Comp 1630 - Relational Database & SQL
Term Project

INSTRUCTIONS

Follow the instructions given in part A to first create and then build the data base by running the SQL script provided. Using Microsoft SQL Server, create the SQL scripts for the tasks in each part of the project (B, C, and D) that are necessary to generate the required result sets, clearly identifying your answers.

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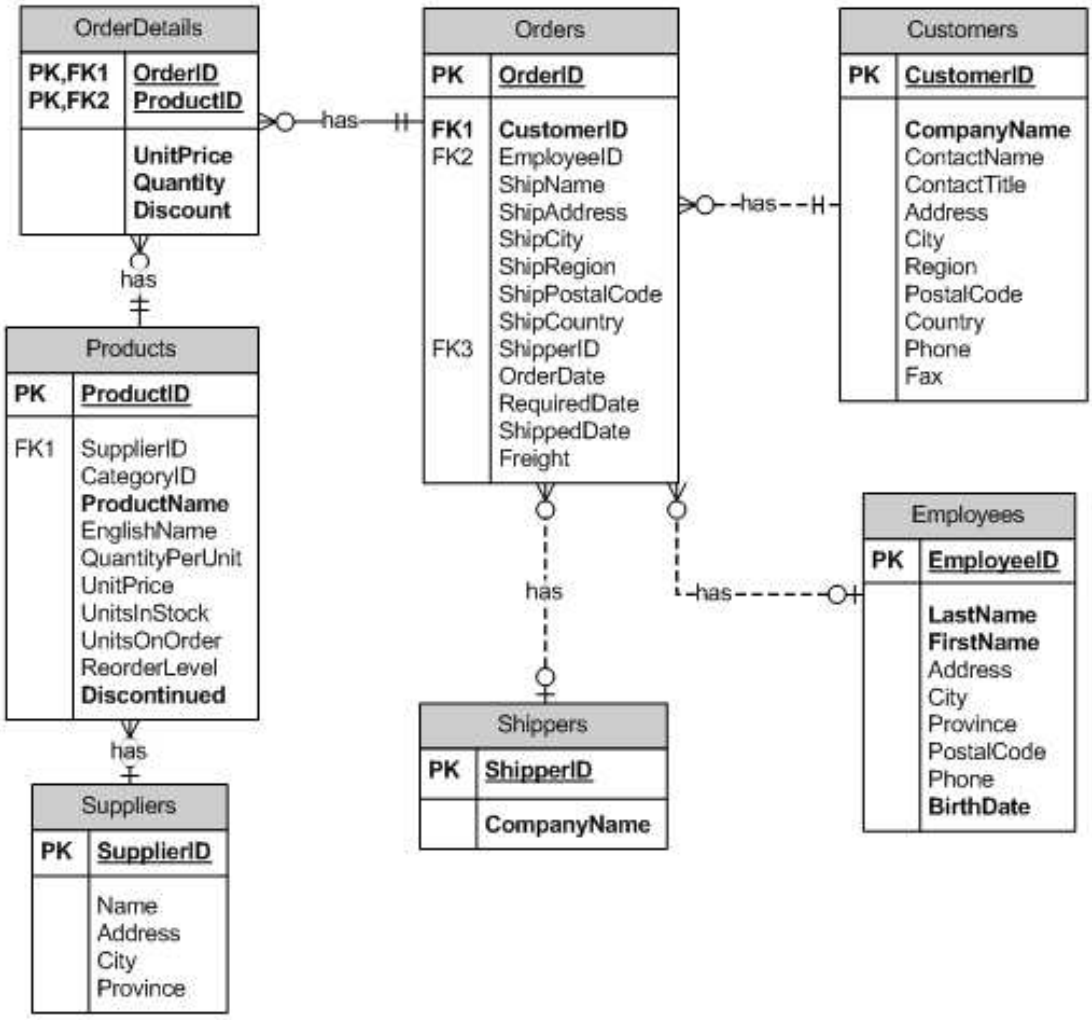
ENTITY RELATIONSHIP DIAGRAM



PART A - Database and Tables

A1. Create a database called **A00123456_Project**.

A2. Run the script **ProjectData.sql** to create the tables listed below, and to populate the tables with data.

Customers	91 rows
Employees	9 rows
Shippers	3 rows
Suppliers	15 rows
Products	77 rows
Orders	1078 rows
OrderDetails	2820 rows

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PART B - SQL Statements

B1. List the order details where the **quantity is between 65 and 70**. Display the order id and quantity from the OrderDetails table, the product id and reorder level from the Products table, and the supplier id from the Suppliers table. Order the result set by the order id. The query should produce the result set listed below.

OrderID	Quantity	ProductID	ReorderLevel	SupplierID
10009	70	23	25	9
10018	70	11	30	5
10058	70	41	10	9
...				
11008	70	28	0	12
11030	70	5	0	2
11033	70	53	0	14

(49 row(s) affected)

B2. List the product id, product name, English name, and unit price from the Products table where the unit price is **less than $8.00**. Order the result set by the product id. The query should produce the result set listed below.

ProductID	ProductName	EnglishName	UnitPrice
13	Konbu	Kelp Seaweed	6.00
24	Guaraná Fantástica	Guaraná Fantástica Soft Drink	4.50
33	Geitost	Goat Cheese	2.50
52	Filo Mix	Mix for Greek Filo Dough	7.00
54	Tourtière	Pork Pie	7.45
75	Rhönbräu Klosterbier	Rhönbräu Beer	7.75

(6 row(s) affected)

B3. List the customer id, company name, country, and phone from the Customers table where the country is equal to **Canada or USA**. Order the result set by the customer id. The query should produce the result set listed below.

CustomerID	CompanyName	Country	Phone
BOTTM	Bottom-Dollar Markets	Canada	(604) 555-4729
GREAL	Great Lakes Food Market	USA	(503) 555-7555
HUNGC	Hungry Coyote Import Store	USA	(503) 555-6874
…..			
THECR	The Cracker Box	USA	(406) 555-5834
TRAIH	Trail's Head Gourmet Provisioners	USA	(206) 555-8257
WHITC	White Clover Markets	USA	(206) 555-4112

(16 row(s) affected)

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B4. List the products where the **reorder level is equal to the units in stock**. Display the supplier id and supplier name from the Suppliers table, the product name, reorder level, and units in stock from the Products table. Order the result set by the supplier id. The query should produce the result set listed below.

SupplierID	Name	ProductName	ReorderLevel	UnitsInStock
2	Supplier B	Chef Anton's Gumbo Mix	0	0
7	Supplier G	Alice Mutton	0	0
12	Supplier L	Thüringer Rostbratwurst	0	0
14	Supplier N	Perth Pasties	0	0

(4 row(s) affected)

B5. List the orders where the **shipped date is greater than or equal to 1st of Jan 1994**, and **calculate the length in years from the shipped date to 1st of Jan 2009**. Display the order id, and the shipped date from the Orders table, the company name, and the contact name from the Customers table, and the calculated length in years for each order. Display the shipped date in the format MMM DD YYYY. Order the result set by order id and the calculated years. The query should produce the result set listed below.

OrderID	CompanyName	ContactName	ShippedDate	ElapsedYears
10840	LINO-Delicateses	Felipe Izquierdo	Jan 10 1994	15
10847	Save-a-lot Markets	Jose Pavarotti	Jan 4 1994	15
10856	Antonio Moreno Taquería	Antonio Moreno	Jan 4 1994	15
...				
11066	White Clover Markets	Karl Jablonski	Mar 28 1994	15
11067	Drachenblut Delikatessen	Sven Ottlieb	Mar 30 1994	15
11069	Tortuga Restaurante	Miguel Angel Paolino	Mar 30 1994	15

(198 row(s) affected)

B6. List all the orders where the **order date is between 1st of Jan and 30th of Mar 1992**, and the **cost of the order is greater than or equal to $1500.00**. Display the order id, order date, and a new shipped date calculated by adding 10 days to the shipped date from the Orders table, the product name from the Products table, the company name from the Customer table, and the cost of the order. Format the date order date and the shipped date as MON DD YYYY. Use the formula (**OrderDetails.Quantity * Products.UnitPrice**) to calculate the cost of the order. Order the result set by order id. The query should produce the result set listed below.

OrderID	ProductName	CompanyName	OrderDate	NewShippedDate	OrderCost
10141	Schoggi Schokolade	Frankenversand	Jan 2 1992	Jan 19 1992	2195.00
10141	Camembert Pierrot	Frankenversand	Jan 2 1992	Jan 19 1992	1700.00
10163	Camembert Pierrot	Frankenversand	Feb 7 1992	Feb 21 1992	1632.00
.....					
10195	Côte de Blaye	Que Delícia	Mar 23 1992	Apr 6 1992	5533.50
10196	Côte de Blaye	LILA-Supermercado	Mar 24 1992	May 2 1992	7905.00
10198	Côte de Blaye	Océano Atlántico Ltda.	Mar 26 1992	Apr 9 1992	1581.00

(11 row(s) affected)

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B7. List all the orders with a **shipping city of Vancouver**. Display the order from the Orders table, and the unit price and quantity from the OrderDetails table. Order the result set by the order id. The query should produce the result set listed below.

OrderID	UnitPrice	Quantity
10495	7.20	10
10495	7.70	20
10495	10.40	5
10620	4.50	5
10620	7.00	5
10810	6.00	7
10810	14.00	5
10810	15.00	5

(8 row(s) affected)

B8. List all the orders that have not been shipped (**shipped date is null**). Display the customer id, company name and fax number from the Customers table, and the order id and order date from the Orders table. Order the result set by the customer id and order date. The query should produce the result set listed below.

CustomerID	CompanyName	Fax	OrderID	OrderDate
BLAUS	Blauer See Delikatessen	0621-08924	11058	1994-03-23 00:00:00
BONAP	Bon app'	91.24.45.41	11076	1994-03-30 00:00:00
BOTTM	Bottom-Dollar Markets	(604) 555-3745	11045	1994-03-17 00:00:00
.....				
RICAR	Ricardo Adocicados	NULL	11059	1994-03-23 00:00:00
RICSU	Richter Supermarkt	NULL	11075	1994-03-30 00:00:00
SIMOB	Simons bistro	31 13 35 57	11074	1994-03-30 00:00:00

(21 row(s) affected)

B9. List the products which contain **choc or tofu in their name**. Display the product id, product name, quantity per unit and unit price from the Products table. Order the result set by product id. The query should produce the result set listed below.

ProductID	ProductName	QuantityPerUnit	UnitPrice
14	Tofu	40 - 100 g pkgs.	23.25
19	Teatime Chocolate Biscuits	10 boxes x 12 pieces	9.20
48	Chocolade	10 pkgs.	12.75
74	Longlife Tofu	5 kg pkg.	10.00

(4 row(s) affected)

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B10. List the number of products and their **names beginning with each letter of the alphabet**. Only display the letter and count if there are at least three product names begin with the letter. The query should produce the result set listed below.

ProductName	Total
C	9
G	11
I	3
L	5
M	5
N	3
P	3
R	6
S	9
T	6

(10 row(s) affected)

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PART C - INSERT, UPDATE, DELETE and VIEWS

C1. Create a view called **vw_supplier_items** listing the distinct suppliers and the items they have shipped. Display the supplier id and name from the Suppliers table, and the product id and product name from the Products table. Use the following query to test your view to produce the result set listed below.

```
SELECT      *
FROM        vw_supplier_items
ORDER BY    Name, ProductID
```

SupplierID	Name	ProductID	ProductName
5	Supplier	11	Queso Cabrales
5	Supplier	12	Queso Manchego La Pastora
1	Supplier A	1	Chai
...			
15	Supplier O	56	Gnocchi di nonna Alice
15	Supplier O	69	Gudbrandsdalsost
15	Supplier O	71	Fløtemysost

(77 row(s) affected)

C2. Create a view called **vw_employee_info** to list all the employees in the Employee table. Display the employee id, last name, first name, and birth date. Format the name as first name followed by a space followed by the last name. Use the following query to test your view to produce the result set listed below.

```
SELECT  *
FROM    vw_employee_info
WHERE   EmployeeID IN ( 3, 6, 9 )
```

EmployeeID	Name	BirthDate
3	Janet Leverling	1963-08-30 00:00:00.000
6	Michael Suyama	1963-07-02 00:00:00.000
9	Anne Dodsworth	1966-01-27 00:00:00.000

(3 row(s) affected

C3. Using the UPDATE statement, change the **fax value to Unknown** for all rows in the Customers table where the current fax value is null (22 rows affected).

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C4. Create a view called **vw_order_cost** to list the cost of orders. Display the order id and order_date from the Orders table, the product id from the Products table, the company name from the Customers table, and the order cost. To calculate the cost of the orders, use the formula: (OrderDetails.Quantity * OrderDetails.UnitPrice).
Use the following query to test your view to produce the result set listed below.

```
SELECT      *
FROM        vw_order_cost
WHERE       orderID BETWEEN 10100 AND 10200
ORDER BY    ProductID
```

OrderID	OrderDate	ProductID	CompanyName	OrderCost
10101	1991-10-28 00:00:00	1	Antonio Moreno Taquería	96.00
10156	1992-01-28 00:00:00	1	Richter Supermarkt	300.00
10159	1992-01-31 00:00:00	1	Maison Dewey	480.00
...				
10170	1992-02-20 00:00:00	77	Reggiani Caseifici	216.00
10115	1991-11-20 00:00:00	77	Océano Atlántico Ltda.	45.00
10117	1991-11-22 00:00:00	77	Tradição Hipermercados	254.80

(257 row(s) affected)

C5. Using the INSERT statement, add a row to the Suppliers table with a **supplier id of 16 and a name of 'Supplier P'**.

C6. Using the UPDATE statement, increate the unit price in the Products table by 15% for rows with a current **unit price less than $5.00** (2 rows affected).

C7. Create a view called **vw_orders** to list orders. Display the order id and shipped date from the Orders table, and the customer id, company name, city, and country from the Customers table. Use the following query to test your view to produce the result set listed below.

```
SELECT      *
FROM        vw_orders
WHERE       ShippedDate BETWEEN '1993-01-01' AND '1993-01-31'
ORDER BY    CompanyName, Country
```

OrderID	CustomerID	CompanyName	City	Country	ShippedDate
10453	AROUT	Around the Horn	London	UK	1993-01-20 00:00:00
10444	BERGS	Berglunds snabbköp	Luleå	Sweden	1993-01-15 00:00:00
10445	BERGS	Berglunds snabbköp	Luleå	Sweden	1993-01-14 00:00:00
...					
10459	VICTE	Victuailles en stock	Lyon	France	1993-01-22 00:00:00
10455	WARTH	Wartian Herkku	Oulu	Finland	1993-01-25 00:00:00
10437	WARTH	Wartian Herkku	Oulu	Finland	1993-01-06 00:00:00

(33 row(s) affected)

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PART D - Stored Procedures and Triggers

D1. Create a stored procedure called **sp_emp_info** to display the employee id, last name, first name, and phone number from the Employees table for a particular employee. The employee id will be an input parameter for the stored procedure. Use the following query to test your stored procedure to produce the result set listed below.

```
EXEC   sp_emp_info 7
```

EmployeeID	LastName	FirstName	Phone
7	King	Robert	6045555598

(1 row(s) affected)

D2. Create a stored procedure called **sp_orders_by_dates** displaying the orders shipped between particular dates. The start and end date will be input parameters for the stored procedure. Display the order id, customer id, and shipped date from the Orders table, the company name from the Customer table, and the shipper name from the Shippers table. Use the following query to test your stored procedure to produce the result set listed below.

```
EXEC   sp_orders_by_dates '1991-01-01', '1991-12-31'
```

OrderID	CustomerID	CompanyName	ShipperName	ShippedDate
10000	FRANS	Franchi S.p.A.	Federal Shipping	1991-05-15 00:00:00
10001	MEREP	Mère Paillarde	Federal Shipping	1991-05-23 00:00:00
10002	FOLKO	Folk och fä HB	Federal Shipping	1991-05-17 00:00:00
...				
10133	REGGC	Reggiani Caseifici	United Package	1991-12-23 00:00:00
10134	WARTH	Wartian Herkku	Speedy Express	1991-12-27 00:00:00
10136	HUNGO	Hungry Owl All-Night Grocers	Speedy Express	1991-12-30 00:00:00

(134 row(s) affected)

D3. Create a stored procedure called **sp_products** listing a specified product ordered during a specified month and year. The product name, month, and year will be input parameters for the stored procedure. Display the product name, unit price, and units in stock from the Products table, and the supplier name from the Suppliers table. Use the following query to test your stored procedure to produce the result set listed below.

```
EXEC   sp_products '%tofu%', 'December', 1992
```

ProductName	UnitPrice	UnitsInStock	Name
Tofu	23.25	35	Supplier F
Tofu	23.25	35	Supplier F
Longlife Tofu	10.00	4	Supplier D
Tofu	23.25	35	Supplier F

(4 row(s) affected)

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D4. Create a stored procedure called **sp_unit_prices** listing the products where the unit price is between particular values. The two unit prices will be input parameters for the stored procedure. Display the product id, product name, English name, and unit price from the Products table. Use the following query to test your stored procedure to produce the result set listed below.

EXEC sp_unit_prices 5.50, 8.00

ProductID	ProductName	EnglishName	UnitPrice
13	Konbu	Kelp Seaweed	6.00
52	Filo Mix	Mix for Greek Filo Dough	7.00
54	Tourtière	Pork Pie	7.45
75	Rhönbräu Klosterbier	Rhönbräu Beer	7.75

(4 row(s) affected)

D5. Create a stored procedure called **sp_customer_city** displaying the customers living in a particular city. The city will be an input parameter for the stored procedure. Display the customer id, company name, address, city and phone from the Customers table. Use the following query to test your stored procedure to produce the result set listed below.

EXEC sp_customer_city 'Paris'

CustomerID	CompanyName	Address	City	Phone
PARIS	Paris spécialités	265, boulevard Charonne	Paris	(1) 42.34.22.66
SPECD	Spécialités du monde	25, rue Lauriston	Paris	(1) 47.55.60.10

(2 row(s) affected)

D6. Create a stored procedure called **sp_reorder_qty** to show when the reorder level subtracted from the units in stock is less than a specified value. The unit value will be an input parameter for the stored procedure. Display the product id, product name, units in stock, and reorder level from the Products table, and the supplier name from the Suppliers table. Use the following query to test your stored procedure to produce the result set listed below.

EXEC sp_reorder_qty 9

ProductID	ProductName	Name	UnitsInStock	ReorderLevel
2	Chang	Supplier A	17	25
3	Aniseed Syrup	Supplier A	13	25
5	Chef Anton's Gumbo Mix	Supplier B	0	0
...				
68	Scottish Longbreads	Supplier H	6	15
70	Outback Lager	Supplier G	15	30
74	Longlife Tofu	Supplier D	4	5

(26 row(s) affected)

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D7. Create a stored procedure called sp_shipping_date where the shipped date is equal to the order date plus 10 days. The shipped date will be an input parameter for the stored procedure. Display the order id, order date and shipped date from the Orders table, the company name from the Customers table, and the company name from the Shippers table. Use the following query to test your stored procedure to produce the result set listed below.

```
EXEC   sp_shipping_date '1993-11-29'
```

OrderID	CustomerName	ShipperName	OrderDate	ShippedDate
10798	Island Trading	Speedy Express	1993-11-19 00:00:00	1993-11-29 00:00:00
10799	Königlich Essen	Federal Shipping	1993-11-19 00:00:00	1993-11-29 00:00:00
10800	Seven Seas Imports	Federal Shipping	1993-11-19 00:00:00	1993-11-29 00:00:00

(3 row(s) affected)

D8. Create a stored procedure called **sp_del_inactive_cust** to delete customers that have no orders. Use the following query to test your procedure. The stored procedure should delete 1 row.

```
EXEC   sp_del_inactive_cust
```

D9. Create an UPDATE trigger called **tr_check_qty** on the OrderDetails table to prevent the updating of orders of products that have units-in-stock less than the quantity ordered. Use the following query to test your trigger.

```
UPDATE    OrderDetails
SET       Quantity = 40
WHERE     OrderID = 10044
   AND    ProductID = 77
```

D10. Create an INSTEAD OF INSERT trigger called **tr_insert_shippers** on the Shippers table preventing inserting a row with a company name which already exists. Use the following query to test your trigger.

```
INSERT      Shippers
VALUES      ( 4, 'Federal Shipping' )
```