

What is an execution plan?

- When you submit a query to SQL server no matter how simple or complex, SQL Server generates an execution plan for that query.
- The execution plan shows you how SQL Server breaks down each query submitted by showing you a graphical representation using operators.
- There are 3 ways that an execution plan can be viewed:
 - 1. If you select the Actual Execution Plan option, then the plan is created after execution of the query
 - 2. If you select the Estimated Execution Plan then the plan is created without executing the query
 - 3. If you select the Live Query Statistics (SQL 2016 only) then you can view a live the execution plan of an active query without waiting for it to complete
- You can view the Execution plans can be presented in three ways:
 - Graphical Plans
 - Text Plans
 - XML Plans
- How does the execution plan select the most efficient plan to execute? It use the query optimizer!

What is the query optimizer?

- A query optimizer is part of the SQL Server engine that (SQL) queries and determines the most efficient execution plan.
- It does this by optimizing each SQL statement based on statistics collected about the accessed data.
- The query optimizer then chooses the most efficient means of executing a SQL statement.
- The following diagram shows the steps the query optimizer uses create the execution plan:

