Cloud computing Lab 2

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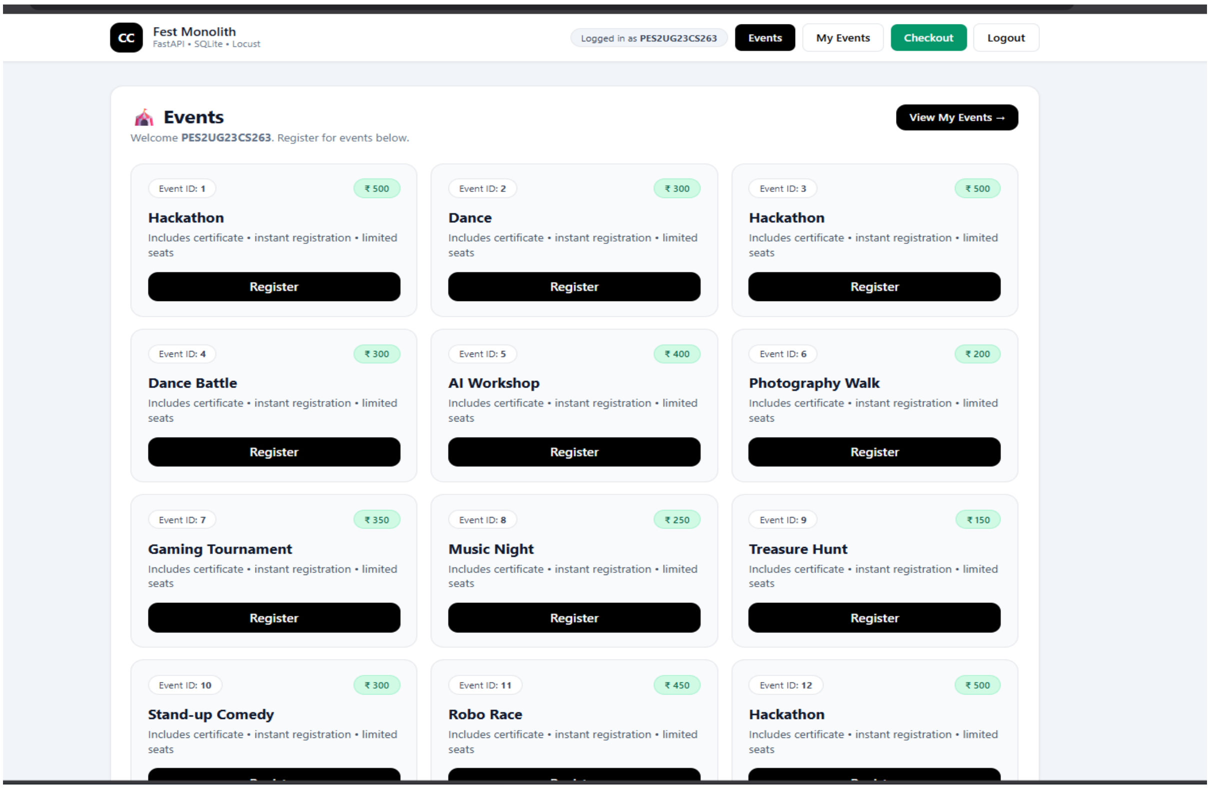
SRN : PES2UG23CS263

Ss1:



Events

Welcome PES2UG23CS263. Register for events below.

Event ID: 1 — ₹ 500 — Hackathon — Includes certificate • instant registration • limited seats

Event ID: 2 — ₹ 300 — Dance — Includes certificate • instant registration • limited seats

Event ID: 3 — ₹ 500 — Hackathon — Includes certificate • instant registration • limited seats

Event ID: 4 — ₹ 300 — Dance Battle — Includes certificate • instant registration • limited seats

Event ID: 5 — ₹ 400 — AI Workshop — Includes certificate • instant registration • limited seats

Event ID: 6 — ₹ 200 — Photography Walk — Includes certificate • instant registration • limited seats

Event ID: 7 — ₹ 350 — Gaming Tournament — Includes certificate • instant registration • limited seats

Event ID: 8 — ₹ 250 — Music Night — Includes certificate • instant registration • limited seats

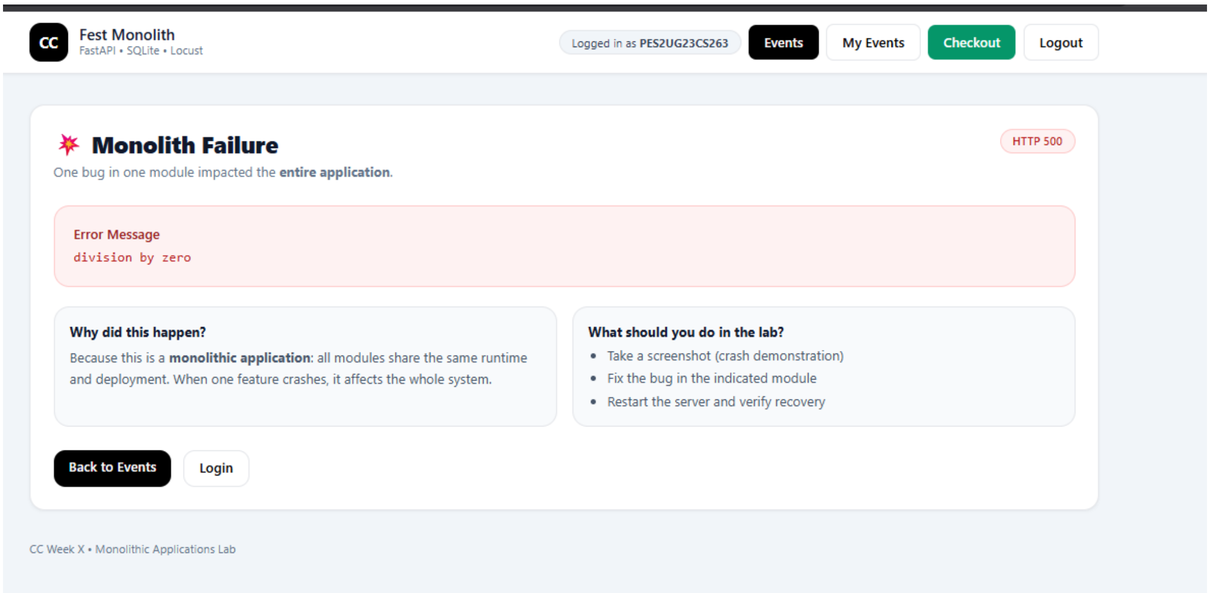
Event ID: 9 — ₹ 150 — Treasure Hunt — Includes certificate • instant registration • limited seats

Event ID: 10 — ₹ 300 — Stand-up Comedy — Includes certificate • instant registration • limited seats

Event ID: 11 — ₹ 450 — Robo Race — Includes certificate • instant registration • limited seats

Event ID: 12 — ₹ 500 — Hackathon — Includes certificate • instant registration • limited seats

SS2:



Monolith Failure

One bug in one module impacted the **entire application**.

Error Message

`division by zero`

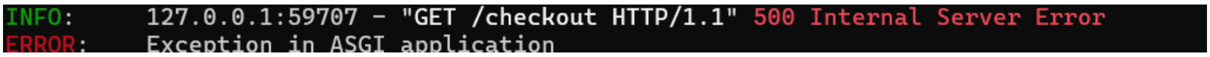
Why did this happen?

Because this is a **monolithic application**: all modules share the same runtime and deployment. When one feature crashes, it affects the whole system.

What should you do in the lab?

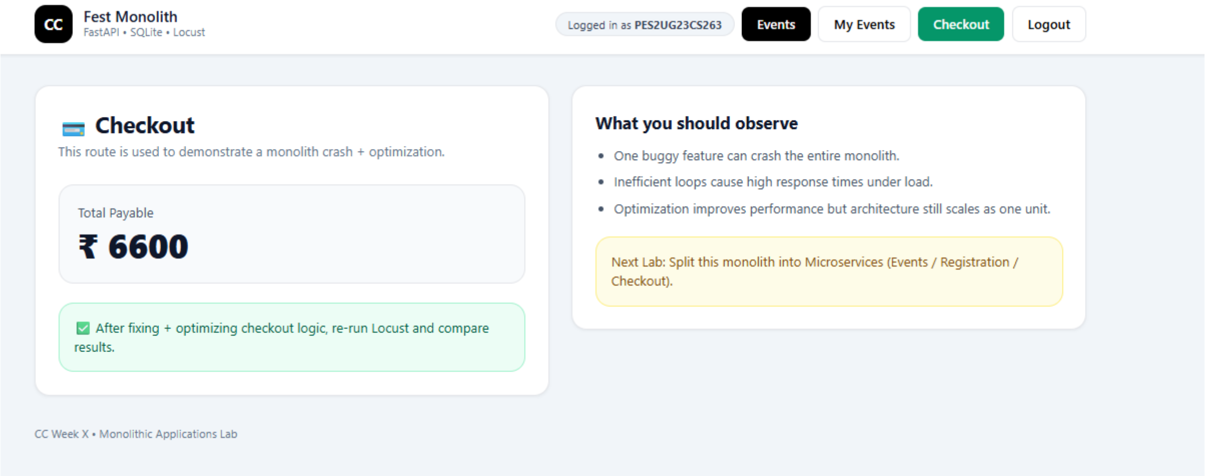
- Take a screenshot (crash demonstration)
- Fix the bug in the indicated module
- Restart the server and verify recovery

CC Week X • Monolithic Applications Lab



```
INFO:     127.0.0.1:59707 - "GET /checkout HTTP/1.1" 500 Internal Server Error
ERROR:    Exception in ASGI application
```

SS3



Checkout

This route is used to demonstrate a monolith crash + optimization.

Total Payable

₹ 6600

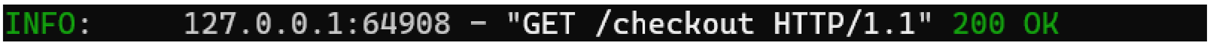
☑ After fixing + optimizing checkout logic, re-run Locust and compare results.

What you should observe

- One buggy feature can crash the entire monolith.
- Inefficient loops cause high response times under load.
- Optimization improves performance but architecture still scales as one unit.

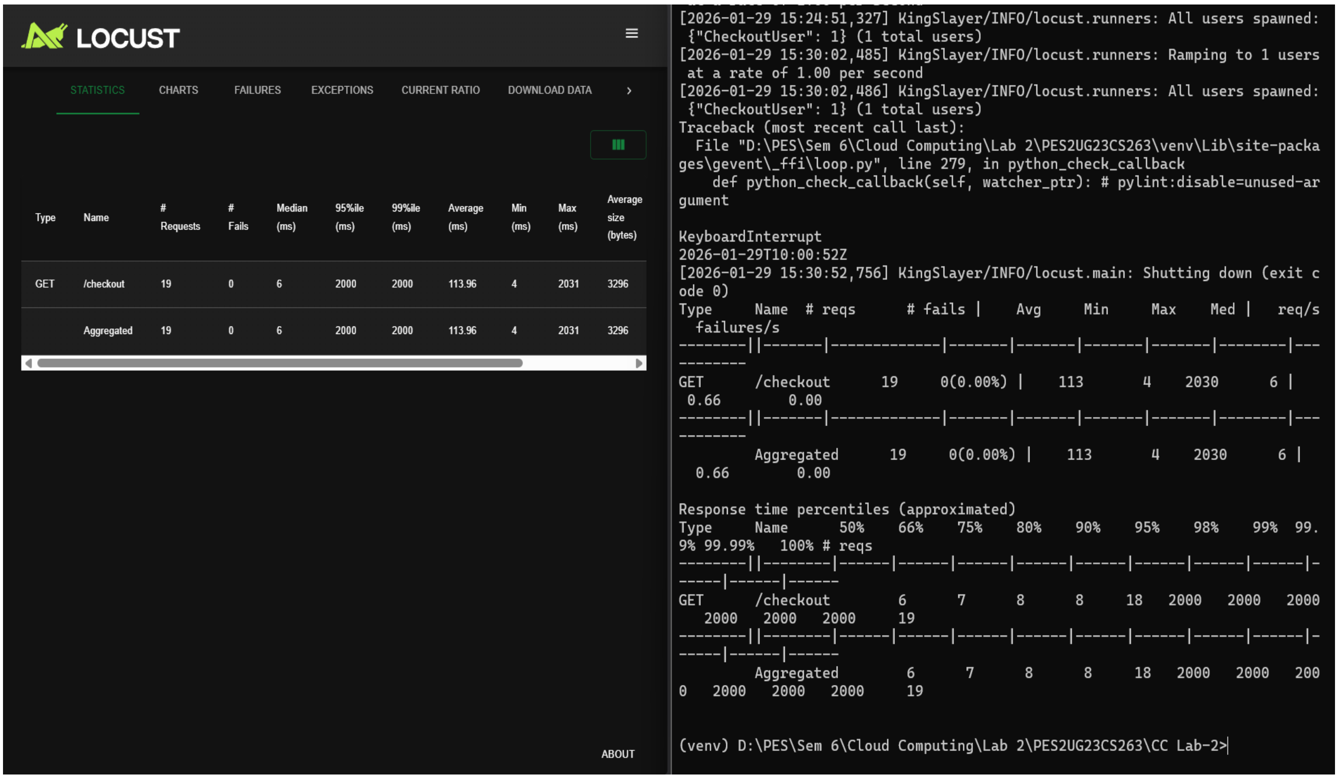
Next Lab: Split this monolith into Microservices (Events / Registration / Checkout).

CC Week X • Monolithic Applications Lab



```
INFO:     127.0.0.1:64908 - "GET /checkout HTTP/1.1" 200 OK
```

SS4 (checkout before optimization)



Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)
GET	/checkout	19	0	6	2000	2000	113.96	4	2031	3296
	Aggregated	19	0	6	2000	2000	113.96	4	2031	3296

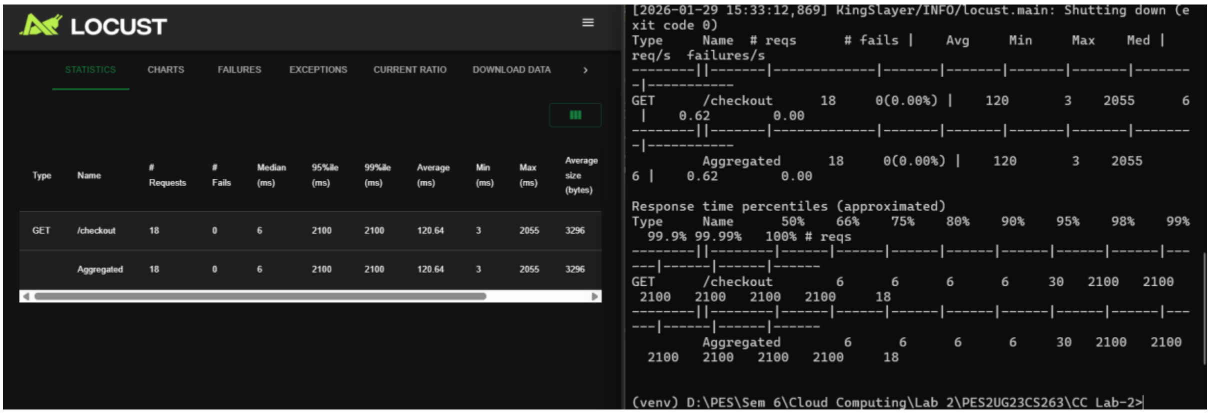
```
[2026-01-29 15:24:51,327] KingSlayer/INFO/locust.runners: All users spawned:
 {"CheckoutUser": 1} (1 total users)
[2026-01-29 15:30:02,485] KingSlayer/INFO/locust.runners: Ramping to 1 users
 at a rate of 1.00 per second
[2026-01-29 15:30:02,486] KingSlayer/INFO/locust.runners: All users spawned:
 {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\venv\Lib\site-packa
ges\gevent\_ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-ar
gument

KeyboardInterrupt
2026-01-29T10:00:52Z
[2026-01-29 15:30:52,756] KingSlayer/INFO/locust.main: Shutting down (exit c
ode 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |   req/s
  failures/s
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
GET      /checkout      19     0(0.00%) |    113       4    2030      6 |
 0.66        0.00
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
         Aggregated      19     0(0.00%) |    113       4    2030      6 |
  0.66        0.00

Response time percentiles (approximated)
Type     Name       50%    66%    75%    80%    90%    95%    98%    99%  99.
9% 99.99%   100% # reqs
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
GET      /checkout       6      7      8      8     18   2000   2000   2000
   2000   2000   2000     19
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
         Aggregated       6      7      8      8     18   2000   2000   200
0   2000   2000   2000     19


(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

Ss5: (checkout after optimization (no much change as system doesn’t allow))



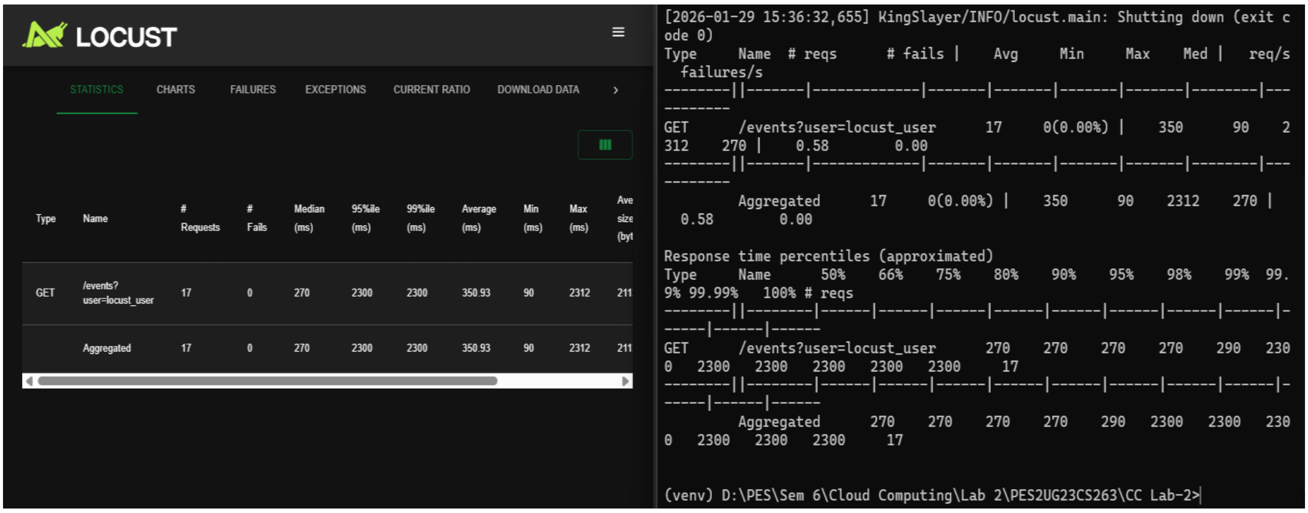
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)
GET	/checkout	18	0	6	2100	2100	120.64	3	2055	3296
	Aggregated	18	0	6	2100	2100	120.64	3	2055	3296

```
[2026-01-29 15:33:12,869] KingSlayer/INFO/locust.main: Shutting down (e
xit code 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |
req/s  failures/s
--------||-------|-------------|-------|-------|-------|-------|-------
-|-----------
GET      /checkout      18     0(0.00%) |    120       3    2055      6
 |    0.62        0.00
--------||-------|-------------|-------|-------|-------|-------|-------
-|-----------
         Aggregated      18     0(0.00%) |    120       3    2055
6 |    0.62        0.00

Response time percentiles (approximated)
Type     Name      50%    66%    75%    80%    90%    95%    98%    99%
  99.9% 99.99%   100% # reqs
--------||-------|------|------|------|------|------|------|------|---
---|------|------|------
GET      /checkout        6      6      6      6     30   2100   2100
 2100   2100   2100   2100      18
--------||-------|------|------|------|------|------|------|------|---
---|------|------|------
         Aggregated        6      6      6      6     30   2100   2100
  2100   2100   2100   2100      18


(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

Ss6: (events before optimization)



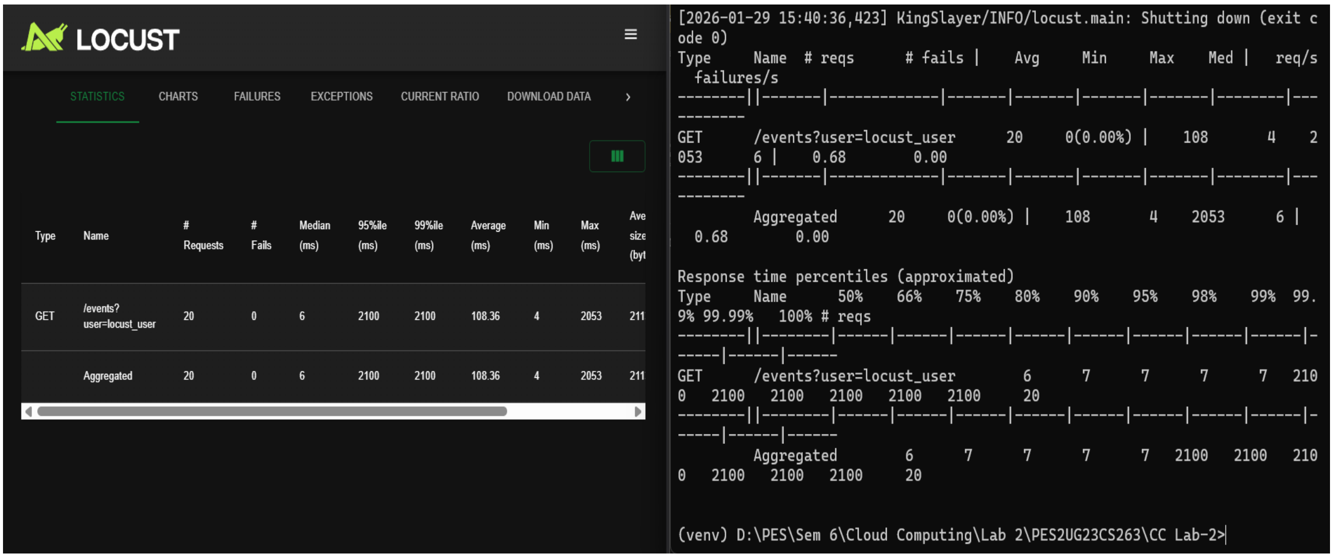
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Ave size (byt
GET	/events?user=locust_user	17	0	270	2300	2300	350.93	90	2312	211
	Aggregated	17	0	270	2300	2300	350.93	90	2312	211

```
[2026-01-29 15:36:32,655] KingSlayer/INFO/locust.main: Shutting down (exit c
ode 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |   req/s
  failures/s
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
GET      /events?user=locust_user      17     0(0.00%) |    350      90    2
312    270 |    0.58        0.00
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
         Aggregated      17     0(0.00%) |    350      90    2312    270 |
  0.58        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      270    270    270    270    290    230
0   2300   2300   2300   2300   2300     17
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
         Aggregated      270    270    270    270    290   2300   2300   230
0   2300   2300   2300     17


(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

Ss7: (events after optimization)



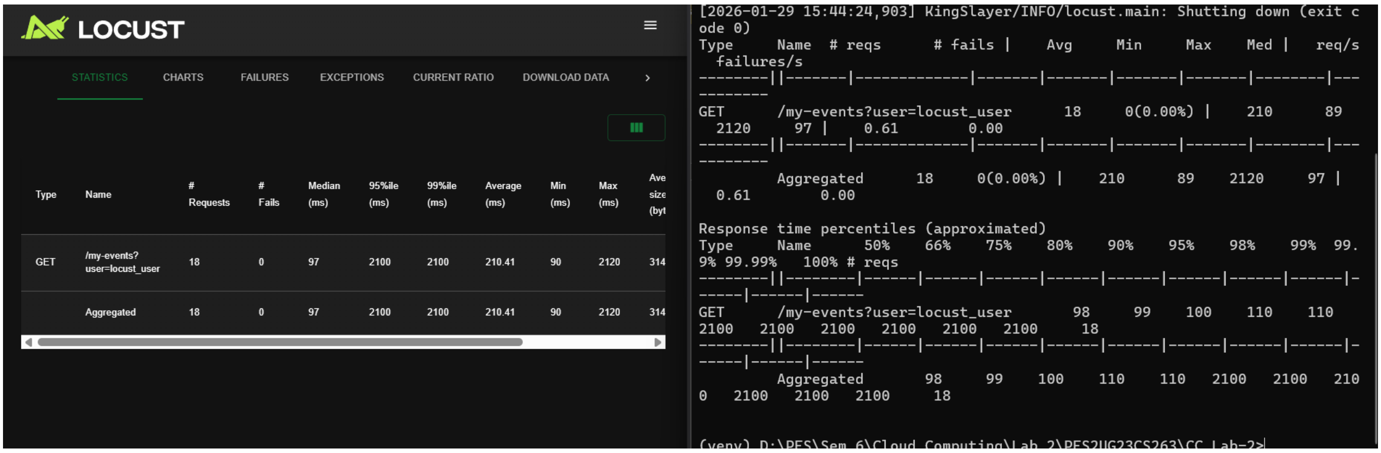
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Ave size (byt
GET	/events?user=locust_user	20	0	6	2100	2100	108.36	4	2053	211
	Aggregated	20	0	6	2100	2100	108.36	4	2053	211

```
[2026-01-29 15:40:36,423] KingSlayer/INFO/locust.main: Shutting down (exit c
ode 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |   req/s
  failures/s
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
GET      /events?user=locust_user      20     0(0.00%) |    108       4    2
053      6 |    0.68        0.00
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
         Aggregated      20     0(0.00%) |    108       4    2053      6 |
  0.68        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        6      7      7      7      7   210
0   2100   2100   2100   2100   2100     20
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
         Aggregated        6      7      7      7      7   2100   2100   210
0   2100   2100   2100     20


(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

Ss8 (my events before optimization)



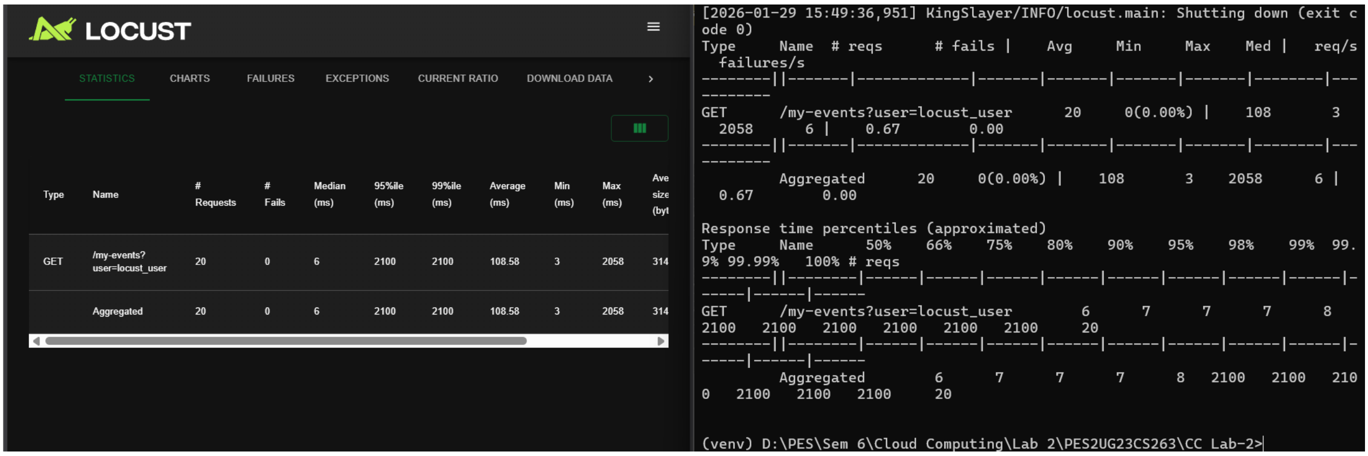
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Ave size (byt
GET	/my-events?user=locust_user	18	0	97	2100	2100	210.41	90	2120	314
	Aggregated	18	0	97	2100	2100	210.41	90	2120	314

```
[2026-01-29 15:44:24,903] KingSlayer/INFO/locust.main: Shutting down (exit c
ode 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |   req/s
  failures/s
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
GET      /my-events?user=locust_user      18     0(0.00%) |    210      89
  2120     97 |    0.61        0.00
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
         Aggregated      18     0(0.00%) |    210      89    2120     97 |
  0.61        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?user=locust_user       98     99    100    110    110
2100   2100   2100   2100   2100   2100     18
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
         Aggregated        98     99    100    110    110   2100   2100   210
0   2100   2100   2100     18

(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

Ss9 (myevents after optimization)



Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Ave size (byt
GET	/my-events?user=locust_user	20	0	6	2100	2100	108.58	3	2058	314
	Aggregated	20	0	6	2100	2100	108.58	3	2058	314

```
[2026-01-29 15:49:36,951] KingSlayer/INFO/locust.main: Shutting down (exit c
ode 0)
Type     Name  # reqs      # fails |    Avg     Min     Max    Med |   req/s
  failures/s
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
GET      /my-events?user=locust_user      20     0(0.00%) |    108       3
  2058      6 |    0.67        0.00
--------||-------|-------------|-------|-------|-------|-------|--------|---
--------
         Aggregated      20     0(0.00%) |    108       3    2058      6 |
  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      /my-events?user=locust_user        6      7      7      7      8
2100   2100   2100   2100   2100   2100     20
--------||--------|------|------|------|------|------|------|------|------|-
-----|------|------
         Aggregated         6      7      7      7      8   2100   2100   210
0   2100   2100   2100     20

(venv) D:\PES\Sem 6\Cloud Computing\Lab 2\PES2UG23CS263\CC Lab-2>
```

/events route

Bottleneck: The route was slowed down by dummy for loops that added processing time without affecting the output.

Change made: These unnecessary loops were removed from the route logic.

Why it improved: Removing redundant computations reduced CPU usage per request, resulting in nearly a 50% improvement in average response time (350 ms → 108 ms).

/my_events route

Bottleneck: The presence of non-essential iteration logic increased execution time.

Change made: The dummy loops were removed.

Why it improved: Fewer instructions were executed per request, allowing the route to respond faster and reducing average latency from 210 ms to 108 ms.