Setting up for the lab

1. Restart your SQL Server service (clears all stats)
2. Restore your StackOverflow database (Agent job)
3. Copy & run the setup script for Lab 1
4. (No SQLQueryStress for this lab)

We're starting simple.

I'm flat out telling you which queries to tune. Look at the stored procedures that start with mqt_Lab1%:

- mqt_Lab1_Level1 – this is the easiest one
- mqt_Lab1_Q3160
- mqt_Lab1_Q975
- etc (all the mqt_Lab1% queries are up for help)
- Use the default parameter values

Later, you'll get running workloads, and you have to figure out which queries to tune, and why.

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Anti-patterns for this lab

These queries have cardinality estimation issues.

It's not just from joins this time – there are a large number of different things that can affect the quality of SQL Server's cardinality estimation.

In some cases, they affect performance. (A lot.)

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Your assignment

Improve the cardinality estimation.

It's tempting to jump in and say, "I'll just index everything and make the queries faster."

And indexes are (usually) a good answer.

But here, before you add indexes, understand the problem you're working on.

It's hard to see a finish line.

In the real world, users never say,
"Get this query to have 500 logical reads or less,
and perform in 50ms or less."

However, they do ask for faster/better.

Here, though, we're focusing on
better cardinality estimation.

How to turn in your homework

Use PasteThePlan.com to share your original query plan and your revised one:

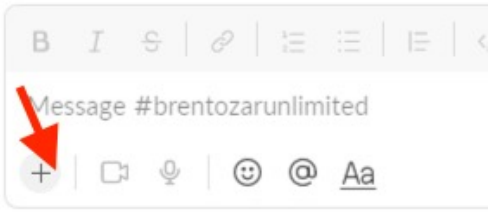
Brent Ozar 6:12 AM
I worked on mqt_Lab1_Level1. Here was the query plan when I started: https://www.brentozar.com/pastetheplan/?id=HyIHWohu4 And here's the query plan now that I replaced the temp table with a CTE: https://www.brentozar.com/pastetheplan/?id=SkWKzy6d4

To use PasteThePlan.com: when looking at an actual query plan, right-click on the white space, click View XML, copy all of that, go to PasteThePlan.com, paste it there. You'll get a URL that you can share with others.

How to put T-SQL in Slack

Don't just copy/paste code into the Message.

Click the + sign instead:



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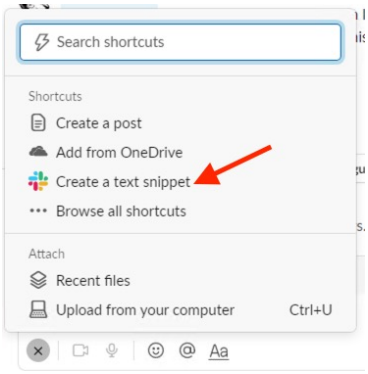
Create a text snippet:



If it doesn't show in your menu, use the Search.

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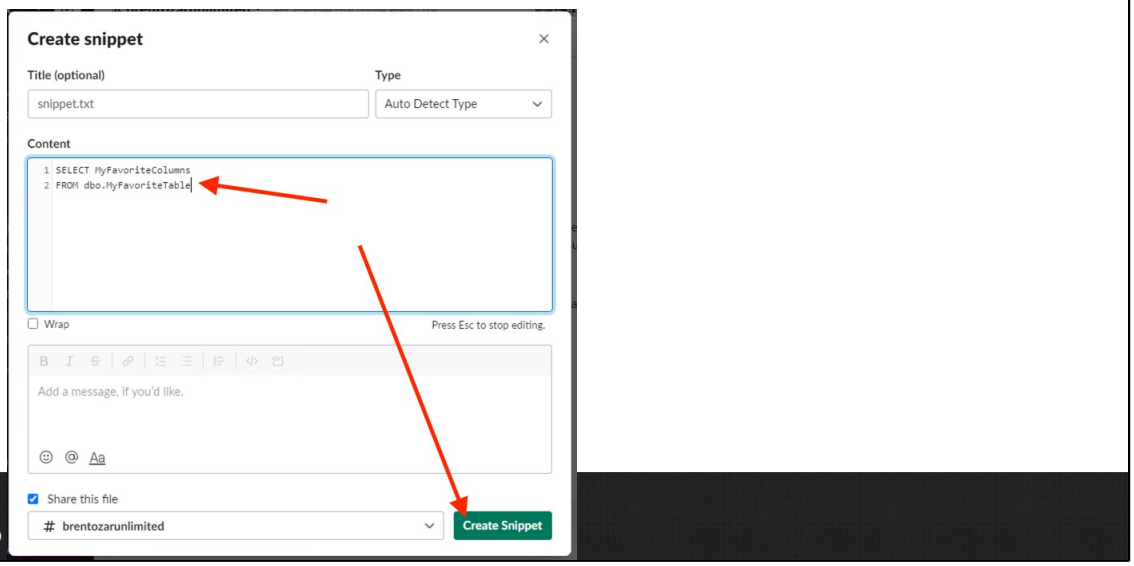
Paste into Content, click Create



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How I'd budget these 2 hours

5 minutes – poke around: read a few of the mqt_Lab1% procs, pick the first one you want to focus on tuning.

25 minutes – tune 1 query: run it, get the actual plan (if possible), change the query/indexes/stats, get the new actual plan (if possible), paste it at PasteThePlan.com. Turn in your homework in Slack.

Repeat, tackling one other query, 1 hour total.
(Don't spend 60 minutes on one query – tackle others.)

60 minutes – lunch.

Stumped? Take a peek at Slack.

The Slack room lets you see:

- Other peoples' answers
- How quick (or slow) you are compared to them
- How thorough you are compared to them
- Who you should cheat off of during the final exam

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