

## Εργασία Μέρος Α

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### Ζήτημα Πρώτο

1.

```
CREATE INDEX idx_title  
ON bibrecs (title);
```

2.

a.

```
select title  
from bibrecs where title like '%Πληροφορική%'  
order by title;
```

b.

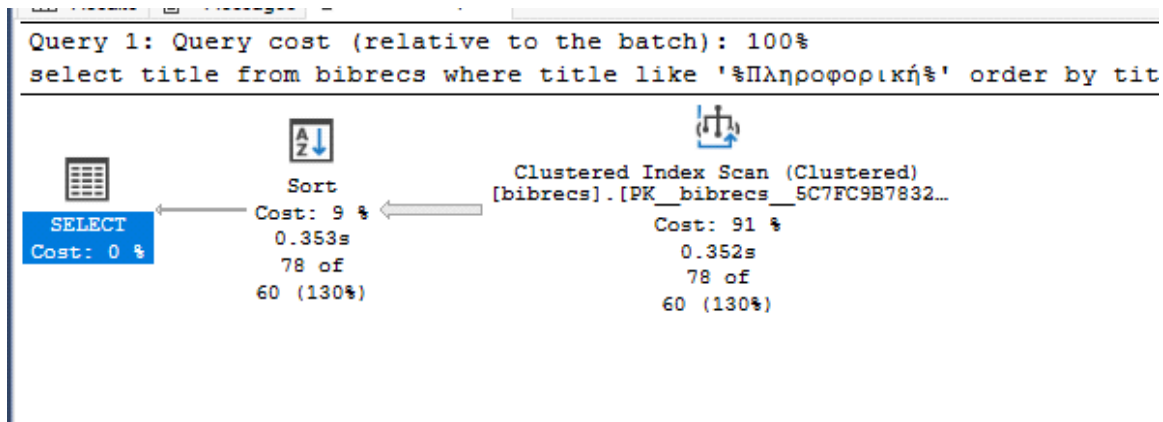
```
select title, material  
from bibrecs where title = 'Economics'  
order by title;
```

c.

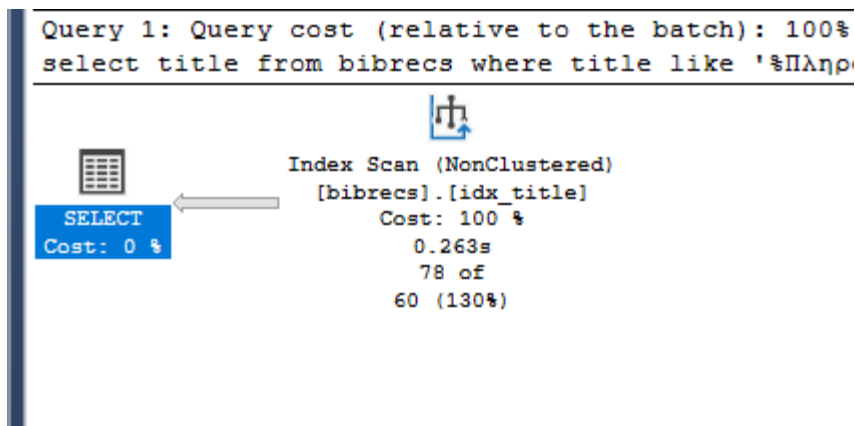
```
select title, material  
from bibrecs where title like 'Economics%'  
order by title;
```

Η δημιουργία του ευρετηρίου πάνω στο γνώρισμα title του bibrecs επιταχύνει μόνο τα δύο πρώτα επερωτήματα και επιβραδύνει ελάχιστα το τρίτο, όπως φαίνεται και στα screenshot. Αυτό γίνεται καθώς και τα τρία επερωτήματα επιλέγουν το γνώρισμα title.

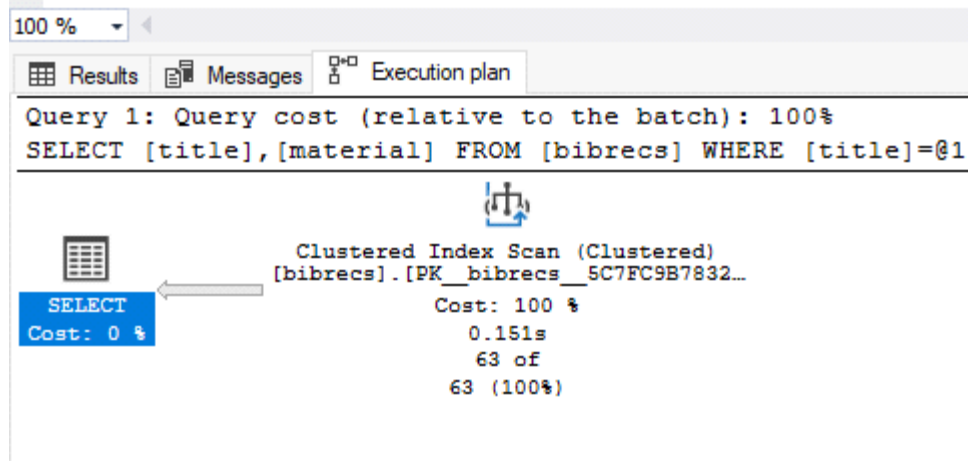
2a χωρίς index



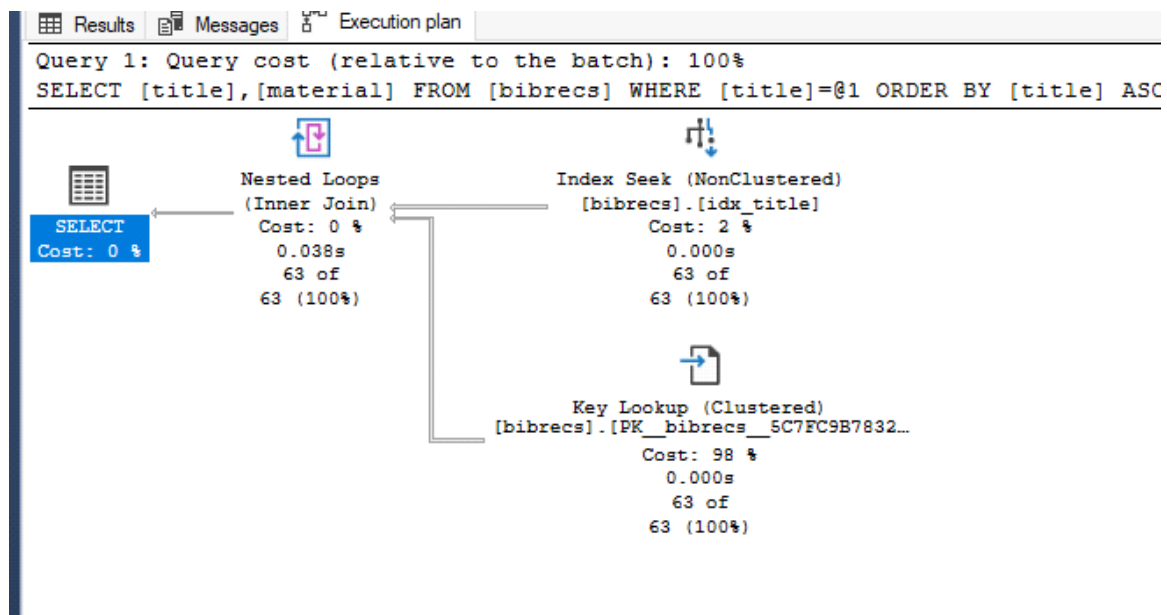
2a με index



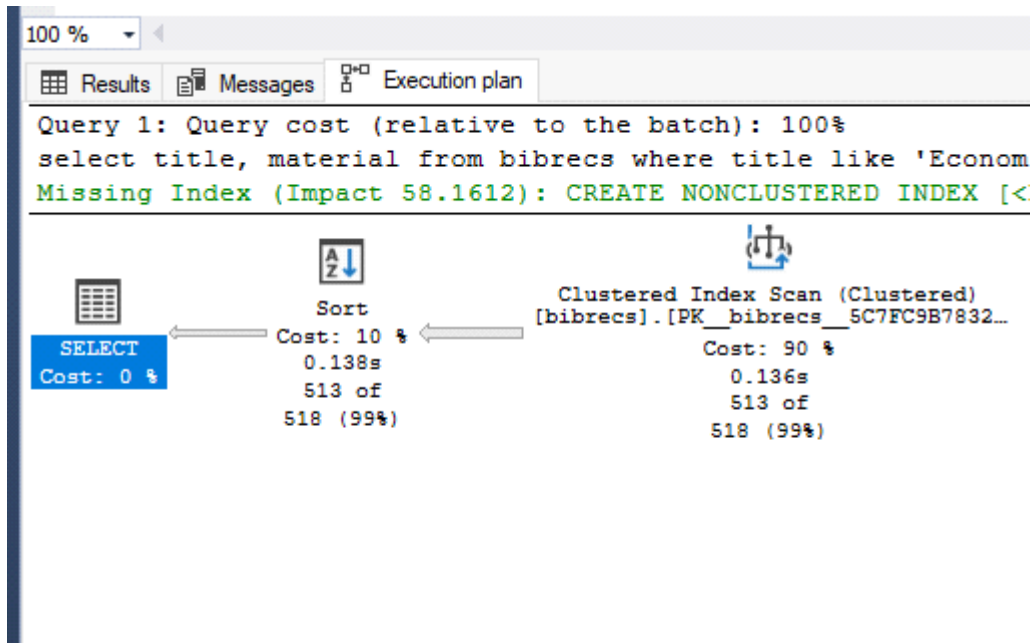
2b χωρίς index



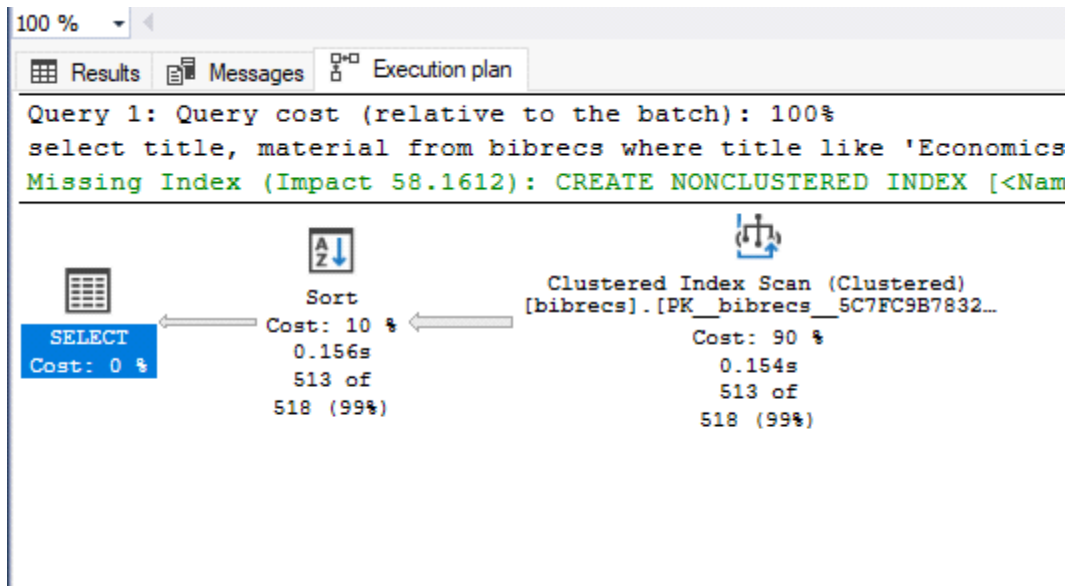
2b με index



2c χωρίς index



2c με index



## Ζήτημα Δεύτερο

1.

a.

select bibrecs.title, bibrecs.lang, publishers.pubname

```
from bibrecs
inner join publishers
on publishers.pubid = bibrecs.pubid
where publishers.pubname = 'Κλειδάριθμος';
```

**b.**

```
select departments.depname, COUNT(loanstats.lid) total_loans_in_2000
from loanstats, departments
inner join borrowers
on borrowers.decode = departments.decode
where borrowers.bid = loanstats.bid and (year(loanstats.loandate) =
'2000')
group by departments.depname;
```

**c.**

```
select bibrecs.title, bibrecs.lang, authors.author
from bibrecs
inner join bibterms
on bibterms.bibno = bibrecs.bibno
inner join bibauthors
on bibauthors.bibno = bibrecs.bibno
inner join authors
on authors.aid = bibauthors.aid
inner join sterms
on bibterms.tid = sterms.tid
where sterms.term = 'Databases';
```

## 2. Δημιουργία των indexes

```
create index idx_pubid
```

```
on bibrecs (pubid);
```

```
create index idx_pubname
```

```
on publishers (pubname);
```

```
create index idx_decode
```

```
on borrowers (decode);
```

```
create index idx_bid
```

```
on loanstats (bid);
```

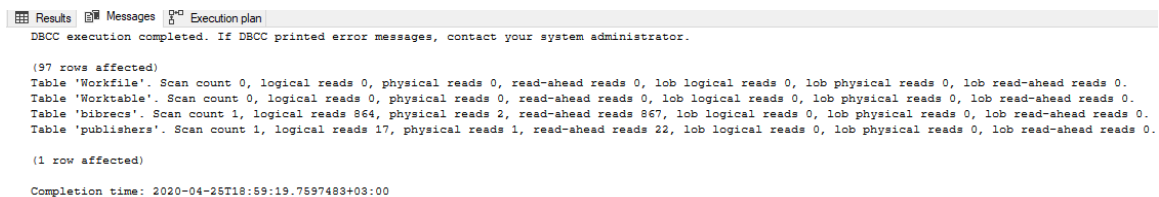
```
create index idx_loandate
```

```
on loanstats (loandate);
```

```
create index idx_terms
```

```
on sterms (term);
```

## 1a χωρίς index



The screenshot shows a database execution plan window with tabs for Results, Messages, and Execution plan. The Results tab is active, displaying the following information:

DBCC execution completed. If DBCC printed error messages, contact your system administrator.

(97 rows affected)

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

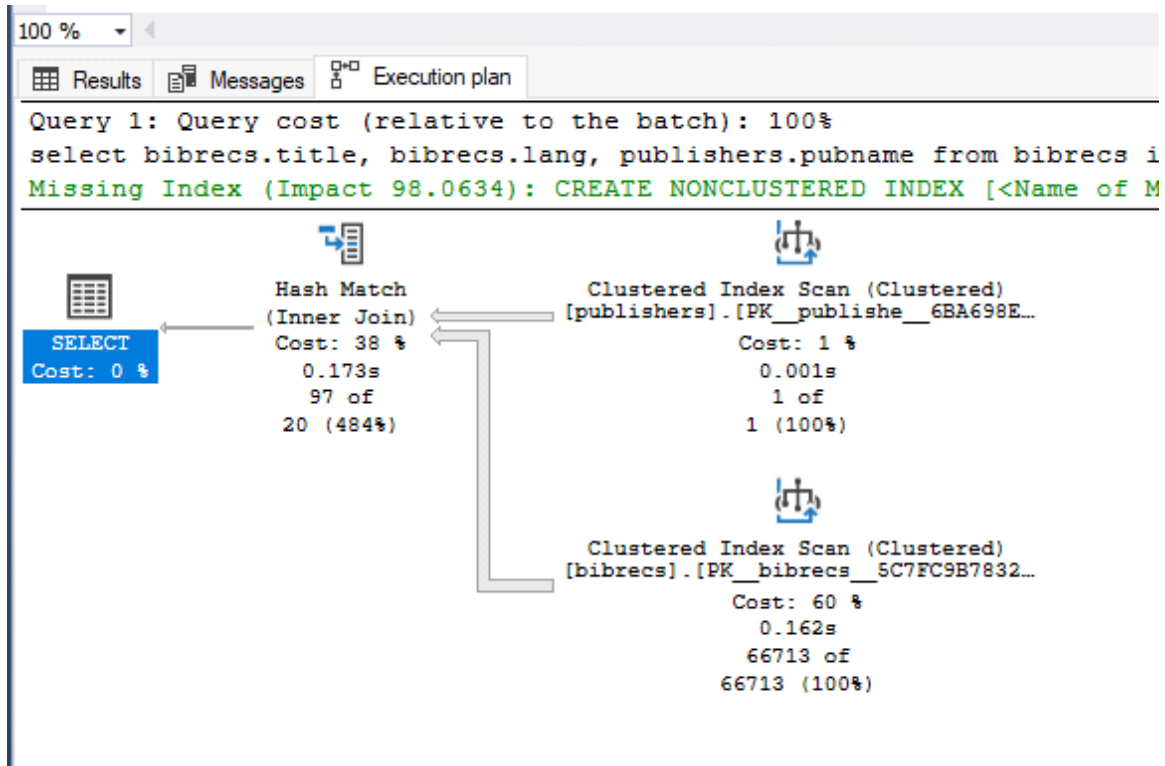
Table 'Worktable'. Scan count 0, logical reads 0, physical reads 0, read-ahead reads 0, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

Table 'bibrecs'. Scan count 1, logical reads 864, physical reads 2, read-ahead reads 867, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

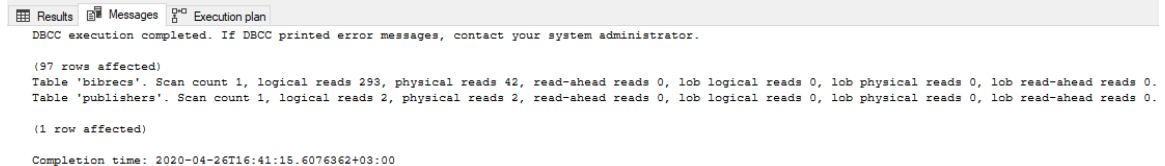
Table 'publishers'. Scan count 1, logical reads 17, physical reads 1, read-ahead reads 22, lob logical reads 0, lob physical reads 0, lob read-ahead reads 0.

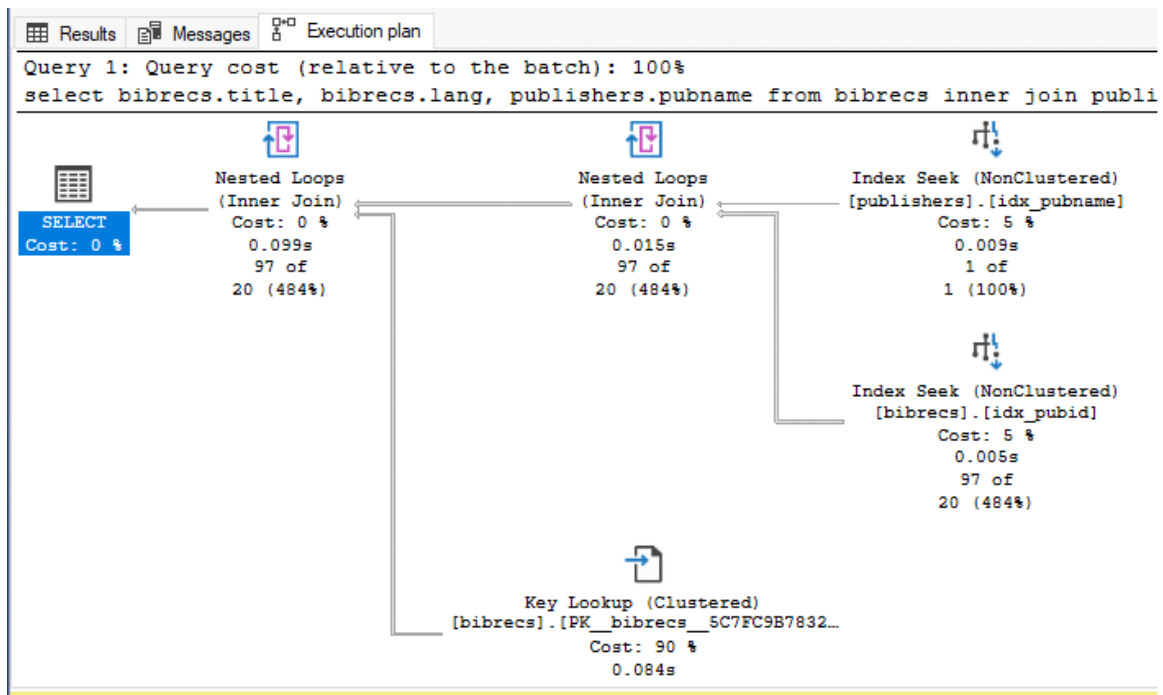
(1 row affected)

Completion time: 2020-04-25T18:59:19.7597483+03:00

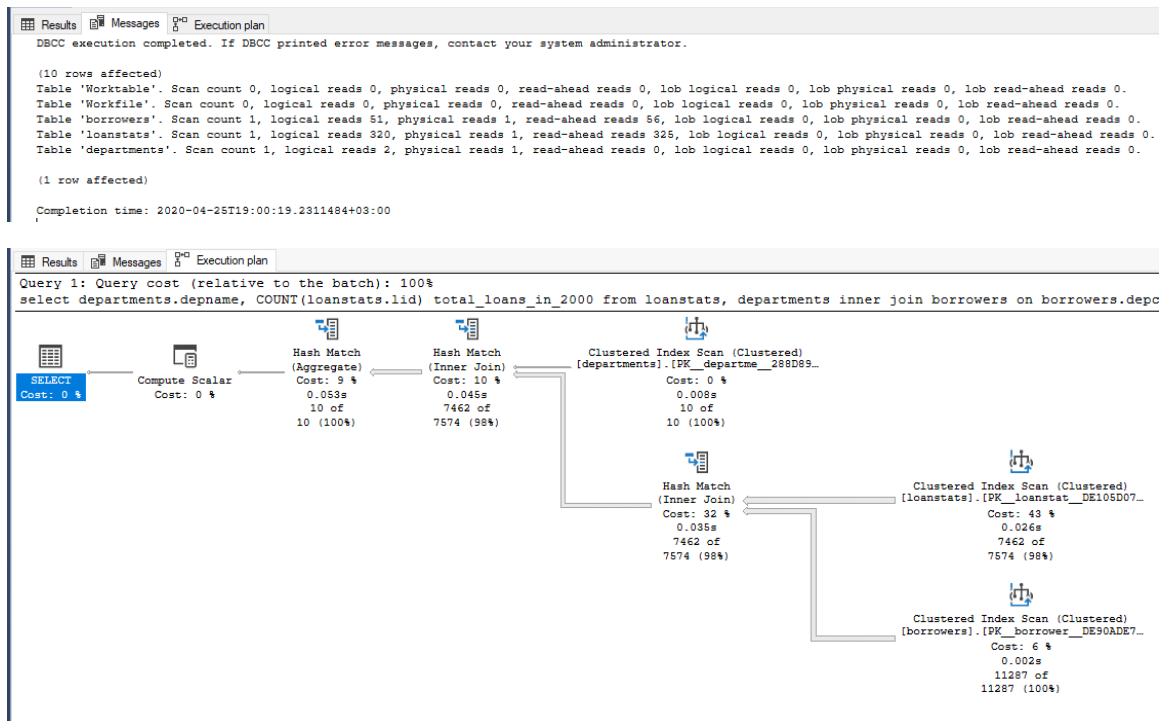


1a µε index



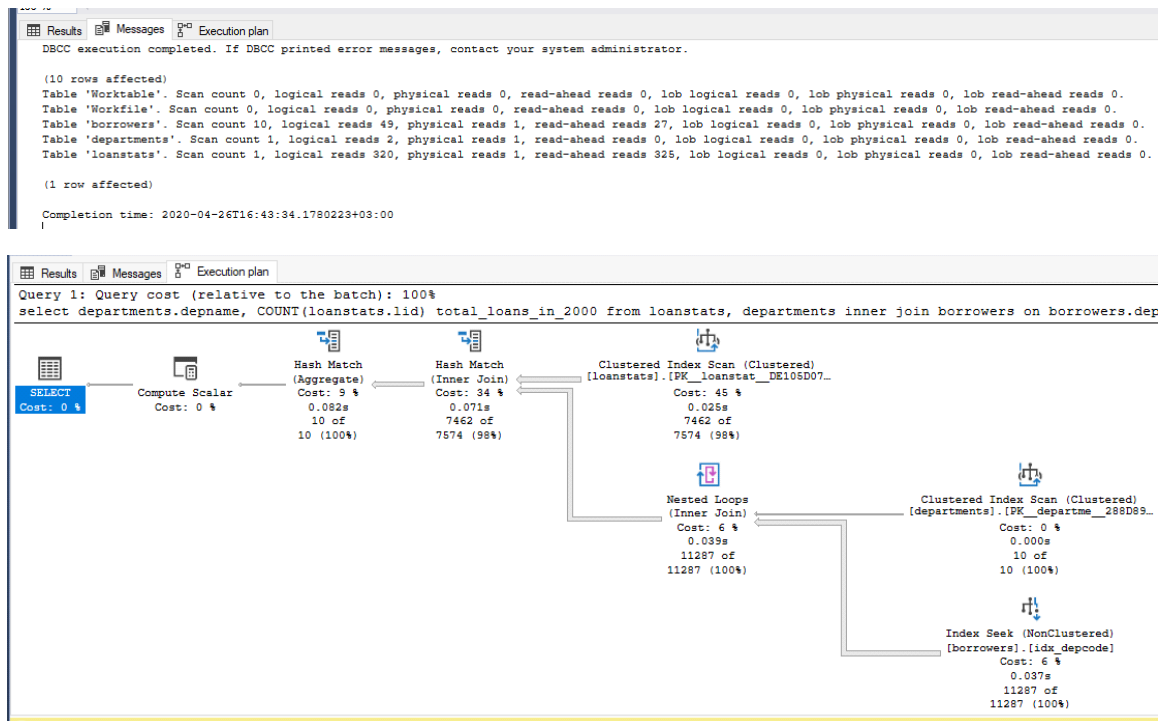


## 1b χωρίς index

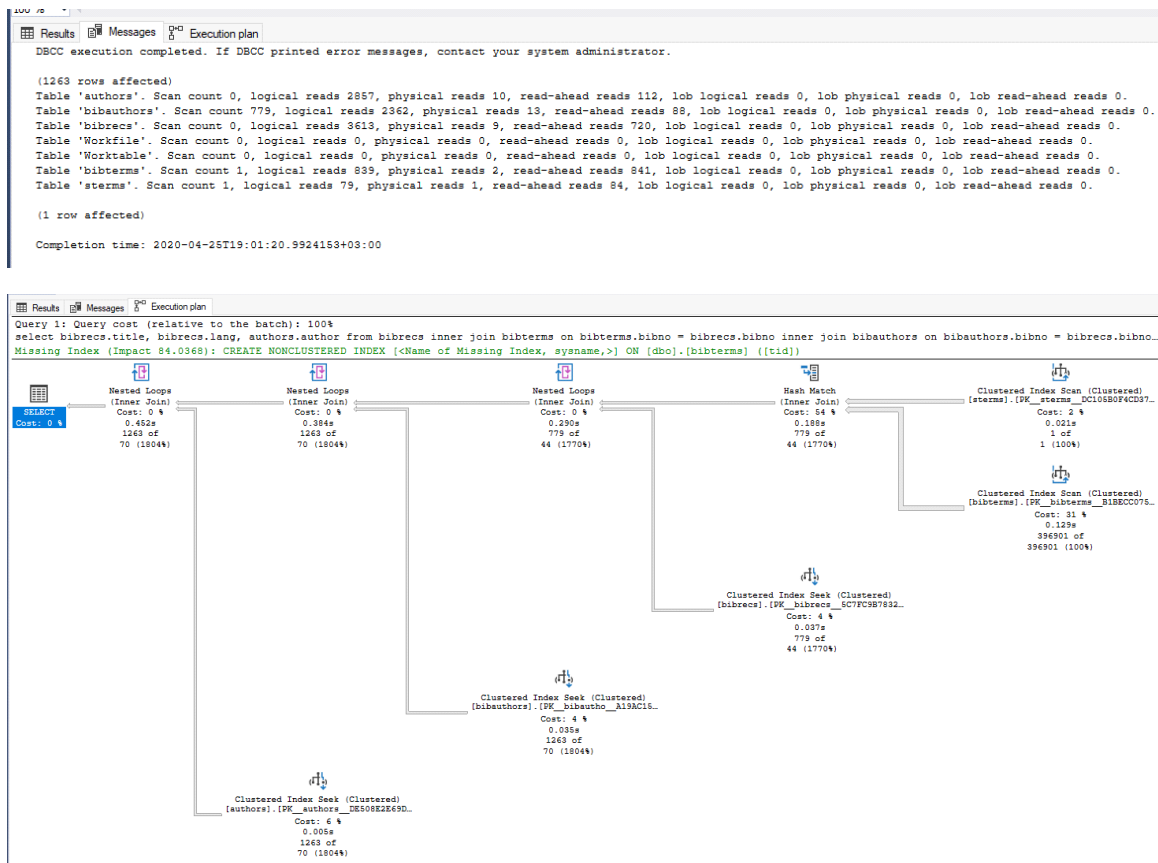


## 1b με index

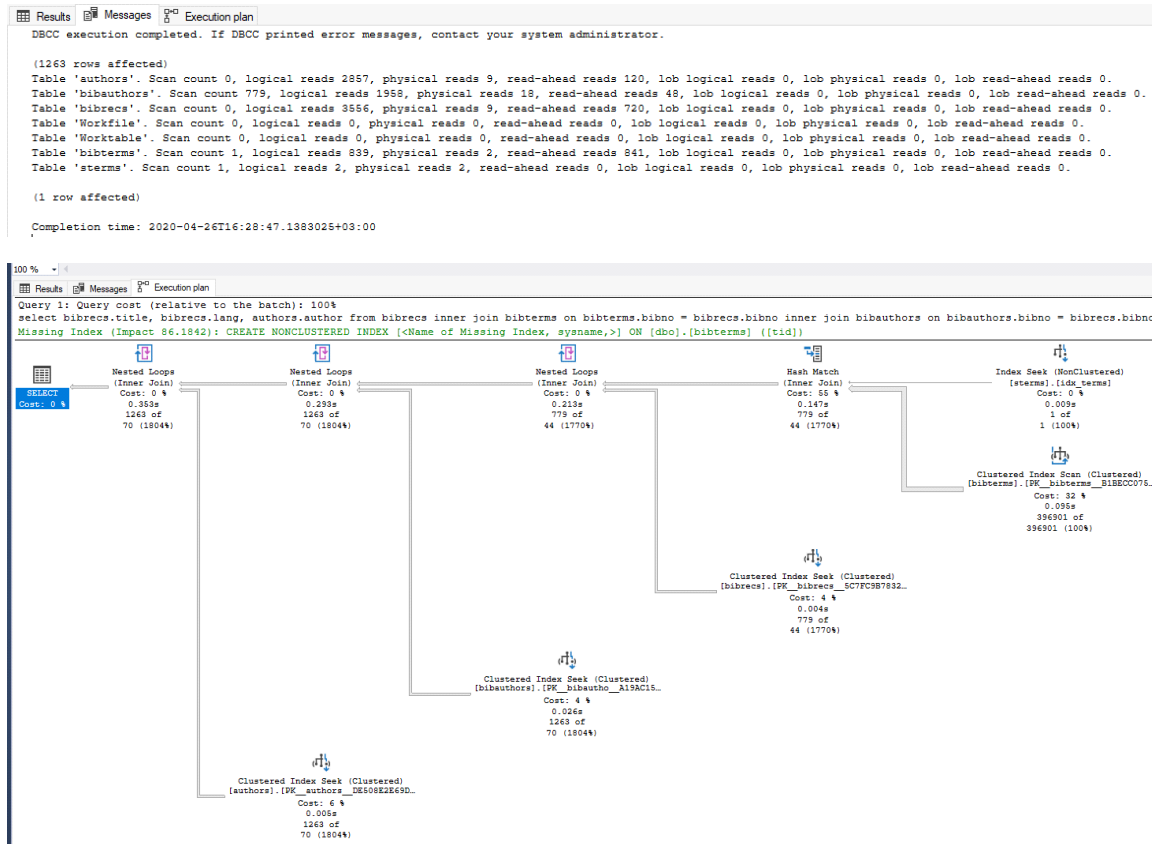




## 1c χωρίς index



## 1c με index



## Ζήτημα Τρίτο

1.

`select bibrecs.bibno, bibrecs.title`

`from bibrecs`

`where exists`

`(select *`

`from copies`

`where bibrecs.bibno = copies.bibno`

`and copies.copyloc = 'OPA')`

`and exists`

`(select *`

```
        from copies
        where bibrecs.bibno = copies.bibno
        and copies.copyloc = 'ANA');

select bibrecs.bibno, bibrecs.title
from bibrecs
inner join copies c
on c.bibno = bibrecs.bibno and c.copyloc = 'OPA'
inner join copies c1
on c1.bibno = bibrecs.bibno and c1.copyloc = 'ANA'
group by bibrecs.bibno, bibrecs.title;
```

2.

```
create index idx_title
on bibrecs (title);

create index idx_copyloc
on copies (copyloc);

create index idx_bibno
on copies (bibno);
```

## Ζήτημα Τέταρτο

1.

```
create table words
(
    wid int identity primary key,
```

```
        word varchar(20)
    );

create table bibwords
(
    wid int foreign key references words (wid),
    bibno int foreign key references bibrecs (bibno),
    primary key (wid, bibno)
);
```

**2.**

```
create index idx_word
on words (word);
```