SQL Performance Checklist

A checklist to help you investigate and improve the performance of an SQL query..

How to Use:
Go through each of the checklist items and answer Yes, No, or Don't Know.
Use the answers to determine any next steps or areas to improve.

Section 1: Query Context and Expectations

- Is there a clear target runtime for this query that stakeholders agree on?

- Is the query slow relative to its historical performance, not just "feels slow"?

- Does the query run frequently enough that small delays add up?

- Is the slowness visible to users or downstream systems?

- Is the query executed as part of an important workflow?

Section 2: Data Characteristics

- Has the underlying data volume grown significantly since the query was written?

- Are a small number of values responsible for a large portion of the rows?

- Does the query operate on tables that grow continuously?

- Is the query sensitive to date ranges or rolling windows?

- Does performance vary depending on which values are queried?

Section 3: Query Shape & Logic

- Does the query join multiple large tables together?

- Does the query include aggregations over large result sets?

- Are there nested queries or derived result sets involved?

- Does the query return more columns than are actually needed?

- Is the query reused in multiple places with different inputs?

Section 4: Execution Plan Signals

- Is one step responsible for the majority of the total execution cost?

- Are estimated row counts significantly different from actual rows processed?

- Does the plan show work being repeated for many rows?

- Are large data sets being processed earlier than expected?

- Does the execution plan change depending on input values?

- Does the plan include warnings or flagged operators?

Section 5: Index & Access Path Signals

- Is a large amount of data being read compared to rows returned?

- Does the plan show full data access where targeted access was expected?

- Is filtering happening after data is read rather than during access?

- Are multiple access paths combined to satisfy the query?

- Does performance get worse as data grows?

- Does the same query use different access paths at different times?

Section 6: Environment & Usage

- Does the query behave differently in production compared to test or dev?

- Is the query executed concurrently by many users or processes?

- Is the query run interactively and also by background jobs?

- Does performance vary depending on time of day or system load?

- Is the query sensitive to parameter values or user input?