Database Performance and Load Testing using JMeter

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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.
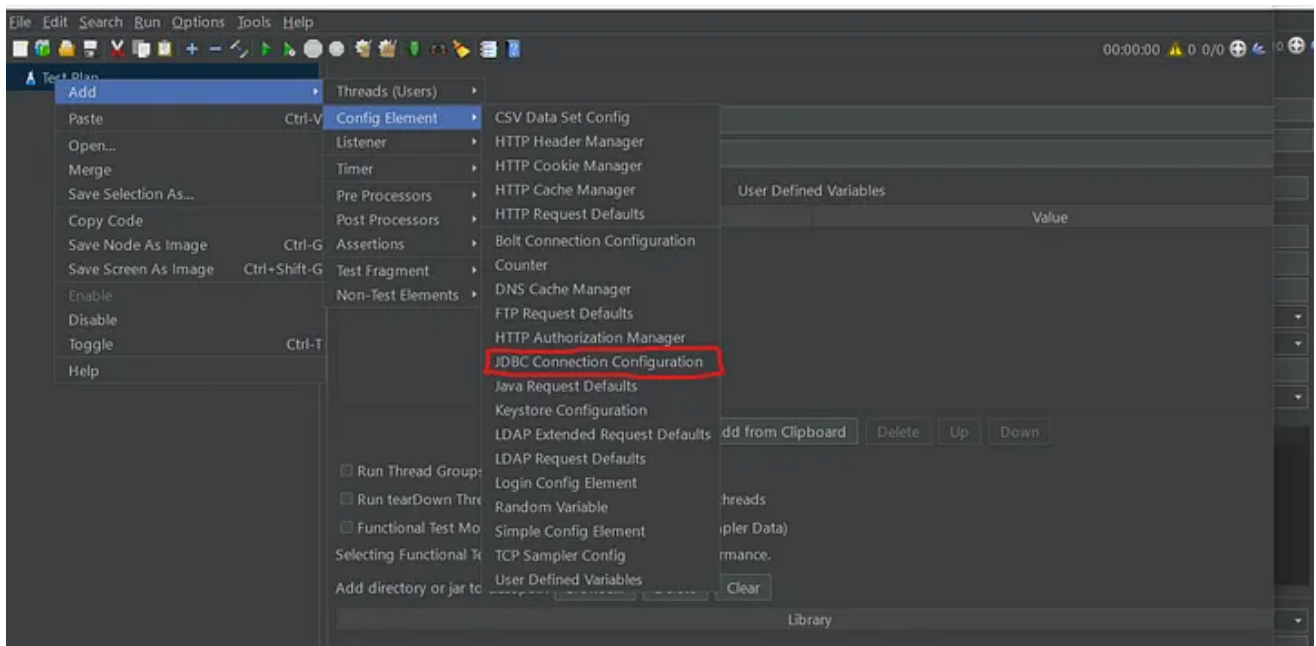
Step 2;- Define Properties Properly.
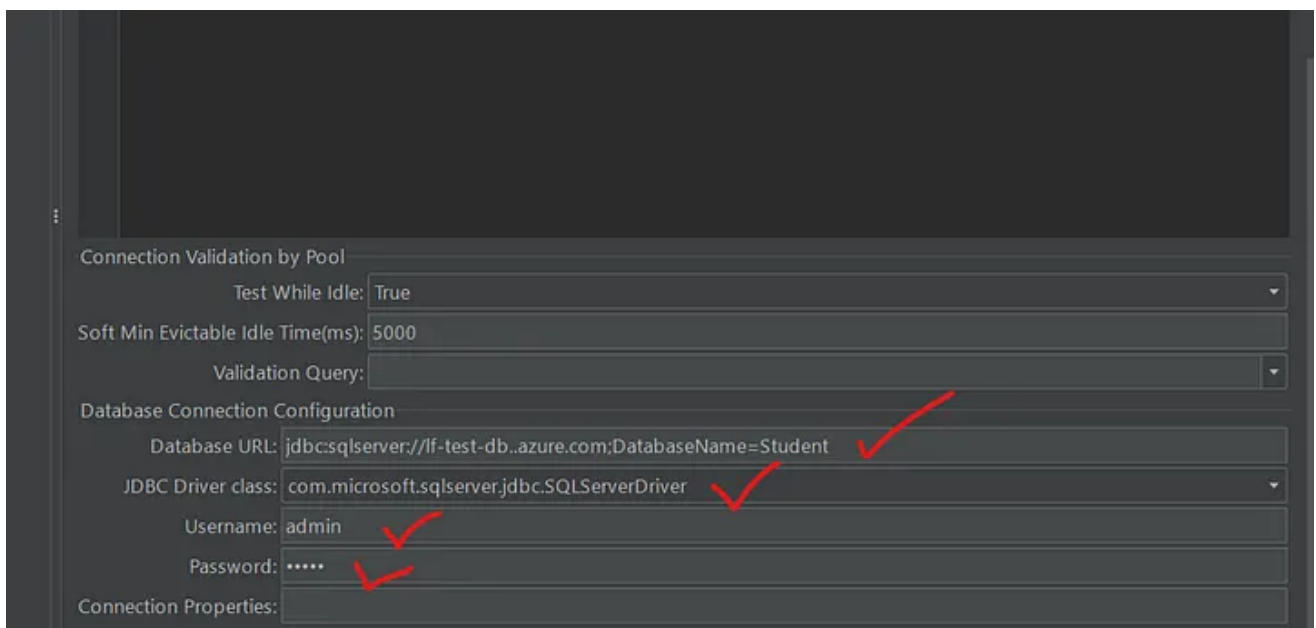
Specify Database URL :

```
jdbc:sqlserver://<database_serverName>;DatabaseName=<name_of_database>
Example : jdbc:sqlserver://lf-test-db..azure.com;DatabaseName=Student
```
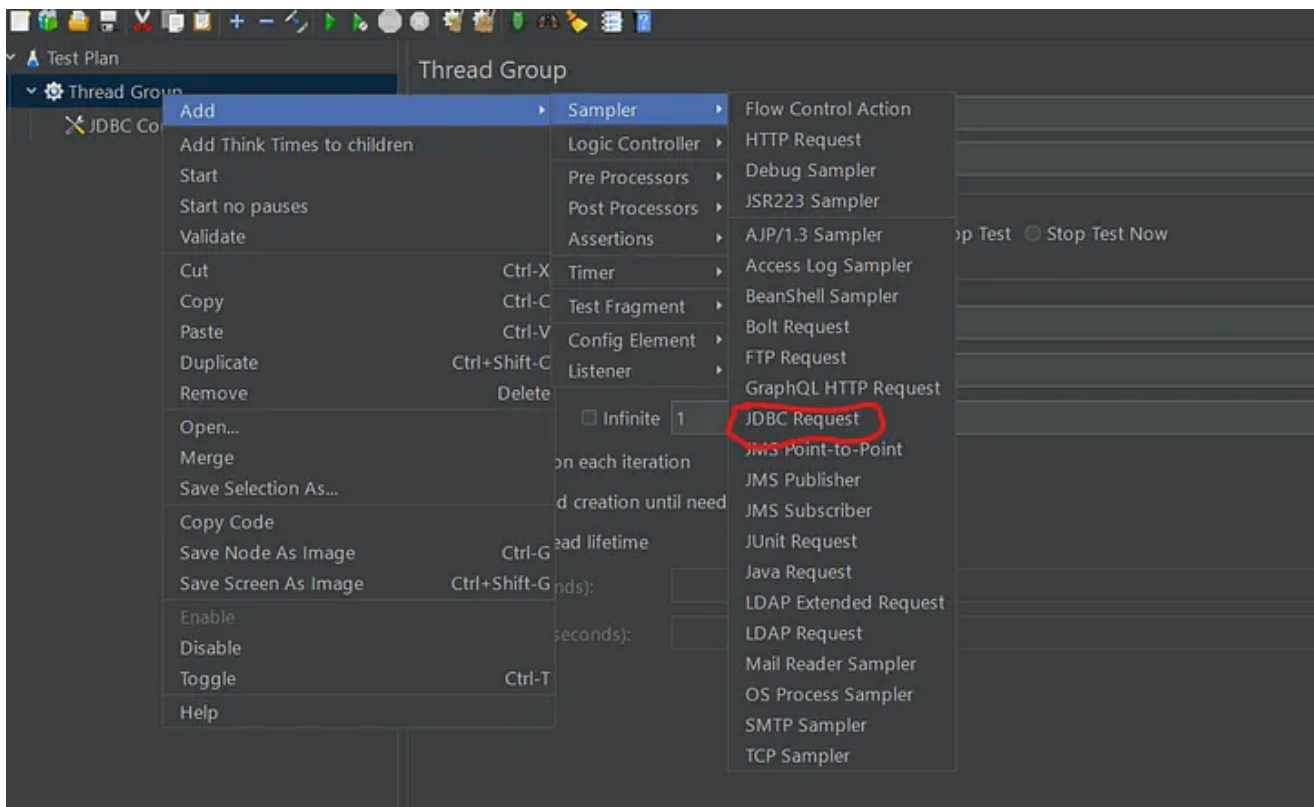
Variable Name Bound to Pool: Provide any variable name that will be used to refer to this connection pool. **[Ex-: test_connection].**

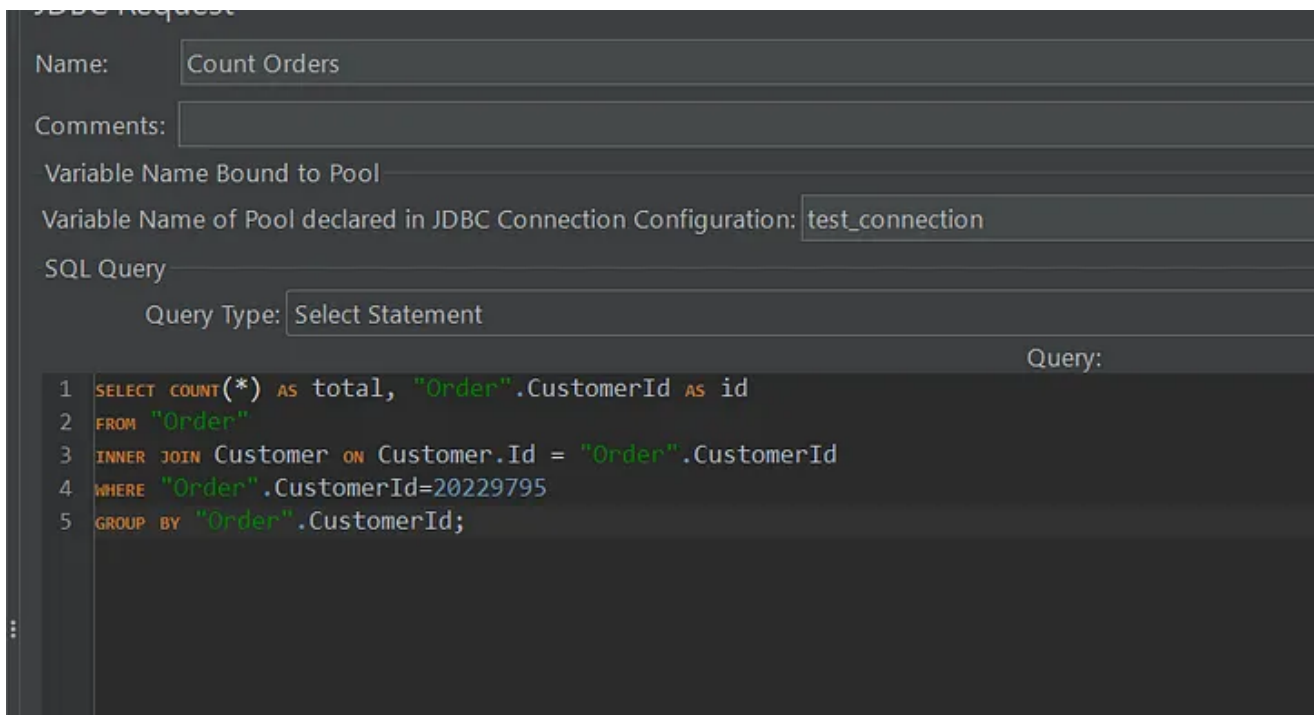Step 03:- Download Microsoft JDBC Driver For SQL Server *here* and add the jar file shown below to the lib folder of JMeter and don't forget to restart the JMeter once it is added.
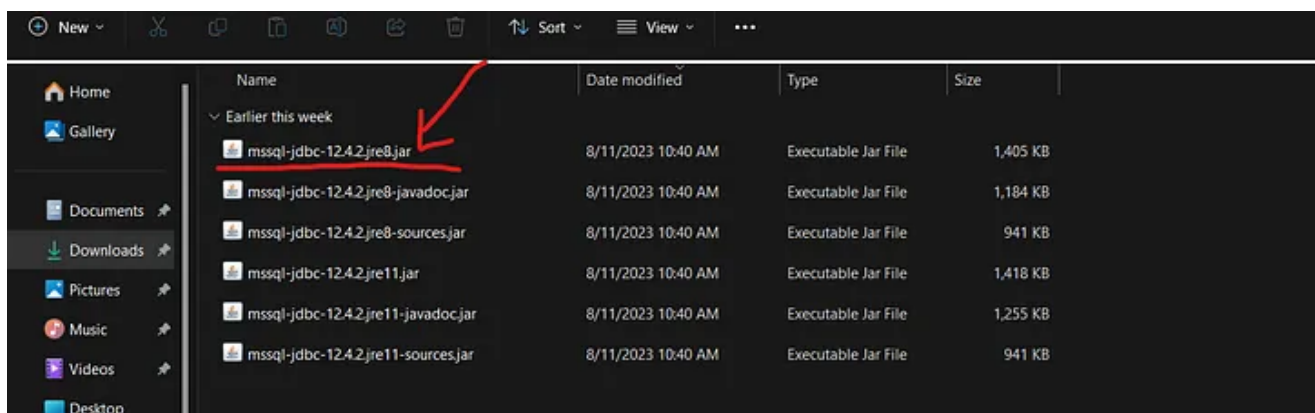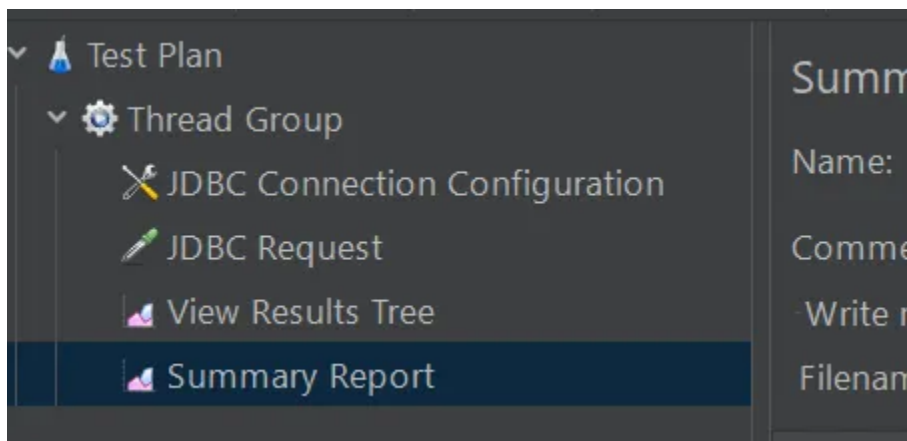

step 04-: Add JDBC Request to the Thread Group

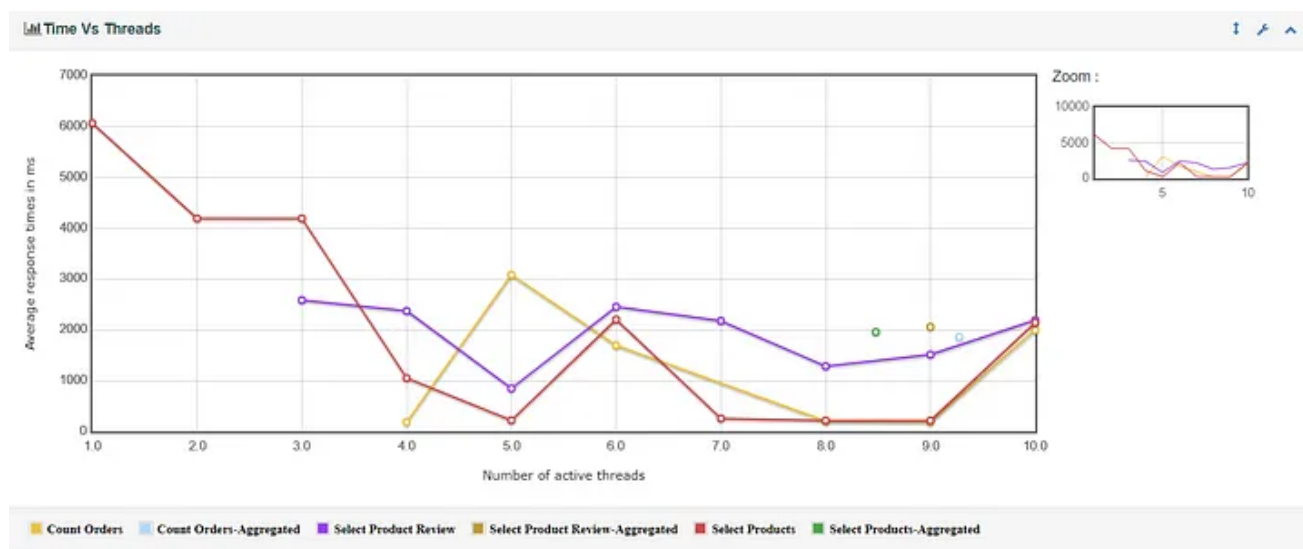Step 05-: Write a query that needs to be tested.

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]

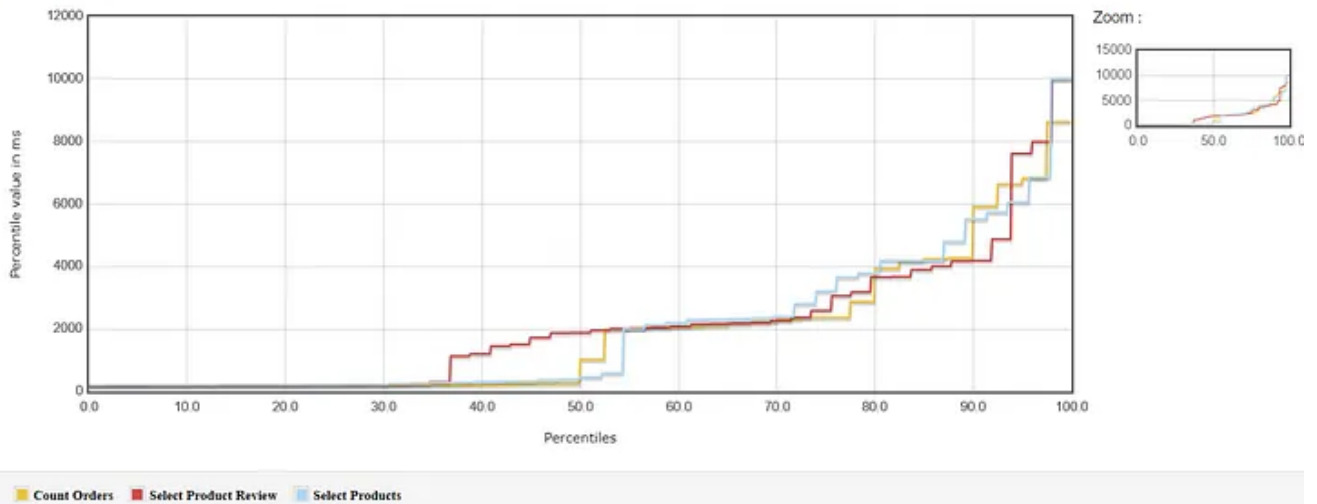## Result Analysing For 03 Different Database Queries.
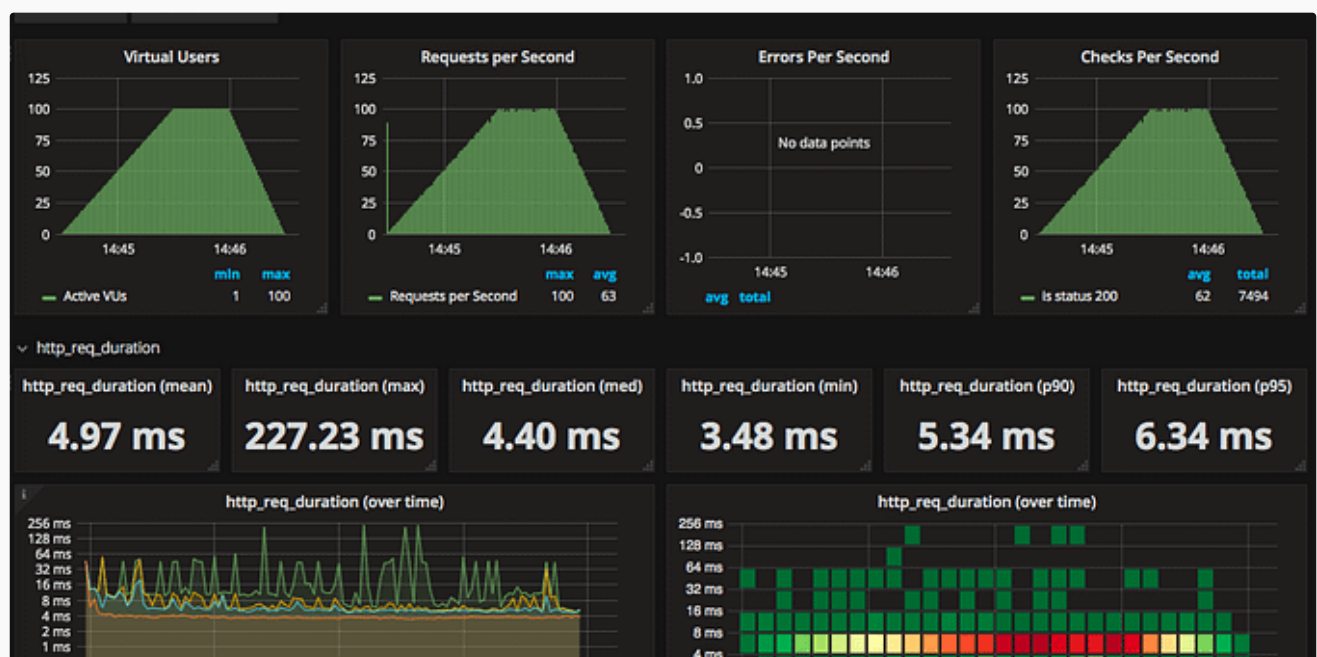
Response Time Percentiles

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	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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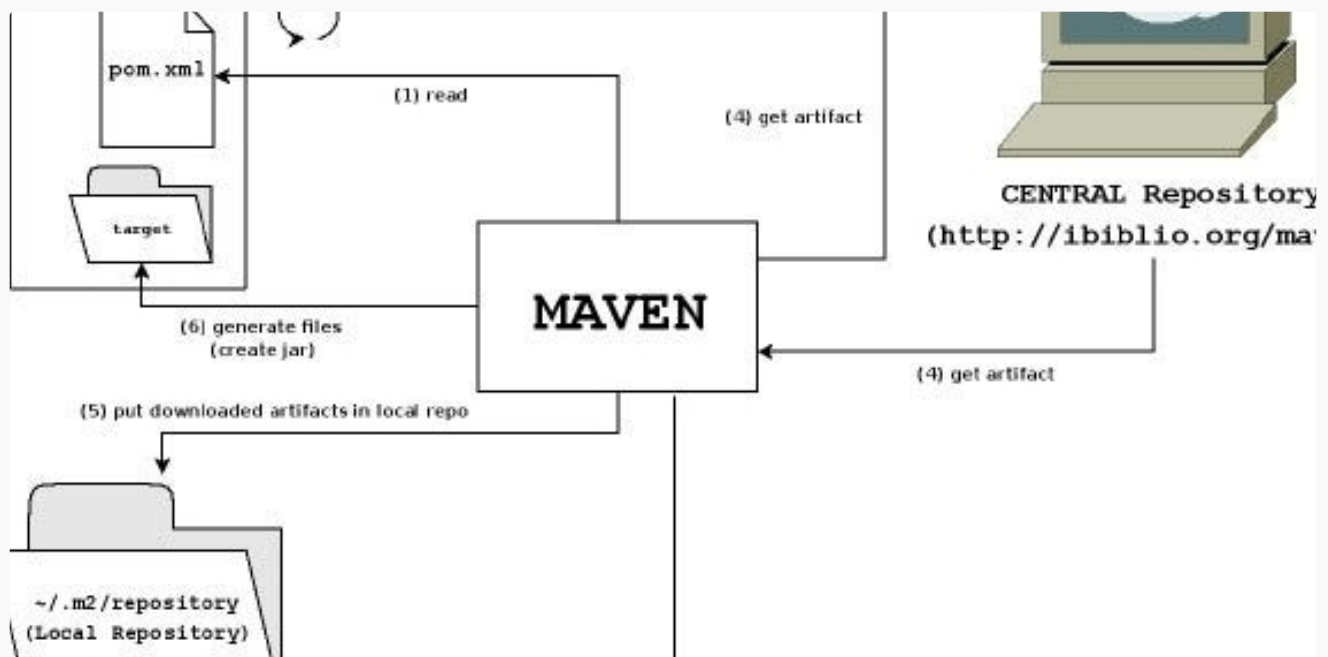
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Projects

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
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- Visualized Google Takeout location data of location history using Google Maps API and Google Maps heatmap code with React
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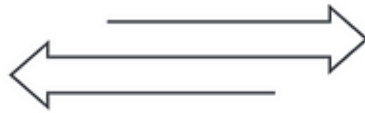
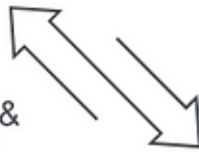1-page. Well-formatted.

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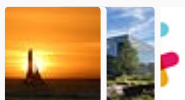
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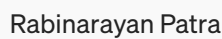
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