CLOUD COMPUTING LAB - 2

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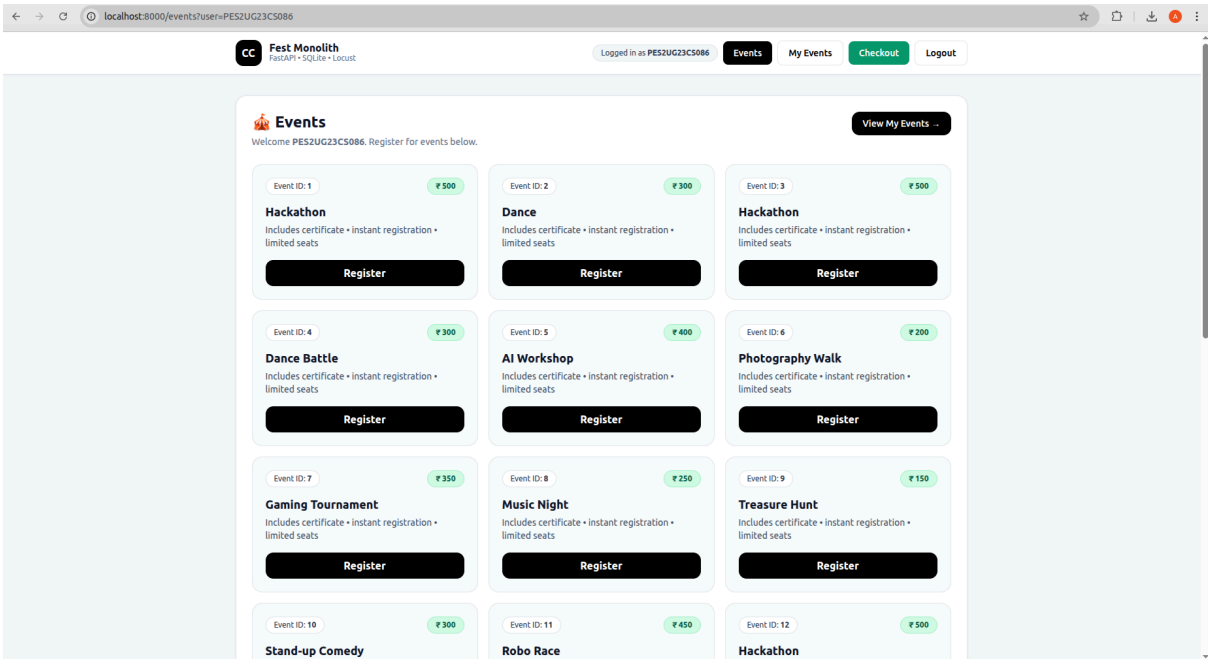
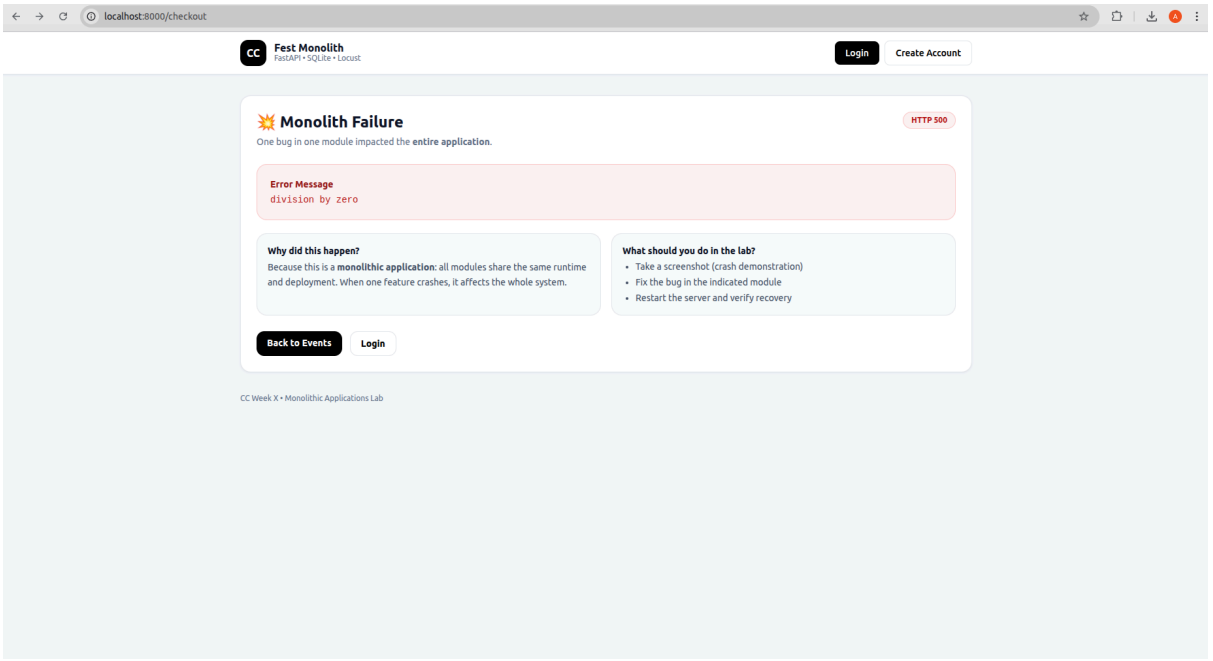
SECTION : B

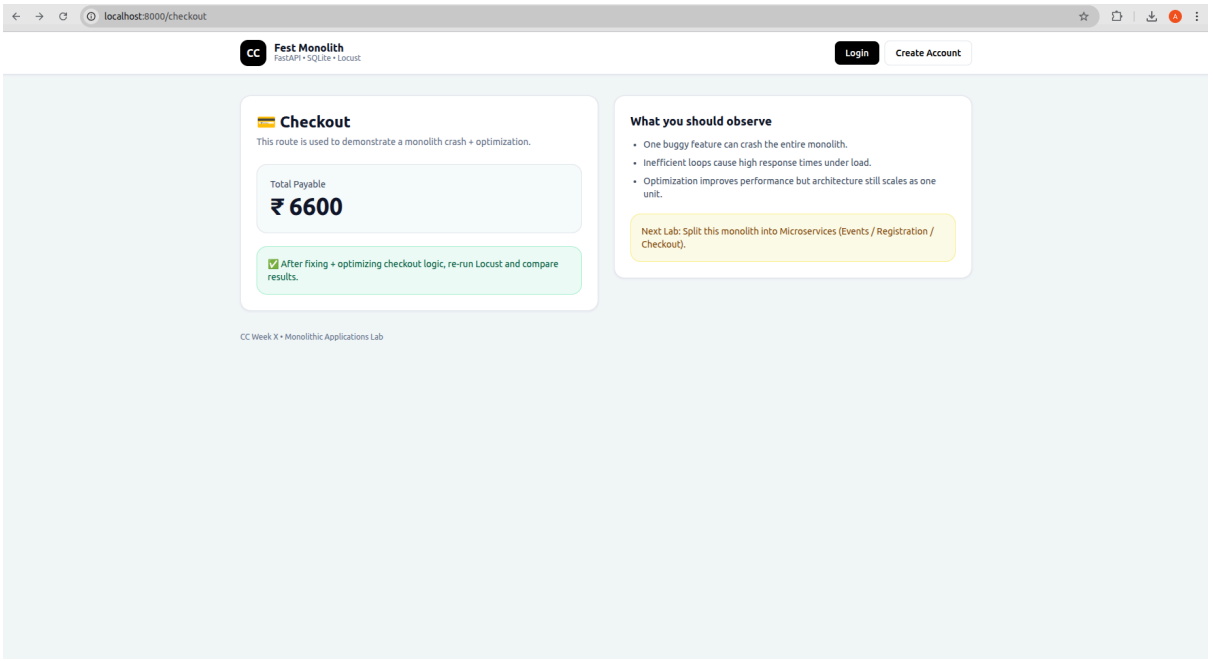
Screenshot - 1



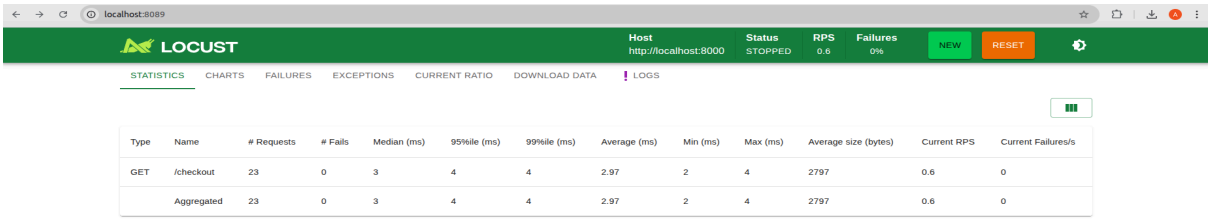
Screenshot - 2 (crash)

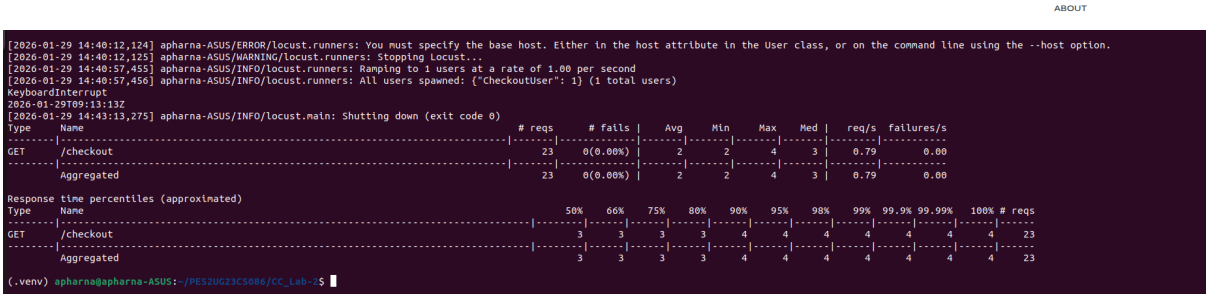


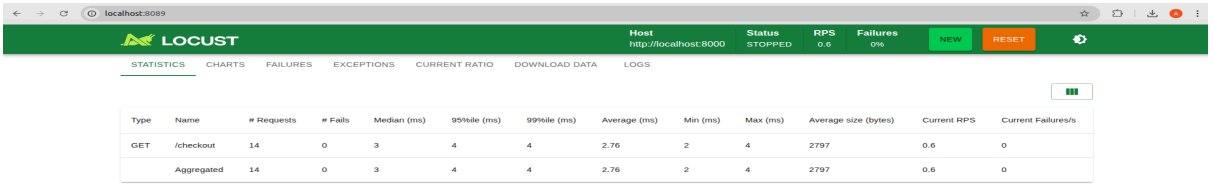
Screenshot - 3 (crash fixed)



Screenshot - 4

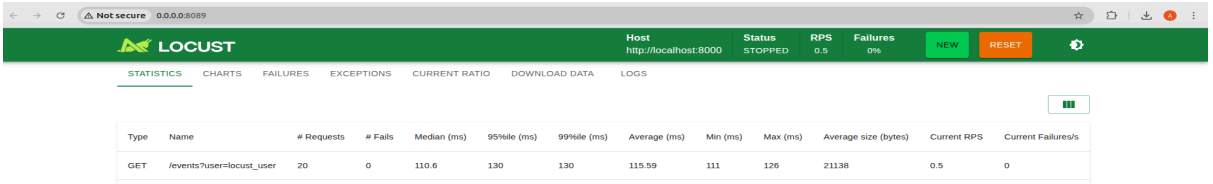






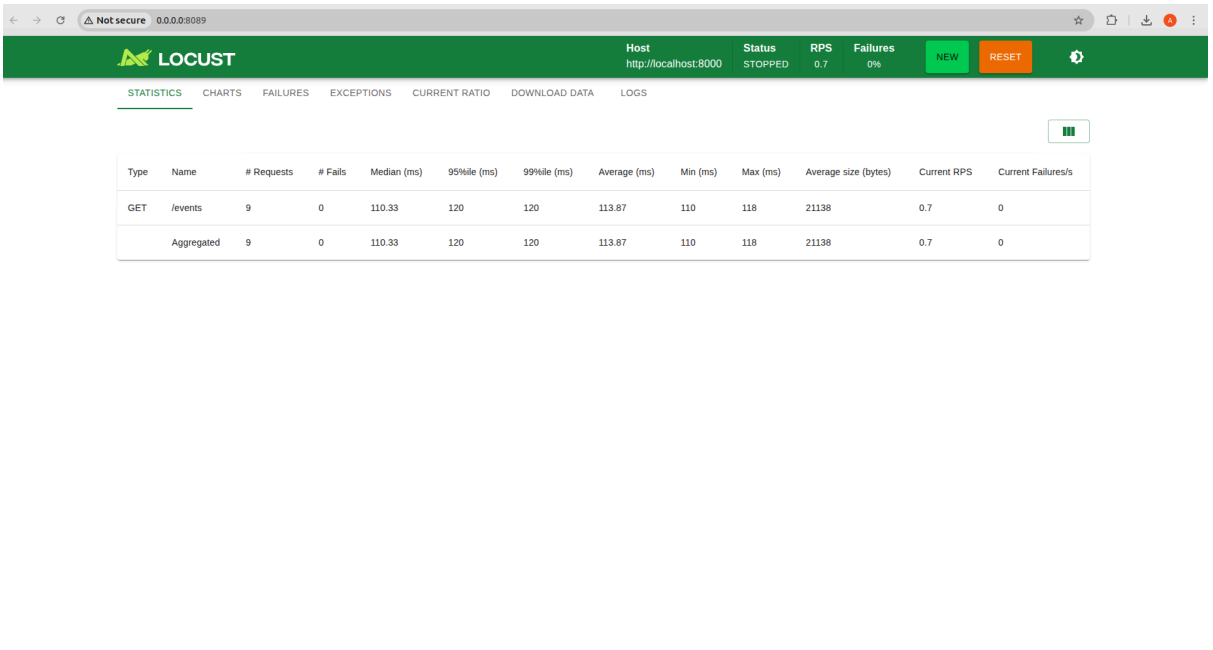

```
(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$ locust -f locust/checkout_locustfile.py
[2026-01-29 14:45:17,221] apharna-ASUS/INFO/locust.main: Starting Locust 2.43.1
[2026-01-29 14:45:17,221] apharna-ASUS/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 14:45:36,651] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 14:45:36,651] apharna-ASUS/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
[2026-01-29 14:45:48,080] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 14:45:48,080] apharna-ASUS/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:17:51Z
[2026-01-29 14:47:51,903] apharna-ASUS/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /checkout                                                                        14     0(0.00%) |      2       2       3      3 |    0.77        0.00
--------|----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                       14     0(0.00%) |      2       2       3      3 |    0.77        0.00

Response time percentiles (approximated)
Type     Name                                                                             50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /checkout                                                                          3      3      3      3      3      4      4      4      4      4      4     14
--------|----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                         3      3      3      3      3      4      4      4      4      4      4     14

(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$
```

Screenshot - 6 (before optimizing events)




```
(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$ locust -f locust/events_locustfile.py
[2026-01-29 15:02:29,821] apharna-ASUS/INFO/locust.main: Starting Locust 2.43.1
[2026-01-29 15:02:29,821] apharna-ASUS/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:03:01,208] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:03:01,209] apharna-ASUS/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
[2026-01-29 15:04:50,857] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:04:50,857] apharna-ASUS/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:35:39Z
[2026-01-29 15:05:39,737] apharna-ASUS/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /events?user=locust_user                                                         20     0(0.00%) |    115     110     126    110 |    0.67        0.00
--------|----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                       20     0(0.00%) |    115     110     126    110 |    0.67        0.00

Response time percentiles (approximated)
Type     Name                                                                             50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /events?user=locust_user                                                         110    110    120    120    120    130    130    130    130    130    130     20
--------|----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                       110    110    120    120    120    130    130    130    130    130    130     20

(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$
```

Screenshot - 7 (after optimizing events)



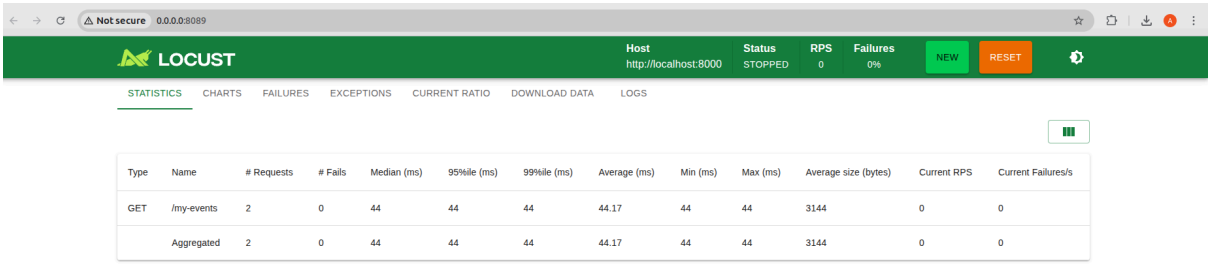

```
(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$ nano events_locustfile.py
(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$ locust -f locust/events_locustfile.py
[2026-01-29 15:07:13,256] apharna-ASUS/INFO/locust.main: Starting Locust 2.43.1
[2026-01-29 15:07:13,257] apharna-ASUS/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:07:24,449] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:07:24,449] apharna-ASUS/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
[2026-01-29 15:08:48,987] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:08:48,988] apharna-ASUS/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:39:34Z
[2026-01-29 15:09:34,935] apharna-ASUS/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /events                                                                            9     0(0.00%) |    113     110     118    110 |    0.75        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                         9     0(0.00%) |    113     110     118    110 |    0.75        0.00

Response time percentiles (approximated)
Type     Name                                                                                50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /events                                                                           110    110    120    120    120    120    120    120    120    120    120      9
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                        110    110    120    120    120    120    120    120    120    120    120      9

(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$
```

Bottleneck:
The /events endpoint included inefficient processing that increased request handling time and reduced performance under concurrent load.

Change Made:
The route logic was optimized by removing unnecessary computation and simplifying request handling.

Why Performance Improved:
With reduced computational overhead, the server handled requests more efficiently, resulting in improved response times and more stable performance during load testing.

Screenshot - 8 (before optimizing my-events)

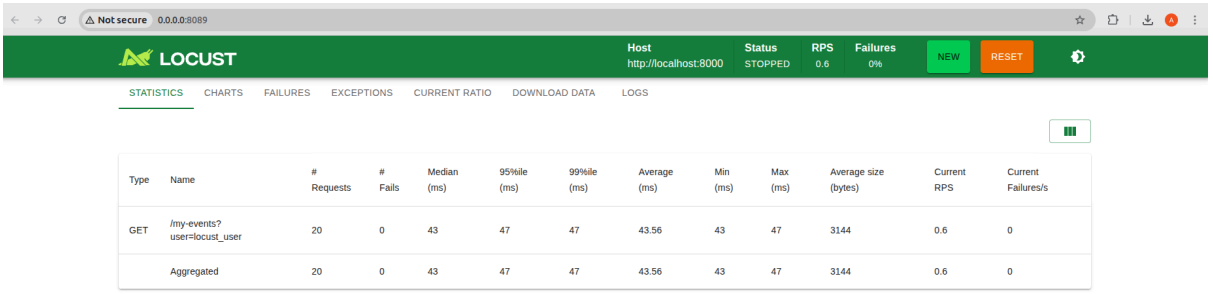


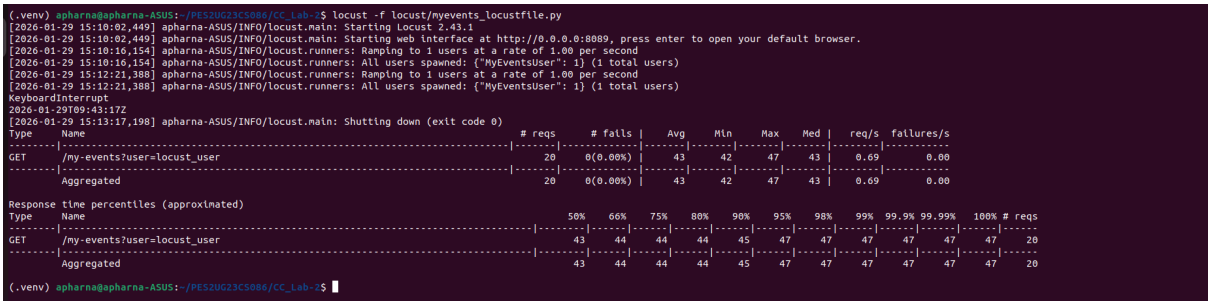
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s
GET	/my-events	2	0	44	44	44	44.17	44	44	3144	0	0
	Aggregated	2	0	44	44	44	44.17	44	44	3144	0	0

ABOUT

```
(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$ locust -f locust/myevents_locustfile.py
[2026-01-29 15:15:50,980] apharna-ASUS/INFO/locust.main: Starting Locust 2.43.1
[2026-01-29 15:15:50,980] apharna-ASUS/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:16:05,771] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:16:05,772] apharna-ASUS/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
[2026-01-29 15:18:14,405] apharna-ASUS/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:18:14,406] apharna-ASUS/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:48:39Z
[2026-01-29 15:18:39,411] apharna-ASUS/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /my-events                                                                         2     0(0.00%) |     44      43      44     44 |    0.88        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                         2     0(0.00%) |     44      43      44     44 |    0.88        0.00

Response time percentiles (approximated)
Type     Name                                                                                 50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /my-events                                                                          44     44     44     44     44     44     44     44     44     44     44      2
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                          44     44     44     44     44     44     44     44     44     44     44      2

(.venv) apharna@apharna-ASUS:~/PES2UG23CS086/CC_Lab-2$
```

Screenshot - 9 (after optimizing my-events)





Bottleneck:
The /my-events route performed unnecessary processing for each request, resulting in additional overhead when handling concurrent users.

Change Made:
Redundant operations were removed and request handling was simplified to ensure that only required logic executes during each request.

Why Performance Improved:
By reducing unnecessary processing per request, CPU usage was lowered and the endpoint responded faster under load, improving overall throughput and response time.