Operators in a Query Plan

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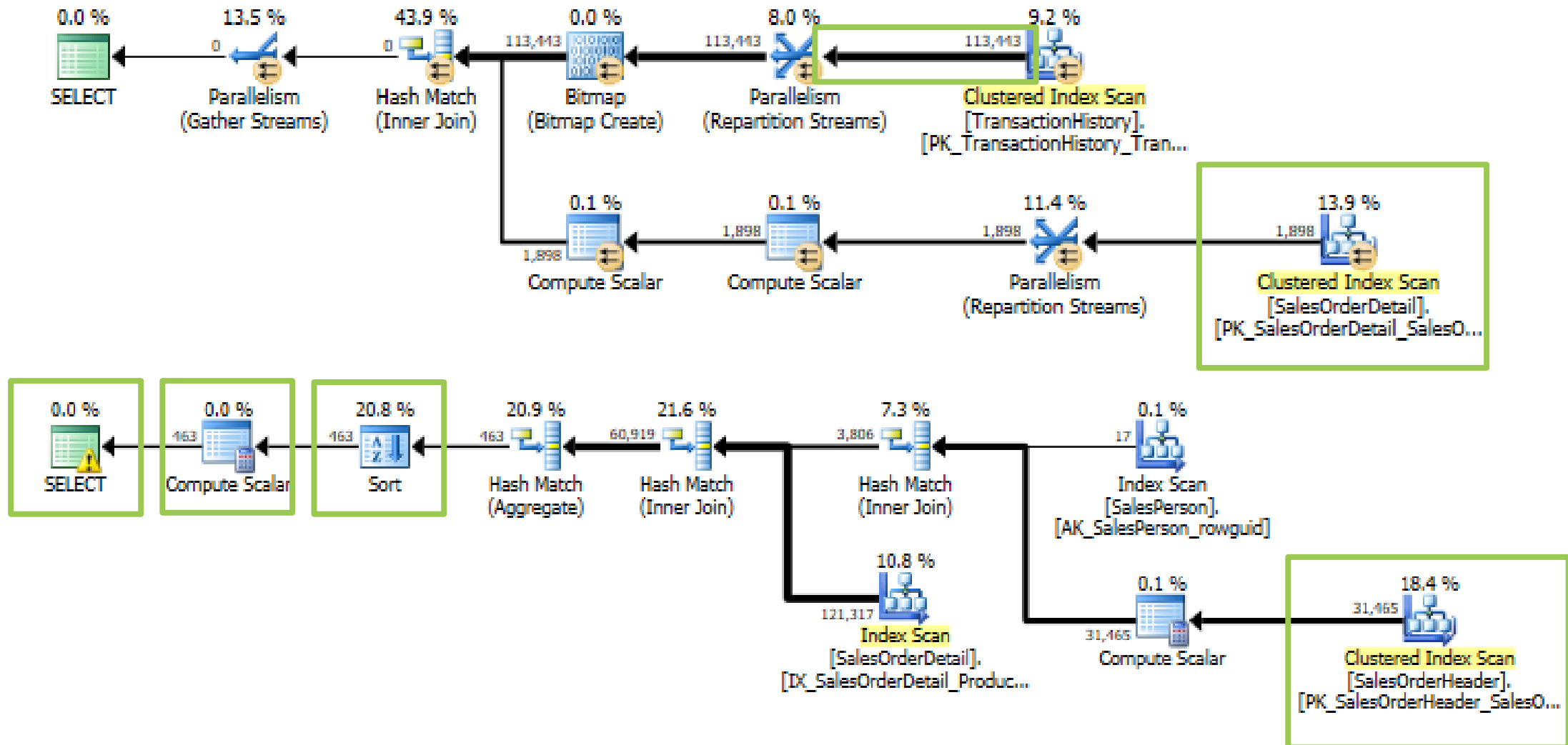@erinstellato   www.sqlskills.com/blogs/erin

Module Overview

Identify frequently-seen plan operators and understand their function

Review how altering a query can change the operator used

Review how a change in operator can change query performance

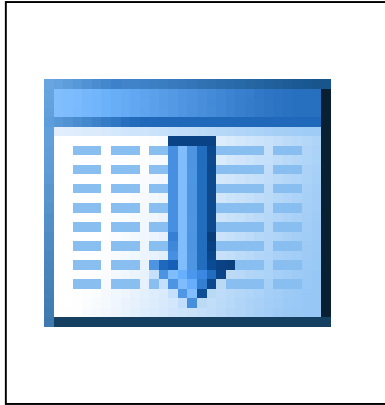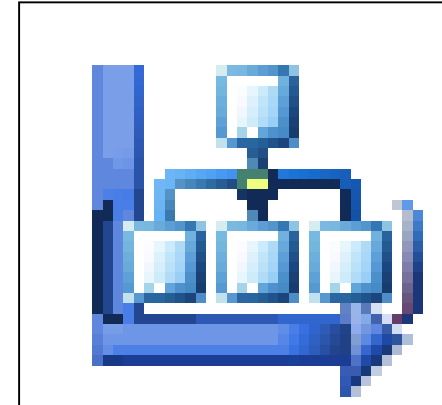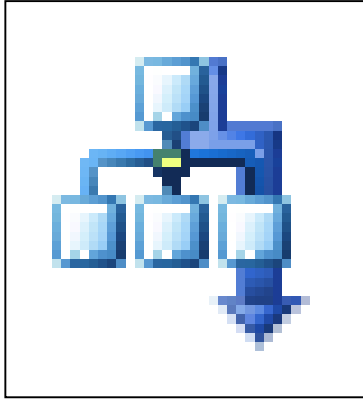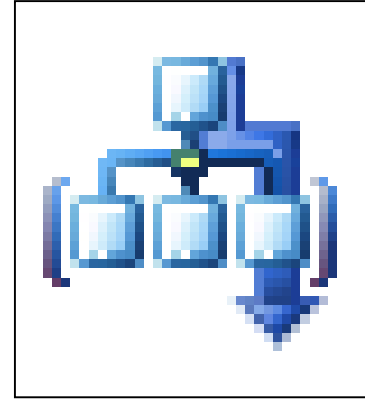# What Do You Look For in a Plan?

Scans

Table Scan

Clustered Index Scan

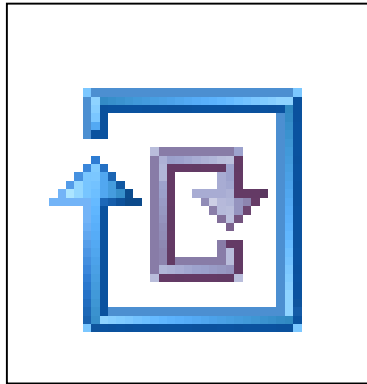# Seeks

Clustered Index Seek

Nonclustered Index Seek

Demo

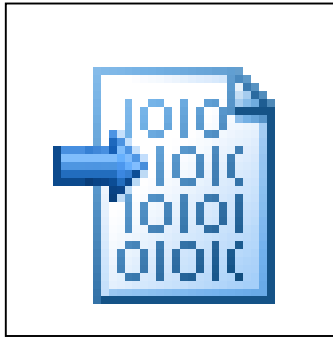## Data Access Operators

Nested Loop

Uses each row from one input (outer data set) to find rows from a second input (inner data set) that meet the join predicate

Seen with smaller data sets and lookups
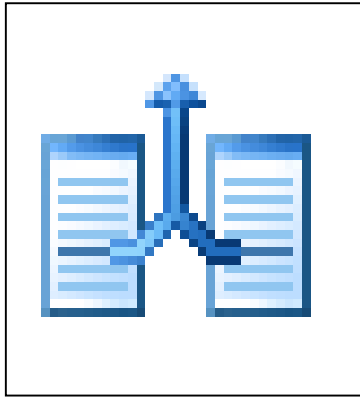
Watch for inflated I/O

Lookups

Key Lookup

RID Lookup

Demo

Nested Loops and Lookups

Merge Join

Data from two ordered inputs joined
- Matching rows returned

Ideally data is already ordered (e.g. index)

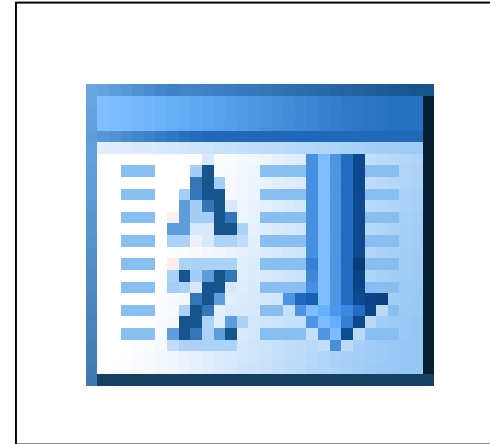**Worktables used when multiple values on both sides of the data set ('many-to-many')**

Sort

Orders rows

Stop-and-go operation

Requires memory
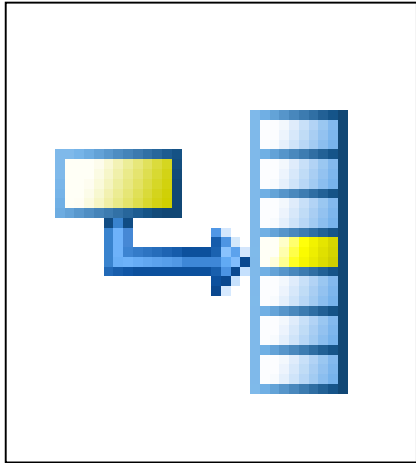
Possible to spill to disk

Demo

Merge Joins and Sorts

Hash Join

Joins two unordered inputs

- Outputs the matching rows

Builds a hash table based on key value for each row in the outer data set, then for each row of the inner data set, calculates the hash and probe the table
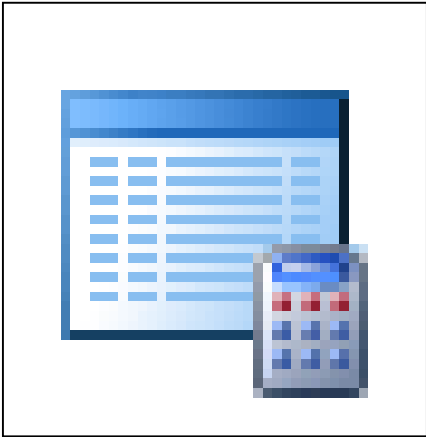
Possible to spill to disk

Demo

Hash Join

Compute Scalar

Evaluates an expression

- Produces a scalar value (e.g. functions)

The estimated cost can be low

Plans do not always show objects accessed

Demo

Compute Scalar

What We Covered

Identify frequently-seen plan operators and understand their function

Review how altering a query or the schema can change the operator used

Review how a change in operator can change query performance