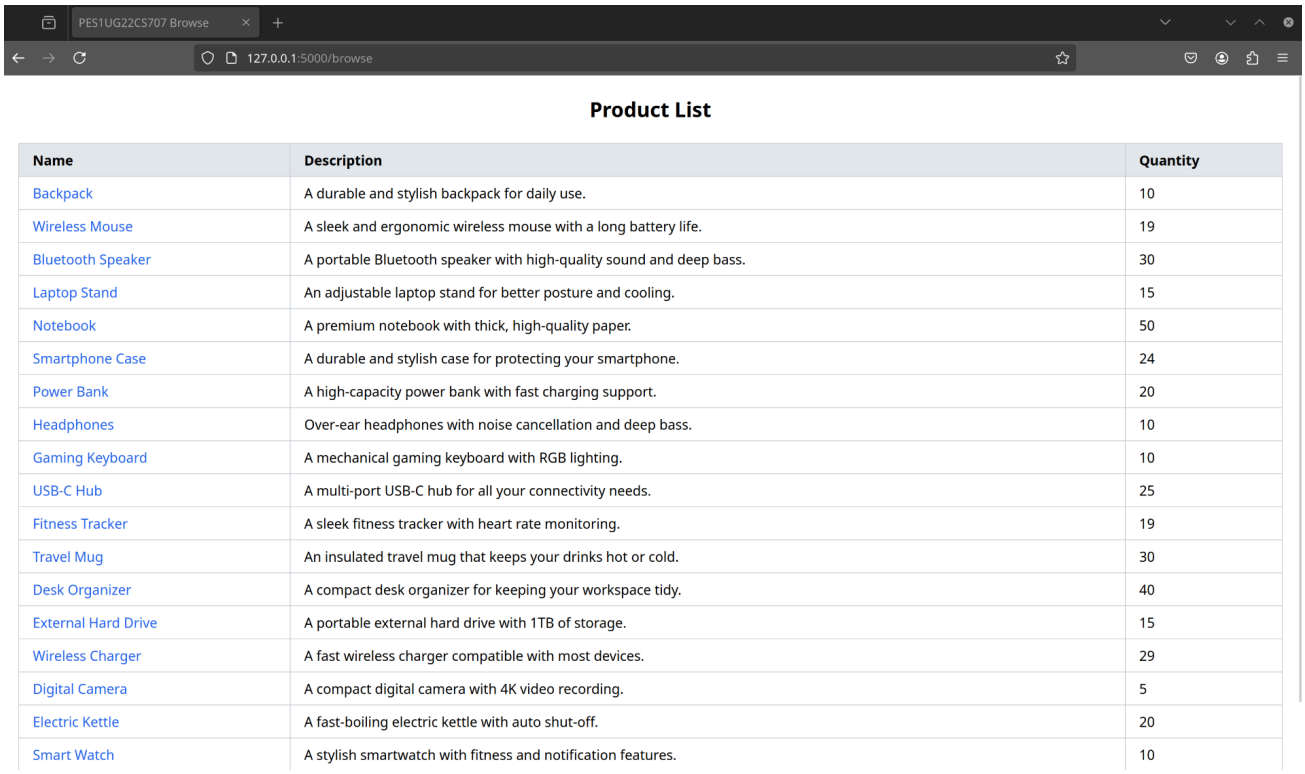
CLOUD COMPUTING

Name: Vivek M
SRN: PES1UG22CS707
Github Link: https://github.com/vmvivek291/CC_Lab3.git

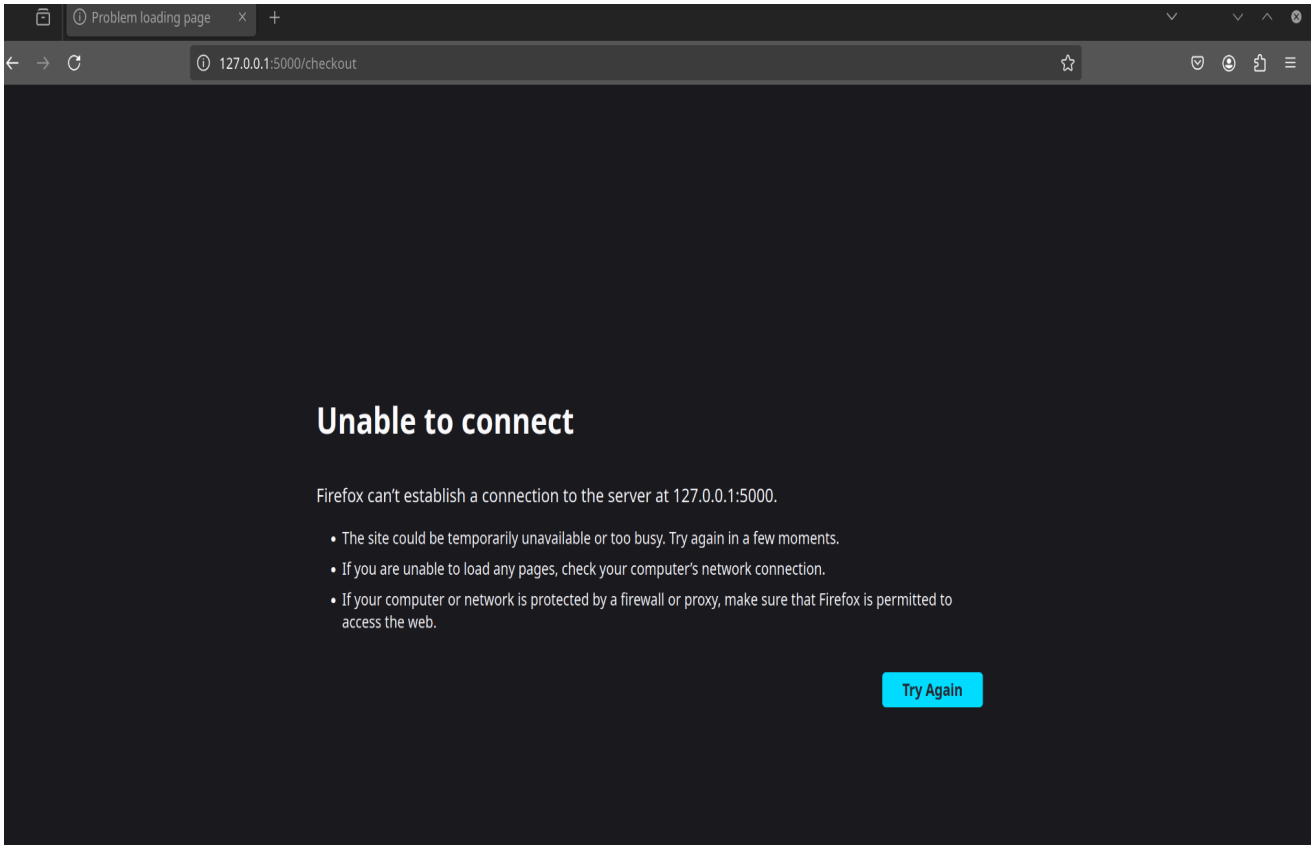
SS1:



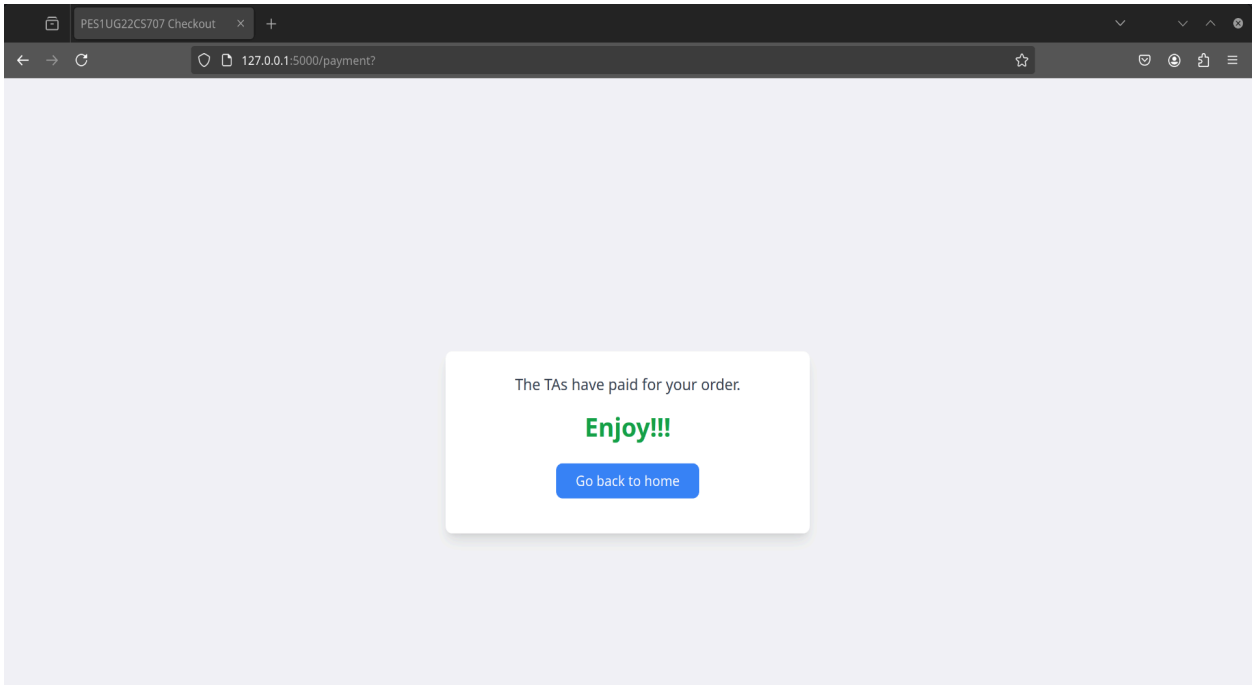
Product List

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.	19
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.	24
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.	19
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.	29
Digital Camera	A compact digital camera with 4K video recording.	5
Electric Kettle	A fast-boiling electric kettle with auto shut-off.	20
Smart Watch	A stylish smartwatch with fitness and notification features.	10

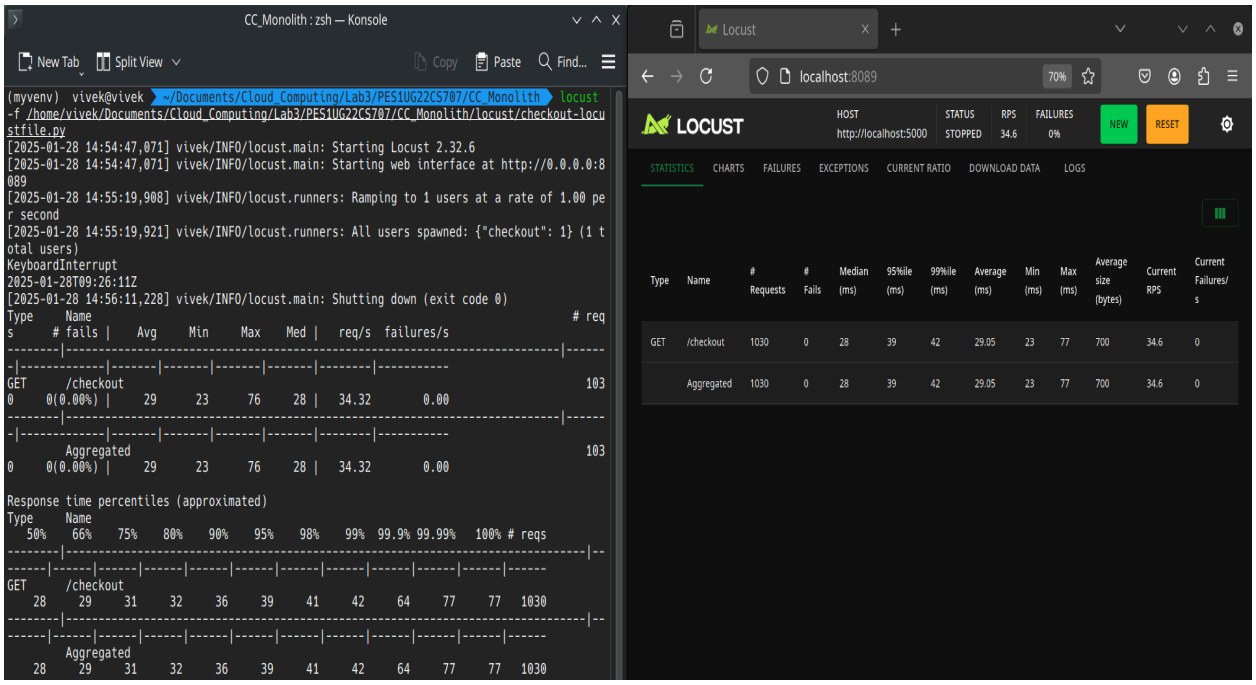
SS2:


Problem loading page
127.0.0.1:5000/checkout
Unable to connect
Firefox can't establish a connection to the server at 127.0.0.1:5000.
• The site could be temporarily unavailable or too busy. Try again in a few moments.
• If you are unable to load any pages, check your computer's network connection.
• If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the web.
Try Again

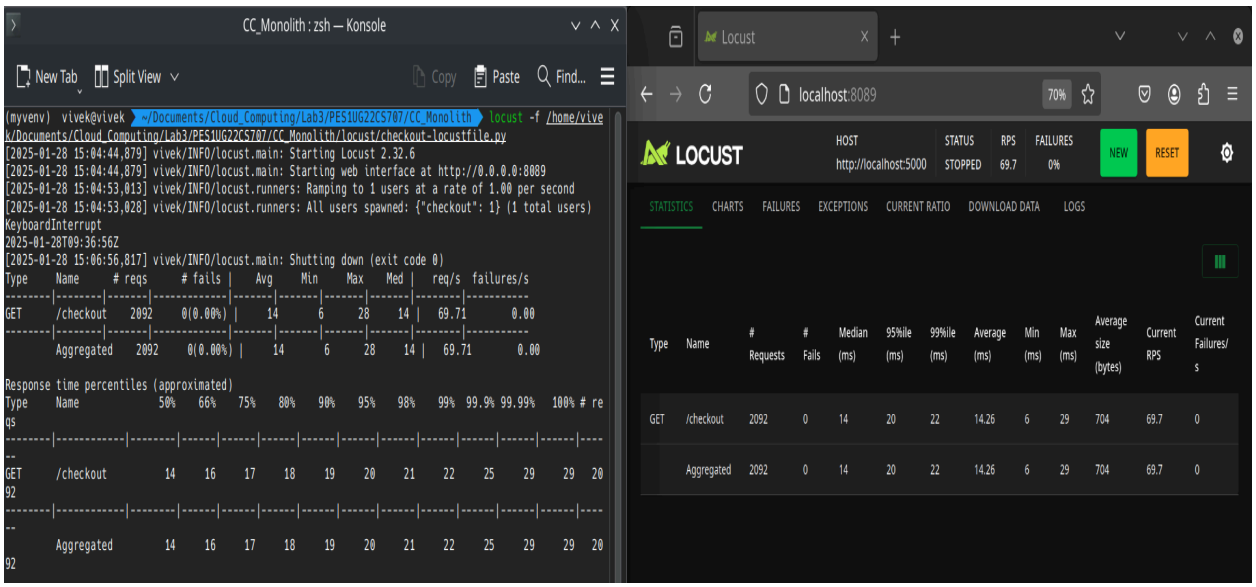
SS3:


PES1UG22CS707 Checkout
127.0.0.1:5000/payment?
The TAs have paid for your order.
Enjoy!!!
Go back to home

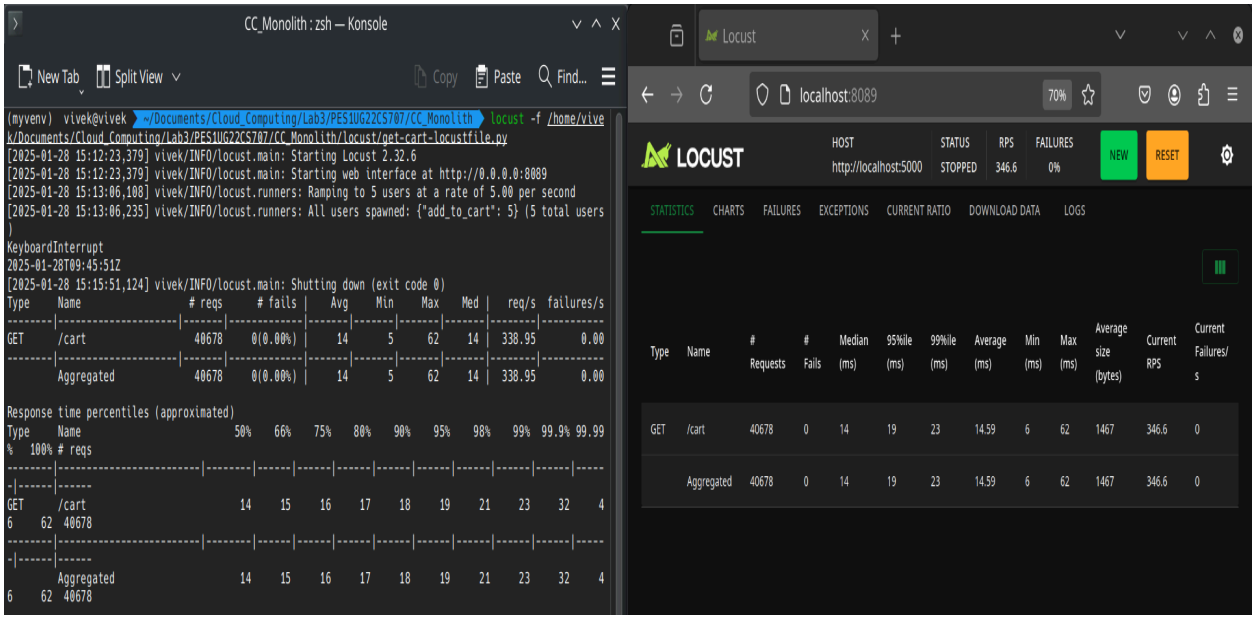
SS4:


CC_Monolith : zsh — Konsole
New Tab
Split View
Copy
Paste
Find...
(myvenv) vivek@vivek ~/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith locust -f /home/vivek/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith/locust/checkout-locustfile.py
[2025-01-28 14:54:47,071] vivek/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 14:54:47,071] vivek/INFO/locust.main: Starting web interface at http://0.0.0.0:8089
[2025-01-28 14:55:19,908] vivek/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2025-01-28 14:55:19,921] vivek/INFO/locust.runners: All users spawned: {"checkout": 1} (1 total users)
KeyboardInterrupt
2025-01-28T09:26:11Z
[2025-01-28 14:56:11,228] vivek/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /checkout 103 0(0.00%) | 29 23 76 28 | 34.32 0.00
Aggregated 103 0(0.00%) | 29 23 76 28 | 34.32 0.00
Response time percentiles (approximated)
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
GET /checkout 28 29 31 32 36 39 41 42 64 77 77 1030
Aggregated 28 29 31 32 36 39 41 42 64 77 77 1030
Locust
localhost:8089
70%
LOCUST
HOST http://localhost:5000
STATUS STOPPED
RPS 34.6
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 /checkout 1030 0 28 39 42 29.05 23 77 700 34.6 0
Aggregated 1030 0 28 39 42 29.05 23 77 700 34.6 0

SS5:


CC_Monolith : zsh — Konsole
New Tab
Split View
Copy
Paste
Find...
(myvenv) vivek@vivek ~/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith locust -f /home/vivek/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith/locust/checkout-locustfile.py
[2025-01-28 15:04:44,879] vivek/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 15:04:44,879] vivek/INFO/locust.main: Starting web interface at http://0.0.0.0:8089
[2025-01-28 15:04:53,013] vivek/INFO/locust.runners: Ramping to 1 users at a rate of 1.00 per second
[2025-01-28 15:04:53,028] vivek/INFO/locust.runners: All users spawned: {"checkout": 1} (1 total users)
KeyboardInterrupt
2025-01-28T09:36:56Z
[2025-01-28 15:06:56,817] vivek/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /checkout 2092 0(0.00%) | 14 6 28 14 | 69.71 0.00
Aggregated 2092 0(0.00%) | 14 6 28 14 | 69.71 0.00
Response time percentiles (approximated)
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
GET /checkout 14 16 17 18 19 20 21 22 25 29 29 2092
Aggregated 14 16 17 18 19 20 21 22 25 29 29 2092
Locust
localhost:8089
70%
LOCUST
HOST http://localhost:5000
STATUS STOPPED
RPS 69.7
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 /checkout 2092 0 14 20 22 14.26 6 29 704 69.7 0
Aggregated 2092 0 14 20 22 14.26 6 29 704 69.7 0

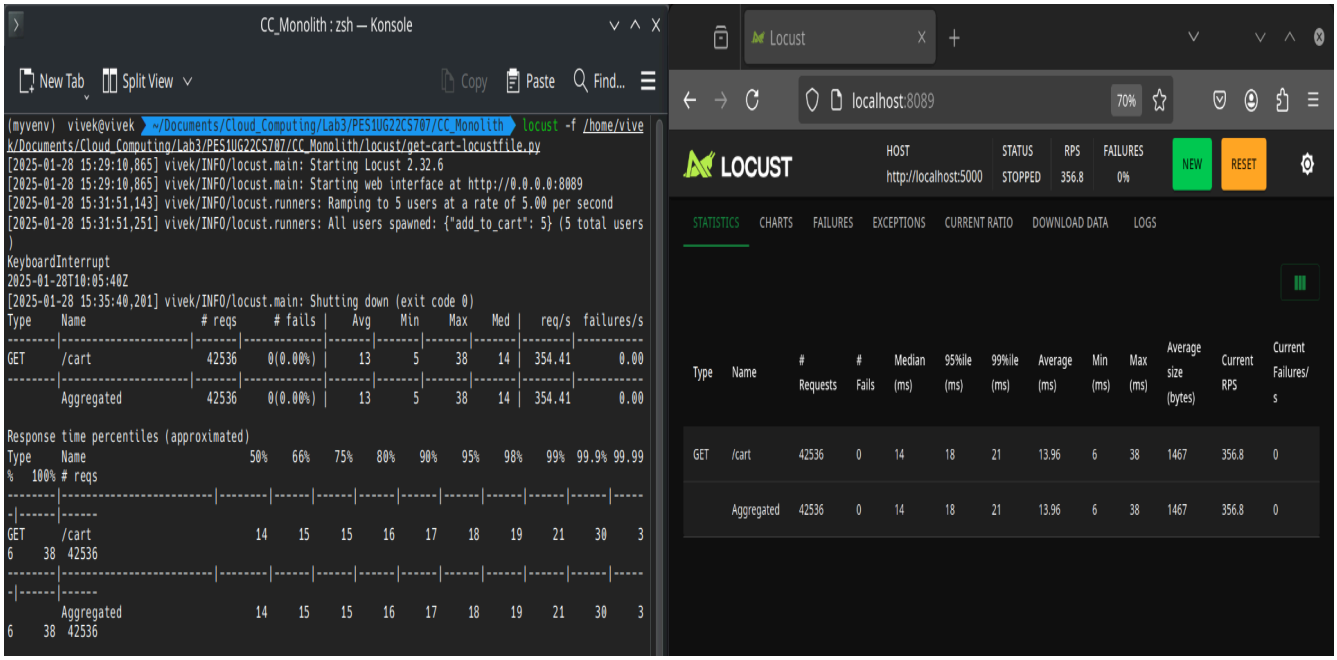
SS6:



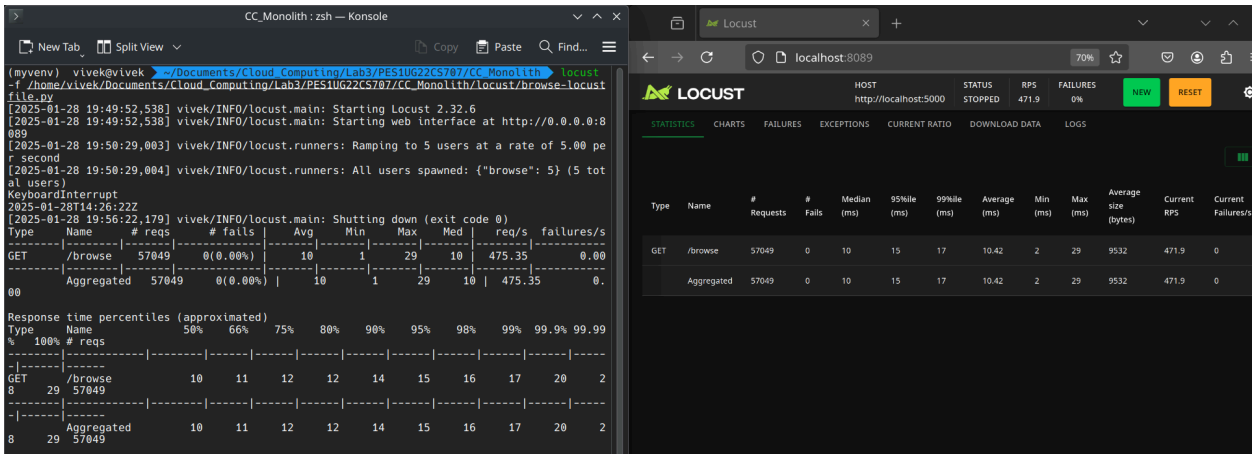
SS7:

Here, we wanted to optimize the /cart route.
The following optimizations were made:

(1) In the __init__ .py file under the cart directory, List comprehensions are used in place of for loops since List comprehensions are implemented in C at the interpreter level, making them more efficient than the equivalent for loop with list.append(), which involves additional overhead from Python's function calls
(2) The dao.py file under the cart directory is updated by removing a redundant for loop and directly appending the rows to final_cart.


CC_Monolith : zsh — Konsole
New Tab
Split View
Copy
Paste
Find...
(myvenv) vivek@vivek ~/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith locust -f /home/vivek/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith/locust/get-cart-locustfile.py
[2025-01-28 15:29:10,865] vivek/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 15:29:10,865] vivek/INFO/locust.main: Starting web interface at http://0.0.0.0:8089
[2025-01-28 15:31:51,143] vivek/INFO/locust.runners: Ramping to 5 users at a rate of 5.00 per second
[2025-01-28 15:31:51,251] vivek/INFO/locust.runners: All users spawned: {"add_to_cart": 5} (5 total users)
KeyboardInterrupt
2025-01-28T10:05:40Z
[2025-01-28 15:35:40,201] vivek/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /cart 42536 0(0.00%) | 13 5 38 14 | 354.41 0.00
Aggregated 42536 0(0.00%) | 13 5 38 14 | 354.41 0.00
Response time percentiles (approximated)
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
GET /cart 14 15 15 16 17 18 19 21 30 38 42536
Aggregated 14 15 15 16 17 18 19 21 30 38 42536
Locust
localhost:8089
70%
LOCUST
HOST http://localhost:5000
STATUS STOPPED
RPS 356.8
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 /cart 42536 0 14 18 21 13.96 6 38 1467 356.8 0
Aggregated 42536 0 14 18 21 13.96 6 38 1467 356.8 0

SS8:


CC_Monolith : zsh — Konsole
New Tab
Split View
Copy
Paste
Find...
(myvenv) vivek@vivek ~/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith locust -f /home/vivek/Documents/Cloud_Computing/Lab3/PES1UG22CS707/CC_Monolith/locust/browse-locustfile.py
[2025-01-28 19:49:52,538] vivek/INFO/locust.main: Starting Locust 2.32.6
[2025-01-28 19:49:52,538] vivek/INFO/locust.main: Starting web interface at http://0.0.0.0:8089
[2025-01-28 19:50:29,003] vivek/INFO/locust.runners: Ramping to 5 users at a rate of 5.00 per second
[2025-01-28 19:50:29,004] vivek/INFO/locust.runners: All users spawned: {"browse": 5} (5 total users)
KeyboardInterrupt
2025-01-28T14:26:22Z
[2025-01-28 19:56:22,179] vivek/INFO/locust.main: Shutting down (exit code 0)
Type Name # reqs # fails | Avg Min Max Med | req/s failures/s
GET /browse 57049 0(0.00%) | 10 1 29 10 | 475.35 0.00
Aggregated 57049 0(0.00%) | 10 1 29 10 | 475.35 0.00
Response time percentiles (approximated)
Type Name 50% 66% 75% 80% 90% 95% 98% 99% 99.9% 99.99% 100% # reqs
GET /browse 10 11 12 12 14 15 16 17 20 29 57049
Aggregated 10 11 12 12 14 15 16 17 20 29 57049
Locust
localhost:8089
70%
LOCUST
HOST http://localhost:5000
STATUS STOPPED
RPS 471.9
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 /browse 57049 0 10 15 17 10.42 2 29 9532 471.9 0
Aggregated 57049 0 10 15 17 10.42 2 29 9532 471.9 0

SS9:

Here, we wanted to optimize the /browse route.
The following optimizations were made:

(1) All for loops in __init__.py and dao.py were replaced by list comprehension since List comprehensions are implemented in C at the interpreter level, making them more efficient than the equivalent for loop with list.append(), which involves additional overhead from Python's function calls