

**ANKARA ÜNİVERSİTESİ MÜHENDİSLİK FAKÜLTESİ**  
**BİLGİSAYAR MÜHENDİSLİĞİ BÖLÜMÜ**



**BLM4522 Veritabanı Performans Optimizasyonu ve İzleme**  
**Projesi Raporu**

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**Video Linki :** [https://drive.google.com/file/d/1d1tAlxx7vBDrV9oLZkW2Pgv-yBp41q-D/view?usp=drive\\_link](https://drive.google.com/file/d/1d1tAlxx7vBDrV9oLZkW2Pgv-yBp41q-D/view?usp=drive_link)

# PROJE : Veritabanı Performans Optimizasyonu ve İzleme

## AŞAMA 1: Sorgu Performansının İzlenmesi

SQLQuery1.sql - DE...FT7LLJ5\Furka (62))\*

```
SELECT TOP 10
    qs.total_elapsed_time / qs.execution_count AS AvgTime,
    qs.execution_count,
    qs.total_elapsed_time,
    SUBSTRING(qt.text,qs.statement_start_offset/2,
    (CASE WHEN qs.statement_end_offset = -1
        THEN LEN(CONVERT(NVARCHAR(MAX), qt.text)) * 2
        ELSE qs.statement_end_offset END - qs.statement_start_offset)/2) AS QueryText
FROM
    sys.dm_exec_query_stats qs
CROSS APPLY sys.dm_exec_sql_text(qs.sql_handle) qt
ORDER BY AvgTime DESC;
```

100 %

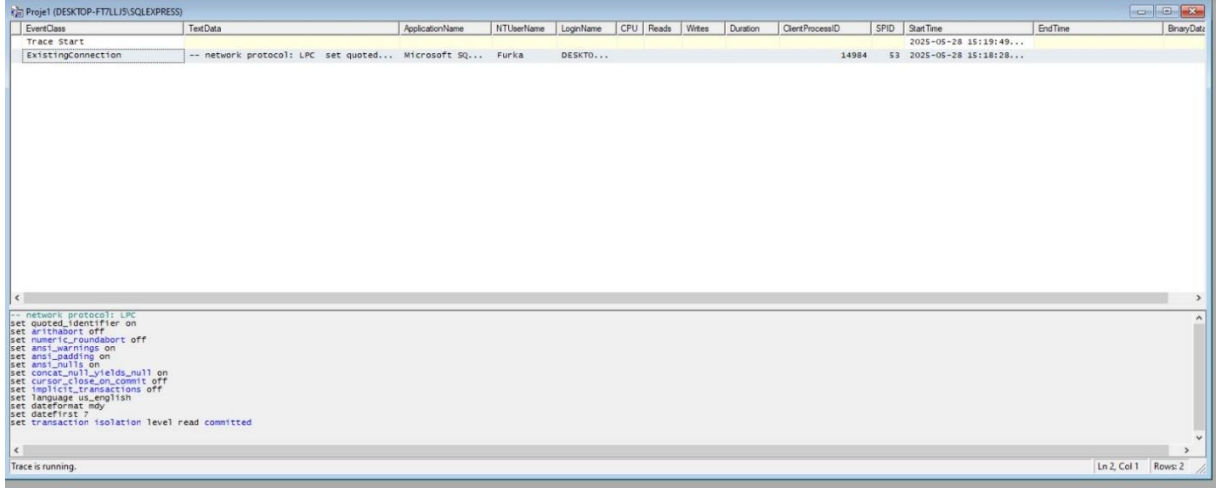
Results Messages

	AvgTime	execution_count	total_elapsed_time	QueryText
1	205380	1	205380	)SELECT SCHEMA_NAME(sp.schema_id) AS [Schema], s...
2	133910	1	133910	)SELECT SCHEMA_NAME(udf.schema_id) AS [Schema], ...
3	108181	1	108181	)SELECT SCHEMA_NAME(v.schema_id) AS [Schema], v...
4	77838	1	77838	select category_id, /*1*/ category_name, /*2*/ type, ...
5	53751	1	53751	SELECT dtb.name AS [Database_Name], 'Server[@Name...
6	46170	1	46170	SELECT dtb.name AS [Name], CAST(0 AS bit) AS [IsFabric...
7	44324	2	88648	SELECT dtb.name AS [Name], CAST(0 AS bit) AS [IsFabric...
8	36753	1	36753	)SELECT udf.name AS [Name], udf.object_id AS [ID], udf...
9	21184	6	127109	WITH Quartiles AS ( SELECT DISTINCT ...
10	7543	1	7543	SELECT SCHEMA_NAME(obj.schema_id) AS [Schema], o...

Bu aşamada, en yavaş çalışan sorguları belirlemek amacıyla sys.dm\_exec\_query\_stats ve sys.dm\_exec\_sql\_text DMV'leri kullanılarak yukardaki gibi bir sorgu çalıştırılmıştır.

**Amaç:** Ortalama süresi en yüksek olan sorguları belirleyip iyileştirmeye çalışmak.

## AŞAMA 2: SQL Profiler ile İzleme



The screenshot shows the SQL Server Profiler interface. The top pane displays the trace session details for 'Project (DESKTOP-FTLLJ/S/SQLSERVER)'. The bottom pane shows the trace data, which includes a list of events and their details. The events are as follows:

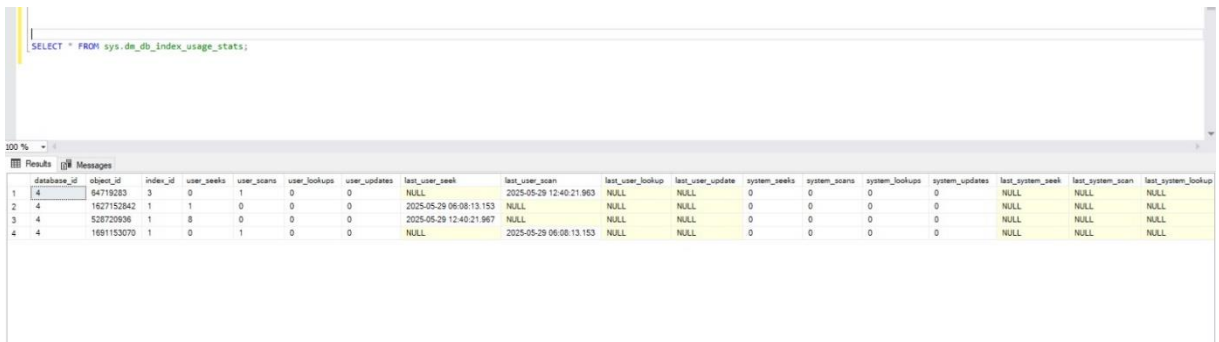
EventClass	TextData	ApplicationName	NTUserName	LoginName	CPU	Reads	Writes	Duration	ClientProcessID	SPID	StartTime	EndTime	BinaryData
Trace Start											2025-05-28 15:19:49...		
ExistingConnection	-- network protocol: LPC set quoted...	Microsoft SQ...	Furka	DESKTO...					14984	53	2025-05-28 15:18:28...		

The bottom pane also shows the SQL text being executed:

```
-- network protocol: LPC
set quoted_identifier on
set arithabort off
set numeric_roundabort off
set ansi_warnings on
set ansi_paddings on
set ansi_nulls on
set concat_null_yields_null on
set cursor_close_on_commit off
set implicit_transactions off
set language us_english
set dateformat mdy
set datefirst 2
set transaction_isolation_level read committed
```

SQL Server Profiler kullanılarak aktif bağlantılar, CPU kullanımı ve sorgu ayrıntıları izlenmiştir.

## AŞAMA 3: İndeks Kullanımının Analizi



The screenshot shows the SQL Server Enterprise Manager interface. The bottom pane displays the results of a query against the `sys.dm_db_index_usage_stats` DMV. The query is:

```
SELECT * FROM sys.dm_db_index_usage_stats;
```

The results are as follows:

database_id	object_id	index_id	user_seeks	user_scans	user_lookups	user_updates	last_user_seek	last_user_scan	last_user_lookup	last_user_update	system_seeks	system_scans	system_lookups	system_updates	last_system_seek	last_system_scan	last_system_lookup
4	94719283	3	0	1	0	0	NULL	2025-05-29 12:40:21.963	NULL	NULL	0	0	0	0	NULL	NULL	NULL
4	1627152842	1	1	0	0	0	2025-05-29 06:08:13.153	NULL	NULL	NULL	0	0	0	0	NULL	NULL	NULL
4	528720936	1	8	0	0	0	2025-05-29 12:40:21.967	NULL	NULL	NULL	0	0	0	0	NULL	NULL	NULL
4	1691153070	1	0	1	0	0	NULL	2025-05-29 06:08:13.153	NULL	NULL	0	0	0	0	NULL	NULL	NULL

`sys.dm_db_index_usage_stats` DMV'si ile hangi indekslerin ne sıklıkta kullanıldığı analiz edilmiştir.

## AŞAMA 4: Sorgu iyileştirme ve İstatistik Takibi

The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows a query window with the following SQL code:

```
SET STATISTICS IO ON;  
SET STATISTICS TIME ON;  
  
SELECT * FROM Orders WHERE YEAR(OrderDate) = 2023;
```

The bottom pane shows the 'Results' tab, which is currently empty. The 'Messages' tab is also visible. Below the query window, a trace window titled 'Untitled - 1 (DESKTOP-FT7LLJ5\SQLEXPRESS)' is open, showing a table of trace data. The table has columns: EventClass, TextData, ApplicationName, NTUserName, LoginName, CPU, Reads, Writes, Duration, ClientProcessID, SPID, and StartTime. The data shows the execution of the query and the setting of statistics.

EventClass	TextData	ApplicationName	NTUserName	LoginName	CPU	Reads	Writes	Duration	ClientProcessID	SPID	StartTime
Trace Start											2025-05-29 1
ExistingConnection	-- network protocol: LPC set quoted...	SQLServerCEIP	SQLTELE...	NT SER...						14604	53 2025-05-29 1
ExistingConnection	-- network protocol: LPC set quoted...	Microsoft SQ...	Furka	DESKTO...						2344	65 2025-05-29 1
ExistingConnection	-- network protocol: LPC set quoted...	Microsoft SQ...	Furka	DESKTO...						2344	66 2025-05-29 1
ExistingConnection	-- network protocol: LPC set quoted...	Microsoft SQ...	Furka	DESKTO...						2344	73 2025-05-29 1
SQL:BatchStarting	SET STATISTICS IO ON; SET STATISTIC...	Microsoft SQ...	Furka	DESKTO...						2344	65 2025-05-29 1
SQL:BatchCompleted	SET STATISTICS IO ON; SET STATISTIC...	Microsoft SQ...	Furka	DESKTO...	15	22	0	2		2344	65 2025-05-29 1

The bottom of the trace window shows the SQL code being executed:

```
SET STATISTICS IO ON;  
SET STATISTICS TIME ON;  
  
SELECT * FROM Orders WHERE YEAR(OrderDate) = 2023;
```

The status bar at the bottom indicates 'Trace is running.' and shows 'Ln 7, Col 1' and 'Rows: 7'.

SET STATISTICS IO ON; ve SET STATISTICS TIME ON; komutları ile ağır sorguların kaynak tüketimi analiz edilmiştir.

## AŞAMA 5: Yetki Yönetimi

```
CREATE ROLE veri_analisti;  
GRANT SELECT ON Sales TO veri_analisti;  
EXEC sp_addrolemember 'veri_analisti', 'user1';
```

100 %

Messages

CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server parse and compile time:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

MSSQL Server Execution Times:  
CPU time = 0 ms, elapsed time = 0 ms.

Activate Windows

Roller tanımlanarak veri analistleri gibi özel kullanıcılar için SELECT yetkisi verilmiştir.