**Introduction to Selection in SQL**

Selection in SQL involves retrieving specific rows from a database table based on a condition specified in the WHERE clause. Effective selection techniques can significantly improve query performance by reducing the amount of data processed and returned by the query.

**Query Optimization with Selection Techniques**

The goal is to demonstrate how careful selection of columns and conditions can improve query performance.

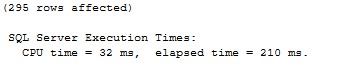
**Initial Query**

The initial query is as follows:

SET STATISTICS TIME ON

SELECT \* FROM SalesLT.Product

**Analysis of the Query**



The query involves several operations that can benefit from optimization:

1. **Column Selection**: The SELECT \* clause retrieves all columns, which can be inefficient if only a subset of columns is needed.

**Selection Strategy**

To optimize this query, we can:

1. Select only the necessary columns instead of all columns.
2. Add more specific filtering conditions if applicable.

**Optimized Query with Specific Column Selection**

By selecting only the columns that are needed, we reduce the amount of data retrieved and processed.

**Selecting Specific Columns**

SET STATISTICS TIME ON

SELECT ProductNumber, Name, Color,Weight FROM SalesLT.Product

This reduces the amount of data processed and transferred, improving query performance.

A close up of a text

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**Explanation of the Optimized Query**

1. **Column Selection**: By selecting only the necessary columns we reduce the amount of data retrieved, which speeds up the query.

**Benefits of Efficient Selection**

* **Speed**: Reduces the amount of data processed and transferred, speeding up the query.
* **Resource Utilization**: Efficient selection uses fewer resources, making the query more efficient.
* **Relevance**: Ensures that only relevant data is retrieved, making the query results more useful.

A screenshot of a computer

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**Before Selection After Selection**

From the above images, we can clearly see that the **Estimated Row Size** has decreased. This happens because we are not reading all the columns, instead we are reading only selected columns.

**Conclusion**

Efficient selection techniques are crucial for optimizing SQL queries. By selecting only the necessary columns and refining filtering conditions, we significantly improved the performance of a query that retrieves sales orders for a specific customer in the AdventureWorksLT database. This example demonstrates the importance of careful column selection and precise filtering conditions in enhancing database performance.