Performance Test Report

- ✓ Project Name : ContactList API
- ✓ Date : 01/06/2025
- ✓ Tested By : Putri Viradima
- ✓ Environment : Public API
- ✓ Tool Used : JMeter 5.6.3
- ✓ Device/OS : Intel® Core™ Ultra 5, 16GB RAM, Windows (64-bit)
- ✓ Network Speed : Upload 13.57 Mbps / Download 79.07 Mbps
- ✓ Target Endpoint :
  - https://thinking-tester-contact-list.herokuapp.com/contacts
  - https://thinking-tester-contact-list.herokuapp.com/contacts/${contactId}

1. Objectives

The goal of this performance test is to check how well the application works under different user loads. We run load tests to see if the app can handle normal traffic smoothly, and stress tests to find its limits under heavy usage. This helps us understand the app's performance, stability, and how it behaves when overloaded.

2. Test Scenario

Scenario	Virtual Users (VU)	Ramp-up Period (s)	Loop Count
Load Test 1	50	30	10
Load Test 2	100	60	5
Stress Test 1	100	30	1
Stress Test 2	200	60	1

3. Key Metrics Captured

- **Average Response Time**
  - The average time taken to complete a request
  - Ideal Example: Below 2 seconds
- **Throughput**
  - Number of requests processed per second
  - Ideal Example: 50 requests/s or higher

- **Error Rate (%)**
    - Percentage of requests that failed
    - Ideal Example: 0% - 1%
- **Minimum Response Time**
    - Fastest response time recorded
    - Ideal Example: Under 500 miliseconds
- **Maximum Response Time**
    - Slowest response time recorded
    - Ideal Example: Under 5 seconds
- **Assertion Pass Rate**
    - Percentage of requests that pass validation checks
    - Ideal Example: 100%

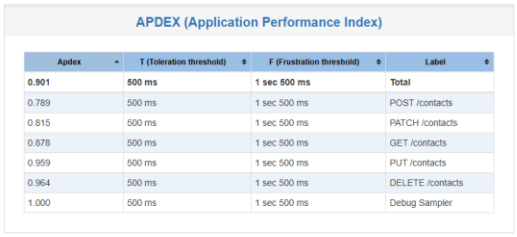
4. Test Result Summary

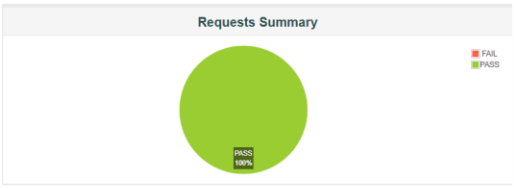
Scenario	VU	Avg Resp Time (ms)	Min Resp Time (ms)	Max Resp Time (ms)	Throughput (req/s)	Error Rate (%)
Load Test 1	50	338	0	1967	40.5	0.0
Load Test 2	100	288	0	1998	37.0	0.0
Stress Test 1	100	421	0	1963	17.2	0.0
Stress Test 2	200	421	0	1755	18.5	0.0

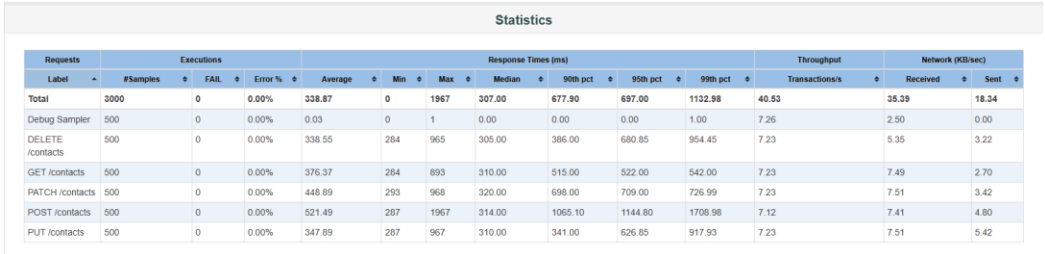
5. Detailed Test Results

5.1 Scenario Load Test 1

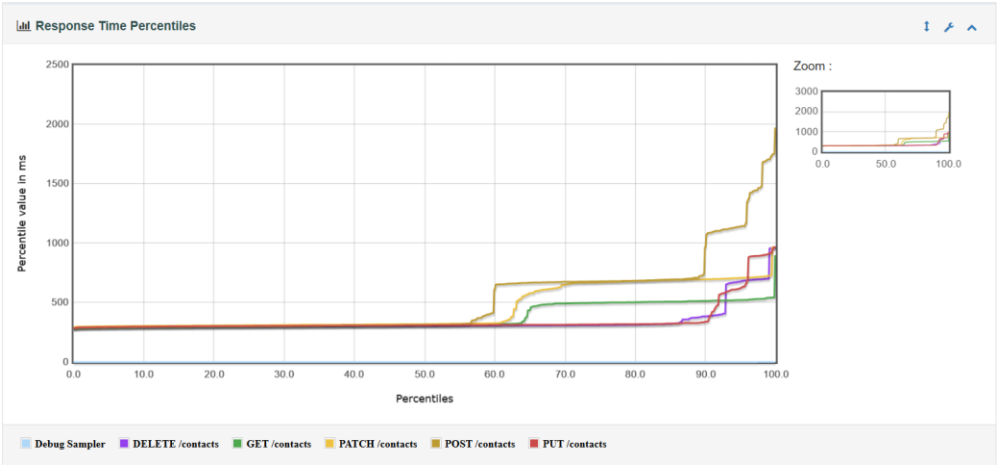
5.1.1 Request Summary



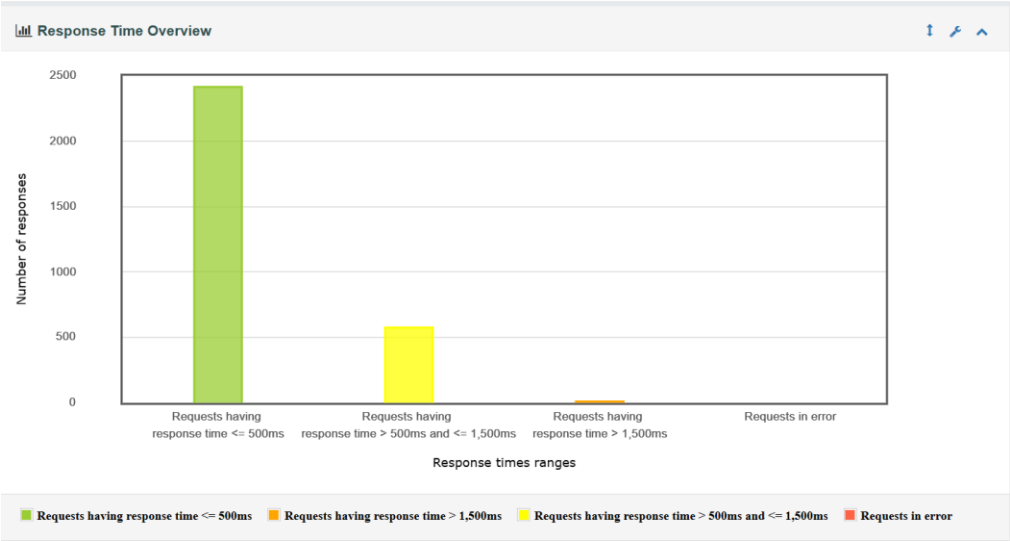




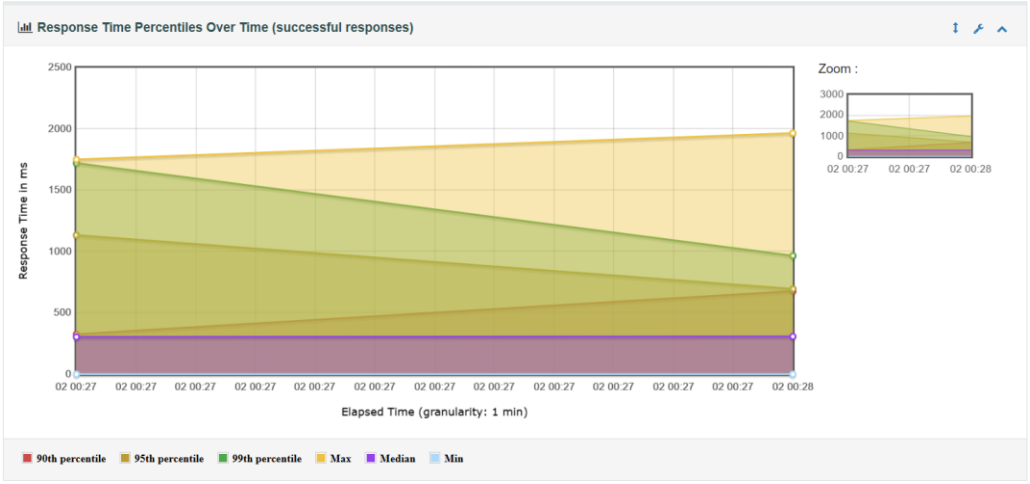
5.1.2 Response Time Percentiles



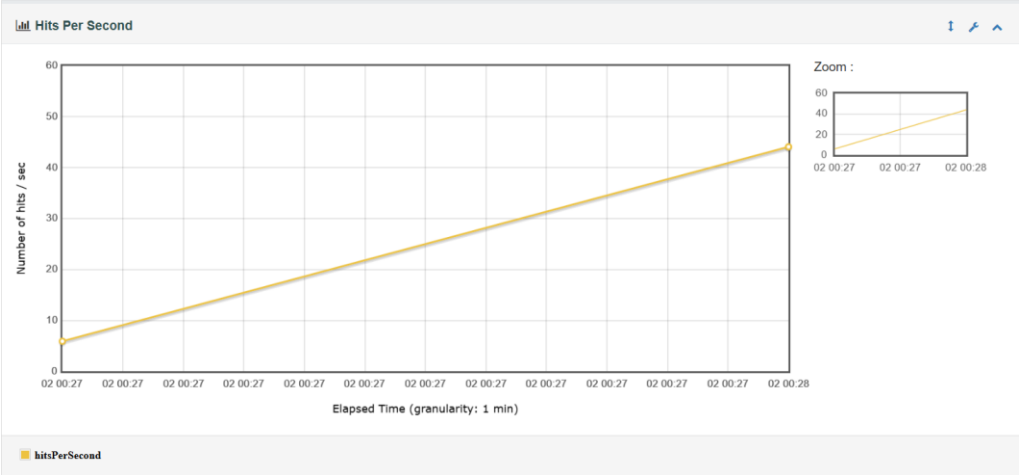
5.1.3 Response Time Overview



5.1.4 Response Time Percentiles Over Time (successful responses)



5.1.5 Throughput Hits per Second



5.2 Scenario Load Test 2

5.2.1 Request Summary

APDEX (Application Performance Index)

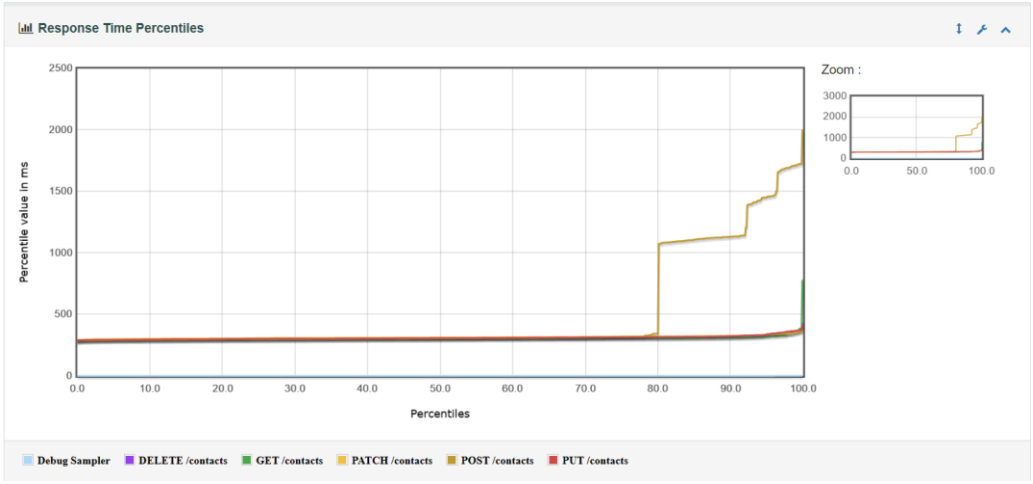
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.980	**500 ms**	**1 sec 500 ms**	**Total**
0.881	500 ms	1 sec 500 ms	POST /contacts
0.999	500 ms	1 sec 500 ms	GET /contacts
1.000	500 ms	1 sec 500 ms	PATCH /contacts
1.000	500 ms	1 sec 500 ms	Debug Sampler
1.000	500 ms	1 sec 500 ms	PUT /contacts
1.000	500 ms	1 sec 500 ms	DELETE /contacts

Requests Summary

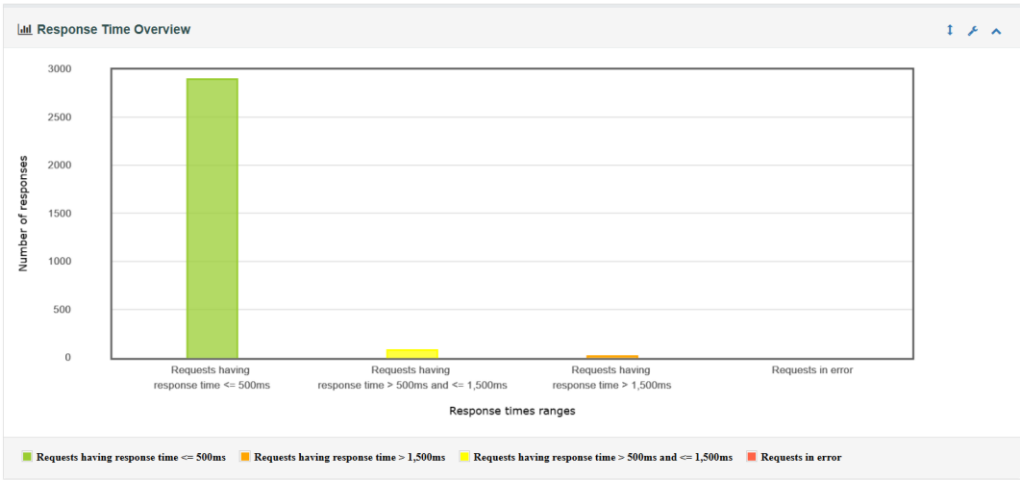
Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**3000**	**0**	**0.00%**	**288.55**	**0**	**1998**	**303.00**	**322.00**	**343.00**	**1430.95**	**37.02**	**32.30**	**16.75**
Debug Sampler	500	0	0.00%	0.04	0	1	0.00	0.00	0.00	1.00	6.59	2.27	0.00
DELETE /contacts	500	0	0.00%	302.46	281	427	300.00	313.00	327.95	350.99	6.56	4.85	2.92
GET /contacts	500	0	0.00%	303.75	281	775	301.00	314.00	322.95	367.00	6.56	6.79	2.45
PATCH /contacts	500	0	0.00%	313.61	291	370	312.00	327.00	336.95	351.99	6.56	6.80	3.10
POST /contacts	500	0	0.00%	500.91	287	1998	306.00	1133.00	1458.70	1714.99	6.47	6.73	4.36
PUT /contacts	500	0	0.00%	310.52	290	416	308.00	323.90	338.85	368.98	6.56	6.80	4.92

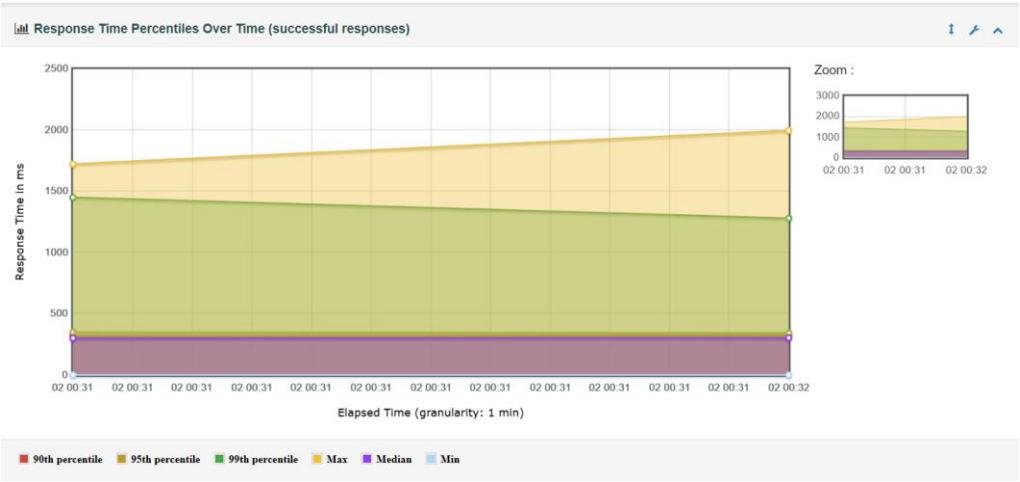
5.2.2 Response Time Percentiles



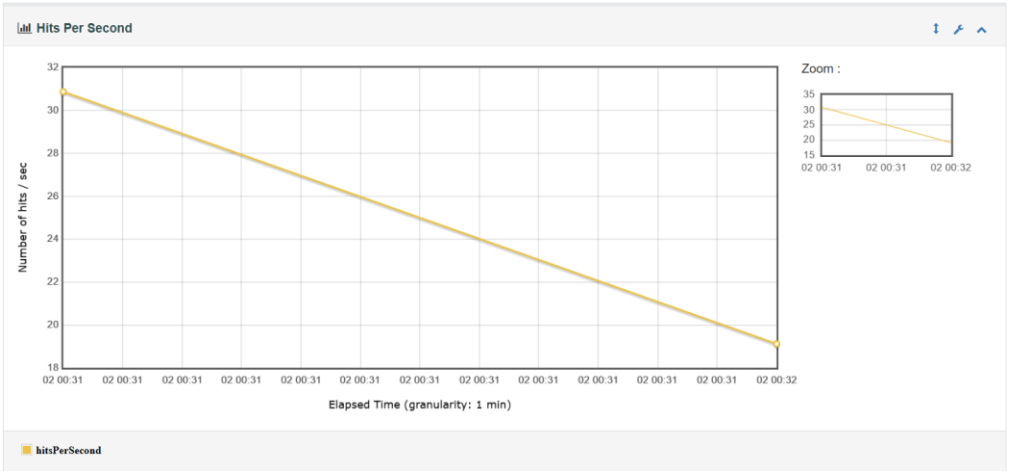
5.2.3 Response Time Overview



5.2.4 Response Time Percentiles Over Time (successful responses)



5.2.5 Throughput Hits per Second



5.3 Scenario Stress Test 1

5.3.1 Request Summary

APDEX (Application Performance Index)

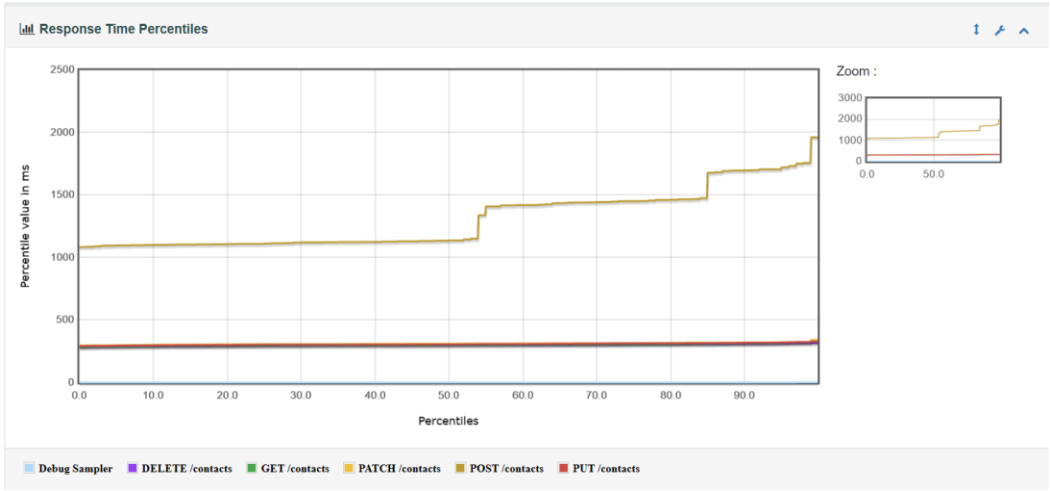
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.904	500 ms	1 sec 500 ms	Total
0.425	500 ms	1 sec 500 ms	POST /contacts
1.000	500 ms	1 sec 500 ms	PATCH /contacts
1.000	500 ms	1 sec 500 ms	Debug Sampler
1.000	500 ms	1 sec 500 ms	PUT /contacts
1.000	500 ms	1 sec 500 ms	GET /contacts
1.000	500 ms	1 sec 500 ms	DELETE /contacts

Requests Summary

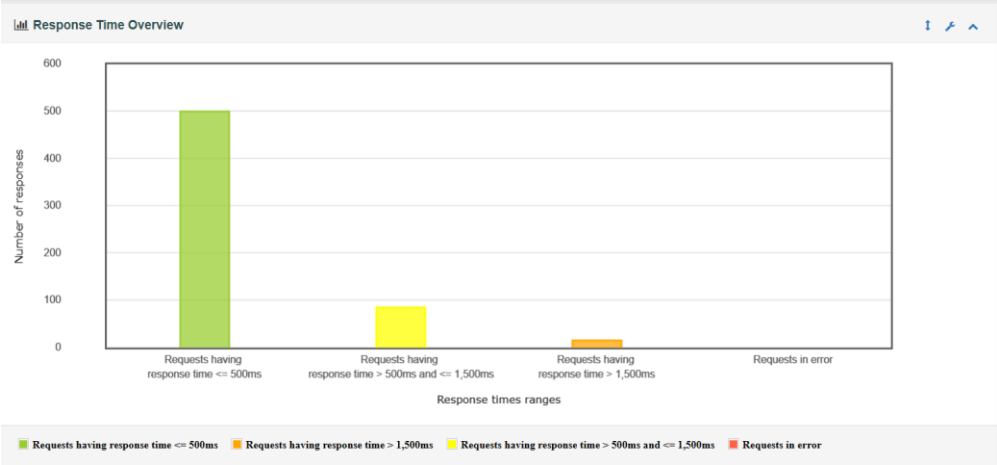
Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	600	0	0.00%	421.99	0	1963	306.00	1126.00	1444.90	1706.99	17.21	15.02	7.79
Debug Sampler	100	0	0.00%	0.03	0	1	0.00	0.00	0.00	1.00	3.36	1.17	0.00
DELETE /contacts	100	0	0.00%	301.23	286	315	301.50	311.90	313.00	315.00	3.32	2.46	1.48
GET /contacts	100	0	0.00%	303.77	285	339	303.00	316.00	318.90	338.85	3.32	3.44	1.24
PATCH /contacts	100	0	0.00%	311.63	297	343	311.00	321.00	322.95	342.82	3.32	3.45	1.58
POST /contacts	100	0	0.00%	1307.52	1085	1963	1137.00	1698.90	1721.25	1960.95	3.21	3.34	2.16
PUT /contacts	100	0	0.00%	307.78	292	328	306.00	318.90	321.95	327.97	3.32	3.45	2.49

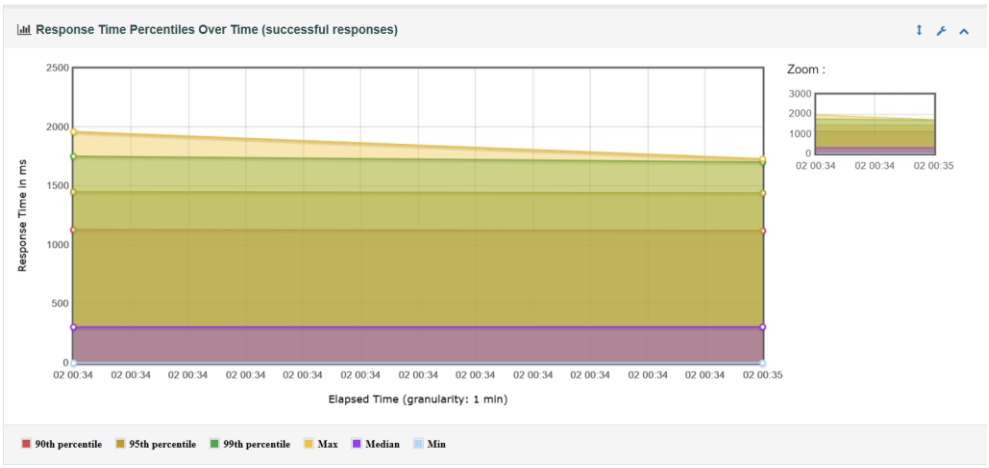
5.3.2 Response Time Percentiles



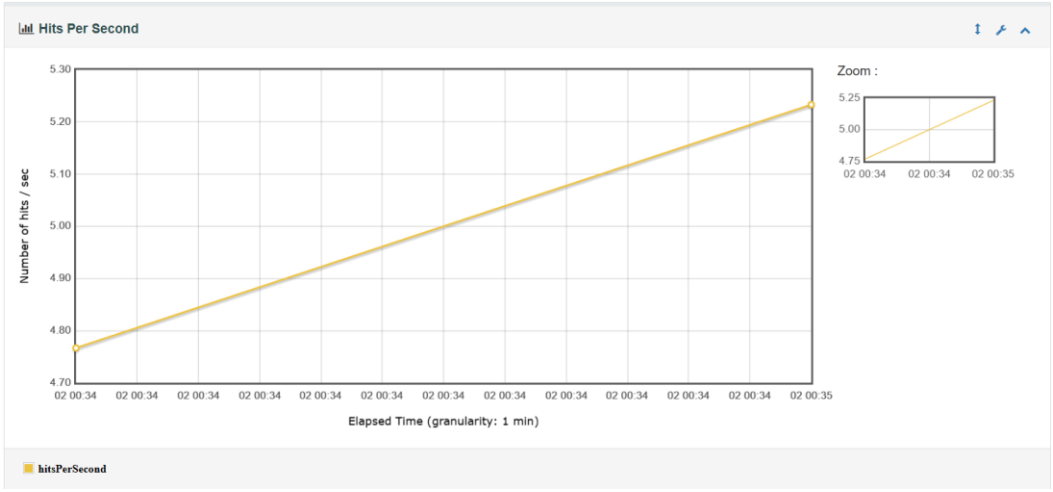
5.3.3 Response Time Overview



5.3.4 Response Time Percentiles Over Time (successful responses)



5.3.5 Throughput Hits per Second



5.4 Scenario Stress Test 2

5.4.1 Request Summary

APDEX (Application Performance Index)

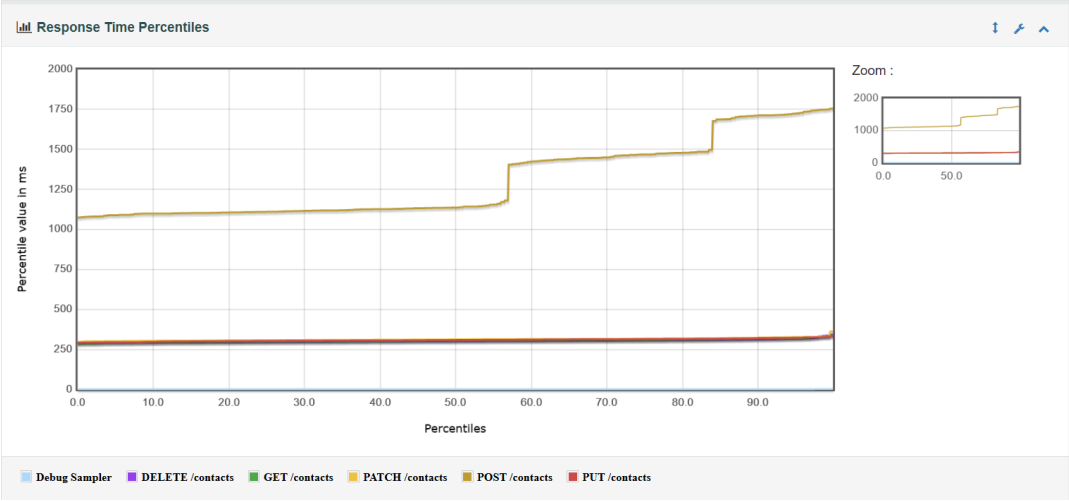
Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.903	**500 ms**	**1 sec 500 ms**	**Total**
0.420	500 ms	1 sec 500 ms	POST /contacts
1.000	500 ms	1 sec 500 ms	PATCH /contacts
1.000	500 ms	1 sec 500 ms	Debug Sampler
1.000	500 ms	1 sec 500 ms	PUT /contacts
1.000	500 ms	1 sec 500 ms	GET /contacts
1.000	500 ms	1 sec 500 ms	DELETE /contacts

Requests Summary

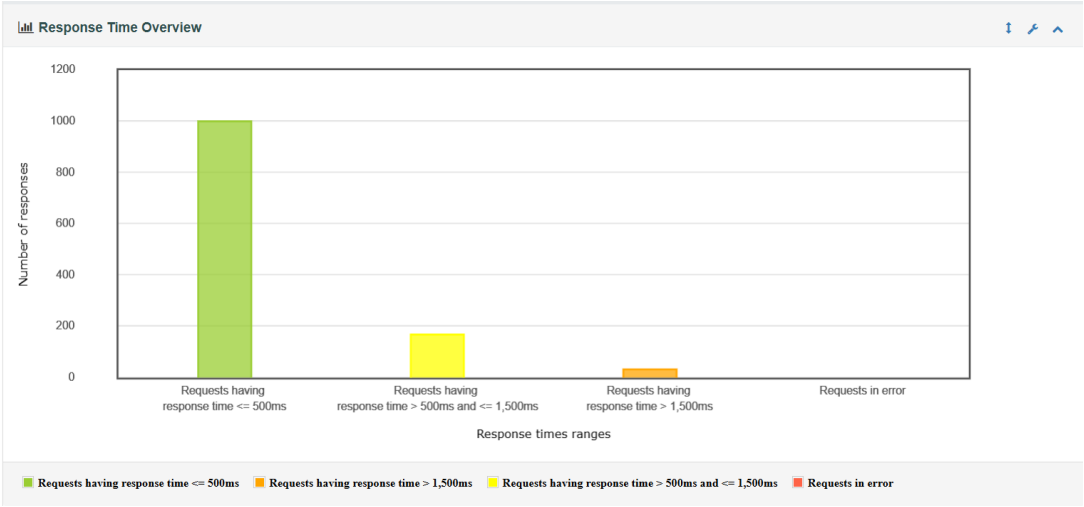
Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	**1200**	**0**	**0.00%**	**421.31**	**0**	**1755**	**306.00**	**1126.00**	**1450.00**	**1719.98**	**18.49**	**16.14**	**8.37**
Debug Sampler	200	0	0.00%	0.02	0	1	0.00	0.00	0.00	1.00	3.33	1.16	0.00
DELETE /contacts	200	0	0.00%	301.25	288	341	301.00	312.00	316.95	335.98	3.32	2.45	1.48
GET /contacts	200	0	0.00%	303.76	285	335	303.00	315.00	318.00	331.98	3.32	3.43	1.24
PATCH /contacts	200	0	0.00%	312.34	297	361	312.00	322.80	326.00	329.00	3.32	3.44	1.58
POST /contacts	200	0	0.00%	1302.78	1075	1755	1136.00	1712.80	1724.90	1749.98	3.27	3.40	2.20
PUT /contacts	200	0	0.00%	307.70	291	331	307.50	319.90	322.00	327.99	3.32	3.44	2.49

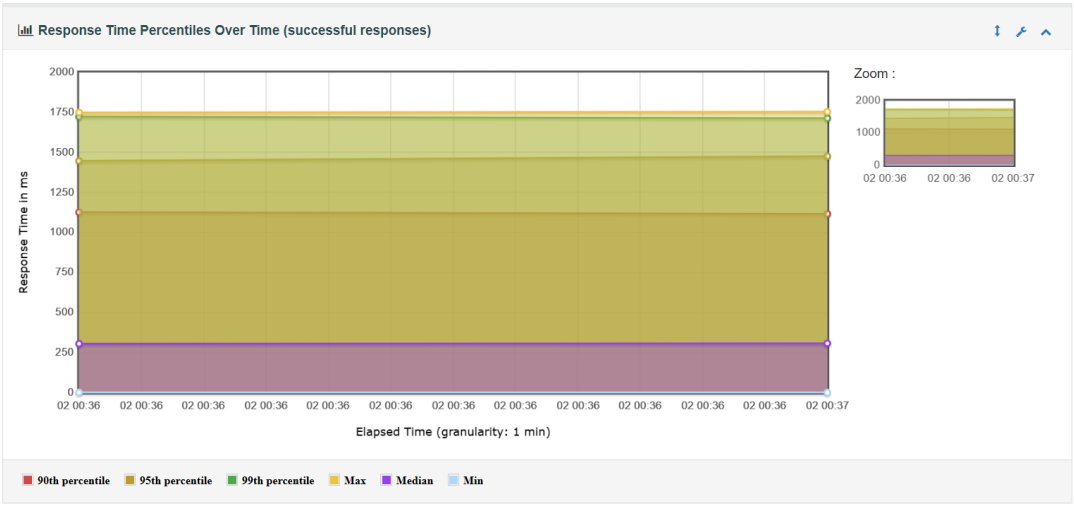
5.4.2 Response Time Percentiles



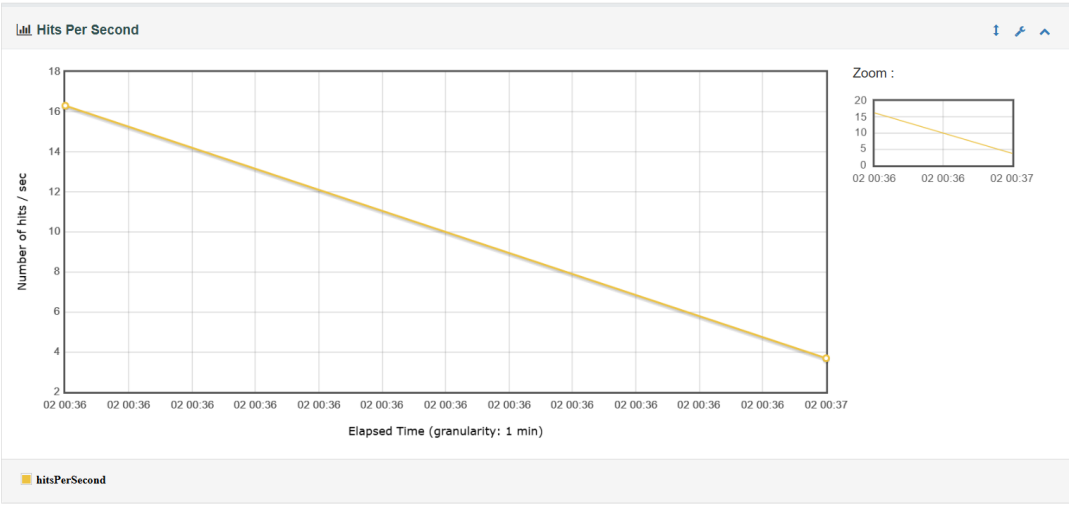
5.4.3 Response Time Overview



5.4.4 Response Time Percentiles Over Time (successful responses)



5.4.5 Throughput Hits per Second



6. Observations

- The average response time increased during stress tests, showing the system was under heavy load.
- Throughput dropped in stress tests, meaning the system couldn't handle more requests efficiently.
- Error rate stayed at 0% in all tests, which means the system handled all requests without failure.
- Maximum response time stayed under 2 seconds, even during high load.

7. Recommendations

- Gradually increase load to monitor system behavior under pressure.
- Optimize backend processes to improve response time during high traffic.
- Add CPU and memory monitoring for better insight into system performance.
- Keep running performance tests regularly to catch issues early.
- Review and fine-tune configurations (e.g., thread count, ramp-up) as needed.

8. Conclusion

The performance testing of the Contact List API indicates that the system performs well under load conditions up to 100 virtual users. Under stress scenarios (100–200 VUs), the average response time increases while throughput decreases, indicating performance degradation as load exceeds optimal capacity. However, with 0% error rate across all tests, the API remains functionally stable even under stress.