Σχεδιασμός Βάσεων Δεδομένων

Project Part B

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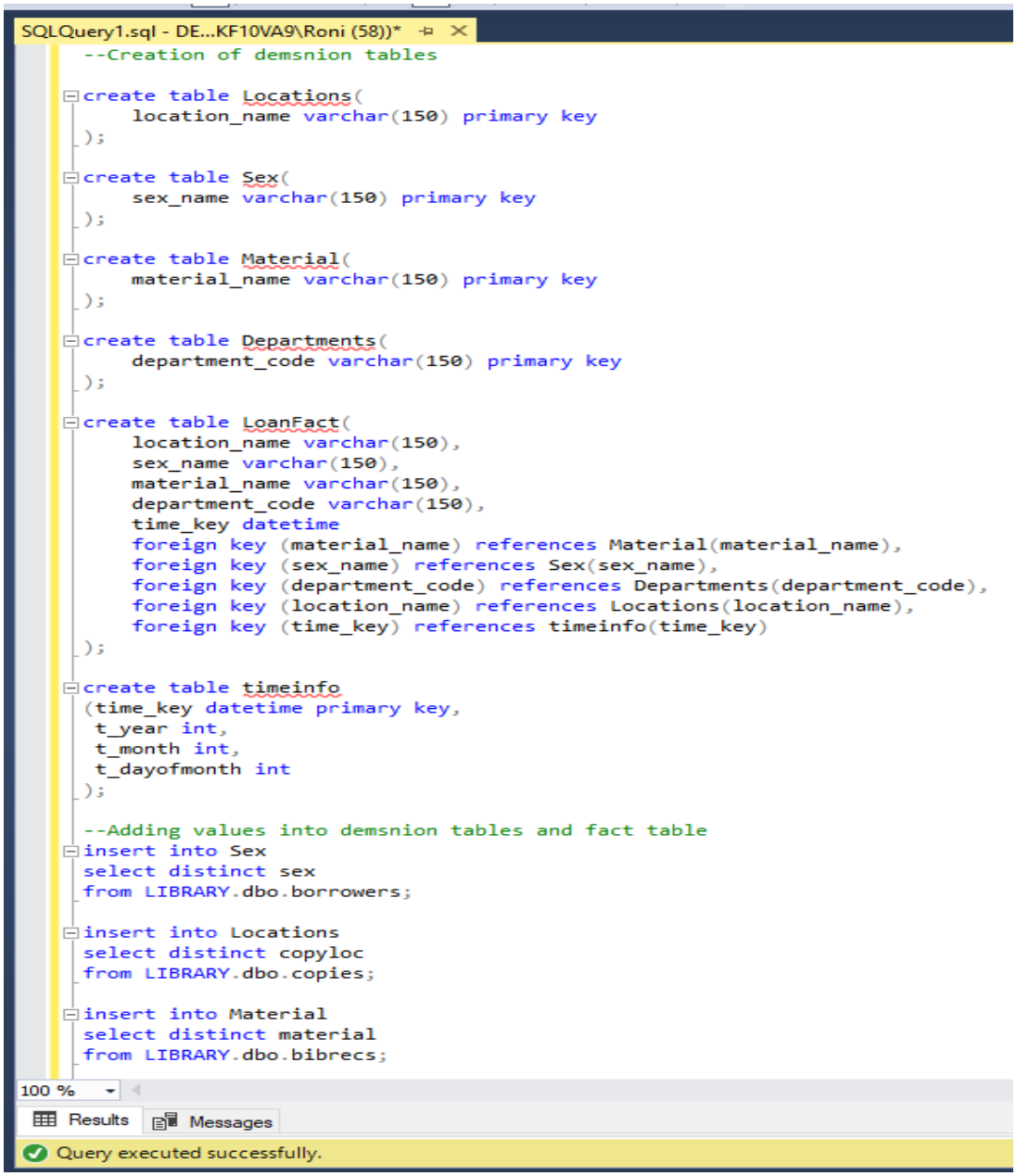
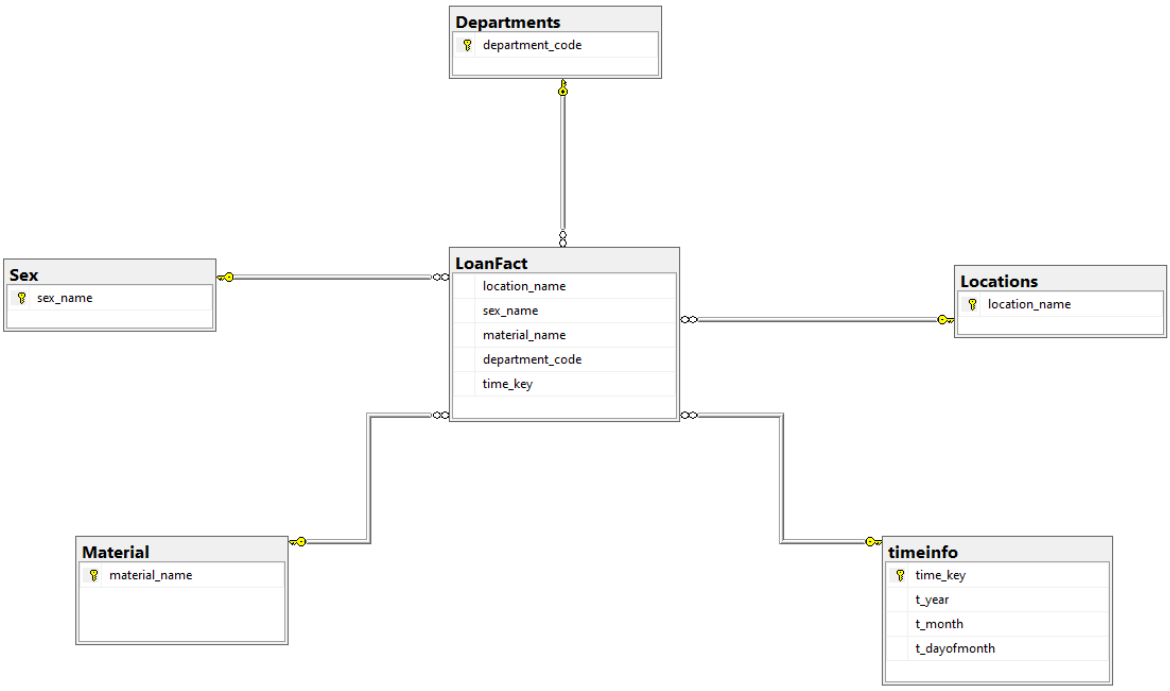
Ζήτημα Πρώτο

Στις εικόνες παρακάτω βλέπουμε ότι έχει δημιουργηθεί η νέα βάση, το σχήμα της βάσης (Star schema) καθώς και οι sql εντολές για την δημιουργία των πινάκων.




Departments
department_code
Sex
sex_name
LoanFact
location_name
sex_name
material_name
department_code
time_key
Locations
location_name
Material
material_name
timeinfo
time_key
t_year
t_month
t_dayofmonth

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
    foreign key (material_name) references Material(material_name),
    foreign key (sex_name) references Sex(sex_name),
    foreign key (department_code) references Departments(department_code),
    foreign key (location_name) references Locations(location_name),
    foreign key (time_key) references timeinfo(time_key)
);

create table timeinfo
(time_key datetime primary key,
 t_year int,
 t_month int,
 t_dayofmonth int
);

--Adding values into demsnion tables and fact table
insert into Sex
select distinct sex
from LIBRARY.dbo.borrowers;

insert into Locations
select distinct copyloc
from LIBRARY.dbo.copies;

insert into Material
select distinct material
from LIBRARY.dbo.bibrecs;

insert into Departments
select distinct depcode
from LIBRARY.dbo.departments;

insert into timeinfo
select distinct loandate, datepart(year, loandate), datepart(month, loandate), datepart(day, loandate)
from LIBRARY.dbo.loanstats;

insert into LoanFact
select distinct cop.copyloc, bor.sex, bib.material, dep.depcode, loa.loandate
from LIBRARY.dbo.copies as cop
join LIBRARY.dbo.loanstats as loa
on cop.copyno = loa.copyno
join LIBRARY.dbo.bibrecs as bib
on cop.bibno = bib.bibno
join LIBRARY.dbo.borrowers as bor
on bor.bid = loa.bid
join LIBRARY.dbo.departments as dep
on dep.depcode = bor.depcode;
```

Ζήτημα Δεύτερο

Ερώτημα 1

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
select datepart(year, loanfact.time_key) as date, loanfact.department_code, count(*) as total_loans
from loanfact, timeinfo, departments
where loanfact.time_key = timeinfo.time_key and departments.department_code = loanfact.department_code
group by datepart(year, loanfact.time_key), loanfact.department_code
order by datepart(year, loanfact.time_key);
```

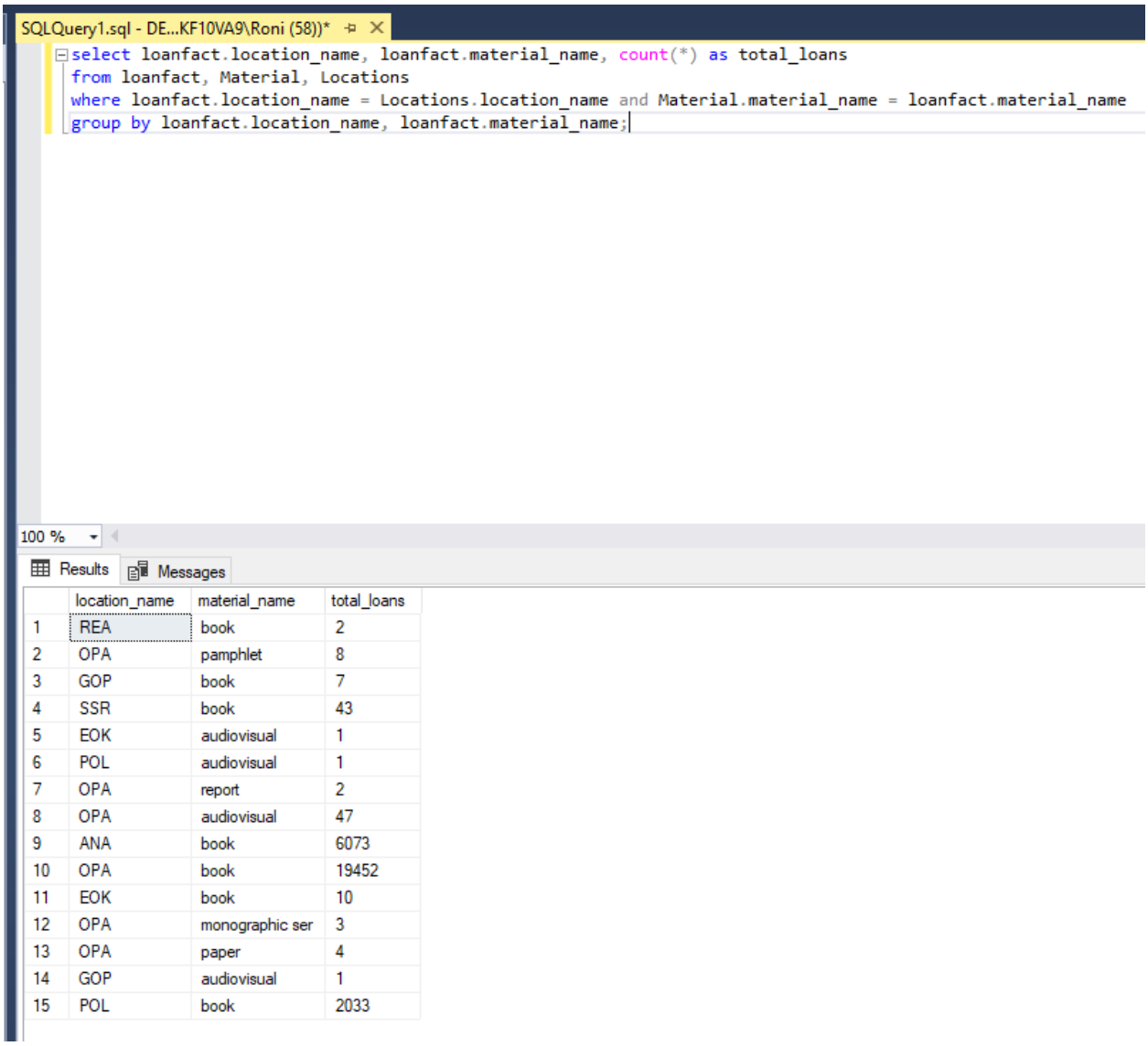
100 %

Results | Messages

	date	department_code	total_loans
1	1995	6	58
2	1995	8	2
3	1995	9	2
4	1995	4	136
5	1995	10	16
6	1995	7	7
7	1995	1	137
8	1995	5	134
9	1995	2	26
10	1995	3	74
11	1996	1	213
12	1996	6	117
13	1996	10	7
14	1996	2	66
15	1996	8	6
16	1996	9	13
17	1996	3	134
18	1996	4	224
19	1996	7	8
20	1996	5	200
21	1997	8	8
22	1997	2	102
23	1997	9	42
24	1997	1	267

Query executed successfully.

Ερώτημα 2



	location_name	material_name	total_loans
1	REA	book	2
2	OPA	pamphlet	8
3	GOP	book	7
4	SSR	book	43
5	EOK	audiovisual	1
6	POL	audiovisual	1
7	OPA	report	2
8	OPA	audiovisual	47
9	ANA	book	6073
10	OPA	book	19452
11	EOK	book	10
12	OPA	monographic ser	3
13	OPA	paper	4
14	GOP	audiovisual	1
15	POL	book	2033

Ερώτημα 3

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
select datepart(month, LoanFact.time_key) as month, LoanFact.sex_name, COUNT(*) as total_loans
from LoanFact, Sex, timeinfo
where LoanFact.sex_name = Sex.sex_name and loanfact.time_key = timeinfo.time_key and timeinfo.t_year = 2000
group by datepart(month, LoanFact.time_key), LoanFact.sex_name
order by datepart(month, LoanFact.time_key);
```

100 %

Results | Messages

	month	sex_name	total_loans
1	1	F	79
2	1	M	91
3	2	F	82
4	2	M	101
5	3	M	121
6	3	F	154
7	4	M	108
8	4	F	151
9	5	F	115
10	5	M	92
11	6	M	90
12	6	F	54
13	7	M	71
14	7	F	43
15	8	F	21
16	8	M	28
17	9	F	44
18	9	M	68
19	10	M	95
20	10	F	93
21	11	M	142
22	11	F	201
23	12	M	85
24	12	F	98

Ερώτημα 4

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
select datepart(month, loanfact.time_key) as month, count(*) as total_loans
from LoanFact, timeinfo
where LoanFact.time_key = timeinfo.time_key
group by datepart(month, loanfact.time_key)
having count(*) > 800;
```

100 %

Results | Messages

	month	total_loans
1	9	1656
2	3	3434
3	12	2686
4	6	1765
5	7	1479
6	1	2318
7	10	2795
8	4	2806
9	5	2420
10	2	2322
11	11	3303

Ερώτημα 5

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
select timeinfo.t_year, Departments.department_code, Sex.sex_name, count(*) as total_loans
from LoanFact, timeinfo, Departments, Sex
where timeinfo.t_year = datepart(year, loanfact.time_key) and sex.sex_name = LoanFact.sex_name and Departments.department_code = LoanFact.department_code
group by rollup (timeinfo.t_year, Departments.department_code, Sex.sex_name);
```

100 %

Results | Messages

	t_year	department_code	sex_name	total_loans
1	1995	1	M	15207
2	1995	1	NULL	15207
3	1995	10	M	1776
4	1995	10	NULL	1776
5	1995	2	M	2886
6	1995	2	NULL	2886
7	1995	3	M	8214
8	1995	3	NULL	8214
9	1995	4	M	15096
10	1995	4	NULL	15096
11	1995	5	M	14874
12	1995	5	NULL	14874
13	1995	6	M	6438
14	1995	6	NULL	6438
15	1995	7	M	777
16	1995	7	NULL	777
17	1995	8	M	222
18	1995	8	NULL	222
19	1995	9	M	222
20	1995	9	NULL	222
21	1995	NULL	NULL	65712
22	1996	1	M	41109
23	1996	1	NULL	41109

Ερώτημα 6

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

```
create view male_counter as
select count(*) as total_loans_per_dep, LoanFact.department_code from LoanFact, sex, Departments
where LoanFact.sex_name = 'M' and LoanFact.sex_name = sex.sex_name and LoanFact.department_code = Departments.department_code group by  LoanFact.department_code;
```

100 %

Results | Messages

	total_loans_per_dep	department_code
1	1753	3
2	677	9
3	1246	2
4	424	8
5	1887	6
6	2601	1
7	576	7
8	486	10
9	2163	5
10	2623	4

SQLQuery1.sql - DE...KF10VA9\Roni (58))*

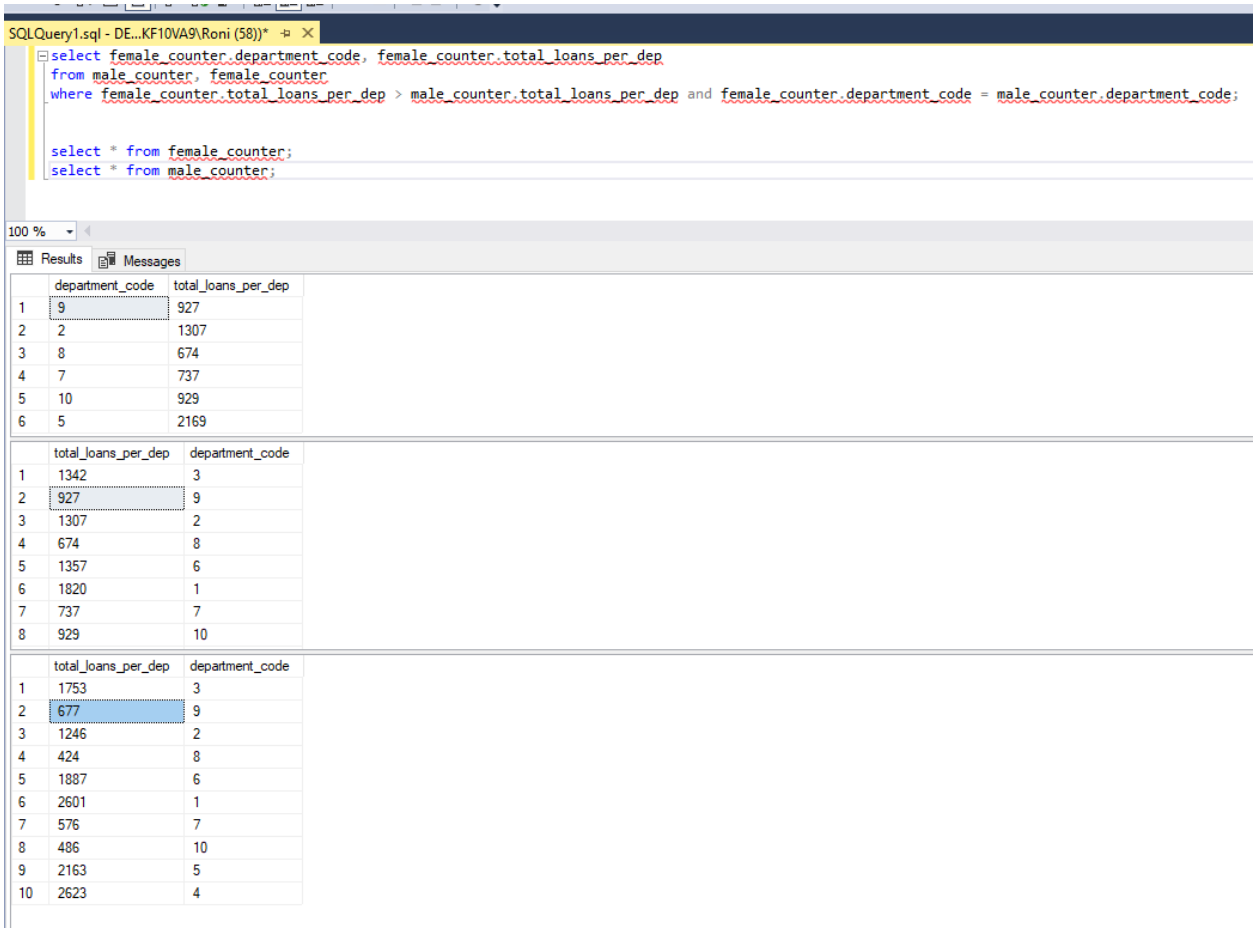
```
create view female_counter as
select count(*) as total_loans_per_dep, LoanFact.department_code from LoanFact, sex, Departments
where LoanFact.sex_name = 'F' and LoanFact.sex_name = sex.sex_name and LoanFact.department_code = Departments.department_code group by  LoanFact.department_code;
```

100 %

Messages

```
Commands completed successfully.

Completion time: 2020-06-02T18:32:50.0384176+03:00
```



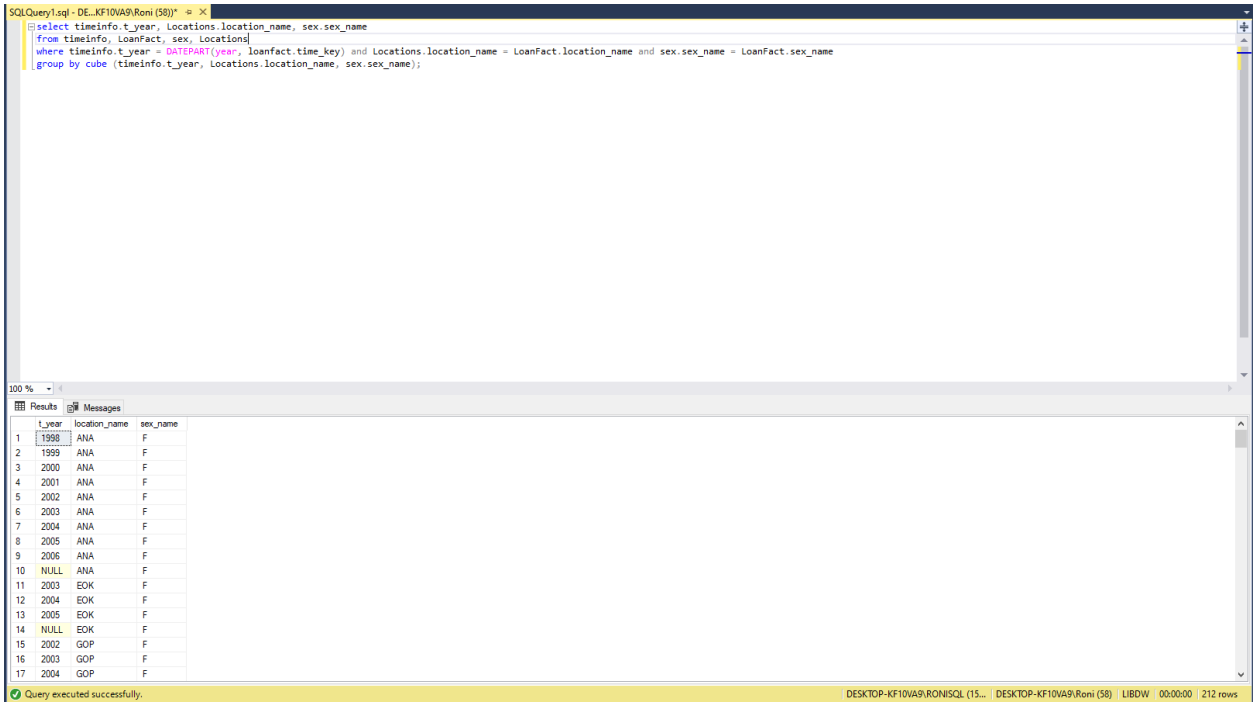
	department_code	total_loans_per_dep
1	9	927
2	2	1307
3	8	674
4	7	737
5	10	929
6	5	2169

	total_loans_per_dep	department_code
1	1342	3
2	927	9
3	1307	2
4	674	8
5	1357	6
6	1820	1
7	737	7
8	929	10

	total_loans_per_dep	department_code
1	1753	3
2	677	9
3	1246	2
4	424	8
5	1887	6
6	2601	1
7	576	7
8	486	10
9	2163	5
10	2623	4

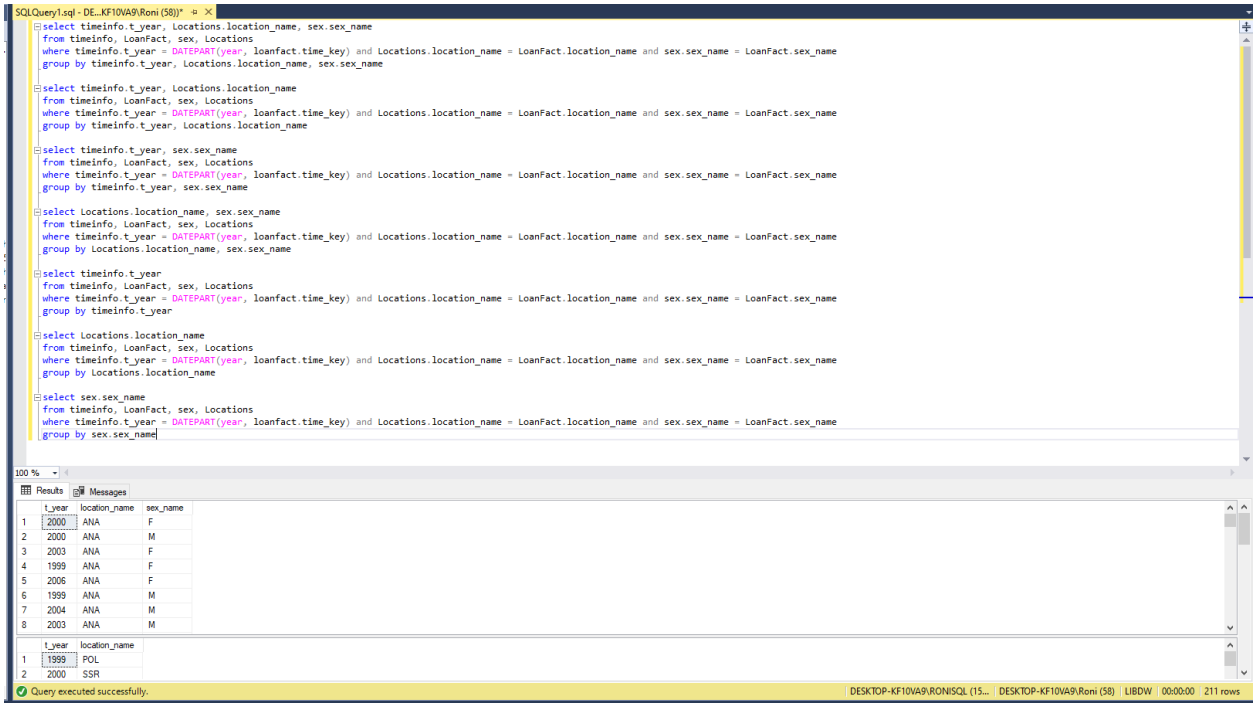
Ζήτημα Τρίτο

Ερώτηση 1



```
select timeinfo.t_year, Locations.location_name, sex.sex_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by cube (timeinfo.t_year, Locations.location_name, sex.sex_name);
```

	t_year	location_name	sex_name
1	1998	ANA	F
2	1999	ANA	F
3	2000	ANA	F
4	2001	ANA	F
5	2002	ANA	F
6	2003	ANA	F
7	2004	ANA	F
8	2005	ANA	F
9	2006	ANA	F
10	NULL	ANA	F
11	2003	EOK	F
12	2004	EOK	F
13	2005	EOK	F
14	NULL	EOK	F
15	2002	GOP	F
16	2003	GOP	F
17	2004	GOP	F



```
select timeinfo.t_year, Locations.location_name, sex.sex_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by timeinfo.t_year, Locations.location_name, sex.sex_name

select timeinfo.t_year, Locations.location_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by timeinfo.t_year, Locations.location_name

select timeinfo.t_year, sex.sex_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by timeinfo.t_year, sex.sex_name

select Locations.location_name, sex.sex_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by Locations.location_name, sex.sex_name

select timeinfo.t_year
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by timeinfo.t_year

select Locations.location_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by Locations.location_name

select sex.sex_name
from timeinfo, LoanFact, sex, Locations
where timeinfo.t_year = DATEPART(year, loanfact.time_key) and Locations.location_name = LoanFact.location_name and sex.sex_name = LoanFact.sex_name
group by sex.sex_name
```

	t_year	location_name	sex_name
1	2000	ANA	F
2	2000	ANA	M
3	2003	ANA	F
4	1999	ANA	F
5	2006	ANA	F
6	1999	ANA	M
7	2004	ANA	M
8	2003	ANA	M

	t_year	location_name
1	1999	POL
2	2000	SSR

Βλέπουμε ότι με τα selects έχουμε μια εγγραφή λιγότερη, η οποία είναι η null, null, null.