

# SQLServerFast.com

## Execution Plan Video Training

Block 1: Understanding execution plans

Level: Basic

Chapter 2: Requesting an execution plan

# Execution plan

Basic option: execution plan only

Management Studio: “Estimated Execution Plan”

Misleading term!

Query **WILL** use this plan

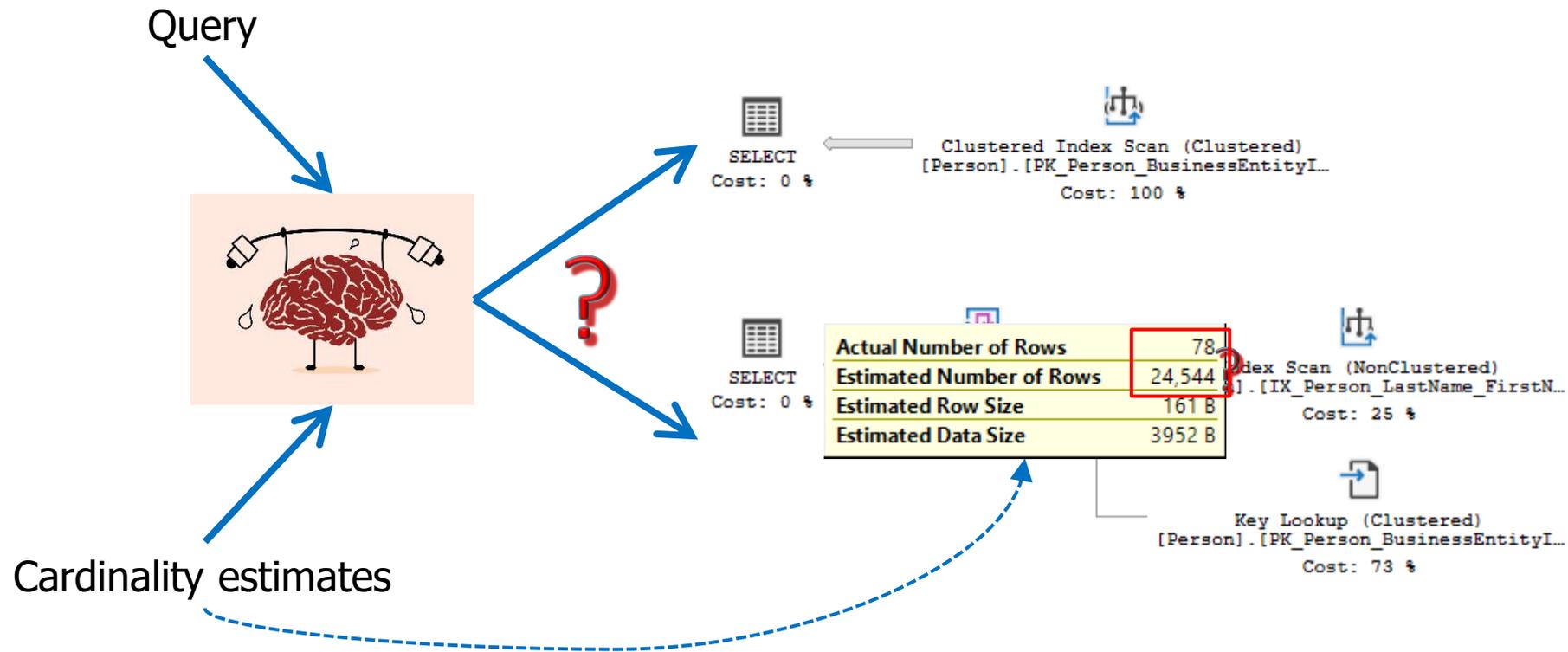
Except in case of (later) recompiles → new execution plan

Azure Data Studio: “Estimated Plan”

Same misleading term

# Optimization

See also chapter 4: Properties



# Execution plan plus run-time statistics

Short name: “execution plan plus”

Requires execution of query

Can be slow

Be careful with INSERT, UPDATE, DELETE, MERGE queries!

Benefit: incorrect estimates easy to identify

# Execution plan plus run-time statistics

Short name: “execution plan plus”

Requires execution of query

Management Studio: “Actual Execution Plan”

Misleading term, there is no “non-actual” plan

Azure Data Studio: “Enable Actual Plan” / “Disable Actual Plan”

Works the same as in Management Studio

Returned after query execution has finished

# Execution plan with live statistics

Show plan and update with run-time statistics as query executes

Short name: “live execution plan”

Available for SQL Server 2014 (SP1+) and higher

- Requires “new” Management Studio version

- Not supported in Azure Data Studio

- Less data than execution plan plus run-time statistics

# Feature comparison

| Plan type         | Execution plan only                 | Execution plan plus run-time statistics                                   | Execution plan with live statistics                             |
|-------------------|-------------------------------------|---|---|
| Alternative name  | Execution plan                      | Execution plan plus   | Live execution plan   |
| Management Studio | “Estimated Execution Plan”          | “Actual Execution Plan”   | “Live Query Statistics”   |
| Azure Data Studio | “Estimated Plan”                    | “Enable / Disable Actual Plan”  | n/a   |
| Available in      | All versions                        | All versions  | 2014 SP1+<br>(better in later versions)                         |
| Query executed?   | No                                  | Yes   | Yes   |
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# Feature comparison

*Execution plans for cursors are explained  
in block 6, advanced level, chapter 4*

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| Control flow code      | Included                            | Not included  | Not included  |

# Which one to use?

When possible, use execution plan plus run-time statistics

- Run-time statistics are invaluable tuning help

- Time-consuming for slow queries

- Unwanted data modifications / blocking

# Which one to use?

When possible, use execution plan plus run-time statistics

When necessary, use execution plan only

- May be misleading, especially when estimates are wrong

- At end of tuning, always run at least once with execution plan plus

# Which one to use?

When possible, use execution plan plus run-time statistics

When necessary, use execution plan only

Sometimes execution plan with live statistics is good alternative

- Watch activity and counters as the query is running

- Perhaps root cause is visible early in execution

- Worst case, you STILL need to wait for query to finish

- Do also include execution plan plus

  - (Has extra information that is missing from live execution plan)

# Summary

## Three ways to request an execution plan

### Execution plan only

Fast, but no run-time data

### Execution plan plus run-time statistics

Includes run-time data, but requires execution of query

### Execution plan with live statistics

Includes *some* run-time data, live updating during execution

# Next chapters

Chapter 3: How to read an execution plan

- Operators

- Flow of control

- Data flows

- Common misconceptions

Chapter 4: Properties

Chapter 5: Where to find execution plans

Chapter 6: Cardinality in the execution plan

Chapter 7: Percentages in the execution plan