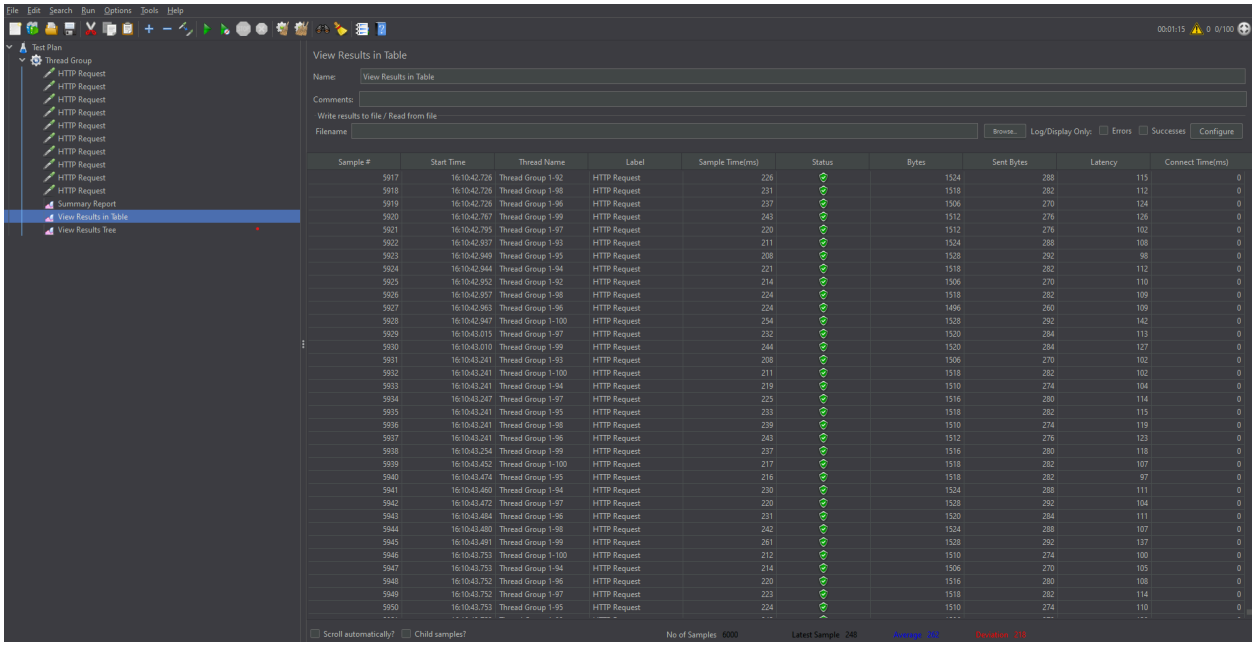

File Edit Search Run Options Tools Help
00:01:05 0 0/100
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results in Table
Name: View Results in Table
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Sample # Start Time Thread Name Label Sample Time(ms) Status Bytes Sent Bytes Latency Connect Time(ms)
1 16:04:32.490 Thread Group 1-1 HTTP Request 522 1496 260 282 62
2 16:04:33.013 Thread Group 1-1 HTTP Request 313 1512 276 200 0
3 16:04:33.095 Thread Group 1-2 HTTP Request 315 1496 260 140 3
4 16:04:33.326 Thread Group 1-1 HTTP Request 243 1520 284 119 0
5 16:04:33.410 Thread Group 1-2 HTTP Request 227 1512 276 110 0
6 16:04:33.569 Thread Group 1-1 HTTP Request 234 1516 280 121 0
7 16:04:33.638 Thread Group 1-2 HTTP Request 258 1520 284 125 0
8 16:04:33.690 Thread Group 1-3 HTTP Request 306 1496 260 132 2
9 16:04:33.803 Thread Group 1-1 HTTP Request 235 1528 292 116 0
10 16:04:33.896 Thread Group 1-2 HTTP Request 231 1516 280 124 0
11 16:04:33.995 Thread Group 1-3 HTTP Request 238 1512 276 114 0
12 16:04:34.037 Thread Group 1-1 HTTP Request 232 1518 282 114 0
13 16:04:34.127 Thread Group 1-2 HTTP Request 329 1528 292 202 0
14 16:04:34.269 Thread Group 1-1 HTTP Request 231 1518 282 119 0
15 16:04:34.236 Thread Group 1-3 HTTP Request 329 1520 284 200 0
16 16:04:34.289 Thread Group 1-4 HTTP Request 312 1496 260 148 7
17 16:04:34.456 Thread Group 1-2 HTTP Request 218 1518 282 112 0
18 16:04:34.500 Thread Group 1-1 HTTP Request 230 1510 274 121 0
19 16:04:34.565 Thread Group 1-3 HTTP Request 248 1516 280 129 0
20 16:04:34.601 Thread Group 1-4 HTTP Request 231 1512 276 127 0
21 16:04:34.674 Thread Group 1-2 HTTP Request 235 1518 282 107 0
22 16:04:34.730 Thread Group 1-1 HTTP Request 223 1524 288 110 0
23 16:04:34.833 Thread Group 1-4 HTTP Request 227 1520 284 110 0
24 16:04:34.909 Thread Group 1-2 HTTP Request 225 1510 274 115 0
25 16:04:34.813 Thread Group 1-3 HTTP Request 355 1528 292 107 0
26 16:04:34.890 Thread Group 1-5 HTTP Request 321 1496 260 152 1
27 16:04:34.953 Thread Group 1-1 HTTP Request 297 1506 270 193 0
28 16:04:35.060 Thread Group 1-4 HTTP Request 228 1516 280 117 0
29 16:04:35.168 Thread Group 1-3 HTTP Request 228 1518 282 111 0
30 16:04:35.211 Thread Group 1-5 HTTP Request 248 1512 276 120 0
31 16:04:35.289 Thread Group 1-4 HTTP Request 216 1528 292 110 0
32 16:04:35.134 Thread Group 1-2 HTTP Request 385 1524 288 112 0
33 16:04:35.459 Thread Group 1-5 HTTP Request 224 1520 284 108 0
34 16:04:35.396 Thread Group 1-3 HTTP Request 292 1518 282 189 0
Scroll automatically? Child samples? No of Samples 1000 Latest Sample 225 Average 280 Deviation 200


File Edit Search Run Options Tools Help
00:01:05 0 0/100
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results Tree
Name: View Results Tree
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Search: Case sensitive Regular exp. Search Reset
Text
Sampler result Request Response data
Thread Name:Thread Group 1-52
Sample Start:2024-12-01 16:05:03 IST
Load time:234
Connect Time:0
Latency:118
Size in bytes:1512
Sent bytes:276
Headers size in bytes:875
Body size in bytes:637
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
Scroll automatically?
Raw Parsed

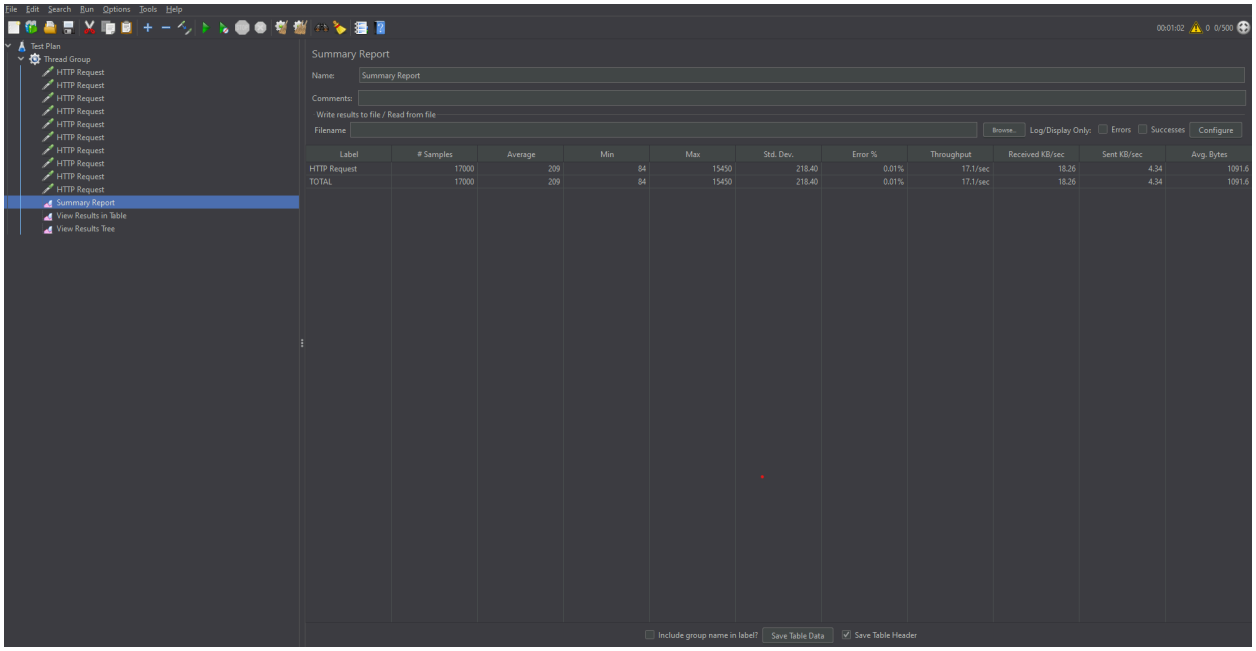
Test 2 : Increasing the loops and users = 100
Checking for 100 users with normal conditions with ramp-up period 50

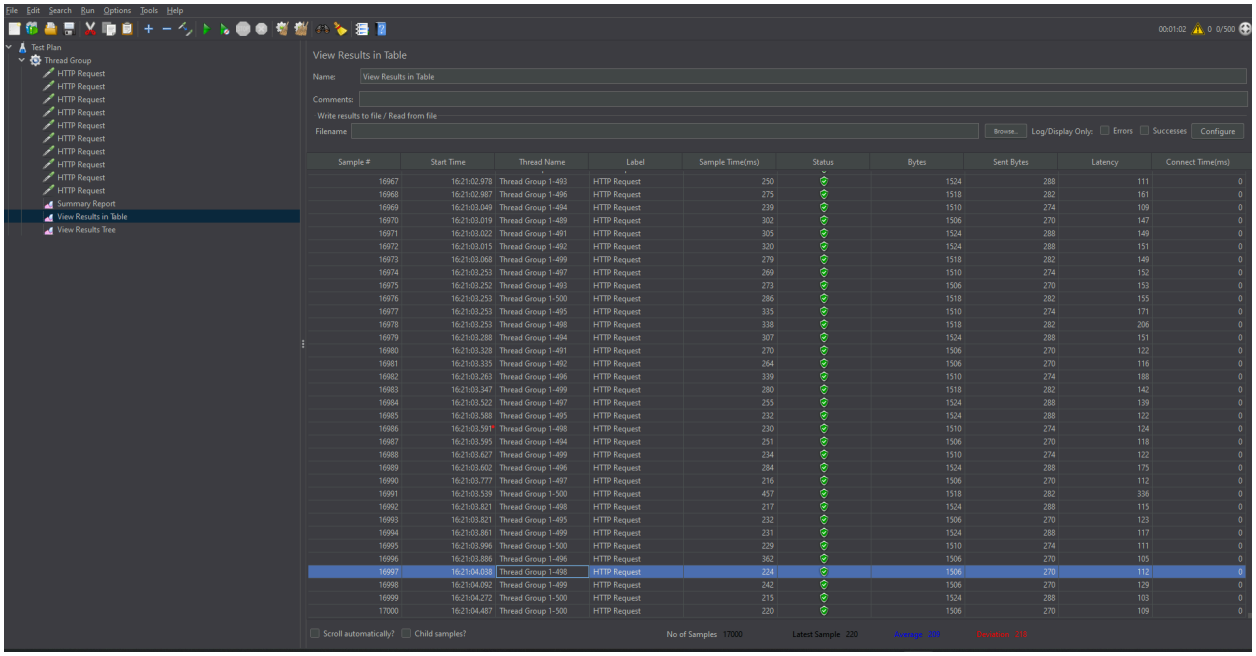


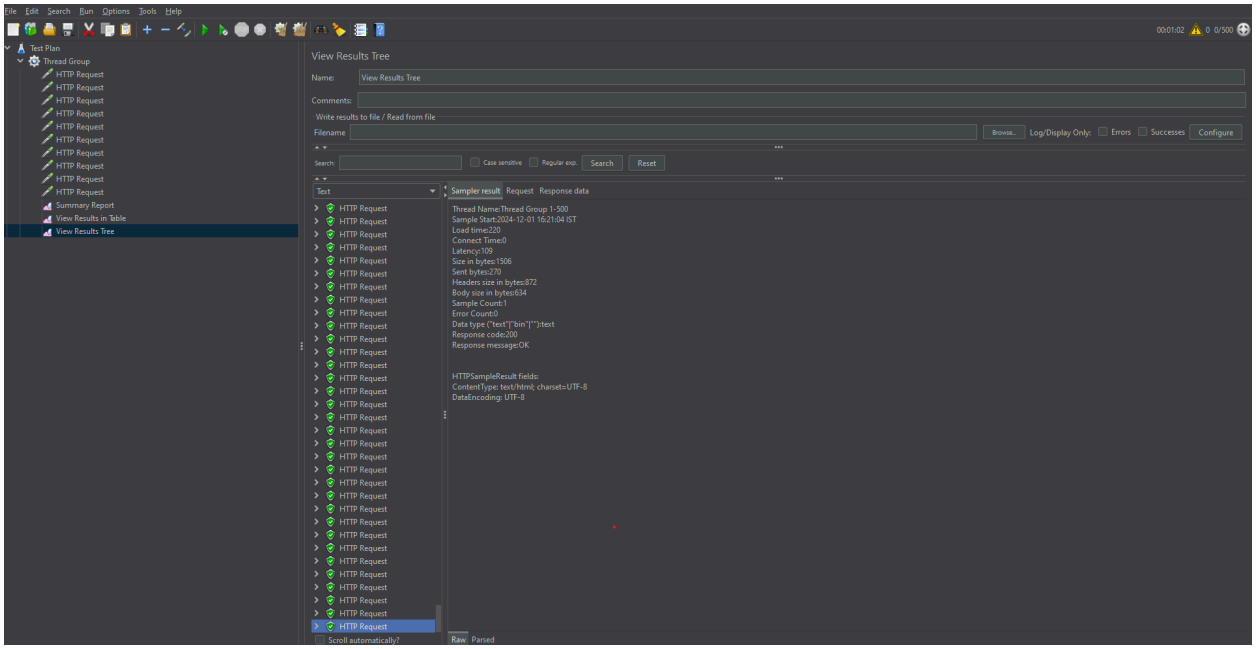




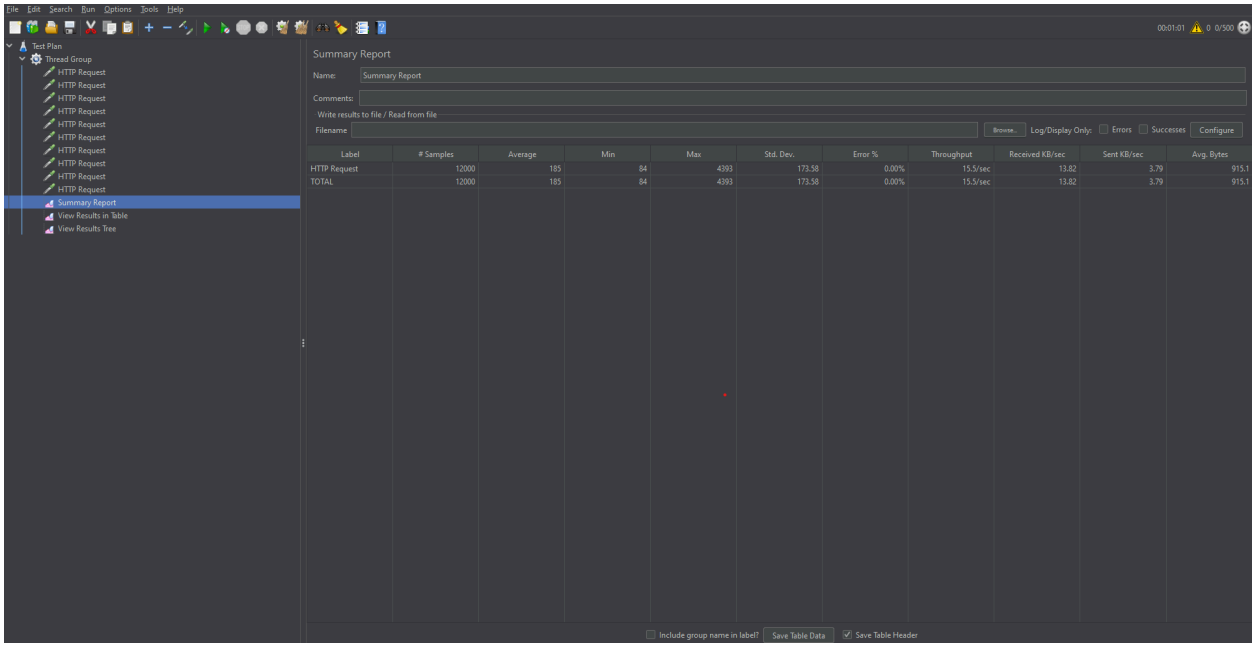
Test 3 : For 500 users using HTTP GET

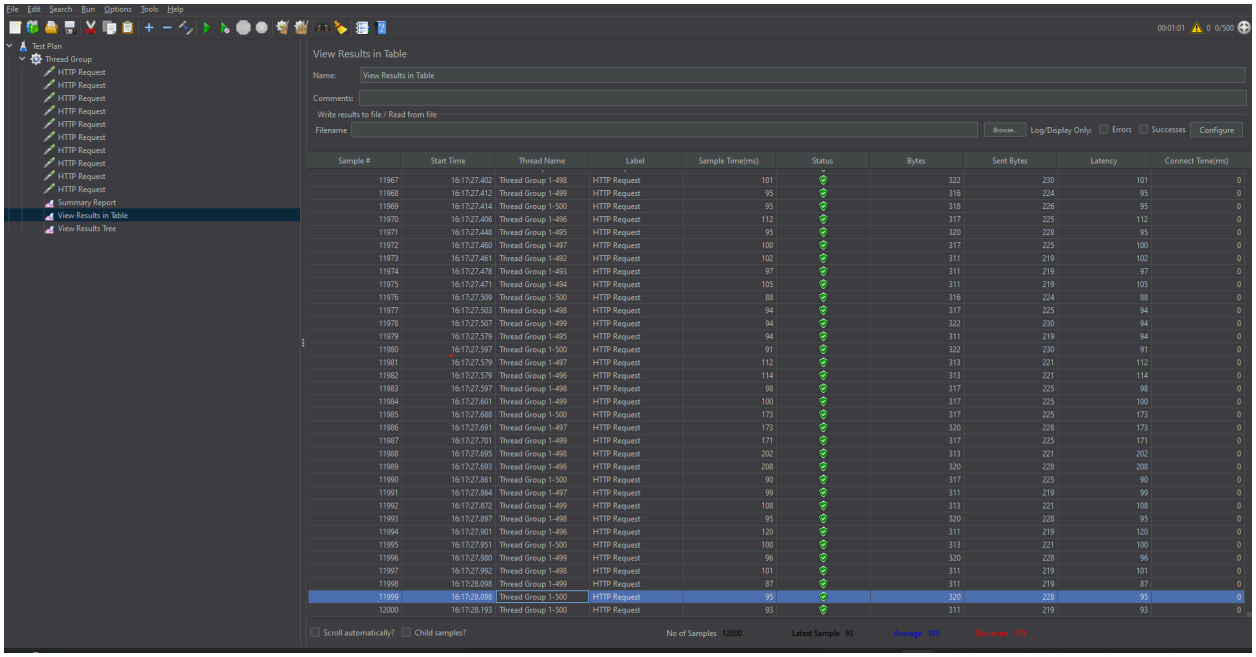


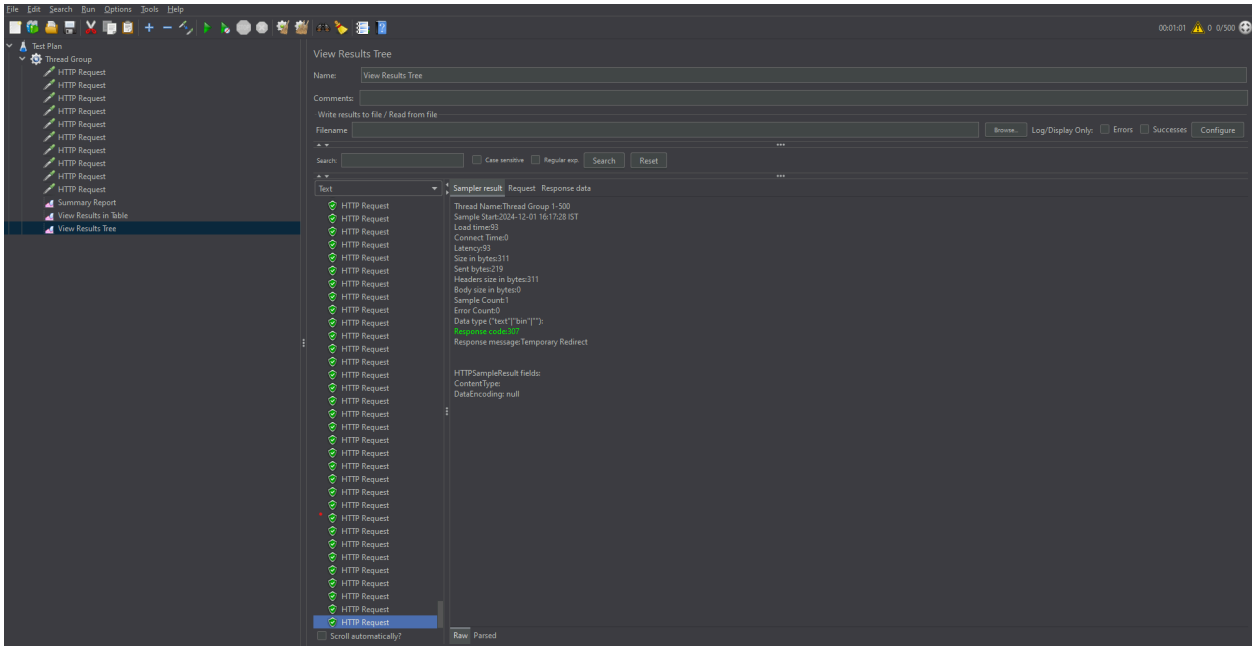

File Edit Search Run Options Tools Help
00:01:02 0 0/500
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results in Table
Name: View Results in Table
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Sample # Start Time Thread Name Label Sample Time(ms) Status Bytes Sent Bytes Latency Connect Time(ms)
16967 16:21:02.978 Thread Group 1-493 HTTP Request 250 1524 288 111 0
16968 16:21:02.987 Thread Group 1-496 HTTP Request 275 1518 282 161 0
16969 16:21:03.049 Thread Group 1-494 HTTP Request 239 1510 274 109 0
16970 16:21:03.019 Thread Group 1-489 HTTP Request 302 1506 270 147 0
16971 16:21:03.022 Thread Group 1-491 HTTP Request 305 1524 288 149 0
16972 16:21:03.015 Thread Group 1-492 HTTP Request 320 1524 288 151 0
16973 16:21:03.068 Thread Group 1-499 HTTP Request 279 1518 282 149 0
16974 16:21:03.253 Thread Group 1-497 HTTP Request 269 1510 274 152 0
16975 16:21:03.252 Thread Group 1-493 HTTP Request 273 1506 270 153 0
16976 16:21:03.253 Thread Group 1-500 HTTP Request 286 1518 282 155 0
16977 16:21:03.253 Thread Group 1-495 HTTP Request 335 1510 274 171 0
16978 16:21:03.253 Thread Group 1-498 HTTP Request 338 1518 282 206 0
16979 16:21:03.288 Thread Group 1-494 HTTP Request 307 1524 288 151 0
16980 16:21:03.328 Thread Group 1-491 HTTP Request 270 1506 270 122 0
16981 16:21:03.335 Thread Group 1-492 HTTP Request 264 1506 270 116 0
16982 16:21:03.263 Thread Group 1-496 HTTP Request 339 1510 274 188 0
16983 16:21:03.347 Thread Group 1-499 HTTP Request 280 1518 282 142 0
16984 16:21:03.522 Thread Group 1-497 HTTP Request 255 1524 288 139 0
16985 16:21:03.588 Thread Group 1-495 HTTP Request 232 1524 288 122 0
16986 16:21:03.591 Thread Group 1-498 HTTP Request 230 1510 274 124 0
16987 16:21:03.595 Thread Group 1-494 HTTP Request 251 1506 270 118 0
16988 16:21:03.627 Thread Group 1-499 HTTP Request 234 1510 274 122 0
16989 16:21:03.602 Thread Group 1-496 HTTP Request 284 1524 288 175 0
16990 16:21:03.777 Thread Group 1-497 HTTP Request 216 1506 270 112 0
16991 16:21:03.539 Thread Group 1-500 HTTP Request 457 1518 282 336 0
16992 16:21:03.821 Thread Group 1-498 HTTP Request 217 1524 288 115 0
16993 16:21:03.821 Thread Group 1-495 HTTP Request 232 1506 270 123 0
16994 16:21:03.861 Thread Group 1-499 HTTP Request 231 1524 288 117 0
16995 16:21:03.996 Thread Group 1-500 HTTP Request 229 1510 274 111 0
16996 16:21:03.886 Thread Group 1-496 HTTP Request 362 1506 270 105 0
16997 16:21:04.038 Thread Group 1-498 HTTP Request 224 1506 270 112 0
16998 16:21:04.092 Thread Group 1-499 HTTP Request 242 1506 270 129 0
16999 16:21:04.272 Thread Group 1-500 HTTP Request 215 1524 288 103 0
17000 16:21:04.487 Thread Group 1-500 HTTP Request 220 1506 270 109 0
Scroll automatically? Child samples?
No of Samples 17000 Latest Sample 220 Average 289 Deviation 218


File Edit Search Run Options Tools Help
00:01:02 0 0/500
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results Tree
Name: View Results Tree
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Search: Case sensitive Regular exp. Search Reset
Text
Sampler result Request Response data
Thread Name:Thread Group 1-500
Sample Start:2024-12-01 16:21:04 IST
Load time:220
Connect Time:0
Latency:109
Size in bytes:1506
Sent bytes:270
Headers size in bytes:872
Body size in bytes:634
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
Scroll automatically?
Raw Parsed

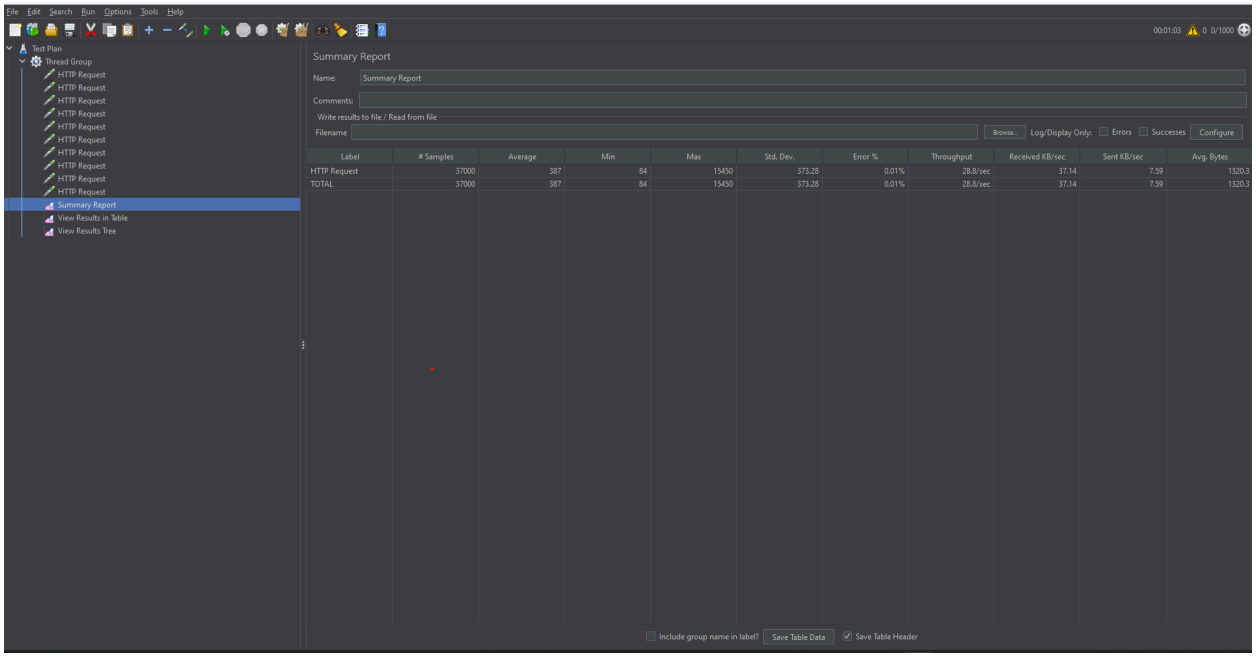
Test 4 : For 500 users using HTTP POST

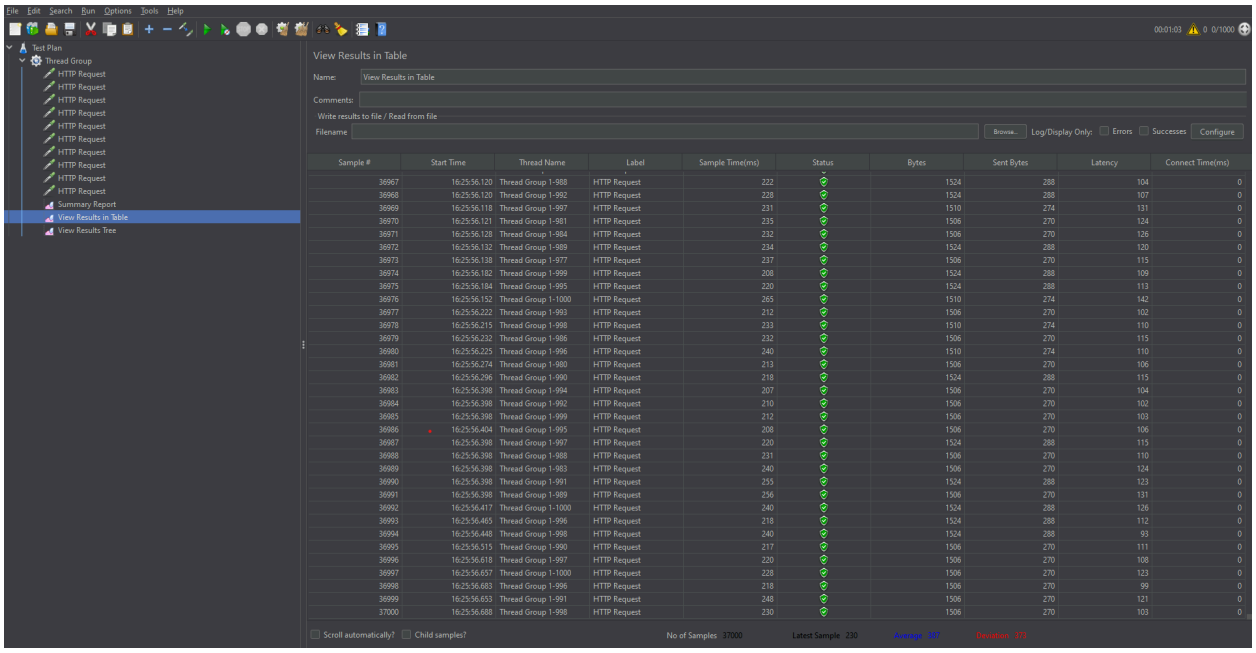


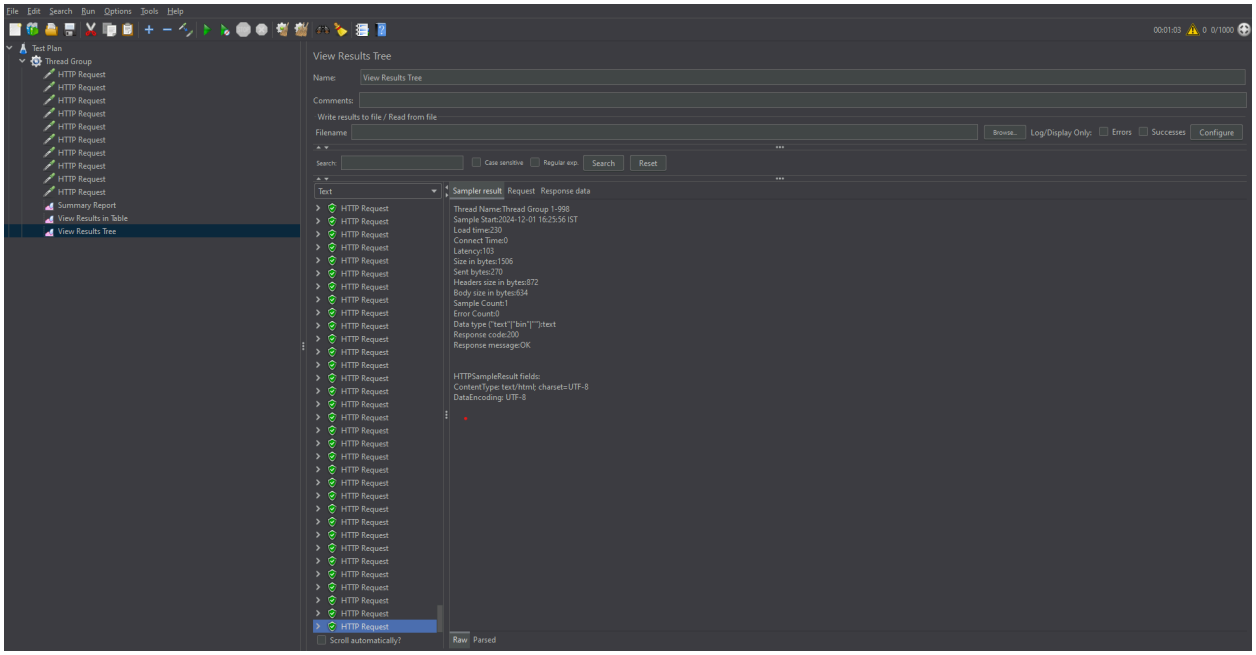




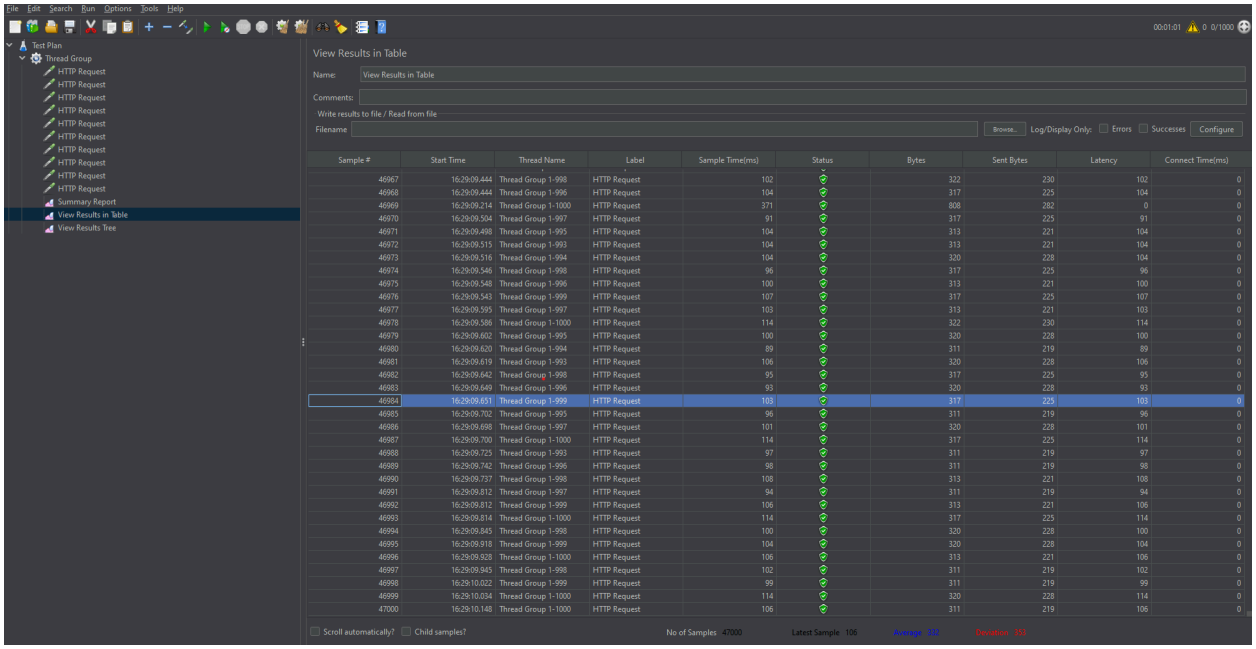
Test 5 : For 1000 users using HTTP GET

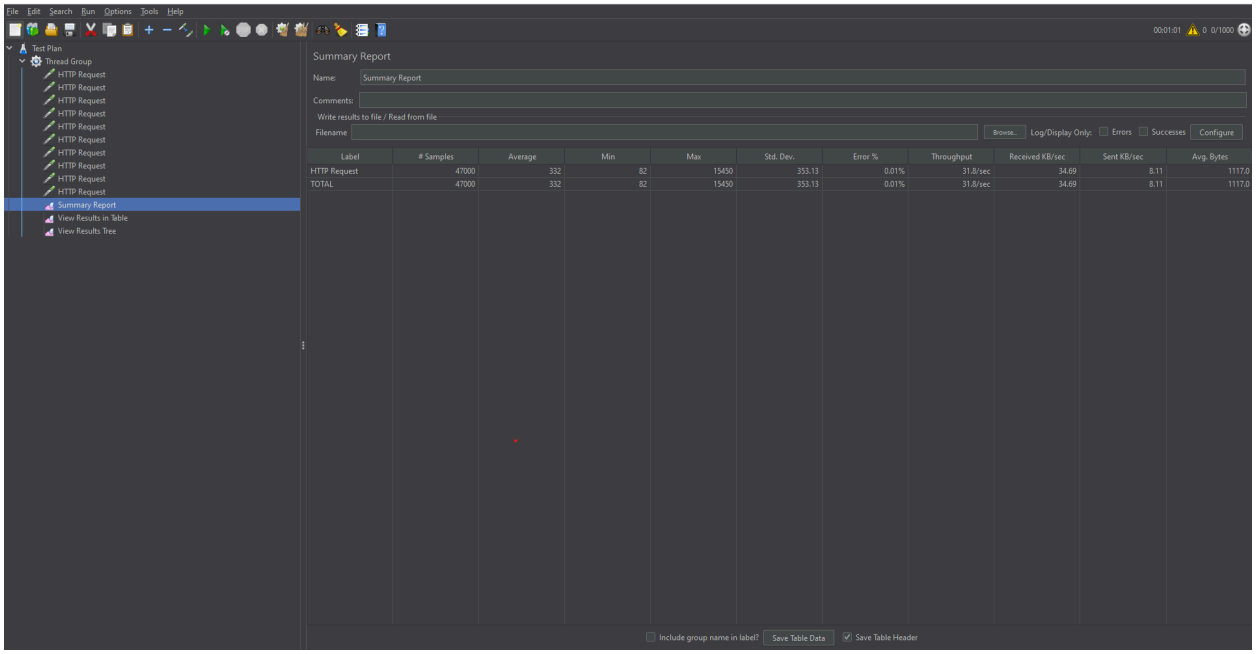


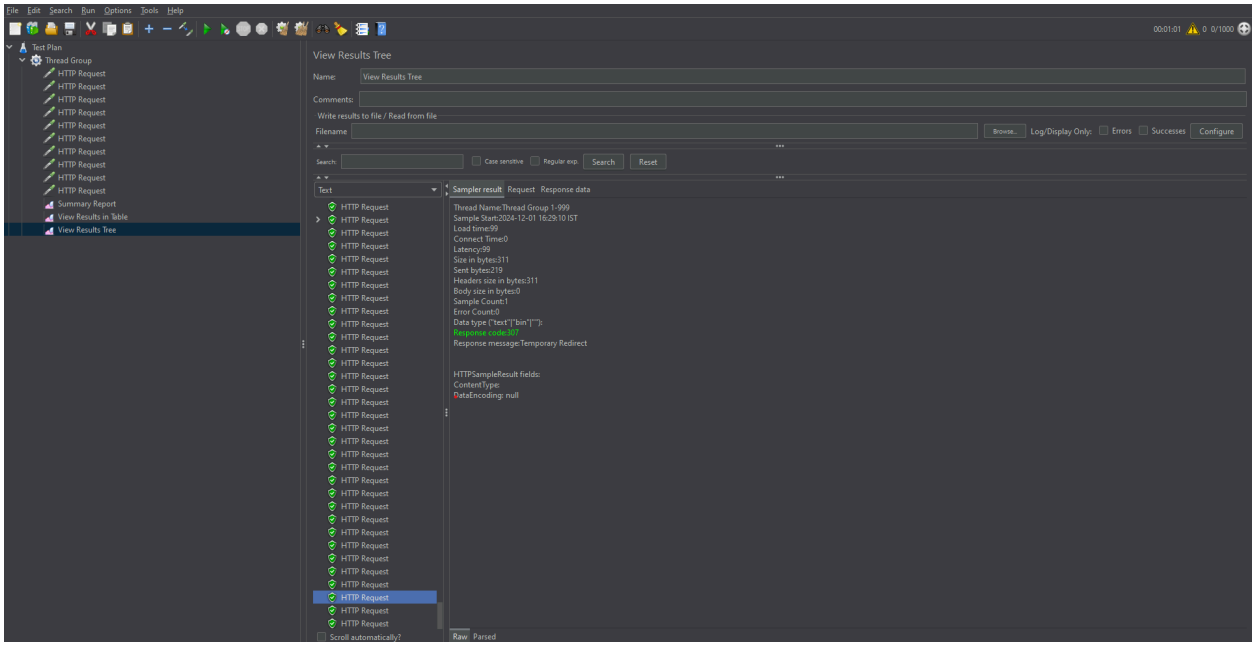

File Edit Search Run Options Tools Help
00:01:03 0 0/1000
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results in Table
Name: View Results in Table
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Sample # Start Time Thread Name Label Sample Time(ms) Status Bytes Sent Bytes Latency Connect Time(ms)
36967 16:25:56.120 Thread Group 1-988 HTTP Request 222 1524 288 104 0
36968 16:25:56.120 Thread Group 1-992 HTTP Request 228 1524 288 107 0
36969 16:25:56.118 Thread Group 1-997 HTTP Request 231 1510 274 131 0
36970 16:25:56.121 Thread Group 1-981 HTTP Request 235 1506 270 124 0
36971 16:25:56.128 Thread Group 1-984 HTTP Request 232 1506 270 126 0
36972 16:25:56.132 Thread Group 1-989 HTTP Request 234 1524 288 120 0
36973 16:25:56.138 Thread Group 1-977 HTTP Request 237 1506 270 115 0
36974 16:25:56.182 Thread Group 1-999 HTTP Request 208 1524 288 109 0
36975 16:25:56.184 Thread Group 1-995 HTTP Request 220 1524 288 113 0
36976 16:25:56.152 Thread Group 1-1000 HTTP Request 265 1510 274 142 0
36977 16:25:56.222 Thread Group 1-993 HTTP Request 212 1506 270 102 0
36978 16:25:56.215 Thread Group 1-998 HTTP Request 233 1510 274 110 0
36979 16:25:56.232 Thread Group 1-986 HTTP Request 232 1506 270 115 0
36980 16:25:56.225 Thread Group 1-996 HTTP Request 240 1510 274 110 0
36981 16:25:56.274 Thread Group 1-980 HTTP Request 213 1506 270 106 0
36982 16:25:56.296 Thread Group 1-990 HTTP Request 218 1524 288 115 0
36983 16:25:56.398 Thread Group 1-994 HTTP Request 207 1506 270 104 0
36984 16:25:56.398 Thread Group 1-992 HTTP Request 210 1506 270 102 0
36985 16:25:56.398 Thread Group 1-999 HTTP Request 212 1506 270 103 0
36986 16:25:56.404 Thread Group 1-995 HTTP Request 208 1506 270 106 0
36987 16:25:56.398 Thread Group 1-997 HTTP Request 220 1524 288 115 0
36988 16:25:56.398 Thread Group 1-988 HTTP Request 231 1506 270 110 0
36989 16:25:56.398 Thread Group 1-983 HTTP Request 240 1506 270 124 0
36990 16:25:56.398 Thread Group 1-991 HTTP Request 255 1524 288 123 0
36991 16:25:56.398 Thread Group 1-989 HTTP Request 256 1506 270 131 0
36992 16:25:56.417 Thread Group 1-1000 HTTP Request 240 1524 288 126 0
36993 16:25:56.465 Thread Group 1-996 HTTP Request 218 1524 288 112 0
36994 16:25:56.448 Thread Group 1-998 HTTP Request 240 1524 288 93 0
36995 16:25:56.515 Thread Group 1-990 HTTP Request 217 1506 270 111 0
36996 16:25:56.618 Thread Group 1-997 HTTP Request 220 1506 270 108 0
36997 16:25:56.657 Thread Group 1-1000 HTTP Request 228 1506 270 123 0
36998 16:25:56.683 Thread Group 1-996 HTTP Request 218 1506 270 99 0
36999 16:25:56.653 Thread Group 1-991 HTTP Request 248 1506 270 121 0
37000 16:25:56.688 Thread Group 1-998 HTTP Request 230 1506 270 103 0
Scroll automatically? Child samples?
No of Samples 37000 Latest Sample 230 Average 207 Deviation 373


File Edit Search Run Options Tools Help
00:01:03 0 0/1000
Test Plan
Thread Group
HTTP Request
Summary Report
View Results in Table
View Results Tree
View Results Tree
Name: View Results Tree
Comments:
Write results to file / Read from file
Filename
Browse... Log/Display Only: Errors Successes Configure
Search: Case sensitive Regular exp. Search Reset
Text
Sampler result Request Response data
Thread Name:Thread Group 1-998
Sample Start:2024-12-01 16:25:56 IST
Load time:230
Connect Time:0
Latency:103
Size in bytes:1506
Sent bytes:270
Headers size in bytes:872
Body size in bytes:634
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
Scroll automatically?
Raw Parsed

Test 6 : For 1000 users using HTTP POST







The following results for the Test 5,6 were conducted for 1000 users with loops = 50. The results state that the website is working in a optimal condition for 1000 users in normal conditions. The load test is successful for 1000 users.