**Pre-requisites**

1. Watch the following youtube videos <https://www.youtube.com/playlist?annotation_id=annotation_2674796151&feature=iv&list=PLhW3qG5bs-L-zox1h3eIL7CZh5zJmci4c&src_vid=5FyVKVAqEJo>
2. Alternatively buy a course on Udemy.com
3. Install the last version of Java (command line to check **java -version**)
4. Install JMeter
5. Add the Blazemeter extension/plugin to your Chrome Browser (you will need an account for this) - tutorial 5

**======================================================================**

**Blazemeter**

peter@peterharris,biz M!nn\*\*\*\*

**How to prevent chrome form auto updating**

You can also use these instructions to re-enable auto updates

<http://www.wikihow.com/Completely-Disable-Google-Chrome-Update>

======================================================================

**Create a script**

1. Open a chrome browser and go to the first page
2. Open the Blazemeter add-on (login if required)
3. Add a name for the test plan and click record
4. Complete the user journey
5. Stop Blazemeter recording
6. Download the .jmx file
7. Open jmeter and open the jmx file
8. Save the file to C:\apache-jmeter-3.2\bin\hughub\test-plans

**Modify and run the test plan**

1. Add a 'Graph Results Listener'
2. Run the test plan

The next sections

* Add a dataset
* Capture the access-token as a variable and use it
* Capture the URL variable and use that

**Add a dataset**

1. Add the Config element "CSV Data Set Config"
2. Using the View results tree identify where the data is input and identify the fields you wish to substitute
3. Create a csv in the following folder "C:\apache-jmeter-3.2\bin\hughub\input-data"
4. Create a header for each field, then add values, commonly firstname, surname, email; in this scenario all other fields autopopulate so do not need to be added to the csv.
5. Scroll down the list of links on the LHS to identify where the data is used. These will be displayed in the 'Body Data' tab
6. Change the values , e.g. in the HTTP request "<https://hugapi-test.azurewebsites.net/v1/quote/591c2887e70c0c1100eaa7bd>"
7. Change the following "firstName":"Peter" to "firstName":"${firstname}" etc. This may occur in multiple places. This occurs each time Next is clicked in the user journey (the date goes to the server and is stored in the Mongo database)

Parameters Body Data Files Upload 
I {"product Type": number or name", "postcode Title": "Postcode", 
line I", line 2", line 3", line 4", 
5NS", Street", "address4 . ' 
' ' } , "dateOf8irth 
" : , "propertyownership" • 
alse, " secondJob" : false, " phones" : phone Type " : {"entyld" "description " : "N',obile " } , " phone " : '07956421777"}) , " isMainAppIicant " : false, 
" additionalPersonaIDetaiIs " : { } , " conununicationSettings " : {"byphone " : false, "byEmaiI" : false, "bySms " : false, "bypost " : false} , "gender" : {"entyld" • "M" , "description " 
"Male" , "ogild" : "M" , " codeList" : "LIQR251' , "ogiCodeList" : "LIQR25"} , "maritalStatus" : {"entyld" • 
' , "description" : "Married" , "ogild" : "M" , " codeList" : "MaritalStatus" , 
"ogiCodeList" : "LIQR17"}, "childrenLlnder16" : {"entyld" : 2, "description" : "2 at this address" , "ogild" :nuII, "codeList" :nuII, "ogiCodeList" :nuII}, "employment Type" 
"entyld" • "E" , "description" : "Employed" , "ogild" : "E" , " codeList" : "EmploymentStatus" , "ogiCodeList" : "LIQRß7"} , "occupation" : {"entyld" : "ADor" , "description" • 
"Account Director" , "ogild" : "ADor" , "codeList" : "Occupation" , "ogiCodeList" : "LlQR35"}, "business Type" : {"entyld" : "Aev" , "description" : "Aerial , "ogild" : "Aev" , 
" codeList" : "Business Type" , "ogiCodeList" : "LlQR38"}, "residency" : {"entyld" : "6" , "description" : "4 years" , "ogild" : , " codeList" : "Residency" , "ogiCodeList" : 
"title" : {"entyld" : "Mr" , "description " : "Mr" , "ogild" : "Mr" , " codeList" : "Title" , "ogiCodeList" : " uQRTL"} , "firstName" : "${firstname}" , "lastName" : "${surname}" , "email" : 
"${emaiIY'}, "productData" : {"addDriverI" : false, "lifelnsuranceType" : {"entyld" "description" : "Level term"}, "useMonthIyPremium" : false, "lifelnsurancepremium" : 2ß 
, "lifelnsurancecoverage " : Iøøøøa, "lengthOfCoverage " : 2ß, " additionalCarDetaiIs " : {"byphone " : false, " noConvictions " : false, " claimsCost " " claimsUC8Lost " : false, 
" claimspersonallnjuy" : false, " claims ThirdPartyCost " " claimsLlnderCurrentPoIicy" : false, "motoringorganisation " : false, " annualifications" : false, "vehicleTracker" 
: false, "vehiclepurchased" : true, "driversUonRTAConvictions " : false, " registeredKeepeetesNo" : true} , " additionalPoIicyDetaiIs " : policyNoCIaims80nusProtected" : false} 
} , "extraData" : { } , " cancellationData" : { } , " relationship" : null, "otherUame " : , "edit"ode " : true} , " pageName " : "Quote " , " pagelndex" : 2} 

**Identify and create a variable for the access-Token**

1. Scroll down the results tree and find where the access token is first returned in the response data, for example. The access\_token needs to be copied and re-used further down the script

"access\_token": "1gPWyL\_l4lUW6UClr0551\_WipxDAUswtKSFrk-fbSiAg9N2QZ--VaozZy7Qt\_3\_Bzgf2hZ5QE-yFESt5dvj-S1atdKl1sbDZwEaLP5s5dNhgLCkihc6\_19ZUhPy1B2FF5dXFZ0xh1rYTli-yPd1aXD3l3Ms-bW-PFywHV2E2GAsCRlgRIaR4vcHn\_LJBgqU16qdquJdVfrDeAJMtJUlzS63uy358lBzTPiXWsOTq39Ju4QF30N0Vt9ON1mWeC2ZwYE\_7Vm5Yg9Dl2eTW\_d7Qm3-i9dsdKDWUN3sGtuAU6ym3Ld7E9dyRcjQao2RON9\_nIj28pBbouRYJmgBCpc230TxkQAcxZCV21PXPFkgGktZxLzXjdvW6CcmSJTjcYZHk",

1. Since the data is returned in a JSON file add a JSON Path Extractor on the step where it is returned
2. https://hugapi-test.azureweositesnevvl/quote GETID and ACCESS TOKEN and ENTER DATA 
   HTTP Header manager 
   Uniform Random Timer 
   jp@gc- -ISON Path Extractor 
   jp@gc - JSON Path Extr 
   Debug Postprocessor 

Copy the Response data to a json path evaluator <http://jsonpath.com/>? . Enter the response on the LHS, then enter your syntax above it. The evaluation is displayed on the RHS. For the access\_token the JSOPath expression was $..access\_token

To ensure that the correct access\_token is displayed, add a debugger (see above) to ensure the correct value is being extracted. In this case the access-token was surrounded by quotes and square brackets, which meant that the actual variable used was **${accessToken\_1}** You'll need to run the same script again to get the results. The extractor will end up looking like this

jp@gc - JSON Path Extractor 
Name: jp@gc- -ISON Path Extractor 
Comments: 
O Help on this plugin 
Apply to: 
@ Response Text 
Destination Variable Name: accessToken 
JSONPath Expression: Smaccess_token 
Default value: ACCESS TOKEN NOTFOUNO 

This variable name will now be used later in the script. To find out where perform a search on the Authorisations in the subsequent requests as follows

z oo ao 
Search Tree 
search: hgPKNyL_141UW6UCIr0551 WipxDAUswtK$ 
Replace by 
O node(s) match the search 
exp 
Search & Expand 
Replace All 

Where this is found, add the new variable to the HTTP Header manager as follows

HTTP Header Manager 
Name: HTTP Header manager 
Comments: 
Headers Stored in the Header Manager 
Name: 
Accept 
Origin 
User-Agent 
Referer 
Accept-Encoding 
Accept-Language 
application/json, text/plain, 
http://hugweb-testazurewebsitesnet 
NT 101; Win64, x64) AppleWebKit/f 
Bearer ${accessTo 
http://hugweO-testazurewebsitesnet/quote/Car/2/S{id) 
gap, deflate, sdch, Or 

In addition to creating a variable for the access token, you'll need to create a variable for the Path. This will be something like   
<https://hugapi-test.azurewebsites.net/v1/quote/591d6f4be70c3811002366f6> (as see in the request table)

Again this string is found in the Response table tab of the Results tree, e.g.

Sampler result 
Request 
Response data 
'591d6f4be70c3811002366f6", 
"quoteReferenceId" -aug118002017gg1", 
"productType" "Car", 
"staled0ate" "2017-05-18Tog 54 lg 
"updated0ate" "2017-05-18Tog 54 lg 
"status" 2, 
-ownerld" "591d6f4be70c3811002366fT, 
"modelOata" { 
"isThisQuoteForYou•: true, 
"otherName1 

As with the access token this will need to be extracted using the JSON Path Extractor

jp@gc - JSON Path Extractor 
Name: jp@gc- -ISON Path Extractor 
Comments: 
O Help on this plugin 
Apply to: 
Destination Variable Name: 
JSONPath Expression: S Id 
Default Value: 
IONOTFOUNO 

Again use the Debug processor to fund the actual value since the one found may again include square brackets and quotes.

Enter the id into the HTTP header where required as follows

HTTP Header Manager 
Name: HTTP Header manager 
Comments: 
Headers Stored in the Header Manager 
Name: 
Accept 
Origin 
User-Agent 
Authorization 
Referer 
Accept-Encoding 
Accept-Language 
application/json, text/plain, 
http://hugweb-testazurewebsitesnet 
MozjIIa/51 (Windows NT 10 0, Win64, x64) AppleWebKit/537 
Bearer S{accessToken_1} 
http://hugweb-testazurewebsitesnet/quote/Car/2J${ld} 
gzjp, deflate, sdch, Or 

That's about it. An example script is included below

Remember the you tube videos are very good and explain all the above

<<getprices.jmx>>

**Transaction Controllers**

Jmeter records all **samples** individually for all the interactions to and from the server. Examples include json and html files. In other words using the base blazemeter recording the response times will be recorded for each of these separately. To record the times for separate pages you need to add Transaction Controllers, one for each page

Note if the checkboxes are ticked on the Transaction Controller, not all the report graphs will be displayed

getprices 
HTTP Authorization Manager 
HTTP Cookie Manager 
HTTP Cache Manager 
Thread Group 
jp@gc-Stepping Thread Group 
bzm - Concurrency Thread Group 
CSV Data set config 
View Results Tree 
Results in Ta 
Graph Results 
Response Time Graph 
Transaction controller START CAR JOURNEY 
Transaction Controller - Page 1 - Your Details 
Transaction Controller - Page 2- About you and your car 
Transaction Controller - 
Page 3- 
About you 
Transaction Controller - Page 4 - Your Quote 
WorkBench 

The samples associated with each page can be determined using Network Developer Tool option. The traffic for each page should match the samples in Jmeter

**Constant Timers**

These can be added to simulate actual use of the website. In the getprices test plan this would equate to the time spent for a user to enter data before clicking Next

Response Time Graph 
Transaction controller START CAR JOURNEY 
http://hugweb-testazurewebsitesneVsrc/ContenVContentMaimhtml 
https Whugapi-test azurewebsites /content-html/root. content 
https Whugapi-test azurewebsites /content-html/root. content 
httpsWhugapi-test.azurewebsitesnetM/content-html/contact-details 
httpsWhugapi-test.azurewebsitesnetM/product 
https://hugapi-testazurewebsitesnetM/content-multihtmWjourney-panel-left?productType=Car 
httpsWhugapi-testazurewebsitesnetM/content-multihtmWjourney-panel-right?productType=Car 
https://hugapi-test.azurewebsitesnetM/product 
httpsWhugapi-testazurewebsitesnetM/content-htmWcontact-details 
httpsWhugapi-test.azurewebsitesnetM/product 
https://hugapi-testazurewebsitesnetM/content-multihtmWjourney-panel-left?productType=Car 
httpsWhugapi-test.azurewebsitesnetM/content-multihtml/journey-panel-right?productType=Car 
https://hugapi-testazurewebsitesnetM/product 
Constant Timer 

**Thread Group Timers**

This are available as plugins and allows you to control number of threads (users) to the build up of users

ge rices 
HTTP Authorization Manager 
HTTP Cookie Manager 
HTTP Cache Manager 
Thread Group 
bzm- Concurrency Thread Group 
CSV Data set config 

The default thread is to load all the users ASAP. The others allow the number of users to be controlled at the start and finish of a run, e.g.

jp@gc - Stepping Thread Group 
Name: jp@gc-Stepping Thread Group 
Comments: 
O Help on this plugin 
Action to be taken after a Sampler error 
Threads Scheduling Parameters 
@ Continue 
O Start Next Thread Loop 
threads: 
seconds; 
threads; 
O Stop Thread 
O Stop Test 
This group will start 
100 
First, wait for O 
Then start 
Next, add 
10 
Then hold load for 60 
Finally, stop 
5 
Expected Active users Count 
00 
threads every 
using ramp-up 5 
seconds. 
threads every 
50 
40 
00 00 00 
O Stop Test Now 
00 04 39 
seconds, 
seconds. 
seconds. 
Activate Windows 
Go to Settings to actuate 
00 00 39 
0001 59 
00 02 39 
000319 
00 03 59 
000519 
00 05 59 
00 06 39 

Add assertions, egg to confirm that the prices have been displayed

For other tips Google 'top jmeter tips' and read the jmeter notes from G4S.

**Server performance Monitoring**

CPU, Memory, Swap, Disks I/O and Networks I/O can be measured using the "Servers Performance Monitoring" plugin, <https://jmeter-plugins.org/wiki/PerfMon/#Introduction>