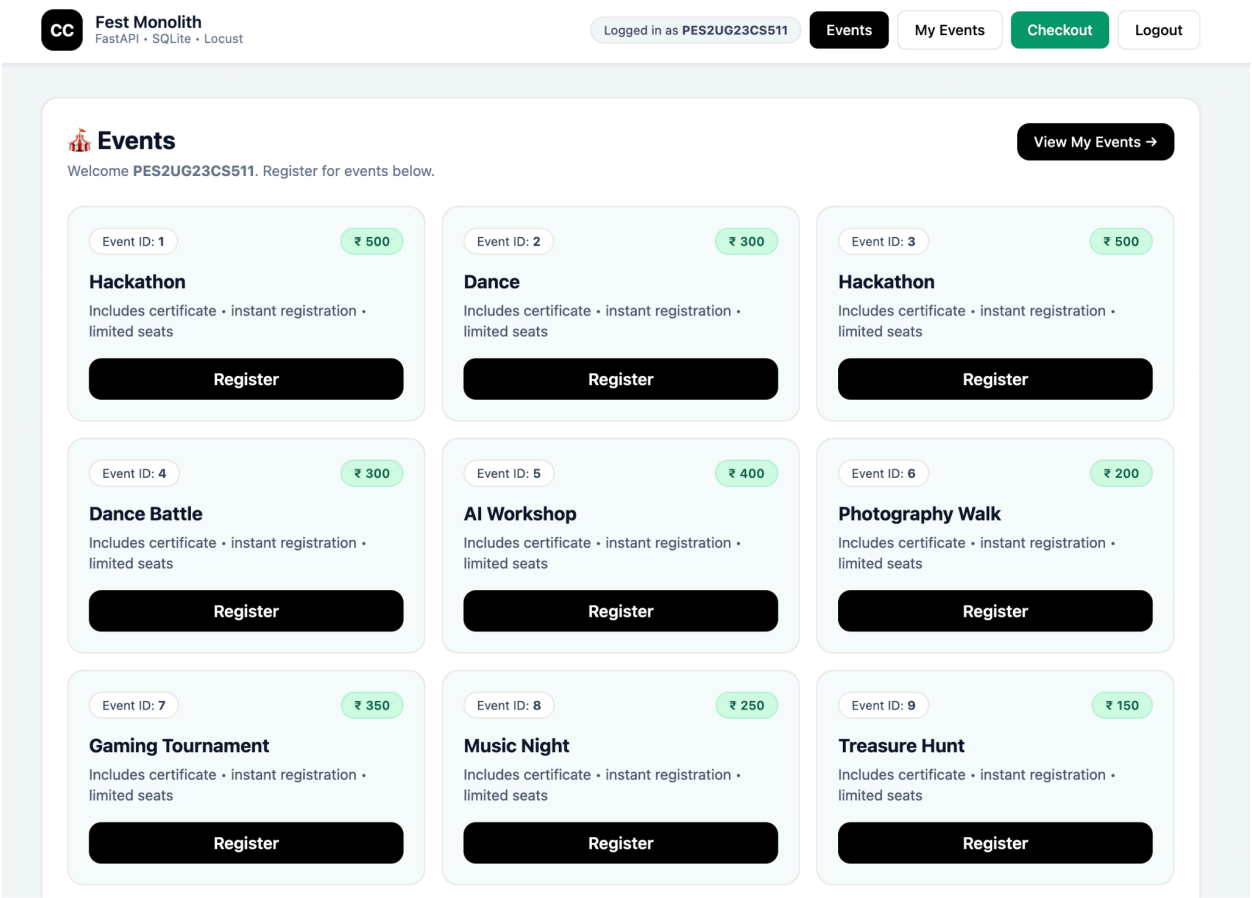
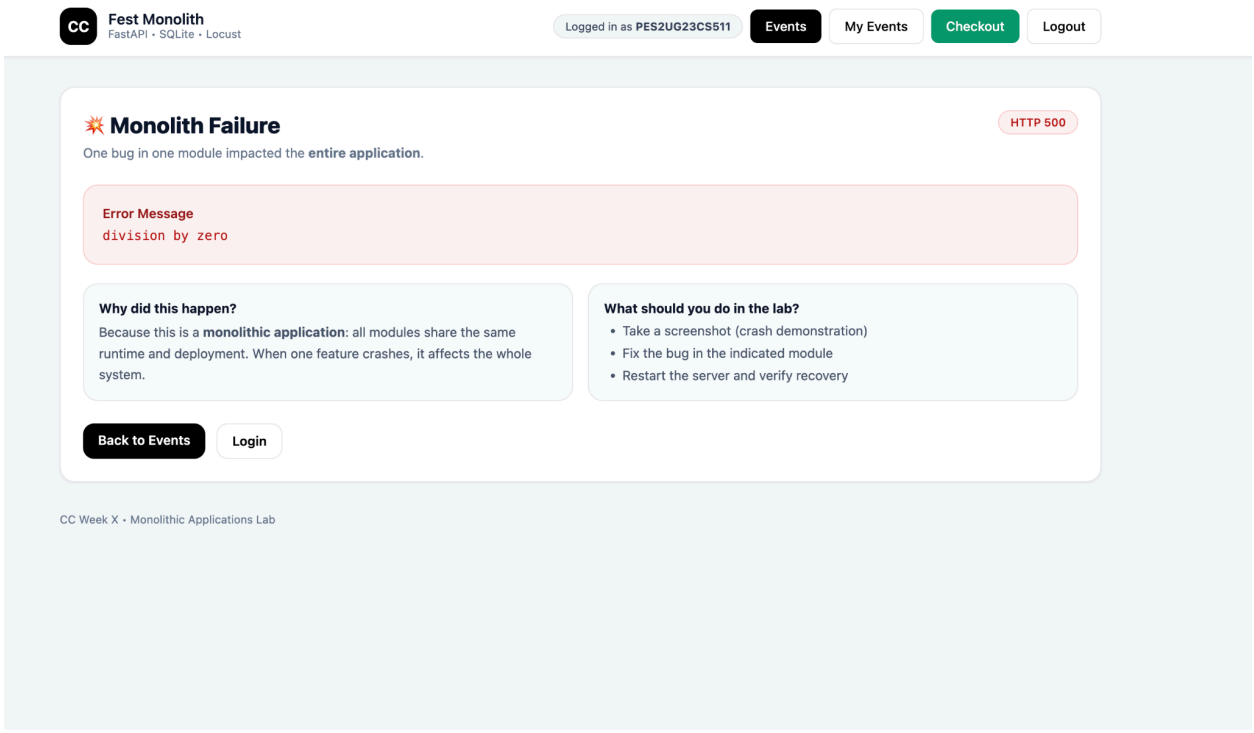
NAME : SAIHRITESH
SRN : PES2UG23CS511

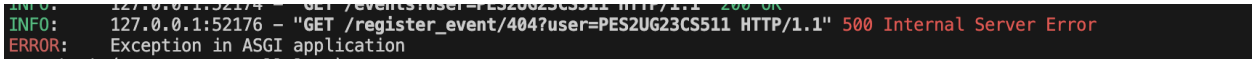
```
[notice] A new release of pip is available: 25.2 -> 25.3
[notice] To update, run: pip install --upgrade pip
(ccvenv) saihritesh@apples-MacBook-Air-2 CC_Lab-2 % python3 insert_events.py
✅ Events inserted successfully!
(ccvenv) saihritesh@apples-MacBook-Air-2 CC_Lab-2 % uvicorn main:app --reload
INFO:     Will watch for changes in these directories: ['/Users/saihritesh/Content/mac_bkup_6oct/College/SEM-5/Cloud Computing /PES2UG23CS511/CC_Lab-2']
INFO:     Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO:     Started reloader process [37116] using StatReload
INFO:     Started server process [37118]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
```

SS1

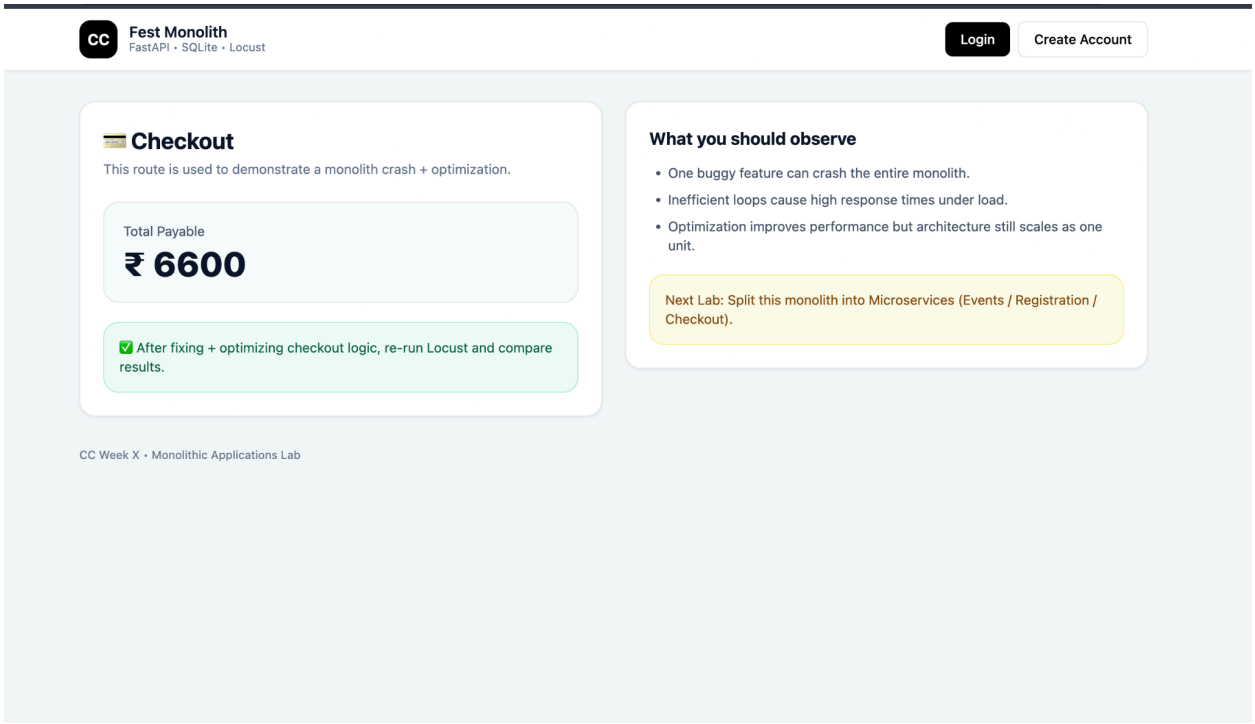


SS2


CC
Fest Monolith
FastAPI • SQLite • Locust
Logged in as PES2UG23CS511
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
CC Week X • Monolithic Applications Lab

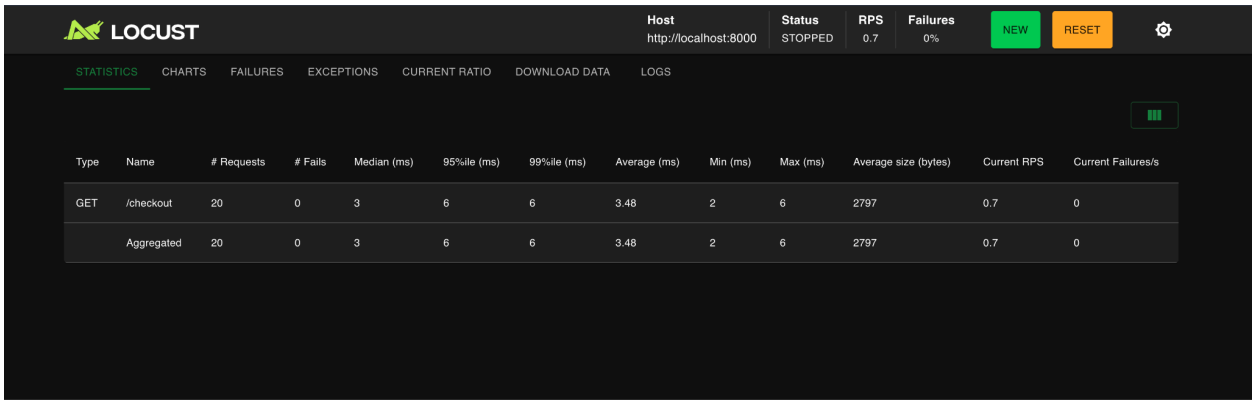

INFO: 127.0.0.1:52176 - "GET /register_event/404?user=PES2UG23CS511 HTTP/1.1" 500 Internal Server Error
ERROR: Exception in ASGI application

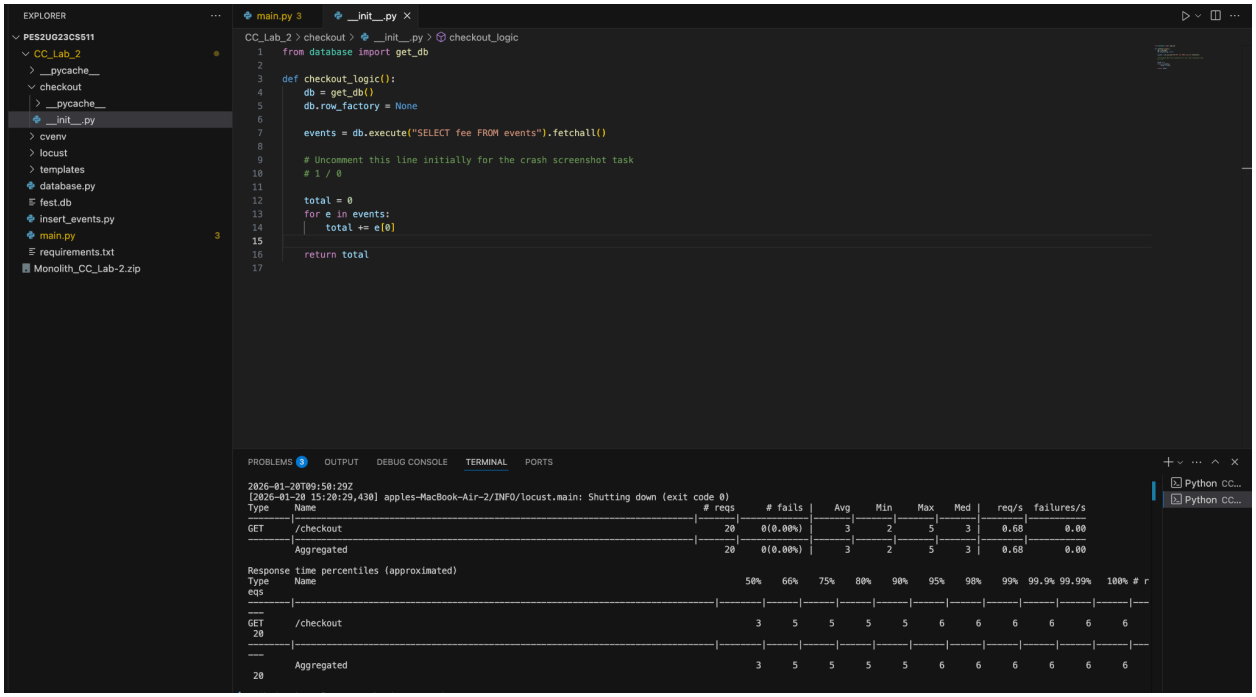
SS3


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

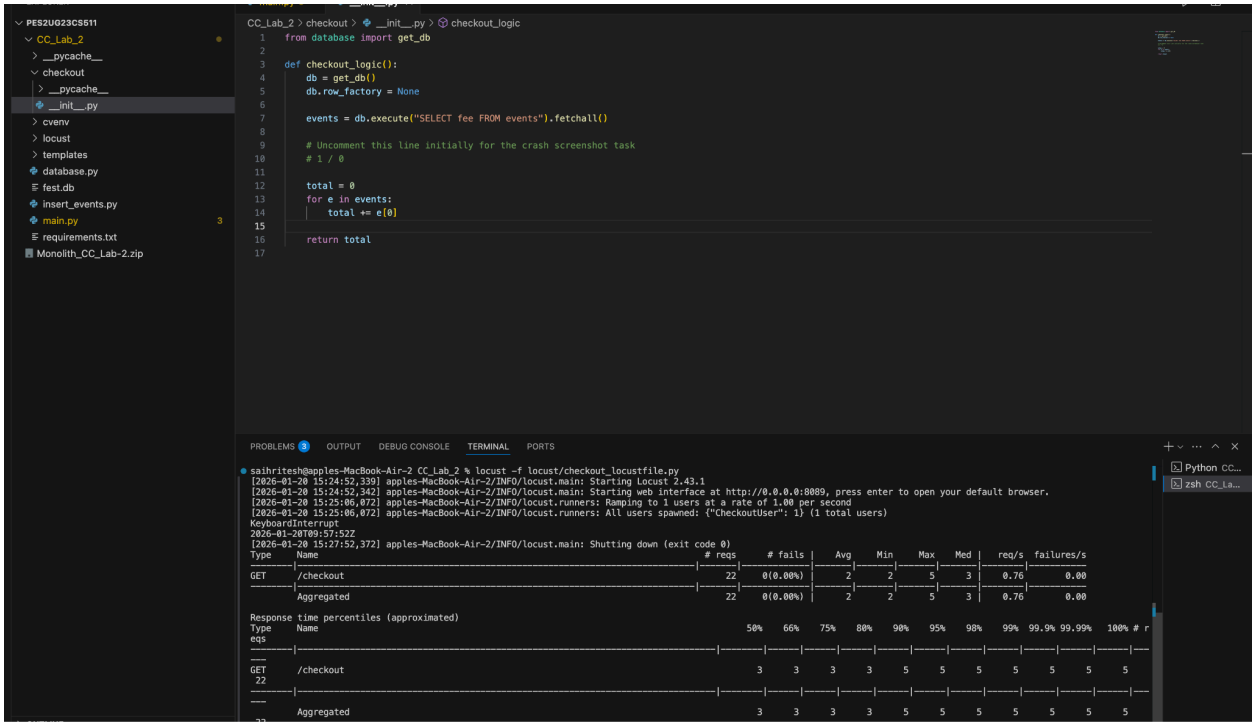
```
ZeroDivisionError: division by zero
INFO:     127.0.0.1:52215 - "GET /checkout HTTP/1.1" 200 OK
WARNING:  StatReload detected changes in 'checkout/__init__.py'. Reloading...
```

SS4



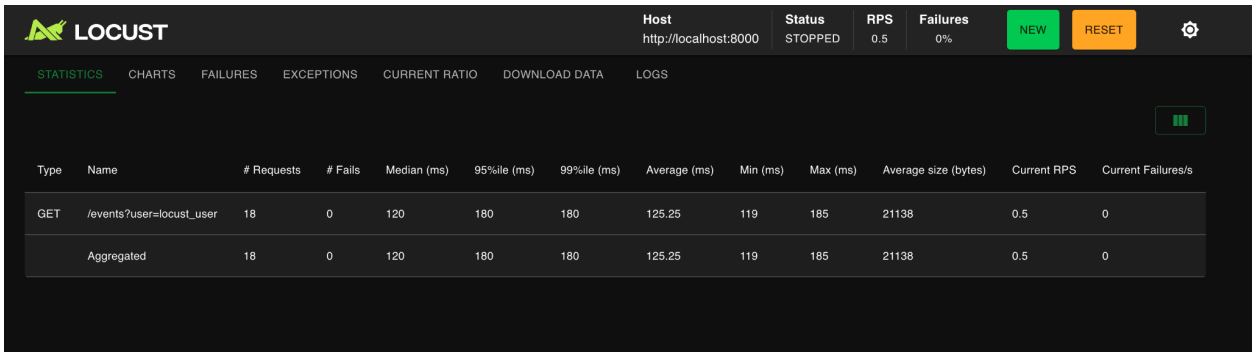


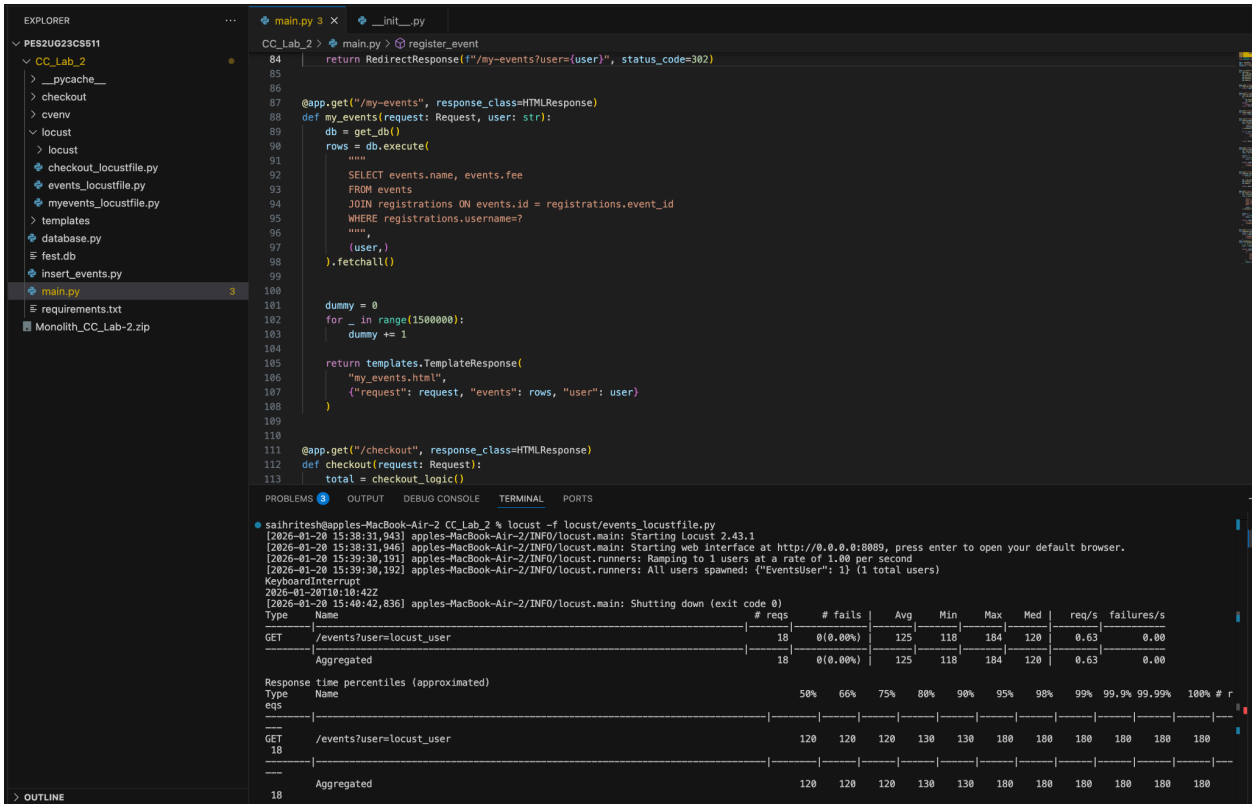
SS5


PES2UG23CS511
CC_Lab_2
__pycache__
checkout
__pycache__
__init__.py
cvenv
locust
templates
database.py
fest.db
insert_events.py
main.py
requirements.txt
Monolith_CC_Lab-2.zip
CC_Lab_2 > checkout > __init__.py > checkout_logic
from database import get_db
def checkout_logic():
db = get_db()
db.row_factory = None
events = db.execute("SELECT fee FROM events").fetchall()
# Uncomment this line initially for the crash screenshot task
# 1 / 0
total = 0
for e in events:
total += e[0]
return total
PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
saihritesh@apples-MacBook-Air-2 CC_Lab_2 % locust -f locust/checkout_locustfile.py
[2026-01-20 15:24:52,339] apples-MacBook-Air-2/INFO/locust.main: Starting Locust 2.43.1
[2026-01-20 15:24:52,342] apples-MacBook-Air-2/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-20 15:25:06,072] apples-MacBook-Air-2/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 15:25:06,072] apples-MacBook-Air-2/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
KeyboardInterrupt
2026-01-20T09:57:52Z
[2026-01-20 15:27:52,372] apples-MacBook-Air-2/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /checkout 22 0(0.00%) | 2 2 5 3 | 0.76 0.00
Aggregated 22 0(0.00%) | 2 2 5 3 | 0.76 0.00
Response time percentiles (approximated)
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
GET /checkout 3 3 3 3 5 5 5 5 5 5 5 22
Aggregated 3 3 3 3 5 5 5 5 5 5 5
Python CC...
zsh CC_La...

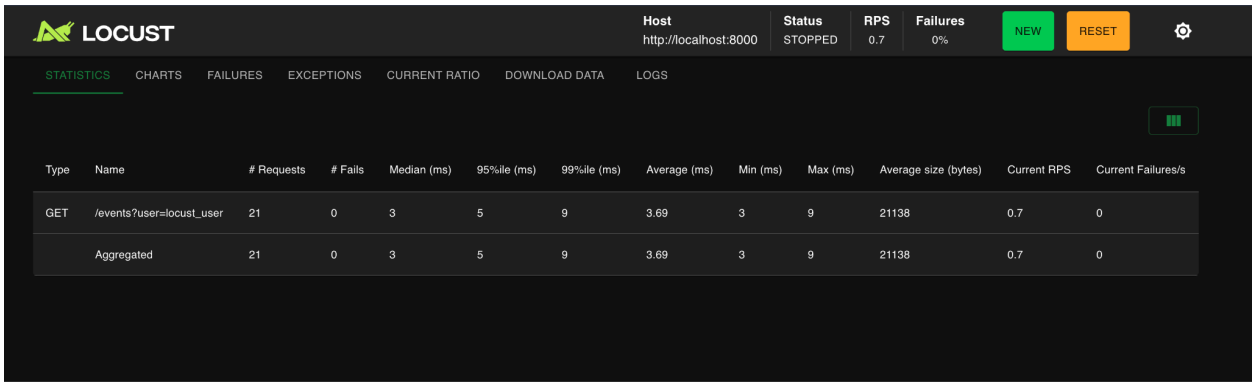

LOCUST
Host
http://localhost:8000
Status
STOPPED
RPS
0.8
Failures
0%
NEW
RESET
STATISTICS
CHARTS
FAILURES
EXCEPTIONS
CURRENT RATIO
DOWNLOAD DATA
LOGS
Type Name # Requests # Fails Median (ms) 95%ile (ms) 99%ile (ms) Average (ms) Min (ms) Max (ms) Average size (bytes) Current RPS Current Failures/s
GET /checkout 22 0 3 5 5 2.95 2 5 2797 0.8 0
Aggregated 22 0 3 5 5 2.95 2 5 2797 0.8 0

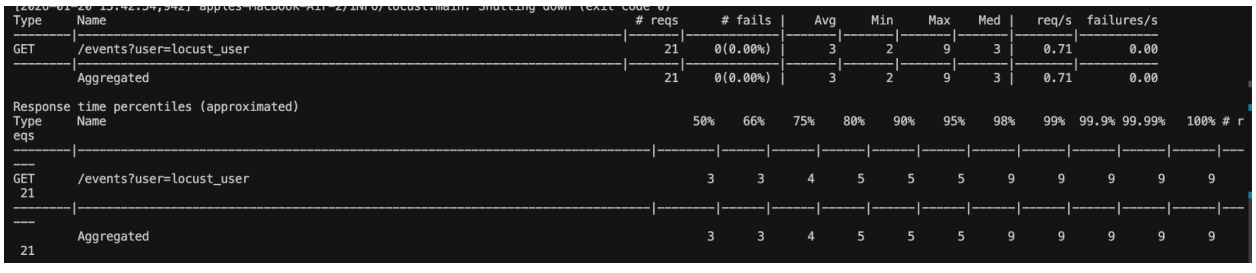
SS6


LOCUST
Host
http://localhost:8000
Status
STOPPED
RPS
0.5
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 /events?user=locust_user 18 0 120 180 180 125.25 119 185 21138 0.5 0
Aggregated 18 0 120 180 180 125.25 119 185 21138 0.5 0

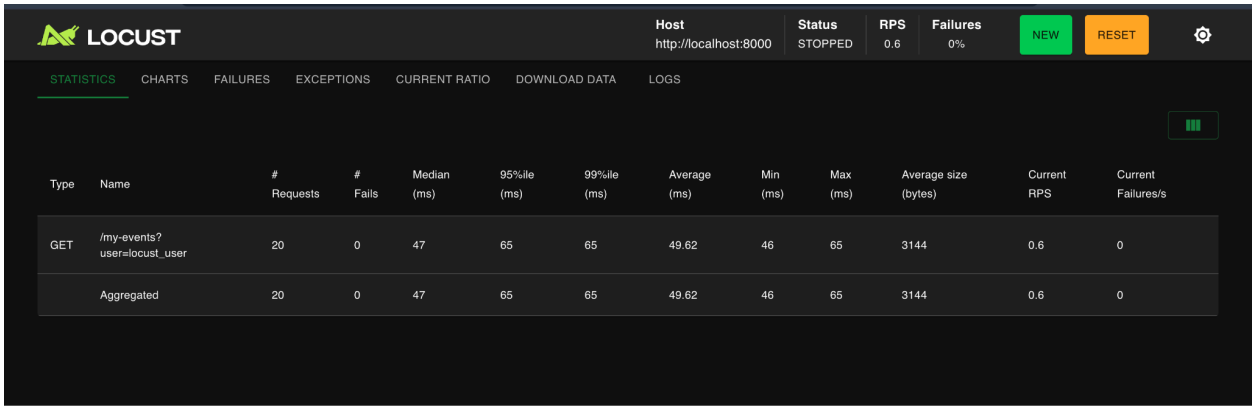

EXPLORER
PES2UG23CS511
CC_Lab_2
__pycache__
checkout
cvenv
locust
locust
checkout_locustfile.py
events_locustfile.py
myevents_locustfile.py
templates
database.py
fest.db
insert_events.py
main.py
requirements.txt
Monolith_CC_Lab-2.zip
OUTLINE
main.py 3
__init__.py
CC_Lab_2 > main.py > register_event
return RedirectResponse(f"/my-events?user={user}", status_code=302)
@app.get("/my-events", response_class=HTMLResponse)
def my_events(request: Request, user: str):
db = get_db()
rows = db.execute(
"""
SELECT events.name, events.fee
FROM events
JOIN registrations ON events.id = registrations.event_id
WHERE registrations.username=?
""",
(user,)
).fetchall()
dummy = 0
for _ in range(1500000):
dummy += 1
return templates.TemplateResponse(
"my_events.html",
{"request": request, "events": rows, "user": user}
)
@app.get("/checkout", response_class=HTMLResponse)
def checkout(request: Request):
total = checkout_logic()
PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
saihritesh@apples-MacBook-Air-2 CC_Lab_2 % locust -f locust/events_locustfile.py
[2026-01-20 15:38:31,943] apples-MacBook-Air-2/INFO/locust.main: Starting Locust 2.43.1
[2026-01-20 15:38:31,946] apples-MacBook-Air-2/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-20 15:39:30,191] apples-MacBook-Air-2/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 15:39:30,192] apples-MacBook-Air-2/INFO/locust.runners: All users spawned: {"EventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-20T10:10:42Z
[2026-01-20 15:40:42,836] apples-MacBook-Air-2/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%) | 125 118 184 120 | 0.63 0.00
Aggregated 18 0(0.00%) | 125 118 184 120 | 0.63 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 120 120 120 130 130 180 180 180 180 180 180 18
Aggregated 120 120 120 130 130 180 180 180 180 180 180 18

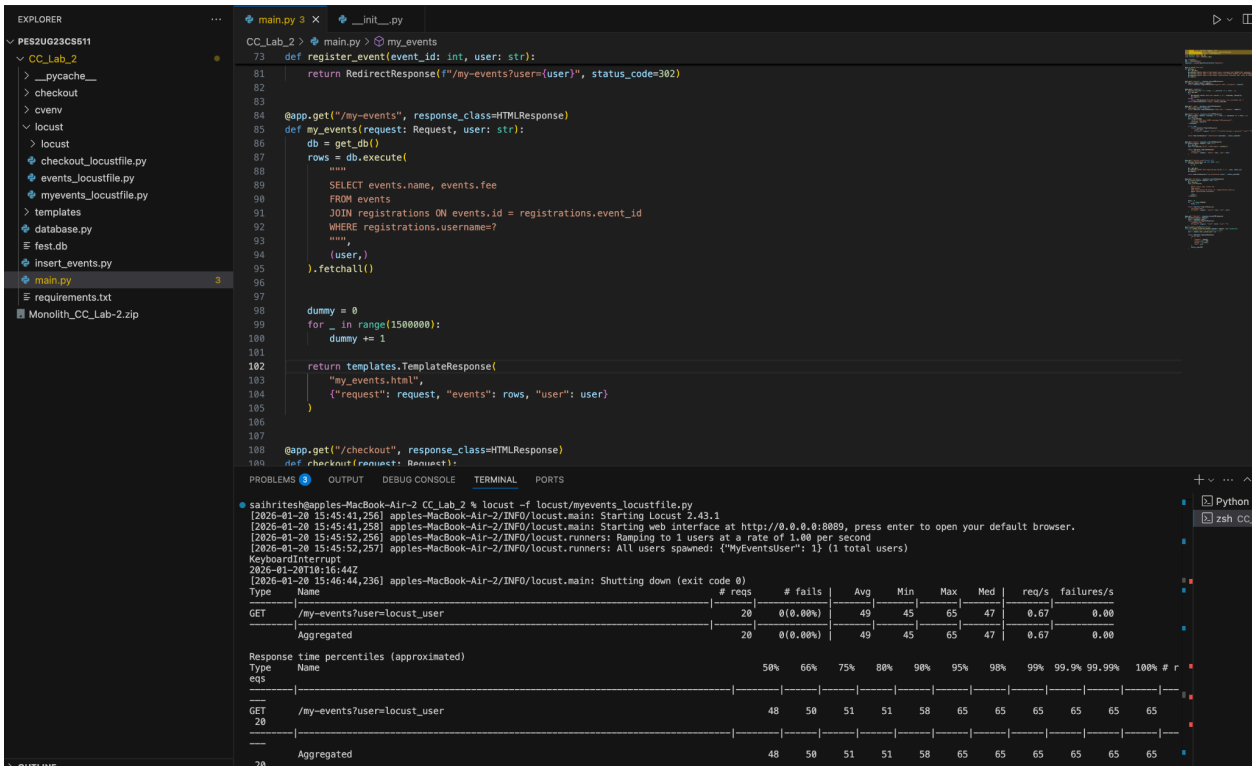
SS7


LOCUST
Host
http://localhost:8000
Status
STOPPED
RPS
0.7
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 /events?user=locust_user 21 0 3 5 9 3.69 3 9 21138 0.7 0
Aggregated 21 0 3 5 9 3.69 3 9 21138 0.7 0


Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /events?user=locust_user 21 0(0.00%) | 3 2 9 3 | 0.71 0.00
Aggregated 21 0(0.00%) | 3 2 9 3 | 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 /events?user=locust_user 3 3 4 5 5 5 9 9 9 9 9 21
Aggregated 3 3 4 5 5 5 9 9 9 9 9 21

SS8


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
20
0
47
65
65
49.62
46
65
3144
0.6
0
Aggregated
20
0
47
65
65
49.62
46
65
3144
0.6
0


EXPLORER
PES2UG23CS511
CC_Lab_2
__pycache__
checkout
cvenv
locust
locust
checkout_locustfile.py
events_locustfile.py
myevents_locustfile.py
templates
database.py
fest.db
insert_events.py
main.py
requirements.txt
Monolith_CC_Lab-2.zip
main.py 3
__init__.py
CC_Lab_2 > main.py > my_events
def register_event(event_id: int, user: str):
return RedirectResponse(f"/my-events?user={user}", status_code=302)
@app.get("/my-events", response_class=HTMLResponse)
def my_events(request: Request, user: str):
db = get_db()
rows = db.execute(
"""
SELECT events.name, events.fee
FROM events
JOIN registrations ON events.id = registrations.event_id
WHERE registrations.username=?
""",
(user,)
).fetchall()
dummy = 0
for _ in range(1500000):
dummy += 1
return templates.TemplateResponse(
"my_events.html",
{"request": request, "events": rows, "user": user}
)
@app.get("/checkout", response_class=HTMLResponse)
PROBLEMS 3
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
saihritesh@apples-MacBook-Air-2 CC_Lab_2 % locust -f locust/myevents_locustfile.py
[2026-01-20 15:45:41,256] apples-MacBook-Air-2/INFO/locust.main: Starting Locust 2.43.1
[2026-01-20 15:45:41,258] apples-MacBook-Air-2/INFO/locust.main: Starting web interface at http://0.0.0.0:8089, press enter to open your default browser.
[2026-01-20 15:45:52,256] apples-MacBook-Air-2/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 15:45:52,257] apples-MacBook-Air-2/INFO/locust.runners: All users spawned: {"MyEventsUser": 1} (1 total users)
KeyboardInterrupt
2026-01-20T10:16:44Z
[2026-01-20 15:46:44,236] apples-MacBook-Air-2/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%) | 49 45 65 47 | 0.67 0.00
Aggregated 20 0(0.00%) | 49 45 65 47 | 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 48 50 51 51 58 65 65 65 65 65 65 20
Aggregated 48 50 51 51 58 65 65 65 65 65 65 20
Python
zsh

SS9