Cloud Computing Lab 3

Name: Vishnu Sridhar

SRN: PES1UG22CS702

6th Sem, Section L
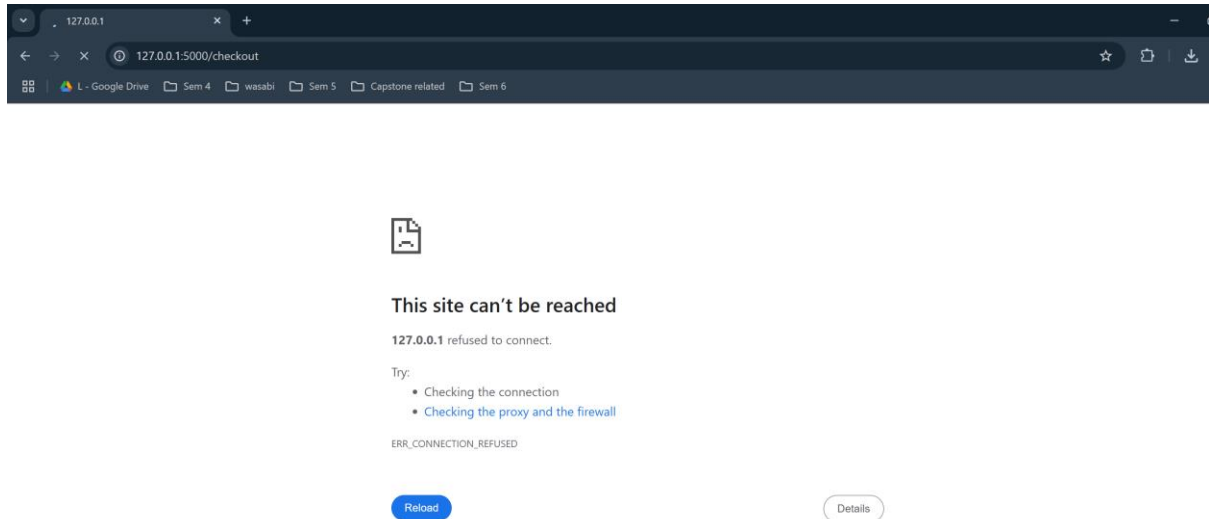
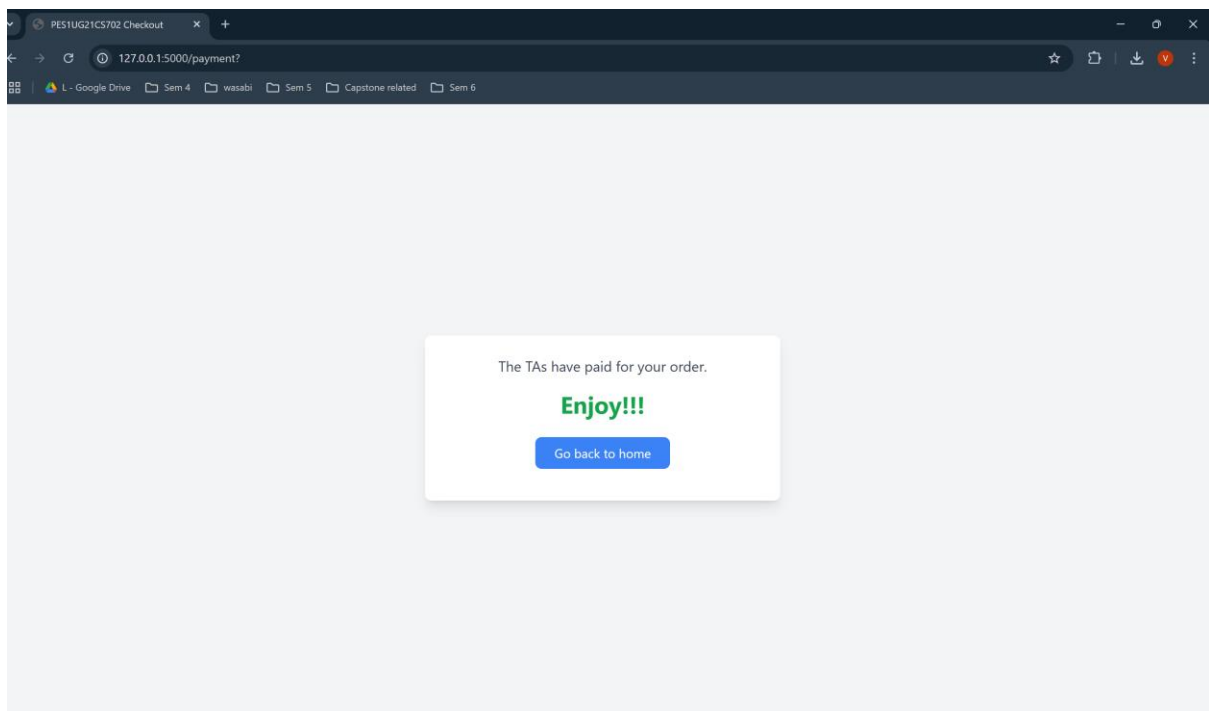**Github repo: https://github.com/Vishkrish108/CC-Lab3**

SS1:

Product List

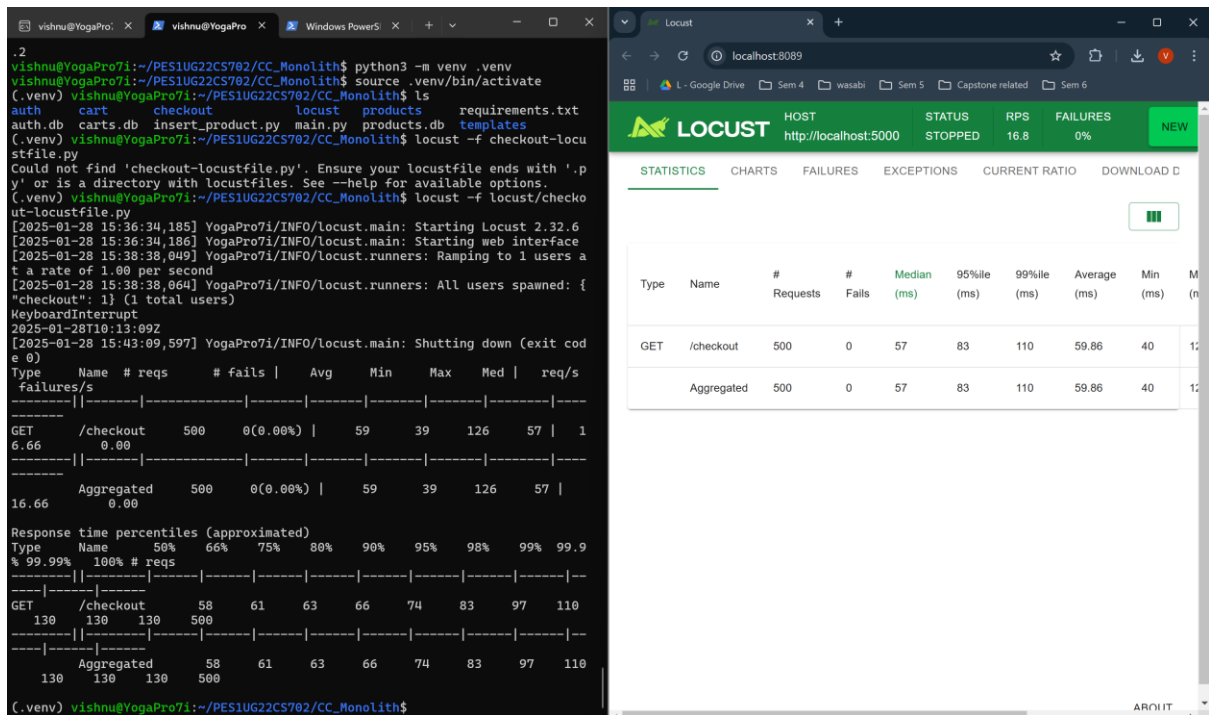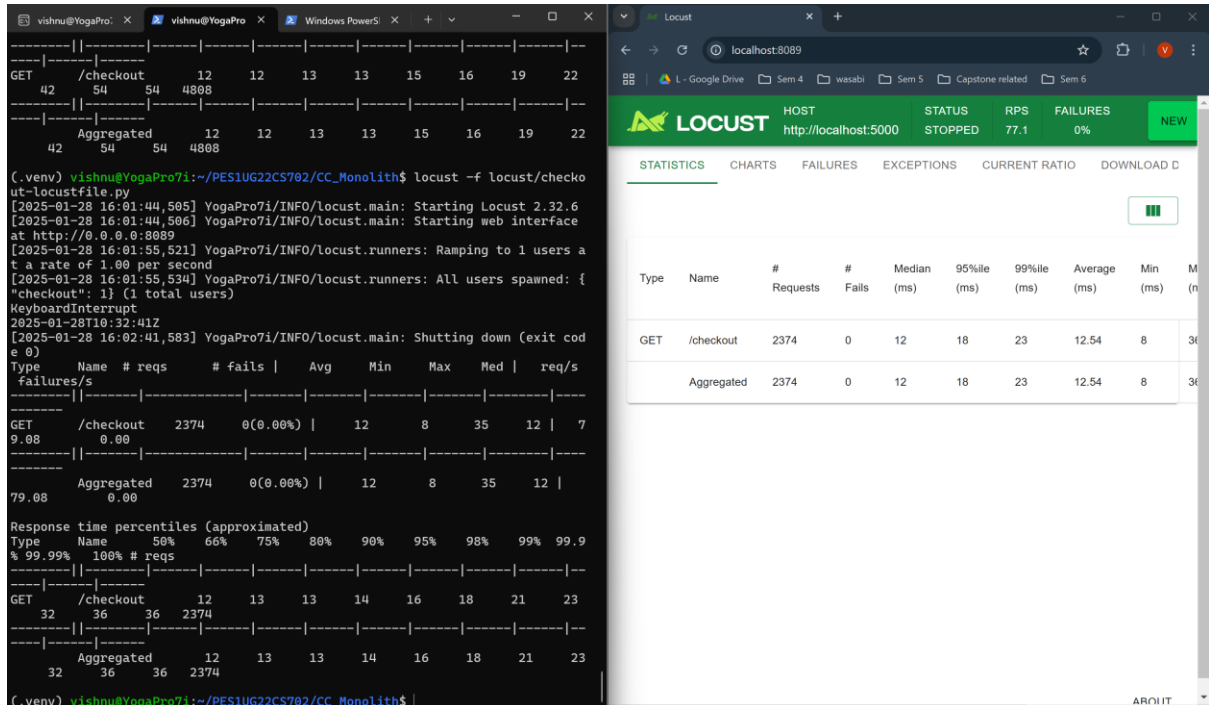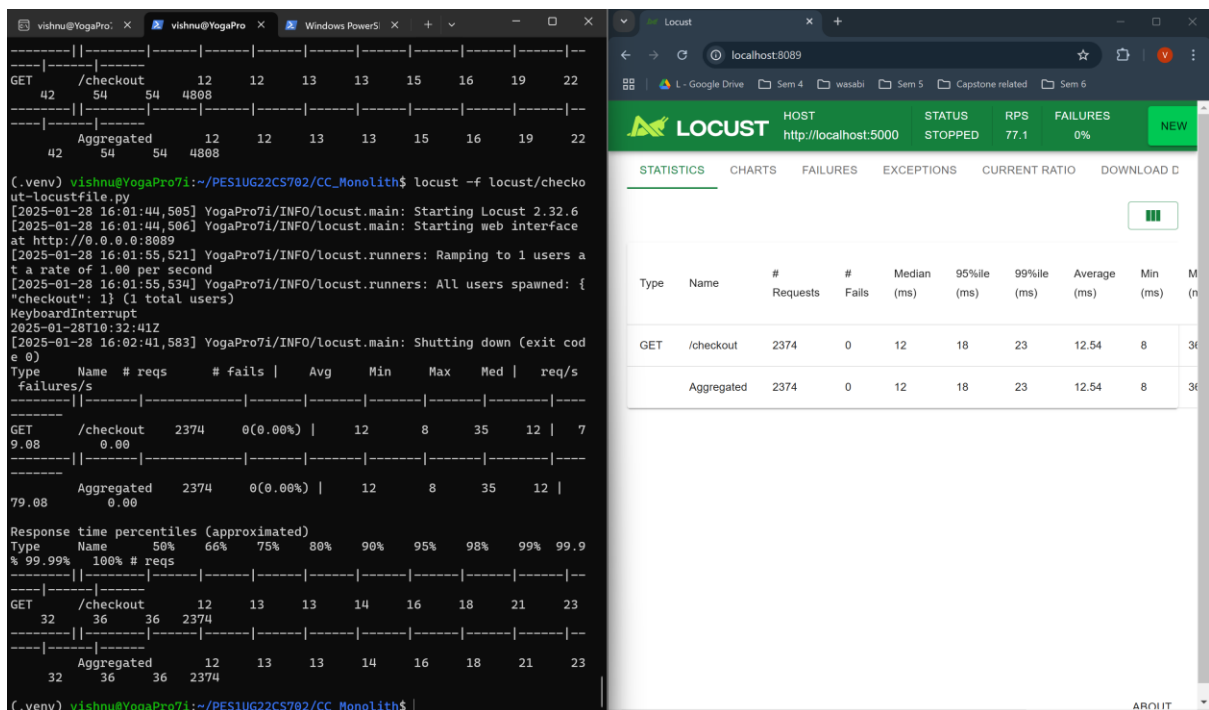| Name	Description	Quantity
Backpack	A durable and stylish backpack for daily use.	10
Wireless Mouse	A sleek and ergonomic wireless mouse with a long battery life.	20
Bluetooth Speaker	A portable Bluetooth speaker with high-quality sound and deep bass.	30
Laptop Stand	An adjustable laptop stand for better posture and cooling.	15
Notebook	A premium notebook with thick, high-quality paper.	50
Smartphone Case	A durable and stylish case for protecting your smartphone.	25
Power Bank	A high-capacity power bank with fast charging support.	20
Headphones	Over-ear headphones with noise cancellation and deep bass.	10
Gaming Keyboard	A mechanical gaming keyboard with RGB lighting.	10
USB-C Hub	A multi-port USB-C hub for all your connectivity needs.	25
Fitness Tracker	A sleek fitness tracker with heart rate monitoring.	20
Travel Mug	An insulated travel mug that keeps your drinks hot or cold.	30
Desk Organizer	A compact desk organizer for keeping your workspace tidy.	40
External Hard Drive	A portable external hard drive with 1TB of storage.	15
Wireless Charger	A fast wireless charger compatible with most devices.	30
Digital Camera	A compact digital camera with 4K video recording.	5
Electric Kettle	A fast-boiling electric kettle with auto shut-off.	20

SS2:

SS3:

SS4: Without any optimisations


```
.2
vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ python3 -m venv .venv
vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ source .venv/bin/activate
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ ls
auth       cart       checkout      locust     products     requirements.txt
auth.db    carts.db   insert_product.py  main.py  products.db  templates
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ locust -f checkout-locu
stfile.py
Could not find 'checkout-locustfile.py'. Ensure your locustfile ends with '.p
y' or is a directory with locustfiles. See --help for available options.
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ locust -f locust/checko
ut-locustfile.py
[2025-01-28 15:36:34,185] YogaPro7i/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 15:36:34,186] YogaPro7i/INFO/locust.main: Starting web interface
[2025-01-28 15:38:38,049] YogaPro7i/INFO/locust.runners: Ramping to 1 users a
t a rate of 1.00 per second
[2025-01-28 15:38:38,064] YogaPro7i/INFO/locust.runners: All users spawned: {
"checkout": 1} (1 total users)
KeyboardInterrupt
2025-01-28T10:13:09Z
[2025-01-28 15:43:09,597] YogaPro7i/INFO/locust.main: Shutting down (exit cod
e 0)
Type     Name  # reqs   # fails |   Avg    Min    Max    Med |   req/s
 failures/s
--------||-------|--------------|-------|-------|-------|--------|----
-------
GET      /checkout    500    0(0.00%) |    59    39    126    57 |   1
6.66      0.00
--------||-------|--------------|-------|-------|-------|--------|----
-------
         Aggregated   500    0(0.00%) |    59    39    126    57 |
16.66      0.00

Response time percentiles (approximated)
Type     Name    50%    66%    75%    80%    90%    95%    98%    99%  99.9
% 99.99%  100% # reqs
--------||--------|-------|-------|-------|-------|-------|-------|------|--
----|------|------
GET      /checkout    58    61    63    66    74    83    97    110
  130   130   130   500
--------||--------|-------|-------|-------|-------|-------|-------|------|--
----|------|------
         Aggregated   58    61    63    66    74    83    97    110
   130   130   130   500
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$
```

Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	M (n
GET	/checkout	500	0	57	83	110	59.86	40	12
	Aggregated	500	0	57	83	110	59.86	40	12

HOST http://localhost:5000 — STATUS STOPPED — RPS 16.8 — FAILURES 0%

SS5: After optimising /checkout


```
--------||-------|--------------|-------|-------|-------|--------|----
----|------|------
GET      /checkout    12    12    13    13    15    16    19    22
   42    54    54    4808
--------||-------|--------------|-------|-------|-------|--------|----
----|------|------
         Aggregated   12    12    13    13    15    16    19    22
   42    54    54    4808
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$ locust -f locust/checko
ut-locustfile.py
[2025-01-28 16:01:44,505] YogaPro7i/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 16:01:44,506] YogaPro7i/INFO/locust.main: Starting web interface
at http://0.0.0.0:8089
[2025-01-28 16:01:55,521] YogaPro7i/INFO/locust.runners: Ramping to 1 users a
t a rate of 1.00 per second
[2025-01-28 16:01:55,534] YogaPro7i/INFO/locust.runners: All users spawned: {
"checkout": 1} (1 total users)
KeyboardInterrupt
2025-01-28T10:32:41Z
[2025-01-28 16:02:41,583] YogaPro7i/INFO/locust.main: Shutting down (exit cod
e 0)
Type     Name  # reqs   # fails |   Avg    Min    Max    Med |   req/s
 failures/s
--------||-------|--------------|-------|-------|-------|--------|----
-------
GET      /checkout    2374    0(0.00%) |    12    8    35    12 |   7
9.08      0.00
--------||-------|--------------|-------|-------|-------|--------|----
-------
         Aggregated   2374    0(0.00%) |    12    8    35    12 |
79.08      0.00

Response time percentiles (approximated)
Type     Name    50%    66%    75%    80%    90%    95%    98%    99%  99.9
% 99.99%  100% # reqs
--------||--------|-------|-------|-------|-------|-------|-------|------|--
----|------|------
GET      /checkout    12    13    13    14    16    18    21    23
   32    36    36    2374
--------||--------|-------|-------|-------|-------|-------|-------|------|--
----|------|------
         Aggregated   12    13    13    14    16    18    21    23
   32    36    36    2374
(.venv) vishnu@YogaPro7i:~/PES1UG22CS702/CC_Monolith$
```

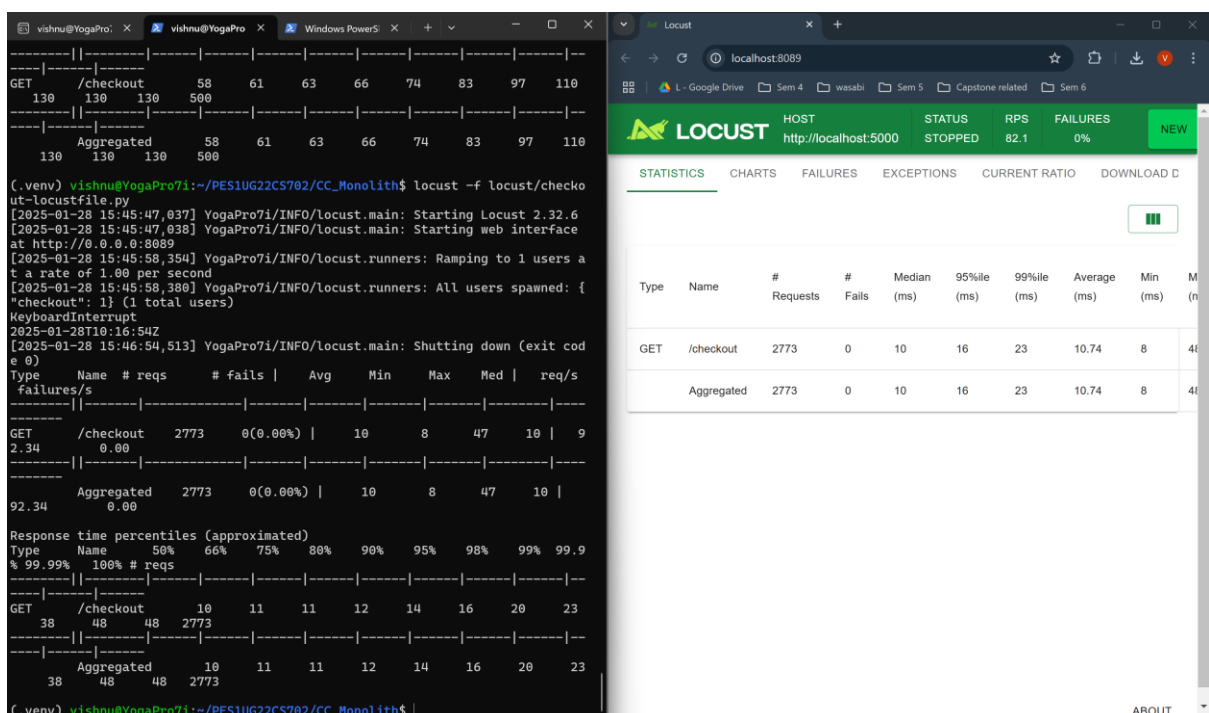| Type	Name	# Requests	# Fails	Median (ms)	95%ile (ms)	99%ile (ms)	Average (ms)	Min (ms)	M (n
GET	/checkout	2374	0	12	18	23	12.54	8	36
	Aggregated	2374	0	12	18	23	12.54	8	36

HOST http://localhost:5000 — STATUS STOPPED — RPS 77.1 — FAILURES 0%
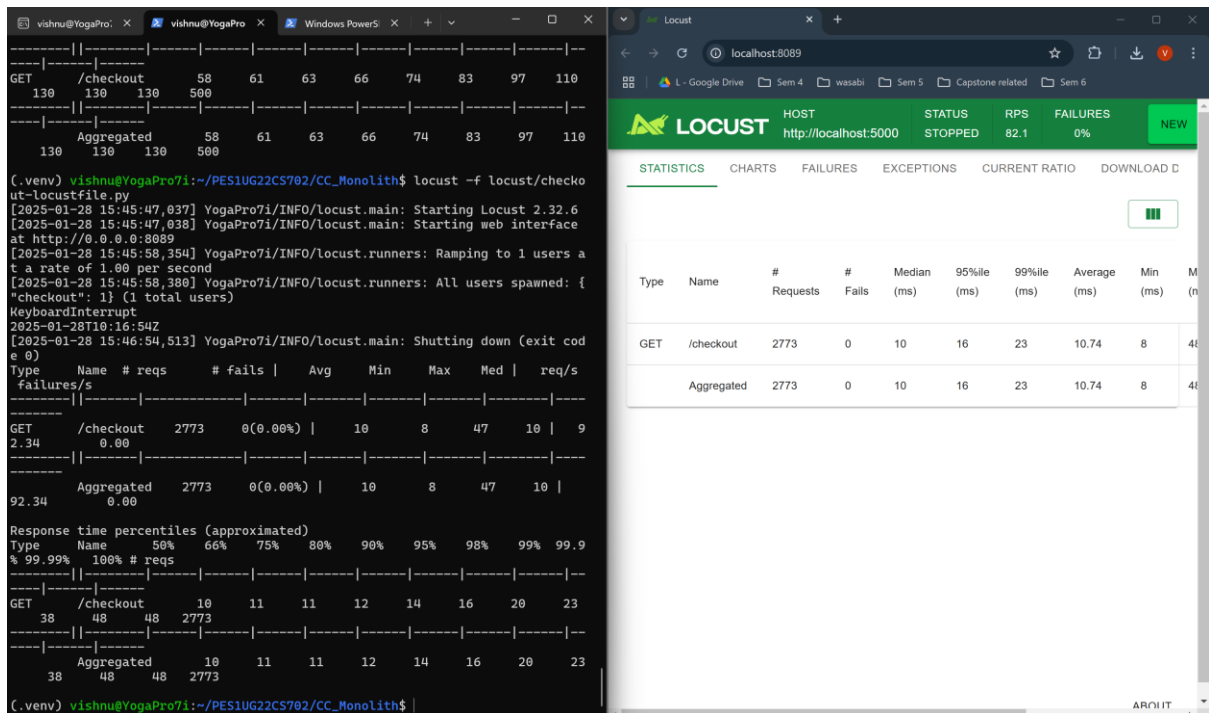
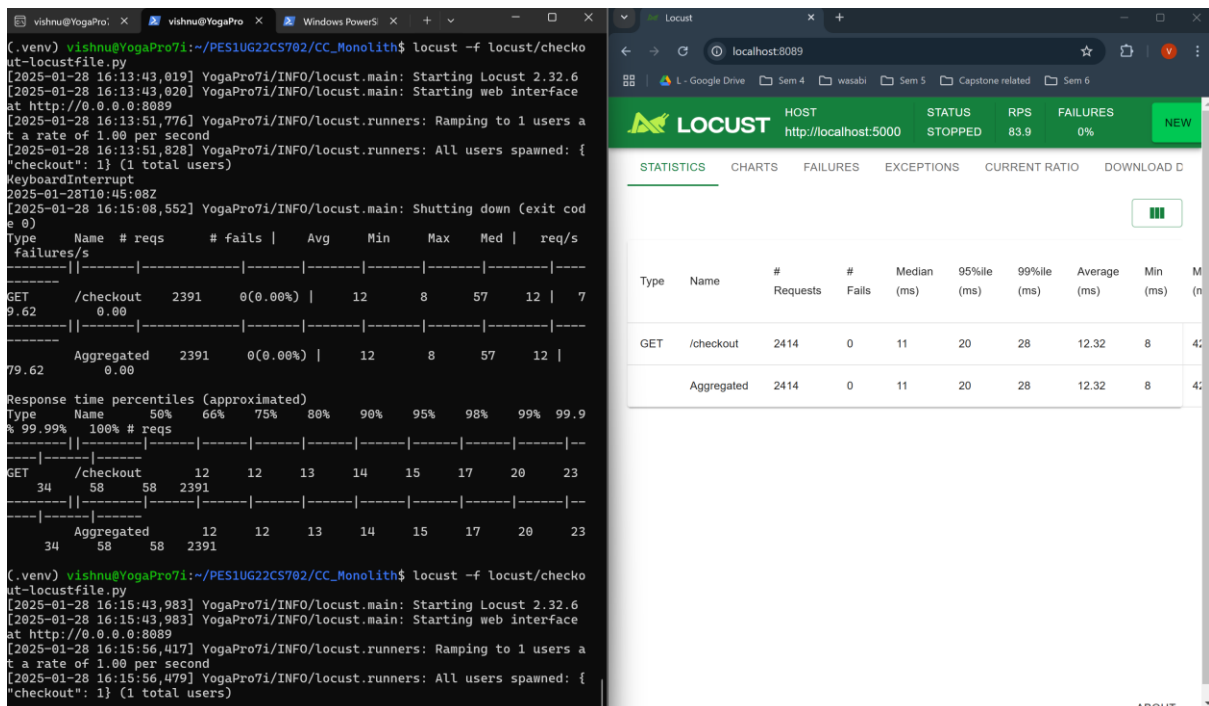# SS6: Before optimising /cart

SS7: After optimising /cart

Changes made: /cart/dao.py - A redundant piece of code removed (Lines 36->39) and changed temporary_cart to cart.

As we can observe, the RPS has improved from 77.1 to 82.1

SS8: Before optimising /browse

SS9: After optimising /browse

Changes made: /products/dao.py - Removed a loop that manually appends rows. Replaced with a fetchall() such that the program doesn't waste time accessing the database multiple times.

As we can observe, the RPS has improved from 82.1 to 83.9