Memòria Pràctica 1 Bases de Dades
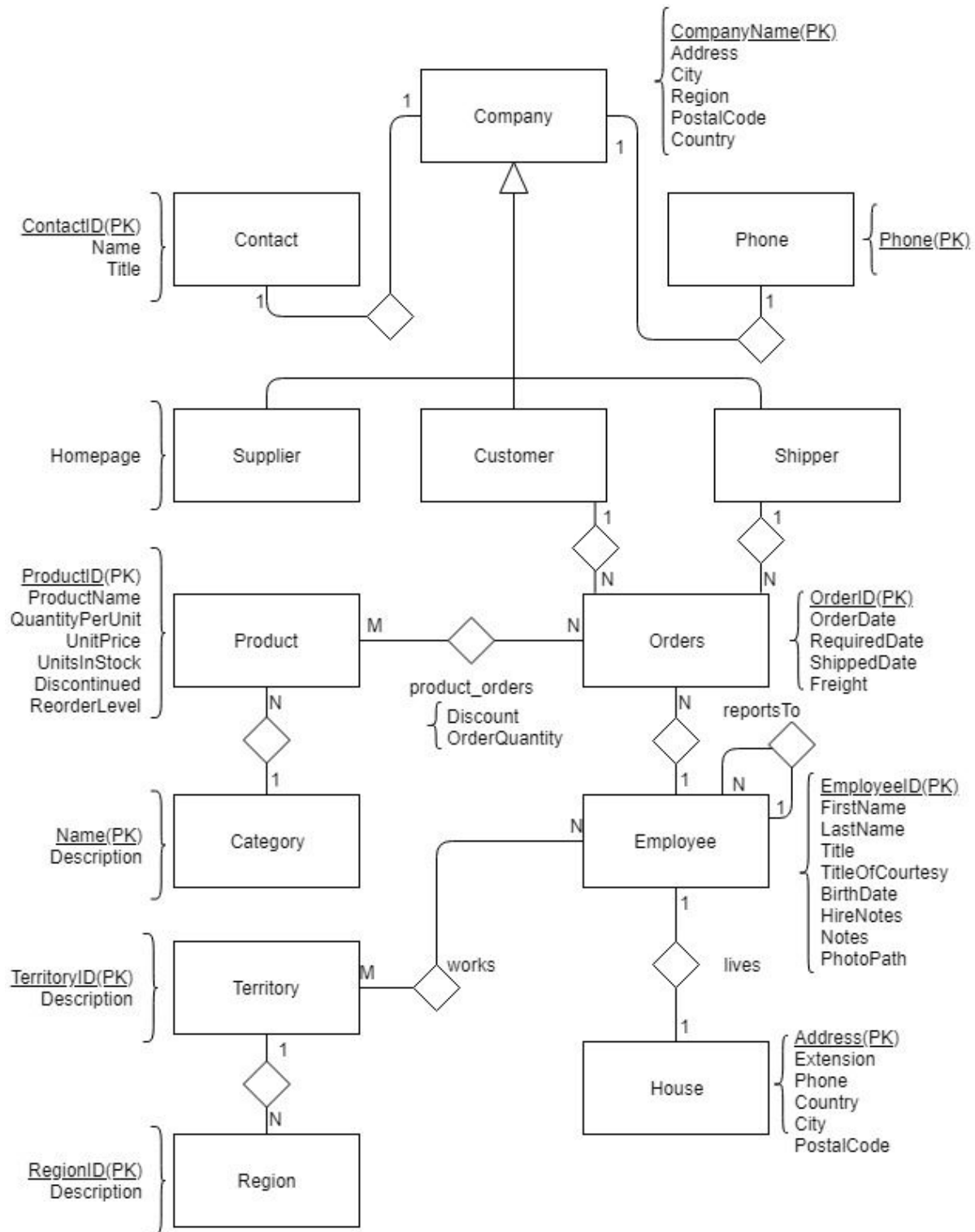
Albert Luna i Pérez - albert.luna
Laia Abad Muñoz - laia.abad

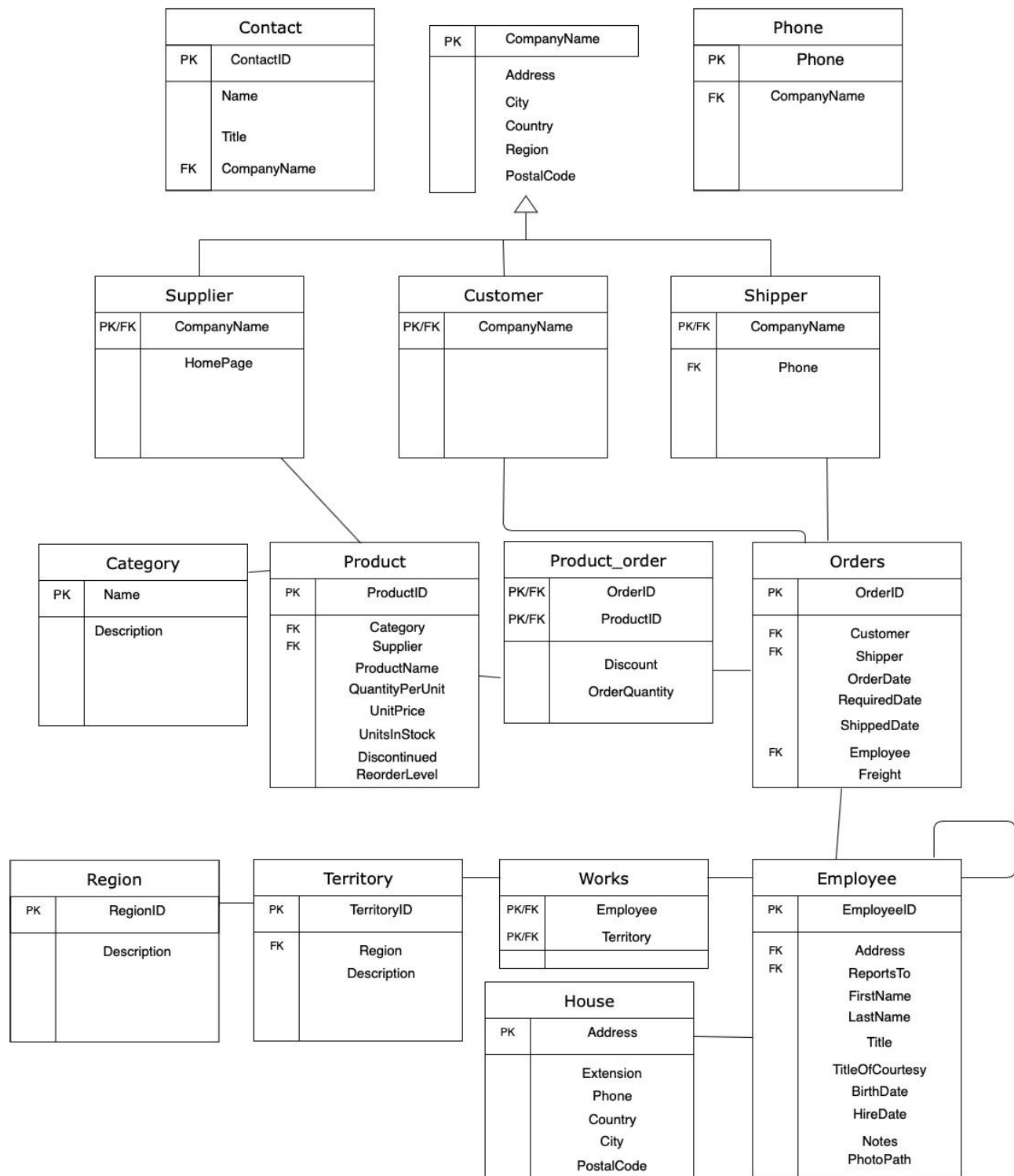# Índex

Model conceptual

CompanyName(PK)
Address
City
Region
PostalCode
Country

Company

1

1

ContactID(PK)
Name
Title

Contact

Phone

Phone(PK)

1

1

1

1

Homepage

Supplier

Customer

Shipper

1

1

N

N

ProductID(PK)
ProductName
QuantityPerUnit
UnitPrice
UnitsInStock
Discontinued
ReorderLevel

Product

M

N

Orders

OrderID(PK)
OrderDate
RequiredDate
ShippedDate
Freight

product_orders

Discount
OrderQuantity

N

reportsTo

N

N

1

N

1

Name(PK)
Description

Category

N

Employee

EmployeeID(PK)
FirstName
LastName
Title
TitleOfCourtesy
BirthDate
HireNotes
Notes
PhotoPath

1

1

TerritoryID(PK)
Description

Territory

M

works

lives

1

1

House

Address(PK)
Extension
Phone
Country
City
PostalCode

1

N

RegionID(PK)
Description

Region

Model relacional

Contact

PK	ContactID
	Name
	Title
FK	CompanyName

PK	CompanyName
	Address
	City
	Country
	Region
	PostalCode

Phone

PK	Phone
FK	CompanyName

Supplier

PK/FK	CompanyName
	HomePage

Customer

PK/FK	CompanyName

Shipper

PK/FK	CompanyName
FK	Phone

Category

PK	Name
	Description

Product

PK	ProductID
FK	Category
FK	Supplier
	ProductName
	QuantityPerUnit
	UnitPrice
	UnitsInStock
	Discontinued
	ReorderLevel

Product_order

PK/FK	OrderID
PK/FK	ProductID
	Discount
	OrderQuantity

Orders

PK	OrderID
FK	Customer
FK	Shipper
	OrderDate
	RequiredDate
	ShippedDate
FK	Employee
	Freight

Region

PK	RegionID
	Description

Territory

PK	TerritoryID
FK	Region
	Description

Works

PK/FK	Employee
PK/FK	Territory

House

PK	Address
	Extension
	Phone
	Country
	City
	PostalCode

Employee

PK	EmployeeID
FK	Address
FK	ReportsTo
	FirstName
	LastName
	Title
	TitleOfCourtesy
	BirthDate
	HireDate
	Notes
	PhotoPath

Model físic

```
DROP TABLE IF EXISTS Company CASCADE;
CREATE TABLE Company (
        CompanyName         VARCHAR(255),
        Address             VARCHAR(255),
        City                VARCHAR(255),
        Region              VARCHAR(255),
        PostalCode          VARCHAR(255),
        Country             VARCHAR(255),
        PRIMARY KEY (CompanyName)
);

DROP TABLE IF EXISTS Supplier CASCADE;
CREATE TABLE Supplier (
        CompanyName         VARCHAR(255),
        HomePage            VARCHAR(255),
        PRIMARY KEY (CompanyName),
        FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName)
);

DROP TABLE IF EXISTS Customer CASCADE;
CREATE TABLE Customer (
        CompanyName         VARCHAR(255),
        PRIMARY KEY (CompanyName),
        FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName)
);

DROP TABLE IF EXISTS Shipper CASCADE;
CREATE TABLE Shipper (
        CompanyName         VARCHAR(255),
        Phone               VARCHAR(255),
        PRIMARY KEY (CompanyName),
        FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName)
);
```

```sql
DROP TABLE IF EXISTS Phone CASCADE;
CREATE TABLE Phone (
        Phone                   VARCHAR(255),
        CompanyName         VARCHAR(255),
        PRIMARY KEY (Phone),
        FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName)
);

DROP TABLE IF EXISTS Category CASCADE;
CREATE TABLE Category (
        Name                    VARCHAR(255),
        Description             VARCHAR(255),
        PRIMARY KEY (Name)
);

DROP TABLE IF EXISTS Product CASCADE;
CREATE TABLE Product (
        ProductID               SERIAL,
        ProductName             VARCHAR(255),
        QuantityPerUnit         INTEGER,
        UnitPrice               REAL,
        UnitsInStock            INTEGER,
        Discontinued            BOOLEAN,
        Category                VARCHAR(255),
        Supplier                VARCHAR(255),
        ReorderLevel            INTEGER,
        PRIMARY KEY (ProductID),
        FOREIGN KEY (Supplier) REFERENCES Company(CompanyName),
        FOREIGN KEY (Category) REFERENCES Category(Name)
);

DROP TABLE IF EXISTS Contact CASCADE;
CREATE TABLE Contact (
        ContactID               SERIAL,
        Name                    VARCHAR(255),
        Title                   VARCHAR(255),
        CompanyName         VARCHAR(255),
        PRIMARY KEY (ContactID),
        FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName)
);
```

```sql
DROP TABLE IF EXISTS Employee CASCADE;
CREATE TABLE Employee (
        EmployeeID          INTEGER,
        FirstName           VARCHAR(255),
        LastName            VARCHAR(255),
        Address             VARCHAR(255),
        Title               VARCHAR(255),
        TitleOfCourtesy     VARCHAR(255),
        BirthDate           DATE,
        HireDate            DATE,
        Notes               TEXT,
        PhotoPath           VARCHAR(255),
        ReportsTo           INTEGER,
        PRIMARY KEY (EmployeeID),
        FOREIGN KEY (ReportsTo) REFERENCES Employee(EmployeeID),
        FOREIGN KEY (Address) REFERENCES House(Address)
);

DROP TABLE IF EXISTS House CASCADE;
CREATE TABLE House (
        Address       VARCHAR(255),
        Extension     INT,
        Phone         VARCHAR(255),
        Country       VARCHAR(255),
        City          VARCHAR(255),
        PostalCode    VARCHAR(255),
        PRIMARY KEY (Address)
);

DROP TABLE IF EXISTS Region CASCADE;
CREATE TABLE Region (
        RegionID      INTEGER,
        Description   VARCHAR(255),
        Address       VARCHAR(255),
        PRIMARY KEY (RegionID, Address),
        FOREIGN KEY (Address) REFERENCES House (Address)
);
```

```sql
DROP TABLE IF EXISTS Territory CASCADE;
CREATE TABLE Territory (
        TerritoryID     INTEGER,
        Region          INTEGER,
        Description     VARCHAR(255),
        Address         VARCHAR(255),
        PRIMARY KEY (TerritoryID),
        FOREIGN KEY (Region, Address) REFERENCES Region(RegionID, Address)
);


DROP TABLE IF EXISTS Works CASCADE;
CREATE TABLE Works (
        Employee        INTEGER,
        Territory       INTEGER,
        PRIMARY KEY (Employee, Territory),
        FOREIGN KEY (Employee) REFERENCES Employee(EmployeeID),
        FOREIGN KEY (Territory) REFERENCES Territory(TerritoryID)
);


DROP TABLE IF EXISTS Orders CASCADE;
CREATE TABLE Orders (
        OrderID                 SERIAL,
        Customer                VARCHAR(255),
        Shipper                 VARCHAR(255),
        OrderDate               DATE,
        RequiredDate            DATE,
        ShippedDate             DATE,
        Employee                INT,
        Freight                 REAL,
        PRIMARY KEY (OrderID),
        FOREIGN KEY (Customer) REFERENCES Company(CompanyName),
        FOREIGN KEY (Shipper) REFERENCES Shipper(CompanyName),
        FOREIGN KEY (Employee) REFERENCES Employee(EmployeeID)
);
```

```sql
DROP TABLE IF EXISTS Product_order CASCADE;
CREATE TABLE Product_order (
        OrderID                 INT,
        ProductID               INT,
        Discount                REAL,
        OrderQuantity                   INT,
        PRIMARY KEY (OrderID, ProductID),
        FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),
        FOREIGN KEY (ProductID) REFERENCES Product(ProductID)
);
```

Verificació de la importació

Company

	companyname character varying (255)	address character varying (255)	city character varying (255)	region character varying (255)	postalcode character varying (255)	country character varying (255)
1	Laughing Bacchus Wine Cel...	1900 Oak St.	Vancouver	BC	V3F 2K1	Canada
2	The Big Cheese	89 Jefferson Way Suite 2	Portland	OR	97201	USA
3	QUICK-Stop	Taucherstraße 10	Cunewalde	[null]	01307	Germany
4	HILARION-Abastos	Carrera 22 con Ave. Carlos ...	San Cristóbal	Táchira	5022	Venezuela
5	Blauer See Delikatessen	Forsterstr. 57	Mannheim	[null]	68306	Germany
6	Vins et alcools Chevalier	59 rue de l'Abbaye	Reims	[null]	51100	France
7	Blondesddsl père et fils	24, place Kléber	Strasbourg	[null]	67000	France
8	Die Wandernde Kuh	Adenauerallee 900	Stuttgart	[null]	70563	Germany
9	Bottom-Dollar Markets	23 Tsawassen Blvd.	Tsawassen	BC	T2F 8M4	Canada
10	LILA-Supermercado	Carrera 52 con Ave. Bolívar...	Barquisimeto	Lara	3508	Venezuela
11	Cactus Comidas para llevar	Cerrito 333	Buenos Aires	[null]	1010	Argentina
12	Ana Trujillo Emparedados	Avda. de la Constitución 22	México D.F.	[null]	05021	Mexico

121 rows

Supplier

	companyname character varying (255)	homepage character varying (255)
1	Ma Maison	[null]
2	Heli Süßwaren GmbH & Co...	[null]
3	Tokyo Traders	[null]
4	PB Knäckebröd AB	[null]
5	New England Seafood Can...	[null]
6	Nord-Ost-Fisch Handelsges...	[null]
7	Pasta Buttini s.r.l.	[null]
8	Exotic Liquids	[null]
9	Formaggi Fortini s.r.l.	#FORMAGGI.HTM#
10	Cooperativa de Quesos 'La...	[null]
11	Plutzer Lebensmittelgroßm...	Plutzer (on the World Wide...
12	New Orleans Cajun Delights	#CAJUN.HTM#

29 rows

Customer

	companyname character varying (255)
1	Wilman Kala
2	Magazzini Alimentari Riuniti
3	The Cracker Box
4	Wellington Importadora
5	Let's Stop N Shop
6	Furia Bacalhau e Frutos do ...
7	Toms Spezialitäten
8	Lehmanns Marktstand
9	Mère Paillarde
10	Rattlesnake Canyon Grocery
11	Que Delícia
12	The Big Cheese

89 rows

Shipper

	companyname character varying (255)	phone character varying (255)
1	Speedy Express	(503) 555-9831
2	Federal Shipping	(503) 555-9931
3	United Package	(503) 555-3199

3 rows

Phone

	phone character varying (255)	companyname character varying (255)
1	(089) 6547665	Pasta Buttini s.r.l.
2	(98) 598 76 54	Cooperativa de Quesos 'La...
3	(03) 3555-5011	Tokyo Traders
4	(514) 555-2955	Forêts d'érables
5	(0544) 60323	Formaggi Fortini s.r.l.
6	(04721) 8713	Nord-Ost-Fisch Handelsges...
7	(010) 9984510	Heli Süßwaren GmbH & Co...
8	(0)2-953010	Norske Meierier
9	(03) 444-2343	Pavlova, Ltd.
10	(06) 431-7877	Mayumi's
11	(953) 10956	Karkki Oy
12	(02) 555-5914	G'day, Mate

195 rows

Category

	name character varying (255)	description character varying (255)
1	Dairy Products	Cheeses
2	Seafood	Seaweed and fish
3	Grains/Cereals	Breads, crackers, pasta, an...
4	Confections	Desserts, candies, and swe...
5	Produce	Dried fruit and bean curd
6	Meat/Poultry	Prepared meats
7	Condiments	Sweet and savory sauces, r...
8	Beverages	Soft drinks, coffees, teas, b...

8 rows

Product

	productid integer	productname character varying (255)	quantityperunit integer	unitprice real	unitsinstock integer	discontinued boolean	category character varying (255)	supplier character varying (255)	reorderlevel integer
1	1	Filo Mix	16	7	38	false	Grains/Cereals	G'day, Mate	25
2	2	Genen Shouyu	24	13	39	false	Condiments	Mayumi's	5
3	3	Inlagd Sill	24	19	112	false	Seafood	Svensk Sjöföda AB	20
4	4	Gustaf's Knäckebröd	24	21	104	false	Grains/Cereals	PB Knäckebröd AB	25
5	5	Teatime Chocolate Biscuits	10	9.2	25	false	Confections	Specialty Biscuits, Ltd.	5
6	6	Côte de Blaye	12	263.5	17	false	Beverages	Aux joyeux ecclésiastiques	15
7	7	Louisiana Fiery Hot Pepper...	32	21.05	76	false	Condiments	New Orleans Cajun Delights	0
8	8	Manjimup Dried Apples	50	53	20	false	Produce	G'day, Mate	10
9	9	Guaraná Fantástica	12	4.5	20	true	Beverages	Refrescos Americanas LTDA	0
10	10	Jack's New England Clam C...	12	9.65	85	false	Seafood	New England Seafood Can...	10
11	11	Ipoh Coffee	16	46	17	false	Beverages	Leka Trading	25
12	12	Longlife Tofu	5	10	4	false	Produce	Tokyo Traders	5

77 rows

Contact

	contactid integer	name character varying (255)	title character varying (255)	companyname character varying (255)
1	1	Liu Wong	Marketing Assistant	The Cracker Box
2	2	Felipe Izquierdo	Owner	LINO-Delicateses
3	3	Jaime Yorres	Owner	Let's Stop N Shop
4	4	Hanna Moos	Sales Representative	Blauer See Delikatessen
5	5	Jean Fresnière	Marketing Assistant	Mère Paillarde
6	6	Palle Ibsen	Sales Manager	Vaffeljernet
7	7	Yoshi Tannamuri	Marketing Assistant	Laughing Bacchus Wine Cel...
8	8	Renate Messner	Sales Representative	Lehmanns Marktstand
9	9	Patricio Simpson	Sales Agent	Cactus Comidas para llevar
10	10	Elizabeth Brown	Sales Representative	Consolidated Holdings
11	11	Paula Parente	Sales Manager	Wellington Importadora
12	12	Christina Berglund	Order Administrator	Berglunds snabbköp

89 rows

Employee

	employeeid integer	firstname character v	lastname character	address character varying (255)	title character varying (255)	titleofcourtesy character varyin	birthdate date	hiredate date	notes text	photopath character varying (255)	reportsto integer
1	4	Margaret	Peacock	4110 Old Redmond Rd.	Sales Representative	Mrs.	1937-09-19	1993-05-03	Mar...	http://accweb/emmployee...	2
2	3	Janet	Leverling	722 Moss Bay Blvd.	Sales Representative	Ms.	1963-08-30	1992-04-01	Jan...	http://accweb/emmployee...	2
3	8	Laura	Callahan	4726 - 11th Ave. N.E.	Inside Sales Coordinator	Ms.	1958-01-09	1994-03-05	Lau...	http://accweb/emmployee...	2
4	6	Michael	Suyama	Coventry House\nMiner Rd.	Sales Representative	Mr.	1963-07-02	1993-10-17	Mic...	http://accweb/emmployee...	5
5	7	Robert	King	Edgeham Hollow\nWinche...	Sales Representative	Mr.	1960-05-29	1994-01-02	Rob...	http://accweb/emmployee...	5
6	1	Nancy	Davolio	507 - 20th Ave. E.\nApt. 2A	Sales Representative	Ms.	1948-12-08	1992-05-01	Edu...	http://accweb/emmployee...	2
7	5	Steven	Buchan...	14 Garrett Hill	Sales Manager	Mr.	1955-03-04	1993-10-17	Stev...	http://accweb/emmployee...	2
8	2	Andrew	Fuller	908 W. Capital Way	Vice President, Sales	Dr.	1952-02-19	1992-08-14	And...	http://accweb/emmployee...	[null]
9	9	Anne	Dodsw...	7 Houndstooth Rd.	Sales Representative	Ms.	1966-01-27	1994-11-15	Ann...	http://accweb/emmployee...	5

9 rows

House

	address character varying (255)	extension integer	phone character varying (255)	country character varying (255)	city character varying (255)	postalcode character varying (255)
1	7 Houndstooth Rd.	452	(71) 555-4444	UK	London	WG2 7LT
2	Coventry House\nMiner Rd.	428	(71) 555-7773	UK	London	EC2 7JR
3	507 - 20th Ave. E.\nApt. 2A	5467	(206) 555-9857	USA	Seattle	98122
4	14 Garrett Hill	3453	(71) 555-4848	UK	London	SW1 8JR
5	722 Moss Bay Blvd.	3355	(206) 555-3412	USA	Kirkland	98033
6	4726 - 11th Ave. N.E.	2344	(206) 555-1189	USA	Seattle	98105
7	4110 Old Redmond Rd.	5176	(206) 555-8122	USA	Redmond	98052
8	908 W. Capital Way	3457	(206) 555-9482	USA	Tacoma	98401
9	Edgeham Hollow\nWinche...	465	(71) 555-5598	UK	London	RG1 9SP

9 rows

Region

	regionid integer	description character varying (255)	address character varying (255)
1	4	Southern	722 Moss Bay Blvd.
2	2	Western	Edgeham Hollow\nWinche...
3	1	Eastern	14 Garrett Hill
4	1	Eastern	507 - 20th Ave. E.\nApt. 2A
5	1	Eastern	908 W. Capital Way
6	2	Western	Coventry House\nMiner Rd.
7	3	Northern	7 Houndstooth Rd.
8	3	Northern	4726 - 11th Ave. N.E.
9	1	Eastern	4110 Old Redmond Rd.

9 rows

Territory

	territoryid integer	region integer	description character varying (255)
1	55439	3	Minneapolis
2	32859	4	Orlando
3	40222	1	Louisville
4	27403	1	Greensboro
5	33607	4	Tampa
6	80909	2	Colorado Springs
7	45839	3	Findlay
8	2139	1	Cambridge
9	60601	2	Chicago
10	10038	1	New York
11	48084	3	Troy
12	19428	3	Philadelphia

49 rows

Works

	employee integer	territory integer
1	7	95060
2	7	94025
3	1	6897
4	6	98104
5	5	14450
6	4	20852
7	9	3049
8	2	1833
9	5	2903
10	3	33607
11	2	40222
12	7	95054

49 rows

Orders

	orderid integer	customer character varying (255)	shipper character varying (255)	orderdate date	requireddate date	shippeddate date	employee integer	freight real
1	1	Alfreds Futterkiste	Speedy Express	1997-08-25	1997-09-22	1997-09-02	6	29.46
2	2	Alfreds Futterkiste	United Package	1997-10-03	1997-10-31	1997-10-13	4	61.02
3	3	Alfreds Futterkiste	Speedy Express	1997-10-13	1997-11-24	1997-10-21	4	23.94
4	4	Alfreds Futterkiste	Federal Shipping	1998-01-15	1998-02-12	1998-01-21	1	69.53
5	5	Alfreds Futterkiste	Speedy Express	1998-03-16	1998-04-27	1998-03-24	1	40.42
6	6	Alfreds Futterkiste	Speedy Express	1998-04-09	1998-05-07	1998-04-13	3	1.21
7	7	Ana Trujillo Emparedados ...	Federal Shipping	1996-09-18	1996-10-16	1996-09-24	7	1.61
8	8	Ana Trujillo Emparedados ...	Speedy Express	1997-08-08	1997-09-05	1997-08-14	3	43.9
9	9	Ana Trujillo Emparedados ...	Federal Shipping	1997-11-28	1997-12-26	1997-12-12	3	11.99
10	10	Ana Trujillo Emparedados ...	Federal Shipping	1998-03-04	1998-04-01	1998-03-11	4	39.92
11	11	Antonio Moreno Taquería	United Package	1996-11-27	1996-12-25	1996-12-02	3	22
12	12	Antonio Moreno Taquería	Speedy Express	1997-04-15	1997-05-13	1997-04-22	7	47.45

809 rows

Product_order

	orderid integer	productid integer	discount real	orderquantity integer
1	1	13	0.25	21
2	1	49	0.25	15
3	1	58	0.25	2
4	2	51	0	20
5	3	29	0	15
6	3	47	0	6
7	4	61	0.2	2
8	4	63	0	15
9	5	43	0.05	16
10	5	49	0	2
11	6	54	0.05	40
12	6	56	0	20

2082 rows

Quèries de verificació

SELECT (SELECT COUNT(CompanyName) FROM Supplier) + (SELECT COUNT(CompanyName)
FROM customer) + (SELECT COUNT(CompanyName) FROM Shipper),
(SELECT COUNT(CompanyName) FROM Company);

	?column? bigint	count bigint
1	121	121

SELECT (SELECT COUNT(EmployeeID) FROM Employee),
(SELECT COUNT(Address) FROM House);

	count bigint	count bigint
1	9	9

SELECT (SELECT COUNT(OrderID) FROM Orders),
(SELECT COUNT(OrderID) FROM Product_order);

	count bigint	count bigint
1	809	2082

Conclusions

En primer lloc, aquest treball ens ha servit per aprendre a analitzar diferents fitxers csv amb una llarga llista de variables i tuples, que aparentment no semblaven estar connectades. El primer que vam haver de fer és analitzar les tres fitxers i crear el nostre model propi, que funcionés i tingués el màxim d'informació necessària i ben connectada.

Després, la gran complicació va ser la d'haver d'importar tota la informació dels fitxers originals fins a les taules del nou model que havíem creat.

Finalment, vam haver de fer les queries de la fase 2. Algunes, tot i no ser gaire dificultoses per nosaltres, algunes altres vam haver d'investigar algunes funcions que ens ajudessin a complir el que es demanava, a més d'utilitzar subqueries.

En resum, el treball ens ha servit per crear un model de base de dades complex i saber-lo gestionar per crear queries que treguin la informació desitjada.