

```

USE[task]
GO
CREATE TABLE [dbo].[Info](
    [id] [int] NOT NULL,
    [name] [varchar](128) NOT NULL,
    [address] [text] NOT NULL,
    [region_id] [int] NOT NULL)

INSERT INTO [dbo].[Info] (id, name, address, region_id) VALUES
(1, 'Name1', '', 1),
(2, 'Name2', '', 1),
(3, 'Name3', '', 1),
(4, 'Name4', '', 1),
(5, 'Name5', '', 1),
(6, 'Name6', '', 1),
(7, 'Name7', '', 1),
(8, 'Name8', '', 1),
(9, 'Name9', '', 1),
(10, 'Name10', '', 1),
(11, 'Name11', '', 1),
(12, 'Name12', '', 1),
(13, 'Name13', '', 1),
(14, 'Name14', '', 1),
(15, 'Name15', '', 1),
(16, 'Name16', '', 1),
(17, 'Name17', '', 1),
(18, 'Name18', '', 1),
(19, 'Name19', '', 1),
(20, 'Name20', '', 1)

SET STATISTICS IO ON
SET STATISTICS TIME ON

GO
SELECT *
FROM dbo.Info AS r1
    INNER JOIN dbo.Info AS r2
    ON r1.id <> r2.id
ORDER BY r1.id

GO
SELECT *
FROM dbo.Info WHERE id LIKE '%5%'
ORDER BY id

GO
SELECT SUBSTRING(name, 1, 10) AS Initial
FROM dbo.Info WHERE name LIKE '%N%'
ORDER BY id

GO
SELECT GETDATE()

GO
SELECT COUNT(name)
FROM dbo.Info GROUP BY region_id

/*ALTER TABLE [Info] ADD CONSTRAINT [PK_Info] PRIMARY KEY CLUSTERED ([id] ASC); Уникальный*/
/*ALTER TABLE [Info] ADD CONSTRAINT [PK_Info] PRIMARY KEY CLUSTERED (id, region_id); Составной*/
/*ALTER TABLE [Info] ADD CONSTRAINT [PK_Info] PRIMARY KEY NONCLUSTERED ([id] ASC); Уникальный*/
/*ALTER TABLE [Info] ADD CONSTRAINT [PK_Info] PRIMARY KEY NONCLUSTERED (id, id); Составной*/
/*CREATE NONCLUSTERED INDEX PK_Info ON dbo.Info (id) INCLUDE (postcode_required); Покрывающий*/
/*CREATE NONCLUSTERED INDEX PK_Info ON dbo.Info (id) INCLUDE (name, id); Индекс с включенными
столбцами*/

```

Уникальный, Кластеризованный

(20 row(s) affected)

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 53 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 43, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 15 ms, elapsed time = 104 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 20 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 1 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Составной, Кластеризованный

SQL Server parse and compile time:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 17 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

Table 'restaurant'. Scan count 0, logical reads 41, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

(20 row(s) affected)

SQL Server Execution Times:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 1 ms, elapsed time = 1 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 43, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 75 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Уникальный, Некластеризованный

SQL Server parse and compile time:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

Table 'restaurant'. Scan count 0, logical reads 61, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 24 ms.

(20 row(s) affected)

SQL Server Execution Times:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 42, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 15 ms, elapsed time = 74 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 2 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 1, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Составной, Некластеризованный

SQL Server parse and compile time:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

Table 'restaurant'. Scan count 0, logical reads 61, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

SQL Server Execution Times:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 42, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 78 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Покрывающий, Некластеризованный

SQL Server parse and compile time:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 41 ms.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

Table 'restaurant'. Scan count 0, logical reads 61, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 16 ms, elapsed time = 0 ms.

(20 row(s) affected)

SQL Server Execution Times:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 42, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 73 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Индекс с включенными столбцами, Некластеризованный

SQL Server parse and compile time:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server Execution Times:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

SQL Server parse and compile time:

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

Table 'restaurant'. Scan count 0, logical reads 61, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 16 ms, elapsed time = 1 ms.

(20 row(s) affected)

SQL Server Execution Times:

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

SQL Server Execution Times:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(380 row(s) affected)

Table 'restaurant'. Scan count 2, logical reads 42, physical reads 0, read-ahead reads 0, lob logical reads 1520, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

CPU time = 15 ms, elapsed time = 77 ms.

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 22, physical reads 0, read-ahead reads 0, lob logical reads 40, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 1 ms.

(20 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

(1 row(s) affected)

SQL Server Execution Times:

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

SQL Server parse and compile time:

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

SQL Server parse and compile time:

CPU time = 0 ms, elapsed time = 2 ms.

(1 row(s) affected)

Table 'restaurant'. Scan count 1, logical reads 2, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

SQL Server Execution Times:

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

Без ключа

Запрос 1: стоимость запроса (по отношению к пакету): 0%
USE [MyDB]



USE DATABASE
Стоимость: 0 %

Запрос 2: стоимость запроса (по отношению к пакету): 100%
SELECT * FROM dbo.restaurant WHERE id LIKE '%2%' ORDER BY id



SELECT
Стоимость: 0 %



Сортировка
(Sort)
Стоимость: 78 %



Просмотр строк таблицы
[restaurant]
Стоимость: 22 %

Уникальный, Кластеризованный

Запрос 1: стоимость запроса (по отношению к пакету): 0%
USE [MyDB]



USE DATABASE
Стоимость: 0 %

Запрос 2: стоимость запроса (по отношению к пакету): 100%
SELECT * FROM dbo.restaurant WHERE id LIKE '%2%' ORDER BY id



SELECT
Стоимость: 0 %



Clustered Index Scan (Clustered)
[restaurant].[PK_RESTAURANT]
Стоимость: 100 %

Уникальный, Некластеризованный

Запрос 1: стоимость запроса (по отношению к пакету): 0%
USE [MyDB]



USE DATABASE
Стоимость: 0 %

Запрос 2: стоимость запроса (по отношению к пакету): 100%
SELECT * FROM dbo.restaurant WHERE id LIKE '%2%' ORDER BY id



SELECT
Стоимость: 0 %



Вложенные циклы
(Внутреннее соединение)
Стоимость: 1 %



Просмотр индекса (NonClustered)
[restaurant].[PK_RESTAURANT]
Стоимость: 46 %



Уточняющий запрос RID (Heap)
[restaurant]
Стоимость: 54 %