

SQL Server: Query Plan Analysis

Module 1: Introduction

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Course Introduction

- When identifying a query that is associated with a performance issue, you'll want to look at the query execution plan and see if there are ways that you can address the problem (or problems)
- It is important to understand what a query execution plan can tell you, and just as importantly what a query execution plan *cannot* tell you
- This course will teach you how to capture query execution plans, learn how to interpret plans and also build pattern recognition for noteworthy plan shapes that can inform your next performance tuning steps

Why Do We Care About QPs?

- **T-SQL is a declarative language: you tell it WHAT to do but not HOW to do it**
 - There are exceptions such as hints, plan guides, and new features such as Columnstore Indexes are sensitive to query construction
- **Use query plans to find out HOW the results are being retrieved and can potentially be optimized**
- **Query plans help you triage and address the most impactful areas needing improvement, prioritizing across statements within a batch and also operations within a specific statement**
- **Reveals key traits such as costs, indexes that are accessed, operators (a.k.a. iterators), rows accessed per operator, executions per operator, order of joins, and much more...**

What Doesn't a Query Plan Tell Us?

- Doesn't tell us about locks acquired
- Doesn't show wait statistics
- Doesn't tell us if data is in the cache or not
- Doesn't tell us actual cost vs. estimated cost and I'll explain why later
- Some of the operations are hidden or surfaced in unexpected ways
 - I'll call these out as we go along
 - For a full coverage of this topic, see my course "SQL Server: Troubleshooting Query Plan Quality" (<http://bit.ly/WRwSpD>)
- Not a replacement of SET STATISTICS IO
- Not a replacement of SET STATISTICS TIME

Course Structure

- **Module 2: Capturing Query Execution Plans**
- **Module 3: Interpreting Query Execution Plans**
- **Module 4: Common Operators**
- **Module 5: Noteworthy Patterns**