CLOUD COMPUTING – LAB 2 – MONOLITHIC ARCHITECTURE

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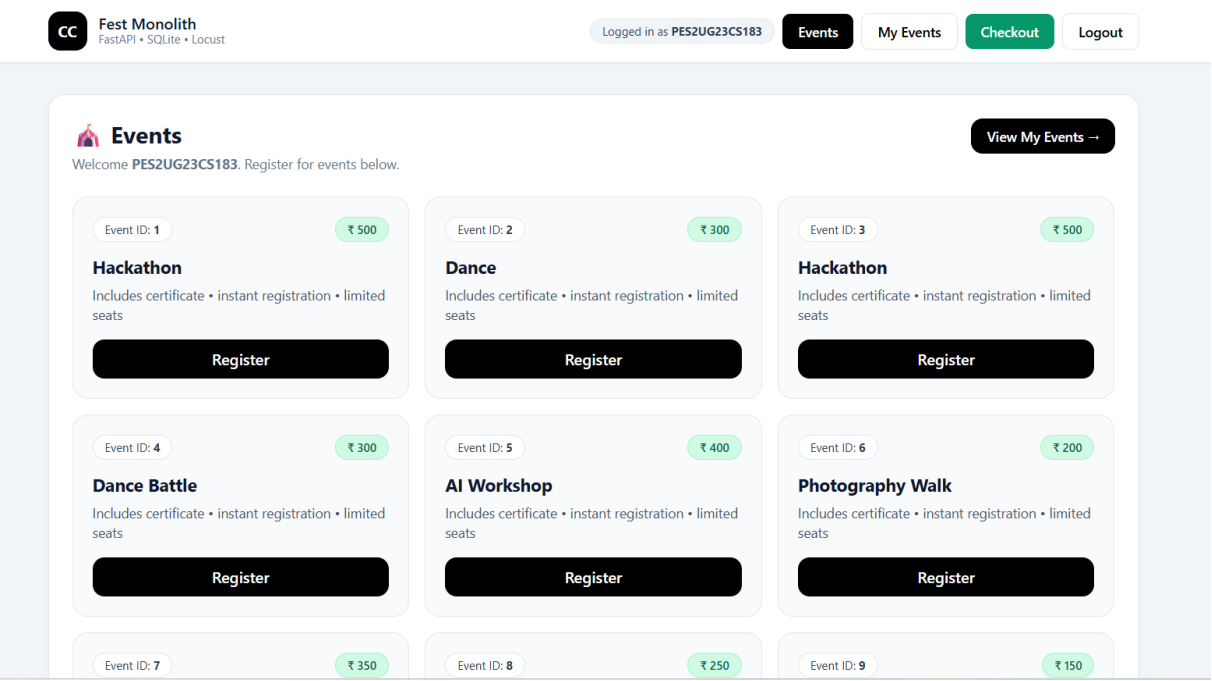
Date	20/01/26

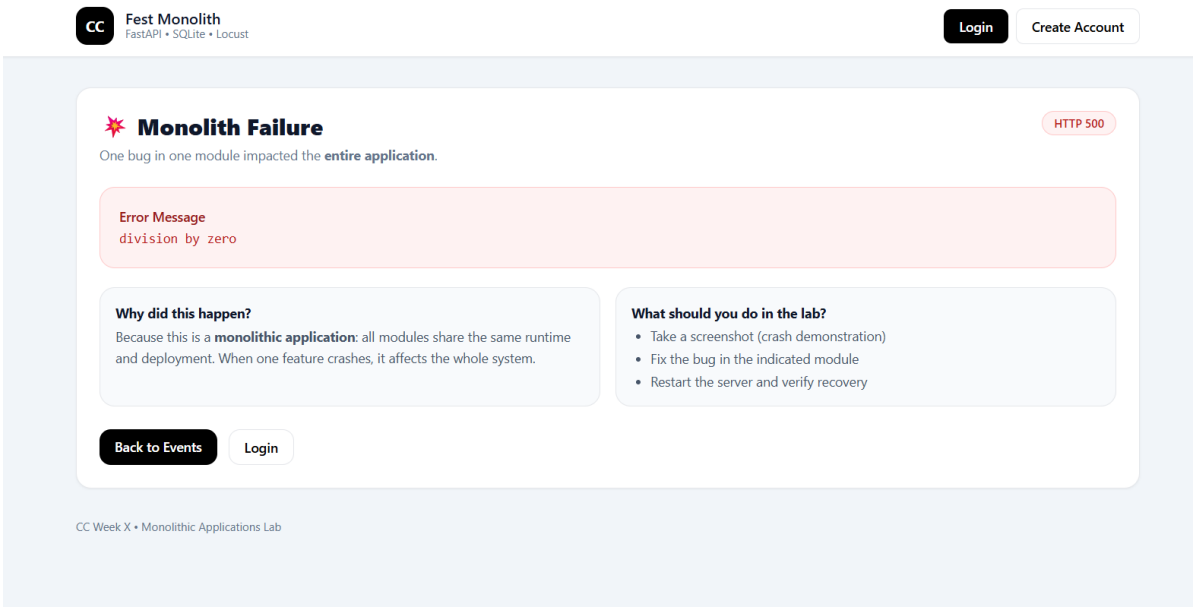
PART 2: Use the Application

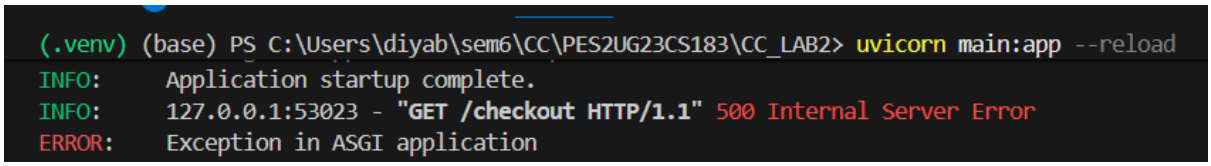
Screenshot 1 (SS1)



PART 3: Observe Monolithic Failure (Crash)

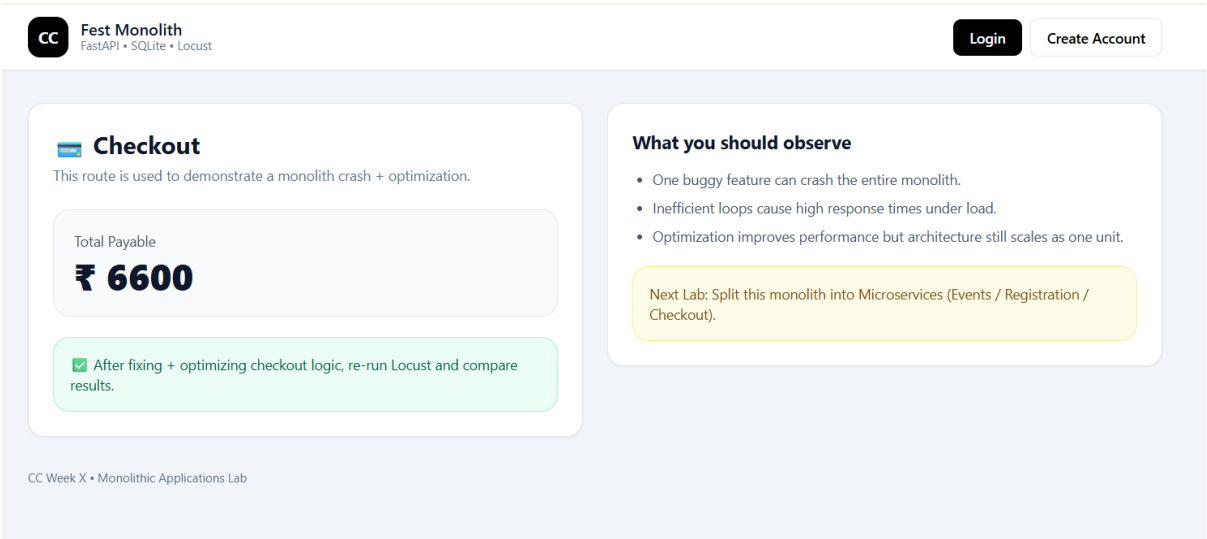
Screenshot 2 (SS2)

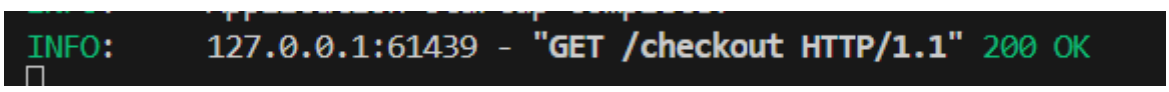




PART 4: Fix the Bug

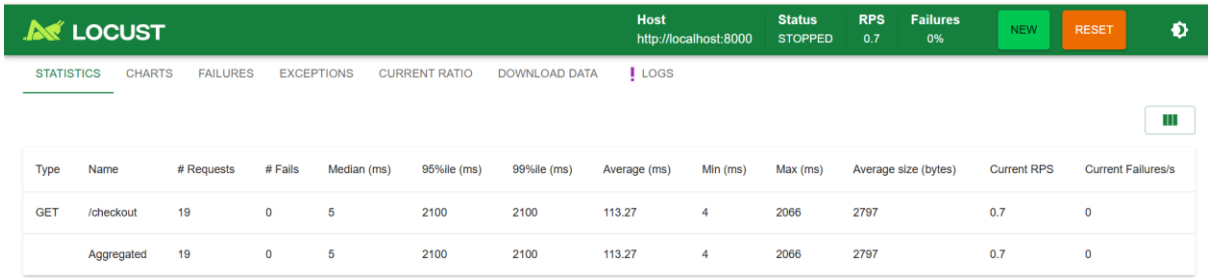
Screenshot 3 (SS3)





PART 5: Load Testing using Locust

Screenshot 4 (SS4)



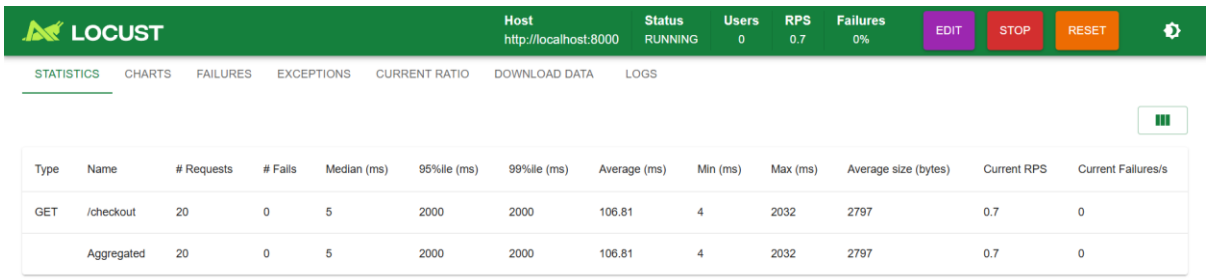

```
[2026-01-20 14:44:44,285] lenovo_diya/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 14:44:44,286] lenovo_diya/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
[2026-01-20 14:45:54,063] lenovo_diya/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /checkout                                                        18     0(0.00%) |    117       3    2030      5 |    0.64        0.00
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
[2026-01-20 14:45:54,063] lenovo_diya/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /checkout                                                        18     0(0.00%) |    117       3    2030      5 |    0.64        0.00
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                       18     0(0.00%) |    117       3    2030      5 |    0.64        0.00

Response time percentiles (approximated)
Type     Name                                                             50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|-------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /checkout                                                          5      6      6      7      7   2000   2000   2000   2000   2000   2000     18
--------|-------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                         5      6      6      7      7   2000   2000   2000   2000   2000   2000     18

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

PART 6: Optimize the Checkout Route

Screenshot 5 (SS5)



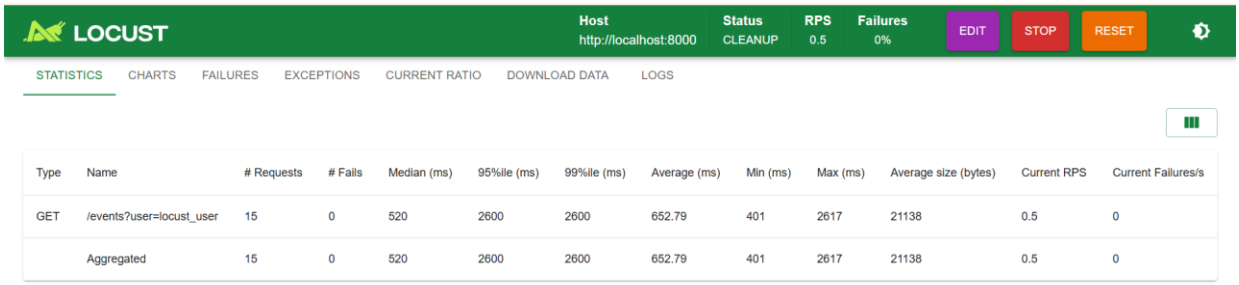

```
2026-01-20T09:22:33Z
[2026-01-20 14:52:33,535] lenovo_diya/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /checkout                                                        19     0(0.00%) |    113       3    2065      5 |    0.64        0.00
--------|-------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                       19     0(0.00%) |    113       3    2065      5 |    0.64        0.00

Response time percentiles (approximated)
Type     Name                                                             50%    66%    75%    80%    90%    95%    98%    99%  99.9% 99.99%   100% # reqs
--------|-------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
GET      /checkout                                                          5      5      5      5      6   2100   2100   2100   2100   2100   2100     19
--------|-------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                         5      5      5      5      6   2100   2100   2100   2100   2100   2100     19

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

PART 7: Optimise events and my_events(DIY)

Screenshot 6 (SS6)

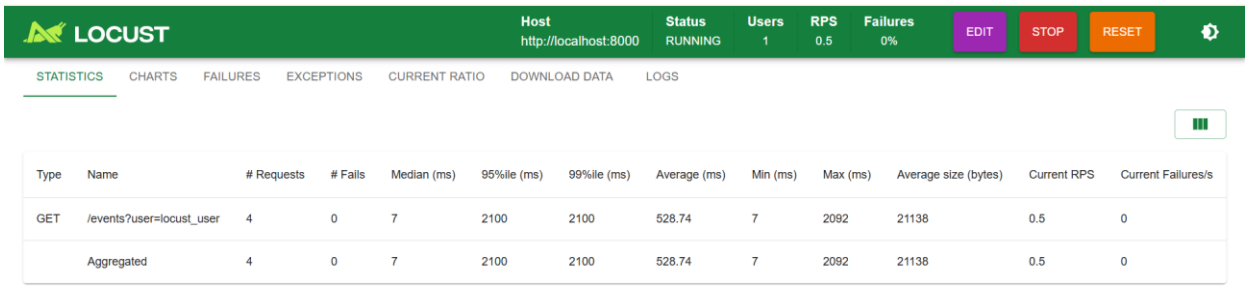



```
2026-01-20T09:30:05Z
[2026-01-20 15:00:05,316] lenovo_diya/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /events?user=locust_user                                                         15     0(0.00%) |    652     400    2616    520 |    0.51        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                       15     0(0.00%) |    652     400    2616    520 |    0.51        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                                                         520    530    570    570    620   2600   2600   2600   2600   2600   2600     15
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                       520    530    570    570    620   2600   2600   2600   2600   2600   2600     15

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

Screenshot 7 (SS7)

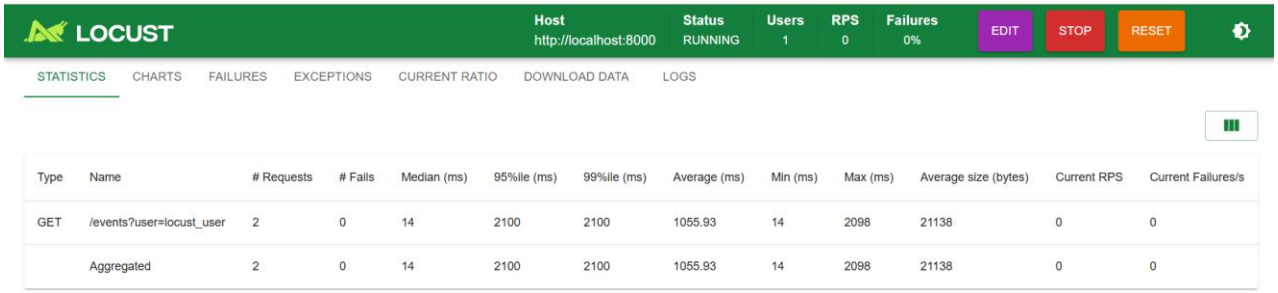



```
2026-01-20T09:36:06Z
[2026-01-20 15:06:06,862] lenovo_diya/INFO/locust.main: Shutting down (exit code 0)
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /events?user=locust_user                                                         16     0(0.00%) |    138       6    2092      8 |    0.70        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                       16     0(0.00%) |    138       6    2092      8 |    0.70        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                                                           8      8      9      9     10   2100   2100   2100   2100   2100   2100     16
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                         8      8      9      9     10   2100   2100   2100   2100   2100   2100     16

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

Screenshot 8 (SS8)



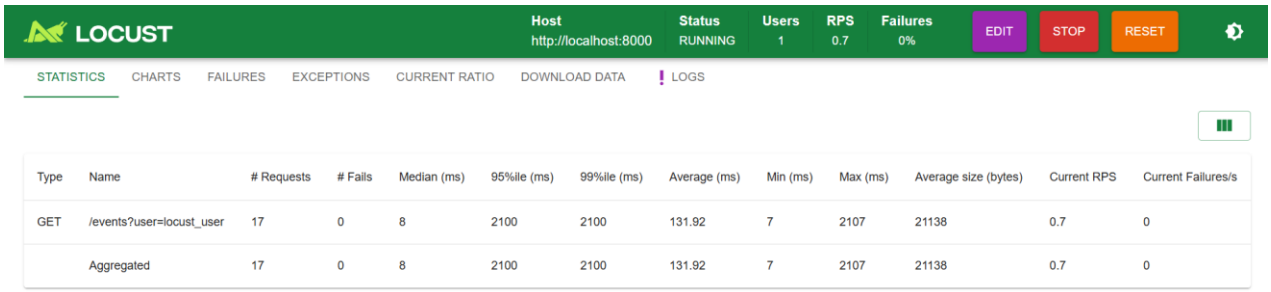
Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s
GET	/events?user=locust_user	2	0	14	2100	2100	1055.93	14	2098	21138	0	0
	Aggregated	2	0	14	2100	2100	1055.93	14	2098	21138	0	0

```
KeyboardInterrupt
Type     Name                                                                          # reqs      # fails |    Avg     Min     Max    Med |   req/s  failures/s
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
GET      /events?user=locust_user                                                        19     0(0.00%) |    118       6    2098      8 |    0.64        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                      19     0(0.00%) |    118       6    2098      8 |    0.64        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                                                           8      8      9      9     14   2100   2100   2100   2100   2100   2100     19
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                         8      8      9      9     14   2100   2100   2100   2100   2100   2100     19

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

Screenshot 9 (SS9)



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	/events?user=locust_user	17	0	8	2100	2100	131.92	7	2107	21138	0.7	0
	Aggregated	17	0	8	2100	2100	131.92	7	2107	21138	0.7	0

```
[2026-01-20 15:11:49,068] lenovo_diya/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%) |    113       6    2107      8 |    0.68        0.00
--------|-----------------------------------------------------------------------------|-------|-------------|-------|-------|-------|-------|--------|-----------
         Aggregated                                                                      20     0(0.00%) |    113       6    2107      8 |    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                                                           8      8      8      8     18   2100   2100   2100   2100   2100   2100     20
--------|-----------------------------------------------------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------
         Aggregated                                                                         8      8      8      8     18   2100   2100   2100   2100   2100   2100     20

(.venv) (base) PS C:\Users\diyab\sem6\CC\PES2UG23CS183\CC_LAB2>
```

3. Short explanation of optimizations

Route: /events

What was the bottleneck?
The /events route had an unnecessary loop that ran lot of times and did not contribute to displaying the events. This caused extra CPU usage and slowed down the response.

What change did you make?
I commented the redundant loop from the /events route and then executed it.

Why did the performance improve?
By commenting the unnecessary computation, the server handled requests faster, reducing the response time under load.

Route: /my-events

What was the bottleneck?
The /my-events route contained a dummy loop with a large number of iterations, which added delay without affecting the output.

What change did you make?
I commented the unused loop from the /my-events route logic and then executed it.

Why did the performance improve?
Commenting the extra loop reduced CPU overhead, resulting in faster request processing and improved response time.

Github Link

https://github.com/PES2UG23CS183/Cloud_Computing_Lab_Diya/tree/main/Week%202%20-%20Monolithic%20Architecture