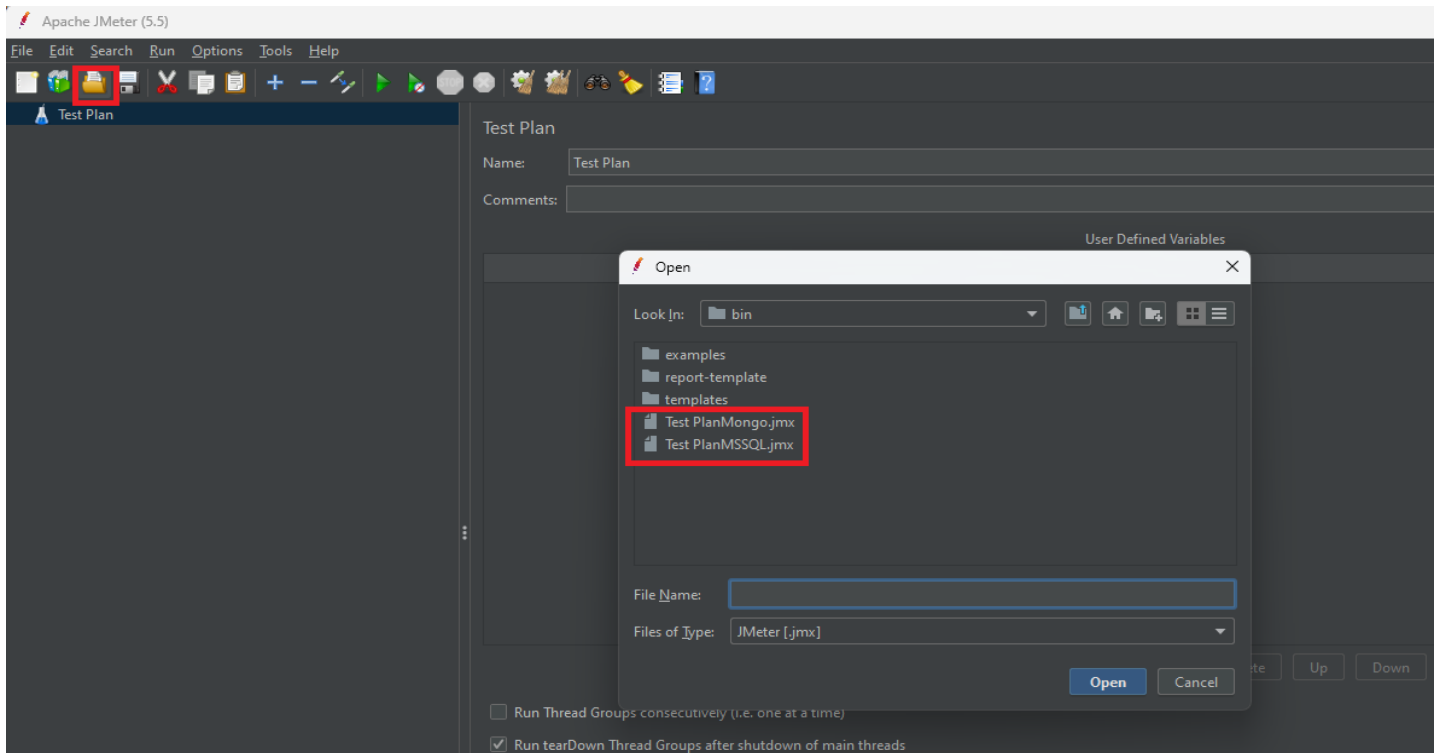


Demo so sánh giữa SQLServer với MongoDB

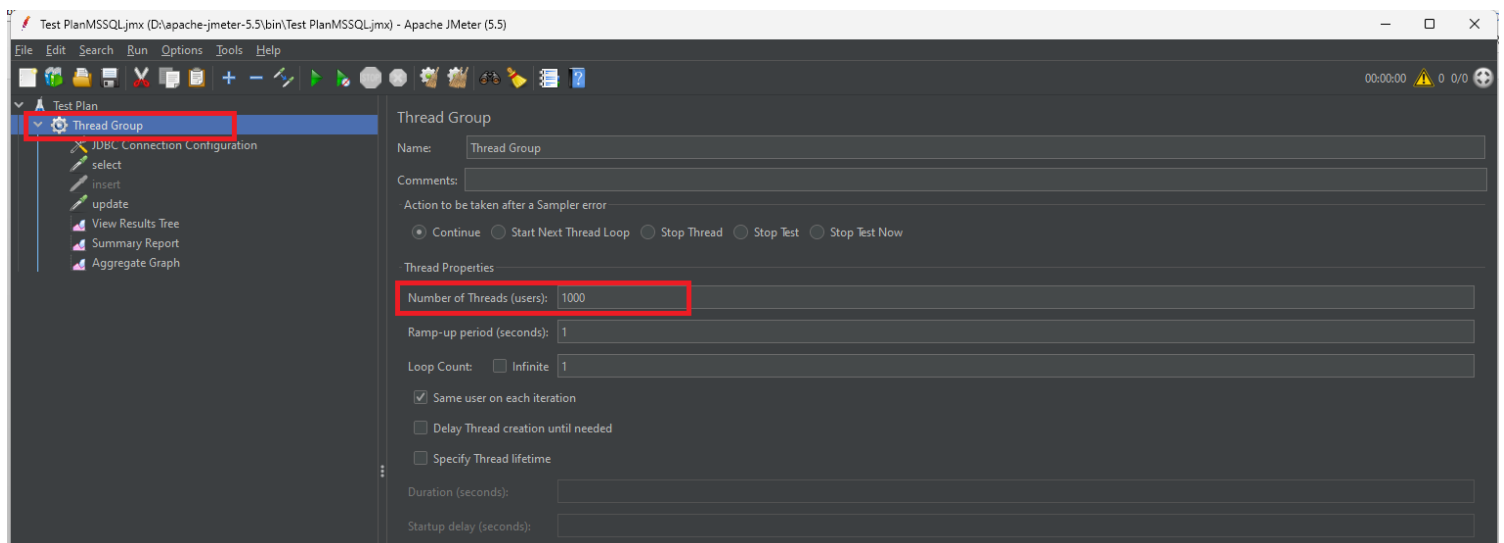
I. Các bước thực hiện

Các bước thực hiện so sánh sql server và mongoDB bằng Jmeter:

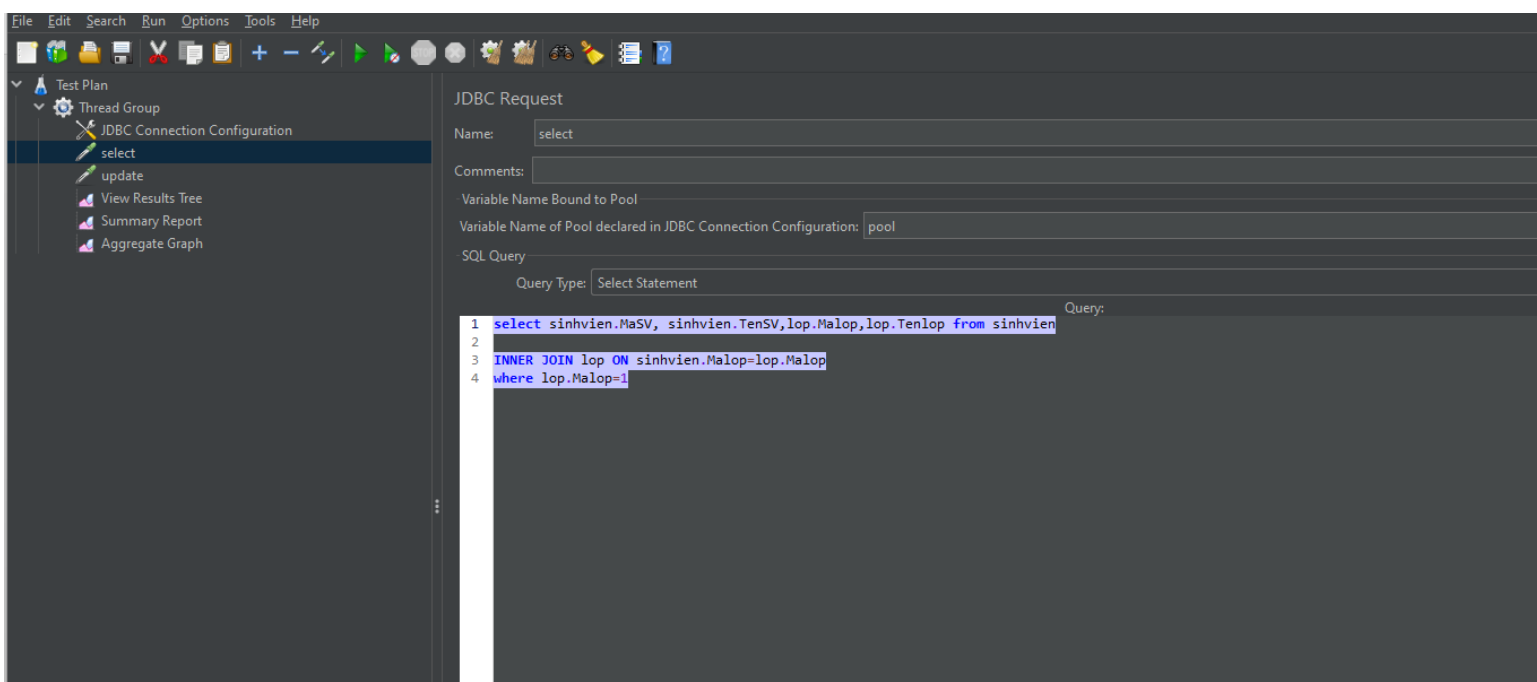
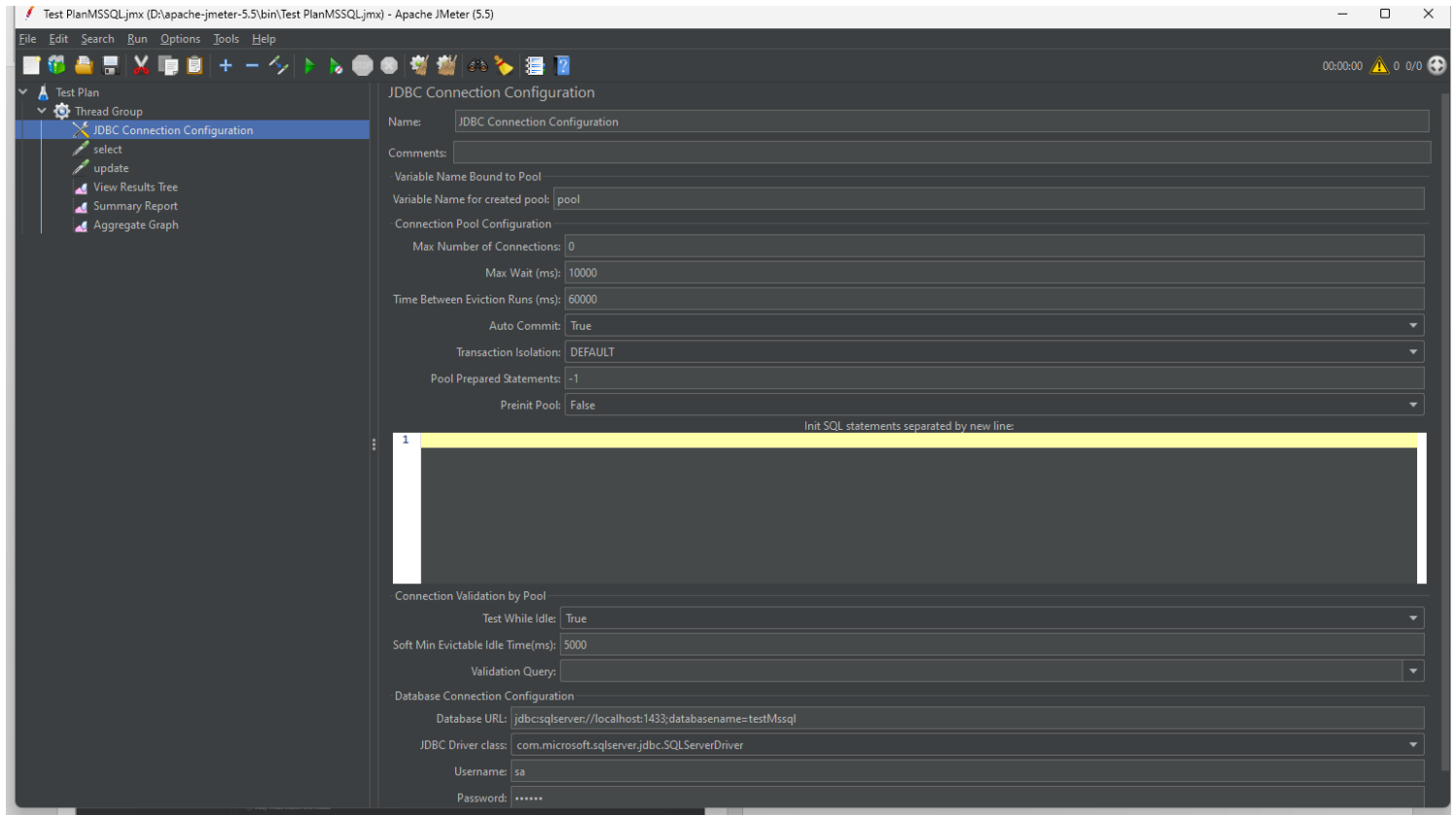
- Tải file apache-jmeter-5.5 và giải nén
- Mở ứng dụng Apache jmeter , chọn Open → Mở file **Test PlanMSSQL.jmx**(Khi thực hiện test SQL Server) hoặc **Test PlanMongo.jmx**(Khi thực hiện test MongoDB)



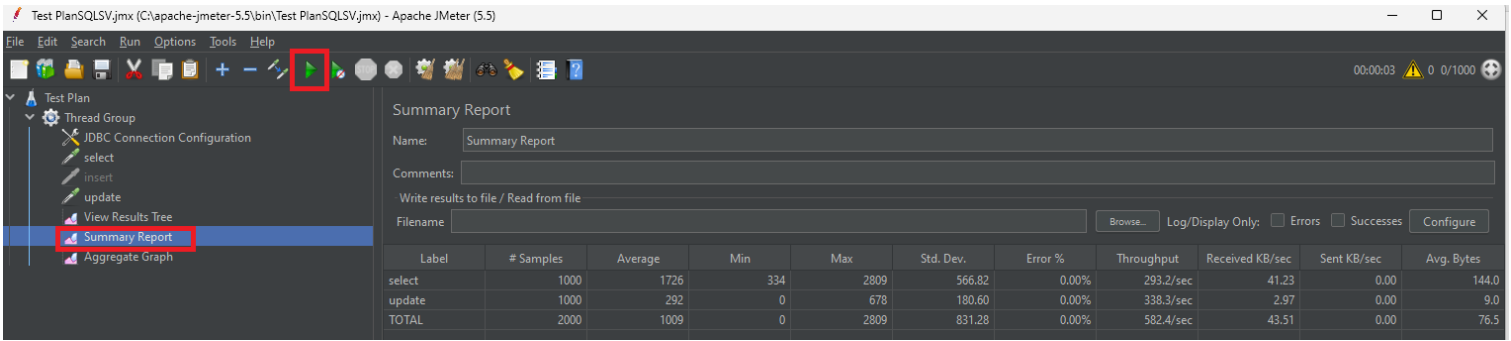
- Chọn số user thực hiện test ở phần theard group



- Cấu hình kết nối ở JDBC Connection Configuration, Các thao tác truy vấn, update ở JDBC Request



- Chọn Start và xem thông kê ở **Summary Report**



II. Kết quả so sánh

Sử dụng Jmeter để thực hiện so sánh:

1. So sánh tốc độ truy vấn

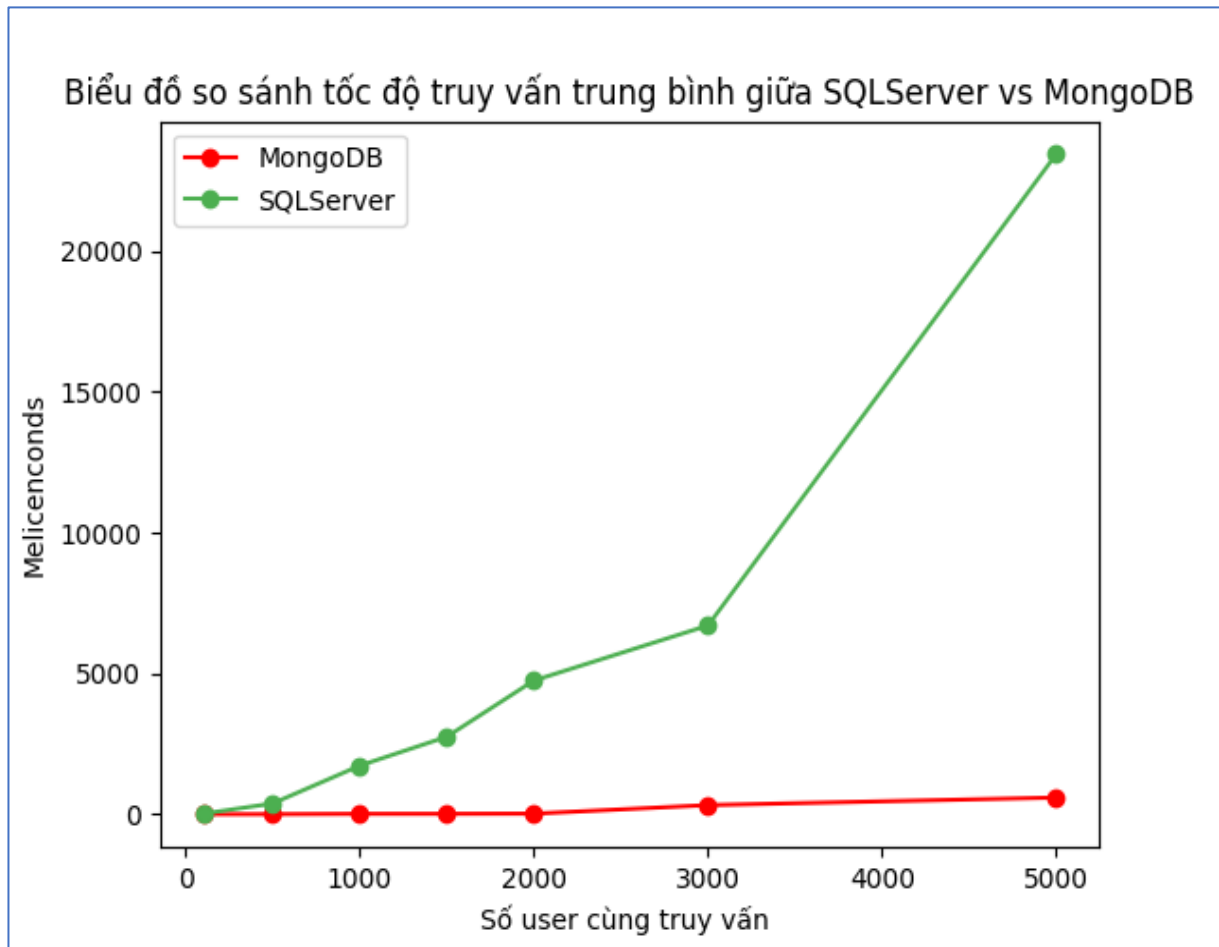
Câu lệnh truy vấn thực hiện:

SQL Server	MongoDB
select sinhvien.MaSV, sinhvien.TenSV,lop.Malop,lop.Ten lop from sinhvien INNER JOIN lop ON sinhvien.Malop=lop.Malop where lop.Malop=1	db.getCollection("SINHVIEN").find(eq("Malop", "1")) Câu lệnh truy vấn thực hiện:

Bảng thống kê kết quả:

Số user cùng truy vấn	100	500	1000	1500	2000	3000	5000
	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)
SQL Server	20	385	1726	2754	4747	6701	43429
MongoDB	2	5	16	17	23	326	594

Biểu đồ:



1. So sánh tốc độ cập nhật

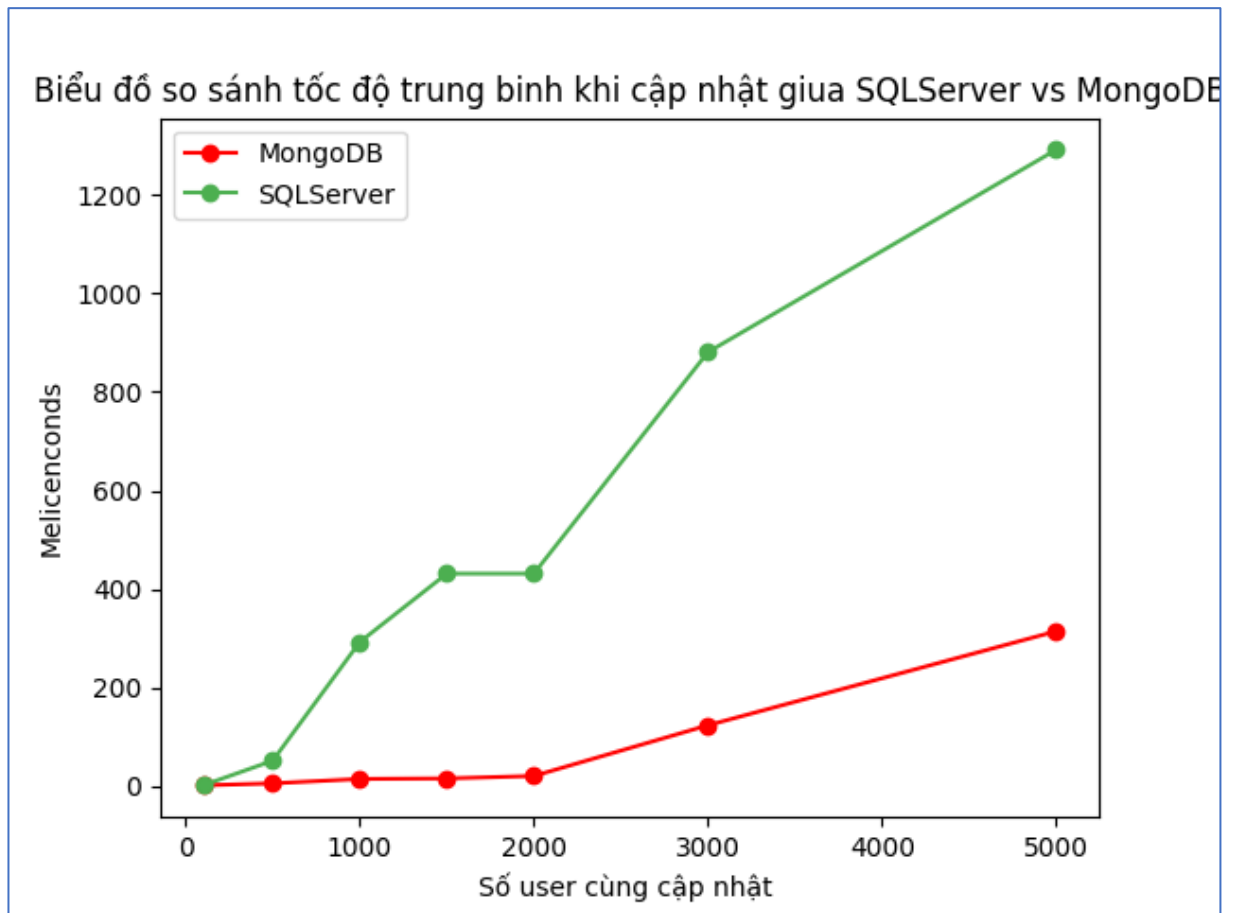
Câu lệnh truy vấn thực hiện:

SQL Server	MongoDB
UPDATE lop SET Tenlop = '2'	collection.updateOne({}, { \$set: { "Tenlop" : "2" } })

Bảng thống kê kết quả:

Số user cùng truy vấn	100	500	1000	1500	2000	3000	5000
	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)	Thời gian tb (ms)
SQL Server	1	51	292	431	431	881	1292
MongoDB	1	5	14	15	20	123	314

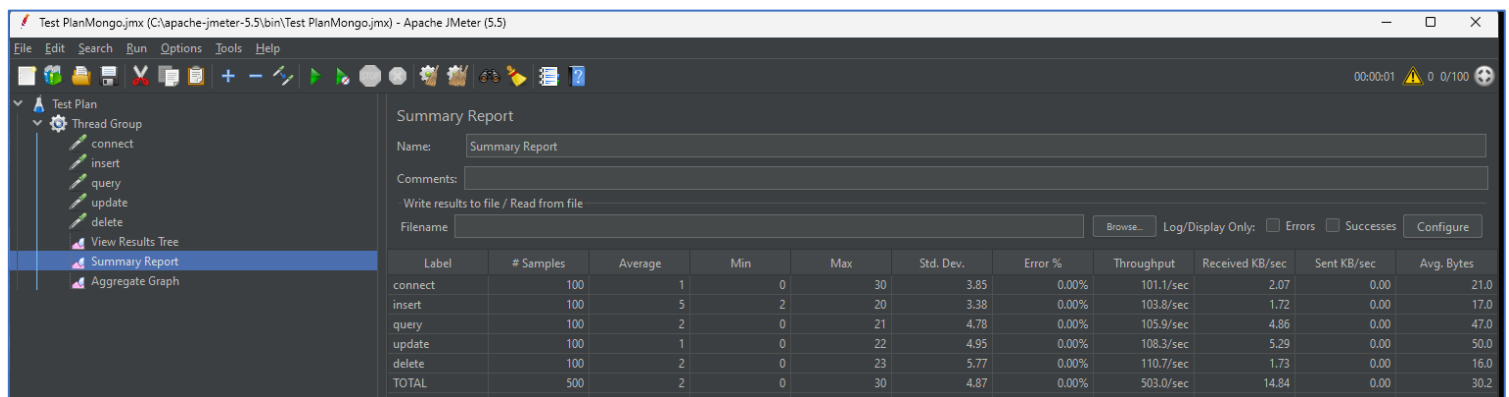
Biểu đồ:



3. Hình ảnh kết quả của Jmeter

Khi thực hiện với MongoDB:

- TH 100 user:



- TH 500 user:

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	500	4	0	51	9.65	0.00%	501.0/sec	10.27	0.00	21.0
insert	500	13	3	60	14.79	0.00%	526.9/sec	8.75	0.00	17.0
query	500	5	0	41	10.65	0.00%	558.0/sec	25.61	0.00	47.0
update	500	5	0	42	11.52	0.00%	584.8/sec	28.55	0.00	50.0
delete	500	4	0	43	10.46	0.00%	619.6/sec	9.68	0.00	16.0
TOTAL	2500	6	0	60	12.09	0.00%	2490.0/sec	73.44	0.00	30.2

- TH 1000 user:

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	1000	22	0	167	32.88	0.00%	959.7/sec	19.68	0.00	21.0
insert	1000	559	74	1234	292.92	0.00%	598.8/sec	9.94	0.00	17.0
query	1000	16	0	177	29.63	0.00%	632.9/sec	29.05	0.00	47.0
update	1000	14	0	156	26.47	0.00%	670.2/sec	32.73	0.00	50.0
delete	1000	15	0	146	32.29	0.00%	739.1/sec	11.55	0.00	16.0
TOTAL	5000	125	0	1234	254.77	0.00%	2883.5/sec	85.04	0.00	30.2

- TH 1500 user:

Summary Report

Name: Summary Report

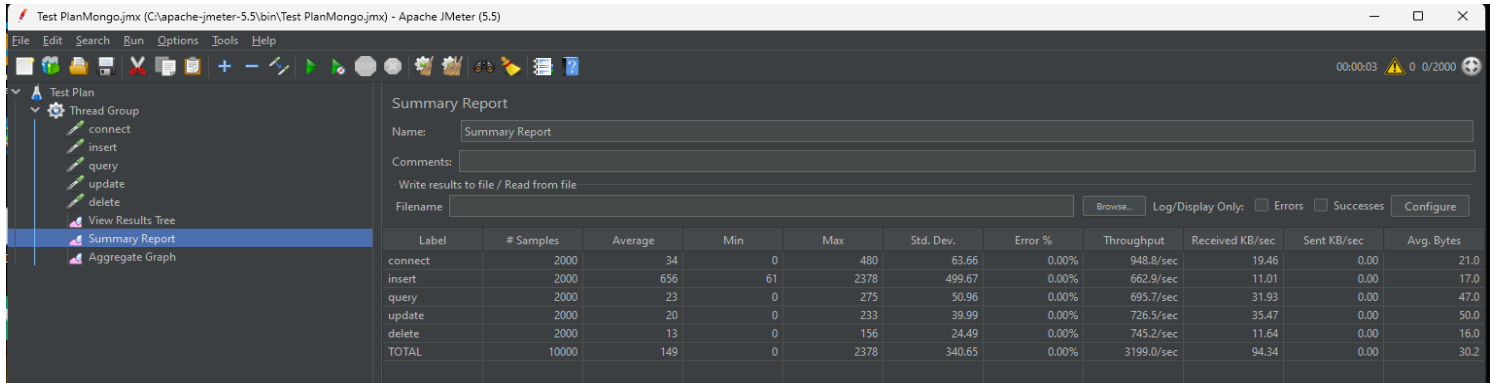
Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	1500	23	0	261	45.74	0.00%	999.3/sec	20.49	0.00	21.0
insert	1500	485	19	2101	421.00	0.00%	670.2/sec	11.13	0.00	17.0
query	1500	17	0	251	38.79	0.00%	732.8/sec	33.63	0.00	47.0
update	1500	15	0	238	26.84	0.00%	760.6/sec	37.14	0.00	50.0
delete	1500	11	0	150	18.86	0.00%	784.1/sec	12.25	0.00	16.0
TOTAL	7500	110	0	2101	267.32	0.00%	3262.3/sec	96.21	0.00	30.2

- TH 2000 user:



Summary Report

Name: Summary Report

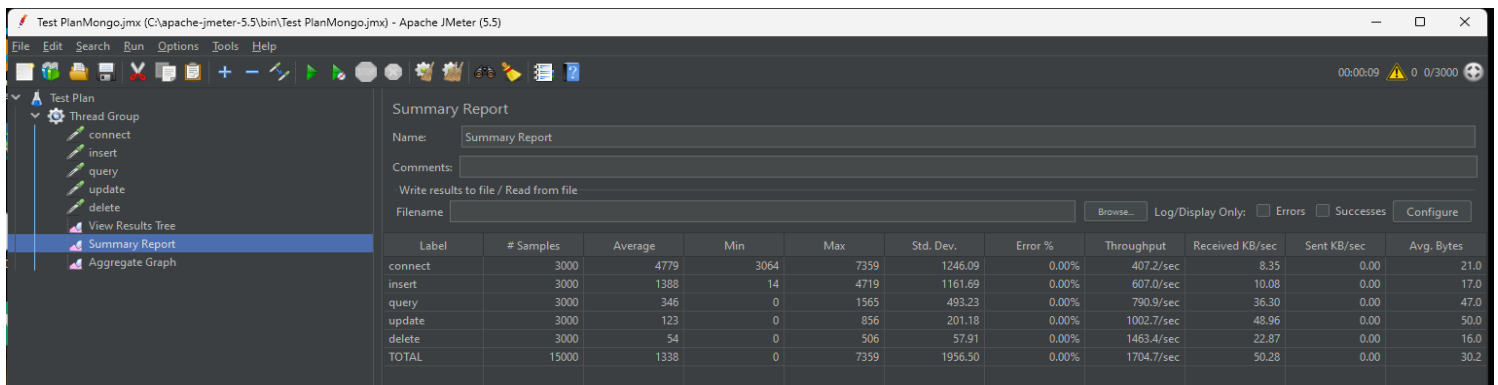
Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	2000	34	0	480	63.66	0.00%	948.8/sec	19.46	0.00	21.0
insert	2000	656	61	2378	499.67	0.00%	662.9/sec	11.01	0.00	17.0
query	2000	23	0	275	50.96	0.00%	695.7/sec	31.93	0.00	47.0
update	2000	20	0	233	39.99	0.00%	726.5/sec	35.47	0.00	50.0
delete	2000	13	0	156	24.49	0.00%	745.2/sec	11.64	0.00	16.0
TOTAL	10000	149	0	2378	340.65	0.00%	3199.0/sec	94.34	0.00	30.2

- TH 3000 user:



Summary Report

Name: Summary Report

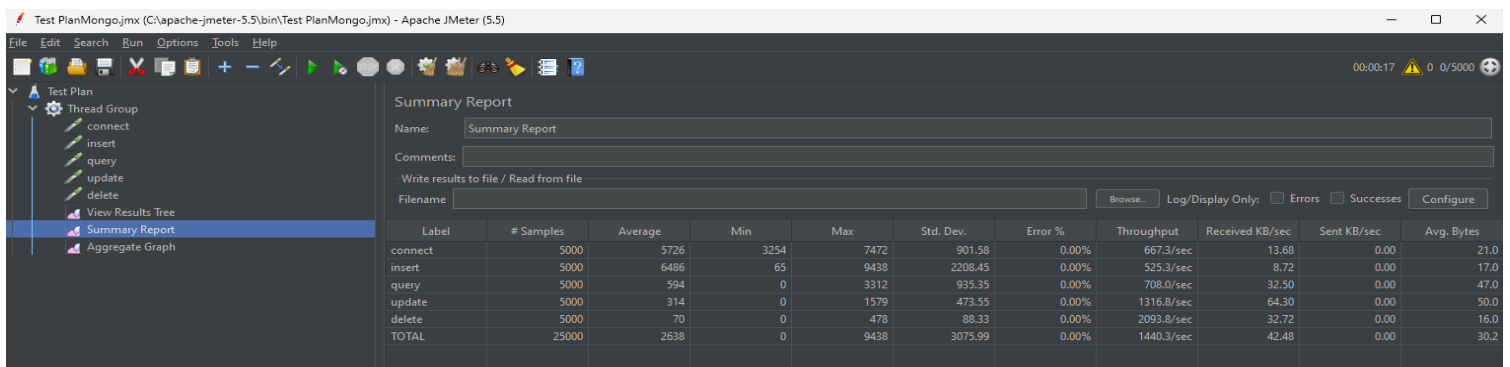
Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	3000	4779	3064	7359	1246.09	0.00%	407.2/sec	8.35	0.00	21.0
insert	3000	1388	14	4719	1161.69	0.00%	607.0/sec	10.08	0.00	17.0
query	3000	346	0	1565	493.23	0.00%	790.9/sec	36.30	0.00	47.0
update	3000	123	0	856	201.18	0.00%	1002.7/sec	48.96	0.00	50.0
delete	3000	54	0	506	57.91	0.00%	1463.4/sec	22.87	0.00	16.0
TOTAL	15000	1338	0	7359	1956.50	0.00%	1704.7/sec	50.28	0.00	30.2

- TH 5000 user:



Summary Report

Name: Summary Report

Comments:

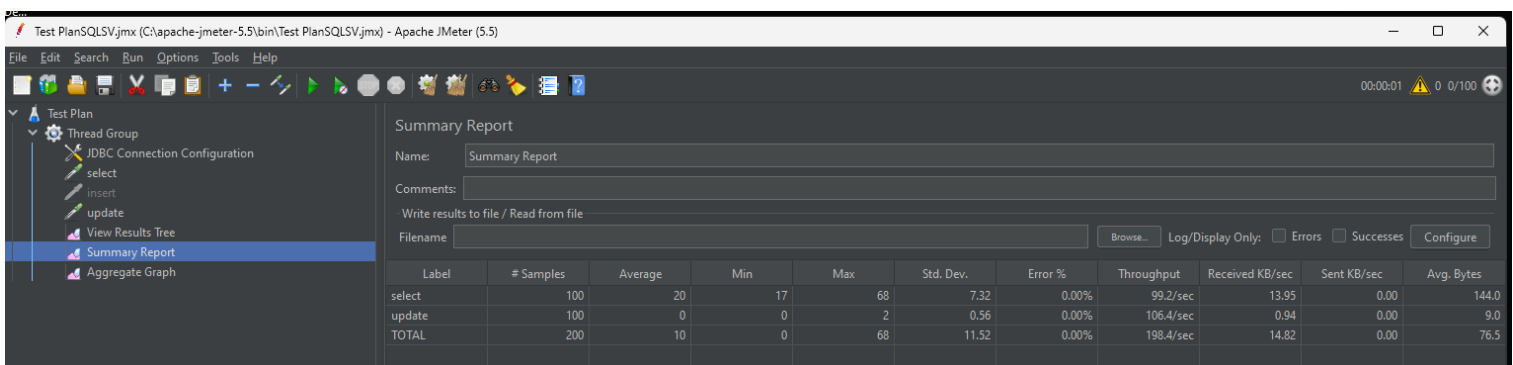
Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
connect	5000	5726	3254	7472	901.58	0.00%	667.3/sec	13.68	0.00	21.0
insert	5000	6486	65	9438	2208.45	0.00%	525.3/sec	8.72	0.00	17.0
query	5000	594	0	3312	935.35	0.00%	708.0/sec	32.50	0.00	47.0
update	5000	314	0	1579	473.55	0.00%	1316.8/sec	64.30	0.00	50.0
delete	5000	70	0	478	88.33	0.00%	2093.8/sec	32.72	0.00	16.0
TOTAL	25000	2638	0	9438	3075.99	0.00%	1440.3/sec	42.48	0.00	30.2

Khi thực hiện với SQL Server:

- TH 100 user:



Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
select	100	20	17	68	7.32	0.00%	99.2/sec	13.95	0.00	144.0
update	100	0	0	2	0.56	0.00%	106.4/sec	0.94	0.00	9.0
TOTAL	200	10	0	68	11.52	0.00%	198.4/sec	14.82	0.00	76.5

- TH 500 user:

The screenshot shows the Apache JMeter 5.5 Summary Report for a test plan named 'Test PlanSQLSV.jmx'. The test plan includes a Thread Group with a JDBCC Connection Configuration and three test elements: 'select', 'insert', and 'update'. The Summary Report table shows the following data:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
select	500	385	57	902	188.30	0.00%	300.8/sec	42.31	0.00	144.0
update	500	51	0	158	34.56	0.00%	324.3/sec	2.85	0.00	9.0
TOTAL	1000	218	0	902	215.06	0.00%	601.7/sec	44.95	0.00	76.5

- TH 1000 user:

The screenshot shows the Apache JMeter 5.5 Summary Report for a test plan named 'Test PlanSQLSV.jmx'. The test plan includes a Thread Group with a JDBCC Connection Configuration and three test elements: 'select', 'insert', and 'update'. The Summary Report table shows the following data:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
select	1000	1726	334	2809	566.82	0.00%	293.2/sec	41.23	0.00	144.0
update	1000	292	0	678	180.60	0.00%	338.3/sec	2.97	0.00	9.0
TOTAL	2000	1009	0	2809	831.28	0.00%	582.4/sec	43.51	0.00	76.5

- TH 1500 user:

The screenshot shows the Apache JMeter 5.5 Summary Report for a test plan named 'Test PlanSQLSV.jmx'. The test plan includes a Thread Group with a JDBCC Connection Configuration and three test elements: 'select', 'insert', and 'update'. The Summary Report table shows the following data:

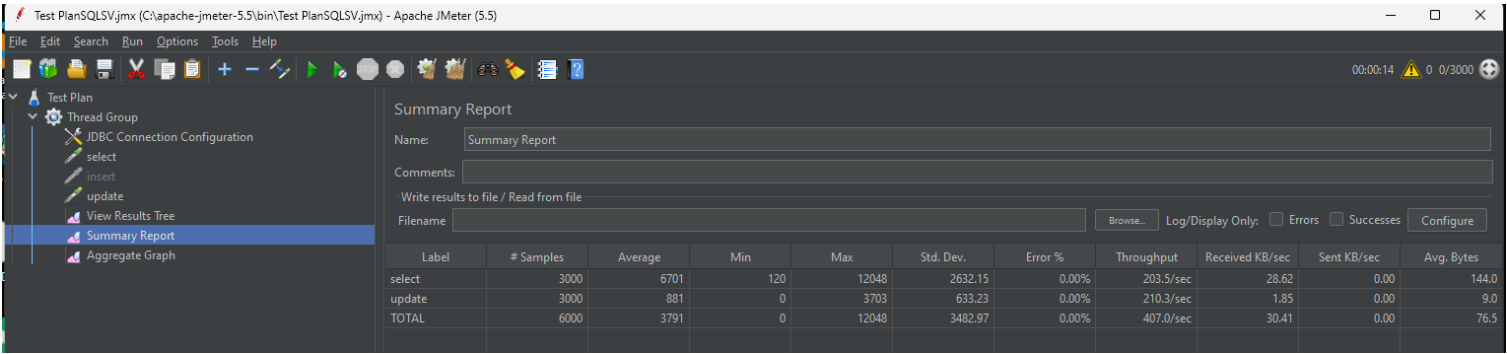
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
select	1500	2752	489	4589	1034.65	0.00%	295.7/sec	41.58	0.00	144.0
update	1500	431	0	899	229.35	0.00%	344.5/sec	3.03	0.00	9.0
TOTAL	3000	1591	0	4589	1381.49	0.00%	579.7/sec	43.31	0.00	76.5

- TH 2000 user:

The screenshot shows the Apache JMeter 5.5 Summary Report for a test plan named 'Test PlanSQLSV.jmx'. The test plan includes a Thread Group with a JDBCC Connection Configuration and three test elements: 'select', 'insert', and 'update'. The Summary Report table shows the following data:

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
select	2000	4747	469	7731	1634.98	0.00%	247.9/sec	34.86	0.00	144.0
update	2000	431	1	1628	345.72	0.00%	262.9/sec	2.31	0.00	9.0
TOTAL	4000	2589	1	7731	2460.38	0.00%	490.7/sec	36.66	0.00	76.5

- TH 3000 user:



- TH 5000 user:

