Getting Started with Jmeter

1. JMeter Installation
2. Jmeter first Look

Test plan consists of all actions and components you need to execute your performance test script.

Workbench can be taken as a practice area or temporary storage as the components of workbench are not saved along with the Test Plan. A most important component in HTTPSTestScriptRecorder which can record the scripts directly and tester can put the load on those later on.

1. What is Record and Play back?

Test- go and perform actions in browser-

To test we need requests and responses

Gif, banners

1.Jmeter

2.Firefox Browser

http- fine

https- That https website needs certificate- Jmeter

1. How to Record in Jmeter using Firefox with proxy.
2. Handling https websites with Jmeter certificate importing into browsers
3. Recording with Chrome using Blaze meter plugins

<https://chrome.google.com/webstore/detail/blazemeter-the-load-testi/mbopgmdnpcbohhpnfglgohlbhfongabi?hl=en>

Blazemeter initially record- .jmx files

1. Important info on Versions

3.3 3.4

How do you want to learn ?

Paid-

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500 users for 5 times 100 minutes

To put 1000 load on the User flow-

* What is Thread Group?

A thread group is a set of threads/users executing the same scenario.

* Understand the Process of applying the Load using Thread Group
* Introduction to Listeners:

View Results tree  
Aggregate Report  
Graph Results

* Understand the Jmeter Load parameters to analyze results

Samples : No of users hit that specific request = 2153

**Samples : no of user hits the particular request**

**Average:** It is the average time taken by all the samples to execute specific label. = 129 Milli seconds

**Min:** The shortest time taken by a sample for specific label.

**Max:** The longest time taken by a sample for specific label

**Std. Dev.:** This shows the set of exceptional cases which were deviating from the average value of sample response time. The lesser this value more consistent the data. Standard deviation should be less than or equal to half of the average time for a label.

* **Error%:** Percentage of Failed requests per Label.
* **Throughput:** Throughput is the number of request that are processed per time unit(seconds, minutes, hours) by the server. This time is calculated from the start of first sample to the end of the last sample. Larger throughput is better.

**Median:** It is the time in the middle of a set of samples result. It indicates that 50% of the samples took no more than this time i.e the remainder took at least as long.

***90% Line:*** 90% of the samples took no more than this time. The remaining samples took at least as long as this. (90th percentile)

* Additional Plugins for Simulating real time Load

Download the jar from   
<https://jmeter-plugins.org/wiki/PluginsManager/>

Concurrency Thread Group  
Ultimate Thread Group

Created Jmeter script

ThreadGroup – 1

View results tree-

200 response Green tick-

200 status code – response may be the wrong one-

AddEmployee - employee is successfully added 200 status

* Employee already exists – 200 stats

3 users

12 15 30

12+15+30/3 = average

Min=12 Max=30

With 100 users of load, through put is 300 Requests/Sec for reserve.php

200 requsts

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* **Introduction of Jmeter : -** before understanding Jmeter lets understand what is performance testing first, performance testing is a type of testing to ensure software application will perform well under the particular workload.

so Jmeter is a tool that is used for performance testing

* **Advantage of Jmeter :-**

It is open source

Cross plateform support

Jmeter Gui is more user friendly

Competitor is load runner but it is paid tool offered by HP.

* **Jmeter Installation:-**

1. Download binaries from jmeter official website
2. Unzip it and move the unzipped folder to c drive program files
3. Under the bin folder click on “ApacheJmeter.exe”

* **Test Plan:-** Test plan consists of all actions and components you need to execute your performance test script.

1. Thread – is used to put load on your script
2. Config element – is the component where you can put your cookies, HTTP headers
3. Timer – is the component used to put timer (wait b/w one request to another request)
4. Preprocessor – is the component that is used to do preprocessing before starting the script
5. Post processor – is the component that is used to do postprocessing ( some task e.g. capture the response)
6. Assertions – is the component that is used to put validations
7. Listeners – are the components that is used to provide various kind of reports

* BlazeMeter for record and playback
* How to put load and analyse performance

1. Thread group – is set of thread/users executing the same scenarios
2. No of thread – is the amount of load you want to put
3. Ramp up period – is the time when you want user to ramp up all users
4. Loop count – is the iteration time
5. Duration – for how much time you want to put the load ( it is applicable for forever option)
6. Listeners – is the component that is used for track and listen what j meter is executing and show us in the form of report
7. Different types of listeners

* HTTP cookie Manager to capture session

1. Need to cookie manager - Cookies are small text files that are stored on a user's computer or device when they visit a website. They are created by websites and are used to store information about the user's interactions and preferences.
2. Use of cookie manager

* Assertions in Jmeter (various types) – are used to validate your response automatically.

Size-to put assertions basis upon size

Response – put assertion basis upon the response

Duration – to put assertion basis upon duration

* Jmeter controllers - In JMeter, controllers are components that are used to organize and control the flow of requests and actions within a test plan

1. Transaction controller - The Transaction Controller is used to measure the response time of a set of requests or actions as a single transaction. It provides a way to group related requests and calculate the cumulative response time for the transaction.
2. Interleave controller - For example, if you have two child elements A and B under the "Interleave Controller," during each iteration, the controller would execute A in the first iteration, B in the second iteration, A again in the third iteration, and so on.
3. Runtime and random controller- control the execution of a sample for given time, Random controller - is another logic controller that randomly selects and executes its child elements.
4. IF and Loop controller - The If Controller allows you to control the execution of a set of requests or actions based on a condition. It evaluates the condition and decides whether to execute the child elements or skip them, The Loop Controller allows you to repeat a set of requests or actions a specific number of times.

* Time in Jmeter – In JMeter, the Constant Timer is an element that allows you to introduce a constant delay or pause between the execution of each request within a thread group. It is used to simulate realistic user behavior by adding a delay between requests.
* RegEX in Jmeter – to avoid hardcoding e.g. username and password
* Jmeter valiadations in nonGui Mode – open command prompt in admin mode

Move to the bin path of your jmeter location

Command -

jmeter -n -t demo\_Herokuapp\_2.jmx -l "C:\Users\kumar\OneDrive\Desktop\Demo"

