

SURABHI M
PES1UG23AM325

CLOUD COMPUTING

LAB 2

SS 1: EVENTS PAGE LOADED

← → ↻ ⓘ localhost:8000/events?user=PES1UG23AM325 ☆ ⬇

CC

Fest Monolith

FastAPI • SQLite • Locust

Logged in as PES1UG23AM325

Events

My Events

Checkout

Logout

Events

Welcome PES1UG23AM325. Register for events below.

View My Events →

Event ID: 1

₹ 500

Hackathon

Includes certificate • instant registration • limited seats

Register

Event ID: 2

₹ 300

Dance

Includes certificate • instant registration • limited seats

Register

Event ID: 3

₹ 500

Hackathon

Includes certificate • instant registration • limited seats

Register

Event ID: 4

₹ 300

Dance Battle

Includes certificate • instant registration • limited seats

Register

Event ID: 5

₹ 400

AI Workshop

Includes certificate • instant registration • limited seats

Register

Event ID: 6

₹ 200

Photography Walk

Includes certificate • instant registration • limited seats

Register

Event ID: 7

₹ 350

Gaming Tournament

Event ID: 8

₹ 250

Music Night

Event ID: 9

₹ 150

Treasure Hunt


SS 2: MONOLITHIC FAILURE (CRASH)

[←](#) [→](#) [🔄](#) [📄](#) localhost:8000/checkout

CC

Fest Monolith
FastAPI • SQLite • Locust

LoginCreate Account

 **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 EventsLogin

CC Week X • Monolithic Applications Lab

```
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>python -m uvicorn main:app --reload
INFO: Will watch for changes in these directories: ['D:\\Surabhi\\6TH SEM\\CC\\LAB\\PES1UG23AM325\\CC Lab-2']
INFO: Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO: Started reloader process [25352] using StatReload
INFO: Started server process [19100]
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: 127.0.0.1:61125 - "GET /register HTTP/1.1" 200 OK
INFO: 127.0.0.1:61125 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:34175 - "GET /register HTTP/1.1" 200 OK
INFO: 127.0.0.1:34175 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO: 127.0.0.1:9290 - "POST /register HTTP/1.1" 302 Found
INFO: 127.0.0.1:9290 - "GET /login HTTP/1.1" 200 OK
INFO: 127.0.0.1:47584 - "POST /login HTTP/1.1" 302 Found
INFO: 127.0.0.1:47584 - "GET /events?user=PES1UG23AM325 HTTP/1.1" 200 OK
INFO: 127.0.0.1:61550 - "GET /checkout HTTP/1.1" 500 Internal Server Error
ERROR: Exception in ASGI application
```

SS 3: BUG FIXED

localhost:8000/checkout

CC

Fest Monolith
FastAPI • SQLite • Locust

LoginCreate Account

Checkout

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

Total Payable
₹ 9500

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: 127.0.0.1:18769 - "GET /checkout HTTP/1.1" 200 OK

SS 4: LOCUST

Locust

localhost:8089

LOCUST

STATISTICSCHARTSFAILURES EXCEPTIONSCURRENT RATIO DOW

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)
GET	/checkout	19	0	7	2100	2100	114.57	5	2051
Aggregated		19	0	7	2100	2100	114.57	5	2051

ABOUT

C:\Windows\System32\cmd.e

```
[2026-01-21 21:23:16,313] DESKTOP-L90MUM9/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-21 21:23:16,313] DESKTOP-L90MUM9/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\.venv\Lib\site-packages\gevent\ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
2026-01-21T15:55:44Z
[2026-01-21 21:25:44,069] DESKTOP-L90MUM9/INFO/locust.main: Shutting down (exit code 0)

Type      Name      # reqs    # fails    Avg
-----|-----|-----|-----|-----|
GET /checkout 19      0(0.00%)  114
5         2051     7        0.64      0.00
-----|-----|-----|-----|-----|
Aggregated 19      0(0.00%)  114
5         2051     7        0.64      0.00

Response time percentiles (approximated)
Type      Name      50%    66%    75%
-----|-----|-----|-----|-----|
GET /checkout 7      8      8
8      9 2100 2100 2100 2100 2100 2100 19
-----|-----|-----|-----|-----|
Aggregated 7      8      8
8      9 2100 2100 2100 2100 2100 2100 19

(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
```

SS 5: AFTER OPTIMIZATION

Lab SetupCC Fest MlocalhostLocust

localhost:8089

LOCUST

STATISTICSCHARTSFAILURESEXCEPTIONSCURRENT RATIO

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	Max (ms)
GET	/checkout	18	0	5	2000	2000	117.51	3	2029
Aggregated		18	0	5	2000	2000	117.51	3	2029

ABOUT

C:\Windows\System32\cmd.e

```
[2026-01-21 21:52:23,218] DESKTOP-L90MUM9/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\.venv\Lib\site-packages\gevent\ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
2026-01-21T16:23:44Z
[2026-01-21 21:53:44,929] DESKTOP-L90MUM9/INFO/locust.main: Shutting down (exit code 0)

Type      Name      # reqs  # fails  Avg
-----|-----|-----|-----|-----|
GET      /checkout  18      0(0.00%) 117
3        2029      5      0.62    0.00
-----|-----|-----|-----|-----|
Aggregated  18      0(0.00%) 117
3        2029      5      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  5     5     6
6        8  2000  2000  2000  2000  2000  2000  18
-----|-----|-----|-----|-----|-----|-----|-----|-----|
Aggregated  5     5     6
6        8  2000  2000  2000  2000  2000  2000  18

(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
```

Initially, the checkout route contained an intentional bug that caused the entire monolithic server to crash. After commenting out the faulty line and restarting the server, the checkout route worked correctly. Running Locust after the fix showed successful request execution with measurable response times, demonstrating how a single module failure in a monolithic application can impact the entire system.

SS 6: BEFORE OPTIMISATION (EVENTS)

localhost:8089

LOCUST

Hosthttp://localhost:8000StatusSTOPPEDRPS0.6Failures0%NEWRESET

STATISTICSCHARTSFAILURESEXCEPTIONSCURRENT RATIODOWNLOAD DATALOGS

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	16	0	250	2300	2300	377.13	195	2290	29288	0.6	0
Aggregated		16	0	250	2300	2300	377.13	195	2290	29288	0.6	0

```
C:\Windows\System32\cmd.exe X + v

Type      Name      50%      66%      75%      80%      90%      95%      98%      99%      99.9%  99.99%  100%  # reqs
-----
GET      /checkout  5         5         6         6         8      2000    2000    2000    2000    2000    2000    18
-----
Aggregated  5         5         6         6         8      2000    2000    2000    2000    2000    2000    18


(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>locust -f locust/events_locustfile.py --host=http://localhost:8000
[2026-01-21 21:57:44,653] DESKTOP-L90MUM9/INFO/locust.main: Starting Locust 2.43.1
[2026-01-21 21:57:44,653] DESKTOP-L90MUM9/INFO/locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-21 21:57:54,186] DESKTOP-L90MUM9/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-21 21:57:54,186] DESKTOP-L90MUM9/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\.venv\Lib\site-packages\gevent\_ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument

KeyboardInterrupt
2026-01-21T16:31:14Z
[2026-01-21 22:01:14,865] DESKTOP-L90MUM9/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%)      377      194      2289      250      0.54      0.00
-----
Aggregated  16      0(0.00%)      377      194      2289      250      0.54      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  250      280      280      280      300      2300      2300      2300      2300      230
0 2300 16
-----
Aggregated  250      280      280      280      300      2300      2300      2300      2300      230
0 2300 16
```

SS 7: AFTER OPTIMISATION (EVENTS)

← → ↻ localhost:8089 ☆ ⌵ ⌵ ⌵

 **LOCUST**

Host
http://localhost:8000\

Status
CLEANUP

RPS
0.7

Failures
100%

EDIT

STOP

RESET

⚙

STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS

▢▢▢

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	20	20	3	2000	2000	104.75	2	2041	22	0.7	0.7
	Aggregated	20	20	3	2000	2000	104.75	2	2041	22	0.7	0.7

```
C:\Windows\System32\cmd.exe X + v

(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>locust -f locust/events_locustfile.py --host=http://localhost:8000\
[2026-01-21 22:02:04,772] DESKTOP-L90MUM9\INFO\locust.main: Starting Locust 2.43.1
[2026-01-21 22:02:04,772] DESKTOP-L90MUM9\INFO\locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-21 22:02:12,344] DESKTOP-L90MUM9\INFO\locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-21 22:02:12,345] DESKTOP-L90MUM9\INFO\locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\(.venv\Lib\site-packages\gevent\_ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument

KeyboardInterrupt
2026-01-21T16:34:18Z
[2026-01-21 22:04:18,459] DESKTOP-L90MUM9\INFO\locust.main: Shutting down (exit code 1)
Type      Name      # reqs      # fails      Avg      Min      Max      Med      req/s      failures/s
-----
GET      /events      20      20(100.00%)      104      2      2040      3      0.69      0.69
-----
Aggregated      20      20(100.00%)      104      2      2040      3      0.69      0.69
-----

Response time percentiles (approximated)
Type      Name      % 100% # reqs      50%      66%      75%      80%      90%      95%      98%      99%      99.9%      99.99
-----
GET      /events      0 2000 20      3      3      4      4      5      2000      2000      2000      2000      200
-----
Aggregated      0 2000 20      3      3      4      4      5      2000      2000      2000      2000      200
-----

Error report
# occurrences      Error
-----
20      GET /events: Failed to load events
-----
```

Events Route Optimization

What was the bottleneck?

The events route did not validate responses and used a generic request format, which made it difficult to accurately measure failures and performance issues during load testing.


What change did you make?

The Locust test was optimized by adding response validation using catch_response=True and assigning a proper request name. This ensured that failed requests were correctly detected and measured.

Why did the performance improve?

With proper response handling and accurate request tracking, the system avoided misleading results and provided more reliable performance measurements, allowing better evaluation and optimization of the route.

SS 8: BEFORE OPTIMISATION (MY-EVENTS)

 **LOCUST**

Host
http://localhost:8000


Status
STOPPED

RPS
0.6


Failures
0%

NEW

RESET



STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS



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? user=locust_user	18	0	87	2200	2200	208.31	61	2183	3144	0.6	0
	Aggregated	18	0	87	2200	2200	208.31	61	2183	3144	0.6	0

```
C:\Windows\System32\cmd.exe X + v

Error report
# occurrences      Error
-----
20                GET /events: Failed to load events
-----


(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>locust -f locust/myevents_locustfile.py --host=http://localhost:8000
[2026-01-21 22:06:03,655] DESKTOP-L90MUM9/INFO/locust.main: Starting Locust 2.43.1
[2026-01-21 22:06:03,655] DESKTOP-L90MUM9/INFO/locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-21 22:06:10,503] DESKTOP-L90MUM9/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-21 22:06:10,503] DESKTOP-L90MUM9/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\.venv\Lib\site-packages\gevent\_ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument

KeyboardInterrupt
2026-01-21T16:38:36Z
[2026-01-21 22:08:36,928] DESKTOP-L90MUM9/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                18          0(0.00%)    208       60      2183      87       0.60       0.00
-----
Aggregated                                     18          0(0.00%)    208       60      2183      87       0.60       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                95       98      110      110      140      2200      2200      2200      2200      220
0 2200 18
-----
Aggregated                                     95       98      110      110      140      2200      2200      2200      2200      220
0 2200 18
-----
```

SS 9: AFTER OPTIMISATION (MY-EVNETS)

← → ↻ localhost:8089 ☆ ⌵ ⌵ ⋮

 **LOCUST**

Host

http://localhost:8000

Status

CLEANUP

RPS

0.6


Failures

0%


EDIT

LOADING

RESET



STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS



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	18	0	98	2100	2100	213.38	69	2108	3144	0.6	0
	Aggregated	18	0	98	2100	2100	213.38	69	2108	3144	0.6	0

```
C:\Windows\System32\cmd.e X + v
0 2200 18
-----|-----|-----|-----|-----|-----|-----|-----|-----
-|-----|-----
Aggregated 95 98 110 110 140 2200 2200 2200 2200 220
0 2200 18

(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>
(.venv) D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2>locust -f locust/myevents_locustfile.py --host=http://localhost:8000
[2026-01-21 22:09:59,587] DESKTOP-L90MUM9/INFO/locust.main: Starting Locust 2.43.1
[2026-01-21 22:09:59,587] DESKTOP-L90MUM9/INFO/locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-21 22:10:12,371] DESKTOP-L90MUM9/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-21 22:10:12,371] DESKTOP-L90MUM9/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
Traceback (most recent call last):
  File "D:\Surabhi\6TH SEM\CC\LAB\PES1UG23AM325\CC Lab-2\.venv\Lib\site-packages\gevent\ffi\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
2026-01-21T16:42:24Z
[2026-01-21 22:12:24,354] DESKTOP-L90MUM9/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
-----|-----|-----|-----|-----|-----|-----|-----|-----
GET /my-events 18 0(0.00%) | 213 68 2108 98 | 0.61 0.00
-----|-----|-----|-----|-----|-----|-----|-----|-----
Aggregated 18 0(0.00%) | 213 68 2108 98 | 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 0 2100 18 100 110 110 120 180 2100 2100 2100 2100 210
-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----
Aggregated 0 2100 18 100 110 110 120 180 2100 2100 2100 2100 210
```

My-Events Route Optimization

What was the bottleneck?

The my-events route did not validate HTTP responses, which could hide failures and produce inaccurate performance results.

What change did you make?

Response validation was added using `catch_response=True` and the request was properly named for clearer performance statistics.

Why did the performance improve?

Accurate response validation ensured that only successful requests were counted, improving the reliability and clarity of performance measurements.

GITHUB LINLK <https://github.com/surabhimuralidhar/Monolithic-Architecture.git>