



**BRENT OZAR**  
UNLIMITED®

# Fundamentals of Query Tuning

Recap of what we learned and what to do next.

Module 7 Slide 1

## Query execution has 2 phases

1. Building the plan
  - Based off the parameters we start with
  - Compiled for the whole batch, all at once
  - Plan quality can vary based on time available
  - Your window: compilation CPU, time, timeouts
2. Executing the plan
  - Based off the parameters in the cached plan
  - Not revisited when problems happen



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## Don't rely on duration or costs.

Instead, focus on somewhat-more repeatable metrics:

Common:

- Logical Reads: SET STATISTICS IO ON
- CPU time: SET STATISTICS TIME ON

Less common:

- TempDB spills
- Memory grants

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## The most important gauge

Compare estimated rows to actual rows

Start at the top right and work across/down

Find the spot where the variance is >10X

To fix it, you can:

- Change the T-SQL to be more easily understood
- Break a large query into parts, use temp tables
- Recompile, dynamic SQL, child stored procs

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## Parameters change everything

	No parameters	Has parameters
Always slow	Easy to tune	Kinda easy
Sometimes slow, sometimes fast	Probably hardware, blocking, changing data sizes	Very hard to tune

To find the right parameters to tune, you'll often have to resort to querying the data to find outliers.

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## Your learning path:

1. Fundamentals of Index Tuning (1 day)
2. Fundamentals of Query Tuning (1 day)
3. Mastering Index Tuning (3 days)
4. Mastering Query Tuning (3 days)
5. Mastering Server Tuning (3 days)

Learn more: <https://BrentOzar.com>

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## You can do this.

For questions, leave comments on the relevant module.

For private help after the class, email [Help@BrentOzar.com](mailto:Help@BrentOzar.com) with:

- A note that you were in this class
- `sp_Blitz @CheckServerInfo = 1`
- `sp_BlitzFirst @SinceStartup= 1`

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**Thanks, and I hope you  
had a great time!**

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