2η Εργασία Σχεδιασμός Βάσεων Δεδομένων:

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Ζήτημα 1ο :

1: Δημιουργούμε την βάση CAMPDW,

```
CREATE TABLE campdata
(
custID integer,
fname varchar(30),
lname varchar(30),
cID integer,
country varchar(30),
bookID integer,
bookDate date,
campCode char(3),
campName Varchar(50),
empno integer,
catCode char(1),
category varchar(20),
unitCost numeric(4,2),
startDate date,
overnights integer,
persons integer
);


BULK INSERT campdata
FROM 'C:\Users\Alexis\Desktop\sxediasmos ergasies\2 project\CAMPDATA.TXT' --
Προσαρμόστε το path
WITH (FIRSTROW =2, FIELDTERMINATOR='|', ROWTERMINATOR = '\n');
```

2: Star Schema

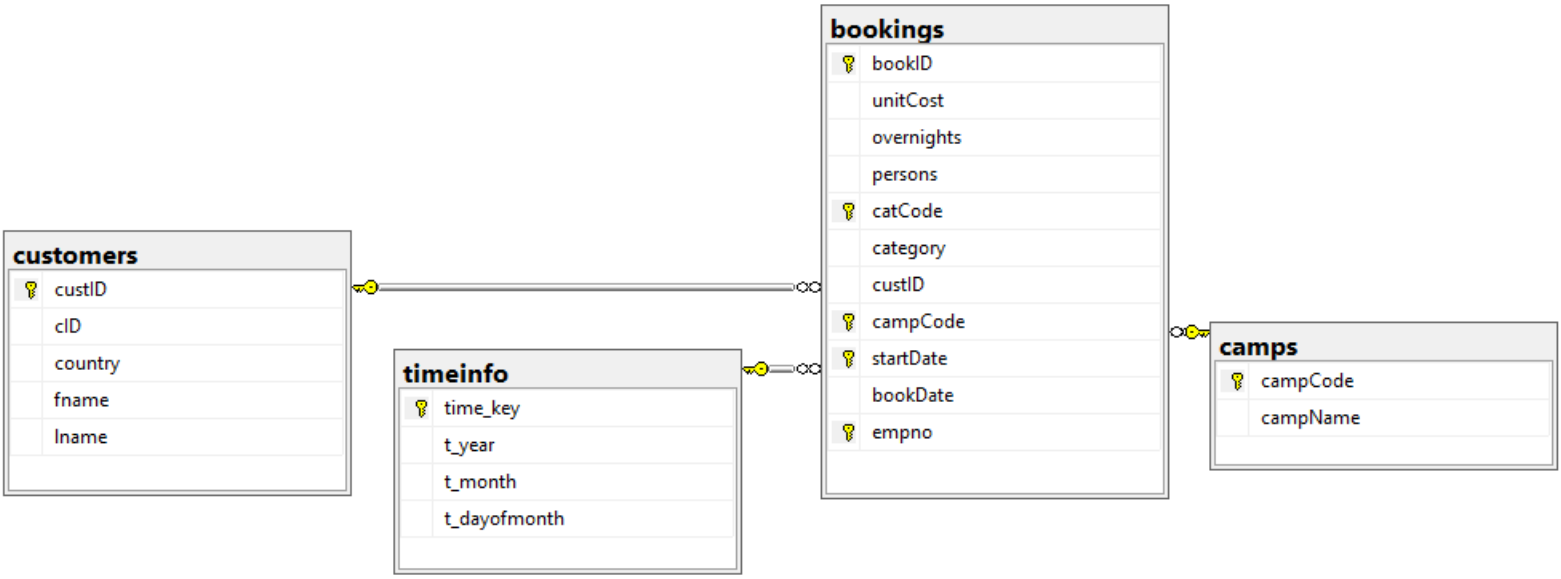
```
-- Diamension Table "customers"
create table customers
(custID integer primary key,
 cID  integer,
 country  varchar(30),
 fname varchar(30),
 lname varchar(30)
);

insert into customers select distinct custID, cID, country, fname, lname from
campdata group by custID, cID, country, fname, lname



-- Diamension Table "camps"
create table camps
(campCode char(3) primary key,
 campName Varchar(50),
 );

insert into camps select distinct campCode, campName from campdata
```

```
-- Diamension Table "timeinfo"
create table timeinfo
(time_key date primary key,
 t_year int,
 t_month int,
 t_dayofmonth int
 );

set datefirst 1;
insert into timeinfo select distinct startDate, datepart(year, startDate),
datepart(month, startDate), datepart(day,startDate)
 from campdata order by startDate


-- Fact Table "bookings"
create table bookings
(
    bookID integer,
    unitCost numeric(4,2),
    overnights integer,
    persons integer,
    catCode char(1),
    category varchar(20),
    custID integer,
    campCode char(3),
    startDate date,
    bookDate date,
    empno integer

 primary key(bookID,campCode,catCode, empno, startDate),
 foreign key (custID) references customers(custID),
 foreign key (startDate) references timeinfo(time_key),
 foreign key (campCode) references camps(campCode)
 );

INSERT INTO bookings
SELECT  bookID, unitCost, overnights, persons, catCode, category, custID,
campCode, startDate, bookDate, empno
FROM campdata
```

Diamension tables: customers, camps, timeinfo

Fact table: bookings

Δημιουργούμε κάθε πίνακα και προσθέτουμε δεδομένα από το campdata.



Ζήτημα 2ο :

1:

```
SELECT TOP 100 bookings.custID, country, fname, lname, sum(unitCost*persons *
overnights) as total_revenue
FROM bookings, customers
WHERE bookings.custID = customers.custID
GROUP BY bookings.custID, country, fname, lname
ORDER BY total_revenue DESC
```

Ενδεικτικά αποτελέσματα:

	custID	country	fname	lname	total_revenue
1	61	Finland	Agata	COOPER	39545.00
2	2977	Italy	Lianne	VIDAL	39390.00
3	320	Germany	Annmarie	KELLER	38955.00
4	928	Germany	Charlotta	DELANEY	38815.00
5	3566	Germany	Minny	SELL	38510.00
6	219	Belgium	Amelina	ALVAREZ	38360.00
7	761	Italy	Carena	ROACH	38100.00
8	3668	Germany	Nanny	COYNE	38030.00
9	3938	Germany	Philippe	WIESE	38010.00
10	118	Austria	Alethea	MARSHALL	37885.00

2:

```
SELECT campName, category, sum(unitCost*persons * overnights) as
total_bookings_value
FROM bookings, camps, timeinfo
WHERE bookings.campCode = camps.campCode and  timeinfo.time_key =
bookings.startDate and timeinfo.t_year = 2000
GROUP BY campName, category
ORDER BY total_bookings_value DESC
```

Αποτελέσματα:

	campName	category	total_bookings_value
1	Rosibos	Camper Van	1979520.00
2	Dionysus	Camper Van	550620.00
3	Elbianos	Camper Van	381705.00
4	Apollonia	Camper Van	175440.00
5	Rosibos	Caravan	130030.00
6	Dionysus	Caravan	87580.00
7	Elbianos	Caravan	69800.00
8	Kissamos	Camper Van	66120.00
9	Rosibos	Tent	55335.00
10	Apollonia	Caravan	53190.00
11	Elbianos	Tent	34970.00
12	Kissamos	Caravan	33880.00
13	Dionysus	Tent	31115.00
14	Apollonia	Tent	25090.00
15	Kissamos	Tent	17690.00

3:

```
SELECT camps.campName, timeinfo.t_month, sum(unitCost*persons * overnights) as
total_revenue
FROM bookings, timeinfo, camps
WHERE bookings.startDate = timeinfo.time_key AND bookings.campCode =
camps.campCode and timeinfo.t_year = 2018
GROUP BY camps.campName, timeinfo.t_month
ORDER BY camps.campName;
```

Ενδεικτικά αποτελέσματα:

	campName	t_month	total_revenue
1	Apollonia	1	20125.00
2	Apollonia	2	17550.00
3	Apollonia	3	19315.00
4	Apollonia	4	19195.00
5	Apollonia	5	19660.00
6	Apollonia	6	18865.00
7	Apollonia	7	20970.00
8	Apollonia	8	21980.00
9	Apollonia	9	19355.00
10	Apollonia	10	17125.00
11	Apollonia	11	15845.00
12	Apollonia	12	19810.00
13	Dionysus	1	54810.00
14	Dionysus	2	52105.00
15	Dionysus	3	57295.00
16	Dionysus	4	58100.00
17	Dionysus	5	57330.00
18	Dionysus	6	58540.00

4:

```
SELECT t_year, campName, category, SUM(persons) as number_of_renters
FROM timeinfo, camps, bookings
WHERE timeinfo.time_key=bookings.startDate and camps.campCode=bookings.campCode
GROUP BY ROLLUP (t_year, campName, category)
```

Ενδεικτικά αποτελέσματα(αρχή και τέλος):

	t_year	campName	category	number_of_renters
1	1970	Apollonia	Caravan	144
2	1970	Apollonia	Tent	17
3	1970	Apollonia	NULL	161
4	1970	Dionysus	Camper Van	859
5	1970	Dionysus	Caravan	349
6	1970	Dionysus	NULL	1208
7	1970	Elbianos	Tent	874
8	1970	Elbianos	NULL	874
9	1970	Kissamos	Tent	202
10	1970	Kissamos	NULL	202
11	1970	Rosibos	Camper Van	803
12	1970	Rosibos	Caravan	65
13	1970	Rosibos	Tent	135
14	1970	Rosibos	NULL	1003
15	1970	NULL	NULL	3448
16	1971	Apollonia	Camper Van	188

1037	2019	Kissamos	Tent	152
1038	2019	Kissamos	NULL	567
1039	2019	Rosibos	Camper Van	7398
1040	2019	Rosibos	Caravan	716
1041	2019	Rosibos	Tent	604
1042	2019	Rosibos	NULL	8718
1043	2019	NULL	NULL	15424
1044	NULL	NULL	NULL	3274910

5:

```
-- View for 2017 renters of every camp
CREATE VIEW campRenters2017 AS
SELECT t_year, campName, SUM(persons) as number_of_renters
FROM timeinfo, camps, bookings
WHERE timeinfo.time_key=bookings.startDate and camps.campCode=bookings.campCode
and timeinfo.t_year = 2017
GROUP BY campName, t_year
-- View for 2018 renters of every camp
CREATE VIEW campRenters2018 AS
SELECT t_year, campName, SUM(persons) as number_of_renters
FROM timeinfo, camps, bookings
WHERE timeinfo.time_key=bookings.startDate and camps.campCode=bookings.campCode
and timeinfo.t_year = 2018
GROUP BY campName, t_year
-- Comparison Query between the two views
SELECT campRenters2018.campName
FROM campRenters2017, campRenters2018
WHERE campRenters2018.campName = campRenters2017.campName and
campRenters2018.number_of_renters > campRenters2017.number_of_renters
GROUP BY campRenters2018.campName
```

Αποτελέσματα:

	campName
1	Elbianos
2	Kissamos

Ζήτημα 3ο :

```
SELECT t_year, campName, category, AVG(unitCost) as average_unit_cost
FROM timeinfo, camps, bookings
WHERE timeinfo.time_key=bookings.startDate and camps.campCode=bookings.campCode
GROUP BY CUBE (t_year, campName, category)
ORDER BY campName
```

a: Κάθε κελί του κύβου περιέχει την μέση τιμή του κόστους ενοικίασης για μια μέρα (unitCost), για έναν συνδυασμό τιμών (χρονιάς, κατασκήνωσης, κατηγορίας)

Ενδεικτικά αποτελέσματα:

	t_year	campName	category	average_unit_cost
1	NULL	NULL	Camper Van	15.000000
2	NULL	NULL	Tent	5.000000
3	NULL	NULL	NULL	13.098740
4	1970	NULL	Camper Van	15.000000
5	1970	NULL	Caravan	10.000000
6	1970	NULL	Tent	5.000000
7	1970	NULL	NULL	10.689778
8	1971	NULL	Camper Van	15.000000
9	1971	NULL	Caravan	10.000000
10	1971	NULL	Tent	5.000000
11	1971	NULL	NULL	12.108591
12	1972	NULL	Camper Van	15.000000
13	1972	NULL	Caravan	10.000000
14	1972	NULL	Tent	5.000000
15	1972	NULL	NULL	12.478510

b:

```
GROUP BY NONE
GROUP BY category
GROUP BY campName
GROUP BY t_year
GROUP BY campName, category
GROUP BY t_year, category
GROUP BY t_year, campName
GROUP BY t_year, campName, category
```

Ζήτημα 4ο :

row#	campCode	empno	catCode	country	cost
69	ELB	62	C	Spain	15.00
70	KIS	9	A	Spain	50.00
71	ROS	191	C	Denmark	60.00
72	APL	55	C	Austria	120.00
73	ROS	87	C	Austria	90.00
74	DIS	75	C	Germany	75.00
75	APL	42	C	Germany	30.00
76	DIS	83	C	Germany	240.00

row#	Spain	Denmark	Austria	Germany	Italy	Netherlands	France	..
69	1	0	0	0	0	0	0	
70	1	0	0	0	0	0	0	
71	0	1	0	0	0	0	0	
72	0	0	1	0	0	0	0	
73	0	0	1	0	0	0	0	
74	0	0	0	1	0	0	0	
75	0	0	0	1	0	0	0	
76	0	0	0	1	0	0	0	