Title: Performance Tunning

Objective/Aim:

Do the performance tuning for Assignment No.4 & 5.

Introduction:

When we are developing any application we have to test it under various conditions like how it behaves under very high load conditions, etc. Performance testing in software helps to analyze the performance of the software. Performance testing is important alongside unit testing, system testing, and integration testing. Performance testing is used to analyze the performance, server response time, and throughput under different load conditions.

Apache JMeter :

This is a java-based application that we can use for performance testing. It generates heavy loads to analyze the performance of applications under different operating conditions.

Importance of Performance testing/tunning:

Performance testing is a crucial step in determining the behavior of applications under extreme load conditions that happen due to more no of server requests to database servers. Using performance testing we can define a maximum number of users of the software at a time if it is less than the requirement then we have to make some modifications to the server to handle the load so that we can increase the number of users of the software.
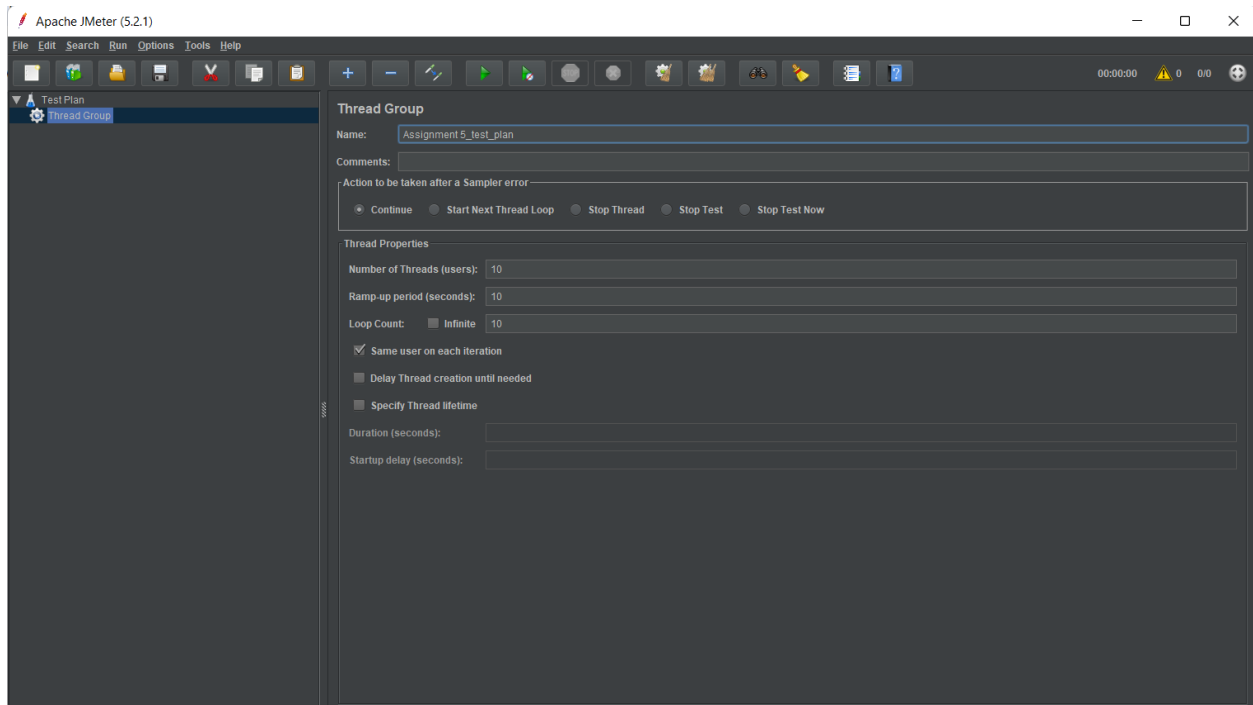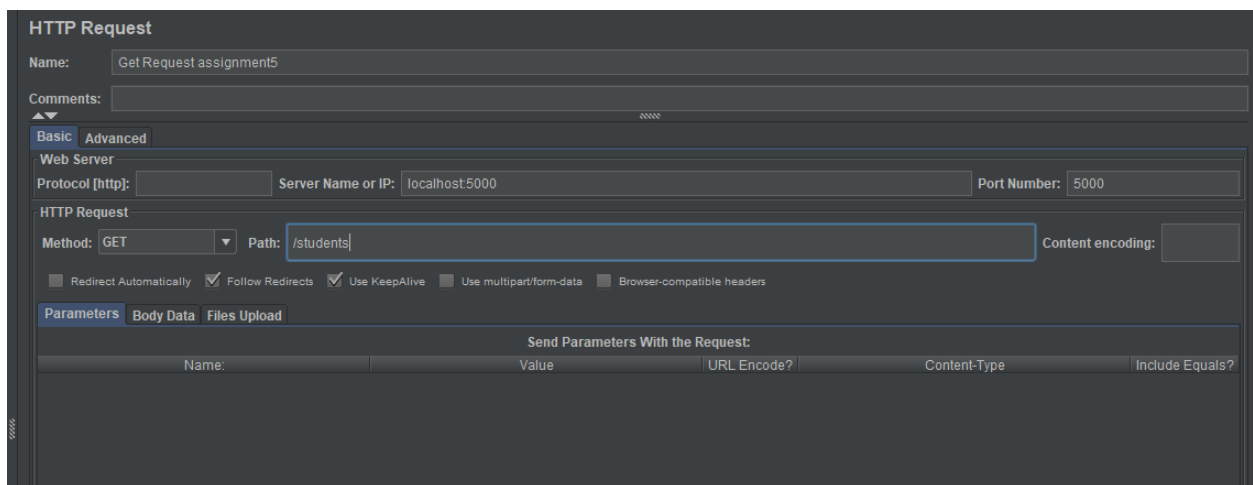
Block diagram of JMeter simulation:
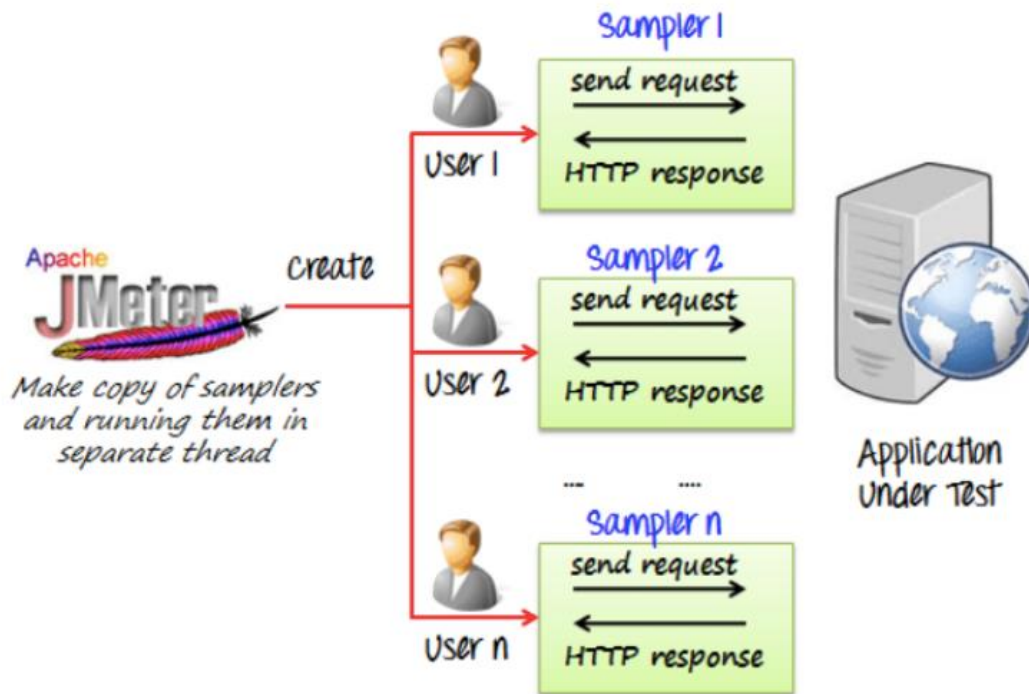
Multiple numbers of samplers are created to increase the load on the server and database system.

Procedure:
   1. Create performance test with the name assignment 5_test_plan
   2. Right-click on the test and add a new thread group specify loop time, no of thread, and other values.

3. Create HTTP requests with specified URL as localhost and port 5000 and then specify the route that we have to fetch and request type I have selected get request.

4. To get the output we have to add listeners I have added view listeners and graph result listeners and just run the test. We can run it multiple times and see the graph.
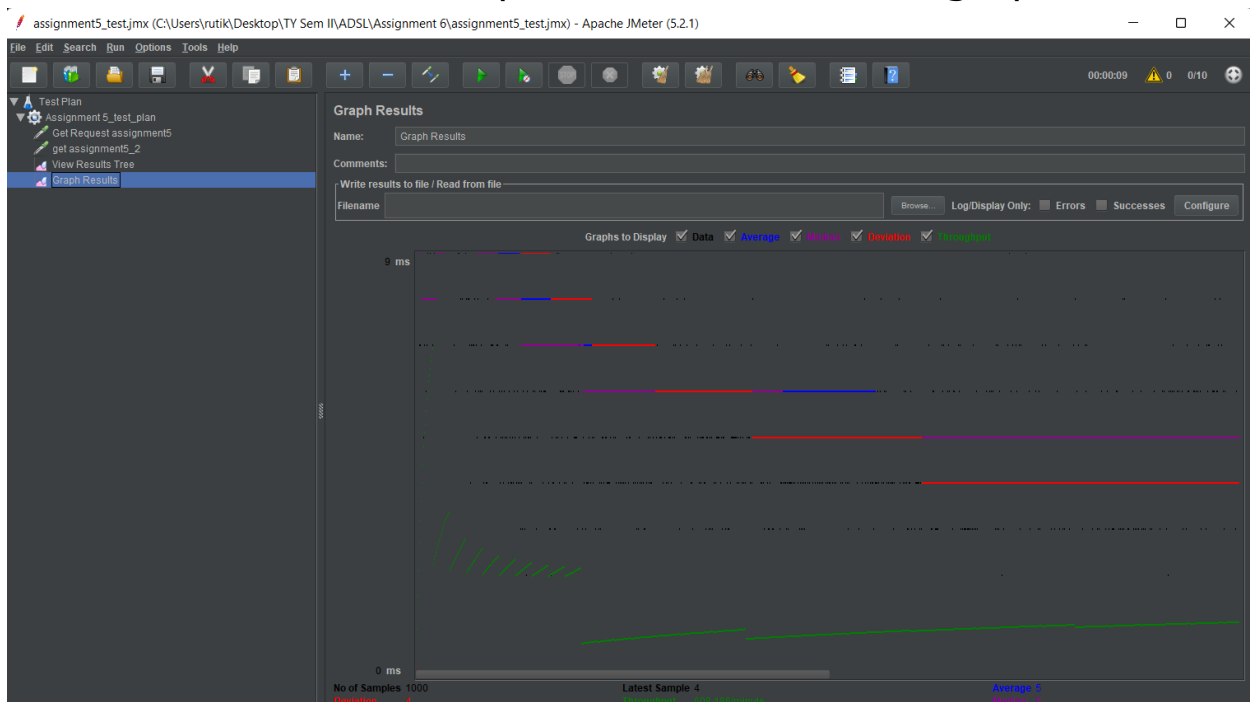
Results:

Throughput:

The measuring capacity of the server, or how much it can handle. Ideally, this number should be infinite, but practically it is not possible so it should be as high as possible.

This throughput depends on various factors like the current load on the server. Configuration of server with better specs will have more throughput. And also there will be multiple other processes also running on the server at the time of testing so this throughput is not the same when we perform the test multiple times. The result might vary depending on the load on the system.

Conclusion:

After analyzing the graph, the following are the conclusions:
- The throughput is 608 requests per minute.
- This means that the localhost server handled 608 requests per minute.
- Sometimes, the throughput even got 700 requests per minute.

Based on this number we can deduce that server can serve a maximum of approximately 600 requests per minute to the server.

Reference:

1. https://clutch.co/web-developers/resources/how-use-jmeter-test-your-web-application
2. https://www.youtube.com/watch?v=NTyY8wKSvik