



IT314 – Software Engineering
G27 Flight Ticket Booking System

Non-Functional Testing

Document Purpose: This document covers the Non-Functional testing done on our website and summarizes the outcomes. We have simulated Load Testing, Compatibility testing, Security testing and ease of use testing.

1) Load Testing

➤ Tool Used:

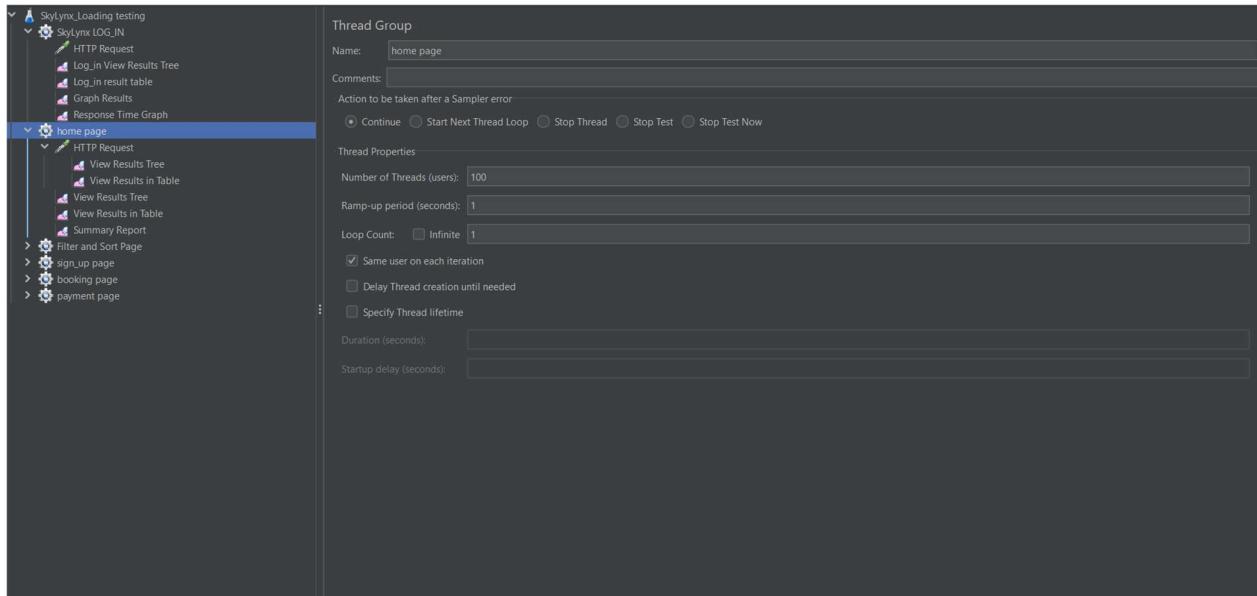
Apache jmeter-5.6.3

- **Scenario:** We have tested all the pages from multiple hosts (100 and 500) to assess the system's load balancing and throughput efficiency.

- **Testing Home Page**

GET request to PATH 'it314-g27-flightbookingsystem.onrender.com'

- **100 users:**



SkyLynx Loading testing

- SkyLynx LOG IN
 - HTTP Request
 - Log_in View Results Tree
 - Log_in result table
 - Graph Results
 - Response Time Graph
- home page
 - HTTP Request
 - View Results Tree
 - View Results in Table**
 - View Results Tree
 - View Results in Table
 - Summary Report
- Filter and Sort Page
- sign_up page
- booking page
- payment page

View Results in Table

Name: View Results in Table

Comments: C:\Users\lsha\Downloads\apache-jmeter-5.6.3\home_page.csv

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)
75	14:04:39.400	home page 2-05	HTTP Request	19748	✓	1026	298	19727	17274
76	14:04:39.507	home page 2-67	HTTP Request	19727	✓	1026	298	19865	17219
77	14:04:39.593	home page 2-77	HTTP Request	19865	✓	1026	298	20052	17357
78	14:04:39.456	home page 2-62	HTTP Request	20052	✓	1026	298	19922	17097
79	14:04:39.732	home page 2-91	HTTP Request	19922	✓	1028	298	20130	17139
80	14:04:39.692	home page 2-87	HTTP Request	20130	✓	1026	298	20329	17180
81	14:04:39.653	home page 2-83	HTTP Request	20329	✓	1028	298	20553	17347
82	14:04:39.487	home page 2-65	HTTP Request	20553	✓	1028	298	20423	17191
83	14:04:39.644	home page 2-82	HTTP Request	20423	✓	1026	298	20597	17206
84	14:04:39.632	home page 2-81	HTTP Request	20597	✓	1026	298	20670	17160
85	14:04:39.742	home page 2-92	HTTP Request	20561	✓	1026	298	20807	17261
86	14:04:39.682	home page 2-86	HTTP Request	20670	✓	1026	298	20784	17143
87	14:04:39.581	home page 2-76	HTTP Request	20807	✓	1026	298	20925	17174
88	14:04:39.702	home page 2-88	HTTP Request	21018	✓	1026	298	21018	17237
89	14:04:39.675	home page 2-85	HTTP Request	21023	✓	1026	298	21023	17198
90	14:04:39.622	home page 2-80	HTTP Request	21129	✓	1026	298	21129	17138
91	14:04:39.675	home page 2-84	HTTP Request	21324	✓	1026	298	21324	17182
92	14:04:39.751	home page 2-93	HTTP Request	21384	✓	1026	298	21384	17167
93	14:04:39.773	home page 2-95	HTTP Request	21510	✓	1026	298	21510	17173
94	14:04:39.793	home page 2-97	HTTP Request	21589	✓	1026	298	21588	17208
95	14:04:39.823	home page 2-100	HTTP Request	21791	✓	1026	298	21791	17208
96	14:04:39.783	home page 2-96	HTTP Request	22008	✓	1026	298	22008	17263
97	14:04:39.813	home page 2-99	HTTP Request	22204	✓	1026	298	22204	17236
98	14:04:39.803	home page 2-98	HTTP Request	22404	✓	1026	298		

Scroll automatically? Child samples? No of Samples: 100 Latest Sample: 49589 Average: 16331 Deviation: 1701

SkyLynx Loading testing

- SkyLynx LOG IN
 - HTTP Request
 - Log_in View Results Tree
 - Log_in result table
 - Graph Results
 - Response Time Graph
- home page
 - HTTP Request
 - View Results Tree
 - View Results in Table
 - Summary Report**
 - View Results Tree
 - View Results in Table
- Filter and Sort Page
- sign_up page
- booking page
- payment page

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	18231	15515	49589	3701.81	1.00%	2.0/sec	2.05	0.57	1054.4
TOTAL	100	18231	15515	49589	3701.81	1.00%	2.0/sec	2.05	0.57	1054.4

● 500 users: -

File Edit Search Run Options Tools Help

Test Plan

Home Page Search

- HTTP Request
 - Summary Report
 - Log_in View Results Tree
 - Log_in result table
 - Graph Results
 - Response Time Graph

Thread Group

Name: Home_Page_Search

Comments:

Action to be taken after a Sampler error

Continue Start Next Thread Loop Stop Thread Stop Test Stop Test Now

Thread Properties

Number of Threads (users): 500

Ramp-up period (seconds): 1

Loop Count: Infinite 1

Same user on each iteration

Delay Thread creation until needed

Specify Thread lifetime

Duration (seconds):

Startup delay (seconds):

00:00:42 0 0/500

The screenshot shows the JMeter interface with the 'Test Plan' tree on the left. The 'Home Page Search' plan is selected, and its 'Log in result table' item is highlighted. The main area displays the 'View Results in Table' window with the following details:

- Name: Log.in result table
- Comments: Write results to file / Read from file
- Filename: C:\Users\lsha\Downloads\apache-jmeter-5.6.3\log_testing1.csv

The table lists 26 samples, each representing an HTTP request to 'Home Page...'. The columns include Sample #, Start Time, Thread Name, Label, Sample Time, Status, Bytes, Sent Bytes, Latency, and Connect Time. Most requests are successful (Status 200), while some fail (Status 404). The last sample is a summary row.

Sample #	Start Time	Thread Name	Label	Sample Time(...)	Status	Bytes	Sent Bytes	Latency	Connect Time...
231	17:37:06.547	Home_Page_...	HTTP Request	36455	✓	1028	276	36455	36403
232	17:37:06.520	Home_Page_...	HTTP Request	36482	✓	1028	276	36482	36425
233	17:37:06.470	Home_Page_...	HTTP Request	36532	✓	1028	276	36532	36467
234	17:37:06.544	Home_Page_...	HTTP Request	36477	✓	1028	276	36477	36406
235	17:37:06.549	Home_Page_...	HTTP Request	36472	✓	1028	276	36472	36403
236	17:37:06.524	Home_Page_...	HTTP Request	36497	✓	1028	276	36497	36429
237	17:37:06.518	Home_Page_...	HTTP Request	36503	✓	1028	276	36503	36432
238	17:37:06.525	Home_Page_...	HTTP Request	36496	✓	1028	276	36496	36423
239	17:37:06.510	Home_Page_...	HTTP Request	36511	✓	1028	276	36511	36440
240	17:37:06.532	Home_Page_...	HTTP Request	36489	✗	1028	276	36489	36420
241	17:37:06.515	Home_Page_...	HTTP Request	36507	✓	1028	276	36507	36433
242	17:37:06.328	Home_Page_...	HTTP Request	36818	✓	1028	276	36818	36676
243	17:37:06.554	Home_Page_...	HTTP Request	42097	✗	2868	0	0	42097
244	17:37:06.570	Home_Page_...	HTTP Request	42081	✗	2868	0	0	42081
245	17:37:06.545	Home_Page_...	HTTP Request	42106	✗	2868	0	0	42106
246	17:37:06.578	Home_Page_...	HTTP Request	42073	✗	2868	0	0	42073
247	17:37:06.574	Home_Page_...	HTTP Request	42077	✗	2868	0	0	42077
248	17:37:06.572	Home_Page_...	HTTP Request	42079	✗	2868	0	0	42079
249	17:37:06.568	Home_Page_...	HTTP Request	42083	✗	2868	0	0	42083
250	17:37:06.576	Home_Page_...	HTTP Request	42076	✗	2868	0	0	42076
251	17:37:06.562	Home_Page_...	HTTP Request	42090	✗	2868	0	0	42090
252	17:37:06.574	Home_Page_...	HTTP Request	42080	✗	2868	0	0	42080

The screenshot shows the JMeter interface with the 'Summary Report' selected in the left sidebar under the 'Test Plan' tree. The main area displays the 'Summary Report' results table. The table has the following columns: Label, # Samples, Average, Min, Max, Std. Dev., Error %, Throughput, Received KB/s, Sent KB/sec, and Avg. Bytes. The data for the 'HTTP Request' row is: # Samples 500, Average 30934, Min 80, Max 42118, Std. Dev. 17095.77, Error % 51.60%, Throughput 11.6/sec, Received KB/s 22.39, Sent KB/sec 1.51, and Avg. Bytes 1977.2. The 'TOTAL' row has identical values. At the bottom of the table, there are buttons for 'Browse...', 'Log/Display Only:', 'Errors', 'Successes', and 'Configure'.

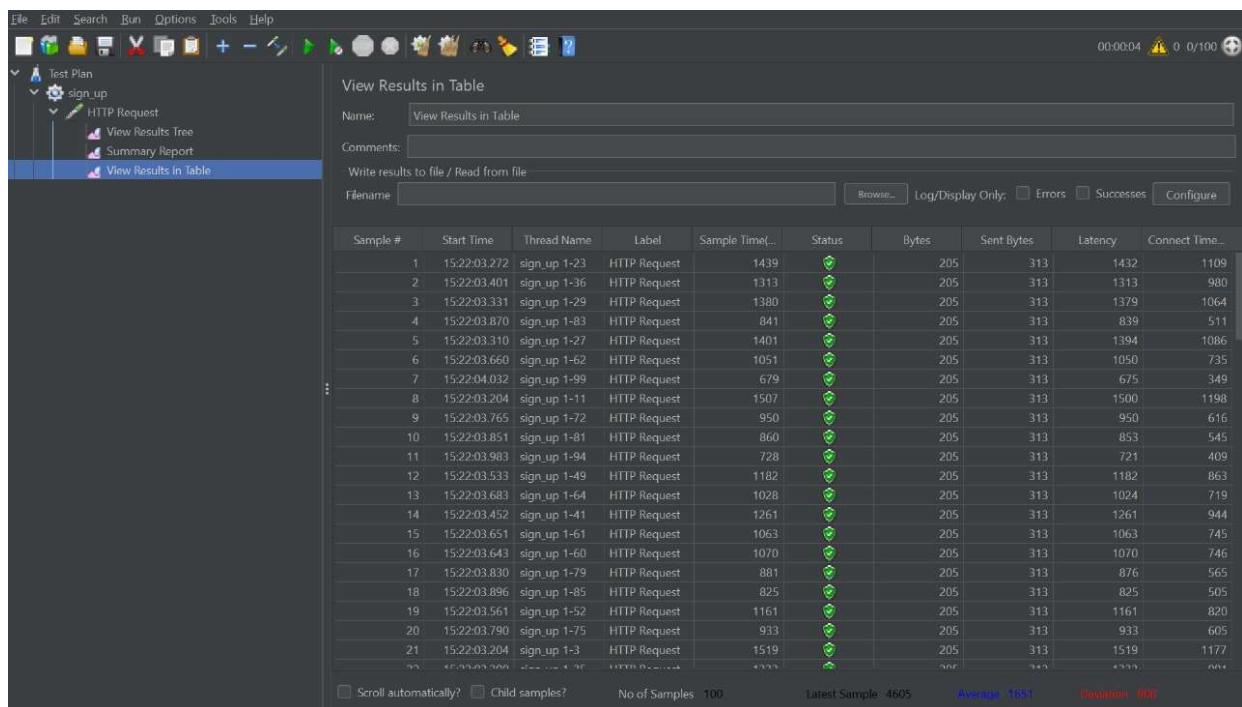
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/s	Sent KB/sec	Avg. Bytes
HTTP Request	500	30934	80	42118	17095.77	51.60%	11.6/sec	22.39	1.51	1977.2
TOTAL	500	30934	80	42118	17095.77	51.60%	11.6/sec	22.39	1.51	1977.2

- **Testing Signup Page**

POST request to PATH

'it314-g27-flightbookingsystem.onrender.com/signup'

- **100 users:**



Screenshot of JMeter's Summary Report results table:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	100	1651	679	4605	908.95	0.00%	21.2/sec	4.24	6.47	205.0
TOTAL	100	1651	679	4605	908.95	0.00%	21.2/sec	4.24	6.47	205.0

- 500 users:**

Screenshot of JMeter's View Results in Table results table:

Sample #	Start Time	Thread Name	Label	Sample Time(..)	Status	Bytes	Sent Bytes	Latency	Connect Time..
227	15:26:18.006	sign_up 1-159	HTTP Request	37031	✓	205	313	37031	36160
228	15:26:18.634	sign_up 1-173	HTTP Request	37004	✓	205	313	37004	36148
229	15:26:18.667	sign_up 1-190	HTTP Request	37007	✓	205	313	37007	36153
230	15:26:18.694	sign_up 1-188	HTTP Request	37035	✓	205	313	37035	36168
231	15:26:18.697	sign_up 1-205	HTTP Request	37017	✓	205	313	37017	36154
232	15:26:18.713	sign_up 1-213	HTTP Request	37006	✓	205	313	37006	36149
233	15:26:18.727	sign_up 1-219	HTTP Request	37012	✓	205	313	37012	36154
234	15:26:18.717	sign_up 1-215	HTTP Request	37067	✓	205	313	37067	36179
235	15:26:18.749	sign_up 1-231	HTTP Request	42108	✗	2868	0	0	42108
236	15:26:18.768	sign_up 1-238	HTTP Request	42105	✗	2868	0	0	42105
237	15:26:18.769	sign_up 1-241	HTTP Request	42104	✗	2868	0	0	42104
238	15:26:18.760	sign_up 1-236	HTTP Request	42113	✗	2868	0	0	42113
239	15:26:18.773	sign_up 1-243	HTTP Request	42100	✗	2868	0	0	42100
240	15:26:18.768	sign_up 1-239	HTTP Request	42105	✗	2868	0	0	42105
241	15:26:18.775	sign_up 1-244	HTTP Request	42099	✗	2868	0	0	42099
242	15:26:18.777	sign_up 1-245	HTTP Request	42096	✗	2868	0	0	42096
243	15:26:18.768	sign_up 1-240	HTTP Request	42106	✗	2868	0	0	42106
244	15:26:18.768	sign_up 1-237	HTTP Request	42106	✗	2868	0	0	42106
245	15:26:18.771	sign_up 1-242	HTTP Request	42103	✗	2868	0	0	42103
246	15:26:18.789	sign_up 1-251	HTTP Request	42100	✗	2868	0	0	42100
247	15:26:18.788	sign_up 1-250	HTTP Request	42101	✗	2868	0	0	42101
248	15:26:18.780	sign_up 1-246	HTTP Request	42105	✗	2868	0	0	42105

File Edit Search Run Options Tools Help

Test Plan sign.up

HTTP Request

View Results Tree

Summary Report

View Results in Table

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

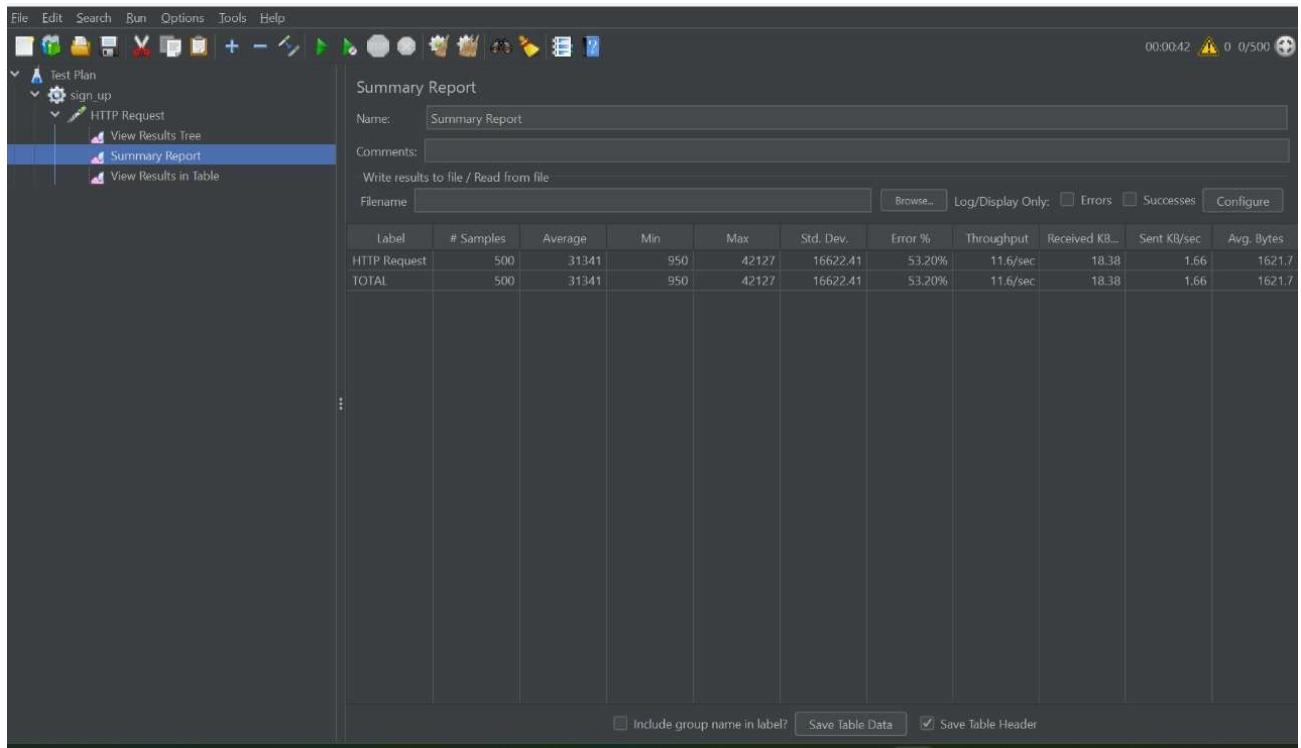
Filename:

Label # Samples Average Min Max Std. Dev. Error % Throughput Received KB/sec Sent KB/sec Avg. Bytes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	500	31341	950	42127	16622.41	53.20%	11.6/sec	18.38	1.66	1621.7
TOTAL	500	31341	950	42127	16622.41	53.20%	11.6/sec	18.38	1.66	1621.7

Include group name in label? Save Table Data Save Table Header

00:00:42 0 0/500



File Edit Search Run Options Tools Help

Test Plan sign.up

HTTP Request

View Results Tree

Summary Report

View Results in Table

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

Search: Case sensitive Regular exp.

Text Sampler result Request Response data

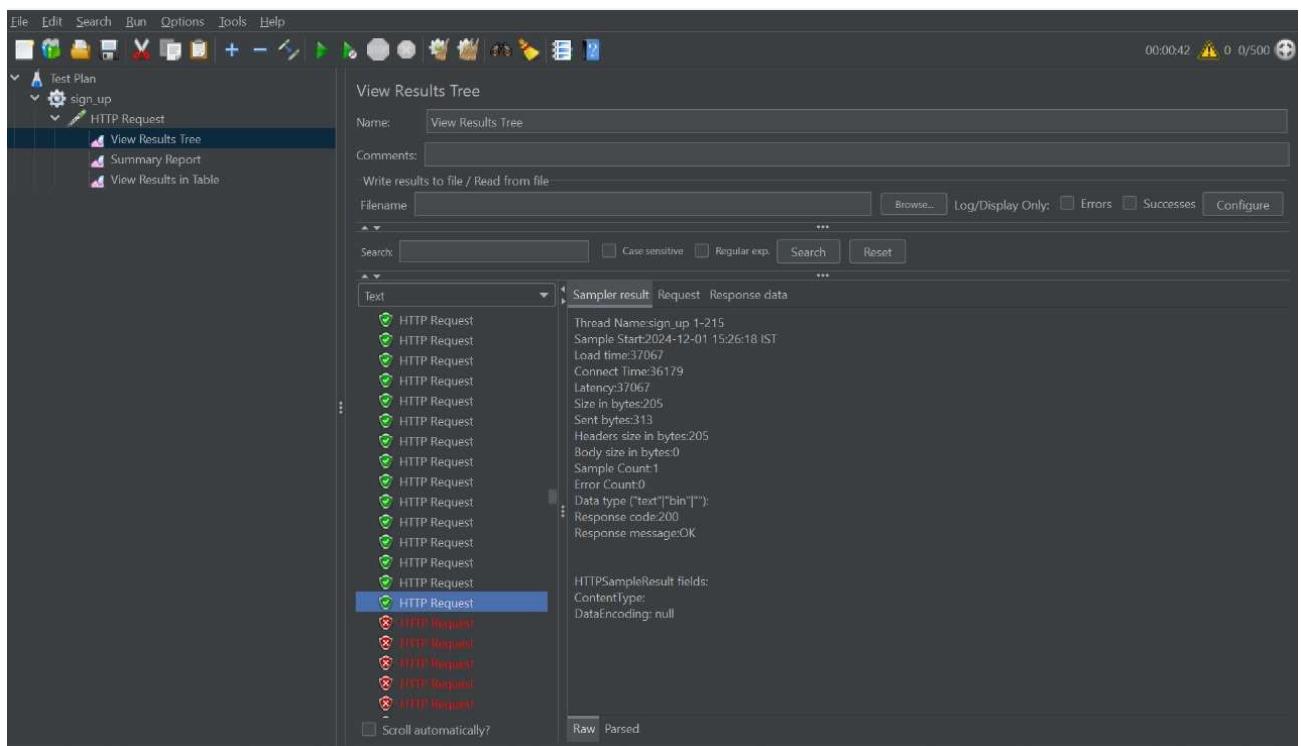
HTTP Request Thread Name:sign_up 1-215 Sample Start:2024-12-01 15:26:18 IST Load time:37067 Connect Time:36179 Latency:37067 Size in bytes:205 Sent bytes:313 Headers size in bytes:205 Body size in bytes:0 Sample Count:1 Error Count:0 Data type ("text"|"bin"): Response code:200 Response message:OK

HTTPSampleResult fields: ContentType: DataEncoding: null

HTTP Request

Raw Parsed

Scroll automatically?

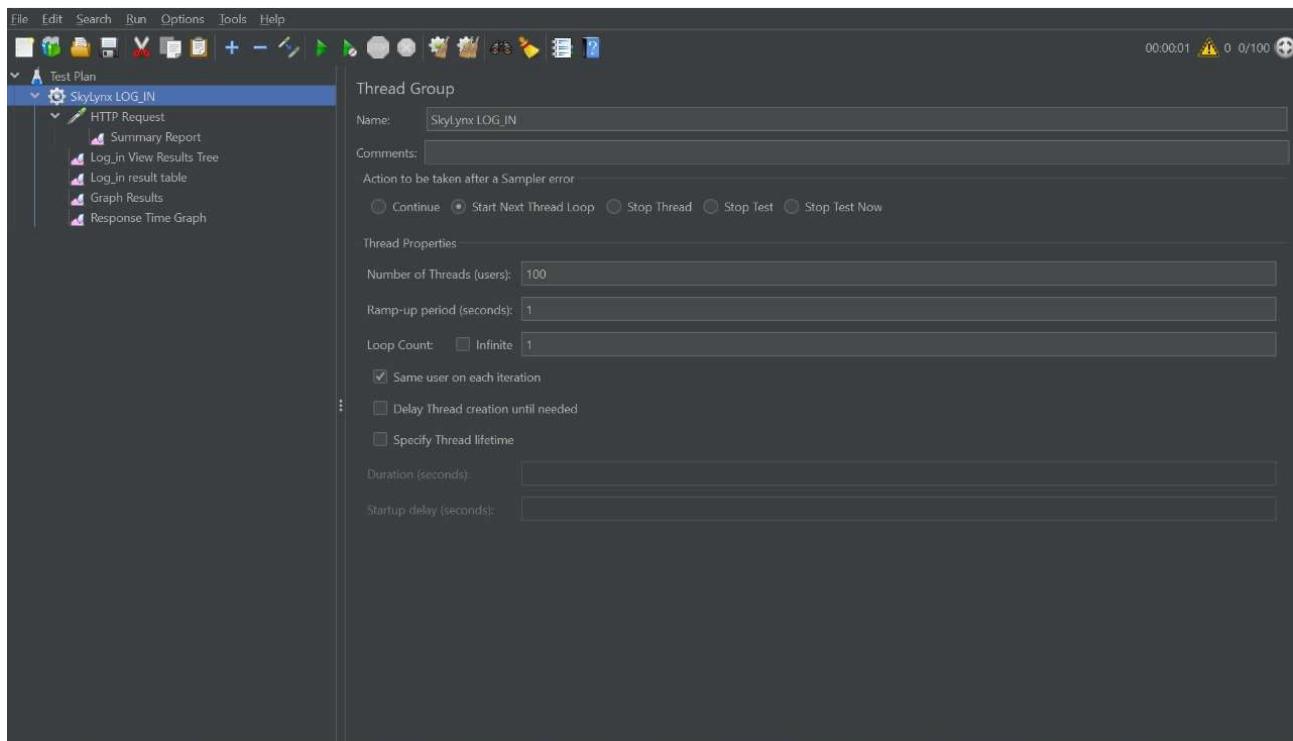


- **Testing login Page**

GET request to PATH

'it314-g27-flightbookingsystem.onrender.com/login'

- **100 users:**



Sample #	Start Time	Thread Name	Label	Sample Time(...)	Status	Bytes	Sent Bytes	Latency	Connect Time...
79	15:32:53.000	SkyLynx LOG ...	HTTP Request	71	✓	1027	283	78	42
80	15:32:53.108	SkyLynx LOG ...	HTTP Request	78	✓	1027	283	85	42
81	15:32:53.118	SkyLynx LOG ...	HTTP Request	85	✓	1027	283	85	45
82	15:32:53.128	SkyLynx LOG ...	HTTP Request	85	✓	1027	283	85	45
83	15:32:53.138	SkyLynx LOG ...	HTTP Request	77	✓	1027	283	77	39
84	15:32:53.149	SkyLynx LOG ...	HTTP Request	73	✓	1027	283	73	40
85	15:32:53.158	SkyLynx LOG ...	HTTP Request	87	✓	1027	283	87	45
86	15:32:53.178	SkyLynx LOG ...	HTTP Request	82	✓	1027	283	82	40
87	15:32:53.168	SkyLynx LOG ...	HTTP Request	92	✓	1027	283	92	52
88	15:32:53.188	SkyLynx LOG ...	HTTP Request	84	✓	1027	283	84	41
89	15:32:53.197	SkyLynx LOG ...	HTTP Request	86	✓	1027	283	86	48
90	15:32:53.210	SkyLynx LOG ...	HTTP Request	89	✓	1027	283	89	53
91	15:32:53.229	SkyLynx LOG ...	HTTP Request	86	✓	1027	283	86	45
92	15:32:53.219	SkyLynx LOG ...	HTTP Request	98	✓	1027	283	98	54
93	15:32:53.239	SkyLynx LOG ...	HTTP Request	86	✓	1027	283	84	42
94	15:32:53.248	SkyLynx LOG ...	HTTP Request	85	✓	1027	283	85	39
95	15:32:53.259	SkyLynx LOG ...	HTTP Request	81	✓	1027	283	81	40
96	15:32:53.269	SkyLynx LOG ...	HTTP Request	101	✓	1027	283	101	56
97	15:32:53.289	SkyLynx LOG ...	HTTP Request	84	✓	1027	283	84	42
98	15:32:53.279	SkyLynx LOG ...	HTTP Request	96	✓	1027	283	96	40
99	15:32:53.298	SkyLynx LOG ...	HTTP Request	86	✓	1027	283	86	48
100	15:32:53.308	SkyLynx LOG ...	HTTP Request	102	✓	1027	283	102	59

The screenshot shows the JMeter Test Plan interface. The left sidebar displays a tree structure under 'Test Plan': 'Skylynx LOG IN' has a child 'HTTP Request'. The 'HTTP Request' node is expanded, showing four options: 'Log in View Results Tree', 'Log in result table', 'Graph Results', and 'Summary Report'. The 'Summary Report' option is selected and highlighted with a blue background. The main panel is titled 'Summary Report' and contains the following fields:

- Name: Summary Report
- Comments: (empty)
- Write results to file / Read from file
- Filename: (empty)
- Browse... button
- Log/Display Only:
- Errors
- Successes
- Configure button

Below these fields is a table showing performance metrics:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB...	Sent KB/sec	Avg. Bytes
HTTP Request	100	90	73	123	9.74	0.00%	91.6/sec	91.84	25.31	1027.0
TOTAL	100	90	73	123	9.74	0.00%	91.6/sec	91.84	25.31	1027.0

At the bottom of the main panel, there are three checkboxes: 'Include group name in label?' (unchecked), 'Save Table Data' (unchecked), and 'Save Table Header' (checked).

The screenshot shows the JMeter Test Plan interface. The left sidebar displays a tree structure under the 'Test Plan' node, with 'SkyLynx LOG_IN' expanded, showing 'HTTP Request', 'Summary Report', 'Log_in View Results Tree' (which is selected), 'Log_in result table', 'Graph Results', and 'Response Time Graph'. The main panel is titled 'View Results Tree' and contains the following fields:

- Name: Log_in View Results Tree
- Comments: [empty]
- Write results to file / Read from file: [empty]
- Filename: [empty]
- Log/Display Only: Errors Successes Configure

Below these fields is a search bar with options: Search, Case sensitive, Regular exp., and Reset.

The results pane shows a hierarchical tree of 'HTTP Request' sampler results. Each node has a green checkmark icon. The first node's details are expanded:

- Sampler result: Thread Name: SkyLynx LOG_IN 1-97
Sample Start: 2024-12-01 15:32:53 IST
Load time: 96
Connect Time: 40
Latency: 96
Size in bytes: 1027
Sent bytes: 283
Header size in bytes: 544
Body size in bytes: 483
Sample Count: 1
Error Count: 0
Data type: ("text"|"bin"|"") : text
Response code: 200
Response message: OK
- HTTPSamplerResult fields:
ContentType: text/html; charset=utf-8
DataEncoding: utf-8

At the bottom of the results pane, there are buttons for 'Raw' and 'Parsed' and a checkbox for 'Scroll automatically?'. The status bar at the top right shows '00:00:01' and some warning icons.

- **500 users:**

JMeter Test Plan Overview:

- Test Plan: SkyLynx LOG.IN
- HTTP Request: Log_in result table
- Summary Report
- Log_in View Results Tree
- Graph Results
- Response Time Graph

View Results in Table (Log_in result table):

Name: Log_in result table

Comments: Write results to file / Read from file

Filename: C:\Users\lsha\Downloads\apache-jmeter-5.6.3\log_testing1.csv

Sample #	Start Time	Thread Name	Label	Sample Time(...)	Status	Bytes	Sent Bytes	Latency	Connect Time...
228	15:35:09.701	SkyLynx LOG ...	HTTP Request	36179	✓	1028	283	36179	36141
229	15:35:09.695	SkyLynx LOG ...	HTTP Request	36188	✓	1028	283	36188	36150
230	15:35:09.691	SkyLynx LOG ...	HTTP Request	36192	✓	1028	283	36192	36155
231	15:35:09.684	SkyLynx LOG ...	HTTP Request	36200	✓	1028	283	36200	36141
232	15:35:09.697	SkyLynx LOG ...	HTTP Request	36190	✓	1028	283	36190	36143
233	15:35:09.706	SkyLynx LOG ...	HTTP Request	36186	✓	1028	283	36186	36142
234	15:35:09.682	SkyLynx LOG ...	HTTP Request	36211	✓	1028	283	36211	36166
235	15:35:09.662	SkyLynx LOG ...	HTTP Request	36231	✓	1028	283	36231	36162
236	15:35:09.686	SkyLynx LOG ...	HTTP Request	36210	✓	1028	283	36210	36167
237	15:35:09.689	SkyLynx LOG ...	HTTP Request	36211	✓	1028	283	36211	36168
238	15:35:09.679	SkyLynx LOG ...	HTTP Request	36225	✓	1028	283	36225	36179
239	15:35:09.734	SkyLynx LOG ...	HTTP Request	36179	✓	1028	283	36179	36137
240	15:35:09.693	SkyLynx LOG ...	HTTP Request	36229	✓	1028	283	36229	36172
241	15:35:09.699	SkyLynx LOG ...	HTTP Request	42104	✗	2868	0	0	42104
242	15:35:09.721	SkyLynx LOG ...	HTTP Request	42097	✗	2868	0	0	42097
243	15:35:09.736	SkyLynx LOG ...	HTTP Request	42082	✗	2868	0	0	42082
244	15:35:09.726	SkyLynx LOG ...	HTTP Request	42093	✗	2868	0	0	42092
245	15:35:09.708	SkyLynx LOG ...	HTTP Request	42110	✗	2868	0	0	42110
246	15:35:09.724	SkyLynx LOG ...	HTTP Request	42094	✗	2868	0	0	42094
247	15:35:09.703	SkyLynx LOG ...	HTTP Request	42117	✗	2868	0	0	42117
248	15:35:09.718	SkyLynx LOG ...	HTTP Request	42101	✗	2868	0	0	42101
...

No of Samples: 500 Latest Sample: 42096 Average: 30682 Deviation: 17108

Scroll automatically? Child samples?

JMeter Test Plan Overview:

- Test Plan: SkyLynx LOG.IN
- HTTP Request: Summary Report
- Log_in View Results Tree
- Log_in result table
- Graph Results
- Response Time Graph

Summary Report:

Name: Summary Report

Comments: Write results to file / Read from file

Filename:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB...	Sent KB/sec	Avg. Bytes
HTTP Request	500	30682	159	42121	17158.58	52.00%	11.6/sec	22.49	1.54	1984.8
TOTAL	500	30682	159	42121	17158.58	52.00%	11.6/sec	22.49	1.54	1984.8

Include group name in label? Save Table Data Save Table Header

The screenshot shows the JMeter interface with the 'View Results Tree' listener selected in the Test Plan tree. The main panel displays a failed HTTP request with the following details:

- Sampler result:** Request Response data
- Thread Name:** Skylynx LOG IN 1-238
- Sample Start:** 2024-12-01 15:35:09 IST
- Load time:** 42104
- Connect Time:** 42104
- Latency:** 0
- Size in bytes:** 2868
- Sent bytes:** 0
- Headers size in bytes:** 0
- Body size in bytes:** 2868
- Sample Count:** 1
- Error Count:** 1
- Data type:** ("text"|"bin")"text"
- Response code:** Non HTTP response code: org.apache.http.conn.HttpHostConnectException
- Response message:** Non HTTP response message: Connect to it314-g27-flightbookingsystem.onrender.com:443 [it314-g27-flightbookingsystem.onrender.com/216.24.57.4, it314-g27-flightbookingsystem.onrender.com/216.24.57.252] failed: Connection timed out: connect
- HTTPSampleResult fields:**
 - ContentType: null
 - DataEncoding: null

- **Testing filter and sort Page**

GET request to PATH

'it314-g27-flightbookingsystem.onrender.com/filghts'

- **100 users:**

The screenshot shows the JMeter interface with a 'Filter and Sort Page' thread group selected in the Test Plan tree. The configuration includes:

- Name:** Filter and Sort Page
- Action to be taken after a Sampler error:** Continue (radio button selected)
- Thread Properties:**
 - Number of Threads (users):** 100
 - Ramp-up period (seconds):** 1
 - Loop Count:** Infinite (checkbox selected)
 - Same user on each iteration:** checked
 - Delay Thread creation until needed:** unchecked
 - Specify Thread lifetime:** unchecked
- Duration (seconds):** (empty field)
- Startup delay (seconds):** (empty field)

Test Plan

- Filter and Sort Page
 - HTTP Request
 - Graph Results
 - View Results in Table**
 - View Results Tree
 - Summary Report
 - Response Time Graph

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	15:47:45.641	Filter and Sort Pag...	HTTP Request	110	✓	1027	407	110	63
2	15:47:45.652	Filter and Sort Pag...	HTTP Request	106	✓	1027	407	106	61
3	15:47:45.663	Filter and Sort Pag...	HTTP Request	99	✓	1027	407	99	56
4	15:47:45.684	Filter and Sort Pag...	HTTP Request	88	✓	1027	407	88	51
5	15:47:45.673	Filter and Sort Pag...	HTTP Request	106	✓	1027	407	106	46
6	15:47:45.704	Filter and Sort Pag...	HTTP Request	91	✓	1027	407	91	46
7	15:47:45.693	Filter and Sort Pag...	HTTP Request	102	✓	1027	407	102	55
8	15:47:45.714	Filter and Sort Pag...	HTTP Request	86	✓	1027	407	86	48
9	15:47:45.724	Filter and Sort Pag...	HTTP Request	85	✓	1027	407	84	46
10	15:47:45.754	Filter and Sort Pag...	HTTP Request	80	✓	1027	407	79	46
11	15:47:45.733	Filter and Sort Pag...	HTTP Request	106	✓	1027	407	106	54
12	15:47:45.744	Filter and Sort Pag...	HTTP Request	95	✓	1027	407	95	54
13	15:47:45.764	Filter and Sort Pag...	HTTP Request	79	✓	1027	407	79	45
14	15:47:45.774	Filter and Sort Pag...	HTTP Request	86	✓	1027	407	86	43
15	15:47:45.785	Filter and Sort Pag...	HTTP Request	75	✓	1027	407	75	39
16	15:47:45.794	Filter and Sort Pag...	HTTP Request	95	✓	1027	407	95	56
17	15:47:45.805	Filter and Sort Pag...	HTTP Request	97	✓	1027	407	97	58
18	15:47:45.825	Filter and Sort Pag...	HTTP Request	83	✓	1027	407	83	43
19	15:47:45.813	Filter and Sort Pag...	HTTP Request	93	✓	1027	407	93	48
20	15:47:45.835	Filter and Sort Pag...	HTTP Request	84	✓	1027	407	84	45
21	15:47:45.856	Filter and Sort Pag...	HTTP Request	114	✓	1027	407	114	55
22	15:47:45.875	Filter and Sort Pag...	HTTP Request	95	✓	1027	407	95	47
23	15:47:45.866	Filter and Sort Pag...	HTTP Request	104	✓	1027	407	104	45
24	15:47:45.896	Filter and Sort Pag...	HTTP Request	82	✓	1027	407	82	45
25	15:47:45.886	Filter and Sort Pag...	HTTP Request	125	✓	1027	407	125	44

Test Plan

- Filter and Sort Page
 - HTTP Request
 - Graph Results
 - View Results in Table
 - View Results Tree**
 - Summary Report
 - Response Time Graph

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

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

Search: ...

Text Sampler result Request Response data

Response Body Response headers

```
<!doctype html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<link rel="icon" type="image/svg+xml" href="/assets/SkyLynx_icon-88b4a9eb.jpg" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>SkyLynx</title>
<script type="module" crossorigin src="/assets/index-e6ccde9a5.js"></script>
<link rel="stylesheet" href="/assets/index-8f4d6661.css" />
</head>
<body>
<div id="root"></div>
</body>
</html>
```

Find Case sensitive Regular exp.

Test Plan

- Filter and Sort Page
- HTTP Request
 - Graph Results
 - View Results in Table
 - View Results Tree
 - Summary Report**
 - Response Time Graph

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	100	102	75	163	17.52	0.00%	93.7/sec	94.00	37.25	1027.0
TOTAL	100	102	75	163	17.52	0.00%	93.7/sec	94.00	37.25	1027.0

- **500 users:**

Test Plan

- Filter and Sort Page
- HTTP Request
 - Graph Results
 - View Results in Table**
 - View Results Tree
 - Summary Report
 - Response Time Graph

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename:

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
213	155302.730	Filter and Sort Pag...	HTTP Request	36208	✓	1027	407	36208	36157
214	155302.761	Filter and Sort Pag...	HTTP Request	36177	✓	1027	407	36177	36138
215	155302.752	Filter and Sort Pag...	HTTP Request	36189	✓	1027	407	36188	36135
216	155302.759	Filter and Sort Pag...	HTTP Request	36184	✓	1027	407	36184	36140
217	155302.771	Filter and Sort Pag...	HTTP Request	36172	✓	1027	407	36172	36128
218	155302.754	Filter and Sort Pag...	HTTP Request	36206	✓	1027	407	36205	36149
219	155302.765	Filter and Sort Pag...	HTTP Request	36197	✓	1027	407	36196	36153
220	155302.754	Filter and Sort Pag...	HTTP Request	36206	✓	1027	407	36205	36149
221	155302.727	Filter and Sort Pag...	HTTP Request	36233	✓	1027	407	36232	36160
222	155302.764	Filter and Sort Pag...	HTTP Request	36196	✓	1027	407	36196	36150
223	155302.761	Filter and Sort Pag...	HTTP Request	42091	✗	2868	0	0	42091
224	155302.761	Filter and Sort Pag...	HTTP Request	42089	✗	2868	0	0	42089
225	155302.766	Filter and Sort Pag...	HTTP Request	42086	✗	2868	0	0	42086
226	155302.761	Filter and Sort Pag...	HTTP Request	42091	✗	2868	0	0	42091
227	155302.761	Filter and Sort Pag...	HTTP Request	42091	✗	2868	0	0	42091
228	155302.761	Filter and Sort Pag...	HTTP Request	42090	✗	2868	0	0	42090
229	155302.761	Filter and Sort Pag...	HTTP Request	42091	✗	2868	0	0	42091
230	155302.769	Filter and Sort Pag...	HTTP Request	42083	✗	2868	0	0	42083
231	155302.793	Filter and Sort Pag...	HTTP Request	42078	✗	2868	0	0	42078
232	155302.777	Filter and Sort Pag...	HTTP Request	42094	✗	2868	0	0	42094
233	155302.776	Filter and Sort Pag...	HTTP Request	42095	✗	2868	0	0	42095
234	155302.795	Filter and Sort Pag...	HTTP Request	42076	✗	2868	0	0	42076
235	155302.796	Filter and Sort Pag...	HTTP Request	42075	✗	2868	0	0	42075
236	155302.778	Filter and Sort Pag...	HTTP Request	42093	✗	2868	0	0	42093

Test Plan

- Filter and Sort Page
- HTTP Request
 - Graph Results
 - View Results in Table
 - View Results Tree**
 - Summary Report
 - Response Time Graph

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

Search: Case sensitive Regular exp.

Text

Sampler result Request Response data

Response Body Response headers

```
<!doctype html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<link rel="icon" type="image/svg+xml" href="/assets/SkyLynx.icon-88b4a9eb.jpg" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>SkyLynx</title>
<script type="module" crossorigin src="/assets/index-e6cde9a5.js"></script>
</head>
<body>
<div id="root"></div>
</body>
</html>
```

Test Plan

- Filter and Sort Page
- HTTP Request
 - Graph Results
 - View Results in Table
 - Summary Report**
 - Response Time Graph

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	500	32025	474	42097	16296.55	55.60%	11.6/sec	23.43	2.05	2066.0
TOTAL	500	32025	474	42097	16296.55	55.60%	11.6/sec	23.43	2.05	2066.0

- **Testing booking Page**

GET request to PATH

'it314-g27-flightbookingsystem.onrender.com/filghts'

- **100 users:**

The screenshot shows the JMeter Test Plan interface. On the left, under the 'Test Plan' tree, there is a 'booking page' entry which contains an 'HTTP Request' sampler. This sampler has four associated listeners: 'Graph Results', 'View Results Tree', 'View Results in Table', and 'Response Time Graph'. The main panel displays the 'Thread Group' configuration for this sampler. The 'Name' field is set to 'booking page'. Under 'Thread Properties', the 'Number of Threads (users)' is set to '100'. The 'Ramp-up period (seconds)' is set to '1'. The 'Loop Count' is set to '1'. There are three checked options: 'Same user on each iteration', 'Delay Thread creation until needed', and 'Specify Thread lifetime'. The 'Duration (seconds)' and 'Startup delay (seconds)' fields are empty.

The screenshot shows the 'View Results in Table' listener results. The table has 25 rows, each representing a sample taken during the test. The columns are: Sample #, Start Time, Thread Name, Label, Sample Time(ms), Status, Bytes, Sent Bytes, Latency, and Connect Time(ms). The data is as follows:

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
1	15:58:27.304	booking page 1-5	HTTP Request	613	OK	1110	422	612	194
2	15:58:27.323	booking page 1-7	HTTP Request	594	OK	1110	422	594	188
3	15:58:27.396	booking page 1-14	HTTP Request	521	OK	1110	422	521	103
4	15:58:27.396	booking page 1-9	HTTP Request	567	OK	1110	422	567	151
5	15:58:27.294	booking page 1-4	HTTP Request	624	OK	1110	422	624	200
6	15:58:27.355	booking page 1-10	HTTP Request	565	OK	1110	422	565	164
7	15:58:27.427	booking page 1-17	HTTP Request	493	OK	1110	422	493	72
8	15:58:27.436	booking page 1-18	HTTP Request	484	OK	1110	422	484	71
9	15:58:27.287	booking page 1-3	HTTP Request	633	OK	1110	422	633	224
10	15:58:27.415	booking page 1-16	HTTP Request	506	OK	1110	422	506	85
11	15:58:27.405	booking page 1-15	HTTP Request	517	OK	1110	422	517	114
12	15:58:27.366	booking page 1-11	HTTP Request	556	OK	1110	422	556	145
13	15:58:27.273	booking page 1-2	HTTP Request	675	OK	1110	422	675	234
14	15:58:27.466	booking page 1-21	HTTP Request	507	OK	1110	422	507	140
15	15:58:27.445	booking page 1-19	HTTP Request	528	OK	1110	422	528	161
16	15:58:27.525	booking page 1-27	HTTP Request	601	OK	1110	422	601	76
17	15:58:27.457	booking page 1-20	HTTP Request	669	OK	1110	422	669	148
18	15:58:27.495	booking page 1-24	HTTP Request	631	OK	1110	422	631	111
19	15:58:27.556	booking page 1-29	HTTP Request	570	OK	1110	422	570	56
20	15:58:27.318	booking page 1-6	HTTP Request	808	OK	1110	422	808	181
21	15:58:27.487	booking page 1-23	HTTP Request	639	OK	1110	422	639	119
22	15:58:27.520	booking page 1-26	HTTP Request	606	OK	1110	422	606	85
23	15:58:27.557	booking page 1-30	HTTP Request	570	OK	1110	422	570	48
24	15:58:27.610	booking page 1-35	HTTP Request	661	OK	1110	422	661	55
25	15:58:27.567	booking page 1-21	HTTP Request	714	OK	1110	422	714	48

Test Plan

- booking page
 - HTTP Request
 - Graph Results
 - View Results Tree
 - View Results in Table
 - Response Time Graph
 - Summary Report**

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	100	165	77	1049	158.35	0.00%	57.1/sec	57.55	23.55	1031.3
TOTAL	100	165	77	1049	158.35	0.00%	57.1/sec	57.55	23.55	1031.3

Test Plan

- booking page
 - HTTP Request
 - Graph Results
 - View Results Tree**
 - View Results in Table
 - Response Time Graph
 - Summary Report

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

Search: Case sensitive Regular exp.

Text

Response Body Response headers

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <link rel="icon" type="image/svg+xml" href="/assets/SkyLynx/icon-98bA9eb.jpg" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>SkyLynx</title>
  <script type="module" crossorigin src="/assets/index-e6cde9a5.js"></script>
  <link rel="stylesheet" href="/assets/index-8f4d6661.css" />
</head>
<body>
  <div id="root"></div>
</body>
</html>
```

- **500 users:**

Test Plan

- booking page
 - HTTP Request
 - Graph Results
 - View Results Tree
 - View Results in Table**
 - Response Time Graph
 - Summary Report

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename:

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
223	16:01:38.735	booking page 1-2...	HTTP Request	36231	✓	1028	422	36231	36183
224	16:01:38.732	booking page 1-2...	HTTP Request	36234	✓	1028	422	36234	36189
225	16:01:38.712	booking page 1-2...	HTTP Request	36254	✓	1028	422	36254	36206
226	16:01:38.738	booking page 1-2...	HTTP Request	36229	✓	1028	422	36229	36180
227	16:01:38.719	booking page 1-2...	HTTP Request	36253	✓	1028	422	36253	36202
228	16:01:38.740	booking page 1-2...	HTTP Request	36232	✓	1028	422	36232	36183
229	16:01:38.734	booking page 1-2...	HTTP Request	36238	✓	1028	422	36238	36191
230	16:01:38.714	booking page 1-2...	HTTP Request	36258	✓	1028	422	36258	36210
231	16:01:38.713	booking page 1-2...	HTTP Request	36263	✓	1028	422	36263	36211
232	16:01:38.753	booking page 1-2...	HTTP Request	36223	✓	1028	422	36223	36173
233	16:01:38.743	booking page 1-2...	HTTP Request	42077	✗	2868	0	0	42077
234	16:01:38.750	booking page 1-2...	HTTP Request	42070	✗	2868	0	0	42070
235	16:01:38.749	booking page 1-2...	HTTP Request	42071	✗	2868	0	0	42071
236	16:01:38.757	booking page 1-2...	HTTP Request	42063	✗	2868	0	0	42063
237	16:01:38.743	booking page 1-2...	HTTP Request	42077	✗	2868	0	0	42077
238	16:01:38.749	booking page 1-2...	HTTP Request	42074	✗	2868	0	0	42074
239	16:01:38.754	booking page 1-2...	HTTP Request	42070	✗	2868	0	0	42070
240	16:01:38.752	booking page 1-2...	HTTP Request	42072	✗	2868	0	0	42072
241	16:01:38.746	booking page 1-2...	HTTP Request	42094	✗	2868	0	0	42094
242	16:01:38.767	booking page 1-2...	HTTP Request	42073	✗	2868	0	0	42073
243	16:01:38.770	booking page 1-2...	HTTP Request	42070	✗	2868	0	0	42070
244	16:01:38.761	booking page 1-2...	HTTP Request	42094	✗	2868	0	0	42094
245	16:01:38.771	booking page 1-2...	HTTP Request	42084	✗	2868	0	0	42084
246	16:01:38.766	booking page 1-2...	HTTP Request	42089	✗	2868	0	0	42089

The screenshot shows the JMeter Test Plan interface. On the left, under 'Test Plan', there is a tree structure with 'booking page' expanded, showing 'HTTP Request' and several reporting options: 'Graph Results', 'View Results in Table', 'View Results Tree', 'Response Time Graph', and 'Summary Report'. The 'Summary Report' node is selected, highlighted in blue. The main panel displays a 'Summary Report' configuration window. It includes fields for 'Name' (Summary Report), 'Comments', 'Write results to file / Read from file', 'Filename', and 'Browse...'. Below these are buttons for 'Log/Display Only', 'Errors', 'Successes', and 'Configure'. A large table follows, showing performance metrics for 'HTTP Request' and 'TOTAL' across columns for Label, # Samples, Average, Min, Max, Std. Dev., Error %, Throughput, Received KB/sec, Sent KB/sec, and Avg. Bytes.

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	500	31052	230	42109	17041.49	53.60%	11.6/sec	22.83	2.22	2014.2
TOTAL	500	31052	230	42109	17041.49	53.60%	11.6/sec	22.83	2.22	2014.2

- **Testing payment Page**

POST request to PATH

'it314-g27-flightbookingsystem.onrender.com/payment'

- **100 users:**

The screenshot shows the JMeter Thread Group configuration. On the left, under 'Test Plan', there is a tree structure with 'payment page' expanded, showing 'HTTP Request' and several reporting options: 'View Results in Table', 'View Results Tree', 'Response Time Graph', and 'Graph Results'. The 'HTTP Request' node is selected, highlighted in blue. The main panel displays a 'Thread Group' configuration window. It includes fields for 'Name' (payment page), 'Comments', 'Action to be taken after a Sampler error' (radio buttons for Continue, Start Next Thread Loop, Stop Thread, Stop Test, and Stop Test Now, with Continue selected), and 'Thread Properties'. Under 'Thread Properties', there are settings for 'Number of Threads (users)' (100), 'Ramp-up period (seconds)' (1), 'Loop Count' (checkbox for Infinite, checked), 'Same user on each iteration' (checkbox checked), 'Delay Thread creation until needed' (checkbox unchecked), 'Specify Thread lifetime' (checkbox unchecked), 'Duration (seconds)' (checkbox unchecked), and 'Startup delay (seconds)' (checkbox unchecked).

Test Plan

- payment page
 - HTTP Request
 - View Results in Table**
 - View Results Tree
 - Response Time Graph
 - Graph Results
 - Summary Report

View Results in Table

Name: View Results in Table
Comments:
Write results to file / Read from file
Filename C:\Users\lsha\Downloads\apache-jmeter-5.6.3\payment_page_result_table.csv

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

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
35	16:06:13.265	payment page 1-3..	HTTP Request	475	✓	205	427	475	50
36	16:06:13.274	payment page 1-4..	HTTP Request	467	✓	205	427	467	66
37	16:06:13.255	payment page 1-3..	HTTP Request	487	✓	205	427	487	85
38	16:06:13.283	payment page 1-4..	HTTP Request	462	✓	205	427	462	77
39	16:06:13.305	payment page 1-4..	HTTP Request	442	✓	205	427	442	100
40	16:06:13.325	payment page 1-4..	HTTP Request	497	✓	205	427	497	97
41	16:06:13.335	payment page 1-4..	HTTP Request	487	✓	205	427	487	87
42	16:06:13.293	payment page 1-4..	HTTP Request	529	✓	205	427	529	112
43	16:06:13.316	payment page 1-4..	HTTP Request	506	✓	205	427	506	106
44	16:06:13.363	payment page 1-4..	HTTP Request	540	✓	205	427	540	133
45	16:06:13.354	payment page 1-4..	HTTP Request	563	✓	205	427	563	142
46	16:06:13.374	payment page 1-5..	HTTP Request	545	✓	205	427	545	157
47	16:06:13.395	payment page 1-5..	HTTP Request	537	✓	205	427	537	213
48	16:06:13.350	payment page 1-4..	HTTP Request	582	✓	205	427	582	258
49	16:06:13.468	payment page 1-5..	HTTP Request	464	✓	205	427	464	144
50	16:06:13.437	payment page 1-5..	HTTP Request	512	✓	205	427	512	173
51	16:06:13.427	payment page 1-5..	HTTP Request	543	✓	205	427	543	182
52	16:06:13.384	payment page 1-5..	HTTP Request	586	✓	205	427	586	224
53	16:06:13.416	payment page 1-5..	HTTP Request	555	✓	205	427	555	193
54	16:06:13.406	payment page 1-5..	HTTP Request	566	✓	205	427	566	203
55	16:06:13.488	payment page 1-6..	HTTP Request	562	✓	205	427	562	256
56	16:06:13.477	payment page 1-6..	HTTP Request	573	✓	205	427	573	242
57	16:06:13.497	payment page 1-6..	HTTP Request	553	✓	205	427	553	247
58	16:06:13.509	payment page 1-6..	HTTP Request	550	✓	205	427	550	235

Test Plan

- payment page
 - HTTP Request
 - Summary Report**
 - View Results Tree
 - Response Time Graph
 - Graph Results
 - Summary Report

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	691	453	1272	166.18	0.00%	46.2/sec	9.24	19.25	205.0
TOTAL	100	691	453	1272	166.18	0.00%	46.2/sec	9.24	19.25	205.0

Test Plan

- + payment page
 - HTTP Request
 - View Results in Table
 - View Results Tree
 - Response Time Graph
 - Graph Results
 - Summary Report

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename:

Search: ... Case sensitive Regular exp. Search Reset

Text Sampler result Request Response data

Response Body Response headers

```

1 HTTP/1.1 200 OK
2 Date: Sun, 01 Dec 2024 10:37:48 GMT
3 Content-Length: 0
4 Connection: keep-alive
5 CF-Ray: Beb27175e8614467-BOM
6 CF-Cache-Status: DYNAMIC
7 Server: cloudflare
8 alt-svc: h3=":443"; ma=86400
9

```

- **500 user:**

Test Plan

- + payment page
 - HTTP Request
 - View Results in Table
 - View Results Tree
 - Response Time Graph
 - Graph Results
 - Summary Report

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename: C:\Users\isha\Downloads\apache-jmeter-5.6.3\payment_page_result.table.csv

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

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
221	16/09/49.596	payment page 1-2..	HTTP Request	36582	✓	205	427	36582	36259
222	16/09/49.609	payment page 1-2..	HTTP Request	36577	✓	205	427	36577	36246
223	16/09/49.554	payment page 1-1..	HTTP Request	37038	✓	205	427	37038	36143
224	16/09/49.534	payment page 1-1..	HTTP Request	37058	✓	205	427	37058	36174
225	16/09/49.506	payment page 1-1..	HTTP Request	37086	✓	205	427	37086	36181
226	16/09/49.530	payment page 1-1..	HTTP Request	37062	✓	205	427	37062	36163
227	16/09/49.488	payment page 1-1..	HTTP Request	37104	✓	205	427	37104	36219
228	16/09/49.644	payment page 1-2..	HTTP Request	36994	✓	205	427	36994	36132
229	16/09/49.594	payment page 1-2..	HTTP Request	37073	✓	205	427	37073	36204
230	16/09/49.578	payment page 1-2..	HTTP Request	37129	✓	205	427	37129	36256
231	16/09/49.618	payment page 1-2..	HTTP Request	37102	✓	205	427	37102	36235
232	16/09/49.581	payment page 1-2..	HTTP Request	37144	✓	205	427	37144	36273
233	16/09/49.644	payment page 1-2..	HTTP Request	42055	✗	2868	0	0	42054
234	16/09/49.644	payment page 1-2..	HTTP Request	42055	✗	2868	0	0	42054
235	16/09/49.622	payment page 1-2..	HTTP Request	42077	✗	2868	0	0	42076
236	16/09/49.620	payment page 1-2..	HTTP Request	42079	✗	2868	0	0	42078
237	16/09/49.630	payment page 1-2..	HTTP Request	42104	✗	2868	0	0	42104
238	16/09/49.658	payment page 1-2..	HTTP Request	42076	✗	2868	0	0	42076
239	16/09/49.646	payment page 1-2..	HTTP Request	42088	✗	2868	0	0	42088
240	16/09/49.652	payment page 1-2..	HTTP Request	42082	✗	2868	0	0	42082
241	16/09/49.650	payment page 1-2..	HTTP Request	42084	✗	2868	0	0	42084
242	16/09/49.648	payment page 1-2..	HTTP Request	42086	✗	2868	0	0	42086
243	16/09/49.657	payment page 1-2..	HTTP Request	42077	✗	2868	0	0	42077
244	16/09/49.634	payment page 1-2..	HTTP Request	42100	✗	2868	0	0	42100
245	16/09/49.655	insument name 1-2	HTTP Request	42079	✗	2868	0	0	42079

The screenshot shows the JMeter interface with the 'View Results Tree' listener selected in the test plan. The results pane displays a tree view of failed HTTP requests, with many entries showing a red error icon. The status bar indicates 0/500 errors.

The screenshot shows the JMeter interface with the 'Summary Report' listener selected in the test plan. The results pane displays a table of test statistics. The 'Label' column lists 'HTTP Request' and 'TOTAL'. The 'Avg. Bytes' column shows values of 1632.4 and 1632.4 respectively.

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
HTTP Request	500	31151	346	42108	16995.45	53.60%	11.6/sec	18.51	2.25	1632.4
TOTAL	500	31151	346	42108	16995.45	53.60%	11.6/sec	18.51	2.25	1632.4

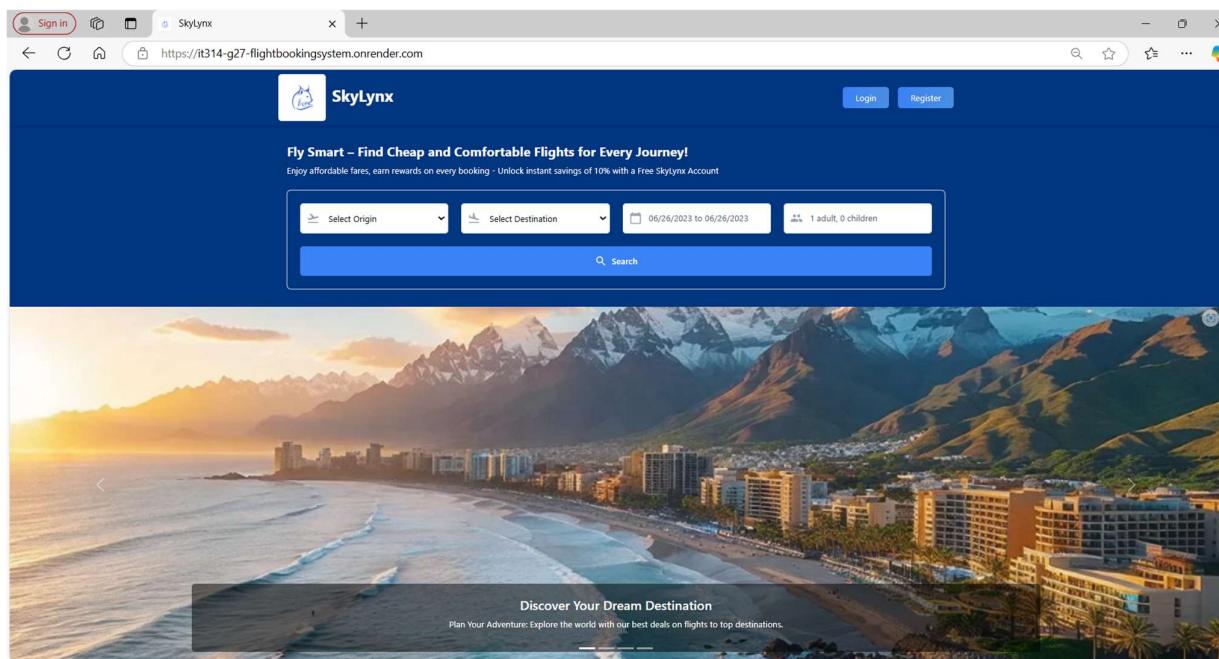
Observations:

We can see from all these tests that our system begins to crash when around 200-250 users access the site in a very short amount of time.

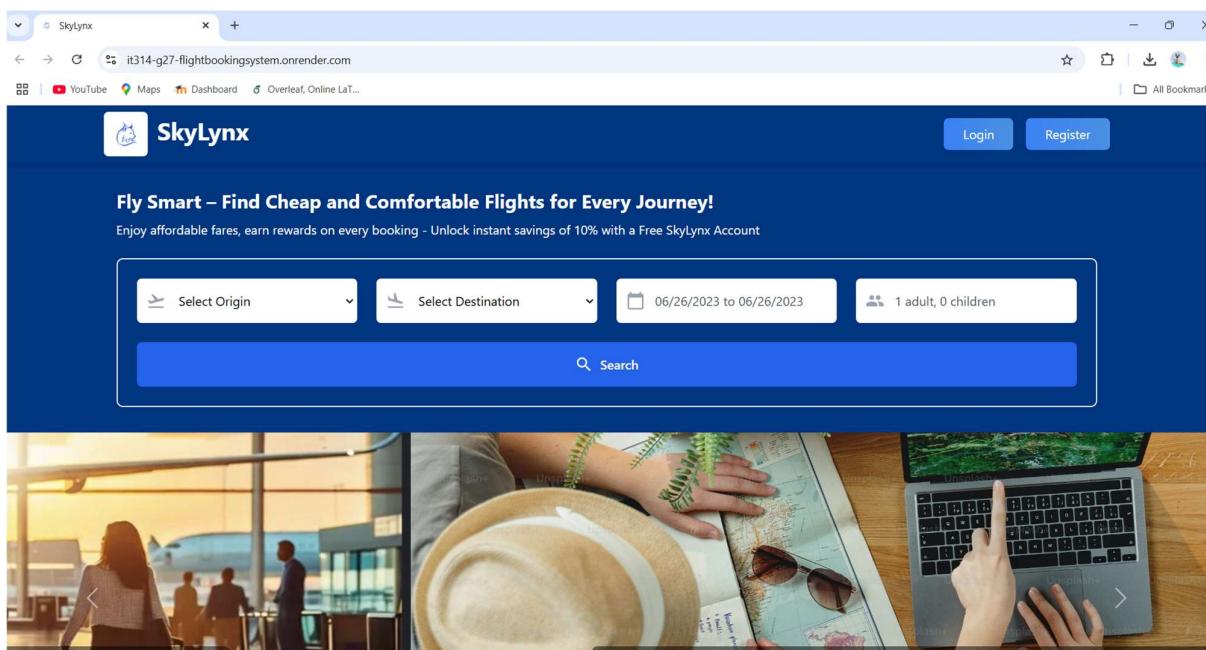
2) Compatibility Testing

→ We've made sure that the website is compatible with the latest web browsers covering Edge, Chrome, Safari and Brave and also for all devices like mobile and laptops.

→ Edge:



→ Crome:



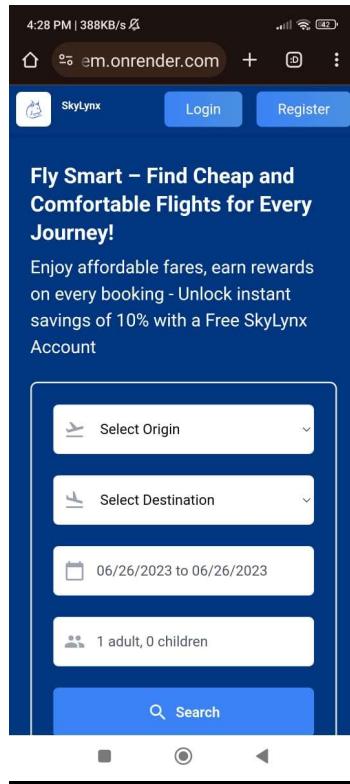
→ Brave:

The screenshot shows the SkyLynx flight booking website in a dark-themed Brave browser window. At the top, there's a navigation bar with links for File, Edit, View, History, Bookmarks, Profiles, Tab, Window, and Help. The address bar displays the URL it314-g27-flightbookingsystem.onrender.com. On the right side of the header are icons for battery level (68%), signal strength, and the current date and time (Sun 1 Dec 4:41 PM). Below the header, the SkyLynx logo is on the left, and two buttons for 'Login' and 'Register' are on the right. A main heading 'Fly Smart – Find Cheap and Comfortable Flights for Every Journey!' is centered above a subtext: 'Enjoy affordable fares, earn rewards on every booking - Unlock instant savings of 10% with a Free SkyLynx Account'. Below this is a search form with four input fields: 'Select Origin', 'Select Destination', '06/26/2023 to 06/26/2023', and '1 adult, 0 children'. A large blue 'Search' button with a magnifying glass icon is at the bottom of the form. The background features a collage of travel-related images, including a snowy mountain scene and a coastal city at sunset. A call-to-action button 'Discover Your Dream Destination' is located at the bottom right of the collage.

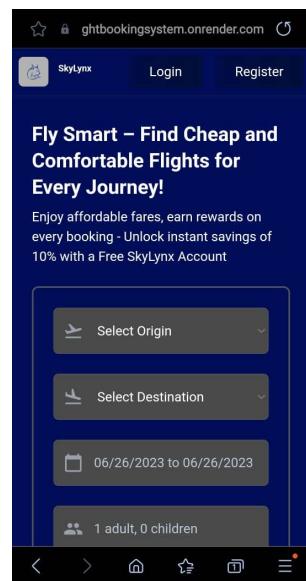
→ Safari:

The screenshot shows the same SkyLynx website as the previous one, but in a light-themed Safari browser window. The layout is identical, with the navigation bar, address bar, and search form all present. The background collage and the 'Discover Your Dream Destination' button are also the same. The overall appearance is lighter due to the different browser theme.

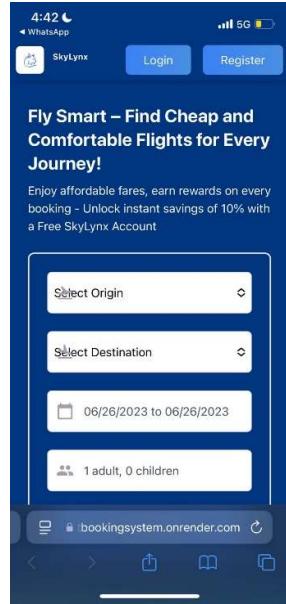
→ Crome (Android):



→ Samsung internet browser:



→ Safari Mobile:



Observations:

As can be seen, our site seems compatible with majority of the popular web browsers as well as their mobile versions.

3) Security Testing

Authentication and Authorization

→ To ensure robust access control, the system utilizes JWT-based authentication. This approach validates user credentials and ensures that only authenticated users can access secure endpoints. Without logging in, users are restricted from viewing or interacting with internal data, effectively safeguarding sensitive information.

Data Protection

→ Passwords are securely stored using bcrypt hashing, enhanced with 10 salt rounds. This method ensures that even if the database were compromised, passwords remain encrypted and unreadable, protecting user confidentiality. The hashing process makes it virtually impossible for database administrators or malicious actors to retrieve original passwords.

HTTPS Security

→ The website uses HTTPS, ensuring encrypted communication between users and the server. This prevents eavesdropping, data tampering, and unauthorized interception of sensitive information.

Security Assessment

→ A comprehensive security assessment of the system was conducted using a trusted third-party tool provided by Pentest Tools. This evaluation helped identify potential vulnerabilities, ensuring the website adheres to high-security standards. Detailed findings from the assessment are as given below:



Website Vulnerability Scanner Report

✓ <https://it314-g27-flightbookingsystem.onrender.com/>

Summary

Overall risk level:
Low



Scan information:

Start time: Dec 01, 2024 / 16:17:16 UTC+0530
Finish time: Dec 01, 2024 / 16:17:50 UTC+0530
Scan duration: 34 sec
Tests performed: 19/19
Scan status: **Finished**

The low-risk findings are as below:

🚩 Missing security header: Content-Security-Policy

CONFIRMED

URL	Evidence
https://it314-g27-flightbookingsystem.onrender.com/	Response does not include the HTTP Content-Security-Policy security header or meta tag Request / Response

▼ Details

Risk description:

The risk is that if the target application is vulnerable to XSS, lack of this header makes it easily exploitable by attackers.

Recommendation:

Configure the Content-Security-Header to be sent with each HTTP response in order to apply the specific policies needed by the application.

References:

https://cheatsheetsseries.owasp.org/cheatsheets/Content_Security_Policy_Cheat_Sheet.html
<https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Security-Policy>

Classification:

CWE : CWE-693

OWASP Top 10 - 2017 : A6 - Security Misconfiguration

OWASP Top 10 - 2021 : A5 - Security Misconfiguration

🚩 Missing security header: Referrer-Policy

CONFIRMED

URL	Evidence
https://it314-g27-flightbookingsystem.onrender.com/	Response headers do not include the Referrer-Policy HTTP security header as well as the <meta> tag with name 'referrer' is not present in the response. Request / Response

▼ Details

Risk description:

The risk is that if a user visits a web page (e.g. "http://example.com/pricing/") and clicks on a link from that page going to e.g.

"<https://www.google.com>", the browser will send to Google the full originating URL in the `Referer` header, assuming the Referrer-Policy header is not set. The originating URL could be considered sensitive information and it could be used for user tracking.

Recommendation:

The Referrer-Policy header should be configured on the server side to avoid user tracking and inadvertent information leakage. The value `no-referrer` of this header instructs the browser to omit the Referer header entirely.

References:

https://developer.mozilla.org/en-US/docs/Web/Security/Referer_header:_privacy_and_security_concerns

Classification:

CWE : [CWE-693](#)

OWASP Top 10 - 2017 : [A6 - Security Misconfiguration](#)

OWASP Top 10 - 2021 : [A5 - Security Misconfiguration](#)

🚩 Server software and technology found

UNCONFIRMED ⓘ

Software / Version	Category
 Emotion	JavaScript frameworks, Development
 HTTP/3	Miscellaneous
 React	JavaScript frameworks
 React Router 6	JavaScript frameworks
 Cloudflare	CDN
 HSTS	Security

▼ Details

Risk description:

The risk is that an attacker could use this information to mount specific attacks against the identified software type and version.

Recommendation:

We recommend you to eliminate the information which permits the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.

References:

https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/01-Information_Gathering/02-Fingerprint_Web_Server.html

Classification:

OWASP Top 10 - 2017 : [A6 - Security Misconfiguration](#)

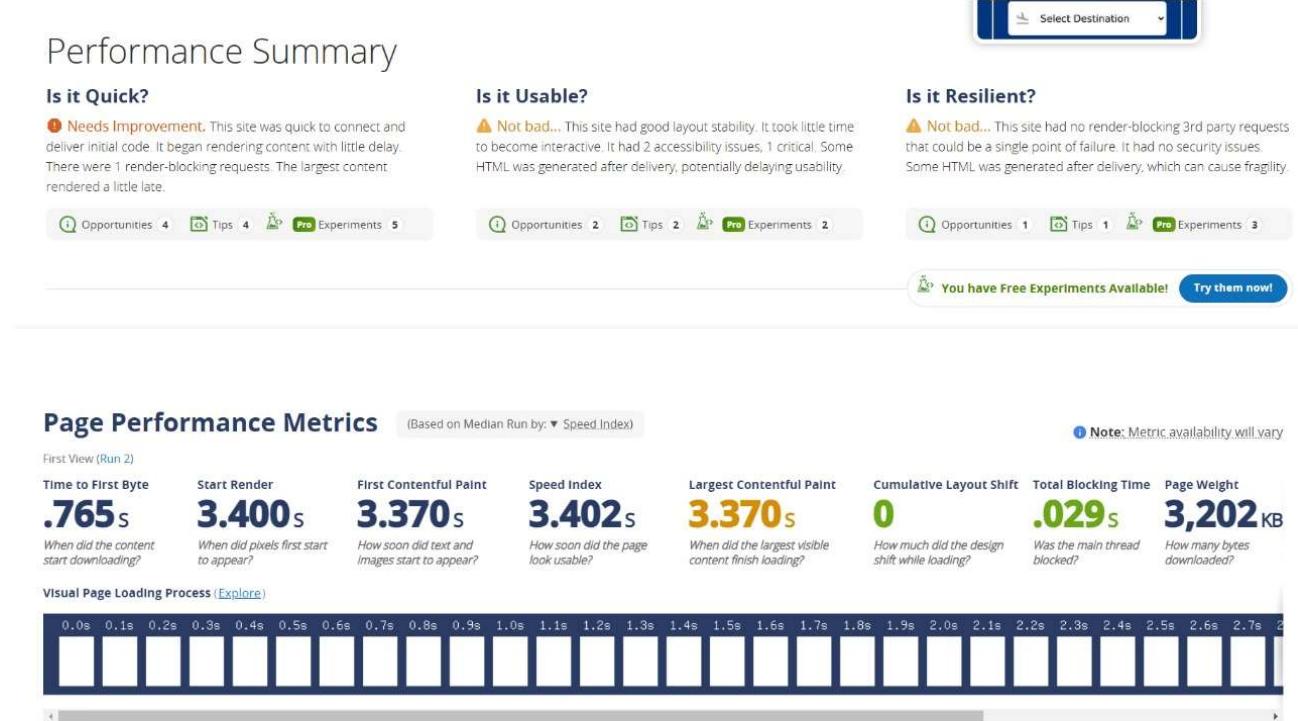
OWASP Top 10 - 2021 : [A5 - Security Misconfiguration](#)

Conclusions:

We can use these findings to further improve the security of our site.

4) Ease of Use Testing

We have used the [webpage test](#) provided by Catchpoint to do ease of use testing. Following are the outcomes for the same:



Conclusions:

Based on this test, we found our flaws and got an idea on how to improve the site further to make it more usable.