

# Cloud Computing Week 2 Monolith

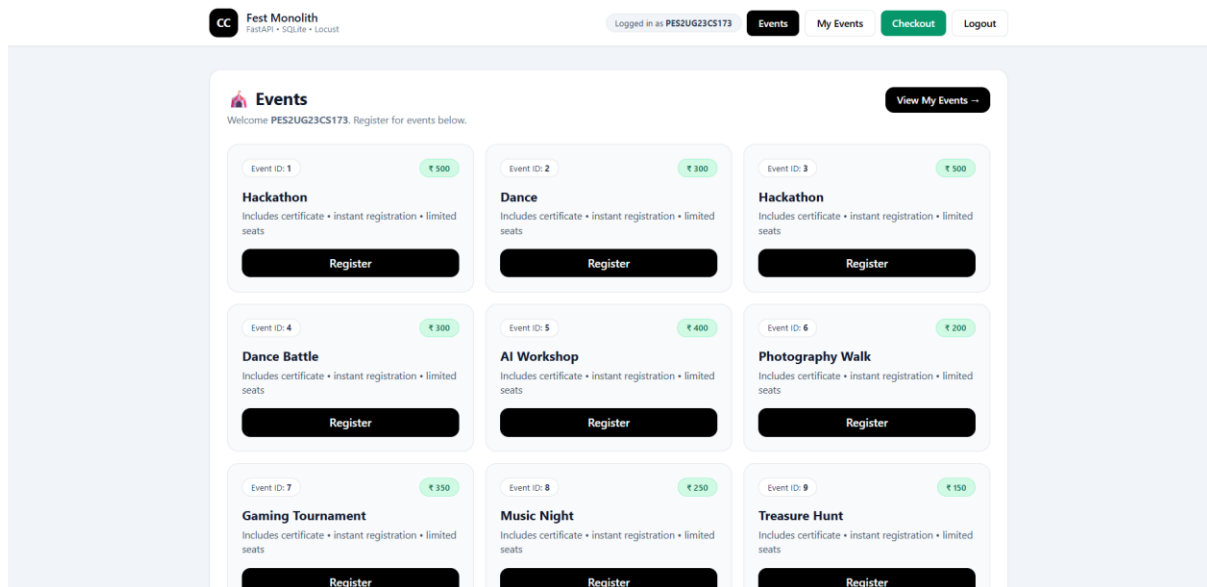
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Sem 6 – C

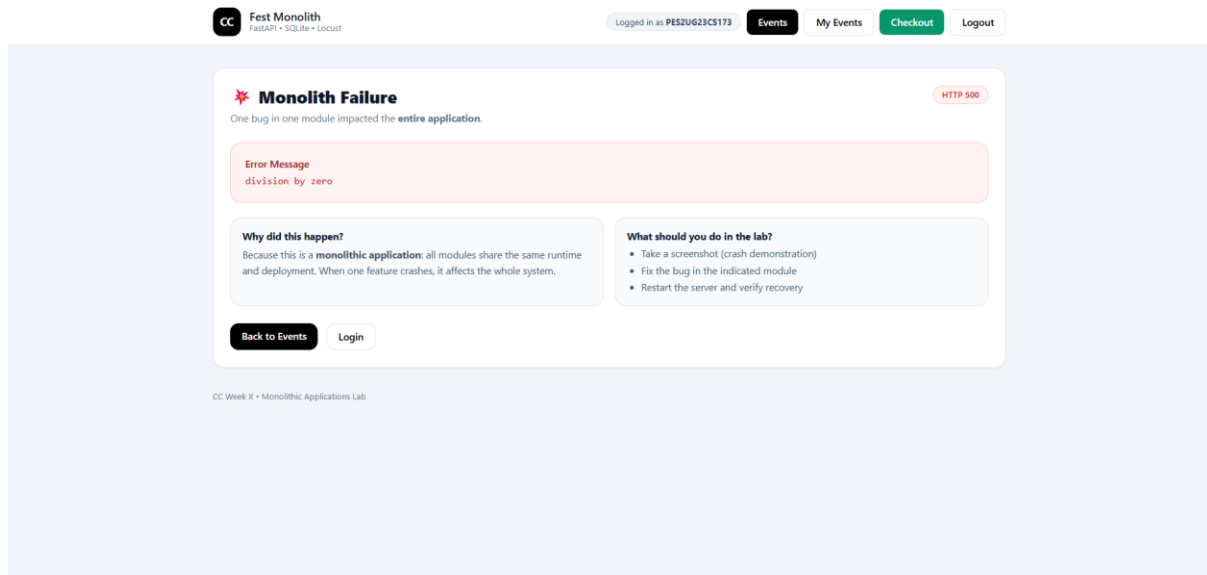
Date: 20<sup>th</sup> Jan 2026

Submission Link: [https://github.com/pes2ug23cs173/CC\\_Labs\\_PES2UG23CS173](https://github.com/pes2ug23cs173/CC_Labs_PES2UG23CS173)

## SS1



## SS2



## SS3

CC

Fest Monolith  
FastAPI • SQLRe • Locust

LoginCreate 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

The screenshot displays the Locust web interface on the left and a terminal window on the right.

**Locust Web Interface:**

- Header:** LOCUST
- Host:** http://localhost:8000/
- Status:** STOPPED
- RPS:** 0.7
- Failures:** 0%
- Buttons:** NEW, RESET, and a settings gear icon.
- Tabs:** STATISTICS, CHARTS, FAILURES, EXCEPTIONS, CURRENT RATIO, DOWNLOAD DATA, LOGS, LOCUST CLOUD.
- Table:**

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	18	0	11	2100	2100	126.64	6	2063	2797	0.7	0
Aggregated		18	0	11	2100	2100	126.64	6	2063	2797	0.7	0

**Terminal Output:**

```
(.venv) PS C:\Uhrnu\VSU\Subjects\Sem 6\CC\Lab\Lab2\VPES202\KCS17> locust -f locust/checkout_locus
second
[2026-01-20 14:44:15,213] Inspiron/2N60/locust-runners: All users spawned: {"CheckoutUser": 1} (1
total users)
Testback (most recent call last):
  File "C:\Uhrnu\VSU\Subjects\Sem 6\CC\Lab\Lab2\VPES202\KCS17\venv\lib\site-packages\gvent\ffi
\loop.py", line 270, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
2026-01-20T09:15:30Z
[2026-01-20 14:45:30,891] Inspiron/2N60/locust-main: Shutting down (exit code 2)
Type      Name      # fails | Avg      Min      Max      Med | req/s | fail/s | vg      Min      Max      Med | req/s | # reqs
-----
fail      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
GET      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
vg      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
Aggregated 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
Type      Name      # fails | Avg      Min      Max      Med | req/s | fail/s | vg      Min      Max      Med | req/s | fail
-----
GET      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
GET      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
Aggregated 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
Type      Name      # fails | Avg      Min      Max      Med | req/s | fail/s | vg      Min      Max      Med | req/s | fail
-----
GET      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
GET      //checkout 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
Aggregated 0 | 126      6         2063    11 | 0.64   0.00   0.00   6         2063    11 | 0.64   0.00   18
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:\Uhrnu\VSU\Subjects\Sem 6\CC\Lab\Lab2\VPES202\KCS17>
```

## SS5

**LOCUST** Host: http://localhost:8000/ Status: STOPPED RPS: 0.6 Failures: 0% NEW RESET

STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS LOCUST CLOUD

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	18	0	9	2100	2100	126.47	4	2115	2797	0.6	0
Aggregated		18	0	9	2100	2100	126.47	4	2115	2797	0.6	0

ABOUT

```

(.venv) PS C:\Uhrw\PE50\Subjects\Sem 6\CC\Lab\Lab2\PE50G23CS173> locust -f locust/checkout_locustfile.py
[2026-01-20 14:58:11,093] Inspiron/DNFO/locust-main: Starting locust 2.34.0
[2026-01-20 14:58:11,094] Inspiron/MAINING/locust-main: Python 3.9 support is deprecated and will be removed soon
[2026-01-20 14:58:11,094] Inspiron/DNFO/locust-main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-20 14:58:59,721] Inspiron/DNFO/locust-runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 14:58:59,729] Inspiron/DNFO/locust-runners: All users spawned: ("CheckoutUser": 1) (1 total users)
Traceback (most recent call last):
  File "C:\Uhrw\PE50\Subjects\Sem 6\CC\Lab\Lab2\PE50G23CS173\.venv\Lib\site-packages\event_ff1\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
[2026-01-20 14:59:23,062]
[2026-01-20 14:53:05,102] Inspiron/DNFO/locust-main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
GET /checkout 18 0 | 126 4 2114 9 | 0.63 0.00 18 0(0.0)
Aggregated 18 0 | 126 4 2114 9 | 0.63 0.00 18 0(0.0)
Response time percentiles (approximated)
Type Name 50% 75% 80% 90% 95% 98% 99% 99.9% 100% # reqs
-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
GET /checkout 11 13 14 17 2100 2100 2100 2100 2100 18 9
Aggregated 11 13 14 17 2100 2100 2100 2100 2100 18 9
  
```

## SS6

**LOCUST** Host: http://localhost:8000/ Status: STOPPED RPS: 0.5 Failures: 0% NEW RESET

STATISTICS CHARTS FAILURES EXCEPTIONS CURRENT RATIO DOWNLOAD DATA LOGS LOCUST CLOUD

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	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

ABOUT

```

(.venv) PS C:\Uhrw\PE50\Subjects\Sem 6\CC\Lab\Lab2\PE50G23CS173> locust -f .\locust/locust_events_locustfile.py
[2026-01-20 15:01:25,735] Inspiron/DNFO/locust-main: Starting locust 2.34.0
[2026-01-20 15:01:25,735] Inspiron/MAINING/locust-main: Python 3.9 support is deprecated and will be removed soon
[2026-01-20 15:01:25,735] Inspiron/DNFO/locust-main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-20 15:01:38,507] Inspiron/DNFO/locust-runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 15:01:38,509] Inspiron/DNFO/locust-runners: All users spawned: ("EventUser": 1) (1 total users)
Traceback (most recent call last):
  File "C:\Uhrw\PE50\Subjects\Sem 6\CC\Lab\Lab2\PE50G23CS173\.venv\Lib\site-packages\event_ff1\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
[2026-01-20 15:02:40,922] Inspiron/DNFO/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 | 669 331 2670 530 | 0.47 0.00
Aggregated 14 0 | 669 331 2670 530 | 0.47 0.00
Response time percentiles (approximated)
Type Name 50% 60% 75% 80% 90% 95% 98% 99% 99.9% 100% # reqs
-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
GET /events?user=locust_user 0 2700 2700 14 540 610 630 650 670 2700 2700 2700 2700
Aggregated 0 14 540 610 630 650 670 2700 2700 2700 2700 2700 2700
  
```

## SS7

The screenshot shows the Locust web interface on the left and a terminal window on the right. The Locust interface displays statistics for a test running on localhost:8089. The test is named 'events\_locustfile.py' and is currently 'STOPPED'. The statistics table shows 15 requests, 0 failures, and an average response time of 662.12 ms.

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	15	0	510	2700	2700	662.12	319	2663	21138	0.5	0
Aggregated		15	0	510	2700	2700	662.12	319	2663	21138	0.5	0

The terminal window shows the output of the Locust test. It includes the Locust version (2.10.0), the test name (events\_locustfile.py), and the test results. The test was run for 10 seconds and resulted in 15 requests, 0 failures, and an average response time of 662.12 ms.

```

[2026-01-20 15:05:30,951] Inspiron/INFO/locust-main: Starting web interface at http://localhost:8089
[2026-01-20 15:05:40,799] Inspiron/INFO/locust-runners: All users spawned: {"EventUser": 1} (1 total users)
Traceback (most recent call last):
  File "C:\Users\PEPSU\Subjects\Sem 6\CCU\Lab\Lab2\PEPSU2023CS173\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
[2026-01-20 15:09:17,122] Inspiron/INFO/locust-main: Shutting down (exit code 0)
Type Name # reqs # fails Avg Min Max Med | req/s failures/s
-----|-----
GET /events 15 0 662 318 2663 510 | 0.50 0.00
Aggregated 15 0 662 318 2663 510 | 0.50 0.00
Response time percentiles (approximated)
Type Name 50% 75% 80% 90% 95% 98% 99.9% 100% # reqs
-----|-----
GET /events 580 620 650 660 2700 2700 2700 2700 15
Aggregated 580 620 650 660 2700 2700 2700 2700 15
  
```

## SS8

The screenshot shows the Locust web interface on the left and a terminal window on the right. The Locust interface displays statistics for a test running on localhost:8089. The test is named 'myevents\_locustfile.py' and is currently 'STOPPED'. The statistics table shows 16 requests, 0 failures, and an average response time of 343.69 ms.

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	16	0	210	2300	2300	343.69	162	2285	3144	0.5	0
Aggregated		16	0	210	2300	2300	343.69	162	2285	3144	0.5	0

The terminal window shows the output of the Locust test. It includes the Locust version (2.10.0), the test name (myevents\_locustfile.py), and the test results. The test was run for 10 seconds and resulted in 16 requests, 0 failures, and an average response time of 343.69 ms.

```

[2026-01-20 15:07:59,829] Inspiron/WARNING/locust-main: Python 3.9 support is deprecated and will be removed soon
[2026-01-20 15:07:59,831] Inspiron/INFO/locust-main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2026-01-20 15:08:07,919] Inspiron/INFO/locust-runners: Ramping to 1 users at a rate of 1.00 per second
[2026-01-20 15:08:07,922] Inspiron/INFO/locust-runners: All users spawned: {"MyEventUser": 1} (1 total users)
Traceback (most recent call last):
  File "C:\Users\PEPSU\Subjects\Sem 6\CCU\Lab\Lab2\PEPSU2023CS173\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
[2026-01-20 15:09:05,289] Inspiron/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 16 0 343 161 2284 210 | 0.55 0.00
Aggregated 16 0 343 161 2284 210 | 0.55 0.00
Response time percentiles (approximated)
Type Name 50% 60% 75% 80% 90% 95% 98% 99.9% 100% # reqs
-----|-----
GET /my-events?user=locust_user 220 230 250 250 270 2300 2300 2300 16
Aggregated 220 230 250 250 270 2300 2300 2300 16
  
```

The screenshot displays the Locust web interface on the left and a terminal window on the right. The interface shows a table of test results for a GET request to /my-events. The terminal shows the Locust code and the output of the test run, including a traceback and performance metrics.

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

```

1 from locust import HttpUser, task, between
2
3 class MyEventsUser(HttpUser):
4     wait_time = between(1, 2)
5
6     @task
7     def view_my_events(self):
8         self.client.get(
9             "/my-events",
10            params={"user": "locust_user"},
11        )
  
```

Terminal Output:

```

[2020-01-20 15:09:53.151] Inspiron/INFO/locust.main: Starting locust 2.34.0
[2020-01-20 15:09:53.151] Inspiron/WARNING/locust.main: Python 3.9 support is deprecated and will be removed soon
[2020-01-20 15:09:53.151] Inspiron/INFO/locust.main: Starting web interface at http://localhost:8089, press enter to open your default browser.
[2020-01-20 15:11:47.655] Inspiron/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2020-01-20 15:11:47.657] Inspiron/INFO/locust.runners: All users spawned: ("MyEventsUser": 1) (1 total users)
Traceback (most recent call last):
  File "C:\Users\PE3\Subjects\Sem 6\CC\Lab\Lab2\PE3\G2\CS173\venv\lib\site-packages\gevent\ffl\loop.py", line 279, in python_check_callback
    def python_check_callback(self, watcher_ptr): # pylint:disable=unused-argument
KeyboardInterrupt
2020-01-20T09:42:54Z [2020-01-20 15:12:54.046] Inspiron/INFO/locust.main: Shutting down (exit code 0)
  
```

Performance metrics (approximated):

Type	Name	50%	60%	75%	80%	90%	95%	98%	99%	99.9%	99.99%
GET	/my-events	210	230	230	240	380	2300	2300	2300	2300	230
Aggregated		210	230	230	240	380	2300	2300	2300	2300	230

## 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.