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http://www.batstate-u.edu.ph **College of Informatics and Computing Sciences**

MIDTERM EXAMINATION
IT-414 SOFTWARE QUALITY ASSURANCE
IT Department
1ST Semester AY 2024-2025

Name : Lipata, Riazel, A.   Date:December 01, 2024

Section: 4107   Score: _____

PART 2 – Laboratory Examination

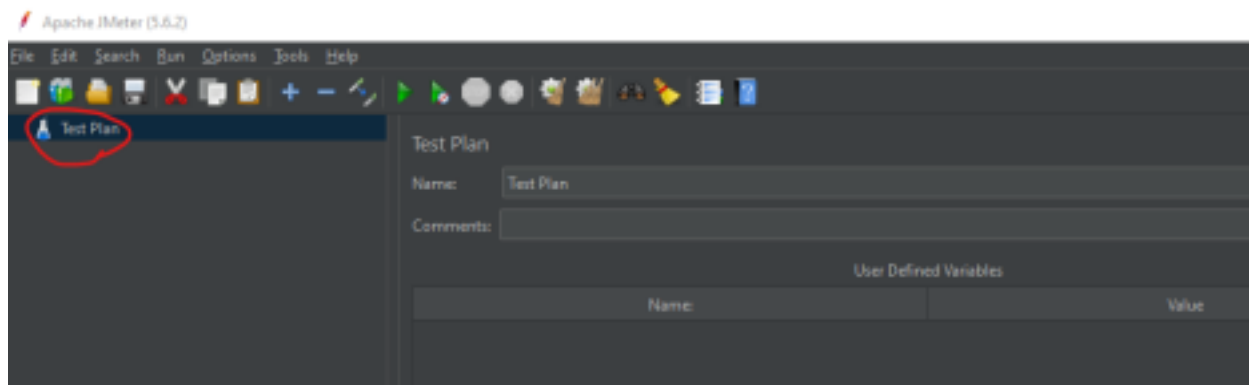Test I. Application -Mapped to ILO1

1- 10 (10 PTS)

Requirements:
1. Computer
2. Internet Connection
3. Apache JMeter

Instructions:

1. Download Apache JMeter 5.6.2 (apache-jmeter-5.6.2.zip) on
   https://jmeter.apache.org/download_jmeter.cgi.
2. Extract the zip file.
3. Open the extracted folder and go to the bin folder.
4. Open jmeter.bat file.
5. Right click on "Test Plan" on the left-hand side of the page.

6. Select "add">"Threads(Users)">"Thread Group".
7. On the Thread Group pane, enter 10 as the "Number of Threads (users)", 20 as the "Ramp-up period (seconds)" and 10 as the "Loop Count" then uncheck the "Same user on each iteration" option.

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Note:

Number of Threads	Number of users to simulate.
Ramp-up Period	How long JMeter should take to get all the threads started. If there are 10 threads and a ramp-up time of 100 seconds, then each thread will begin 10 seconds after the previous thread started, for a total time of 100 seconds to get the test fully up to speed.
	The first thread will always start directly, so if you configured **one** thread, the ramp-up time is effectively **zero**. For the same reason, the tenth thread in the above example will actually be started after 90 seconds and not 100 seconds.
Same user on each iteration	If selected, cookie and cache data from the first sampler response are used in subsequent requests (requires a global Cookie and Cache Manager respectively). If not selected, cookie and cache data from the first sampler response are not used in subsequent requests.
	If not selected, a new connection will be opened between iterations which will result in increased response times and consume more resources (memory and cpu).
Loop Count	Number of times to perform the test case. Alternatively, "`infinite`" can be selected causing the test to run until manually stopped or end of the thread lifetime is reached.

8. Right click on "Thread Group" on the left-hand side of the page. Then select "add>Sampler>HTTP Request".
9. On the HTTP Request pane, enter HTTP Request 1 as the "Name", test.k6.io as the "Server Name or IP", /news.php as the "Path".
10. Add another HTTP Request Sampler on the same Thread Group. Then enter HTTP Request 2 as the "Name", test.k6.io as the "Server Name or IP", /contacts.php as the "Path".

Note: Samplers perform the actual work of JMeter. Each sampler (except Flow Control Action) generates one or more sample results. The sample results have various attributes (success/fail, elapsed time, data size etc.) and can be viewed in the various listeners.

11. Right click on "Thread Group" on the left-hand side of the page. Then select "add>Listener>View Results Tree".
12. Add another 2 Listeners (Summary Report and Aggregate Graph).

Note: Most of the listeners perform several roles in addition to "listening" to the test results. They also provide means to view, save, and read saved test results. 13. Save the Test with the file name: "Load Test 1[LASTNAME1][LASTNAME2]". 14. Run the Tests by click the Start button (Green arrow) on the tools pane. 15. Wait for the Tests to end.

16. Observe the Test results for the two websites by investigating the values returned by the listeners.

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Note: The View Results Tree shows a tree of all sample responses, allowing you to view the response for any sample. In addition to showing the response, you can see the time it took to get this response, and some response codes.

The summary report creates a table row for each differently named request in your test Label - The label of the sample.

Samples - The number of samples with the same label

Average - The average elapsed time of a set of results

Min - The lowest elapsed time for the samples with the same label

Max - The longest elapsed time for the samples with the same label

Std. Dev. - the Standard Deviation of the sample elapsed time

Error % - Percent of requests with errors

Throughput - is calculated as requests/unit of time. The time is calculated from the start of the first sample to the end of the last sample. This includes any intervals between samples, as it is supposed to represent the load on the server.
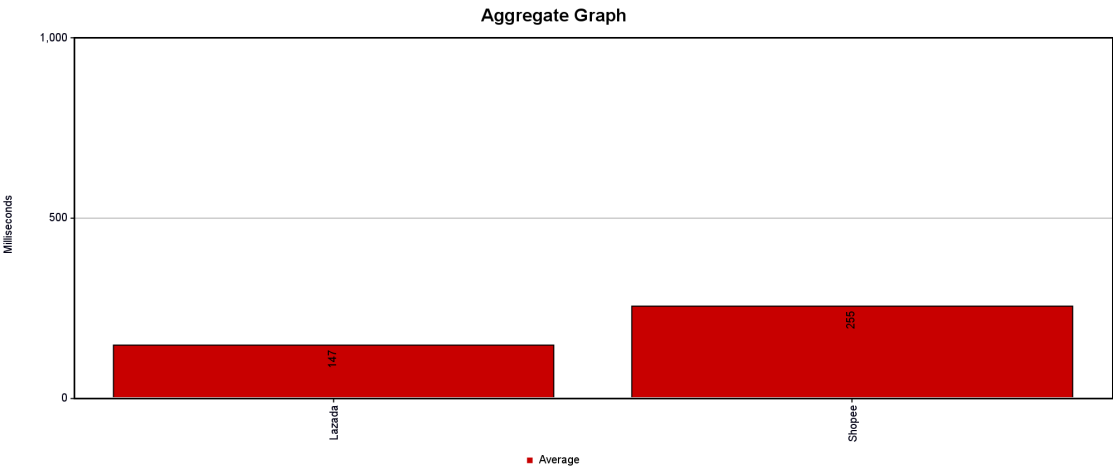
The formula is: **Throughput** = (number of requests) / (total time).

Received KB/sec - The throughput measured in Kilobytes per second Sent KB/sec - The throughput measured in Kilobytes per second

Avg. Bytes - average size of the sample response in bytes.

The aggregate graph provides an easy way to generate bar graphs and save the graph as a PNG file.

17. Load test both the Lazada at shopee websites by modifying the two HTTP Request. You only need to load their homepage (**No need to add path**).
18. Replace the Name of the HTTP Requests with their respective website (Lazada and Shopee).
19. The simulation should be for 100 users with a ramp-up period 0f 40 seconds and 1 loop count.
20. Run the tests, be sure to click the "clear all" button on the tools page first to clear all the records of the previous test.
21. Summarize the result of your load test using the table below (10 points).

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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 %	Throughp...	Received ...	Sent KB/s...	Avg. Bytes
Lazada	100	147	117	467	44.21	0.00%	4.4/sec	1811.95	0.51	420794.3
Shopee	100	255	235	420	26.61	0.00%	4.4/sec	261.15	0.48	60854.0
TOTAL	200	201	117	467	65.23	0.00%	8.7/sec	2052.00	0.98	240824.2

Label	#Samples	Average	Throughput	Avg. bytes
Lazada	100	147	4.4/sec	420794.3
Shopee	100	255	4.4/sec	60854.0
Total	200	201	8.7/sec	240824.2

Test II. Evaluation -Mapped to ILO2

11- 40 (30 PTS**)**
Instruction: Answer the following questions. Be sure to justify your

answers.

1. Who is the faster website? (10 points)

- Based on the average response time among Lazada and Shopee, Lazada

appears to be the fastest website since it has the shortest response time

having 147 while Shopee has 255.

2. Does the average size of the sample response affect the Average elapsed

time and throughput of the website? How? (10 points)

- A website's performance may be impacted by the average size of the sample

response because larger responses typically result in longer elapsed times

because of the additional processing and transmission time. However,

smaller answers, results in faster timeframes and higher throughput.

Shopee's higher response size (60854.0 bytes) and slower time (255 ms) are

surpassed by Lazada's smaller response size (420794.3 bytes), which leads

to a faster elapsed time (147 ms).

3. Which website do you think provided the better result in the load test? (10

points)

- The results of the load test showed that Lazada performed better than

    Shopee, with an average elapsed time of 147 ms compared to 255 ms.

    Lazada was able to process requests more quickly and efficiently due to its

    smaller average response size of 420794.3 bytes. This suggests that Lazada

    handled the load more efficiently, providing a faster user experience.

Rubrics for Test II:

Criteria [10 Points]	Points	Description
Content & Argument	0-5	5: Strong, well-developed argument with clear focus. 4: Good argument, but lacks depth or detail. 3-2: Weak or unfocused argument. 1-0: No argument or irrelevant content.
Organization & Clarity	0-5	5: Well-structured, logical flow with clear transitions. 4: Mostly clear with minor issues in organization. 3-2: Lacks clear structure or confusing at times. 1-0: Disorganized or incoherent.

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