

Βάσεις Δεδομένων

6ο εξάμηνο

ΣΗΜΜΥ

Εξαμηνιαία εργασία

Ομάδα 40

Ακολουθεί η περιγραφή της υλοποίησης της εξαμηνιαίας εργασίας στις βάσεις δεδομένων του Ακαδημαϊκού έτους 2019-2020.

Πρόκειται για την δημιουργία ενός συστήματος αποθήκευσης, διαχείρισης και ανάλυσης πληροφοριών για τα καταστήματα, τα προϊόντα , τους πελάτες και τις αγορές που κάνουν στα αντίστοιχα καταστήματα.

Η πλήρης εκφώνηση μπορεί να βρεθεί στον ιστότοπο του μαθήματος ή στον φάκελο της εφαρμογής υπό το όνομα project-requirements.sql.

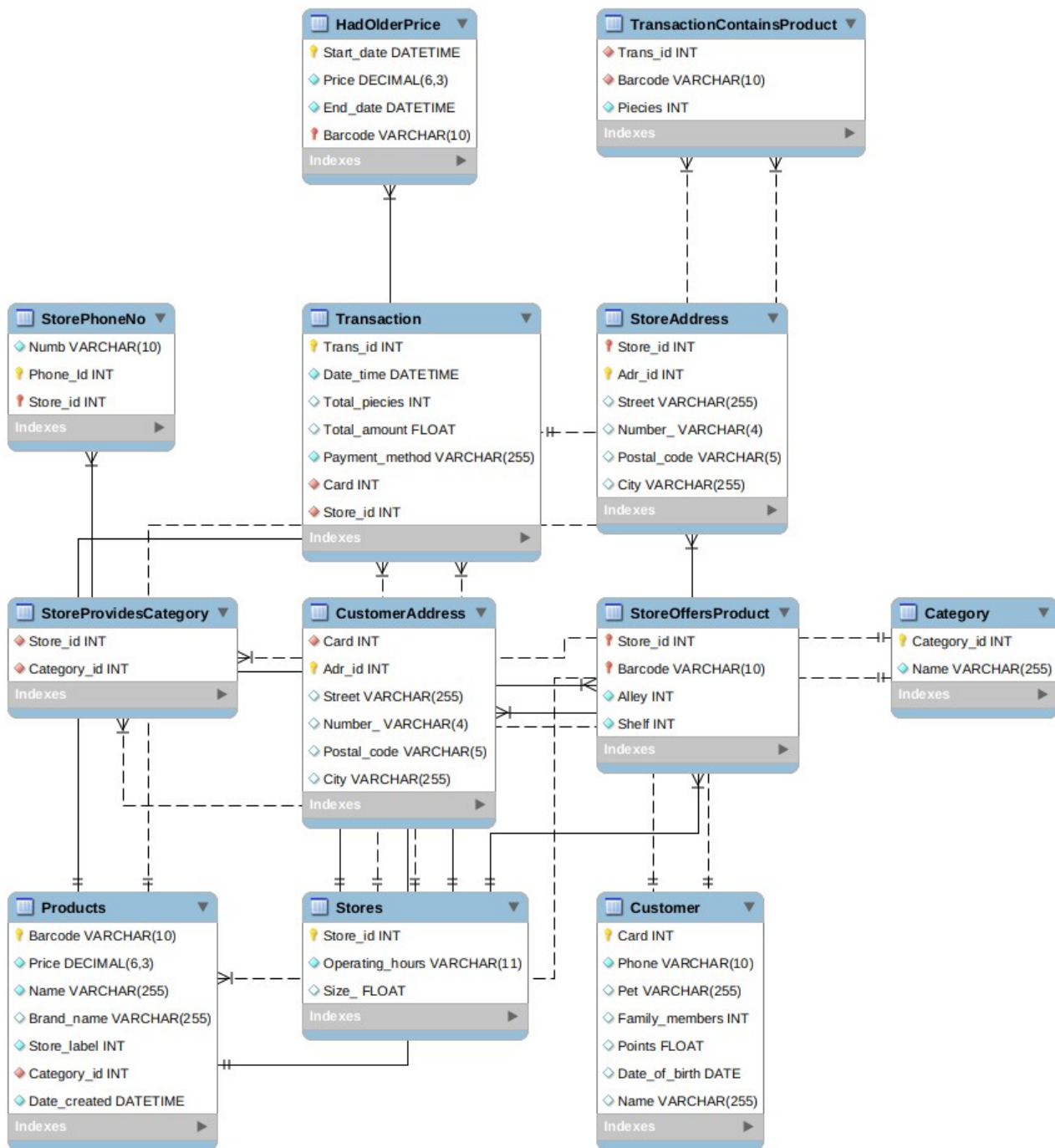
Σχεσιακό διάγραμμα Βάσης Δεδομένων:

Το δοσμένο ER διάγραμμα, αφού τροποποιήθηκε σε ελάχιστα σημεία για την καλύτερη επίλυση των ζητουμένων μετατράπηκε σε κώδικα MySQL.

Για την παραγωγή του διαγράμματος χρησιμοποιήσαμε το εργαλείο mysql workbench.

Χρησιμοποιήσαμε την επιλογή File → Import → Reverse Engineer MySQL Create Script και επιλέξαμε το αρχείο με τον κώδικα που δημιουργεί τους πίνακες της βάσης το οποίο παρήγαγε το διάγραμμα ER.

Το διάγραμμα που προέκυψε είναι το εξής:



Υλοποίηση της Βάσης Δεδομένων:

Πίνακες:

1)

```
create table Stores(
  Store_id int not null unique,
  Operating_hours varchar(11) not null default '09:00-21:00',
  Size_ float,
  unique(Store_id),
  primary key(Store_id)
);
```

Ο πίνακας για τα καταστήματα έχει τα πεδία:

Store_id → το μοναδικό id του καταστήματος που είναι και primary key.

Operating_hours → το ωράριο του καταστήματος.

Size_ → το μέγεθος σε τετραγωνικά μέτρα του καταστήματος.

2)

```
create table StorePhoneNo(  
    Numb varchar(10) not null,  
    Phone_Id int not null,  
    Store_id int not null ,  
    unique(Phone_id),  
    primary key(Phone_Id,Store_id),  
    foreign key (Store_id) references Stores(Store_id)  
    on delete cascade  
    on update cascade  
);
```

Ο πίνακας για τα τηλέφωνα ενός καταστήματος έχει τα πεδία:

Numb → το τηλέφωνο

Phone_Id → το μοναδικό id που είναι και primary key.

Store_id → το id του καταστήματος (foreign key) στο οποίο ανήκει το τηλέφωνο.

3)

```
create table StoreAddress(  
    Store_id int not null,  
    Adr_id int not null,  
    Street varchar(255),  
    Number_ varchar(4),  
    Postal_code varchar(5),  
    City varchar(255),  
    unique(Adr_id,Store_id),  
    primary key(Store_id, Adr_id),  
    foreign key (Store_id) references Stores(Store_id)  
    on delete cascade  
    on update cascade  
);
```

Ο πίνακας για την διεύθυνση ενός καταστήματος έχει τα πεδία:

Store_id → το id του καταστήματος (foreign key) στο οποίο ανήκει η διεύθυνση.

Adr_id → το μοναδικό id.

Street → οδός καταστήματος.

Number_ → αριθμός οδού.

City → πόλη στην οποία βρίσκεται το κατάστημα.

Postal_code → T.K. καταστήματος.

(Ο συνδυασμός Adr_id, Store_id είναι μοναδικοί και είναι primary key)

4)

```
create table Customer(  
    Card int not null,  
    Phone varchar(10) not null,  
    Pet varchar(255),  
    Family_members int,  
    Points float,  
    Date_of_birth date,  
    Name varchar(255),  
    unique(Card),  
    primary key(Card)  
);
```

Ο πίνακας για τον πελάτη έχει τα πεδία:

Card → ο μοναδικός αριθμός της κάρτας πελάτη που είναι και primary key.

Phone → το τηλέφωνο του πελάτη.

Pet → ο τύπος κατοικιδίου του πελάτη.

Family_members → ο αριθμός των μελών της οικογένειας του πελάτη.

Points → οι πόντοι του πελάτη.

Date_of_birth → η ημερομηνία γέννησης του πελάτη.

Name → το όνομα του πελάτη.

5)

```
create table CustomerAddress(  
    Card int not null,  
    Adr_id int not null,  
    Street varchar(255),  
    Number_ varchar(4),  
    Postal_code varchar(5),  
    City varchar(255),  
    primary key(Adr_id),  
    unique(Adr_id,Card),  
    foreign key (Card) references Customer(Card)  
    on delete cascade  
    on update cascade  
);
```

Ο πίνακας για την διεύθυνση του πελάτη έχει τα πεδία:

Card → ο μοναδικός αριθμός της κάρτας πελάτη που αναφέρεται η διεύθυνση (foreign key).

Adr_id → το μοναδικό id που είναι και primary key.

Street → οδός κατοικίας.

Number_ → αριθμός οδού.

City → πόλη στην οποία κατηκεί ο πελάτης.

Postal_code → T.K. οδού.

6)

```
create table Category(  
    Category_id int not null,  
    Name varchar(255) not null,  
    unique (Category_id)  
    unique (Name),  
    primary key(Category_id)  
);
```

Ο πίνακας της κατηγορίας έχει τα πεδία:

Category_id → το μοναδικό id που είναι και primary key.

Name → το μοναδικό όνομα κατηγορίας.

7)

```
create table StoreProvidesCategory(  
    Store_id int not null,  
    Category_id int not null,  
    unique (Store_id,Category_id),  
    foreign key(Store_id) references Stores(Store_id)  
    on delete cascade  
    on update cascade,  
    foreign key(Category_id) references Category(Category_id)  
    on delete cascade  
    on update cascade  
);
```

Ο πίνακας της σχέσης ενός καταστήματος με μία από τις κατηγορίες που διαθέτει έχει τα πεδία:

Store_id → το id του καταστήματος (foreign key).

Category_id → το μοναδικό id της κατηγορίας (foreign key).

(Ο συνδυασμός Store_id, Category_id είναι μοναδικός.)

8)

```
create table Products (  
    Barcode varchar(10) not null,  
    Price decimal(6,3) not null,  
    Name varchar(255) not null,  
    Brand_name varchar(255) default '',  
    Store_label int not null default 0,  
    Category_id int not null,  
    Date_created datetime not null,  
    unique (Barcode),  
    unique (Category_id),  
    foreign key (Category_id) references Category(Category_id)  
    on delete cascade  
    on update cascade,  
    primary key(Barcode)  
);
```

Ο πίνακας ενός προϊόντος έχει τα πεδία:

Barcode → το μοναδικό Barcode του προϊόντος που είναι και primary key.

Price → η τιμή του προϊόντος.

Name → το όνομα του προϊόντος.

Brand_name → η μάρκα του προϊόντος.

Store_label → αν το προϊόν είναι ταμπέλα καταστήματος τότε είναι 1 αλλιώς είναι 0.

Category_id → το μοναδικό id της κατηγορίας του προϊόντος (foreign key).

Date_created → πότε το προϊόν μπήκε στη βάση.

9)

```
create table HadOlderPrice(  
    Start_date datetime not null,  
    Price decimal(6,3) not null,  
    End_date datetime not null,  
    Barcode varchar(10) not null,  
    foreign key(Barcode) references Products(Barcode)  
    on delete cascade  
    on update cascade,  
    primary key(Start_date,Barcode)  
);
```

Ο πίνακας παλιότερης τιμής ενός προϊόντος έχει τα πεδία:

Start_date → η ημερομηνία που το προϊόν έλαβε αρχικά την τιμή αυτή.

Price → η τιμή.

Barcode → το Barcode του προϊόντος που αναφέρεται (foreign key).

End_date → η ημερομηνία που το προϊόν έπαψε να έχει αυτή την τιμή.

(Ο συνδυασμός Start_date, Barcode αποτελεί primary key του πίνακα.

10)

```
create table StoreOffersProduct(  
    Store_id int not null,  
    Barcode varchar(10) not null,  
    Alley int not null,  
    Shelf int not null,  
    foreign key(Store_id) references Stores(Store_id)  
    on delete cascade  
    on update cascade,  
    foreign key(Barcode) references Products(Barcode)  
    on delete cascade  
    on update cascade,  
    unique (Store_id,Barcode),  
    primary key (Store_id,Barcode)  
);
```

Ο πίνακας της σχέσης ενός καταστήματος με το προϊόν που προσφέρει έχει τα πεδία:

Store_id → το id του καταστήματος (foreign key).
Barcode → το Barcode του προϊόντος που αναφέρεται (foreign key).
Alley → ο διάδρομος που βρίσκεται το προϊόν.
Shelf → το ράφι που βρίσκεται το προϊόν.
(Ο συνδυασμός Store_id, Barcode αποτελεί primary key του πίνακα.

11)

```
create table Transaction(  
  Trans_id int not null unique,  
  Date_time datetime not null,  
  Total_piecies int default 0,  
  Total_amount float default 0,  
  Payment_method varchar(255) not null,  
  Card int not null,  
  Store_id int not null,  
  foreign key(Card) references Customer(Card)  
  on delete cascade  
  on update cascade,  
  foreign key(Store_id) references Stores(Store_id)  
  on delete cascade  
  on update cascade,  
  primary key(Trans_id)  
);
```

Ο πίνακας μιας συναλλαγής ενός πελάτη έχει τα πεδία:

Trans_id → το μοναδικό id (primary key).
Date_time → πότε έγινε η συναλλαγή.
Total_piecies → πόσα προϊόντα αγοράστηκαν.
Total_amount → συνολικό ποσό.
Payment_method → τρόπος πληρωμής.
Card → ο μοναδικός αριθμός της κάρτας πελάτη που αναφέρεται η συναλλαγή (foreign key).
Store_id → το id του καταστήματος που έγινε η συναλλαγή (foreign key).

12)

```
create table TransactionContainsProduct(  
  Trans_id int not null,  
  Barcode varchar(10) not null,  
  Piecies int not null default 1,  
  foreign key(Trans_id) references Transaction(Trans_id)  
  on delete cascade  
  on update cascade,  
  foreign key(Barcode) references Products(Barcode)  
  on delete cascade  
  on update cascade  
);
```


Ο πίνακας της σχέσης μίας συναλλαγής με το προϊόν που ανήκει σε αυτή έχει τα πεδία:

Trans_id → το id της συναλλαγής (foreign key).

Barcode → το Barcode του προϊόντος που αναφέρεται (foreign key).

Piecies → πόσα κομμάτια του προϊόντος αγοράστηκαν.

Περιορισμοί και διακόπτες:

```
delimiter $$
create trigger check_1
before insert on Stores
for each row
begin
if not (new.Size_ > 0) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Store Size cant be zero or negative';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_2
before insert on Stores
for each row
begin
if not (new.Store_id >= 1) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Store id must be greater than 0';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_3
before insert on Customer
for each row
begin
if not (new.Family_members > 0 )then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Family members cant be negative';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_4
before insert on Customer
for each row
begin
if not (new.Points >= 0) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Points cant be nagative';
end if;
end$$
delimiter ;
```



```
delimiter $$
create trigger check_5
before insert on Products
for each row
begin
if not (new.Price > 0) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Price must be greater than zero';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_6
before insert on Products
for each row
begin
if not (new.Store_label in (0,1)) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Store label must be 0 or 1';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_7
before insert on HadOlderPrice
for each row
begin
if not (new.Start_date < new.End_date) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Start date must be before end date';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_8
before insert on HadOlderPrice
for each row
begin
if not (new.Price > 0) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Price must be greater than zero';
end if;
end$$
delimiter ;
```

```
delimiter $$
create trigger check_9
before insert on Transaction
for each row
begin
if not (new.Total_piecies >= 0) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Total Piecies must be greater than 0';
end if;
end$$
delimiter ;
```

```

delimiter $$
create trigger check_10
before insert on Transaction
for each row
begin
if not (new.Payment_method in ('Cash','Credit card')) then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Payment method should be Cash or Credit Card';
end if;
end$$
delimiter ;

```

```

delimiter $$
create trigger check_11
before insert on Transaction
for each row
begin
if not (new.Total_amount >= 0)then
    SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Total amount should be greater than 0';
end if;
end$$
delimiter ;

```

```

delimiter $$
create trigger after_update_price
after update
on Products for each row
begin
    set @maxenddate := (select MAX(End_date)
                        from HadOlderPrice
                        where Barcode = new.Barcode);
    if @maxenddate is null then
        set @maxenddate := new.Date_created;
    end if;
    if old.Price <> new.Price then
        insert into HadOlderPrice(Start_date, End_date, Price, Barcode)
        values (@maxenddate, NOW(), old.Price, new.Barcode);
    end if;
end$$
delimiter ;

```

```

delimiter $$
create trigger after_delete_StoreProvidesCategory
after delete
on StoreProvidesCategory for each row
begin
    delete from StoreOffersProduct
    where Store_id = old.Store_id
        and (Barcode
            in (select Barcode
                from Products
                where Category_id = old.Category_id));
end$$
delimiter ;

```

```

delimiter $$
create trigger after_transcontprod_insert
after insert
on TransactionContainsProduct for each row
begin
    set @timeoftrans := (select Date_time
                        from Transaction
                        where Trans_id = new.Trans_id);
    set @prod_pr := (select Price
                    from HadOlderPrice
                    where new.Barcode = Barcode
                      and @timeoftrans >= Start_date
                      and @timeoftrans <= End_date);
    if @prod_pr is null then
        set @prod_pr := (select Price
                        from Products
                        where Barcode = new.Barcode);
    end if;
    set @newpoints = 0.1 * new.Pieces * @prod_pr;
    update Transaction
        set Total_pieces = Total_pieces + new.Pieces,
            Total_amount = Total_amount + new.Pieces * @prod_pr
        where (Trans_id = new.Trans_id);
    update Customer
        set Points = Points + @newpoints
        where (Card = (select Card
                      from Transaction
                      where Trans_id = new.Trans_id));
end$$
delimiter ;

```

Ευρετήρια:

Τα παρακάτω ευρετήρια ορίστηκαν διότι τα πεδία των ευρετηρίων αποτελούν πρωτεύοντα στοιχεία στην αναζήτηση των αντίστοιχων πινάκων.

```

create index idx1 on Products(Barcode,Name);
create index idx2 on Customer(Card, Date_of_birth);
create index idx3 on Transaction(Card, Date_time);
create index idx4 on TransactionContainsProduct(Barcode);

```

Δημιουργία δεδομένων της Βάσης:

Αρχικά για τον έλεγχο της ορθότητας των πινάκων που ορίστηκαν αρχικοποιήσαμε την βάση αφού χρησιμοποιήσαμε τον παρακάτω κώδικα:

```

/* STORES */
insert into Stores(Store_id, Operating_hours, Size_) values (1, '08:00-21:00', 340);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2106423178', 1, 1);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(1, 1, 'Georgiou Kerdinou', '69', '11522', 'Athens');
insert into Stores(Store_id, Operating_hours, Size_) values (2, '09:00-21:00', 280);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2103213590', 2, 2);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(2, 2, 'Korai', '3', '10564', 'Athens');
insert into Stores(Store_id, Operating_hours, Size_) values (3, '07:00-21:00', 420);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2109213043', 3, 3);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(3, 3, 'Dimitrakopoulou', '72', '11741', 'Athens');
insert into Stores(Store_id, Operating_hours, Size_) values (4, '07:00-21:00', 420);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2106421150', 4, 4);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(4, 4, 'Valtinon', '30', '11474', 'Athens');
insert into Stores(Store_id, Operating_hours, Size_) values (5, '08:00-21:00', 300);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2721027043', 5, 5);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(5, 5, 'Kallipateiras', '91', '24100', 'Kalamata');
insert into Stores(Store_id, Operating_hours, Size_) values (6, '08:00-21:00', 242);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2721096170', 6, 6);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(6, 6, 'Akrita', '1', '24100', 'Kalamata');
insert into Stores(Store_id, Operating_hours, Size_) values (7, '07:00-21:00', 180);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2721085388', 7, 7);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(7, 7, 'Psaron', '106', '24100', 'Kalamata');
insert into Stores(Store_id, Operating_hours, Size_) values (8, '07:00-21:00', 296);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2231052871', 8, 8);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(8, 8, 'Karagianopoulou', '3', '35100', 'Lamia');
insert into Stores(Store_id, Operating_hours, Size_) values (9, '09:00-21:00', 500);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2231021274', 9, 9);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(9, 9, 'Pylou', '24', '35100', 'Lamia');
insert into Stores(Store_id, Operating_hours, Size_) values (10, '09:00-21:00', 410);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2231084059', 10, 10);
insert into StorePhoneNo(Numb, Phone_id, Store_id) values('2231098461', 11, 10);
insert into StoreAddress(Store_id, Adr_id, Street, Number_, Postal_code, City) values(10, 10, 'Arkadiou', '4', '35100', 'Lamia');
/*CATEGORIES*/
insert into Category(Category_id, Name) values (1,'Fresh Products');
insert into Category(Category_id, Name) values (2,'Fridge Products');
insert into Category(Category_id, Name) values (3,'Liquors and Spirits');
insert into Category(Category_id, Name) values (4,'Self Care Products');
insert into Category(Category_id, Name) values (5,'Home Products');
insert into Category(Category_id, Name) values (6,'Pet Products');
/* kathgoria 1 Fresh Products*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('9457813465', 2.93, 'Apples', 'Golden', 0, 1,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 3.04, '2020-03-04','9457813465');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-04-01', 2.8, '2020-04-10','9457813465');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7946842152', 4.37, 'Pears', 'Conference', 0, 1,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 4.00, '2020-04-04','7946842152');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7986121145', 5.4, 'Avocado', 'Biofarm', 1, 1,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('9458871645', 3.21, 'Oranges', 'Conference', 0, 1,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 2.5, '2020-03-04','9458871645');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-05', 2.9, '2020-03-24','9458871645');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-25', 3.46, '2020-04-04','9458871645');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4385784111', 3.24, 'Bananas', 'Dole', 1, 1,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7784859699', 3.2, 'Pork', "", 1, 1,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7784859691', 2.4, 'Chicken', "", 0, 1,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 3.4, '2020-03-04','7784859691');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4444587133', 1.5, 'Lamp Head', "", 1, 1,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1119786455', 2.6, 'Meatballs', "", 1, 1,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4689751247', 5.2, 'Pineapple', 'Biofarm', 1, 1,'2020-01-01');
/* kathgoria 2 Fridge Products*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4876969691', 1.08, 'Kefir', 'Olympos', 1, 2,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7988841112', 1.2, 'ChocoMilk', 'Rodopaki', 1, 2,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('9273049372', 1.45, 'Milk', 'Delta', 1, 2,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7848784753', 1.98, 'Eggs', 'Xrysa Ayga', 1, 2,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('9647851112', 0.78, 'Danone', 'Activia', 1, 2,'2020-01-01');

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insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('9986157468', 0.9, 'Light Yogurt', 'Rodopi',
0, 2,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 1.2, '2020-02-04','9986157468');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-02-05', 1.1, '2020-03-24','9986157468');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4475837200', 0.95, 'Cream', 'Marata', 0,
2,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 3.4, '2020-03-04','4475837200');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('0182740844', 0.7, 'Bueno', 'Kinder', 0,
2,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 0.64, '2020-04-04','0182740844');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7784547843', 1.0, 'Nut Bar', 'Flapjack', 0,
2,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 2.04, '2020-03-24','7784547843');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-24', 1.5, '2020-04-14','7784547843');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1000488743', 2.4, 'Tyrokafterh', 'AlfaStar',
0, 2,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 3.4, '2020-02-04','1000488743');
/*kathgoria 3 Liquors and Spirits*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('0645158001', 3.52, 'Beer 4pack', 'Alfa', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4460322153', 3.74, 'Beer 6pack', 'Bergina',
1, 3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('3659568874', 1.51, 'Sangria', 'Don Simon',
1, 3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7874585330', 1.9, 'White wine', 'Pareas', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('2223656581', 2.04, 'Red Wine', 'Pareas', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7774464646', 2.92, 'Ouzo', 'Mini', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7774464647', 3.36, 'Tsipouro',
'Mpampatzim', 1, 3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7774464648', 13, 'Cognac', 'Metaxa', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7774464231', 15.50, 'Vodka', 'Absolut', 1,
3,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4325784111', 24.96, 'Whiskey', 'Jack
Daniels', 1, 3,'2020-01-01');
/*kathgoria 4 Self Care Products*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4965879533',1.79 , 'Toothbrush', 'Colgate',
1, 4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('3666321005', 2.19, 'Toothpaste', 'White
System', 1, 4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4415266990', 31.19, 'Eau De Toilette',
'Prada', 1, 4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4444555512', 3.56, 'Shampoo', 'Elvive', 1,
4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1212120003', 5.5, 'Conditioner', 'Loreal', 1,
4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6666555551', 4.9, 'Shaving Cream', 'Bic', 1,
4,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4447859992',70 , 'Antiage Cream',
'Clinique', 0, 4,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01',80 , '2020-02-04','4447859992');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-02-05',60 , '2020-03-04','4447859992');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-05',74 , '2020-04-08','4447859992');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6489200132', 12, 'Face Mask', 'Bioten', 0,
4,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 9.5, '2020-03-04','6489200132');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-04',11.2 , '2020-03-21','6489200132');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('5100232520', 20, 'Teeth Whitening Pen',
'Moon', 0, 4,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 24, '2020-03-27','5100232520');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('7784589630', 12, 'Amethyst Crystal
Cleaner', "", 0, 4,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 19, '2020-04-25','7784589630');
/*kathgoria 5 Home Products*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6584756985', 150, 'Woven Rug', 'Wyat', 1,
5,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('2103254875', 69, 'Window Panel',
'Homedecor', 1, 5,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6458954112',249 , 'Wooden Mirror',
'Homedecor', 1, 5,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1033659896', 50, 'Chair', 'Homedecor', 1,
5,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('0012121036', 15, 'Plastic Chair', "", 1,
5,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6941035879', 100, 'Table', 'Homedecor', 1,
5,'2020-01-01');

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insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('3330323201', 500, 'Sofa', 'Homedecor', 0, 5,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 560, '2020-02-04','3330323201');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-02-05',480 , '2020-03-04','3330323201');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-05',471 , '2020-04-08','3330323201');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6495687410', 4, 'Trash Can', 'Homedecor', 0, 5,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 6,'2020-03-04','6495687410');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-04', 5.2,'2020-03-21','6495687410');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6951000236',31 , 'Lamp', 'Homedecor', 0, 5,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 25, '2020-03-27','6951000236');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('8342876655',3 , 'Tv Screen Cleaner', "", 0, 5,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 2.1, '2020-04-25','8342876655');
/*kathgoria 6 Pet Products*/
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4587963201', 25, 'Dog Food', 'Pet4u', 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4785469600',25 , 'Cat Food', 'Pet4u', 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('3333333212', 10, 'Fish Food', 'Pet4u', 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1000000002', 12, 'Turtle Food', 'Pet4u', 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1000000230',42 , 'Lizard Food', 'Pet4u', 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('5555555555',3 , 'Bird Food', "", 1, 6,'2020-01-01');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('6666666666',4 , 'Mice Food', 'Pet4u', 0, 6,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01',4.5 , '2020-02-04','6666666666');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-02-05', 4.9, '2020-03-04','6666666666');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-05', 5.1, '2020-04-08','6666666666');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1010144512', 60, 'Snake Food', 'Pet4u', 0, 6,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 62,'2020-03-04','1010144512');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-03-04', 30, '2020-03-21','1010144512');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('1010101010',7 , 'Rabbit Food', 'Pet4u', 0, 6,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01', 8, '2020-03-27','1010101010');
insert into Products(Barcode, Price, Name, Brand_name, Store_label, Category_id, Date_created) values ('4242424242', 100, 'Animal Cage', 'Pet4u', 0, 6,'2020-01-01');
insert into HadOlderPrice(Start_date, Price, End_date, Barcode) values ('2020-01-01',132 , '2020-04-25','4242424242');
/*****
insert into StoreProvidesCategory(Store_id, Category_id) values (1,1);
insert into StoreProvidesCategory(Store_id, Category_id) values (1,2);
insert into StoreProvidesCategory(Store_id, Category_id) values (1,3);
insert into StoreProvidesCategory(Store_id, Category_id) values (1,4);
insert into StoreProvidesCategory(Store_id, Category_id) values (1,5);
insert into StoreProvidesCategory(Store_id, Category_id) values (1,6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1119786455' , 1, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4385784111' , 1, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4444587133' , 1, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4689751247' , 1, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7784859691' , 1, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7784859699' , 1, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7946842152' , 1, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7986121145' , 1, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'9457813465' , 1, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'9458871645' , 1, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'0182740844' , 2, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1000488743' , 2, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4475837200' , 2, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4876969691' , 2, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7784547843' , 2, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7848784753' , 2, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7988841112' , 2, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'9273049372' , 2, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'9647851112' , 2, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'9986157468' , 2, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'0645158001' , 3, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'2223656581' , 3, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'3659568874' , 3, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4325784111' , 3, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4460322153' , 3, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7774464231' , 3, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7774464646' , 3, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7774464647' , 3, 3);

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insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7774464648' , 3, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7874585330' , 3, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1212120003' , 4, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'3666321005' , 4, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4415266990' , 4, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4444555512' , 4, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4447859992' , 4, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4965879533' , 4, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'5100232520' , 4, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6489200132' , 4, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6666555551' , 4, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'7784589630' , 4, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'0012121036' , 5, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1033659896' , 5, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'2103254875' , 5, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'3330323201' , 5, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6458954112' , 5, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6495687410' , 5, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6584756985' , 5, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6941035879' , 5, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6951000236' , 5, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'8342876655' , 5, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1000000002' , 6, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1000000230' , 6, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1010101010' , 6, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'1010144512' , 6, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'3333333212' , 6, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4242424242' , 6, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4587963201' , 6, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'4785469600' , 6, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'5555555555' , 6, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (1,'6666666666' , 6, 10);
/*****
insert into StoreProvidesCategory(Store_id, Category_id) values (2,1);
insert into StoreProvidesCategory(Store_id, Category_id) values (2,2);
insert into StoreProvidesCategory(Store_id, Category_id) values (2,3);
insert into StoreProvidesCategory(Store_id, Category_id) values (2,4);
insert into StoreProvidesCategory(Store_id, Category_id) values (2,5);
insert into StoreProvidesCategory(Store_id, Category_id) values (2,6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1119786455' , 1, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4385784111' , 1, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4444587133' , 1, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4689751247' , 1, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7784859691' , 1, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7784859699' , 1, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7946842152' , 1, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7986121145' , 1, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'9457813465' , 1, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'9458871645' , 1, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'0182740844' , 2, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1000488743' , 2, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4475837200' , 2, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4876969691' , 2, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7784547843' , 2, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7848784753' , 2, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7988841112' , 2, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'9273049372' , 2, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'9647851112' , 2, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'9986157468' , 2, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'0645158001' , 3, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'2223656581' , 3, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'3659568874' , 3, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4325784111' , 3, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4460322153' , 3, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7774464231' , 3, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7774464646' , 3, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7774464647' , 3, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7774464648' , 3, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7874585330' , 3, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1212120003' , 4, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'3666321005' , 4, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4415266990' , 4, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4444555512' , 4, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4447859992' , 4, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4965879533' , 4, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'5100232520' , 4, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6489200132' , 4, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6666555551' , 4, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'7784589630' , 4, 10);

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insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'0012121036', 5, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1033659896', 5, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'2103254875', 5, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'3330323201', 5, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6458954112', 5, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6495687410', 5, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6584756985', 5, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6941035879', 5, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6951000236', 5, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'8342876655', 5, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1000000002', 6, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1000000230', 6, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1010101010', 6, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'1010144512', 6, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'3333333212', 6, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4242424242', 6, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4587963201', 6, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'4785469600', 6, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'5555555555', 6, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (2,'6666666666', 6, 10);
/*****
insert into StoreProvidesCategory(Store_id, Category_id) values (3,1);
insert into StoreProvidesCategory(Store_id, Category_id) values (3,2);
insert into StoreProvidesCategory(Store_id, Category_id) values (3,3);
insert into StoreProvidesCategory(Store_id, Category_id) values (3,4);
insert into StoreProvidesCategory(Store_id, Category_id) values (3,5);
insert into StoreProvidesCategory(Store_id, Category_id) values (3,6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'1119786455', 1, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4385784111', 1, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4444587133', 1, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4689751247', 1, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7784859691', 1, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7784859699', 1, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7946842152', 1, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7986121145', 1, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'9457813465', 1, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'9458871645', 1, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'0182740844', 2, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'1000488743', 2, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4475837200', 2, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4876969691', 2, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7784547843', 2, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7848784753', 2, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7988841112', 2, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'9273049372', 2, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'9647851112', 2, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'9986157468', 2, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'0645158001', 3, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'2223656581', 3, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'3659568874', 3, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4325784111', 3, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4460322153', 3, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7774464231', 3, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7774464646', 3, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7774464647', 3, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7774464648', 3, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7874585330', 3, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'1212120003', 4, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'3666321005', 4, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4415266990', 4, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4444555512', 4, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4447859992', 4, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'4965879533', 4, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'5100232520', 4, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6489200132', 4, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6666555551', 4, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'7784589630', 4, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'0012121036', 5, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'1033659896', 5, 2);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'2103254875', 5, 3);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'3330323201', 5, 4);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6458954112', 5, 5);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6495687410', 5, 6);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6584756985', 5, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6941035879', 5, 1);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'6951000236', 5, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'8342876655', 5, 10);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (3,'1000000002', 6, 8);

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[illegible]

[illegible]

[illegible]


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insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (10,'4587963201' , 6, 7);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (10,'4785469600' , 6, 8);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (10,'5555555555' , 6, 9);
insert into StoreOffersProduct(Store_id, Barcode, Alley, Shelf) values (10,'6666666666' , 6, 10);
/*****
/* PELATES */ /* ta points einai to 10% epi ths timhs twn proiontw */
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (1,'2104547954','Dog',2,0,'1978-02-08','Giorgos
Giorgopoulos');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (1,1,'Eksikiou','4','11845','Athens');
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (2,'2104452103','',4,0,'1980-04-02','Giannia
Giannakaki');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (2,2,'Antipis','84','11364','Athens');
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (3,'2231054788','Snake',1,0,'1994-01-01','Dimitris
Dimitropoulos');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (3,3,'Athanasiou Diakou','156','35100','Lamia');
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (4,'2231047478','Turtle',5,0,'1966-08-08','Akis
Akakios');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (4,4,'Akakias','12','35100','Lamia');
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (5,'2721000234','Cat',3,0,'1979-02-08','Aleksandra
Aleksandridi');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (5,5,'28hs Oktombriou','421','24100','Kalamata');
insert into Customer(Card, Phone, Pet, Family_members, Points, Date_of_birth, Name) values (6,'2721099456','',7,0,'1950-09-04','Panos
Panopoulos');
insert into CustomerAddress(Card, Adr_id, Street, Number_, Postal_code, City) values (6,6,'Skoufa','19','24100','Kalamata');
/*****
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1001, '2020-01-02 13:34:21',0, 0,
'Credit Card', 1,2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1001, '6941035879',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1001, '7784859699',2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1001, '9986157468',4);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1001, '6495687410',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1011,'2020-01-14 15:00:01', 0,0 ,
'Credit Card', 1,2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'0012121036',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'0182740844',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'0645158001',2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'1000000002',4);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'1000000230',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1011,'1000488743',2);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1021, '2020-02-14 15:00:01',0,0,
'Cash', 1,3);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1021,'1010101010',2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1021,'1010144512',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1021,'1119786455',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1021,'1212120003',2);
/*****
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1031,'2020-03-04 10:00:24',0,0,
'Credit Card', 2,3);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'6495687410',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'6584756985',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'7774464647',2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'8342876655',5);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'4876969691',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'4965879533',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'4689751247',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1031,'6458954112',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1041, '2020-04-25 17:00:00',0, 0,
'Cash', 2,4);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'9986157468',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'9647851112',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'3659568874',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'7784859699',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'6666666666',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'333333212',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1041,'7946842152',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1051, '2020-04-26 17:00:00', 0, 0,
'Cash', 2,3);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1051,'7774464231',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1051,'7774464647',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1051,'7784547843',12);
/*****
insert into Transaction(Trans_id,Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1061, '2020-01-01 19:04:23', 0, 0,
'Credit Card', 3,8);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1061,'3330323201',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1071, '2020-02-01 21:00:00', 0, 0,
'Cash', 3,9);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1071,'6941035879',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1081,'2020-04-02 20:00:00', 0, 0,
'Cash', 3,10);

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insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1081,'1010144512',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1081,'1033659896',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1081,'6458954112',1);
/*****/
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1091,'2020-04-04 11:00:21',0, 0 ,
'Credit Card', 4,8);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'6495687410',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'6584756985',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'7774464647',2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'8342876655',5);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'4876969691',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'4965879533',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'4689751247',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1091,'6458954112',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1101,'2020-01-25 18:00:00',0, 0,
'Credit Card', 4,9);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'9986157468',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'9647851112',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'3659568874',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'7784859699',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'6666666666',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'3333333212',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1101,'7946842152',1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1111,'2020-01-26 17:00:00', 0, 0,
'Cash', 4,10);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1111,'7774464231',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1111,'7774464647',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1111,'7784547843',12);
/*****/
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1121,'2020-03-11 14:22:10', 0, 0,
'Cash', 5,5);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'4385784111',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'4475837200',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'5555555555',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'7774464646',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'7986121145',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'7988841112',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'9458871645',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'0182740844',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'3659568874',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1121,'3666321005',1);
/*****/
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1131, '2020-04-21 16:22:40', 0,
0 , 'Credit Card', 6,6);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'5555555555',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'1000000230',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'2103254875',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'4689751247',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'5100232520',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'7774464231',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'6489200132',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'7784547843',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'9647851112',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'0012121036',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'4447859992',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'6666555551',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'6666666666',1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1131,'9986157468',1);
/*****/

```

Έπειτα, αφού τεστάρουμε την βάση και βρήκαμε τα αποτελέσματα ικανοποιητικά, προσθέσαμε αγορές 3 μηνών για κάθε πελάτη:

```

/*PELATHS 1*/
/*GENARHS*/
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (1, '2020-01-12 20:08:51',0, 0,
'Credit Card', 1,1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1, (select Barcode from Products order by rand() limit 1),1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1, (select Barcode from Products order by rand() limit 1),1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1, (select Barcode from Products order by rand() limit 1),1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(1, (select Barcode from Products order by rand() limit 1),1);
insert into Transaction(Trans_id, Date_time,Total_piecies, Total_amount, Payment_method, Card, Store_id) values (2, '2020-01-08 20:03:20',0, 0,
'Cash', 1,2);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(2, (select Barcode from Products order by rand() limit 1),1);
insert into TransactionContainsProduct(Trans_id, Barcode, Piecies) values(2, (select Barcode from Products order by rand() limit 1),1);

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/*FLEBARHS */

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Σημαντικά ερωτήματα στην Βάση:

Παρακάτω θα δώσουμε τον ορισμό ερωτημάτων τα οποία δίνουν σύνθετες πληροφορίες για τα δεδομένα και ενδεικτικά αποτελέσματα:

→ Τα πιο συνιθισμένα ζεύγη προϊόντων:

```
/*Frequently bought together*/
create view Frequently_bought_together as
select tab2.nam1, tab2.nam2, tab1.cnt from
(select t1.Barcode as Prod1, t2.Barcode as Prod2, count(*) as cnt from TransactionContainsProduct t1 join
TransactionContainsProduct t2 on t1.Trans_id = t2.Trans_id and t1.Barcode < t2.Barcode group by Prod1 , Prod2 order by count(*)
desc limit 10) tab1
left join
(select p1.Barcode as bar1, p2.Barcode as bar2, p1.Name as nam1, p2.Name as nam2 from Products p1 left join Products p2 on
p1.Barcode < p2.Barcode) tab2
on tab1.Prod1 = tab2.bar1 and tab1.Prod2 = tab2.bar2;
```

→ Οι θέσεις με τις περισσότερες πωλήσεις:

```
/*Top selling Spots*/
create view Top_selling_spots as
select tab2.Alley, tab2.Shelf, sum(tab1.sells) as place_sells from
(select Barcode as bar, sum(Pieces) as sells, Store_id from TransactionContainsProduct left join Transaction on
TransactionContainsProduct.Trans_id = Transaction.Trans_id group by TransactionContainsProduct.Barcode, Transaction.Store_id
) tab1
left join
StoreOffersProduct tab2
on (tab1.Store_id = tab2.Store_id and tab1.bar = tab2.Barcode) group by tab2.Alley, tab2.Shelf
order by place_sells desc
limit 10;
```

→ Το ποσοστό ανα κατηγορία προϊόντων που οι χρήστες εμπιστεύονται προϊόντα με ταμπέλα του καταστήματος:

```
/*Preferred products per category*/
create view Preferred_products_per_category as
select Products.Category_id, sum(Products.Store_label) / count(*) as Percentage from TransactionContainsProduct left join
Products on TransactionContainsProduct.Barcode = Products.Barcode group by Products.Category_id;
```

→ Τις ώρες που η κάθε ηλικιακή ομάδα επισκέπτεται τα καταστήματα:

```
/*Most visited hours per age bracket*/
create view Most_visited_hours_per_age_pracket as
select tab3.Age_range, tab3.Time_range, count(tab3.Time_range) as Visits
from
(select tab2.age_range as Age_range, case
when Time(tab1.Date_time) >= '09:00:00' and Time(tab1.Date_time) < '10:00:00' then '[09:00:00,10:00:00]'
when Time(tab1.Date_time) >= '10:00:00' and Time(tab1.Date_time) < '11:00:00' then '[10:00:00,11:00:00]'
when Time(tab1.Date_time) >= '11:00:00' and Time(tab1.Date_time) < '12:00:00' then '[11:00:00,12:00:00]'
when Time(tab1.Date_time) >= '12:00:00' and Time(tab1.Date_time) < '13:00:00' then '[12:00:00,13:00:00]'
when Time(tab1.Date_time) >= '13:00:00' and Time(tab1.Date_time) < '14:00:00' then '[13:00:00,14:00:00]'
when Time(tab1.Date_time) >= '14:00:00' and Time(tab1.Date_time) < '15:00:00' then '[14:00:00,15:00:00]'
when Time(tab1.Date_time) >= '15:00:00' and Time(tab1.Date_time) < '16:00:00' then '[15:00:00,16:00:00]'
when Time(tab1.Date_time) >= '16:00:00' and Time(tab1.Date_time) < '17:00:00' then '[16:00:00,17:00:00]'
when Time(tab1.Date_time) >= '17:00:00' and Time(tab1.Date_time) < '18:00:00' then '[17:00:00,18:00:00]'
when Time(tab1.Date_time) >= '18:00:00' and Time(tab1.Date_time) < '19:00:00' then '[18:00:00,19:00:00]'
when Time(tab1.Date_time) >= '19:00:00' and Time(tab1.Date_time) < '20:00:00' then '[19:00:00,20:00:00]'
when Time(tab1.Date_time) >= '20:00:00' and Time(tab1.Date_time) <= '21:00:00' then '[20:00:00,21:00:00]'
end as Time_range
from
(select Card, Date_time from Transaction) tab1
left join
(select Card, case
when Date_of_birth >= '1990-01-01' then '<=30'
when Date_of_birth < '1990-01-01' and Date_of_birth >= '1975-01-01' then '31-45'
when Date_of_birth < '1975-01-01' and Date_of_birth >= '1955-01-01' then '46-65'
else '65+' end as age_range
from Customer) tab2
on tab1.Card = tab2.Card) tab3
group by tab3.Age_range, tab3.Time_range
;
```

→ Τον αριθμό προϊόντων pet shop που αγοράζονται απο κάθε πελάτη με κατοικίδιο ανάλογα το κατηκίδιο:

```
/* # of pet shop products bought per pet*/
create view No_of_pet_shop_products_bought_per_pet as
select Pet, sum(Piecies) as Total_piecies from
((select Card, tab3.Trans_id, Pet, Barcode, Piecies from
((select tab1.Card, tab1.Trans_id, tab2.Pet from
((select Card, Pet from Customer where Pet is not null and not Pet='') tab2
left join
(select Card, Trans_id from Transaction) tab1
on tab1.Card = tab2.Card)) tab3
left join
(select Barcode, Piecies, Trans_id from TransactionContainsProduct) tab4
on tab3.Trans_id = tab4.Trans_id)) tab5
left join
(Select Barcode, Category_id from Products) tab6
on tab5.Barcode = tab6.Barcode)
where Category_id = 6
group by Pet;
```

→ Το κατάστημα με τα περισσότερα κέρδη σε κάθε πόλη:

```
/*most profitable shop in each city*/
create view temporary as
(select tab1.Store_id as st_id, sum(Total_amount) as Total_amount, tab2.City as City from
((select Store_id, Total_amount from Transaction) tab1
left join
(select Store_id, City from StoreAddress) tab2
on tab1.Store_id = tab2.Store_id)
group by st_id, City);

create view Most_profitable_shop_in_each_city as
select st_id as Store, City
from temporary
where (City, Total_amount) in
(select City, max(Total_amount) as Total_amount from temporary group by City)
```

→ Τα χρήματα που ξοδεύονται κάθε ώρα:

```
/*Most profitable hours*/
create view Most_profitable_hours as
select case
  when Time(Date_time) >='09:00:00' and Time(Date_time) <'10:00:00' then '[09:00:00,10:00:00]'
  when Time(Date_time) >='10:00:00' and Time(Date_time) <'11:00:00' then '[10:00:00,11:00:00]'
  when Time(Date_time) >='11:00:00' and Time(Date_time) <'12:00:00' then '[11:00:00,12:00:00]'
  when Time(Date_time) >='12:00:00' and Time(Date_time) <'13:00:00' then '[12:00:00,13:00:00]'
  when Time(Date_time) >='13:00:00' and Time(Date_time) <'14:00:00' then '[13:00:00,14:00:00]'
  when Time(Date_time) >='14:00:00' and Time(Date_time) <'15:00:00' then '[14:00:00,15:00:00]'
  when Time(Date_time) >='15:00:00' and Time(Date_time) <'16:00:00' then '[15:00:00,16:00:00]'
  when Time(Date_time) >='16:00:00' and Time(Date_time) <'17:00:00' then '[16:00:00,17:00:00]'
  when Time(Date_time) >='17:00:00' and Time(Date_time) <'18:00:00' then '[17:00:00,18:00:00]'
  when Time(Date_time) >='18:00:00' and Time(Date_time) <'19:00:00' then '[18:00:00,19:00:00]'
  when Time(Date_time) >='19:00:00' and Time(Date_time) <'20:00:00' then '[19:00:00,20:00:00]'
  when Time(Date_time) >='20:00:00' and Time(Date_time) <='21:00:00' then '[20:00:00,21:00:00]'
end as Time_range, sum(Total_amount)
from Transaction
group by Time_range;
```

→ Προϊόντα που πωλούνται ανά κατηγορία σε ένα κατάστημα:

```
/*Products sold per category*/
set @st_id := 1; /*id of the store wanted*/
select tab6.i as Category, tab6.s / tab17.ss as '% of sold products' from
(select tab5.id as i, sum(tab5.pcs) as s from
(select tab4.Category_id as id, tab3.pcs as pcs from
((select tab1.Barcode as bar, tab1.Piecies as pcs from
((select Trans_id from Transaction where Store_id = @st_id) tab2
left join
(select Trans_id, Barcode, Piecies from TransactionContainsProduct ) tab1
on tab1.Trans_id = tab2.Trans_id)) tab3
left join
(select Barcode, Category_id from Products) tab4
on tab3.bar = tab4.Barcode )) tab5
group by tab5.id) tab6
cross join (select sum(s) as ss from ((select tab15.id as i, sum(tab15.pcs) as s from
(select tab14.Category_id as id, tab13.pcs as pcs from
((select tab11.Barcode as bar, tab11.Piecies as pcs from
((select Trans_id from Transaction where Store_id = @st_id) tab12
left join
(select Trans_id, Barcode, Piecies from TransactionContainsProduct ) tab11
on tab11.Trans_id = tab12.Trans_id)) tab13
left join
(select Barcode, Category_id from Products) tab14
on tab13.bar = tab14.Barcode )) tab15
group by tab15.id) tab16)) tab17;
```

→ Οι ώρες που ψωνίζει ένας πελάτης:

```
/*Customer Visiting hours*/
set @cust_card = 1; /*id of the customer wanted*/
select tab2.Time_range, count(tab2.Time_range) as cnt from
(select case
  when Time(tab1.Date_time) >='09:00:00' and Time(tab1.Date_time) <'10:00:00' then '[09:00:00,10:00:00)'
  when Time(tab1.Date_time) >='10:00:00' and Time(tab1.Date_time) <'11:00:00' then '[10:00:00,11:00:00)'
  when Time(tab1.Date_time) >='11:00:00' and Time(tab1.Date_time) <'12:00:00' then '[11:00:00,12:00:00)'
  when Time(tab1.Date_time) >='12:00:00' and Time(tab1.Date_time) <'13:00:00' then '[12:00:00,13:00:00)'
  when Time(tab1.Date_time) >='13:00:00' and Time(tab1.Date_time) <'14:00:00' then '[13:00:00,14:00:00)'
  when Time(tab1.Date_time) >='14:00:00' and Time(tab1.Date_time) <'15:00:00' then '[14:00:00,15:00:00)'
  when Time(tab1.Date_time) >='15:00:00' and Time(tab1.Date_time) <'16:00:00' then '[15:00:00,16:00:00)'
  when Time(tab1.Date_time) >='16:00:00' and Time(tab1.Date_time) <'17:00:00' then '[16:00:00,17:00:00)'
  when Time(tab1.Date_time) >='17:00:00' and Time(tab1.Date_time) <'18:00:00' then '[17:00:00,18:00:00)'
  when Time(tab1.Date_time) >='18:00:00' and Time(tab1.Date_time) <'19:00:00' then '[18:00:00,19:00:00)'
  when Time(tab1.Date_time) >='19:00:00' and Time(tab1.Date_time) <'20:00:00' then '[19:00:00,20:00:00)'
  when Time(tab1.Date_time) >='20:00:00' and Time(tab1.Date_time) <='21:00:00' then '[20:00:00,21:00:00]'
end as Time_range
from (select Date_time from Transaction where Transaction.Card = @cust_card) tab1) tab2
group by tab2.Time_range;
```

→ Μέσος όρος αγορών ενός πελάτη ανά εβδομάδα και ανά μήνα:

```
/*amount/transactions per week for customer*/
set @cust_card = 2;
select week(Date_time) as Week_no, sum(Total_amount) / count(week(Date_time)) as Avrg from Transaction where Card = @cust_card
group by week(Date_time);

/*amount/transactions per month for customer*/
set @cust_card = 2;
select month(Date_time) as Month_no, sum(Total_amount) / count(month(Date_time)) as Avrg from Transaction where Card = @cust_card
group by month(Date_time);
```

→ 10 κορυφαία προϊόντα που αγοράζει ένας πελάτης:

```
/*top 10 products per customer*/
set @cust_card = 2; /*id of the customer wanted*/
select tab3.Barcode, tab4.Name, tab4.Brand_name, tab3.Total_piecies from
(select Barcode, sum(Piecies) as Total_piecies from
((select Trans_id from Transaction where Card = @cust_card) tab1
left join
(select Trans_id, Barcode, Piecies from TransactionContainsProduct) tab2
on tab1.Trans_id = tab2.Trans_id)
group by Barcode
order by Total_piecies desc
limit 10) tab3
left join
(select Name, Brand_name, Barcode from Products) tab4
on tab3.Barcode = tab4.Barcode;
```

Σύστημα και γλώσσες προγραμματισμού που χρησιμοποιήθηκαν για την εφαρμογή:

- MySQL
- Express.js
- Pug.js
- Bootstrap 4
- JQuery Datatables

Εγκατάσταση της εφαρμογής σε linux:

1) Εγκατάσταση της MySQL

Τρέχουμε τις παρακάτω εντολές στο terminal:

```
$sudo apt-get update
$sudo apt-get install mysql-server
$sudo mysql_secure_installation
```

Κατά την εκτέλεση της τελευταίας εντολής θέτουμε κωδικό στον χρήστη root της MySQL.

Έπειτα τρέχουμε την εντολή `sudo mysql` και απο το cli της MySQL εκτελούμε το `ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'password'` όπου αλλάζουμε το πεδίο password με τον κωδικό που θέσαμε πιο πριν. Αυτό γίνεται για την αλλαγή του τρόπου σύνδεσης του χρήστη root απο `auth_socket` σε `mysql_native_password`.

2)Εγκατάσταση Node.js

Τρέχουμε τις παρακάτω εντολές στο terminal:

```
$sudo apt-get install nodejs
$sudo apt-get install npm
```

3)Τελευταία βήματα:

Αλλάζουμε στο αρχείο ./config/dbConfig.js το πεδίο password με τον κωδικό που θέσαμε παραπάνω.

Στον φάκελο με τον κώδικα της εφαρμογής τρέχουμε τις εντολές στο terminal:

```
$npm install --no-optional
```

```
$npm start
```

Έπειτα στον Google Chrome πάμε στην διεύθυνση <http://localhost:3000/> και κλικάρουμε το πεδίο Initialize Database το οποίο αρχικοποιεί την βάση όπως περιγράφηκε στα πρώτα μέρη αυτής της αναφοράς.