# CC LAB 2

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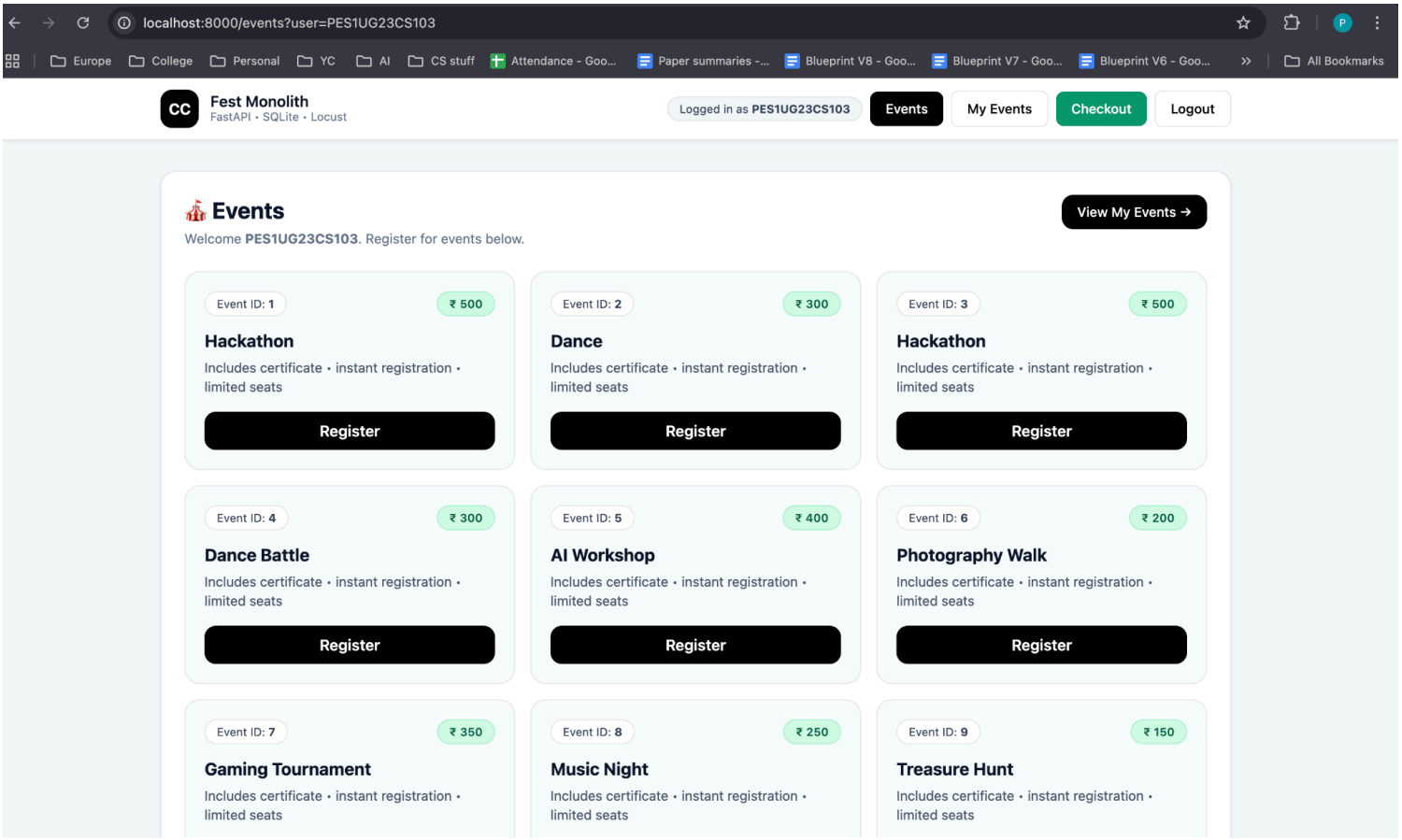
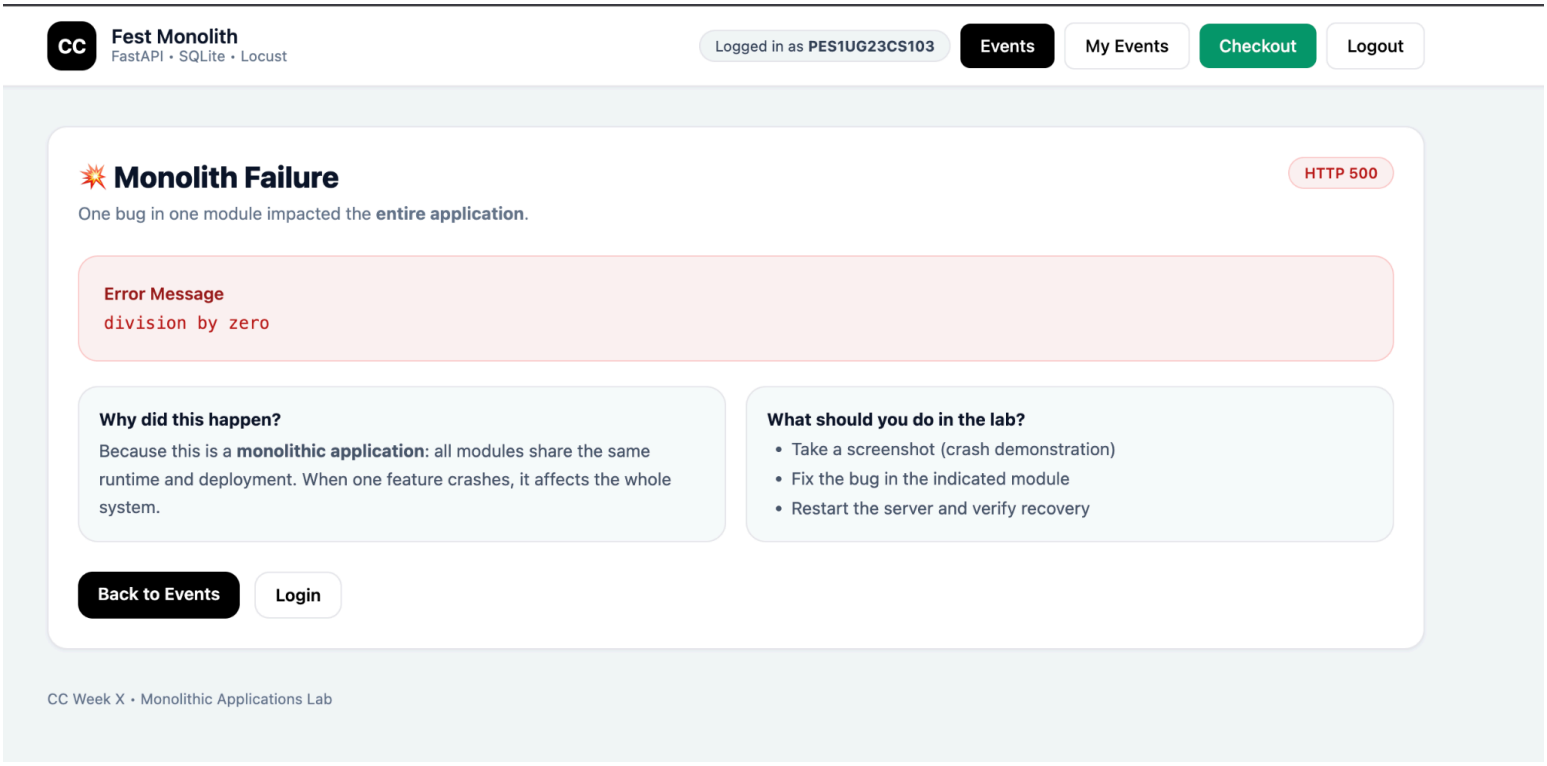
SRN: PES1UG23CS103
Section : B

SS1:

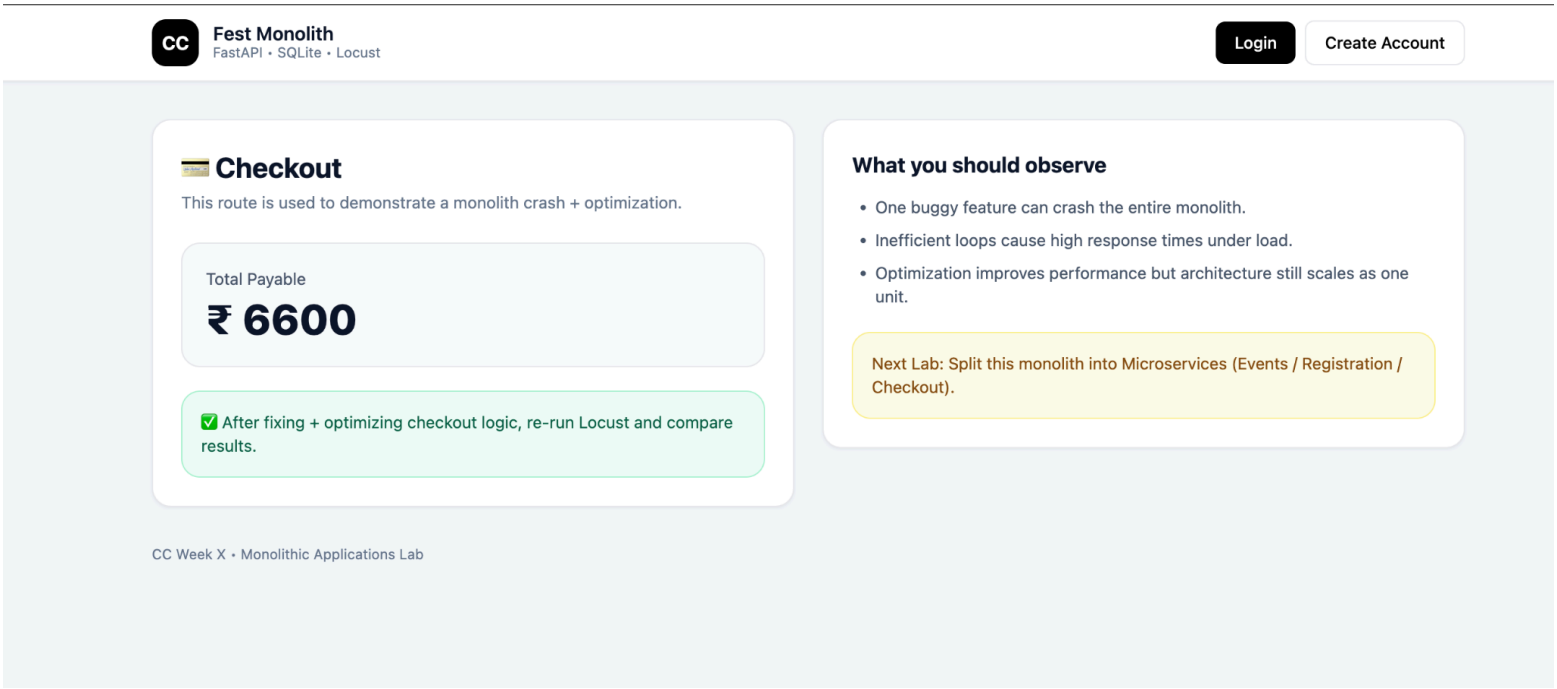


SS2:



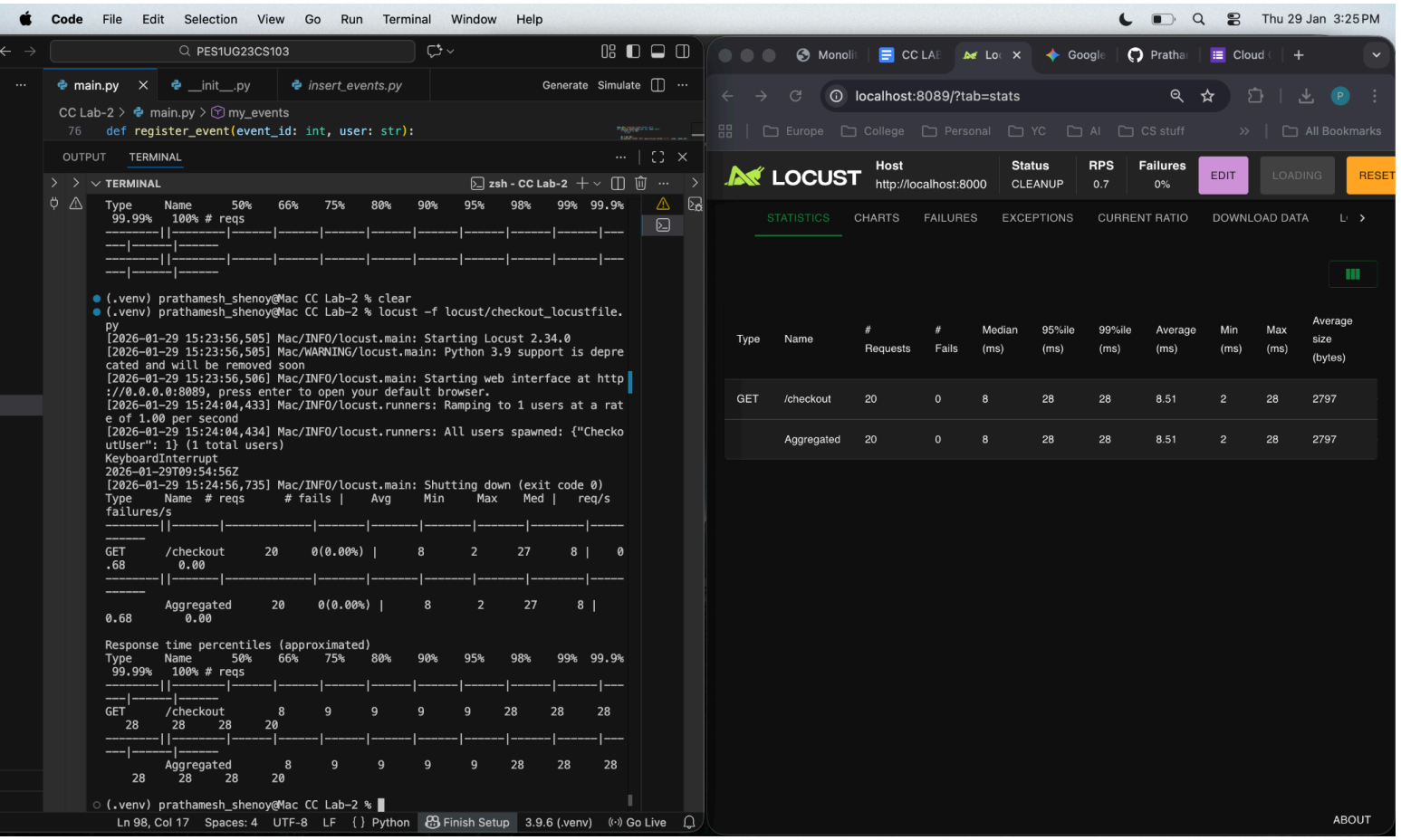

```
  File "/Users/prathamesh_shenoy/Desktop/PES1UG23CS103/CC Lab-2/.venv/lib/python3.9/site-packages/anyio/to_th
read.py", line 63, in run_sync
    return await get_async_backend().run_sync_in_worker_thread(
  File "/Users/prathamesh_shenoy/Desktop/PES1UG23CS103/CC Lab-2/.venv/lib/python3.9/site-packages/anyio/_back
ends/_asyncio.py", line 2502, in run_sync_in_worker_thread
    return await future
  File "/Users/prathamesh_shenoy/Desktop/PES1UG23CS103/CC Lab-2/.venv/lib/python3.9/site-packages/anyio/_back
ends/_asyncio.py", line 986, in run
    result = context.run(func, *args)
  File "/Users/prathamesh_shenoy/Desktop/PES1UG23CS103/CC Lab-2/main.py", line 78, in register_event
    1 / 0
ZeroDivisionError: division by zero
```

SS3:

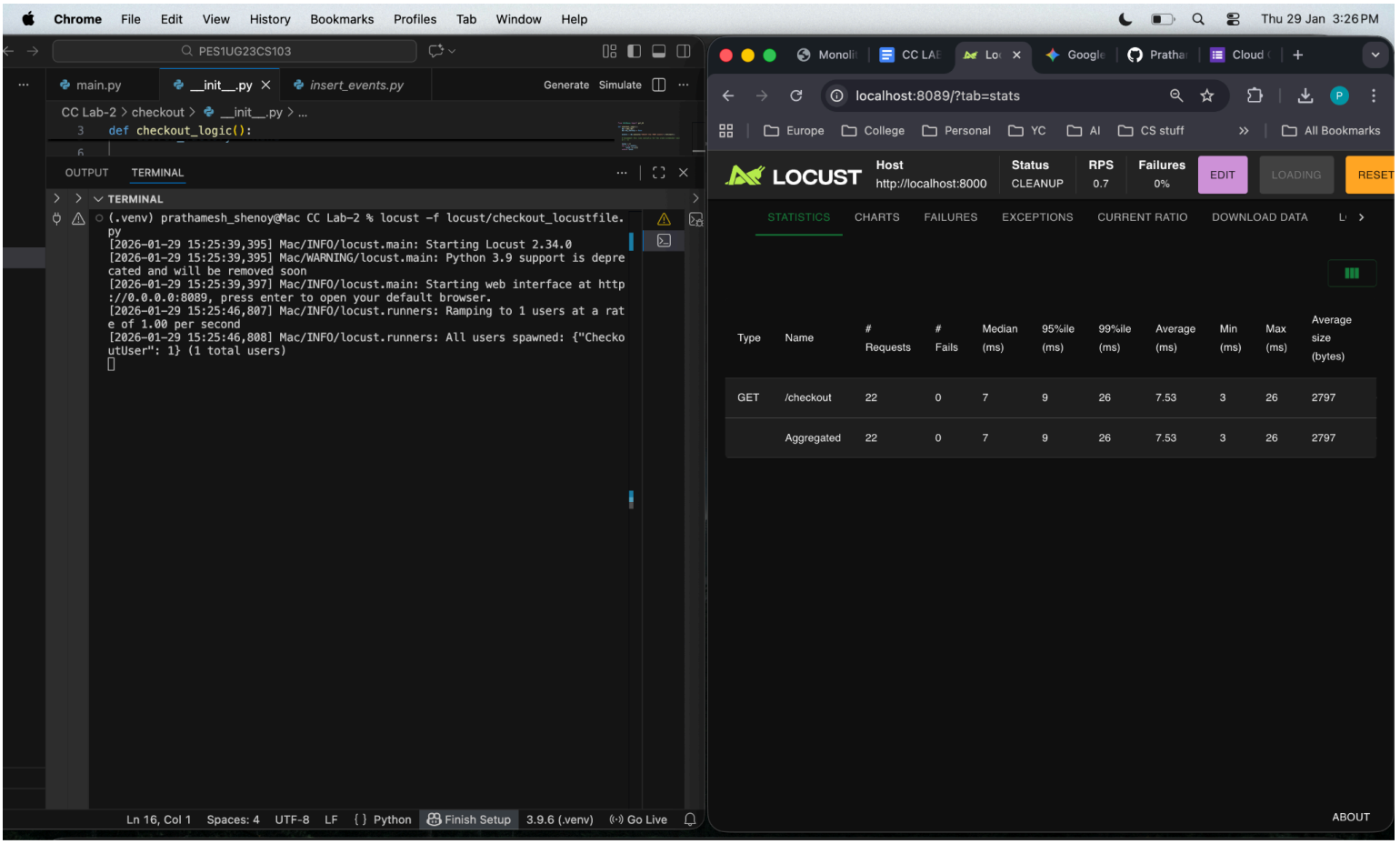



(SRN DOES NOT COME WHEN IN CHECKOUT PAGE LIKE OTHER PAGES)

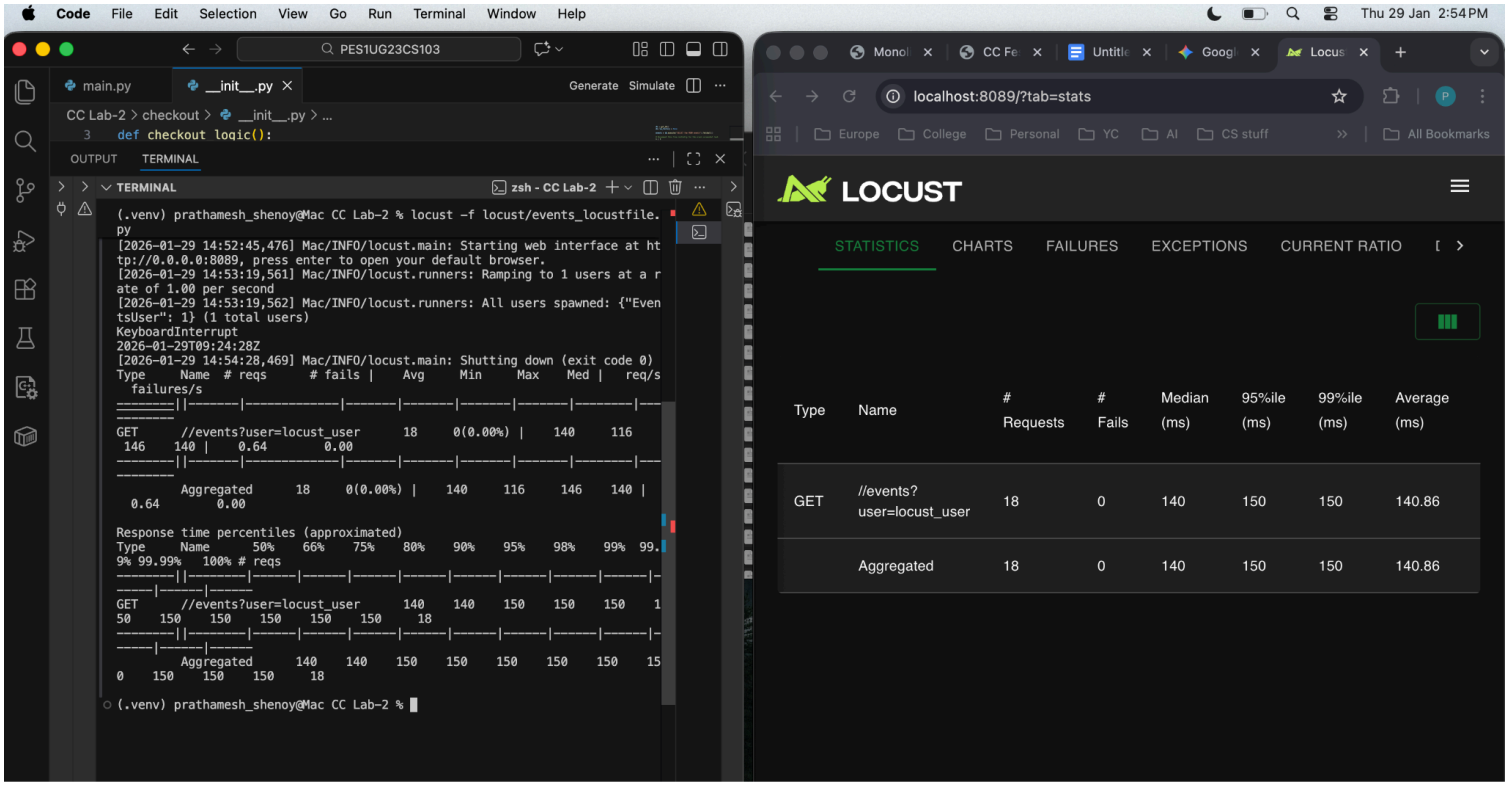
SS4:


Code File Edit Selection View Go Run Terminal Window Help
Thu 29 Jan 3:25 PM
PES1UG23CS103
main.py
__init__.py
insert_events.py
Generate Simulate
CC Lab-2 > main.py > my_events
76 def register_event(event_id: int, user: str):
OUTPUT TERMINAL
TERMINAL
zsh - CC Lab-2
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
(.venv) prathamesh_shenoy@Mac CC Lab-2 % clear
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/checkout_locustfile.py
[2026-01-29 15:23:56,505] Mac/INFO/locust.main: Starting Locust 2.34.0
[2026-01-29 15:23:56,505] Mac/WARNING/locust.main: Python 3.9 support is deprecated and will be removed soon
[2026-01-29 15:23:56,506] Mac/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:24:04,433] Mac/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:24:04,434] Mac/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:54:56Z
[2026-01-29 15:24:56,735] Mac/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /checkout 20 0(0.00%) | 8 2 27 8 | 0.68 0.00
Aggregated 20 0(0.00%) | 8 2 27 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 /checkout 8 9 9 9 9 28 28 28 28 28 20
Aggregated 8 9 9 9 9 28 28 28 28 28 20
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
Ln 98, Col 17 Spaces: 4 UTF-8 LF { } Python Finish Setup 3.9.6 (.venv) Go Live
localhost:8089/?tab=stats
Europe College Personal YC AI CS stuff All Bookmarks
LOCUST
Host http://localhost:8000
Status CLEANUP
RPS 0.7
Failures 0%
EDIT LOADING RESET
STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes)
GET /checkout 20 0 8 28 28 8.51 2 28 2797
Aggregated 20 0 8 28 28 8.51 2 28 2797
ABOUT

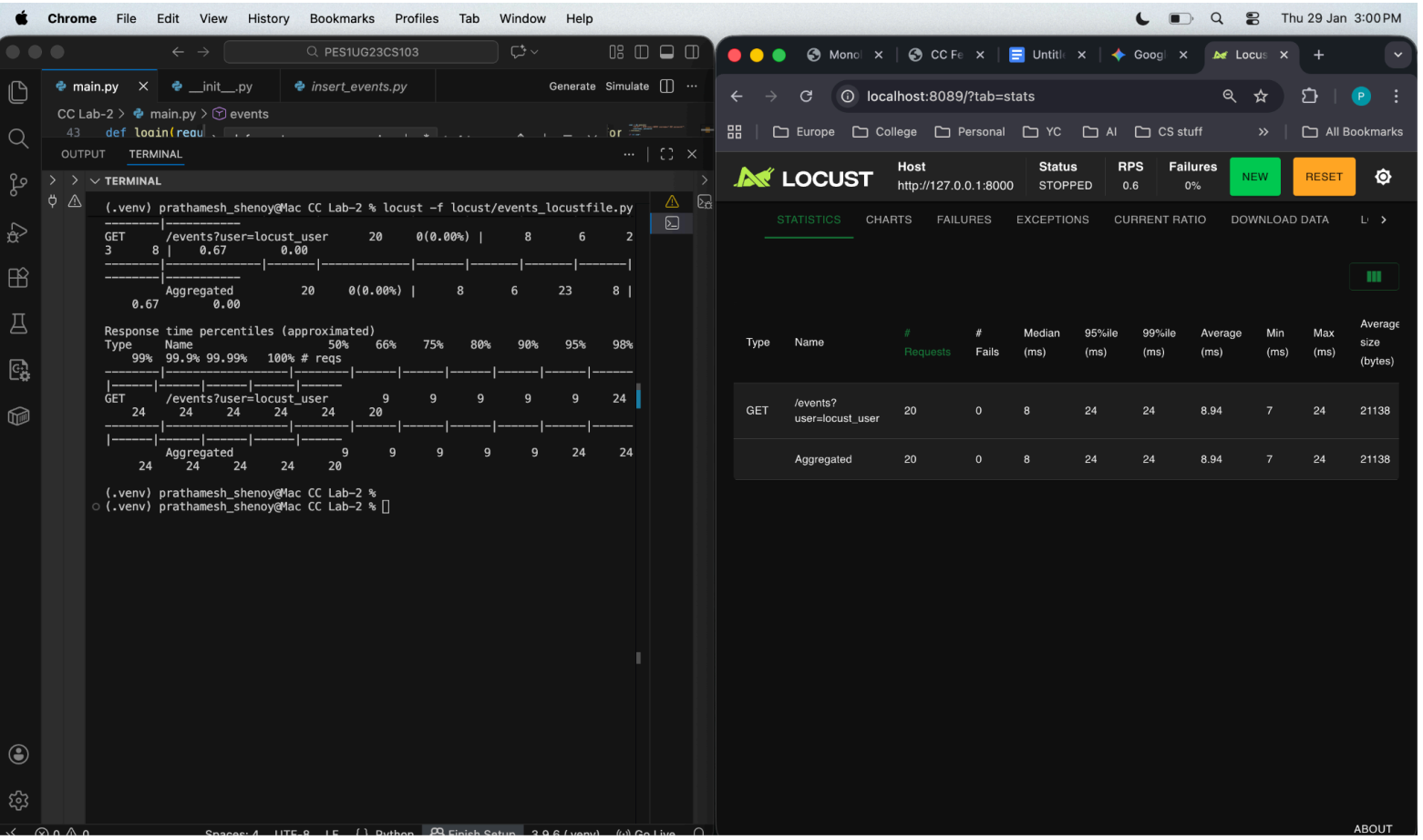
SS5:


Chrome File Edit View History Bookmarks Profiles Tab Window Help
Thu 29 Jan 3:26 PM
PES1UG23CS103
main.py
__init__.py
insert_events.py
Generate Simulate
CC Lab-2 > checkout > __init__.py > ...
def checkout_logic():
OUTPUT TERMINAL
TERMINAL
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/checkout_locustfile.py
[2026-01-29 15:25:39,395] Mac/INFO/locust.main: Starting Locust 2.34.0
[2026-01-29 15:25:39,395] Mac/WARNING/locust.main: Python 3.9 support is deprecated and will be removed soon
[2026-01-29 15:25:39,397] Mac/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:25:46,807] Mac/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:25:46,808] Mac/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Ln 16, Col 1 Spaces: 4 UTF-8 LF { } Python Finish Setup 3.9.6 (.venv) Go Live
localhost:8089/?tab=stats
Europe College Personal YC AI CS stuff All Bookmarks
LOCUST
Host http://localhost:8000
Status CLEANUP
RPS 0.7
Failures 0%
EDIT
LOADING
RESET
STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes)
GET /checkout 22 0 7 9 26 7.53 3 26 2797
Aggregated 22 0 7 9 26 7.53 3 26 2797
ABOUT

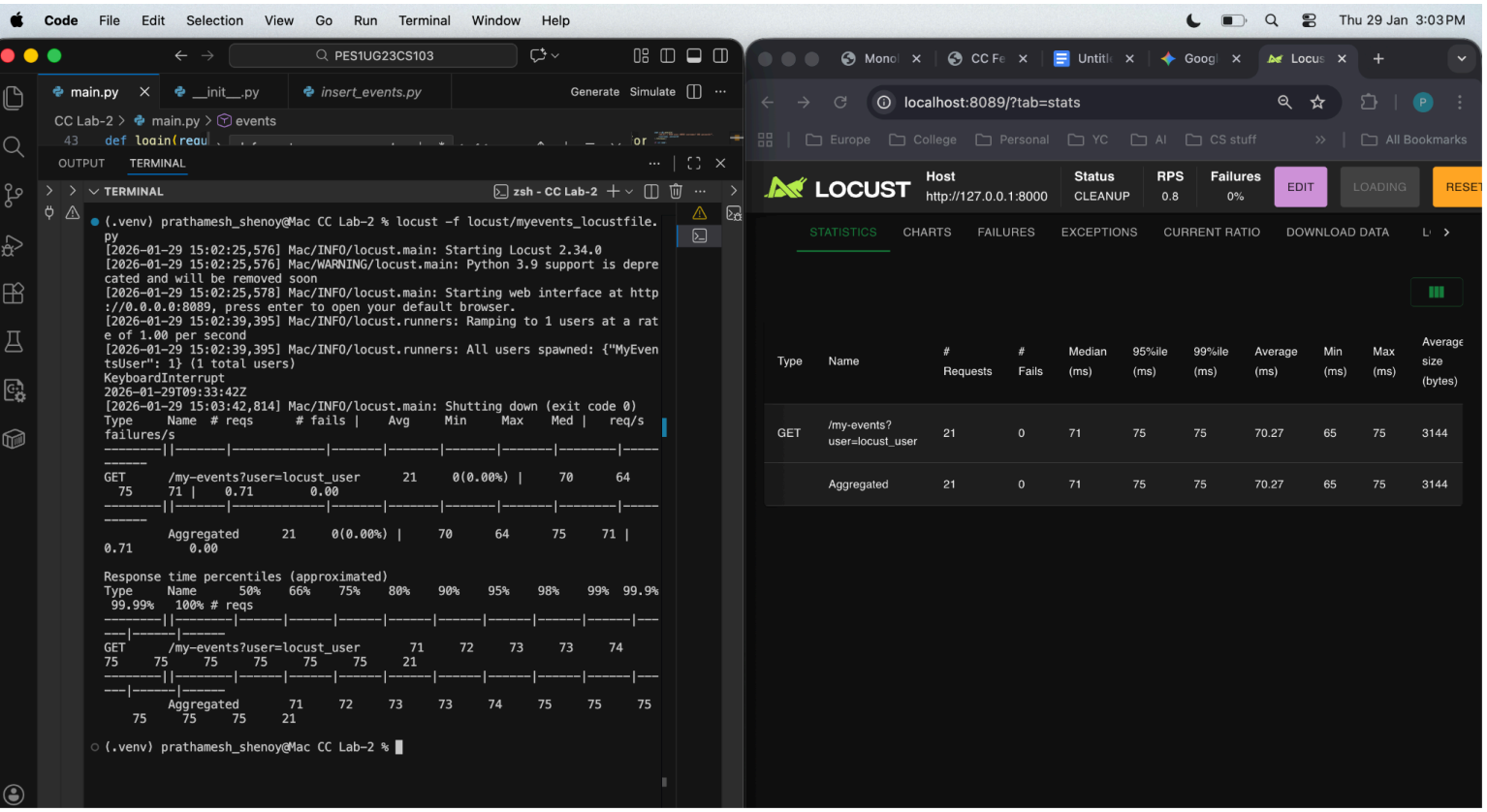
SS6:


Code File Edit Selection View Go Run Terminal Window Help
Thu 29 Jan 2:54 PM
PES1UG23CS103
main.py
__init__.py
Generate Simulate
CC Lab-2 > checkout > __init__.py > ...
def checkout logic():
OUTPUT TERMINAL
zsh - CC Lab-2
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/events_locustfile.py
[2026-01-29 14:52:45,476] Mac/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 14:53:19,561] Mac/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 14:53:19,562] Mac/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:24:28Z
[2026-01-29 14:54:28,469] Mac/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 18 0(0.00%) | 140 116 146 140 | 0.64 0.00
Aggregated 18 0(0.00%) | 140 116 146 140 | 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 140 140 150 150 150 150 150 150 150 18
Aggregated 140 140 150 150 150 150 150 150 150 18
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
localhost:8089/?tab=stats
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 18 0 140 150 150 140.86
Aggregated 18 0 140 150 150 140.86

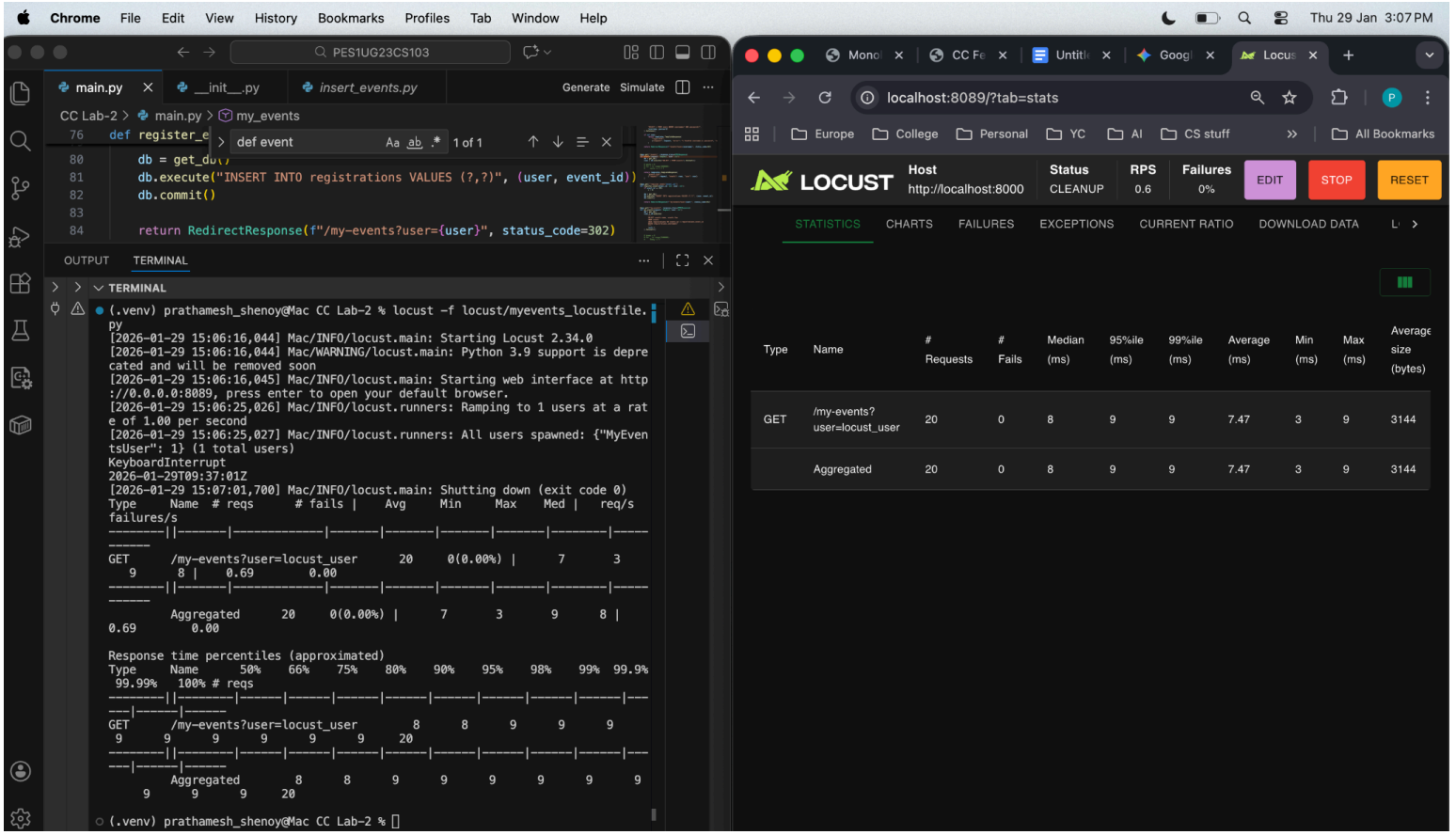
SS7:


Chrome File Edit View History Bookmarks Profiles Tab Window Help
Thu 29 Jan 3:00 PM
PES1UG23CS103
main.py
__init__.py
insert_events.py
Generate Simulate
CC Lab-2 > main.py > events
OUTPUT TERMINAL
TERMINAL
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/events_locustfile.py
GET /events?user=locust_user 20 0(0.00%) | 8 6 2
3 8 | 0.67 0.00
Aggregated 20 0(0.00%) | 8 6 23 8 |
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 9 9 9 9 9 24
24 24 24 24 24 20
Aggregated 9 9 9 9 9 24 24
24 24 24 24 20
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
localhost:8089/?tab=stats
Europe College Personal YC AI CS stuff All Bookmarks
LOCUST
Host http://127.0.0.1:8000
Status STOPPED
RPS 0.6
Failures 0%
NEW
RESET
STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes)
GET /events?user=locust_user 20 0 8 24 24 8.94 7 24 21138
Aggregated 20 0 8 24 24 8.94 7 24 21138
ABOUT

SS8:


Code File Edit Selection View Go Run Terminal Window Help
Thu 29 Jan 3:03 PM
PES1UG23CS103
main.py
__init__.py
insert_events.py
Generate Simulate
CC Lab-2 > main.py > events
OUTPUT TERMINAL
TERMINAL
zsh - CC Lab-2
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/myevents_locustfile.py
[2026-01-29 15:02:25,576] Mac/INFO/locust.main: Starting Locust 2.34.0
[2026-01-29 15:02:25,576] Mac/WARNING/locust.main: Python 3.9 support is deprecated and will be removed soon
[2026-01-29 15:02:25,578] Mac/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:02:39,395] Mac/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:02:39,395] Mac/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:33:42Z
[2026-01-29 15:03:42,814] Mac/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /my-events?user=locust_user 21 0(0.00%) | 70 64 75 71 | 0.71 0.00
Aggregated 21 0(0.00%) | 70 64 75 71 | 0.71 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 71 72 73 73 74 75 75 75 75 75 75 21
Aggregated 71 72 73 73 74 75 75 75 75 75 75 21
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
localhost:8089/?tab=stats
LOCUST
Host http://127.0.0.1:8000
Status CLEANUP
RPS 0.8
Failures 0%
EDIT
LOADING
STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes)
GET /my-events?user=locust_user 21 0 71 75 75 70.27 65 75 3144
Aggregated 21 0 71 75 75 70.27 65 75 3144

SS9:


Chrome File Edit View History Bookmarks Profiles Tab Window Help
Thu 29 Jan 3:07 PM
PES1UG23CS103
main.py
__init__.py
insert_events.py
Generate Simulate
CC Lab-2 > main.py > my_events
def register_e
def event
1 of 1
db = get_db()
db.execute("INSERT INTO registrations VALUES (?,?)", (user, event_id))
db.commit()
return RedirectResponse(f"/my-events?user={user}", status_code=302)
OUTPUT TERMINAL
TERMINAL
(.venv) prathamesh_shenoy@Mac CC Lab-2 % locust -f locust/myevents_locustfile.py
[2026-01-29 15:06:16,044] Mac/INFO/locust.main: Starting Locust 2.34.0
[2026-01-29 15:06:16,044] Mac/WARNING/locust.main: Python 3.9 support is deprecated and will be removed soon
[2026-01-29 15:06:16,045] Mac/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-29 15:06:25,026] Mac/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-29 15:06:25,027] Mac/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-29T09:37:01Z
[2026-01-29 15:07:01,700] Mac/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /my-events?user=locust_user 20 0(0.00%) | 7 3 9 8 | 0.69 0.00
Aggregated 20 0(0.00%) | 7 3 9 8 | 0.69 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 8 8 9 9 9 9 9 9 9 9 20
Aggregated 8 8 9 9 9 9 9 9 9 9 20
(.venv) prathamesh_shenoy@Mac CC Lab-2 %
localhost:8089/?tab=stats
Europe College Personal YC AI CS stuff All Bookmarks
LOCUST
Host http://localhost:8000
Status CLEANUP
RPS 0.6
Failures 0%
EDIT STOP RESET
STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes)
GET /my-events?user=locust_user 20 0 8 9 9 7.47 3 9 3144
Aggregated 20 0 8 9 9 7.47 3 9 3144

**Lab Optimizations Summary**

1. Route: /checkout

- Bottleneck: The original logic used a highly inefficient while loop that incremented the total by 1 for every unit of the fee. This caused a high computational overhead (O(n) complexity for each fee).
- Change Made: Replaced the while loop with a direct sum using a for loop to iterate through events and add their fees directly to the total.
- Result: The average response time dropped significantly (from ~28ms to ~9ms in your specific test) because the CPU no longer had to perform millions of redundant increment operations.

2. Route: /events

- Bottleneck: This route contained an intentional "busy work" loop (waste) that performed 3,000,000 modulo operations every time the page was requested.
- Change Made: Removed the for i in range(3000000) loop entirely from the function in main.py.
- Result: Performance improved dramatically (dropping from ~140ms to a near-instant response) by eliminating millions of unnecessary CPU cycles per request.

3. Route: /my-events

- Bottleneck: Similar to the events route, this included a dummy increment loop running 1,500,000 times, creating an artificial delay in processing the request.
- Change Made: Deleted the dummy loop logic in main.py.
- Result: Response times were slashed by removing the artificial bottleneck, allowing the FastAPI server to focus solely on the database join and template rendering.