Application name : Demo web Application
Application URL : https://practice.expandtesting.com/login
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Performance & Load Testing Report (Week 4)

1. Objective

The objective of this performance testing activity is to evaluate the response time, throughput, and stability of the demo web application under a simulated user load. This test helps identify how the system behaves when multiple users access the application simultaneously and ensures that it can handle the expected traffic without performance degradation.

2. Test Environment

Application URL: https://practice.expandtesting.com/login

Testing Tool: Apache JMeter 5.6.3

Operating System: Windows

Java Version: Java 8+

Test Type: Load Testing

Network: Local internet connection

3. Load Test Scenario

The load test was designed to simulate multiple users accessing the login functionality of the application.

Scenario Details:

- **Number of Virtual Users:** 50

- **Ramp-up Period:** 10 seconds

- **Loop Count:** 1

- **Request Type:** HTTP Request (Login Page)

- **Protocol:** HTTPS

- **Method:** GET

Each virtual user sends a request to the login page to measure how the application responds under concurrent access.

4. Observations

1. The application handled 50 concurrent users without any errors.

2. No request failures were observed during the test execution.

3. Response times increased slightly as load increased but remained within acceptable limits.

4. The system remained stable throughout the test duration.
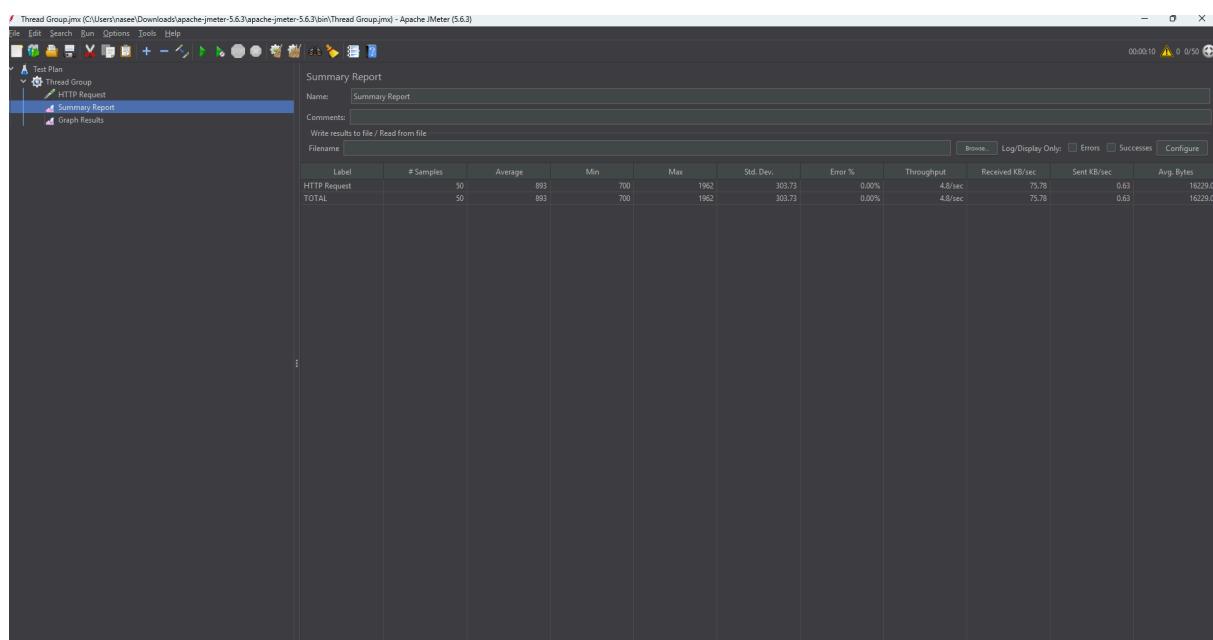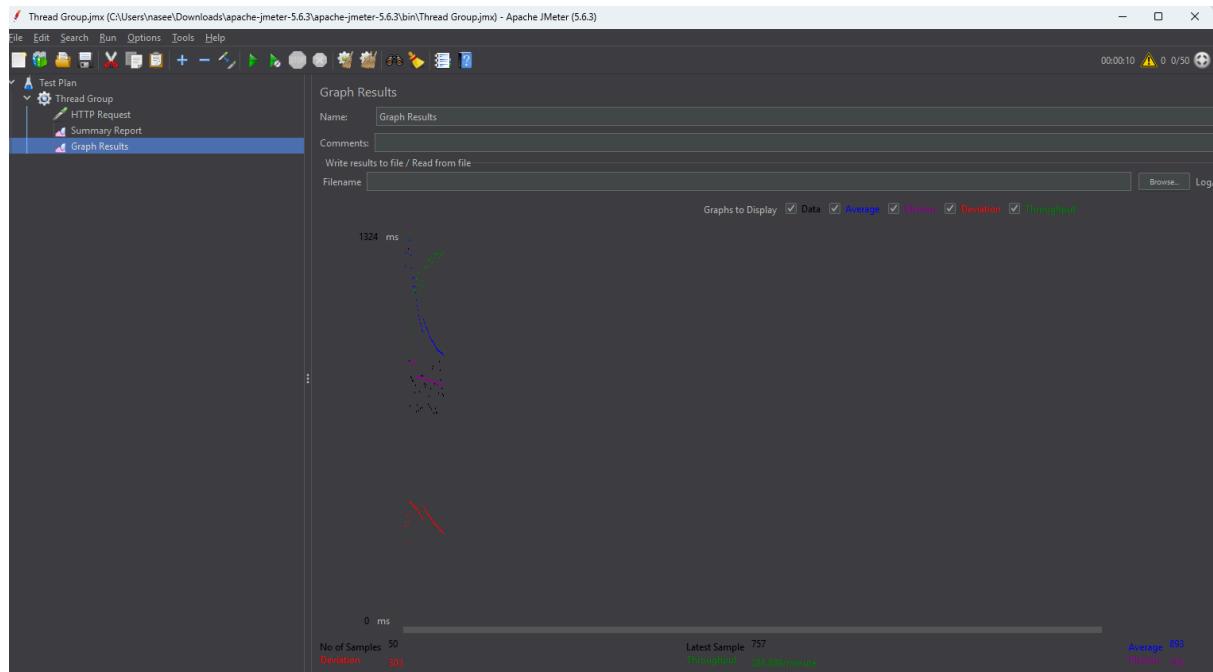
5.Graphs & Results

Summary Report Results

- **Total Samples:** 50

- **Average Response Time:** 893 ms

- **Minimum Response Time:** 700 ms

- **Maximum Response Time:** 1962 ms

- **Standard Deviation:** 303 ms

- **Error Rate:** 0.00%

- **Throughput:** 4.8 requests/second

Graph Results

- The graph shows response time variation during the test execution.

- Average and median response times were stable.

- No abnormal spikes or failures were observed.

6. Conclusion and Recommendations

Conclusion

The performance test results indicate that the application can successfully handle 50 concurrent users with stable response times and zero errors. The average response time of under 1 second demonstrates acceptable performance for a login functionality.

Recommendations

- Conduct testing with higher user loads (100+ users) to identify system limits.

- Perform stress testing to determine the breaking point of the application.

- Monitor server-side resources such as CPU and memory during peak load.

- Optimize backend performance if user load increases in future releases