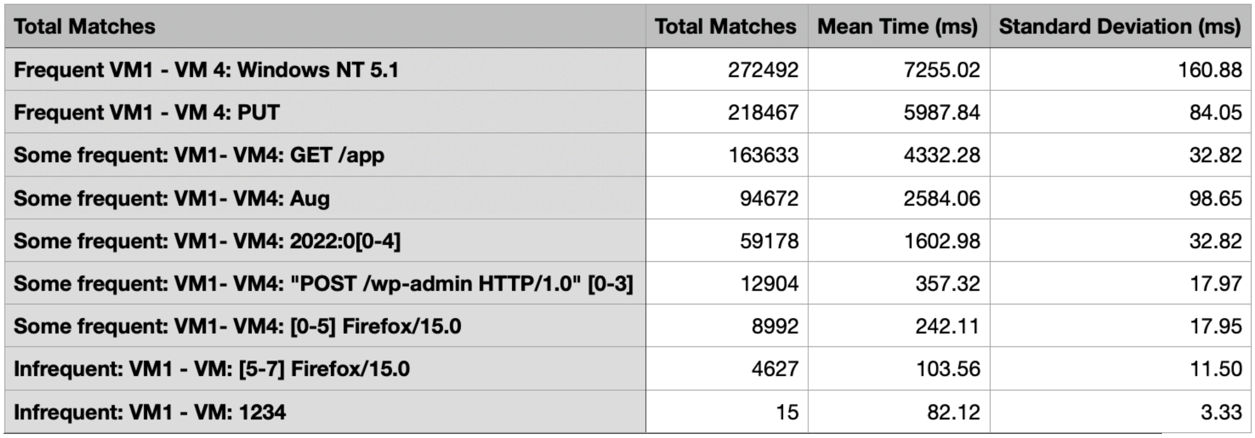
Client.py: Uses TCP sockets to connect to multiple servers concurrently via multithreading. Sends a search query to each server, receiving results in chunks until an "EOF" marker is reached. Aggregates total matches using a global counter and stores the results for each log file in a dictionary. **Server.py:** Listens for client connections on a specific port. Upon receiving a query, runs grep over log files, returning matching lines and total matches. Sends the results to the client, then closes the connection.

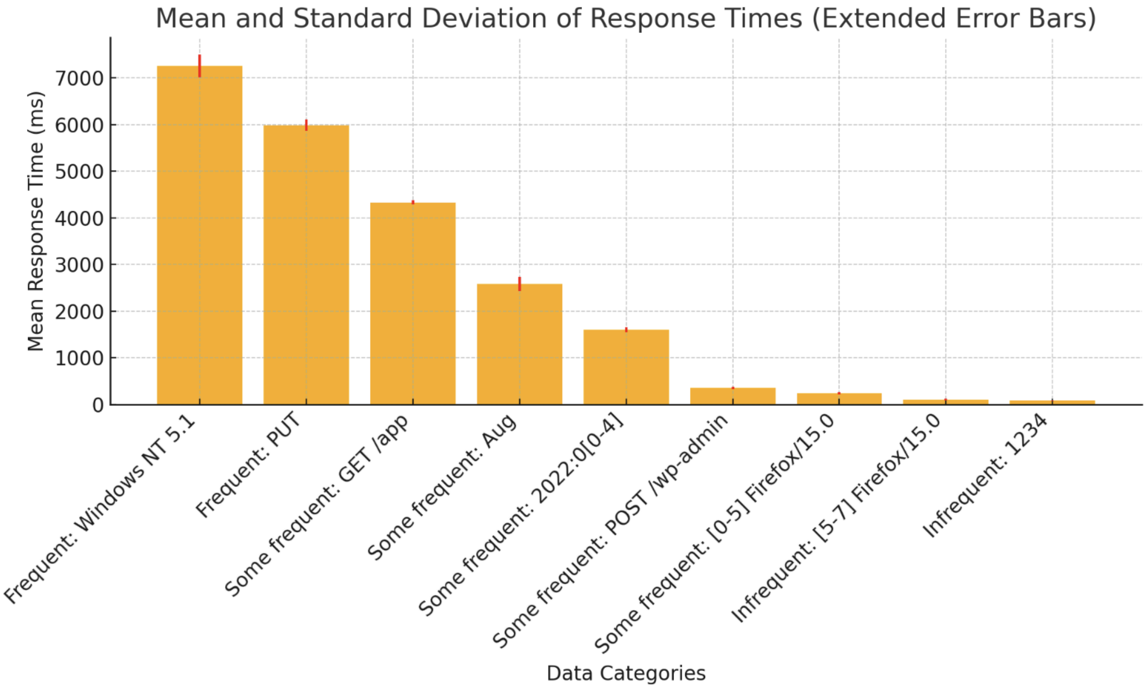
Unit Test Overview: Mocks grep output for different VMs, including frequent, some frequent, and infrequent patterns. Verifies correct log processing and match counts.

Trends: Frequent VM categories (e.g., Windows NT 5.1, PUT) show higher response times (~7000 ms and ~6000 ms) compared to less frequent ones (e.g., Firefox/15.0, 1234), which have much faster processing. Low standard deviation indicates consistent performance across most categories, except for a few high-traffic ones with slightly more variability.

Expectations: These trends are expected. Frequent requests handle more traffic, leading to slower response times, while infrequent queries are processed faster. The low standard deviation suggests stable performance overall, with some variation in high-traffic categories.



Total Matches	Total Matches	Mean Time (ms)	Standard Deviation (ms)
Frequent VM1 - VM 4: Windows NT 5.1	272492	7255.02	160.88
Frequent VM1 - VM 4: PUT	218467	5987.84	84.05
Some frequent: VM1- VM4: GET /app	163633	4332.28	32.82
Some frequent: VM1- VM4: Aug	94672	2584.06	98.65
Some frequent: VM1- VM4: 2022:0[0-4]	59178	1602.98	32.82
Some frequent: VM1- VM4: "POST /wp-admin HTTP/1.0" [0-3]	12904	357.32	17.97
Some frequent: VM1- VM4: [0-5] Firefox/15.0	8992	242.11	17.95
Infrequent: VM1 - VM: [5-7] Firefox/15.0	4627	103.56	11.50
Infrequent: VM1 - VM: 1234	15	82.12	3.33


Mean and Standard Deviation of Response Times (Extended Error Bars)
Mean Response Time (ms)
Frequent: Windows NT 5.1
Frequent: PUT
Some frequent: GET /app
Some frequent: Aug
Some frequent: 2022:0[0-4]
Some frequent: POST /wp-admin
Some frequent: [0-5] Firefox/15.0
Infrequent: [5-7] Firefox/15.0
Infrequent: 1234
Data Categories