

Τσούκας Αναστάσιος

AM:3140213

Εργασία –Μέρος Β :

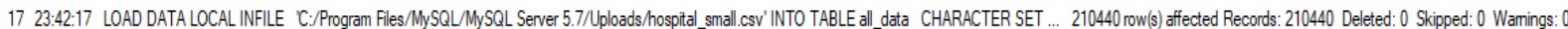
Εισαγωγή δεδομένων στον πίνακα all_data:

Εντολή SQL:

```
USE hospital;
```

```
LOAD DATA LOCAL INFILE
'C:/Program Files/MySQL/MySQL Server 5.7/Uploads/hospital_small.csv'
INTO TABLE all_data
CHARACTER SET utf8
FIELDS TERMINATED BY ';'
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
(`id`, `amka`, `surname`, `name`, `phone`, `email`, `roomid`,
`roomno`, `nobeds`,
`appointment`, `appointment_date`, `equipment_id`, `equipment_model`,
`equipment_serialno`,
`equipment_description`, `equipment_manufacturer_name`,
`equipment_release_date`, `equipment_check_date`,
`equipment_usage_cost`, `medicine_id`, `medicine_name`,
`medicine_company_name`, `medicine_price`, `medicine_price_datefrom`,
`medicine_price_dateto`, `doctor_id`, `doctor_name`, `doctor_surname`,
`doctor_type`, `doctor_gender`, `doctor_salary`, `doctor_experience`,
`main_doctor` );
```

Screenshot:

A screenshot of a MySQL command line interface. It shows a green checkmark icon on the left, followed by the command: 17 23:42:17 LOAD DATA LOCAL INFILE 'C:/Program Files/MySQL/MySQL Server 5.7/Uploads/hospital_small.csv' INTO TABLE all_data CHARACTER SET utf8. The output shows: 210440 row(s) affected Records: 210440 Deleted: 0 Skipped: 0 Warnings: 0.

«Γέμισμα» των υπόλοιπων πινάκων:

- insert για τον patient:

Εντολή SQL:

```
USE hospital;
```

```
INSERT INTO patient (id, amka, surname, name ,phone,email)
SELECT id,amka,surname,name,phone,email
FROM all_data
GROUP BY id;
```

Screenshot:

✓	19	23:52:09	INSERT INTO patient (id, amka, surname, name, phone, email) SELECT id, amka, surname, name, phone, email FROM all_data GROUP BY id	1052 row(s) affected Records: 1052 Duplicates: 0 Warnings: 0
---	----	----------	------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------

- insert για τον room:

```
USE hospital;
```

```
INSERT INTO rooms (id, roomno, nobeds)
SELECT roomid, roomno, nobeds
FROM all_data
GROUP BY roomid;
```

Screenshot:

✓	21	23:52:10	INSERT INTO rooms (id, roomno, nobeds) SELECT roomid, roomno, nobeds FROM all_data GROUP BY roomid	89 row(s) affected Records: 89 Duplicates: 0 Warnings: 0
---	----	----------	----------------------------------------------------------------------------------------------------	----------------------------------------------------------

- insert για τον equipment :

```
USE hospital;
```

```
INSERT INTO equipment (id,
model, serialno, description, manufacturer_name, release_date, check_date,
usage_cost)
SELECT
equipment_id, equipment_model, equipment_serialno, equipment_description
, equipment_manufacturer_name, equipment_release_date, equipment_check_d
ate, equipment_usage_cost
FROM all_data
WHERE equipment_id IS NOT NULL
GROUP BY equipment_id;
```

Screenshot:

23	23:52:12	INSERT INTO equipment (id, model, serialno, description, manufacturer_name, release_date, check_date, usage_cost) SELECT equipment_id, equipme...	150 row(s) affected Records: 150 Duplicates: 0 Warnings: 0
----	----------	---------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------

- insert για το medicine:

```
USE hospital;
```

```
INSERT INTO medicine (id, medicine_name, company_name)
SELECT medicine_id, medicine_name, medicine_company_name
FROM all_data
WHERE medicine_id IS NOT NULL
GROUP BY medicine_id;
```

Screenshot:

25	23:52:13	INSERT INTO medicine (id, medicine_name, company_name) SELECT medicine_id, medicine_name, medicine_company_name FROM all_data WH...	86 row(s) affected Records: 86 Duplicates: 0 Warnings: 0
----	----------	-------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------

- insert για τον medicineprice:

```
USE hospital;
```

```
INSERT INTO medicineprice (medicine_id, price, datefrom, dateto)
SELECT medicine_id, medicine_price, medicine_price_datefrom,
medicine_price_dateto
FROM all_data
WHERE medicine_id IS NOT NULL AND medicine_price_datefrom IS NOT NULL
GROUP BY medicine_id,medicine_price_datefrom;
```

Screenshot:

27	23:52:15	INSERT INTO medicineprice (medicine_id, price, datefrom, dateto) SELECT medicine_id, medicine_price, medicine_price_datefrom, medicine_price...	193 row(s) affected Records: 193 Duplicates: 0 Warnings: 0
----	----------	-------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------

- insert για τον employee:

```
USE hospital;
```

```
INSERT INTO employee (id, employee_name, employee_surname, gender,
salary , employee_type , doctor_type, experience)
SELECT doctor_id, doctor_name, doctor_surname, doctor_gender,
doctor_salary, 'doctor' , doctor_type, doctor_experience
FROM all_data
WHERE doctor_id IS NOT NULL
GROUP BY doctor_id;
```

Screenshot:

29	23:52:17	INSERT INTO employee (id, employee_name, employee_surname, gender, salary , employee_type , doctor_type, experience) SELECT doctor_id, do...	65 row(s) affected Records: 65 Duplicates: 0 Warnings: 0
----	----------	----------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------

- insert για τον appointment:

```
USE hospital;
```

```
INSERT INTO appointment (id, patient_id, room_id, appoint_date)
SELECT appointment, id, roomid, appointment_date
FROM all_data
WHERE appointment IS NOT NULL
GROUP BY appointment;
```

Screenshot:

31	23:52:18	INSERT INTO appointment (id, patient_id, room_id, appoint_date) SELECT appointment, id, roomid, appointment_date FROM all_data WHERE app...	5606 row(s) affected Records: 5606 Duplicates: 0 Warnings: 0
----	----------	---------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------

- insert για τον appointmentrelations:

```
USE hospital;
```

```
INSERT INTO appointmentrelations
(appointment_id,medicine_id,datefrom,equipment_id,employee_id,main_do
ctor)
```

Screenshot:

QUERIES:

```
USE hospital;
```

Screenshot:

[illegible]

2) Τον γιατρό που είδε συνολικά τους περισσότερους ασθενείς (ως υπεύθυνος ή μη):

(Σημείωση: δεν μας ενδιαφέρουν ποσά ραντεβού είδε κάθε γιατρός αλλά πόσους ασθενείς.)

*Σε αυτή την περίπτωση δεν μας νοιάζει αν υπάρχει ισοβαθμία:

```
USE hospital;
select employee.id, employee.employee_name, employee.employee_surname,
employee.gender,selected6.countPatientPerDoc
from employee,
(SELECT selected2.employee_id, countPatientPerDoc FROM
(
select *, count(selected1.employee_id) as countPatientPerDoc
from
(select appointment.id, appointment.patient_id,
appointmentrelations.employee_id
from appointment, appointmentrelations
where appointment.id=appointmentrelations.appointment_id
group by appointment.patient_id,appointmentrelations.employee_id) as
selected1
group by selected1.employee_id
) as selected2
Group By countPatientPerDoc desc
)as selected6
where selected6.employee_id=employee.id
LIMIT 1;
```

Screenshot:

id	employee_name	employee_surname	gender	countPatientPerDoc
02589857-4e3b-4ccf-a0a8-efc7567a5298	Alex	Rafferty	Male	1047

*Αν θέλουμε να καλύψουμε και τις περιπτώσεις ισοβαθμίας τότε μπορούμε να χρησιμοποιήσουμε τις παρακάτω εντολές:

```
USE hospital;
select employee.id, employee.employee_name, employee.employee_surname,
employee.gender,selected5.countPatientPerDoc2
from employee,
(select *, count(selected4.employee_id) as countPatientPerDoc2
from
```

```

(select appointment.id, appointment.patient_id,
appointmentrelations.employee_id
from appointment, appointmentrelations
where appointment.id=appointmentrelations.appointment_id
group by appointment.patient_id,appointmentrelations.employee_id) as
selected4
group by selected4.employee_id) as selected5
where selected5.employee_id=employee.id AND selected5.countPatientPerDoc2
in
(SELECT MAX(countPatientPerDoc) FROM
(select *, count(selected1.employee_id) as countPatientPerDoc
from
(select appointment.id, appointment.patient_id,
appointmentrelations.employee_id
from appointment, appointmentrelations
where appointment.id=appointmentrelations.appointment_id
group by appointment.patient_id,appointmentrelations.employee_id) as
selected1
group by selected1.employee_id) as selected2
);

```

Screenshot:

Result Grid Filter Rows: Export: Wrap Cell Content:					
id	employee_name	employee_surname	gender	countPatientPerDoc2	
02589857-4e3b-4ccf-a0a8-efc7567a5298	Alex	Rafferty	Male	1047	

3) Τον εξοπλισμό που απαιτείται έλεγχος ή ο έλεγχός τους λήγει μέχρι το τέλος του τρέχοντος μήνα:

(Επιλέγουμε όπου το checkdate είναι μικρότερο ή ίσο της σημερινής ημερομηνίας, ή όταν ο μήνας και το έτος είναι ίδιο με αυτού του μήνα και αυτού του έτους.)

```

USE hospital;
SELECT * FROM equipment
where DATE(NOW()) >= DATE(check_date) OR (MONTH(check_date) =
MONTH(curdate()) AND YEAR(check_date) = YEAR(curdate()));

```

Screenshot:

Result Grid								
Filter Rows:		Edit:	Export/Import:		Wrap Cell Content:			
id	model	serialno	description	manufacturer_name	release_date	check_date	usage_cc	
1294ae7e-2858-2074-4429-0204eeb736fa	Cablicter	LZJ	Persiciatis ouia corrupti. Ouasi praesentum et...	American F-Mobile Co.	1970-01-03	2017-09-06	754.06	
1720654b-2559-3acc-c50c-0dd710d1548d	Soeakfindeoor	9	Voluptas officiis molestiae totam consectetur ex...	Union Space Research Group	1985-01-13	2016-08-11	27.24	
18a0bc9d-5f33-2803-4529-0204eeb736fa	Tabmuterscope	57	Aut autem accusantium. Ouos libero in. Omnis u...	International Space Research Corporation	1995-01-23	2017-07-07	7.13	
1904c499-616b-7809-8e2a-acc8fc2f00af	Proputadlet	O4	Non explicabo aut sit nobis est laudantium.	Domestic Space Explore Co.	1970-03-27	2016-06-11	174.18	
1b11f02b-60af-55a2-b8e4-cbfc3792353	Cartceiver	967327RP1	Omnis dicta omnis et doloribus ad. Voluptates la...	NULL	2000-12-04	2015-01-16	NULL	
1c40c330-4ddd-3094-c20c-0dd710d1548d	Bitectexon	E	Odio dolores placeat temporibus doloribus. Est ...	First Mining Group	1998-06-22	2018-02-28	416.38	
1d9109a1-6797-4bdb-8c2a-acc8fc2f00af	Protector	6	Animi possimus aut corrupti hic persiciatis mini...	Union Space Research Group	1990-05-04	2015-01-02	540.94	
1f3754af-7196-5287-efb5-aae5d250830a	Transliffier	Z9Z	Aliquid quidem sit quisquam nam quisquam pers...	North 5G Wireless Corp.	1992-08-01	2016-07-19	864.92	
224b644f-72d4-2330-b6c1-8e252c39bb73	Mictaer	15X1	Voluptatibus distinctio et. Sed iosam elioendi! O...	American V-Mobile Corp.	1982-08-16	2015-01-08	149.91	
22868de9-28b6-679c-b4e4-cbfc3792353	Soeakmutimator	0A8195	Totam dolor quaeerat. Rerum modi et. Oubusda...	United Manaoement Inc.	1995-09-14	2015-01-24	78.03	
248a71c4-64d6-2b2e-36de-835209209de0	Charfinder	4	Et amet delectus ut commodi veniam. Aut velit s...	American Space Research Co.	1988-12-09	2015-01-03	88.30	
24fa226e-1800-7304-a575-2a7ae1c799c8	Comnientor	NFYU	Oubusdam voluptatem ut. Ouis quos amet. Ut ...	First N-Mobile Co.	2013-02-14	2016-09-28	893.19	
2602a715-3eca-389d-0c01-2997b7e81c24	Armtectscope	1	Oui est non ut aut debitis. Et aspernatur et corr...	Professional 3D Electronic Inc.	1975-05-08	2015-01-12	674.50	
27d71aab-30b5-1bb9-1001-2997b7e81c24	Retophone	8NO9	Autem voluptatem cupiditate nihil et nisi velit. E...	NULL	1970-01-10	2015-04-08	331.46	
2c5d5b86-3963-7786-aac1-8e252c39bb73	Bioutentor	S	Omnis sit omnis. Vel nemo officiis? Commodo fuci...	NULL	2000-12-04	2015-11-09	NULL	
300bd270-340d-5844-c30c-0dd710d1548d	Cartbandar	63	Est exolocabo reiciendis quo quibusdam aut iste...	WorldWide 5G Wireless Co.	1994-09-10	2015-01-10	508.66	
32d509b9-2d1a-43b5-5d99-4d3edfe18939	Subtininer	3	Iste vero autem. Oui molestiae perferendis? Te...	International 5G Wireless Group	1999-08-13	2017-12-01	426.03	
35417e78-4185-2ed3-a099-4d3edfe18939	Micicetrv	XT4	Omnis ouia ouis ut molestias natus oui. Delectus...	Creative O-Mobile Co.	2000-04-06	2015-08-21	11.39	
39bcc42a-41e8-56e3-adc1-8e252c39bb73	Prohloodscope	F5	Architecto et quidem odio. Ullam sint laborum. L...	West X-Mobile Corporation	1970-01-02	2015-01-30	104.43	
3a059606-6b9b-251d-4829-0204eeb736fa	Comlifidlet	4	Cumque et exercitationem: architecto asperiore...	National C-Mobile Inc.	1981-01-13	2015-08-04	844.10	
3a4c936c-3fdc-2b99-8f2a-acc8fc2f00af	Soeakleador	8A	Provident unde porro. Et culpa in! Omnis maiore...	Australian S-Mobile Corp.	1993-10-09	2016-10-24	779.97	
3b572f28-195a-18fb-b6e4-cbfc3792353	Soeakholdletsc	Y	Nemo corporis non. Assumenda iosa assumenda...	WorldWide High-Technologies Co.	2004-11-29	2015-01-04	392.55	
3d9f943c-13ab-6f79-a301-2997b7e81c24	Soeakmuticer	7	Oui dolorem persiciatis sed eos. Quidem dianis...	Special Industrv Co.	1985-05-23	2015-01-04	2.51	
3dbfa8c7-1edc-55bd-952a-acc8fc2f00af	Cartculeophone	63H0BB	Omnis ouia odit rerum earum quis repellendus.	Federal Petroleum Co.	2002-02-20	2017-07-04	542.91	
3e215306-6cea-7d33-b7e4-cbfc3792353	Comtooor	2	Ouo vero quisquam. Doloribus atque omnis ut in...	Bevond Telecommunications Group	2005-12-21	2016-08-09	433.07	
40bf870e-4bc3-2f45-c80c-0dd710d1548d	Cartlifedophone	KI	Sit eos nihil. Aut voluptatum voluptatem ratione...	NULL	2000-12-04	2015-01-06	NULL	
427b1814-60ed-47cf-edb5-aae5d250830a	Tabmutinlet	4365	Aspernatur ratione sequi repellendus sed iste. E...	Professional Business Inc.	1998-10-01	2015-02-15	301.92	
42d62f66-610e-1f31-2cde-835209209de0	Tetaommon	F	Facilis amet et. Ut voluptatem et: odio eos nihil...	NULL	2000-12-04	2015-07-02	NULL	
44b37cd4-36f8-4c5b-abc1-8e252c39bb73	Cabtelleolet	2SN	Nesciunt porro mollitia. Aspernatur dolor omnis?...	Citv 4G Wireless Corporation	1972-04-16	2015-03-23	420.86	
45be9be0-1646-5c7f-a975-2a7ae1c799c8	Comwoofefophone	8J6DM91P	Doloremaue omnis modi. Voluptatem modi oui! C...	Citv T-Mobile Corp.	1971-08-28	2017-01-20	153.72	
4638b354-36fe-7d33-39de-835209209de0	Cabtooolridoe	FYL	Iure autem voluptatibus. Doloremaue voluptate...	NULL	2000-12-04	2016-06-05	NULL	
46f4da7c-6ce6-4ad5-f7b5-aae5d250830a	Comniicar	399B	Est culpa perferendis molestias maiores tempor...	Professional Space Explore Group	1990-08-08	2015-06-03	584.10	
487befbc-7c2a-3ac3-872a-acc8fc2f00af	Compickanon	9212W	Oui ut sit. Vitae iste sequi distinctio modi dianisi...	International High-Technologies Inc.	1999-05-07	2015-09-18	180.06	
492e5de6-2d6f-1574-4629-0204eeb736fa	Comtinommrv	V	Consectetur labore laboriosam et molestiae tota...	Pacific 5D Electronic Corporation	1990-12-07	2017-04-15	811.70	
499e4ecf-4353-6721-0e01-2997b7e81c24	Ampteller	65CH7	Suscipit officia sunt. Sit illo mollitia! Dicta culpa v...	South Trust Corp.	1990-12-17	2017-04-15	812.74	
4c06e440-6942-4221-b3e4-cbfc3792353	Tabtaridoe	5	Eos doloremaue cumque: illo unde iste aut volu...	Pacific Space Explore Corp.	2010-07-31	2017-03-15	701.97	
4d79b6cb-6e6c-245b-4229-0204eeb736fa	Tabtinar	8J	Sint doloremaue delectus dolore sapiente id ma...	Citv E-Mobile Co.	1996-05-15	2018-05-16	537.37	
4d9ebb73-3bff-5ebf-f6b5-aae5d250830a	Comlictor	E	Sit assumenda molestiae. Culpa quo consequat...	Federal Telemetrics Corp.	2002-02-18	2016-11-02	604.41	
4e96c84a-2f05-44c3-f5b5-aae5d250830a	Transtaurv	3F	Sed natus unde: numquam aut rem vero libero ...	Creative Space Explore Group	1992-12-24	2015-06-21	1.01	
4e96c84a-2f05-44c3-f5b5-aae5d250830a	Tabtlicridoe	VECTB	Molestiae perferendis autem. Voluptatem amicitia...	Domestic Space Research Corporation	2001-10-10	2017-12-10	773.27	

SELECT * FROM equipment where DATE(NOW()) >= DATE(check_date) OR (MONTH(check_date) = MONTH(curdate()) AND YEAR(check_date) = YEAR(curdate())) 72 row(s) returned

(για εξοικονόμηση χώρου δεν έβαλα όλα τα αποτελέσματα στο screenshot)

4) Το φάρμακο που χρησιμοποιήθηκε περισσότερο:

(Σε αυτή τη λύση θεωρούμε ότι για το ίδιο ραντεβού, αν έγινε χρήση του φαρμάκου σε διαφορετικές ημερομηνίες και άλλαξε μεταξύ αυτών η τιμή του ότι το φάρμακο έγινε χρήση 2 φορές.)

USE hospital;

```

SELECT medicine.id,medicine.medicine_name,medicine.company_name,
max(selected2.counted1)
FROM medicine,
(
SELECT *, count(selected1.medicine_id) as counted1
FROM appointmentrelations
group by appointment_id,medicine_id,datefrom)as selected1
group by selected1.medicine_id
)as selected2
where medicine.id=selected2.medicine_id and medicine.id<>'0'
group by selected2.counted1 desc
LIMIT 1;

```


Screenshot:

id	medicine_name	company_name	max(selected2.counted1)
11c74af0-3e04-527d-e7b4-8d4600c9080b	Velooxedine	Professional Space Research Corporation	1063

(Σε περίπτωση όμως, που το φάρμακο πρέπει να μετράει ότι έγινε μια φορά χρήση ανά ραντεβού, άσχετος αν χρησιμοποιήθηκε από το ίδιο ραντεβού δεύτερη φορά με άλλη τιμή η λύση είναι αυτή.)

```
USE hospital;
SELECT medicine.id,medicine.medicine_name,medicine.company_name,
max(selected2.counted1)
FROM medicine,
(
SELECT *, count(selected1.medicine_id) as counted1
FROM
(SELECT *
FROM appointmentrelations
group by appointment_id,medicine_id)as selected1
group by selected1.medicine_id
)as selected2
where medicine.id=selected2.medicine_id and medicine.id<>'0'
group by selected2.counted1 desc
LIMIT 1;
```

Screenshot:

id	medicine_name	company_name	max(selected2.counted1)
11c74af0-3e04-527d-e7b4-8d4600c9080b	Velooxedine	Professional Space Research Corporation	1022

5) Τον εξοπλισμό που χρησιμοποιήθηκε περισσότερο σε σχέση με την ηλικία του:

(Εδώ θα επιλέξουμε τον εξοπλισμό που έχει χρησιμοποιηθεί περισσότερες φορές/ τους μήνες από την ημερομηνία απόκτησης του.)

```
USE hospital;
SELECT *
FROM
(SELECT
id,model,serialno,description,manufacturer_name,release_date,check_date,us
age_cost, count(selected1.equipment_id)/(( (YEAR(curdate())-
YEAR(equipment.release_date)) ) *12 + ( (MONTH(curdate())-
MONTH(equipment.release_date)) ) ) as UsagePerMonth
FROM equipment,
(SELECT *
FROM appointmentrelations
group by appointment_id,equipment_id)as selected1
where selected1.equipment_id<>'0' AND selected1.equipment_id=equipment.id
group by selected1.equipment_id) as selected2
group by selected2.UsagePerMonth desc
LIMIT 1;
```


Screenshot:

id	model	serialno	description	manufacturer_name	release_date	check_date	usage_cost	UsagePerMonth
1b11f02b-60af-55a2-b8e4-cbafc3792353	Cartceiver	967327RP1	Omnis dicta omnis et doloribus ad. Voluptates la...	NULL	2000-12-04	2015-01-16	NULL	0.5120

6) Τους 20 ασθενείς που πλήρωσαν συνολικά (φάρμακα + εξοπλισμό) τα περισσότερα χρήματα σε μια επίσκεψη:

```
USE hospital;
```

```
SELECT patient.id as PatientId, patient.surname, patient.name,
selected3.appointment_id, (selected3.SumEquiptCost+selected4.SumMedCost)
as totalCost
FROM patient, appointment,
(SELECT *, SUM(selected1.EquiptCost) as SumEquiptCost
FROM
(SELECT appointmentrelations.appointment_id,
appointmentrelations.equipment_id,
CASE
WHEN (equipment.usage_cost IS NULL ) THEN 0
ELSE equipment.usage_cost
END as EquiptCost
FROM equipment, appointmentrelations
where appointmentrelations.equipment_id=equipment.id
group by appointment_id,equipment_id)as selected1
group by selected1.appointment_id) as selected3 ,
( SELECT *, SUM(selected1.MedicineCost) as SumMedCost
FROM
(SELECT appointmentrelations.appointment_id, medicineprice.price as
MedicineCost, appointmentrelations.medicine_id,
appointmentrelations.datefrom
FROM medicineprice, appointmentrelations
where appointmentrelations.medicine_id=medicineprice.medicine_id AND
appointmentrelations.datefrom=medicineprice.datefrom
group by appointment_id,medicine_id,datefrom)as selected1
group by selected1.appointment_id) as selected4
where selected3.appointment_id=selected4.appointment_id AND
selected3.appointment_id=appointment.id AND
appointment.patient_id=patient.id
GROUP BY selected3.appointment_id
ORDER BY totalCost desc
LIMIT 20;
```

Screenshot:

Result Grid						Filter Rows:	Export:	Wrap Cell Content:
PatientId	surname	name	appointment_id	totalCost				
19c83039-716f-4935-47b1-8b7af6721bcf	Smalley	Harvey	7f52b8ed-7214-6a90-5371-eeb1d8ed8cef	6863.86				
11d9bece-5cbd-4b7f-b5f6-17995bf2968c	Reaalado	Reinaldo	3729168b-48c0-6b49-6a38-6a1673ffca7c	5863.13				
4600f47f-461f-561c-1494-0af2c7f2a1a0	Pence	Abe	4c99f11a-3457-7d26-b092-08c864661f9c	5726.20				
55fe984d-446b-50d6-6db6-c1540d491251	Bonds	Adan	4f2d1699-5e3e-6979-ade4-e5d54223c257	5679.82				
6f29862f-31f9-5ed9-cfad-8b7af6721bcf	Burris	Lindsv	1e66e994-2fef-5737-4aee-867949feb8b5	5654.95				
212e9016-7a05-73da-a1ad-8b7af6721bcf	Aponte	Elov	5a6f49e7-589f-60ca-11e4-867949feb8b5	5517.12				
2fa5e407-175a-2d20-ee6b-43a328b17837	Slater	Alec	5ee6c0db-1335-2502-9d8a-e8c757976496	5510.11				
7aca3306-5b39-502a-8e4b-901f27b89d18	Hernandez	Stephine	435c79ce-21ff-21a4-b16f-eeb1d8ed8cef	5278.48				
260ecc8b-7d44-125a-2ab3-c1540d491251	Bovkin	Glenn	1832b3e1-2c42-2a9d-e28c-e8c757976496	5278.44				
7a62f6d7-2f0e-1449-08ad-8b7af6721bcf	Ma	Jerald	688bb366-6fd1-6920-d1df-867949feb8b5	5254.17				
6e0fb512-452b-7211-c2f4-17995bf2968c	Ramon	Basil	3ff4e45b-65b9-46da-bdeb-867949feb8b5	5252.20				
1f80dd15-1781-4c67-80b4-c1540d491251	Lopes	Marshall	1ba4d4e5-1e74-441f-a294-e8e2a817c80e	5243.98				
4d5f57a6-4c15-1206-1f69-43a328b17837	Cervantes	Adam	67a03165-7a74-6d75-b493-67245e8b283e	5222.23				
72987177-4993-1c69-3eb3-c1540d491251	Brant	Sherlvn	6c80220a-2c0e-599e-8376-eeb1d8ed8cef	5218.56				
77e8f880-55d8-1e4d-8bb6-c1540d491251	Bowman	Cami	5d01244e-6890-4764-4841-6a1673ffca7c	5207.99				
1cb1c185-6b02-7a6d-61af-8b7af6721bcf	Kinder	Arthur	6f9fc420-2992-49eb-4ff1-867949feb8b5	5138.25				
6e0fb512-452b-7211-c2f4-17995bf2968c	Ramon	Basil	55f85086-77de-4281-a1e9-e5d54223c257	5098.21				
58b24974-6897-2d44-e2fb-092cdb0ab5e8	Juarez	Bernardo	750f942e-1986-111d-c2a2-08c864661f9c	5076.72				
2cb72d0f-6658-659d-574a-901f27b89d18	Yoder	Fernanda	79927e7d-2f3b-5bd4-e393-e8e2a817c80e	5017.84				
4c0794e1-17bc-2309-884b-901f27b89d18	Crowder	Henrv	1b3f914f-7de0-5310-068a-e8e2a817c80e	5002.56				

7) Τους 20 ασθενείς που πλήρωσαν συλικά (φάρμακα + εξοπλισμό) τα περισσότερα χρήματα σε όλες τις επισκέψεις τους:

```
USE hospital;
```

```
SELECT  selected5.PatientId, selected5.surname, selected5.name,
SUM(selected5.totalCost) as TotalCostPerPatient
FROM
(SELECT patient.id as PatientId, patient.surname, patient.name,
selected3.appointment_id, (selected3.SumEquiptCost+selected4.SumMedCost)
as totalCost
FROM patient, appointment,
(SELECT *, SUM(selected1.EquiptCost) as SumEquiptCost
FROM
(SELECT appointmentrelations.appointment_id,
appointmentrelations.equipment_id,
CASE
WHEN (equipment.usage_cost IS NULL ) THEN 0
ELSE equipment.usage_cost
END as EquiptCost
FROM equipment, appointmentrelations
where appointmentrelations.equipment_id=equipment.id
group by appointment_id,equipment_id)as selected1
group by selected1.appointment_id) as selected3 ,
( SELECT *, SUM(selected1.MedicineCost) as SumMedCost
FROM
(SELECT appointmentrelations.appointment_id, medicineprice.price as
MedicineCost, appointmentrelations.medicine_id,
appointmentrelations.datefrom
FROM medicineprice, appointmentrelations
where appointmentrelations.medicine_id=medicineprice.medicine_id AND
appointmentrelations.datefrom=medicineprice.datefrom
group by appointment_id,medicine_id,datefrom)as selected1
group by selected1.appointment_id) as selected4
where selected3.appointment_id=selected4.appointment_id AND
selected3.appointment_id=appointment.id AND
appointment.patient_id=patient.id
GROUP BY selected3.appointment_id) as selected5
group by selected5.PatientId
ORDER BY TotalCostPerPatient desc
LIMIT 20;
```

Screenshot:

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
PatientId	surname	name	TotalCostPerPatient	
37c7f4fa-5968-2659-41f7-17995bf2968c	Bergeron	Ross	20833.10	
35eda7a8-2da4-7a41-1fe0-88a3ac8a3bba	Rhoades	Bradv	20599.12	
6e0fb512-452b-7211-c2f4-17995bf2968c	Ramon	Basil	20137.97	
4d5f57a6-4c15-1206-1f69-43a328b17837	Cervantes	Adam	19567.49	
11d9bece-5cbd-4b7f-b5f6-17995bf2968c	Regalado	Reinaldo	19545.61	
6852e591-714e-213b-8294-0af2c7f2a1a0	Kim	Max	19169.45	
6df06248-1a36-4e5f-21e0-88a3ac8a3bba	Carlin	Asia	19153.65	
65d43681-4429-4abe-fafa-092cdb0ab5e8	Neville	Tennie	18398.71	
2900744c-798b-4668-1de0-88a3ac8a3bba	Whitlock	Andreas	18378.41	
185b5f5f-2914-7aaf-c495-0ed10b503732	Connell	Devon	18304.73	
3794d430-1c4f-27da-b596-0ed10b503732	Starnes	Irvino	18098.51	
1cae2ed3-6079-2586-9aab-99e7765afd72	Naav	Cordell	18072.25	
7419560b-7e11-194f-2cdf-88a3ac8a3bba	Bonner	Malik	17981.80	
531b6ad5-39af-3988-f295-0ed10b503732	Medlin	Marouis	17771.45	
474d8ea5-3816-3a9a-8f4b-901f27b89d18	Whitman	Andrea	17600.74	
4600f47f-461f-561c-1494-0af2c7f2a1a0	Pence	Abe	17547.16	
4ec9b79a-2119-13dd-b5b5-c1540d491251	Leahv	Irmoard	17531.59	
48f4befc-3fb0-7dd8-2cad-8b7af6721bcf	Maki	Isreal	17516.83	
6e5de45a-6674-492a-60dd-88a3ac8a3bba	Saunders	Luana	17476.93	
7d1ed8c2-58fb-5839-de48-901f27b89d18	Mcdonough	Philio	17181.95	

Ευρετήρια:

Αρχικά η εφαρμογή που χρησιμοποιώ για την δημιουργία της βάσης (MySQL), έχει δημιουργήσει αυτόματα ευρετήρια για τα γνωρίσματα ή τον συνδυασμό γνωρισμάτων που αποτελούν πρωτεύοντα κλειδιά στους πίνακες, οπότε η εκ νέου δημιουργία ευρετηρίων με αυτά τα γνωρίσματα δεν πρόκειται να βελτιώσει τον χρόνο για τα ερωτήματα.

1) Τους 10 πιο ακριβοπληρωμένους υπαλλήλους του νοσοκομείου:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

125	00:35:26	SELECT * FROM employee Order by salary d...	10 row(s) returned	0.000 sec / 0.000 sec
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Ήδη γίνεται σε πολύ γρήγορο χρόνο αλλά αν αργούσε θα μπορούσε να βοηθήσει η δημιουργία του παρακάτω ευρετηρίου:

USE hospital;

CREATE INDEX salaryIndex **ON** employee (salary) ;

2) Τον γιατρό που είδε συνολικά τους περισσότερους ασθενείς (ως υπεύθυνος ή μη):

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

✓	41	00:17:50	select employee.id, employee.employee_name, ...	1 row(s) returned	5.031 sec / 0.000 sec
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Προτείνεται η δημιουργία των παρακάτω ευρετηρίων:

```
USE hospital;
```

```
CREATE INDEX Index3 ON appointmentrelations ( appointment_id )
```

Screenshot χρόνος μετά από την δημιουργία του ευρετηρίου:

✓	129	00:40:29	select employee.id, employee.employee_name, ...	1 row(s) returned	4.640 sec / 0.000 sec
---	-----	----------	-------------------------------------------------	-------------------	-----------------------

```
USE hospital;
```

```
CREATE INDEX Index4 ON appointment ( id )
```

Screenshot χρόνος μετά από την δημιουργία του δεύτερου ευρετηρίου:

✓	143	00:42:46	select employee.id, employee.employee_name, ...	1 row(s) returned	4.578 sec / 0.000 sec
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3) Τον εξοπλισμό που απαιτείται έλεγχος ή ο έλεγχός τους λήγει μέχρι το τέλος του τρέχοντος μήνα:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

✓	47	00:19:47	SELECT * FROM equipment where DATE(NO...	72 row(s) returned	0.000 sec / 0.000 sec
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Ήδη γίνεται σε πολύ γρήγορο χρόνο αλλά αν αργούσε θα μπορούσε να βοηθήσει η δημιουργία του παρακάτω ευρετηρίου:

```
USE hospital;
```

```
CREATE INDEX check_dateIndex ON equipment (check_date) ;
```

4) Το φάρμακο που χρησιμοποιήθηκε περισσότερο:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

49	00:22:26	SELECT medicine_id,medicine_medicine_nam...	1 row(s) returned	0.688 sec / 0.000 sec
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Αυτό το ερώτημα ήδη εκτελείτε αρκετά γρήγορα και δεν βρέθηκε κάποιο ευρετήριο για πιθανή βελτίωση.

5) Τον εξοπλισμό που χρησιμοποιήθηκε περισσότερο σε σχέση με την ηλικία του:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

✓	53	00:23:21	SELECT * FROM (SELECT id,model,serialno,...	1 row(s) returned	1.344 sec / 0.000 sec
---	----	----------	---------------------------------------------	-------------------	-----------------------

Αυτό το ερώτημα ήδη εκτελείτε αρκετά γρήγορα και δεν βρέθηκε κάποιο ευρετήριο για πιθανή βελτίωση.

6) Τους 20 ασθενείς που πλήρωσαν συνολικά (φάρμακα + εξοπλισμό) τα περισσότερα χρήματα σε μια επίσκεψη:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

55	00:24:06	SELECT patient.id as PatientId, patient.suma...	20 row(s) returned	4.937 sec / 0.000 sec
----	----------	-------------------------------------------------	--------------------	-----------------------

Προτείνεται η δημιουργία των παρακάτω ευρετηρίων:

```
USE hospital;
```

```
CREATE INDEX Index1 ON appointmentrelations ( medicine_id,datefrom )
```

Screenshot χρόνος μετά από την δημιουργία του ευρετηρίου:

✓	159	00:53:35	SELECT patient.id as PatientId, patient.sumam...	20 row(s) returned	3.984 sec / 0.000 sec
---	-----	----------	--------------------------------------------------	--------------------	-----------------------

```
USE hospital;
```

```
CREATE INDEX Index2 ON appointment ( id,patient_id )
```

Screenshot χρόνος μετά από την δημιουργία του δεύτερου ευρετηρίου:

✓	174	00:56:57	SELECT patient.id as PatientId, patient.sumam...	20 row(s) returned	3.907 sec / 0.000 sec
---	-----	----------	--------------------------------------------------	--------------------	-----------------------

7) Τους 20 ασθενείς που πλήρωσαν συλικά (φάρμακα + εξοπλισμό) τα περισσότερα χρήματα σε όλες τις επισκέψεις τους:

Screenshot χρόνος πριν από την δημιουργία ευρετηρίου:

00:24:44	SELECT selected5.PatientId, selected5.surname, selected5.name, SUM(selected5.totalCost) as TotalCostPerPatient FROM (SELECT patient.Id as ...	20 row(s) returned	4.860 sec
4.860 sec / 0.000 sec			

Προτείνεται η δημιουργία των παρακάτω ευρετηρίων:

USE hospital;

CREATE INDEX Index1 **ON** appointmentrelations (medicine_id,datefrom)

Screenshot χρόνος μετά από την δημιουργία του ευρετηρίου:

✓	168	00:55:57	SELECT selected5.PatientId, selected5.suma...	20 row(s) returned	3.953 sec / 0.000 sec
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USE hospital;

CREATE INDEX Index2 **ON** appointment (id,patient_id)

Screenshot χρόνος μετά από την δημιουργία του δεύτερου ευρετηρίου:

✓	184	00:58:34	SELECT selected5.PatientId, selected5.suma...	20 row(s) returned	3.985 sec / 0.000 sec
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