

Cloud Computing Week 2 Monolith

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Sem 6 – C

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Submission Link: <https://github.com/pes2ug23cs173/CC Labs PES2UG23CS173>

SS1

The screenshot shows a web application interface for event registration. At the top, there's a header with the logo 'Fest Monolith' (FastAPI • SQLite • Locust), a user status 'Logged in as PES2UG23CS173', and navigation links for 'Events', 'My Events', 'Checkout', and 'Logout'. Below the header, a section titled 'Events' displays eight event listings arranged in two rows of four. Each event card includes an ID, a price in Indian Rupees (₹), a brief description, and a 'Register' button.

Event ID	Event Name	Description	Price (₹)	Action
1	Hackathon	Includes certificate • instant registration • limited seats	500	Register
2	Dance	Includes certificate • instant registration • limited seats	300	Register
3	Hackathon	Includes certificate • instant registration • limited seats	500	Register
4	Dance Battle	Includes certificate • instant registration • limited seats	300	Register
5	AI Workshop	Includes certificate • instant registration • limited seats	400	Register
6	Photography Walk	Includes certificate • instant registration • limited seats	200	Register
7	Gaming Tournament	Includes certificate • instant registration • limited seats	350	Register
8	Music Night	Includes certificate • instant registration • limited seats	250	Register
9	Treasure Hunt	Includes certificate • instant registration • limited seats	150	Register

SS2

The screenshot shows a 'Monolith Failure' error page. At the top, there's a header with the logo 'Fest Monolith' (FastAPI • SQLite • Locust), a user status 'Logged in as PES2UG23CS173', and navigation links for 'Events', 'My Events', 'Checkout', and 'Logout'. The main content area features a red banner with the text 'HTTP 500' and an 'Error Message' box containing the text 'division by zero'. To the left, a box explains the issue: 'One bug in one module impacted the entire application.' and 'Because this is a **monolithic application**: all modules share the same runtime and deployment. When one feature crashes, it affects the whole system.' To the right, a box lists steps to handle the failure: 'What should you do in the lab?' with points: 'Take a screenshot (crash dump)', 'Fix the bug in the indicated module', and 'Restart the server and verify recovery'.

SS3

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

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s
GET	//checkout	18	0	11	2100	2100	126.64	6	2063	0.7	0
Aggregated											
		18	0	11	2100	2100	126.64	6	2063	0.7	0

```
(venv) PS C:\Users\PE50\Subjects\Sem 6\CC\Lab\Lab2\IPES2023CS173> locust -f locust/checkout_locus
[2026-01-20 14:44:15,243] Inspiron/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
File "C:\Users\PE50\Subjects\Sem 6\CC\Lab\Lab2\IPES2023CS173\venv\lib\site-packages\gevent\_ff
I:\_socket.py", line 229, in python_check_callback
def python_check_callback(unif, watcher_ptc): # pylint:disable=unused-argument
KeyboardInterrupt
[2026-01-20 14:45:39,891] Inspiron/INFO/locust.main: Shutting down (exit code 2)
Type      Name      # fails      Avg      Min      Max      Med      req/s      failures/s      vg      Min      Max      Med      req/s
Failure      # fails      Avg      Min      Max      Med      req/s      failures/s      vg      Min      Max      Med      req/s
GET      //checkout      0      11      2100      2100      126.64      6      2063      2797      0.7      0
VG      Min      Max      Med      req/s      failures/s      vg      Min      Max      Med      req/s
VG      Min      Max      Med      req/s      failures/s      vg      Min      Max      Med      req/s
Fails/s
GET      //checkout      0      11      2100      2100      126.64      6      2063      2797      0.7      0
GET      //checkout      0      11      2100      2100      126.64      6      2063      2797      0.7      0
GET      //checkout      0      11      2100      2100      126.64      6      2063      2797      0.7      0
Aggregated      0      11      2100      2100      126.64      6      2063      2797      0.7      0
Response time percentiles (approximated)
% Type      Name      66%      75%      80%      90%      95%      98%      99%      99.9%      99.99%      100% # reqs
GET      //checkout      14      15      17      37      2100      2100      2100      2100      2100      2100      18
Aggregated      14      15      17      37      2100      2100      2100      2100      2100      2100      18
(venv) PS C:\Users\PE50\Subjects\Sem 6\CC\Lab\Lab2\IPES2023CS173>
```

SS5

LOCUST

Host
http://localhost:8000/

Status
STOPPED

RPS
0.6

Failures
0%

NEW **RESET**

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
(.venv) PS C:\Users\PESU\Subjects\Sem 6VCC\Lab\Lab2\PE520G2CS173> locust -f locust/checkout_locustfile
[2026-01-20 14:50:11,893] Inspiron/INFO/locust.main: Starting Locust 2.34.0
[2026-01-20 14:50:11,894] Inspiron/WARN/locust.main: Python 3.9 support is deprecated and will be removed soon
[2026-01-20 14:50:11,894] Inspiron/INFO/locust.main: Starting web interface at http://localhost:8089, p
[2026-01-20 14:50:59,721] Inspiron/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 user per second
[2026-01-20 14:50:59,721] Inspiron/INFO/locust.runners: All users spawned: {"CheckoutUser": 1} (1 total users)
Traceback (most recent call last):
  File "C:\Users\PESU\Subjects\Sem 6VCC\Lab\Lab2\PE520G2CS173\venv\lib\site-packages\gevent\_ffibuilder.py", line 239, in check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
[2026-01-20 14:53:05,162] Inspiron/INFO/locust.main: Shutting down (exit code 0)
```

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s	
GET	//checkout	18	0	9	2100	2100	126.47	4	2115	2797	0.6	0
<hr/>												
Aggregated		18	0	9	2100	2100	126.47	4	2115	2797	0.6	0

STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS LOCUST CLOUD

ABOUT

SS6

The screenshot shows a browser window with the Locust interface and a terminal window running Python code.

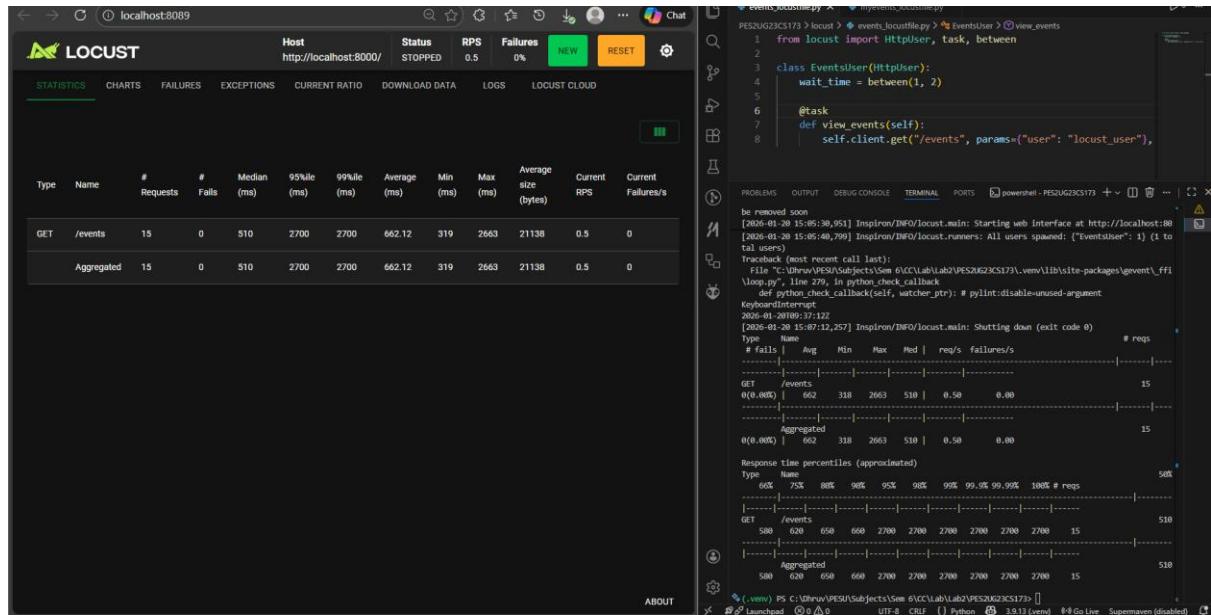
Locust Test Results:

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	Average (ms)	Min (ms)	Max (ms)	Average size (bytes)	Current RPS	Current Failures/s	
GET	//events?user=locust_user	14	0	530	2700	2700	669.5	331	2670	21138	0.5	0
Aggregated												
		14	0	530	2700	2700	669.5	331	2670	21138	0.5	0

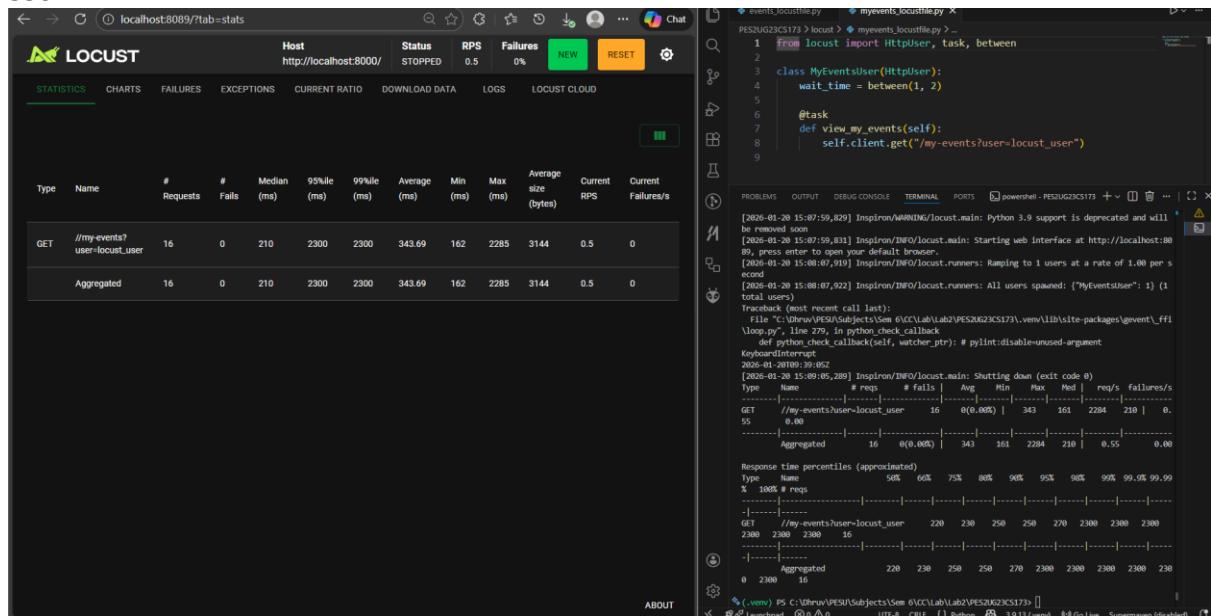
Terminal Output:

```
(venv) PS C:\Users\PESU\Subjects\Sem 6\CC\Lab\Lab2\PES2023CS17> locust -f ..\locust\events_locus.py
[2024-01-20 15:01:25,735] Inspiron/INFO/locust.main: Starting Locust 2.34.0
[2024-01-20 15:01:25,735] Inspiron/WARNING/locust.main: Python 3.9 support is deprecated and will be removed in a future release
[2024-01-20 15:01:25,735] Inspiron/INFO/locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2024-01-20 15:01:38,587] Inspiron/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 user/s
[2024-01-20 15:01:38,589] Inspiron/INFO/locust.runners: All users spawned: {"EventUser": 1} (1 to 1 users)
Traceback (most recent call last):
  File "C:\Users\PESU\Subjects\Sem 6\CC\Lab\Lab2\PES2023CS17\venv\lib\site-packages\gevent\ ffi\_loop.py", line 279, in python_check_callback
    self._check_callback(self, watcher_ptr); # pylint:disable=unused-argument
KeyboardInterrupt
[2024-01-20 15:02:46,922] Inspiron/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  14  0 (0.0%)  | 669  331  2670  21138  0.5  0.47  0.47
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----
Aggregated 14  0 (0.0%)  | 669  331  2670  21138  0.5  0.47  0.47
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----
Response time percentiles (approximate)
Type      Name      50%      68%      75%      80%      90%      95%      98%      99%      99.9%      99.99%      100%
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----  -----
% # reqs
-----  -----
GET      //events?user=locust_user  540  610  630  650  670  7200  2700  2700  2700  2700  2700
-----  -----
0 2700 2700 14
-----  -----
Aggregated 540  610  630  650  670  2700  2700  2700  2700  2700  2700
-----  -----
0 14
```

SS7



SS8



SS9

The screenshot shows the Locust web interface at localhost:8089/?tab=stats. The interface includes a header with 'LOCUST' logo, host 'http://localhost:8000/', status 'STOPPED', RPS '0.6', and Failures '0%'. Buttons for 'NEW' and 'RESET' are present. Below is a navigation bar with links: STATISTICS, CHARTS, FAILURES, EXCEPTIONS, CURRENT RATIO, DOWNLOAD DATA, LOGS, LOCUST CLOUD, and ABOUT.

The STATISTICS section displays a table of request details:

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	17	0	210	2300	2300	347.1	177	2308	3144	0.6	0
Aggregated												
		17	0	210	2300	2300	347.1	177	2308	3144	0.6	0

To the right, there is a code editor window showing Python script code for 'myevents_locustfile.py' and a terminal window showing logs from Locust and Python 3.9 support deprecation warnings.

Writeup

1. Events:

- Bottleneck:** Locust logged each request separately due to individual query strings, preventing data aggregation.
- Change Made:** Refactored the request to pass values as parameters, ensuring a single unified endpoint name in the report.
- Performance Improvement:** Correct grouping in Locust provided clearer, more accurate metrics and reduced reporting clutter.

2. MyEvents:

- Bottleneck:** Hardcoded URLs created unnecessary overhead and inconsistent reporting in the load testing tool.
- Change Made:** Replaced hardcoded URL strings with parameterized requests.
- Performance Improvement:** Reduced client-side processing overhead, resulting in more stable and consistent performance data.