

# Database Performance and Load Testing using JMeter



Dhanuka Dulanjana · [Follow](#)

3 min read · Nov 12, 2023



## Why Database Load Test?

Databases are the crucial factors that affect application performance. Due to the performance of the database, it might be annoying for the users to experience high wait times. Before releasing the database into the live environment, it will be a good idea to test the database performance for multiple users. The result of the test helps to identify the performance bottlenecks.

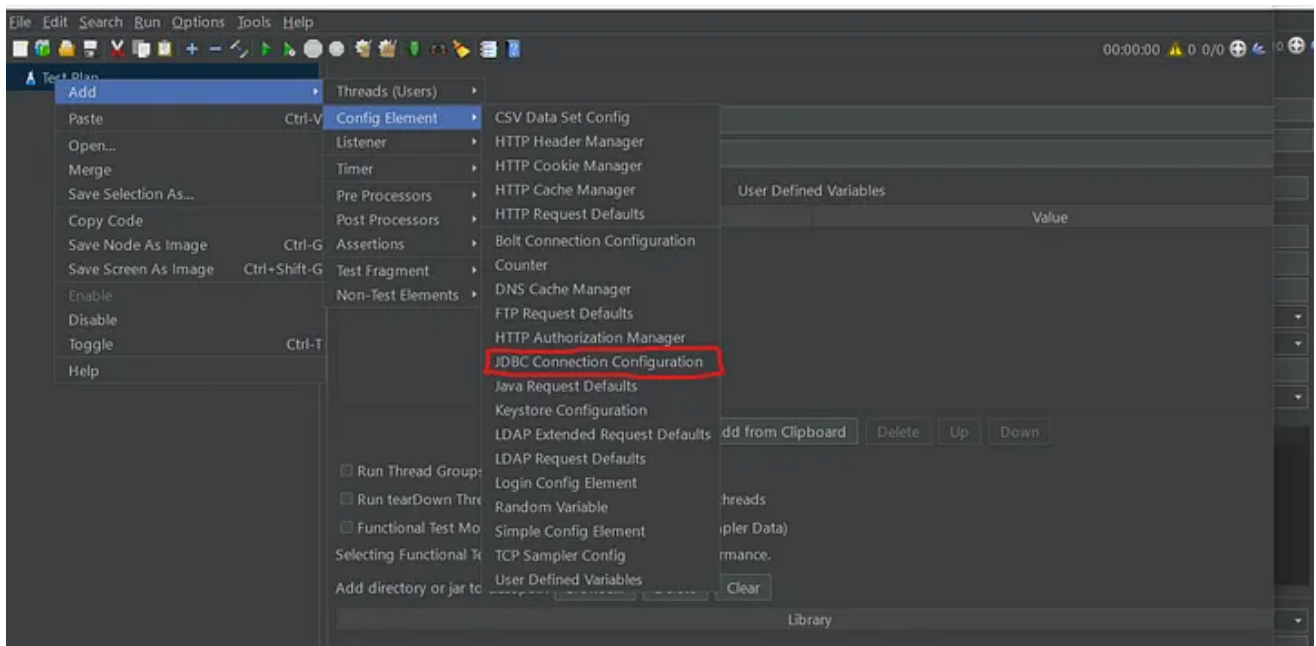
## Advantages of Database Load Test?

1. In my opinion, the main advantage of doing a database load test is to identify problems during development time.
2. Identify Slow Queries and indexing strategies.
3. fine-tuning database configurations and parameters [Number of max Connection]. By observing the system's behavior under load, administrators can adjust settings to enhance performance.
4. Understanding the resource requirements under different loads [CPU, memory, and storage utilization ]

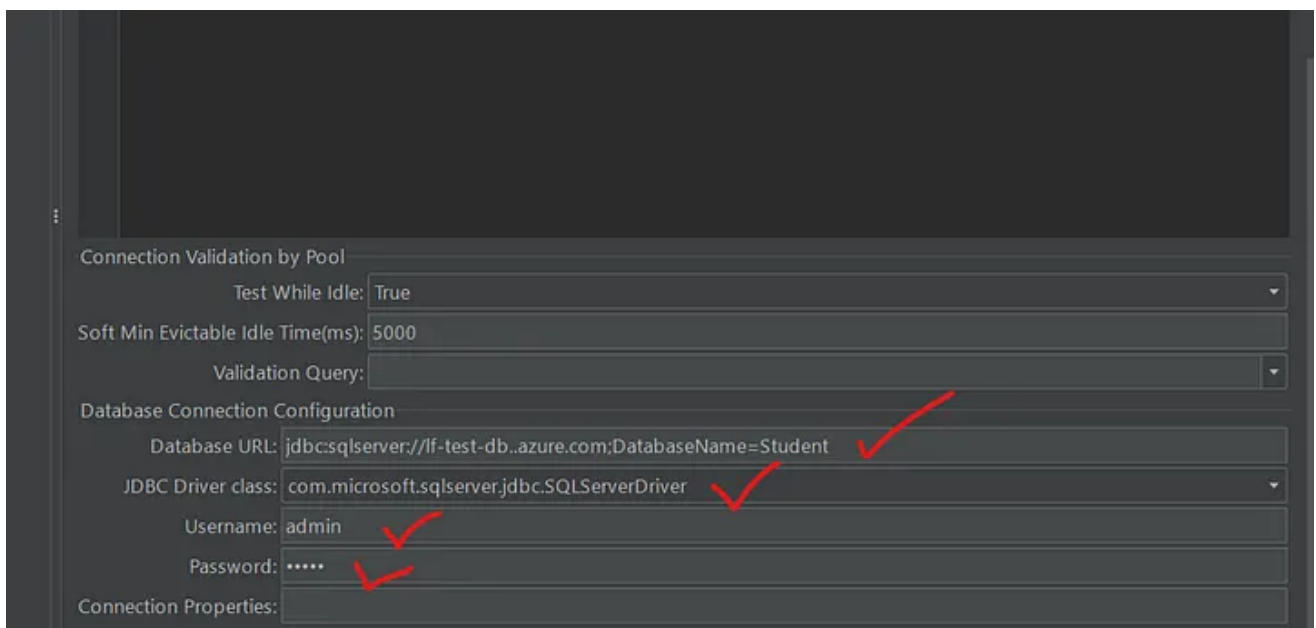
## How to Load Test Your Database

There are many ways and many tools to load test databases. Most approaches use the Java Database Connectivity, or JDBC, which provides a call-level API for SQL-based database access. JMeter is one of the best and easiest tools to load-test your database. In this article, I'm going to use MSSQL database but you can test any database using JMeter.

Step 1:- Add JDBC Connection Configuration to your Test Plan.



Step 2;- Define Properties Properly.



Specify Database URL :

```
jdbc:sqlserver://<database_serverName>;DatabaseName=<name_of_database>  
Example : jdbc:sqlserver://lf-test-db.azure.com;DatabaseName=Student
```

### JDBC Connection Configuration

Name: JDBC Connection Configuration

Comments:

Variable Name Bound to Pool

Variable Name for created pool: test\_connection

Connection Pool Configuration

Max Number of Connections: 0

Max Wait (ms): 10000

Time Between Eviction Runs (ms): 60000

Auto Commit: True

Transaction Isolation: DEFAULT

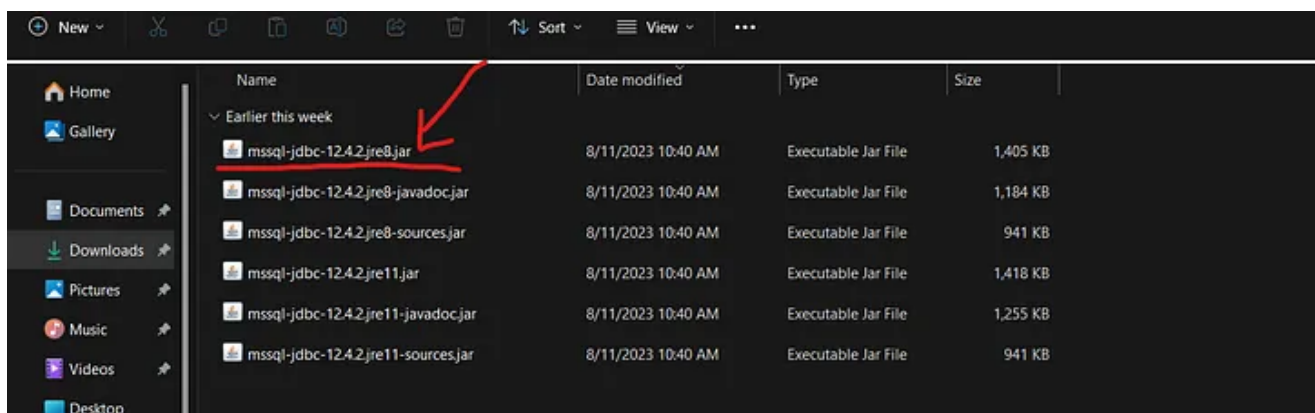
Pool Prepared Statements: -1

Preinit Pool: False

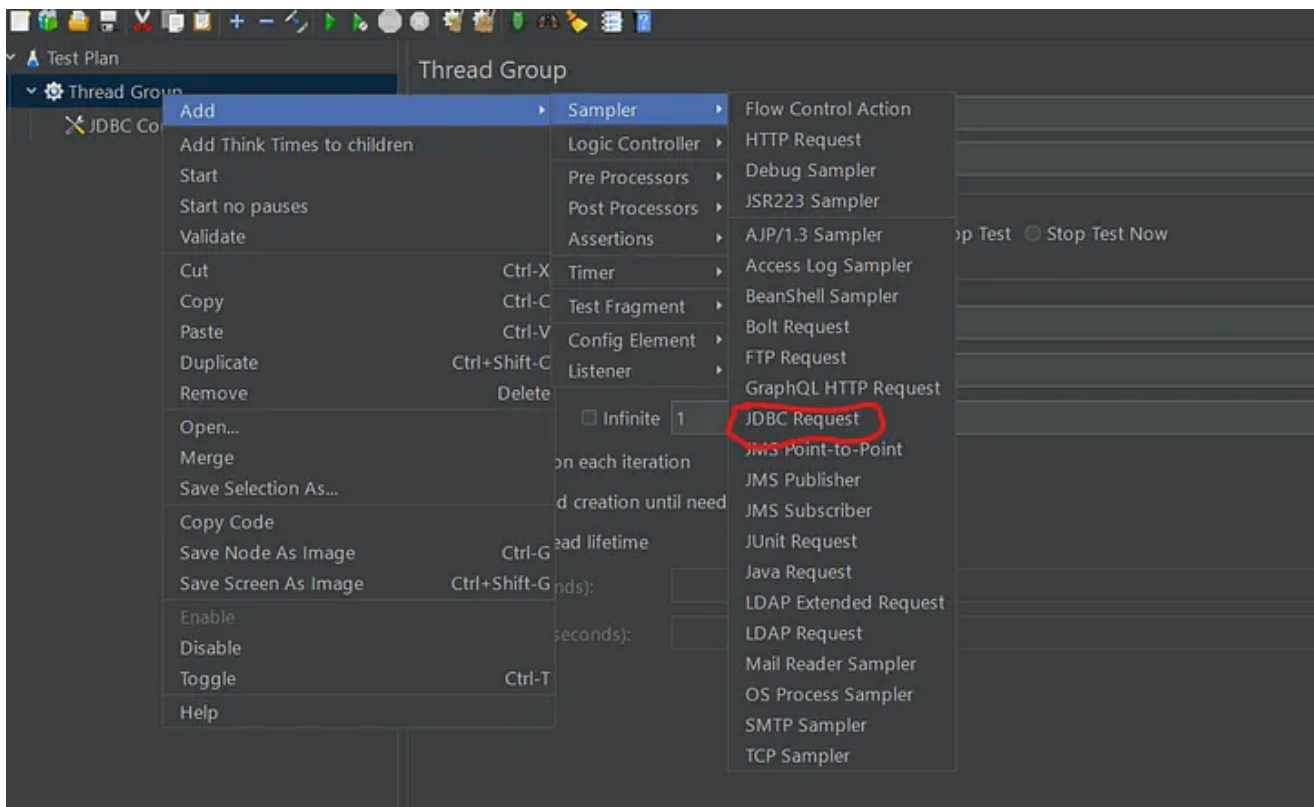
Init SQL statements separated by new line:

**Variable Name Bound to Pool:** Provide any variable name that will be used to refer to this connection pool. [Ex:- test\_connection].

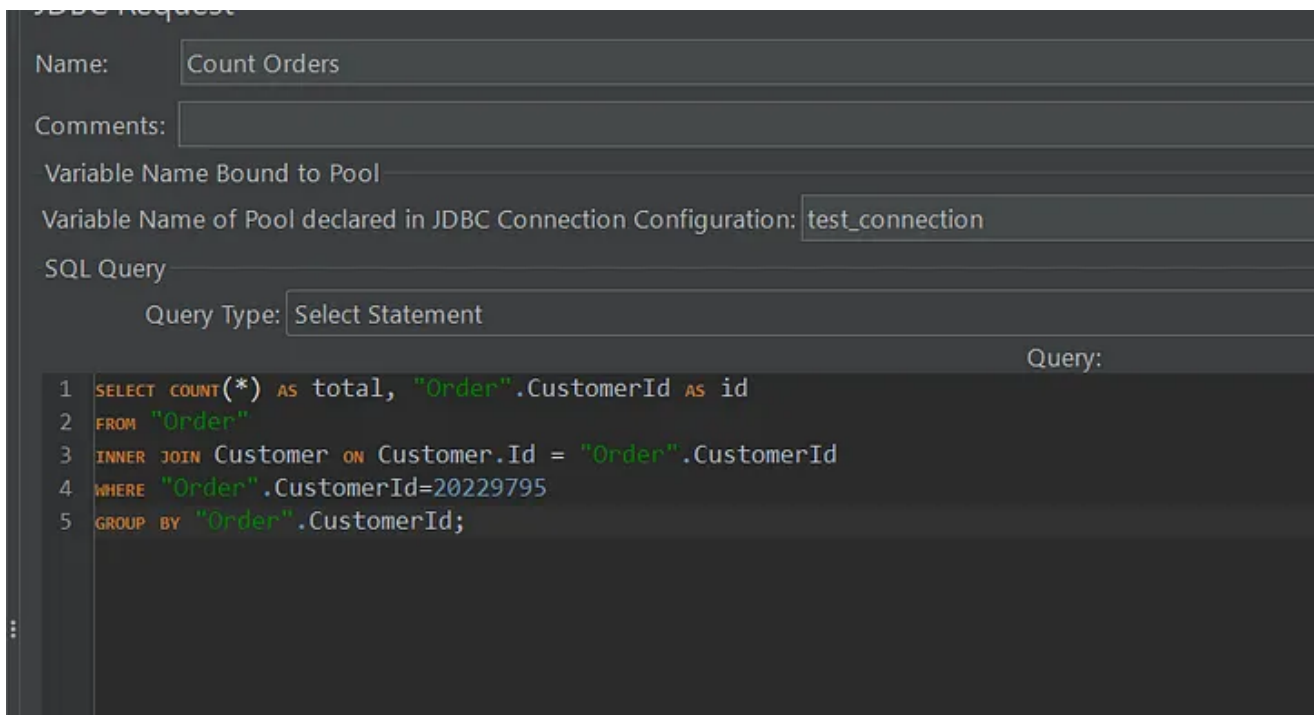
Step 03:- Download Microsoft JDBC Driver For SQL Server [here](#) and add the jar file shown below to the lib folder of JMeter and don't forget to restart the JMeter once it is added.



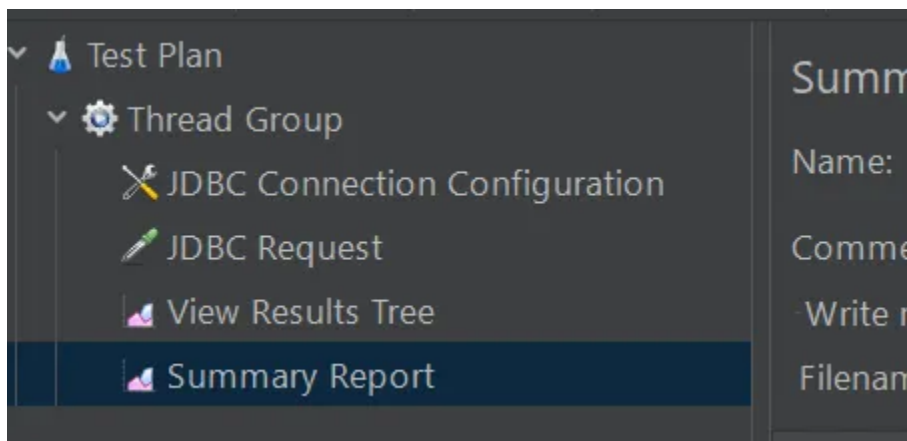
step 04:- Add JDBC Request to the Thread Group



Step 05:- Write a query that needs to be tested.

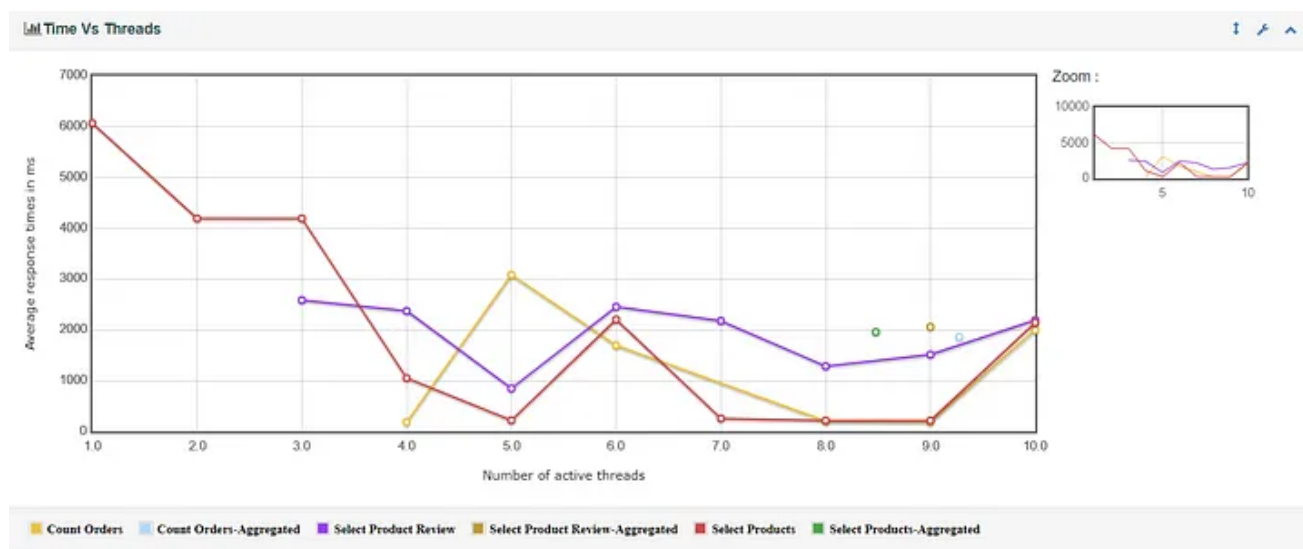


Step 06:- Add any Listner to view the test result. Your completed Test plan will look like this,



I have added two Listeners [View Results Tree and Summary Report]

## Result Analysing For 03 Different Database Queries.

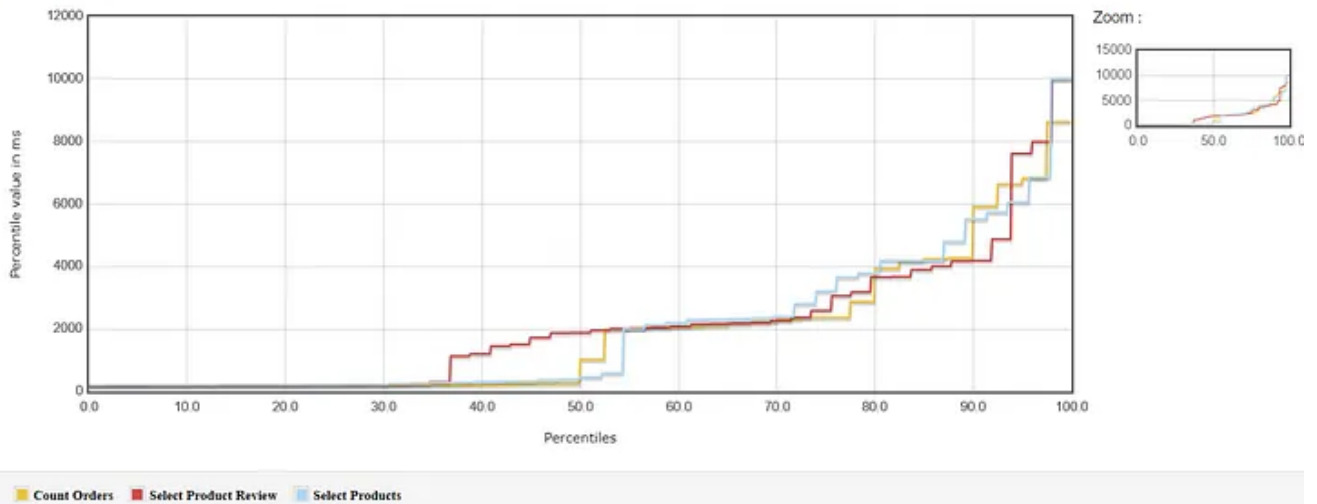


**APDEX (Application Performance Index)**

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.478	500 ms	1 sec 500 ms	Total
0.398	500 ms	1 sec 500 ms	Select Product Review
0.512	500 ms	1 sec 500 ms	Count Orders
0.533	500 ms	1 sec 500 ms	Select Products



## Response Time Percentiles

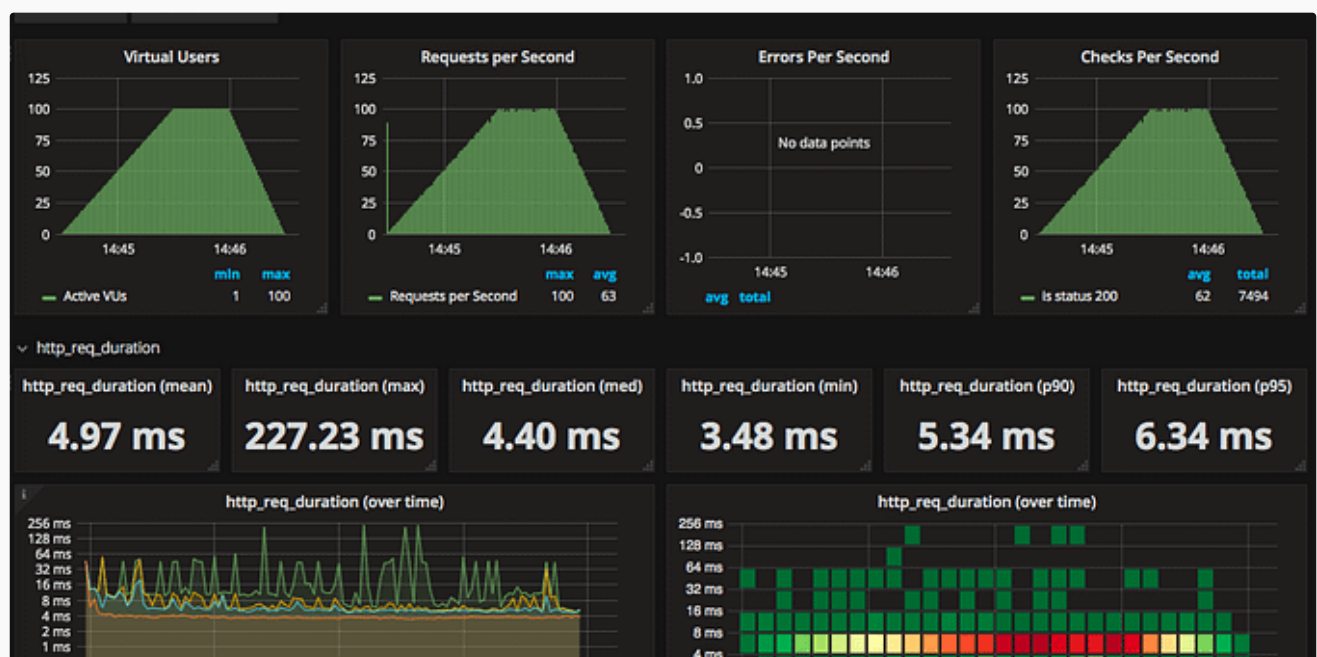


Written by Dhanuka Dulanjana

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Software Engineer | Automation Engineer

## More from Dhanuka Dulanjana







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## Performance/Load Testing with k6 +InfluxDB + Grafana on Windows

What is Performance Testing?

Jul 20, 2022 🖱️ 3



```
Comments:
Reset bshInterpreter before each call
Reset Interpreter: False
Parameters to be passed to BeanShell (= > String Parameters and String []bshArgs)
Parameters:
Script file (overrides script)
File Name: Browse...
Script (variables: ctx vars props prev data log)
Script:
1 import org.apache.jmeter.services.FileServer;
2 import java.io.File;
3 import java.io.BufferedWriter;
4 import java.io.FileWriter;
5
6 //String path = FileServer.getFileServer().getBaseDir();
7 String header = "ClientName,token,requestId"; // Define Header Values
8 String userName = "Dhanuka"; //Define Variables. This is constant variable
9 token= vars.get("flow_token"); //This is captured and stored early in variable called "flow_token"
10 requestId= vars.get("client_request_id"); //This is captured and stored early in variable called "client_request_id"
11
12 String csvFilePath = "C://Users/DhanukaD/Work Folders/Desktop/Test.csv"; //Define your File Path
13
14 try {
15 File file = new File(csvFilePath); //get the File details
16
17 // Check if the file exists, if not, create it and write the header
18 if (!file.exists()) {
19     FileWriter fw = new FileWriter(file, true);
20     BufferedWriter out = new BufferedWriter(fw);
21     out.write(header + "\n");
22     out.close();
23     fw.close();
24 }
```



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## How to write concurrent data into CSV file using Jmeter

Writing data into CSV files using JMeter serves multiple purposes across different stages of performance testing and analysis. Here are...

Apr 11



70

16

0


16

Request Metrics

Other Stats

Checks &amp; Groups

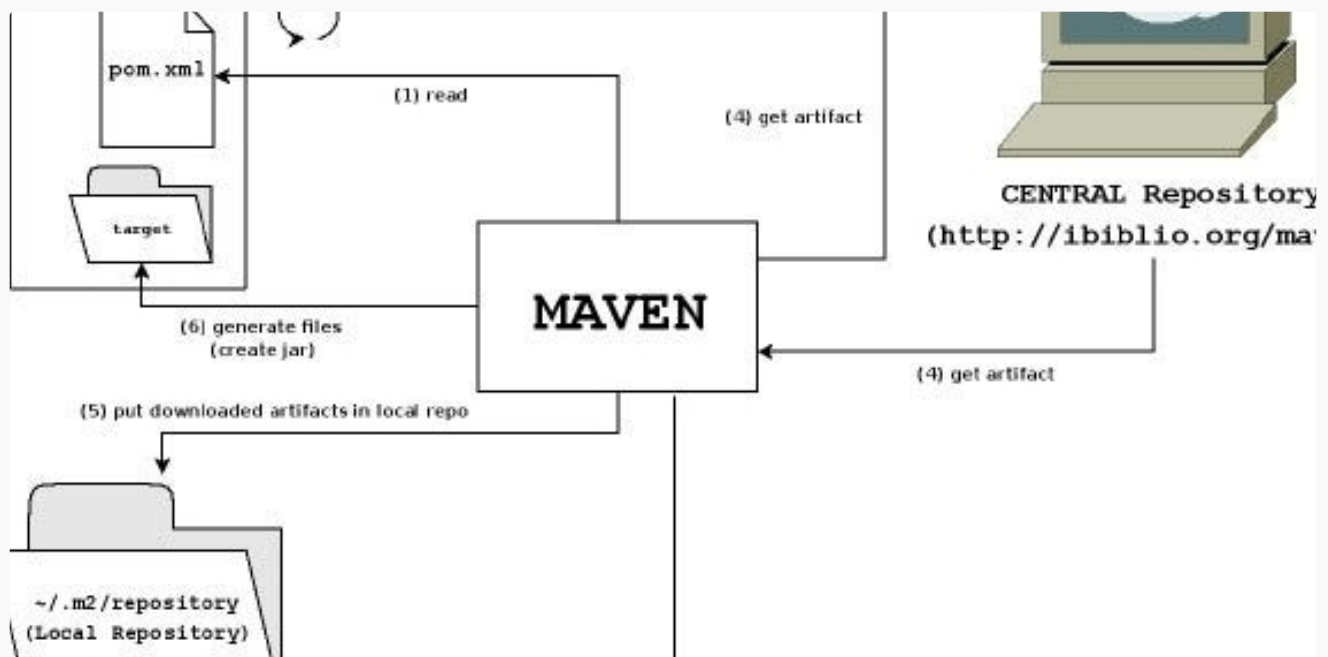

	Average	Maximum	Median	Minimum	90th Percentile	95th Percentile
http_req_duration	39.44	260.00	25.48	22.23	47.52	113.91
http_req_waiting	35.13	258.40	23.53	20.68	27.31	112.73
http_req_connecting	7.14	29.94	-	-	24.88	26.19
http_req_tls_handshaking	8.54	85.11	-	-	27.57	28.19
http_req_sending	0.11	0.59	0.09	0.05	0.16	0.18
http_req_receiving	4.20	24.12	1.87	0.18	22.35	23.05

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## How to Generate an HTML report using k6

Hello folks, This is my second article about K6, This one is based on generating an HTML report using K6. In my previous article, I wrote...

Aug 10, 2022


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## How Java Maven Works



Maven is an automation and management tool developed by Apache Software Foundation. It was initially released on 13 July 2004. In Yiddish...

Feb 22, 2020 🖱️ 1



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Software Development Engineer

Seattle, WA

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- Integrated Iframes for credit cards and bank accounts to secure 80% of all consumer traffic and prevent CSRF, cross-site scripting, and cookie-jacking
- Led Your Transactions implementation for JavaScript front-end framework to showcase consumer transactions and reduce call center costs by \$25 Million
- Recovered Saudi Arabia checkout failure impacting 4000+ customers due to incorrect GET form redirection

### Projects

#### NinjaPrep.io (React)

- Platform to offer coding problem practice with built in code editor and written + video solutions in React
- Utilized Nginx to reverse proxy IP address on Digital Ocean hosts
- Developed using Styled-Components for 95% CSS styling to ensure proper CSS scoping
- Implemented Docker with Seccomp to safely run user submitted code with < 2.2s runtime

#### HeatMap (JavaScript)

- Visualized Google Takeout location data of location history using Google Maps API and Google Maps heatmap code with React
- Included local file system storage to reliably handle 5mb of location history data
- Implemented Express to include routing between pages and jQuery to parse Google Map and implement heatmap overlay



Alexander Nguyen in Level Up Coding

## The resume that got a software engineer a \$300,000 job at Google.

1-page. Well-formatted.



Jun 1



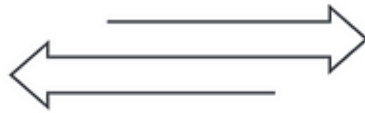
23K



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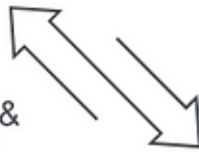


Burp Suite



Target

Monitor & control



SMTP



HTTP

DNS

External interactions



Burp Collector



Mesut Oezdil

## On Out-of-band Application Security Testing (OAST)

OAST detects hidden security vulnerabilities by analyzing external interactions of applications. It complements SAST and DAST, offering...

Sep 23 🖱 1

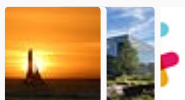


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Easy  
205/826

Med.  
248/1726

Hard  
50/747

Badges  
7



Most Recent Badge  
100 Days Badge 2024

1,088 submissions in the past one year

Total active days: 168 Max streak: 36

Current



Surabhi Gupta in Code Like A Girl

## Why 500 LeetCode Problems Changed My Life

How I Prepared for DSA and Secured a Role at Microsoft

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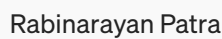


Ahmet T.

## The Incredible Power and Versatility of the C Language

It's hard to say that there's another language that can fully replace C. Here are a few amazing features of C that come to mind:

1



## Why 1==1 is true but 128==128 is false in Java

Ever wondered why comparing `1==1` returns true, but `128==128` returns false in Java? Let's dive into the magic of Integer caching to find...

Sep 11



1.1K



35



## Scaling Spring Boot: Strategies for Handling Millions of Requests

The number of simultaneous requests that a Spring Boot application can handle depends on several factors, including:

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