Prateek Singh Chauhan
CWID: 20016291

SSW 567
Stevens Institute of Technology

HW 10: Performance Testing

Objectives:

Complete performance test and analysis of a Stevens web page (you can choose any Stevens webpage that you prefer) using Apache JMeter for this assignment.

Assignment:

Part 1 – Create simple workload model
Part 2 - Evaluate and generate report of performance testing

Author: Prateek Singh Chauhan

Pledge: "I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet, or any other source except where I have expressly cited the source."

Prateek Singh Chauhan
CWID: 20016291

SSW 567
Stevens Institute of Technology

Application under test: Stevens Institute of technology website.

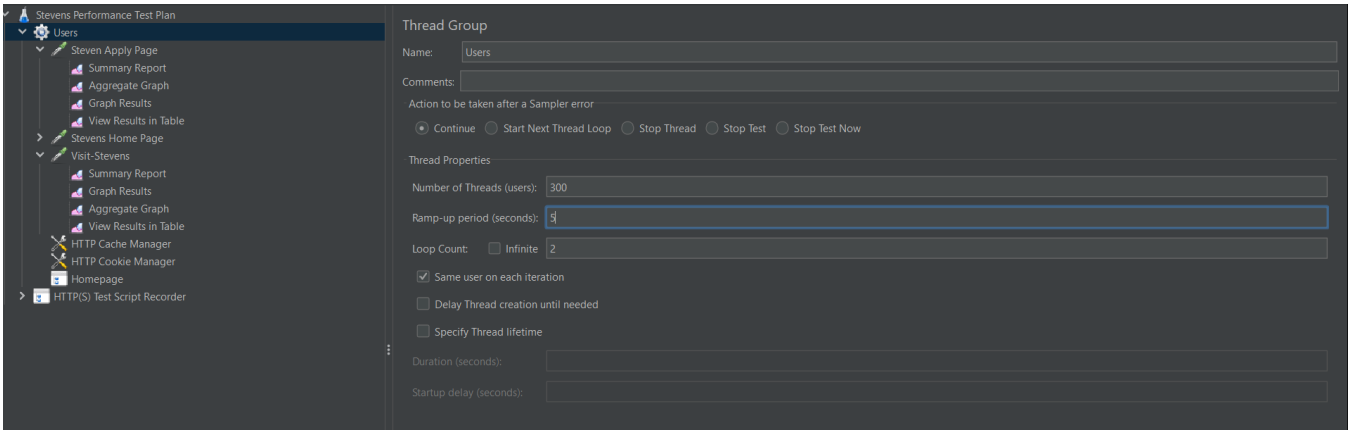
Tool used: Apache J meter

Workload model:

Stevens Institute of Technology website has 300 users load during normal hours and all the users browse Apply for Spring 2023 admissions information.

- **Test Script Transactions**: Home Page, Apply
- **No. of users:** 300
- **No. of Iterations (assuming user will go to same page twice):** 2
- **Ramp Up Period (the amount of time it will take Apache JMeter™ to add all test users (threads) to a test execution):** 5 seconds
- **Think time:** 24ms (Assumed)

J meter setup:

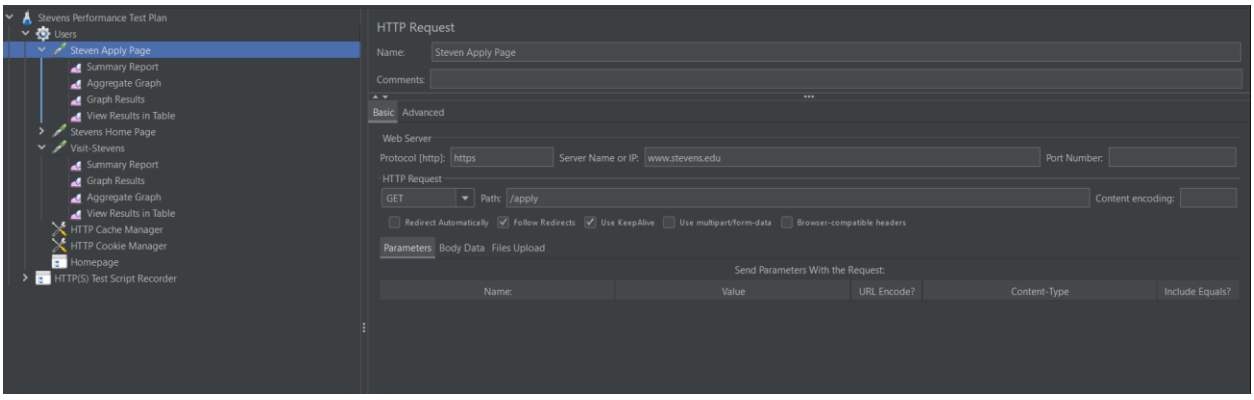


Created a Thread group with config mentioned in workload model as:

- No. of Thread: 300
- Ramp up period: 5 seconds
- Loop Count: 2

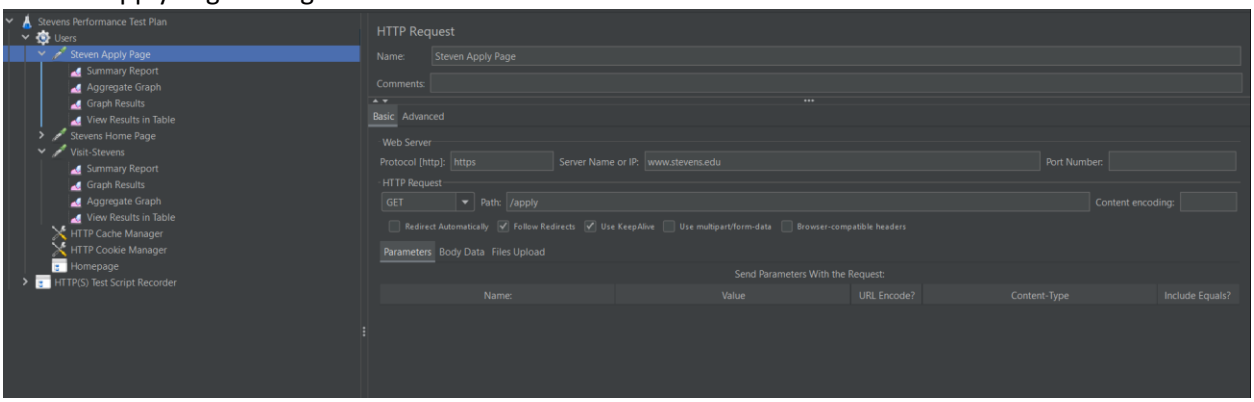
For the Thread Group, created two Sampler, one for Stevens Home Page and another for Stevens Apply page performance.

- Steven's homepage configuration:



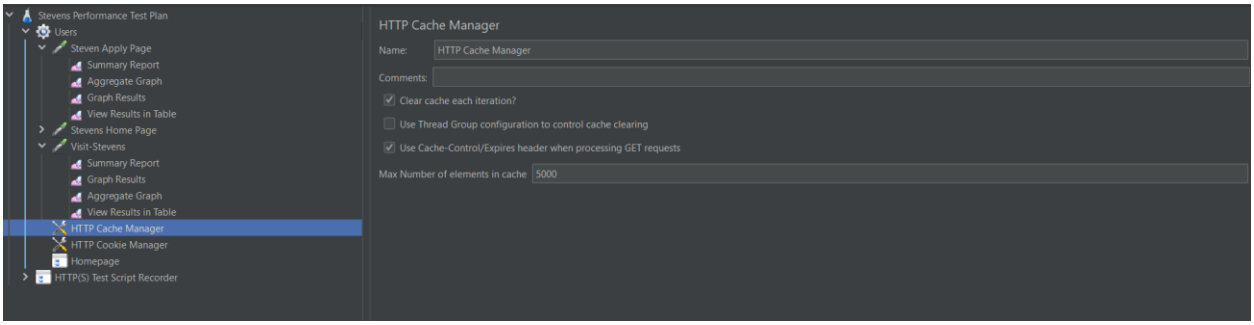
-

- Stevens Apply Page configuration:

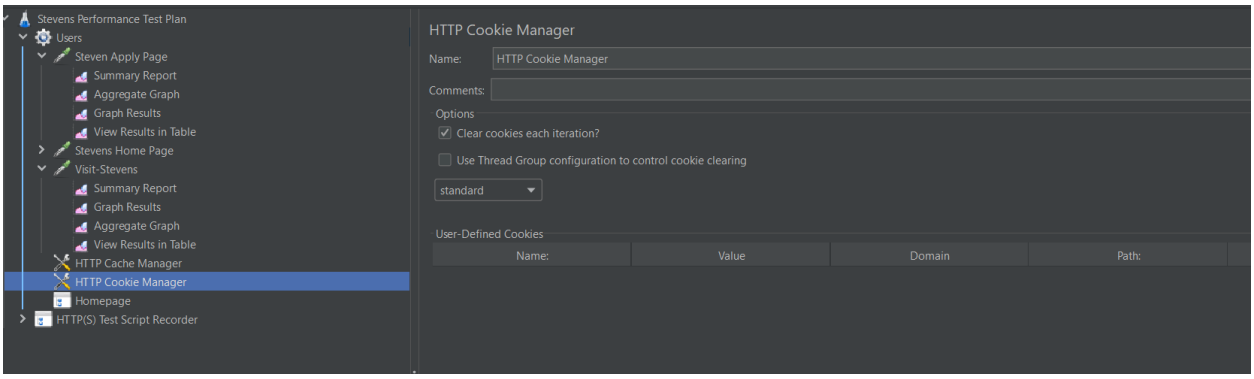


-

Also, Added Cache config element for sampler to clear for each iteration:



And Added Cookie config element for sampler to clear cookie for each iterations:



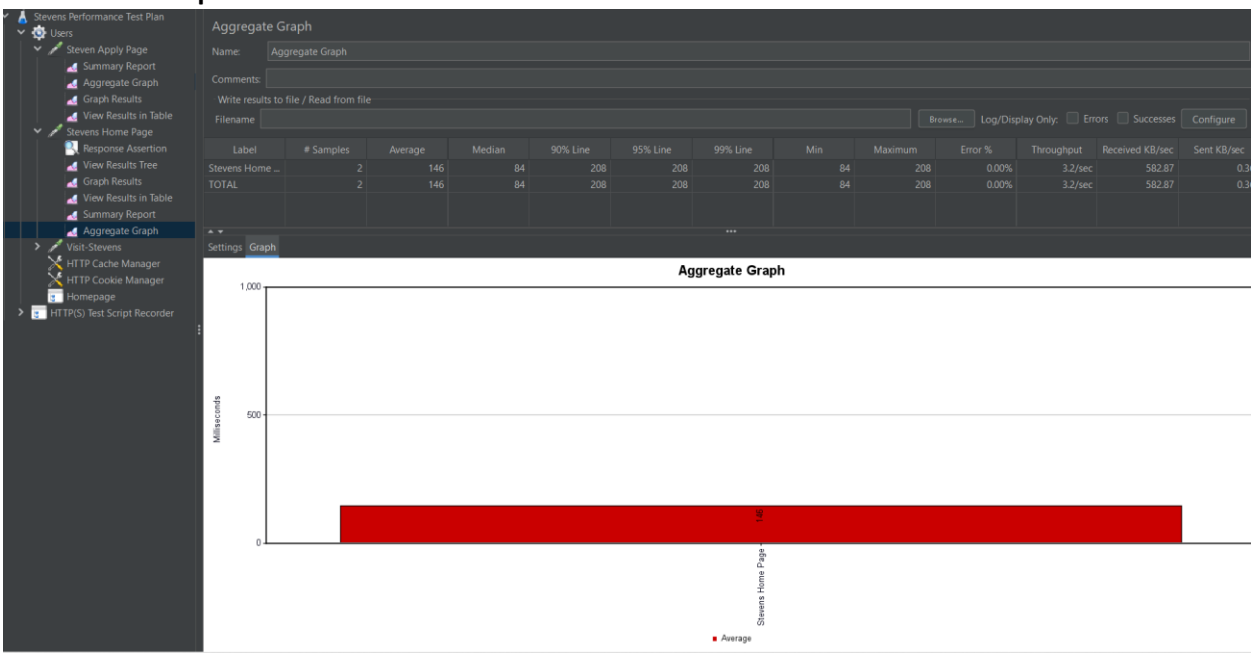
For comparison, we need to get the baseline results with 1 user and number of iterations as 2.

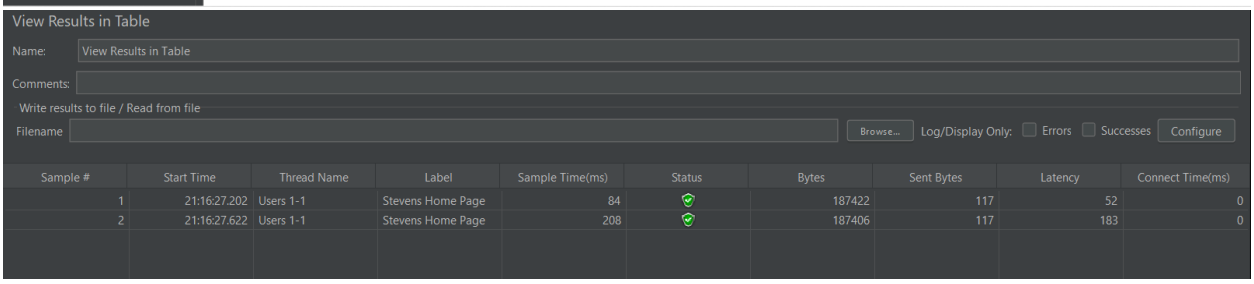
Performance Results:

- **Baseline Results: (To compare performance with)**

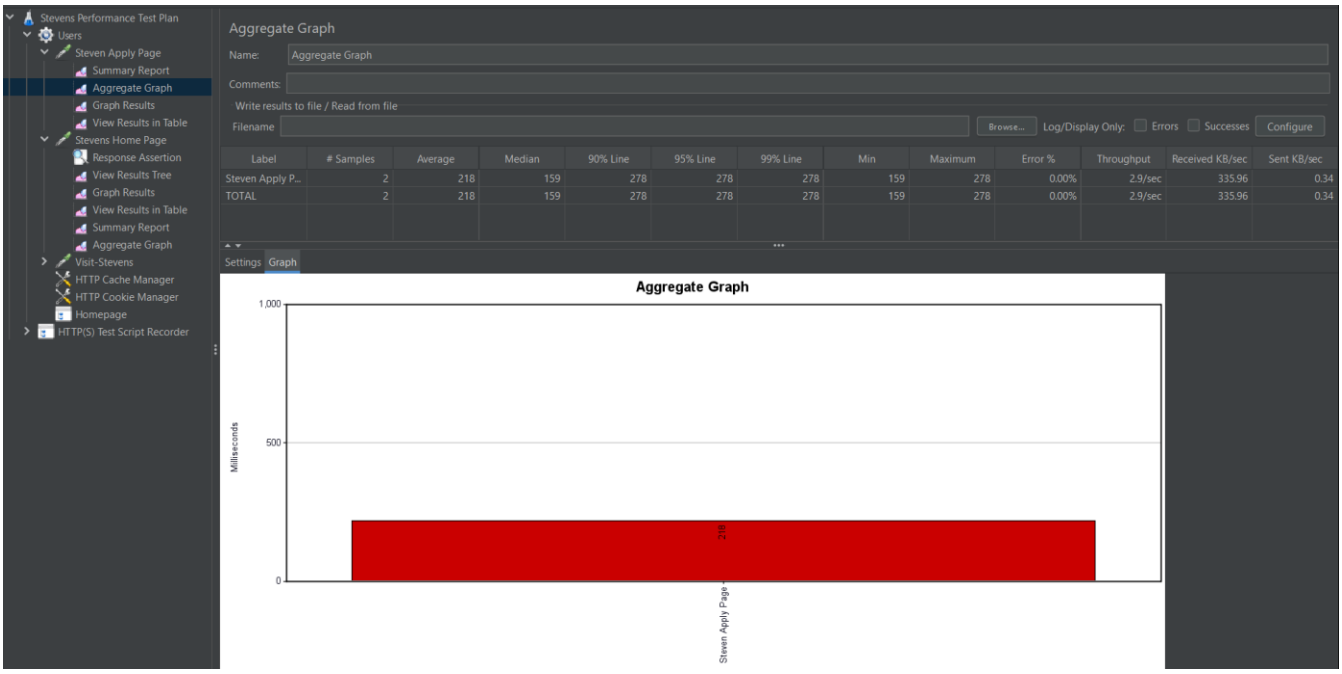
  Config same as above but:
  No of users: 1
  No. of iterations: 2
  Ramp up: 1 sec

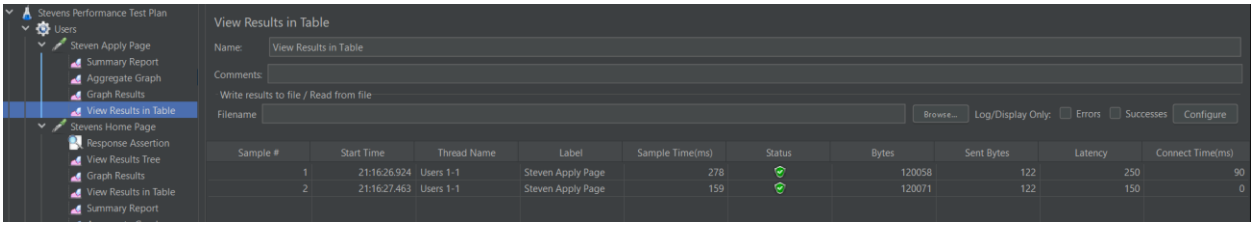
  Home Page:
  Average Response time: 146ms
  Max Response Time: 208ms
  Min Response Time: 146ms



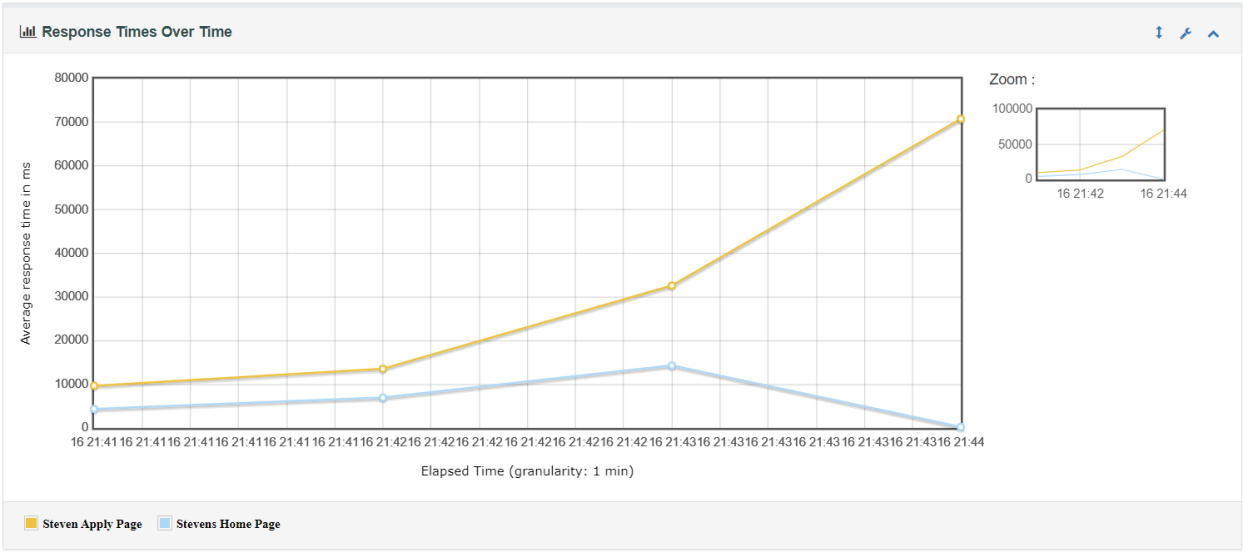


Apply page:
Average Response time: 218ms
Max Response time: 278ms
Min Response time: 159ms

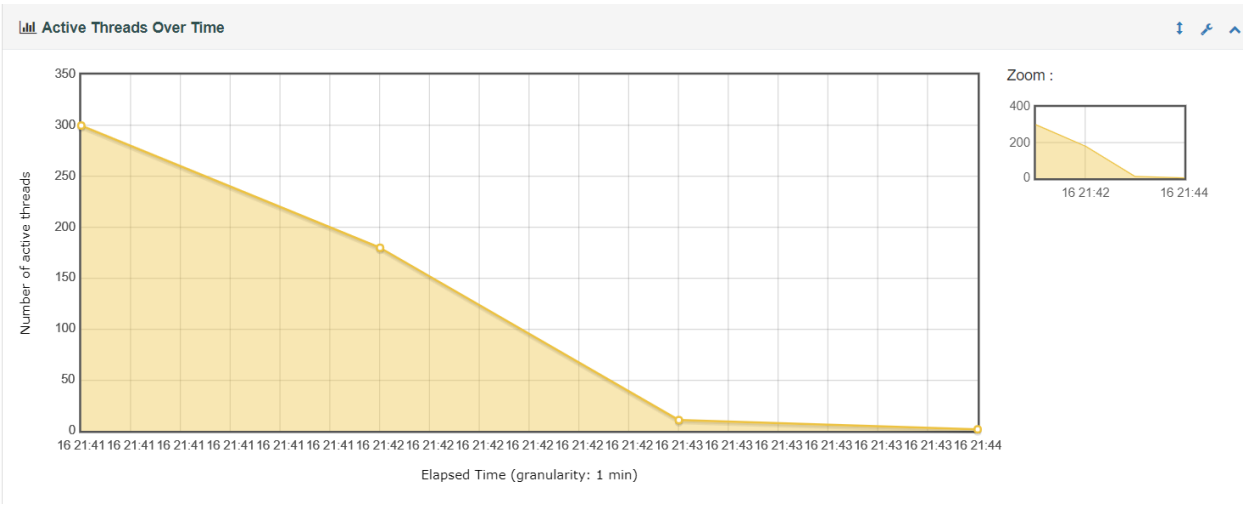




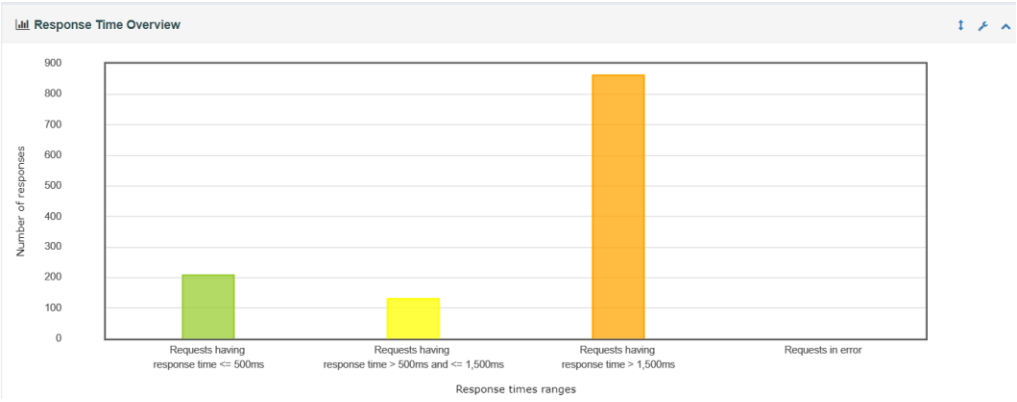
Response time over time:



Active threads over time:



Response Time Overview:



Stevens Home Page Performance:

Average Response Time: 5729 ms

Median Response Time: 4009 ms

Min Response Time: 64 ms

Max Response Time: 68155 ms

Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughput	Received KB/sec	Sent KB/sec
Stevens Home ...	596	5729	4009	11015	18942	43765	64	68155	0.00%	5.7/sec	1038.07	0.65
TOTAL	596	5729	4009	11015	18942	43765	64	68155	0.00%	5.7/sec	1038.07	0.65

When comparing to single user baselined output, the system is much slower when the number of users are high. The expected average response time for the Stevens Home page will be 5729ms or 5.7 sec and in worst case scenario will be 1 min 13 seconds, if the number of users accessing will 300 within 5 seconds, which is very slow as compared to 208ms.

Stevens Apply Page Performance:

Average Response Time: 7633 ms

Median Response Time: 4421 ms

Min Response Time: 54 ms

Max Response Time: 105123 ms

Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughput	Received KB/sec	Sent KB/sec
Steven Apply P...	596	7633	4421	15464	34475	57666	54	105123	0.00%	5.6/sec	657.38	0.67
TOTAL	596	7633	4421	15464	34475	57666	54	105123	0.00%	5.6/sec	657.38	0.67

When comparing to single user baselined output, the system is much slower when the number of users are high. The expected average response time for the Stevens Home page will be 4421ms or 4.4 sec and in worst case scenario will be 1 min 45 seconds, if the number of users accessing will 300 within 5 seconds, which is very slow as compared to 278ms or 2.7 sec.

For the above graphs, we understand that the average response time increases with the amount of load applied to system and when compared to based 1 user in system, the system is very slow. We also see that combined both apply and home page requests more than 800 requests took response time more than 1500 ms compared to 110 requests in the range of 500ms to 1500ms