

Συστήματα Διαχείρισης και Ανάλυσης Δεδομένων

1º Project

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Ζήτημα Πρώτο (20 μονάδες)

1) Έχουμε να κάνουμε με μία βάση δεδομένων παγκοσμίου βεληνηκές.Επομένως θα ήταν πιο λογικό αλλά και προς το συμφέρον μας να βάλουμε index στο **UserLocation** γιατί αφού πρόκειται για βάση παγκόσμιας εμβέλειας είναι πολύ πιο πιθανό να υπάρχουν περισσότερα αποτελέσματα για μια συγκεκριμένη ημερομηνία από μια συγκεκριμένη πόλη.

2)

Αυτά είναι τα αποτελέσματα **πριν** δημιουργήσουμε το ευρετήριο

The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows the SQL query:

```
checkpoint
dbcc dropcleanbuffers

select DisplayName
from users
where CreationDate = '2008-09-15' and
UserLocation='Athens, Greece'
```

The bottom pane shows the execution plan for the query. The main operation is a **Clustered Index Scan (Clustered)** on the **Users** table. The plan details are as follows:

Physical Operation	Clustered Index Scan
Logical Operation	Clustered Index Scan
Estimated Execution Mode	Row
Storage	RowStore
Estimated Operator Cost	4,54966 (100%)
Estimated I/O Cost	4,22016
Estimated Subtree Cost	4,54966
Estimated CPU Cost	0,329494
Estimated Number of Executions	1
Estimated Number of Rows to be Read	299397
Estimated Number of Rows for All Executions	9,67866
Estimated Number of Rows Per Execution	9,67866
Estimated Row Size	67 B
Ordered	False
Node ID	0

The **Predicate** section shows the filter conditions:

```
[StackOverflow].[dbo].[Users].[CreationDate]=CONVERT_IMPLICIT(date,
I@1,0) AND [StackOverflow].[dbo].[Users].[UserLocation]
=CONVERT_IMPLICIT(nvarchar(4000),I@2,0)
```

The **Object** section shows the table name:

```
[StackOverflow].[dbo].[Users].[PK_Users_1788CC4C29217836]
```

The **Output List** section shows the columns returned:

```
[StackOverflow].[dbo].[Users].[DisplayName]
```

The status bar at the bottom indicates: "Query executed successfully." and "LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows".

Αυτά είναι τα αποτελέσματα αφού δημιουργήσαμε το ευρετήριο

SQLQuery1.sql - LA_VK7IL9\penas (64)*

checkpoint
dbcc dropcleanbuffers

create index idx_location ON users(UserLocation)

select DisplayName
From users
where CreationDate = '2008-09-15' and
UserLocation='Athens, Greece'

100 %

Messages Execution plan

Query 1: Query cost (relative to the batch): 1
select DisplayName From users where CreationDa

SELECT

Nested Loops
(Inner Join)
Cost: 0 %

Index Seek (NonClus)
[Users].[idx_locat
Cost: 1 %

Key Lookup (Clus)
[Users].[PK_Users_1
Cost: 99 %

Index Seek (NonClustered)

Scan a particular range of rows from a nonclustered index.

Physical Operation

Logical Operation

Estimated Execution Mode

Storage

Estimated Operator Cost

Estimated I/O Cost

Estimated Subtree Cost

Estimated CPU Cost

Estimated Number of Executions

Estimated Number of Rows to be Read

Estimated Number of Rows for All Executions

Estimated Number of Rows Per Execution

Estimated Row Size

Ordered

Node ID

Object

Output List

Seek Predicates

Query executed successfully.

TOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

SQLQuery1.sql - LA_VK7IL9\penas (64)*

checkpoint
dbcc dropcleanbuffers

create index idx_location ON users(UserLocation)

select DisplayName
From users
where CreationDate = '2008-09-15' and
UserLocation='Athens, Greece'

100 %

Messages Execution plan

Query 1: Query cost (relative to the batch): 1
select DisplayName From users where CreationDa

SELECT

Nested Loops
(Inner Join)
Cost: 0 %

Index Seek (NonClus)
[Users].[idx_locat
Cost: 1 %

Key Lookup (Clus)
[Users].[PK_Users_1
Cost: 99 %

Key Lookup (Clustered)

Uses a supplied clustering key to lookup on a table that has a clustered index.

Physical Operation

Logical Operation

Estimated Execution Mode

Storage

Estimated I/O Cost

Estimated Operator Cost

Estimated CPU Cost

Estimated Subtree Cost

Estimated Number of Executions

Estimated Number of Rows for All Executions

Estimated Number of Rows Per Execution

Estimated Row Size

Ordered

Node ID

Predicate

Object

Output List

Seek Predicates

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

```

SQLQuery1.sql - LA_VK7IL9\penas (64)*
-- checkpoint
-- dbcc dropcleanbuffers

create index better_index on users(UserLocation,CreationDate)

--select DisplayName
--from users
--where CreationDate = '2008-09-15' and
--UserLocation='Athens, Greece'

```

Index Seek (NonClustered)	
Scan a particular range of rows from a nonclustered index.	
Physical Operation	Index Seek
Logical Operation	Index Seek
Estimated Execution Mode	Row
Storage	RowStore
Estimated Operator Cost	0.0032857 (29%)
Estimated I/O Cost	0.003125
Estimated Subtree Cost	0.0032857
Estimated CPU Cost	0.0001607
Estimated Number of Executions	1
Estimated Number of Rows to be Read	3,35756
Estimated Number of Rows for All Executions	3,35756
Estimated Number of Rows Per Execution	3,35756
Estimated Row Size	11 B
Ordered	True
Node ID	1

100 % ▾

Messages 0 Execution plan

Query 1: Query cost (relative to the select DisplayName From users where

SELECT

Cost: 0 %

← Nested Loops (Inner Join)

Cost: 0 %

Index [User]

Key [Users]

Athens, Greece'

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

```

SQLQuery1.sql - LA_VK7IL9\penas (64)*
--checkpoint
--dbcc dropcleanbuffers

create index better_index on users(UserLocation,CreationDate)

--select DisplayName
--from users
--where CreationDate = '2008-09-15' and
--UserLocation='Athens, Greece'

```

100 % Execution plan

Query 1: Query cost (relative to the batch) is 1.000000000. Query plan for "select DisplayName From users where CreationDate = '2008-09-15' and UserLocation = 'Athens, Greece'"

Key Lookup (Clustered)

Uses a supplied clustering key to lookup on a table that has a clustered index.

Physical Operation	Key Lookup
Logical Operation	Key Lookup
Estimated Execution Mode	Row
Storage	RowStore
Estimated I/O Cost	0.003125
Estimated Operator Cost	0.0078973 (71%)
Estimated CPU Cost	0.0001581
Estimated Subtree Cost	0.0078973
Estimated Number of Executions	3.35756
Estimated Number of Rows for All Executions	3.35756
Estimated Number of Rows Per Execution	1
Estimated Row Size	51 B
Ordered	True
Node ID	3

Object

[StackOverflow].[dbo].[Users].[PK__Users_1788CC4C29217836]

Output List

[StackOverflow].[dbo].[Users].[DisplayName]

Seek Predicates

Seek Keys[1]: Prefix: [StackOverflow].[dbo].[Users].[UserId] = Scalar Operator([StackOverflow].[dbo].[Users].[UserId])

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

Ζήτημα Δεύτερο (20 μονάδες)

1) Πριν την δημιουργία ευρετηρίων

```
Results Messages
SQL Server parse and compile time:
  CPU time = 0 ms, elapsed time = 16 ms.

(283 rows affected)
Table 'PostTags'. Scan count 9, logical reads 6740, physical reads 1, page server reads 0, read-ahead reads 6645, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob
Table 'Tags'. Scan count 9, logical reads 349, physical reads 0, page server reads 0, read-ahead reads 115, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Posts'. Scan count 0, logical reads 2034, physical reads 1, page server reads 0, read-ahead reads 3312, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob re-
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-

SQL Server Execution Times:
  CPU time = 297 ms, elapsed time = 131 ms.

Completion time: 2022-05-15T11:42:38.0741402+02:00

100% Query executed successfully. LAPTOP-GBVK7IL9 (15.0 RTM) LAPTOP-GBVK7IL9\penas... StackOverflow 00:00:00 283 rows
```

100 % Execution plan

Query 1: Query cost (relative to the batch): 100%

```
select title, body, score, ViewCount from Posts, PostTags, Tags where Posts.postid=PostTags.postid and PostTags.tagid=tags.tagid and tagname = 'Info...
```

Missing index (Impact 88.6558): CREATE NONCLUSTERED INDEX [<Name of Missing Index, sysname,>] ON [dbo].[PostTags] ([TagId])

SELECT
Cost: 0 %

Parallelism
(Gather Streams)
Cost: 0 %

Nested Loops
(Inner Join)
Cost: 0 %

Hash Match
(Inner Join)
Cost: 0 %

Clustered Index Scan (Clustered Index Scan)
[Tags].[PK_Tags_657CF9AC9A...]
Cost: 1 %

Clustered Index Scan (Clustered Index Scan)
[PostTags].[PK_PostTags_7C...]
Cost: 89 %

Clustered Index Scan (Clustered Index Scan)
[Posts].[PK_Posts_Ah126018...]
Cost: 9 %

Query executed successfully.

LAPTOP-G8VK71L9 (15.0 RTM) LAPTOP-G8VK71L9\penas... StackOverflow 00:00:00 0 rows

Μετα την δημιουργία του ευρετηρίου `create index second_index on PostTags(PostId)`

```
100 % |<
Results Messages
SQL Server parse and compile time:
    CPU time = 0 ms, elapsed time = 6 ms.

(283 rows affected)
Table 'PostTags'. Scan count 9, logical reads 5511, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob rea
Table 'Tags'. Scan count 9, logical reads 349, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ah
Table 'Posts'. Scan count 0, logical reads 1216, physical reads 0, read-ahead reads 0, page server reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-a
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-

SQL Server Execution Times:
    CPU time = 281 ms, elapsed time = 102 ms.

Completion time: 2022-05-18T11:44:27.9654310+02:00

100 % |<
Query executed successfully.
LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 283 rows
```

100 %

Messages Execution plan

Query 1: Query cost (relative to the batch): 100%

select title, body, score, ViewCount from Posts, PostTags, Tags where Posts.postid=PostTags.postid and PostTags.tagid=tags.tagid and tagname = 'Info...

Missing index (Impact 86.923): CREATE NONCLUSTERED INDEX [<Name of Missing Index, sysname,>] ON [dbo].[PostTags] ([TagId])

Cost: 0 %

Parallelism (Gather Streams)
Cost: 1 %

Nested Loops (Inner Join)
Cost: 0 %

Hash Match (Inner Join)
Cost: 0 %

Clustered Index Scan (Clustered)
[Tags].[PK_Tags_657CF9AC9A...]
Cost: 2 %

Clustered Index Seek (Clustered)
[Posts].[PK_Posts_AA126018...]
Cost: 11 %

Index Scan (NonClustered)
[PostTags].[second_index]
Cost: 87 %

Query executed successfully.

LAPTOP-G8VK7L19 (15.0 RTM) LAPTOP-G8VK7L19\pena... StackOverflow 00:00:00 0 rows

```
select title, body, score, ViewCount
from Posts, PostTags, Tags
where Posts.postid=PostTags.postid and
PostTags.tagid=Tags.tagid and tagname = 'Informix'

select title, body, score, ViewCount
from Posts, PostTags, Tags
where Posts.postid=PostTags.postid and
PostTags.tagid=Tags.tagid and tagname = 'SQL'
```

100 %

Results Messages

SQL Server parse and compile time:
CPU time = 15 ms, elapsed time = 26 ms.

(283 rows affected)

Table 'PostTags'. Scan count 9, logical reads 5511, physical reads 1, page server reads 0, read-ahead reads 5487, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Tags'. Scan count 9, logical reads 349, physical reads 1, page server reads 0, read-ahead reads 123, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Posts'. Scan count 0, logical reads 204752, physical reads 1, page server reads 0, read-ahead reads 3312, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

SQL Server Execution Times:
CPU time = 266 ms, elapsed time = 113 ms.

(92450 rows affected)

Table 'PostTags'. Scan count 9, logical reads 5511, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Tags'. Scan count 9, logical reads 349, physical reads 0, page server reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Posts'. Scan count 0, logical reads 204752, physical reads 0, page server reads 0, read-ahead reads 188920, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

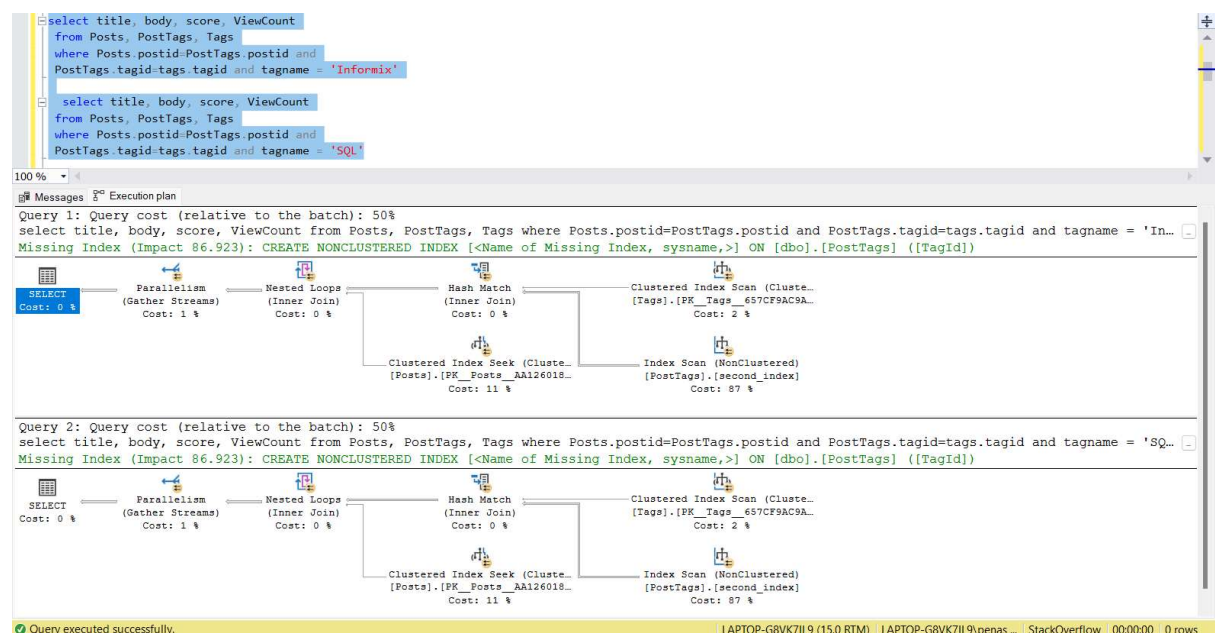
SQL Server Execution Times:
CPU time = 1875 ms, elapsed time = 1058 ms.

Completion time: 2022-05-15T11:52:02.2599199+02:00

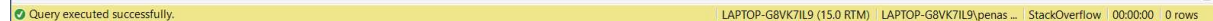
100 %

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9.penas ... StackOverflow 00:00:01 33.733 rows



```
i)select distinct users.userId, users.displayName
from users
inner join posts
on users.userId = posts.ownerUserId
where 0 > ALL
(select posts.score
from posts
inner join users u
on posts.ownerUserId = u.userId and users.userId = u.userId)
```

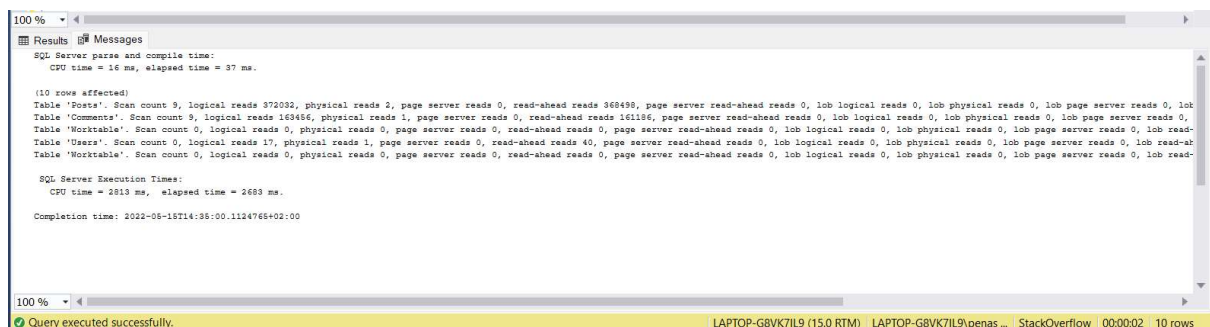

[illegible]

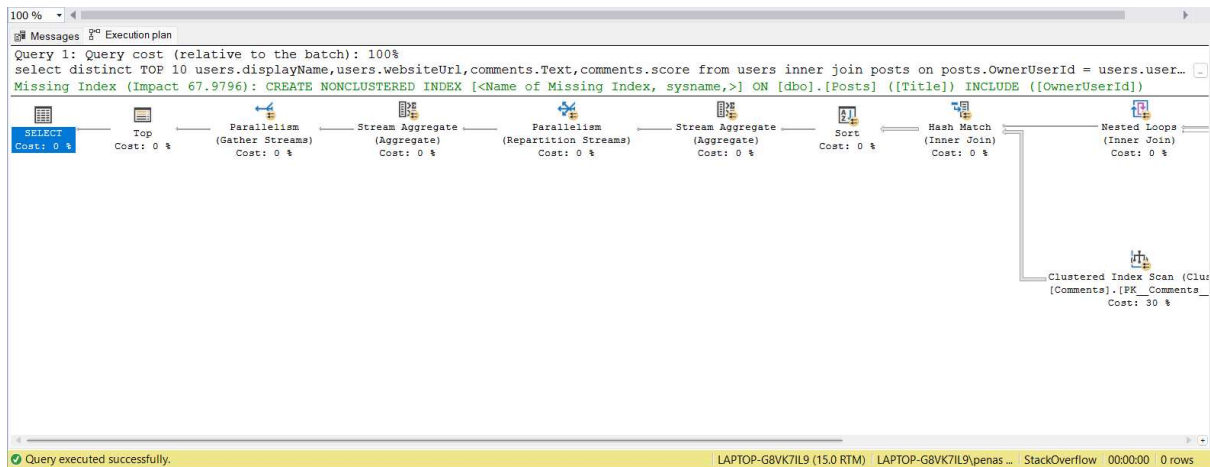
Ζήτημα Τέταρτο (40 μονάδες)

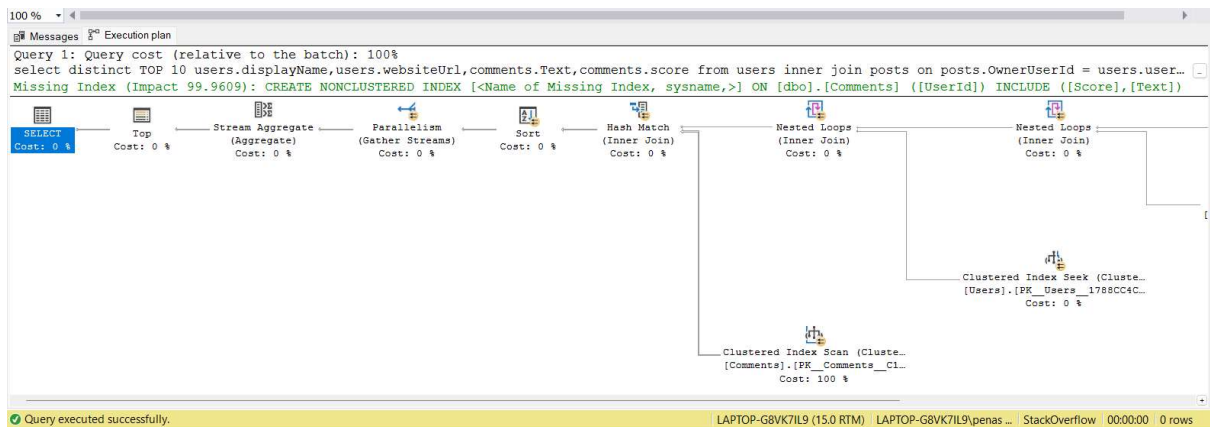
i) Βρίσκει τα 10 κορυφαία σχόλια για το θέμα 'Encrypting Passwords' και τα εμφανίζει μαζί με το όνομα του χρήστη το URL της ιστοσελίδας του και το 'σκορ' του σχολίου του. Τα αποτελέσματα εμφανίζονται σε φθίνουσα σειρά βάσει το 'σκορ' σχολίου

```
select distinct TOP 10 users.displayName, users.websiteUrl, comments.Text, comments.score
from users
inner join posts
on posts.OwnerUserId = users.userId
inner join comments
on comments.userId = users.userId
where posts.Title like 'Encrypting Passwords'
order by comments.score DESC
```

Πριν την δημιουργία ευρετηρίου



[illegible]



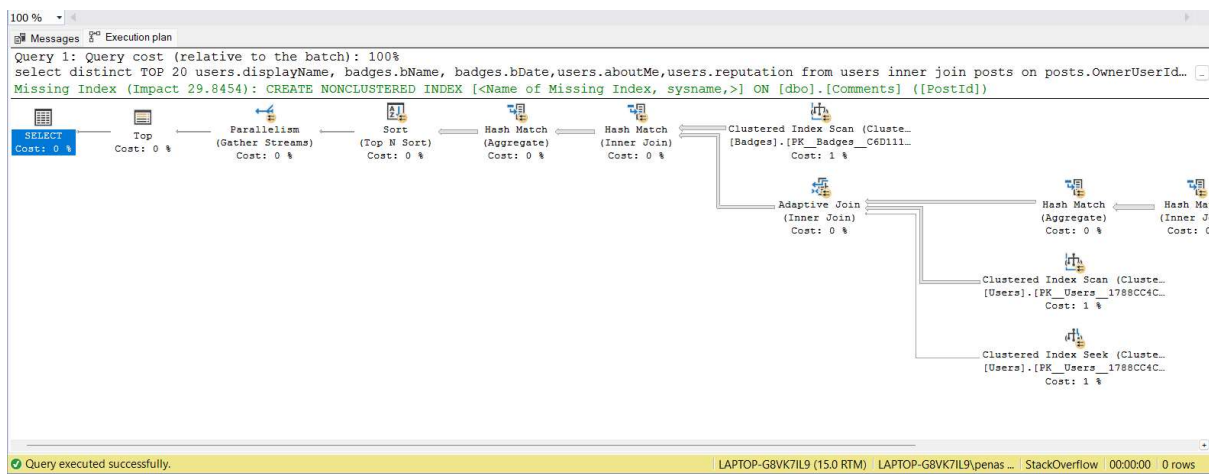
```
select distinct TOP 20 users.displayName, badges.bName,
badges.bDate,users.aboutMe,users.reputation
from users
inner join posts
on posts.OwnerUserId = users.userId
inner join badges
on badges.userId = users.UserId
inner join comments
on comments.PostId = posts.postId
WHERE badges.bname = 'Scholar'
order by reputation DESC
```

```
100% ▾ |
Results Messages
SQL Server parse and compile time:
    CPU time = 78 ms, elapsed time = 106 ms.

(20 rows affected)
Table 'Users'. Scan count 9, logical reads 6901, physical reads 2, page server reads 0, read-ahead reads 5717, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob res
Table 'Comments'. Scan count 9, logical reads 163466, physical reads 1, page server reads 0, read-ahead reads 161910, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0,
Table 'Posts'. Scan count 9, logical reads 371592, physical reads 2, page server reads 0, read-ahead reads 368479, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob
Table 'Badges'. Scan count 9, logical reads 5942, physical reads 1, page server reads 0, read-ahead reads 5874, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob re
Table 'Worthable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Worthable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-

SQL Server Execution Times:
    CPU time = 3793 ms, elapsed time = 2872 ms.

100% ▾ |
Query executed successfully.
LAPTOP-G8VK7I19 (15.0 RTM) LAPTOP-G8VK7I19.nas... StackOverflow 00:00:03 20 rows
```

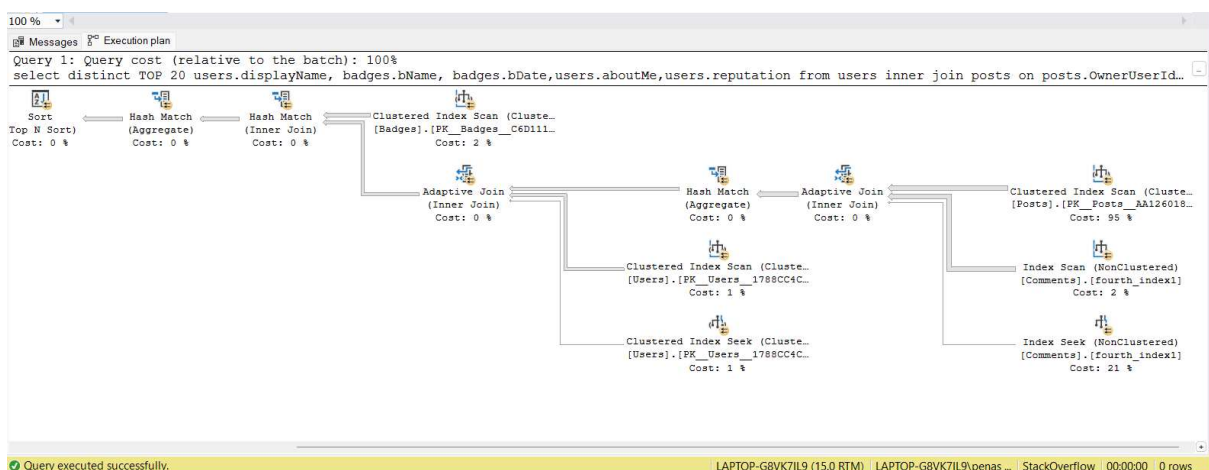


```
100% >
Results Messages
SQL Server parse and compile time:
    CPU time = 0 ms, elapsed time = 0 ms.

(20 rows affected)
Table 'Users'. Scan count 9, logical reads 6001, physical reads 2, page server reads 0, read-ahead reads 5717, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob re
Table 'Comments'. Scan count 9, logical reads 6788, physical reads 1, page server reads 0, read-ahead reads 6764, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob
Table 'Posts'. Scan count 9, logical reads 374962, physical reads 0, page server reads 0, read-ahead reads 190753, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob
Table 'Categories'. Scan count 9, logical reads 5942, physical reads 0, page server reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-

SQL Server Execution Times:
    CPU time = 3406 ms, elapsed time = 1489 ms.

100% >
Query executed successfully.
LAPTOP-G8VK7U19 (15.0 RTM) LAPTOP-G8VK7U19\neqna... StarOverflow 000001 20 rows
```



100 %

Messages Execution plan

Query 1: Query cost (relative to the select displayName, userlocation fro

SELECT
Cost: 0 %

Clustered Index Scan (Clustered)
Cost: 100 %

Clustered Index Scan (Clustered)
Scanning a clustered index, entirely or only a range.

Physical Operation	Clustered Index Scan
Logical Operation	Clustered Index Scan
Estimated Execution Mode	Row
Storage	RowStore
Estimated Operator Cost	4,54966 (100%)
Estimated I/O Cost	4,22016
Estimated Subtree Cost	4,54966
Estimated CPU Cost	0,329494
Estimated Number of Executions	1
Estimated Number of Rows to be Read	299397
Estimated Number of Rows for All Executions	261,102
Estimated Number of Rows Per Execution	261,102
Estimated Row Size	153 B
Ordered	False
Node ID	0

Predicate
[StackOverflow].[dbo].[Users].[UserLocation] like N'%Greece'

Object
[StackOverflow].[dbo].[Users].[PK_Users_1788CC4C29217836]

Output List
[StackOverflow].[dbo].[Users].[DisplayName]; [StackOverflow].[dbo].[Users].[UserLocation]

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

INS

Μετά την δημιουργία του ευρετηρίου

100 %

Results Messages

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

(315 rows affected)
Table 'Users'. Scan count 1, logical reads 1632, physical reads 0, page server reads 0, read-ahead reads 0, page server read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob page server reads 0, lob read-ahead reads 0.

SQL Server Execution Times:
CPU time = 125 ms, elapsed time = 136 ms.

Completion time: 2022-05-17T19:16:46.5111892+02:00

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 315 rows

100 %

Messages Execution plan

Query 1: Query cost (relative to the select displayName, userlocation fro

SELECT
Cost: 0 %

Index Scan (NonClustered)
Cost: 100 %

Index Scan (NonClustered)
Scan a nonclustered index, entirely or only a range.

Physical Operation	Index Scan
Logical Operation	Index Scan
Estimated Execution Mode	Row
Storage	RowStore
Estimated Operator Cost	1,5304 (100%)
Estimated I/O Cost	1,2009
Estimated Subtree Cost	1,5304
Estimated CPU Cost	0,329494
Estimated Number of Executions	1
Estimated Number of Rows to be Read	299397
Estimated Number of Rows for All Executions	321,414
Estimated Number of Rows Per Execution	321,414
Estimated Row Size	153 B
Ordered	False
Node ID	0

Predicate
[StackOverflow].[dbo].[Users].[UserLocation] like N'%Greece'

Object
[StackOverflow].[dbo].[Users].[idx1]

Output List
[StackOverflow].[dbo].[Users].[DisplayName]; [StackOverflow].[dbo].[Users].[UserLocation]

Query executed successfully.

LAPTOP-G8VK7IL9 (15.0 RTM) LAPTOP-G8VK7IL9\penas ... StackOverflow 00:00:00 0 rows

Ch 1 INS

2) Στην ουσία αφού το Greece βρίσκεται στο τέλος θα το διαβάζει πάντα στο τέλος.Επομένως μια λύση θα ήταν να διαγράψουμε το Greece από το τέλος και να το προσθέσουμε στην αρχή έτσι ώστε να το διαβάζει πρώτο

