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UNLIMITED®

Lab 4: Indexing to Avoid Blocking

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Setting up for lab 4 (20 minutes)

1. Restart your SQL Server service (clear all stats)
2. Restore your StackOverflow database (Agent job)
3. Copy & run the setup script for Lab 4
4. Start SQLQueryStress with the lab #4 workload:
 1. File Explorer, \Labs, SQLQueryStress.exe
 2. Click File, Open, \Labs\IndexLab4.json, Go

In this one, lots of deadlock exceptions are expected.



Doing the lab later?

Set this to 100000.

A screenshot of a software interface showing a text input field labeled 'Number of Iterations'. The field contains the number '20' and has a small spinner control on the right side.

This makes sure your VM stays busy til you're ready.

For the success test, you'll be using the regular iterations to see if the test completes quickly enough.



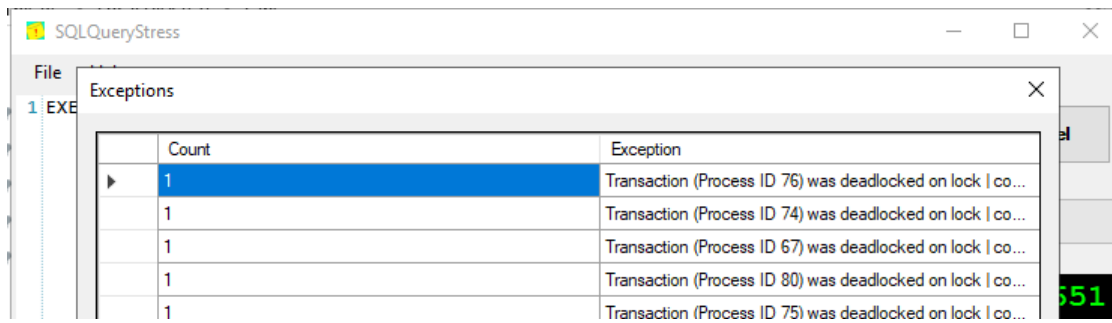
You'll get more errors in this one.

The screenshot shows the SQLQueryStress application window. The left pane contains the query: `1 EXEC usp_IndexLab4`. The right pane displays various settings and performance metrics.

Setting	Value
Database	
Parameter Substitution	
Number of Iterations	100
Number of Threads	5
Delay between queries (ms)	100
CPU Seconds/Iteration (Avg)	4.6357
Actual Seconds/Iteration (Avg)	24.7681
Elapsed Time	00:00:33.5980
Iterations Completed	17
Client Seconds/Iteration (Avg)	12.8265
Total Exceptions	8
Logical Reads/Iteration (Avg)	165572.1111

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They're gonna be deadlocks.



The screenshot shows the SQLQueryStress application window. An 'Exceptions' dialog box is open, displaying a table with deadlock error details. The table has two columns: 'Count' and 'Exception'. There are five rows, each showing a count of 1 and a specific deadlock message involving different process IDs (76, 74, 67, 80, 75) and a common lock resource.

Count	Exception
1	Transaction (Process ID 76) was deadlocked on lock co...
1	Transaction (Process ID 74) was deadlocked on lock co...
1	Transaction (Process ID 67) was deadlocked on lock co...
1	Transaction (Process ID 80) was deadlocked on lock co...
1	Transaction (Process ID 75) was deadlocked on lock co...

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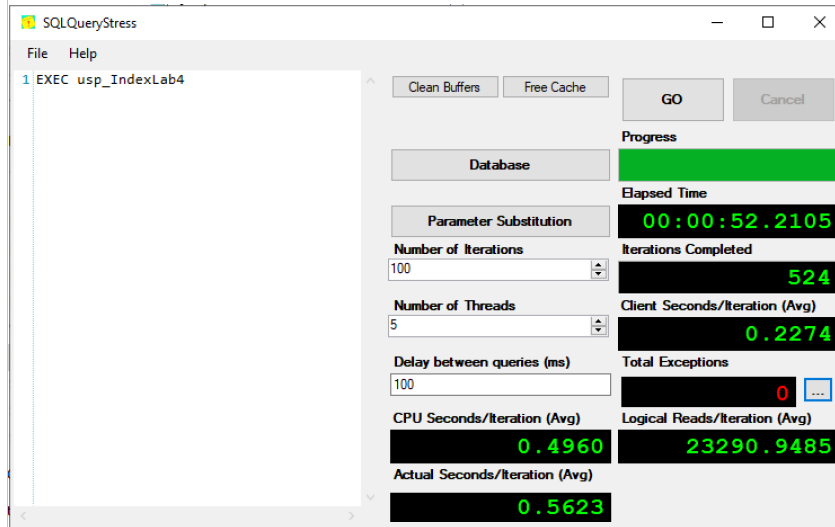
You can use any tool in this lab.

I'll just flat out tell you: you have blocking problems.

1. Use `sp_BlitzIndex`, `sp_BlitzCache`, `sp_BlitzLock`, `sp_BlitzWho`, `sp_WhoIsActive`, or all five.
2. Script out changes you want to make, aiming for:
 - 5 or less indexes per table
 - 5 or less fields per index
3. In Slack, tell me what index changes you made, and why.



With just index changes, you can get the load test to run in 1 minute.



How I'd budget this hour

10-15 minutes: run `sp_BlitzIndex`, pick one table, and do the DEATH Method on it.

Repeat that process 3x-4x to improve a few tables, implement your changes, post your changes in Slack.

Last: rerun the load test, see if it finishes in 2 minutes.



Want to do the lab in the morning?

Number of Iterations	100
Number of Threads	5
Delay between queries (ms)	100

Instead of 100 iterations, change that to 1000000 so it runs overnight and piles up lots of data in the DMVs.

