PES2UG23CS678_Varun_Lab2

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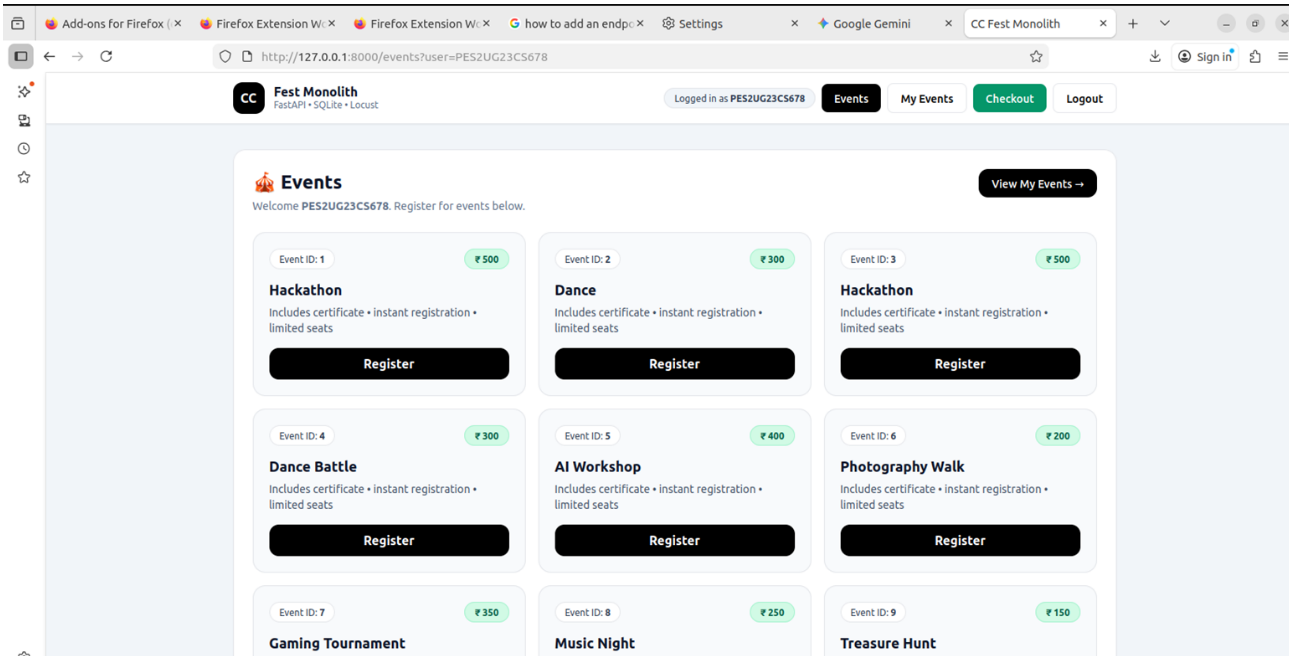
SRN: PES2UG23CS678

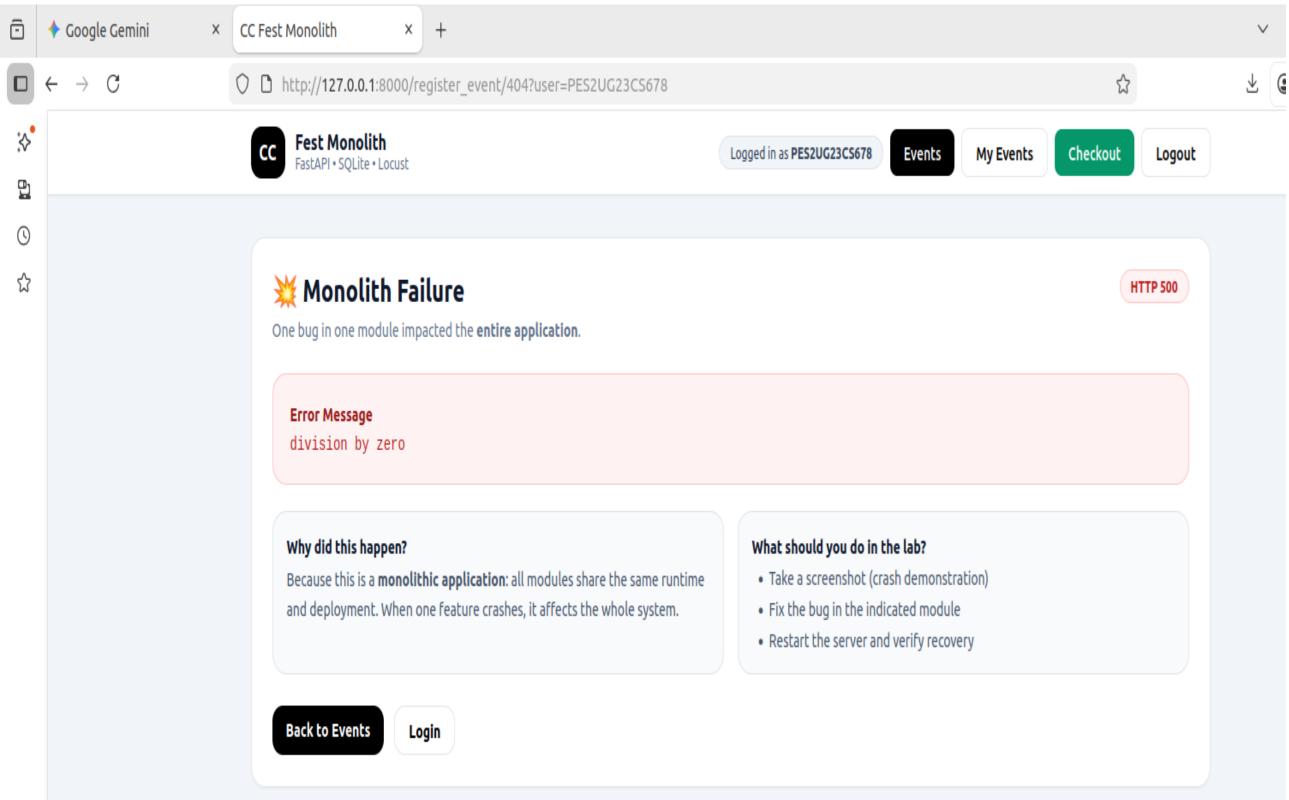
Date: 23-01-2026

Github link to the public repository: https://github.com/pes2ug23cs678-gif/CC-Lab2

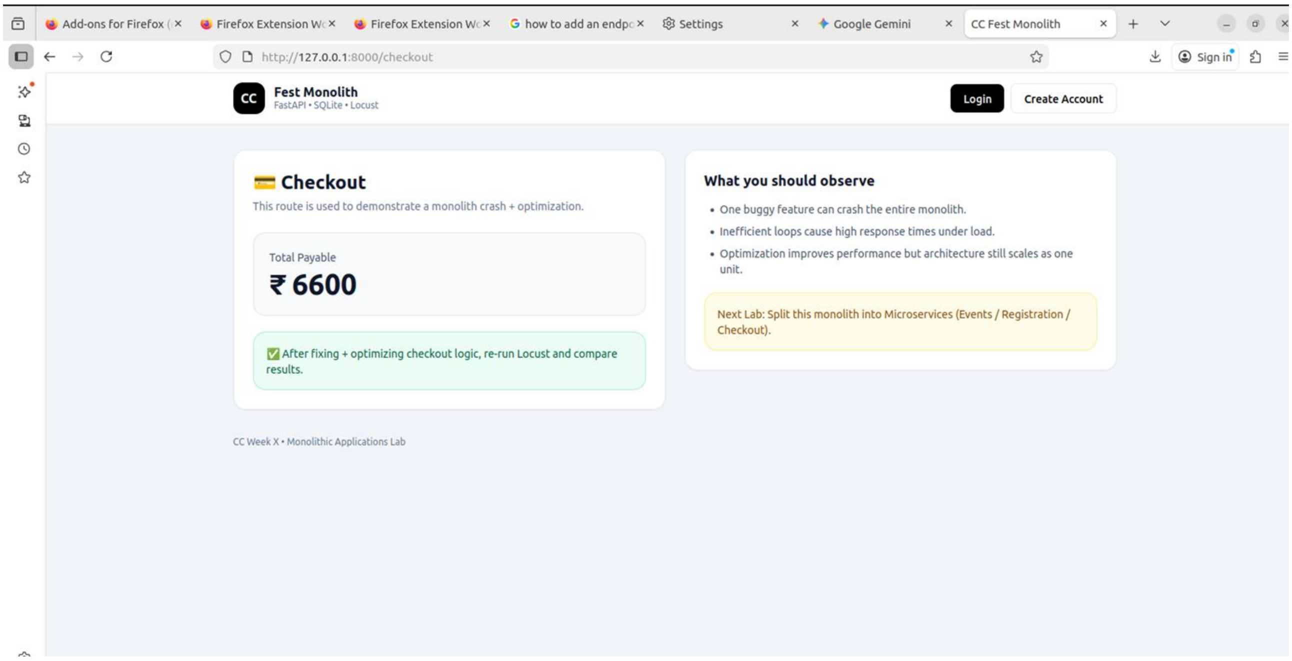
SS1:-



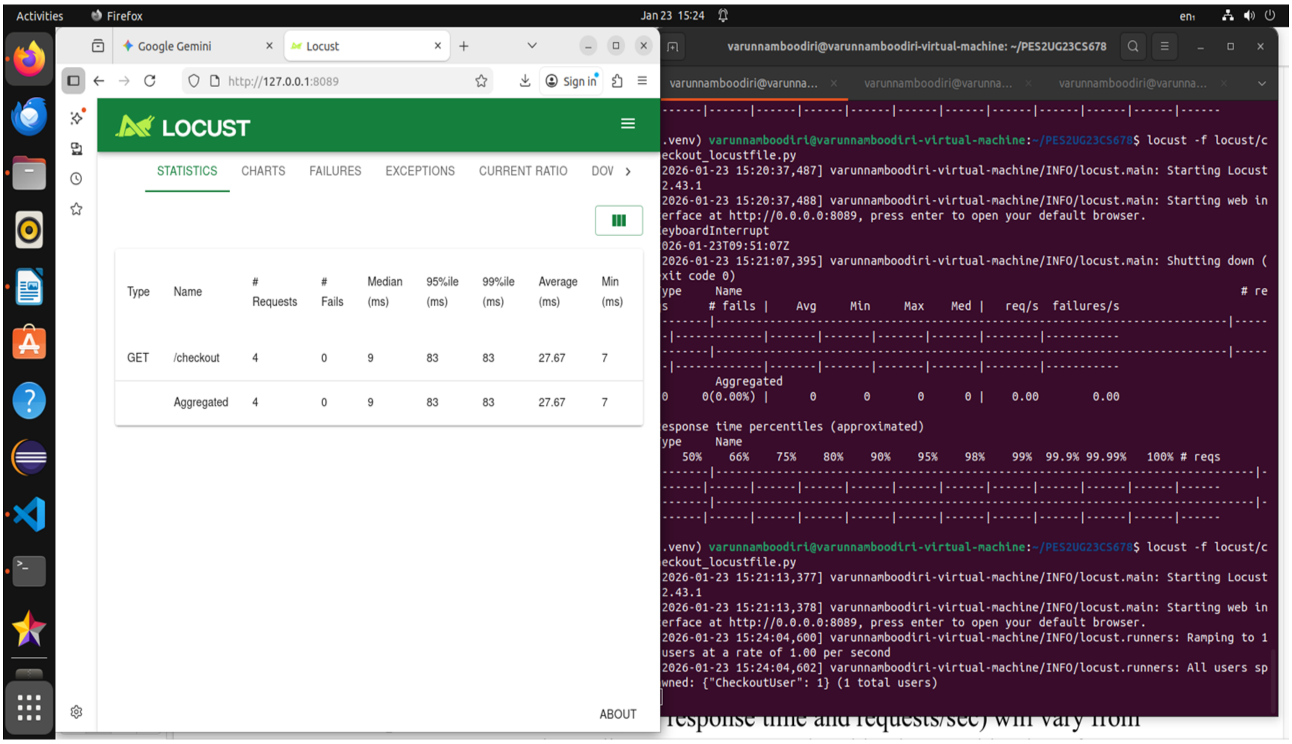
SS2:-


Google Gemini
CC Fest Monolith
http://127.0.0.1:8000/register_event/404?user=PES2UG23CS678
CC
Fest Monolith
FastAPI • SQLite • Locust
Logged in as PES2UG23CS678
Events
My Events
Checkout
Logout
Monolith Failure
HTTP 500
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
Back to Events
Login

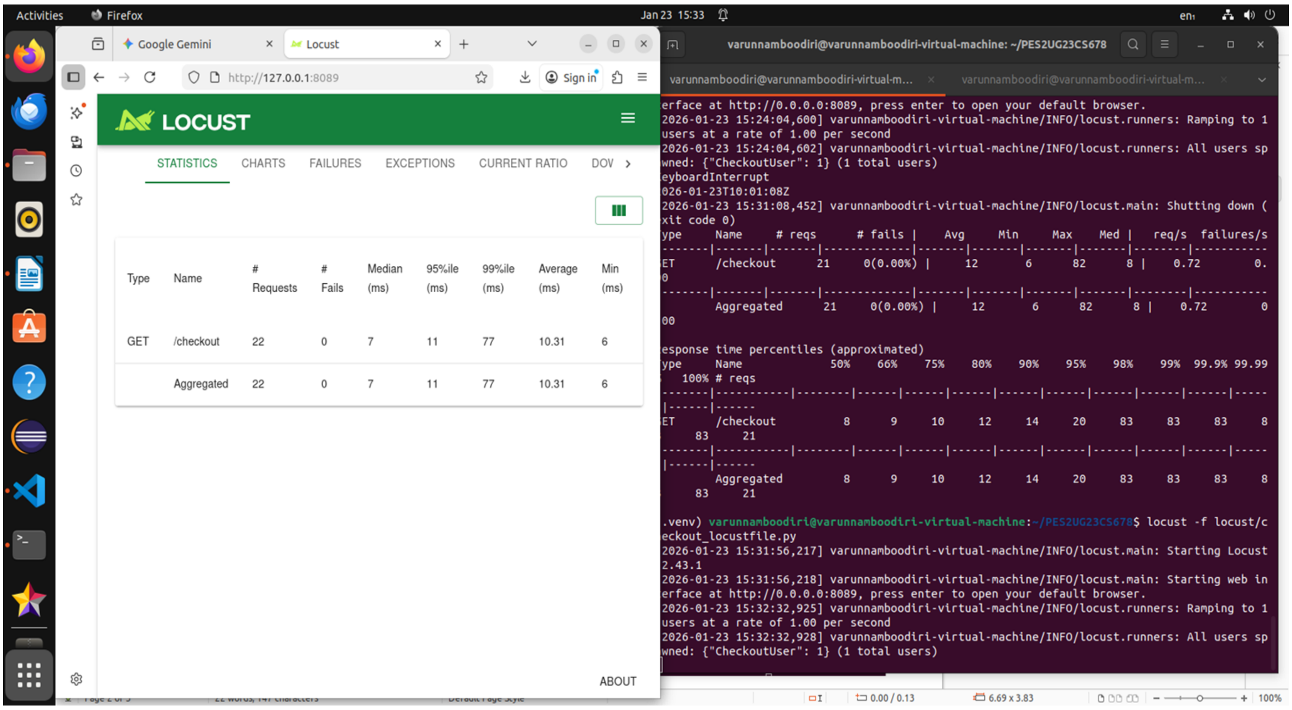
SS3:-


Add-ons for Firefox
Firefox Extension W
Firefox Extension W
how to add an endp
Settings
Google Gemini
CC Fest Monolith
http://127.0.0.1:8000/checkout
Sign in
CC
Fest Monolith
FastAPI • SQLite • Locust
Login
Create Account
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

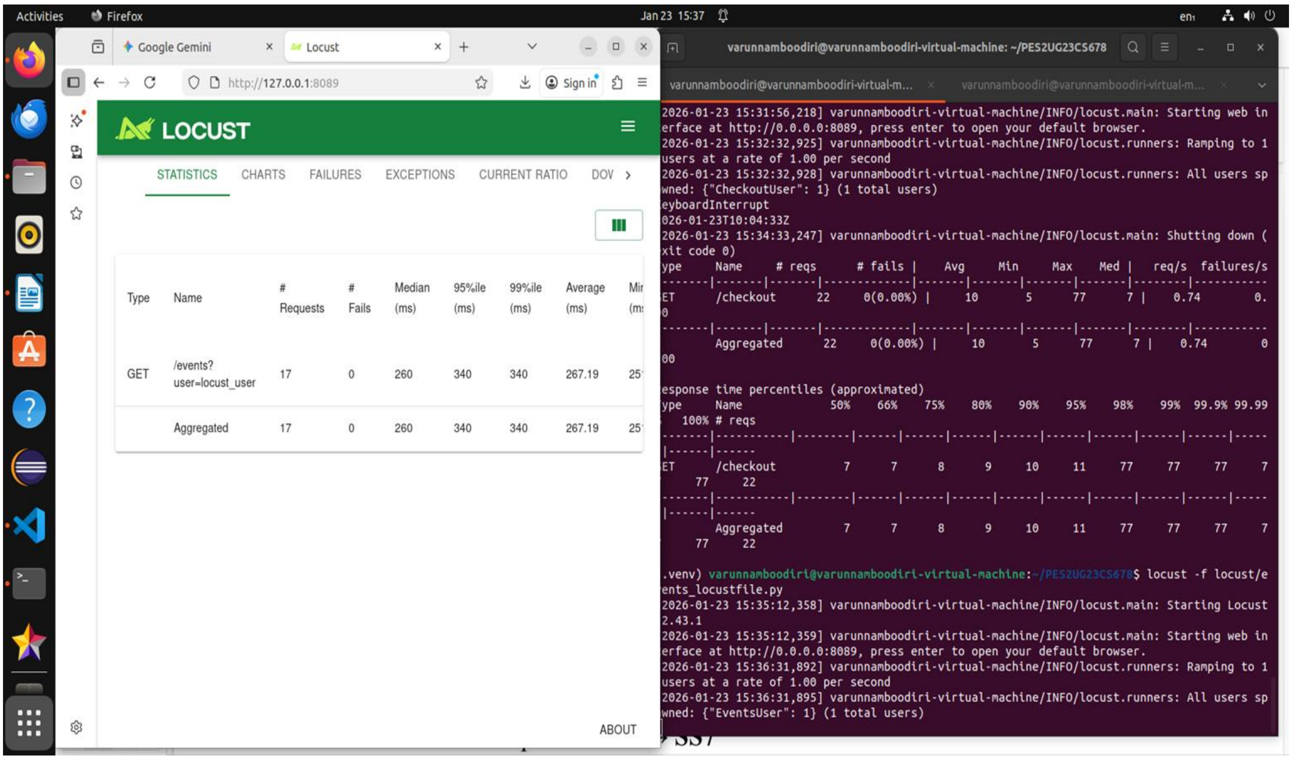
SS4:-


Activities
Firefox
Jan 23 15:24
Google Gemini
Locust
http://127.0.0.1:8089
Sign in
LOCUST
STATISTICS
CHARTS
FAILURES
EXCEPTIONS
CURRENT RATIO
DOV
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms)
GET /checkout 4 0 9 83 83 27.67 7
Aggregated 4 0 9 83 83 27.67 7
ABOUT
varunnamboodiri@varunnamboodiri-virtual-machine: ~/PES2UG23CS678
.venv) varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ locust -f locust/checkout_locustfile.py
2026-01-23 15:20:37,487] varunnamboodiri-virtual-machine/INFO/locust.main: Starting Locust 2.43.1
2026-01-23 15:20:37,488] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
eyboardInterrupt
026-01-23T09:51:07Z
2026-01-23 15:21:07,395] varunnamboodiri-virtual-machine/INFO/locust.main: Shutting down (exit code 0)
Aggregated
0 0(0.00%) | 0 0 0 0 | 0.00 0.00
esponse time percentiles (approximated)
.venv) varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ locust -f locust/checkout_locustfile.py
2026-01-23 15:21:13,377] varunnamboodiri-virtual-machine/INFO/locust.main: Starting Locust 2.43.1
2026-01-23 15:21:13,378] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:24:04,600] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
2026-01-23 15:24:04,602] varunnamboodiri-virtual-machine/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)

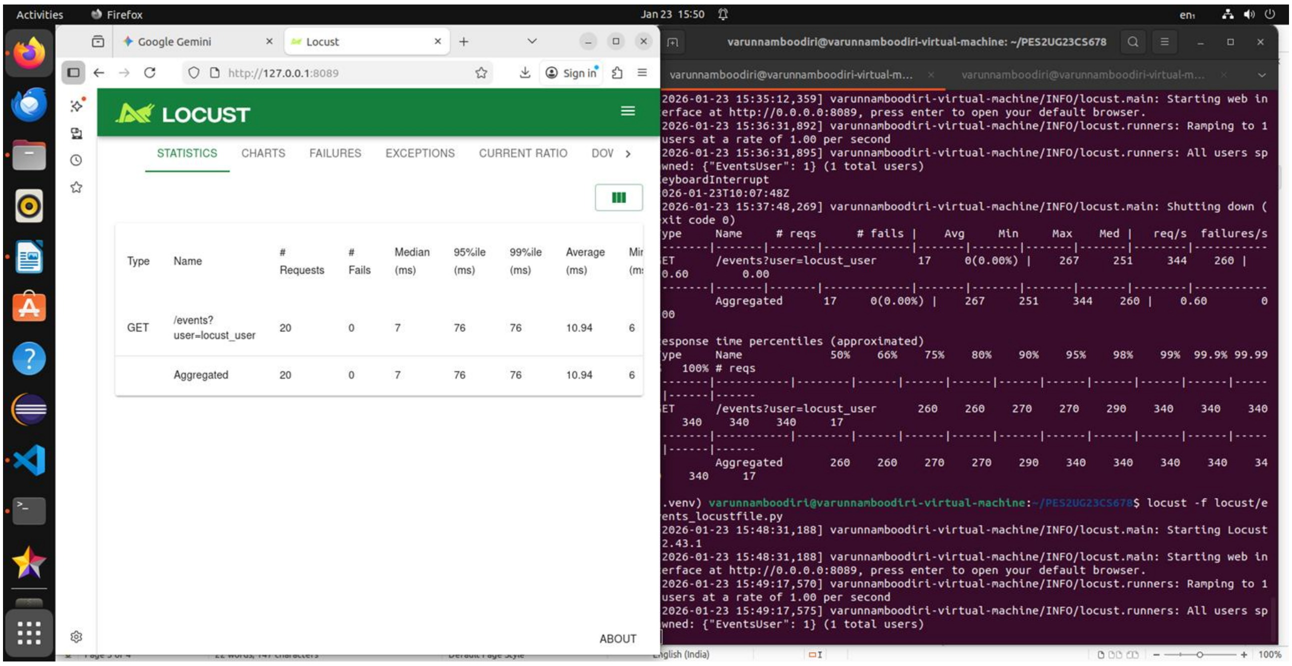
SS5:-


Activities
Firefox
Jan 23 15:33
Google Gemini
Locust
http://127.0.0.1:8089
Sign in
LOCUST
STATISTICS
CHARTS
FAILURES
EXCEPTIONS
CURRENT RATIO
DOV
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms)
GET /checkout 22 0 7 11 77 10.31 6
Aggregated 22 0 7 11 77 10.31 6
ABOUT
varunnamboodiri@varunnamboodiri-virtual-machine: ~/PES2UG23CS678
erface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:24:04,600] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
2026-01-23 15:24:04,602] varunnamboodiri-virtual-machine/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
eyboardInterrupt
026-01-23T10:01:08Z
2026-01-23 15:31:08,452] varunnamboodiri-virtual-machine/INFO/locust.main: Shutting down (exit code 0)
ET /checkout 21 0(0.00%) | 12 6 82 8 | 0.72 0.
Aggregated 21 0(0.00%) | 12 6 82 8 | 0.72 0
esponse time percentiles (approximated)
ET /checkout 8 9 10 12 14 20 83 83 83 83 21
Aggregated 8 9 10 12 14 20 83 83 83 83 21
.venv) varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ locust -f locust/checkout_locustfile.py
2026-01-23 15:31:56,217] varunnamboodiri-virtual-machine/INFO/locust.main: Starting Locust 2.43.1
2026-01-23 15:31:56,218] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:32:32,925] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
2026-01-23 15:32:32,928] varunnamboodiri-virtual-machine/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)

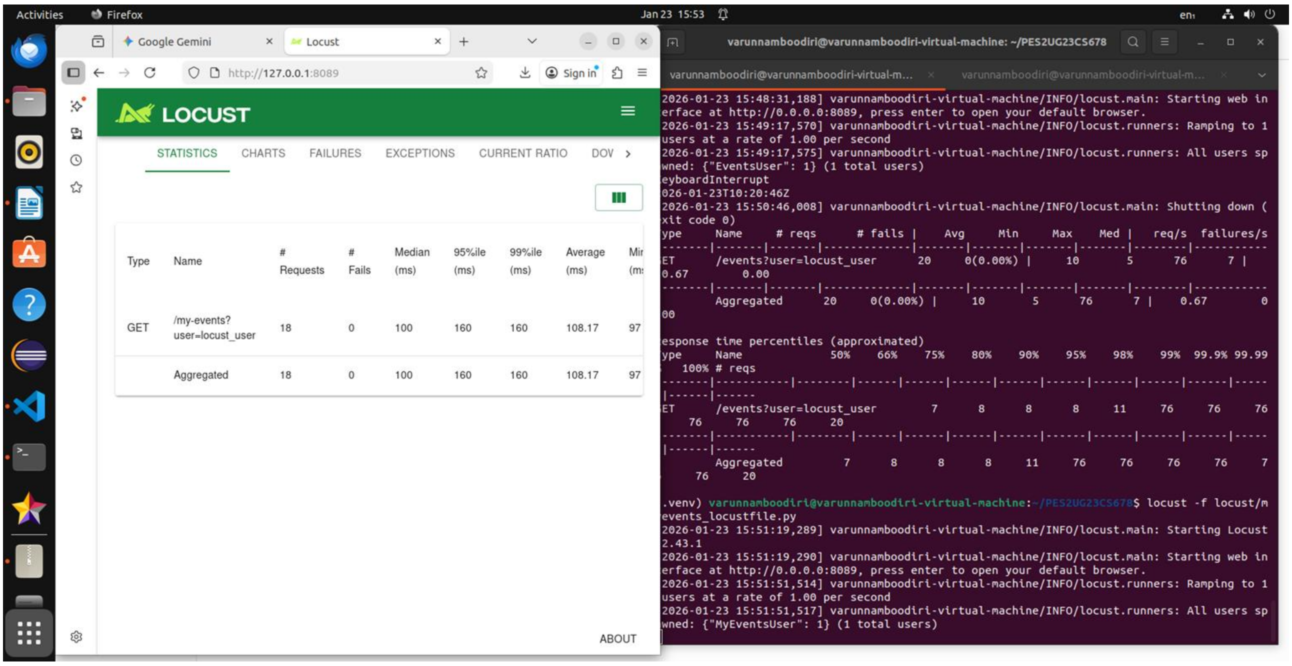
SS6:-


Activities
Firefox
Jan 23 15:37
Google Gemini
Locust
http://127.0.0.1:8089
LOCUST
STATISTICS
CHARTS
FAILURES
EXCEPTIONS
CURRENT RATIO
Type
Name
Requests
Fails
Median (ms)
95%ile (ms)
99%ile (ms)
Average (ms)
GET
/events?user=locust_user
17
0
260
340
340
267.19
Aggregated
17
0
260
340
340
267.19
ABOUT
varunnamboodiri@varunnamboodiri-virtual-machine: ~/PES2UG23CS678
2026-01-23 15:31:56,218] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web in
erface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:32:32,925] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1
users at a rate of 1.00 per second
2026-01-23 15:32:32,928] varunnamboodiri-virtual-machine/INFO/locust.runners: All users sp
wned: {"CheckoutUser": 1} (1 total users)
eyboardInterrupt
026-01-23T10:04:33Z
2026-01-23 15:34:33,247] varunnamboodiri-virtual-machine/INFO/locust.main: Shutting down (
xit code 0)
ype Name # reqs # fails | Avg Min Max Med | req/s failures/s
ET /checkout 22 0(0.00%) | 10 5 77 7 | 0.74 0.
Aggregated 22 0(0.00%) | 10 5 77 7 | 0.74 0
esponse time percentiles (approximated)
ype Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99
100% # reqs
ET /checkout 7 7 8 9 10 11 77 77 77 7
77 22
Aggregated 7 7 8 9 10 11 77 77 77 7
77 22
.venv) varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ locust -f locust/e
ents_locustfile.py
2026-01-23 15:35:12,358] varunnamboodiri-virtual-machine/INFO/locust.main: Starting Locust
2.43.1
2026-01-23 15:35:12,359] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web in
erface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:36:31,892] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1
users at a rate of 1.00 per second
2026-01-23 15:36:31,895] varunnamboodiri-virtual-machine/INFO/locust.runners: All users sp
wned: {"EventsUser": 1} (1 total users)

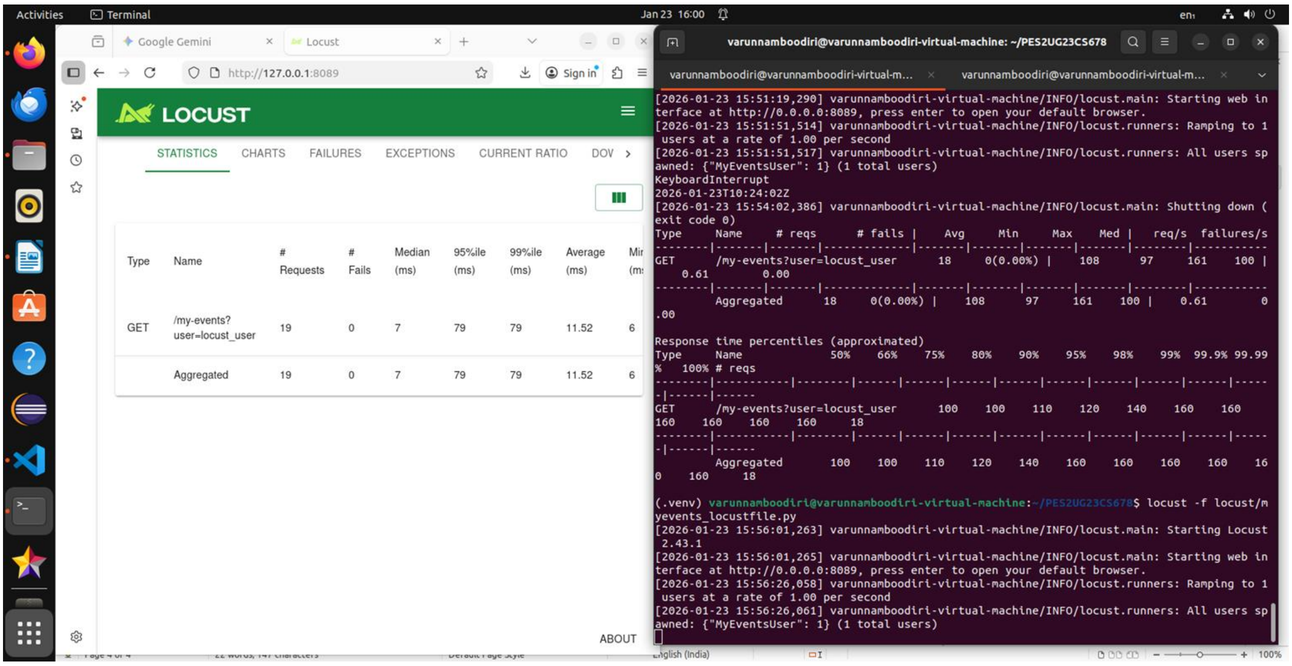
SS7:-


Activities
Firefox
Jan 23 15:50
Google Gemini
Locust
http://127.0.0.1:8089
LOCUST
STATISTICS
CHARTS
FAILURES
EXCEPTIONS
CURRENT RATIO
Type
Name
Requests
Fails
Median (ms)
95%ile (ms)
99%ile (ms)
Average (ms)
GET
/events?user=locust_user
20
0
7
76
76
10.94
Aggregated
20
0
7
76
76
10.94
ABOUT
varunnamboodiri@varunnamboodiri-virtual-machine: ~/PES2UG23CS678
2026-01-23 15:35:12,359] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web in
erface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:36:31,892] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1
users at a rate of 1.00 per second
2026-01-23 15:36:31,895] varunnamboodiri-virtual-machine/INFO/locust.runners: All users sp
wned: {"EventsUser": 1} (1 total users)
eyboardInterrupt
026-01-23T10:07:48Z
2026-01-23 15:37:48,269] varunnamboodiri-virtual-machine/INFO/locust.main: Shutting down (
xit code 0)
ype Name # reqs # fails | Avg Min Max Med | req/s failures/s
ET /events?user=locust_user 17 0(0.00%) | 267 251 344 260 |
0.60 0.00
Aggregated 17 0(0.00%) | 267 251 344 260 | 0.60 0
esponse time percentiles (approximated)
ype Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99
100% # reqs
ET /events?user=locust_user 260 260 270 270 290 340 340 340
340 340 340 17
Aggregated 260 260 270 270 290 340 340 340 340 34
340 17
.venv) varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ locust -f locust/e
ents_locustfile.py
2026-01-23 15:48:31,188] varunnamboodiri-virtual-machine/INFO/locust.main: Starting Locust
2.43.1
2026-01-23 15:48:31,188] varunnamboodiri-virtual-machine/INFO/locust.main: Starting web in
erface at http://0.0.0.0:8089, press enter to open your default browser.
2026-01-23 15:49:17,570] varunnamboodiri-virtual-machine/INFO/locust.runners: Ramping to 1
users at a rate of 1.00 per second
2026-01-23 15:49:17,575] varunnamboodiri-virtual-machine/INFO/locust.runners: All users sp
wned: {"EventsUser": 1} (1 total users)

SS8:-



SS9:-



Route 1 part

Q1) What was the bottleneck?

Ans:- Here, the CPU was doing 300000 calculations for the events-part using the support of the for loop. The problematic code snippet is as follows:-

```
waste = 0
for i in range(300000):
    waste += i % 3
```

Q2) What change did you make?

Ans:- Here, I have deleted the unwanted for loop, which is given as follows:-

```
waste = 0
for i in range(300000):
        waste += i % 3
```

By eliminating this for loop, I have helped in the decrease of the time complexity of the execution of the events_locustfile.py.

Q3) Why did the performance improve?

Ans:-First, the for loop

```
waste = 0
for i in range(300000):
        waste += i % 3
```

caused the running of the events_locustfile.py to be slow. Since I have eliminated the aforementioned for loop, I have eliminated any useless calculation, thereby improving the speed of the calculation.

Route 2 part

Q1) What was the bottleneck?

Ans:- The for loop, which is given to us as follows:-

```
dummy = 0
    for _ in range(1500000):
        dummy += 1
```

is the bottleneck. Now, with the help of this for loop, we would be incrementing the dummy till the value reaches 1500000, thereby making the execution of the myevents_locustfile.py slower.

Q2) What change did you make?

Ans:- Here, I have made changes by deleting the problematic for loop, which is given to us as follows:-

```
dummy = 0
    for _ in range(1500000):
        dummy += 1
```

Now, we would eliminate any useless calculation, thereby making the overall execution faster.

Q3) Why did the performance improve?

Ans:-First, the for loop

```
dummy = 0
    for _ in range(1500000):
        dummy += 1
```

caused the running of the myevents_locustfile.py to be slow. Since I have eliminated the aforementioned for loop, I have eliminated any useless calculation, thereby improving the speed of the calculation.