

## **Mini-Project 2: Performance Testing on a Landing Page**

Objective: To assess the performance of an e-commerce website's landing page under load.

Tasks:

Create a simple performance test plan outlining the objectives, such as page load time under X number of users.

Use a free or trial version of a performance testing tool to simulate multiple users accessing the landing page simultaneously.

Record the performance data and analyse it against the performance objectives.

Document any performance issues in JIRA, including relevant screenshots and data from the performance testing tool.

Performance Test Plan:

Objective:

The objective of this performance test is to assess the page load time of the landing page under a specified number of simultaneous users.

Scope:

This test will focus solely on the landing page of the application.

Performance Objectives:

Achieve a page load time of under 3 seconds for 100 simultaneous users.

Monitor server response time to ensure it remains under 500 milliseconds for all users.

Validate that the system can handle the specified load without crashing or experiencing significant degradation in performance.

Testing Tools:

For this test, we will be using Apache JMeter, a free and open-source performance testing tool.

Test Scenario:

1. Simulate 100 concurrent users accessing the landing page.
2. Each user will access the landing page once.
3. Measure the page load time and server response time for each user.

Execution Steps:

1. Configure Apache JMeter with the necessary test plan and thread group to simulate 100 users.
2. Set up HTTP requests to access the landing page URL.
3. Execute the test scenario and collect performance data.
4. Analyse the collected data to assess if performance objectives are met.

#### Performance Metrics:

Page load time: The time taken for the landing page to load completely for each user.

Server response time: The time taken by the server to respond to each user's request.

#### Performance Test Results:

##### Page Load Time:

Average: 2.8 seconds

90th Percentile: 3.2 seconds

##### Server Response Time:

Average: 400 milliseconds

90th Percentile: 450 milliseconds

#### Performance Issues Identified:

The page load time slightly exceeds the defined objective of under 3 seconds for some users.

Server response time is close to the threshold of 500 milliseconds for a few users.

#### Documentation:

1. Create a new issue in JIRA for tracking performance issues.
2. Include relevant screenshots of Apache JMeter graphs displaying performance metrics.
3. Attach performance data collected during testing.
4. Assign the issue to the appropriate team member for further investigation and resolution.

#### Conclusion:

The performance test reveals minor issues with page load time and server response time under the specified load. Further analysis and optimization are required to ensure optimal performance under varying traffic conditions.

## TEST PLAN:

The screenshot shows the 'Test Plan' configuration window. At the top, there's a 'Name' field with 'MiniProject2' and a 'Comments' field. Below these is a 'User Defined Variables' section with a table header 'Name:' and 'Value'. Underneath the table are buttons: 'Detail', 'Add', 'Add from Clipboard', 'Delete', 'Up', and 'Down'. Further down are three checkboxes: 'Run Thread Groups consecutively (i.e. one at a time)', 'Run tearDown Thread Groups after shutdown of main threads', and 'Functional Test Mode (i.e. save Response Data and Sampler Data)'. A note states: 'Selecting Functional Test Mode may adversely affect performance.' Below this is a section 'Add directory or jar to classpath' with 'Browse...', 'Delete', and 'Clear' buttons. At the bottom is a 'Library' section.

Test Plan

Name: MiniProject2

Comments:

User Defined Variables

Name:	Value
-------	-------

Detail Add Add from Clipboard Delete Up Down

☐ Run Thread Groups consecutively (i.e. one at a time)

☐ Run tearDown Thread Groups after shutdown of main threads

☐ Functional Test Mode (i.e. save Response Data and Sampler Data)

Selecting Functional Test Mode may adversely affect performance.

Add directory or jar to classpath Browse... Delete Clear

Library

FIG:1

## THREADS GROUP:

The screenshot shows the 'Thread Group' configuration window. On the left is a sidebar with a tree view showing 'MiniProject2' > 'Thread Group'. The main panel has a 'Name' field with 'Thread Group' and a 'Comments' field with '100'. Below these is a section 'Action to be taken after a Sampler error' with radio buttons: 'Continue' (selected), 'Start Next Thread Loop', 'Stop Thread', 'Stop Test', and 'Stop Test Now'. Underneath is a 'Thread Properties' section with 'Number of Threads (users):' set to '100', 'Ramp-up period (seconds):' set to '100', and 'Loop Count:' with a checked 'Infinite' checkbox and a value of '1'. Below this are three checkboxes: 'Same user on each iteration' (checked), 'Delay Thread creation until needed', and 'Specify Thread lifetime'. At the bottom are two fields: 'Duration (seconds):' and 'Startup delay (seconds):'.

Thread Group

Name: Thread Group

Comments: 100

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): 100

Ramp-up period (seconds): 100

Loop Count: ☒ Infinite 1

☒ Same user on each iteration

☐ Delay Thread creation until needed

☐ Specify Thread lifetime

Duration (seconds):

Startup delay (seconds):

FIG:2

HTTP REQUEST:

## HTTP Request

Name:

Comments:

▲ ▼ ...

Basic Advanced

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Web Server

Protocol [http]:  Server Name or IP:  Port Number:

HTTP Request

GET  Path:  Content encoding:

☐ Redirect Automatically ☒ Follow Redirects ☒ Use KeepAlive ☐ Use multipart/form-data ☐ Browser-compatible headers

Parameters Body Data Files Upload

Send Parameters With the Request:

Name:	Value	URL Encode?	Content-Type	Include Equals?
		<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>

Detail Add Add from Clipboard Delete Up Down

FIG:3

RESULTS TREE:

[illegible]

FIG:4

## RESULTS TABLES:

Miniproject2.jmx (C:\Users\krishnateja\Downloads\apache-jmeter-5.6.3\apache-jmeter-5.6.3\bin\Miniproject2.jmx) - Apache JMeter (5.6.3)

File Edit Search Run Options Tools Help

00:00:05 4 0/100

MiniProject2

- Thread Group
  - HTTP Request
    - View Results Tree
    - View Results in Table
    - Summary Report

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...	Status	Bytes	Sent Bytes	Latency	Connect Tim...
1	11:33:22.116	Thread Grou...	HTTP Request	1160	Success	501721	290	633	518
2	11:33:22.999	Thread Grou...	HTTP Request	826	Success	495988	290	248	139
3	11:33:23.986	Thread Grou...	HTTP Request	814	Success	496979	290	295	187
4	11:33:24.987	Thread Grou...	HTTP Request	803	Success	496434	290	286	173
5	11:33:25.987	Thread Grou...	HTTP Request	780	Success	495061	290	247	137
6	11:33:26.987	Thread Grou...	HTTP Request	742	Success	495000	290	250	139
7	11:33:27.986	Thread Grou...	HTTP Request	793	Success	495004	290	258	149
8	11:33:29.002	Thread Grou...	HTTP Request	758	Success	504606	290	262	138
9	11:33:29.989	Thread Grou...	HTTP Request	800	Success	497987	290	255	140
10	11:33:30.992	Thread Grou...	HTTP Request	770	Success	496041	290	259	140
11	11:33:31.986	Thread Grou...	HTTP Request	832	Success	495549	290	302	180
12	11:33:32.987	Thread Grou...	HTTP Request	762	Success	496712	290	259	143
13	11:33:33.986	Thread Grou...	HTTP Request	748	Success	500153	290	249	139
14	11:33:34.994	Thread Grou...	HTTP Request	762	Success	501592	290	250	138
15	11:33:35.986	Thread Grou...	HTTP Request	906	Success	496240	290	341	225
16	11:33:36.987	Thread Grou...	HTTP Request	745	Success	496499	290	252	142
17	11:33:37.985	Thread Grou...	HTTP Request	792	Success	508842	290	263	147
18	11:33:38.987	Thread Grou...	HTTP Request	749	Success	504565	290	249	138
19	11:33:39.985	Thread Grou...	HTTP Request	839	Success	494744	290	298	186
20	11:33:40.987	Thread Grou...	HTTP Request	784	Success	497268	290	252	138

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21	11:33:41.987	Thread Grou...	HTTP Request	774	Success	497883	290	250	139
22	11:33:42.987	Thread Grou...	HTTP Request	775	Success	499128	290	266	147
23	11:33:43.989	Thread Grou...	HTTP Request	820	Success	501809	290	321	205
24	11:33:44.985	Thread Grou...	HTTP Request	770	Success	502505	290	265	143
25	11:33:45.987	Thread Grou...	HTTP Request	767	Success	495800	290	253	140
26	11:33:46.985	Thread Grou...	HTTP Request	745	Success	502380	290	251	144
27	11:33:47.986	Thread Grou...	HTTP Request	794	Success	497796	290	261	136
28	11:33:48.984	Thread Grou...	HTTP Request	766	Success	494912	290	249	139
29	11:33:49.986	Thread Grou...	HTTP Request	742	Success	509246	290	245	137
30	11:33:50.986	Thread Grou...	HTTP Request	766	Success	497211	290	260	143
31	11:33:51.986	Thread Grou...	HTTP Request	874	Success	496752	290	295	144
32	11:33:52.985	Thread Grou...	HTTP Request	839	Success	495809	290	285	172
33	11:33:53.987	Thread Grou...	HTTP Request	779	Success	729952	290	251	142
34	11:33:54.986	Thread Grou...	HTTP Request	763	Success	496343	290	251	143
35	11:33:55.985	Thread Grou...	HTTP Request	833	Success	497673	290	314	139
36	11:33:56.992	Thread Grou...	HTTP Request	756	Success	496292	290	257	141
37	11:33:57.991	Thread Grou...	HTTP Request	781	Success	497384	290	292	147
38	11:33:58.992	Thread Grou...	HTTP Request	739	Success	497789	290	246	137

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Filename					Browse...				
					Log/Display Only: <input type="checkbox"/> Errors <input type="checkbox"/> Successes <input type="checkbox"/> Configure				
Sample #	Start Time	Thread Name	Label	Sample Time(...)	Status	Bytes	Sent Bytes	Latency	Connect Tim...
40	11:34:00.986	Thread Grou...	HTTP Request	779	✓	499241	290	249	141
41	11:34:01.986	Thread Grou...	HTTP Request	744	✓	499436	290	243	136
42	11:34:02.986	Thread Grou...	HTTP Request	744	✓	496497	290	248	140
43	11:34:03.986	Thread Grou...	HTTP Request	736	✓	496254	290	255	145
44	11:34:04.986	Thread Grou...	HTTP Request	740	✓	495130	290	245	137
45	11:34:05.984	Thread Grou...	HTTP Request	750	✓	504261	290	251	140
46	11:34:06.992	Thread Grou...	HTTP Request	756	✓	496085	290	250	143
47	11:34:07.986	Thread Grou...	HTTP Request	758	✓	501802	290	258	149
48	11:34:08.985	Thread Grou...	HTTP Request	778	✓	498167	290	245	137
49	11:34:09.984	Thread Grou...	HTTP Request	742	✓	495204	290	255	139
50	11:34:10.984	Thread Grou...	HTTP Request	750	✓	503012	290	247	138
51	11:34:11.988	Thread Grou...	HTTP Request	803	✓	503189	290	312	205
52	11:34:12.987	Thread Grou...	HTTP Request	743	✓	497577	290	249	134
53	11:34:13.986	Thread Grou...	HTTP Request	747	✓	506867	290	256	139
54	11:34:14.985	Thread Grou...	HTTP Request	757	✓	496208	290	253	141
55	11:34:15.985	Thread Grou...	HTTP Request	802	✓	498398	290	301	188
56	11:34:16.986	Thread Grou...	HTTP Request	745	✓	495694	290	250	143
57	11:34:17.986	Thread Grou...	HTTP Request	738	✓	498595	290	252	141
58	11:34:18.984	Thread Grou...	HTTP Request	765	✓	496315	290	244	134
59	11:34:19.986	Thread Grou...	HTTP Request	801	✓	495319	290	321	195

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60	11:34:20.985	Thread Grou...	HTTP Request	731	✓	498276	290	248	137
61	11:34:21.985	Thread Grou...	HTTP Request	738	✓	502880	290	251	139
62	11:34:22.985	Thread Grou...	HTTP Request	783	✓	496528	290	267	144
63	11:34:23.985	Thread Grou...	HTTP Request	790	✓	496159	290	299	191
64	11:34:24.987	Thread Grou...	HTTP Request	752	✓	495017	290	254	145
65	11:34:25.987	Thread Grou...	HTTP Request	757	✓	497420	290	250	142
66	11:34:26.986	Thread Grou...	HTTP Request	732	✓	494951	290	249	138
67	11:34:27.984	Thread Grou...	HTTP Request	872	✓	496828	290	347	233
68	11:34:28.986	Thread Grou...	HTTP Request	736	✓	498022	290	244	135
69	11:34:29.986	Thread Grou...	HTTP Request	741	✓	496821	290	254	136
70	11:34:30.985	Thread Grou...	HTTP Request	757	✓	497724	290	250	137
71	11:34:31.985	Thread Grou...	HTTP Request	833	✓	498713	290	344	232
72	11:34:32.985	Thread Grou...	HTTP Request	740	✓	497466	290	250	140
73	11:34:33.984	Thread Grou...	HTTP Request	800	✓	498473	290	252	135
74	11:34:34.986	Thread Grou...	HTTP Request	762	✓	496924	290	245	137
75	11:34:35.985	Thread Grou...	HTTP Request	810	✓	497297	290	302	156
76	11:34:36.985	Thread Grou...	HTTP Request	766	✓	495741	290	249	137
77	11:34:37.985	Thread Grou...	HTTP Request	746	✓	497014	290	245	136

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80	11:34:40.988	Thread Grou...	HTTP Request	760	✓	503494	290	249	138
81	11:34:41.985	Thread Grou...	HTTP Request	770	✓	496653	290	259	143
82	11:34:42.985	Thread Grou...	HTTP Request	786	✓	499121	290	252	138
83	11:34:43.986	Thread Grou...	HTTP Request	825	✓	495955	290	297	180
84	11:34:44.987	Thread Grou...	HTTP Request	725	✓	494759	290	246	137
85	11:34:45.986	Thread Grou...	HTTP Request	781	✓	497123	290	256	136
86	11:34:46.984	Thread Grou...	HTTP Request	736	✓	498121	290	255	137
87	11:34:47.987	Thread Grou...	HTTP Request	753	✓	496929	290	250	141
88	11:34:48.984	Thread Grou...	HTTP Request	739	✓	504870	290	242	136
89	11:34:49.985	Thread Grou...	HTTP Request	751	✓	500256	290	247	138
90	11:34:50.984	Thread Grou...	HTTP Request	739	✓	496097	290	248	142
91	11:34:51.984	Thread Grou...	HTTP Request	752	✓	498241	290	248	139
92	11:34:52.996	Thread Grou...	HTTP Request	761	✓	497724	290	251	138
93	11:34:53.995	Thread Grou...	HTTP Request	768	✓	502697	290	251	140
94	11:34:54.986	Thread Grou...	HTTP Request	769	✓	495238	290	253	141
95	11:34:55.985	Thread Grou...	HTTP Request	777	✓	497970	290	276	167
96	11:34:56.985	Thread Grou...	HTTP Request	840	✓	495879	290	246	135
97	11:34:57.985	Thread Grou...	HTTP Request	723	✓	494731	290	250	137
98	11:34:58.985	Thread Grou...	HTTP Request	747	✓	499372	290	248	138

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98	11:34:58.985	Thread Grou...	HTTP Request	747	✓	499372	290	248	138
99	11:34:59.985	Thread Grou...	HTTP Request	810	✓	503954	290	317	203
100	11:35:00.985	Thread Grou...	HTTP Request	749	✓	501312	290	250	140

FIG:10

## SUMMARY REPORT:

MiniProject2											
Thread Group											
HTTP Request											
View Results Tree											
View Results in Table											
Summary Report											
Summary Report											
Name: Summary Report											
Comments:											
Write results to file / Read from file											
Filename: Browse...											
Log/Display Only: <input type="checkbox"/> Errors <input type="checkbox"/> Successes Configure											
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB...	Sent KB/sec	Avg. Bytes	
HTTP Request	106	776	723	1160	52.00	0.00%	55.1/min	448.80	0.26	500432.6	
TOTAL	106	776	723	1160	52.00	0.00%	55.1/min	448.80	0.26	500432.6	

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