# PROJECT 2 - COMP 1630

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# 1. INTRODUCTION

This project has been completed using Microsoft SQL Server Management Studio to create and query a new database. Each question is listed, followed by the SQL statements I have written to execute what has been asked, and finally a snippet showing the successful results.

All steps have been separated into four main sections:

- Part A – Database and Tables
  - 6 Steps
- Part B – SQL Statements
  - 10 Steps
- Part C – INSERT, UPDATE, DELETE and VIEWS Statements
  - 10 Steps
- Part D – Stored Procedures and Triggers
  - 9 Steps

After the Conclusion, I have included a complete copy of the script of solutions for all four steps.

# 2. SOLUTIONS

## Part A – Database and Tables

### Step 1

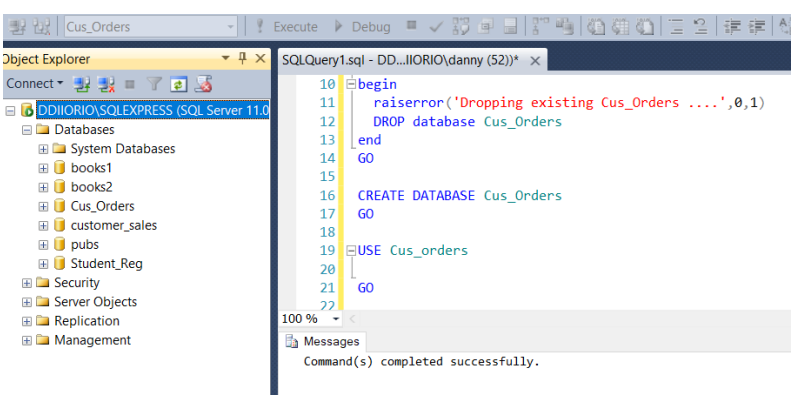
#### Question:

Create a database called Cus_Orders.

#### Solution:

```
USE master

GO

if exists (select * from sysdatabases where name='Cus_Orders')
begin
  raiserror('Dropping existing Cus_Orders ....',0,1)
  DROP database Cus_Orders
end
GO

CREATE DATABASE Cus_Orders
GO

USE Cus_orders
GO
```

#### Results:



# Step 2

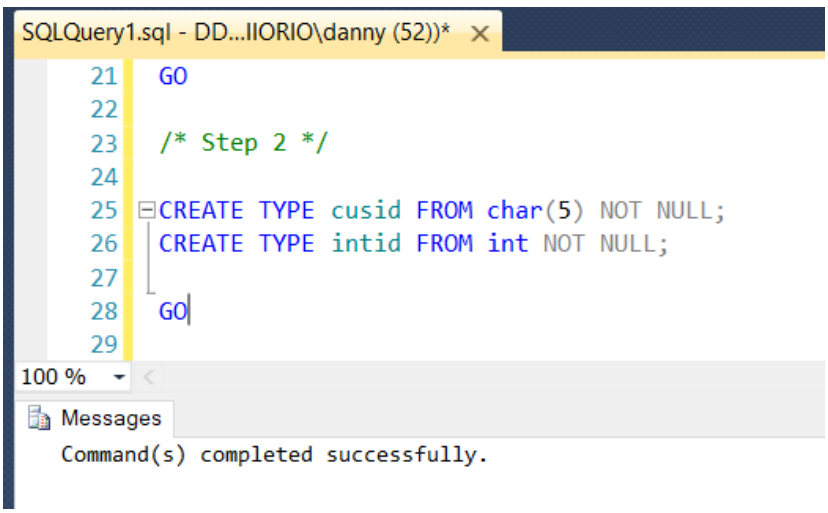
## Question:

Create a user defined data types for all similar Primary Key attribute columns (e.g. order_id, product_id, title_id), to ensure the same data type, length and null ability.

## Solution:

```
CREATE TYPE cusid FROM char(5) NOT NULL;
CREATE TYPE intid FROM int NOT NULL;
GO
```

## Results:




# Step 3

## Question:

Create the following tables: customers, orders, order_details, products, shippers, suppliers, titles.

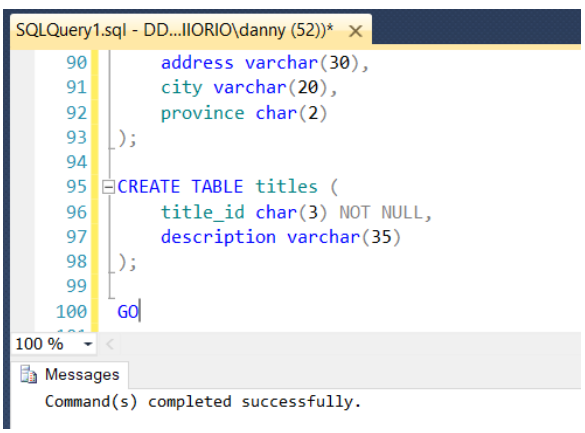
## Solution:

```
CREATE TABLE customers (
        customer_id cusid,
        name varchar(50) NOT NULL,
        contact_name varchar(30),
        title_id char(3) NOT NULL,
```

```
	address varchar(50),
	city varchar(20),
	region varchar(15),
	country_code varchar(10),
	country varchar(15),
	phone varchar(20),
	fax varchar(20)
);

CREATE TABLE orders (
	order_id intid,
	customer_id cusid,
	employee_id int NOT NULL,
	shipping_name varchar(50),
	shipping_address varchar(50),
	shipping_city varchar(20),
	shipping_region varchar(15),
	shipping_country_code varchar(10),
	shipping_country varchar(15),
	shipper_id int NOT NULL,
	order_date datetime,
	required_date datetime,
	shipped_date datetime,
	freight_charge money
);

CREATE TABLE order_details (
	order_id intid,
	product_id intid,
	quantity int NOT NULL,
	discount float NOT NULL
);

CREATE TABLE products (
	product_id intid,
	supplier_id int NOT NULL,
	name varchar(40) NOT NULL,
	alternate_name varchar(40),
	quantity_per_unit varchar(25),
	unit_price money,
	quantity_in_stock int,
	units_on_order int,
	reorder_level int
);

CREATE TABLE shippers (
	shipper_id int IDENTITY NOT NULL,
```

```
        name varchar(20)
);

CREATE TABLE suppliers (
        supplier_id int IDENTITY NOT NULL,
        name varchar(40),
        address varchar(30),
        city varchar(20),
        province char(2)
);

CREATE TABLE titles (
        title_id char(3) NOT NULL,
        description varchar(35)
);
GO
```

## Results:




# Step 4

## Question:

Set the **primary keys** and **foreign keys** for the table

## Solution:

```
ALTER TABLE customers
ADD PRIMARY KEY (customer_id);

ALTER TABLE shippers
ADD PRIMARY KEY (shipper_id);
```

```sql
ALTER TABLE titles
ADD PRIMARY KEY (title_id);

ALTER TABLE orders
ADD PRIMARY KEY (order_id);

ALTER TABLE suppliers
ADD PRIMARY KEY (supplier_id);

ALTER TABLE products
ADD PRIMARY KEY (product_id);

ALTER TABLE order_details
ADD PRIMARY KEY (order_id, product_id);

GO

ALTER TABLE customers
ADD CONSTRAINT fk_cust_titles FOREIGN KEY (title_id)
REFERENCES titles(title_id);

ALTER TABLE orders
ADD CONSTRAINT fk_orders_cust FOREIGN KEY (customer_id)
REFERENCES customers(customer_id);

ALTER TABLE orders
ADD CONSTRAINT fk_orders_shippers FOREIGN KEY (shipper_id)
REFERENCES shippers(shipper_id);

ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_orders FOREIGN KEY (order_id)
REFERENCES orders(order_id);

ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_products FOREIGN KEY (product_id)
REFERENCES products(product_id);

ALTER TABLE products
ADD CONSTRAINT fk_products_suppliers FOREIGN KEY (supplier_id)
REFERENCES suppliers(supplier_id);

GO
```

## Results:

SQLQuery1.sql - DD...IIORIO\danny (52))*

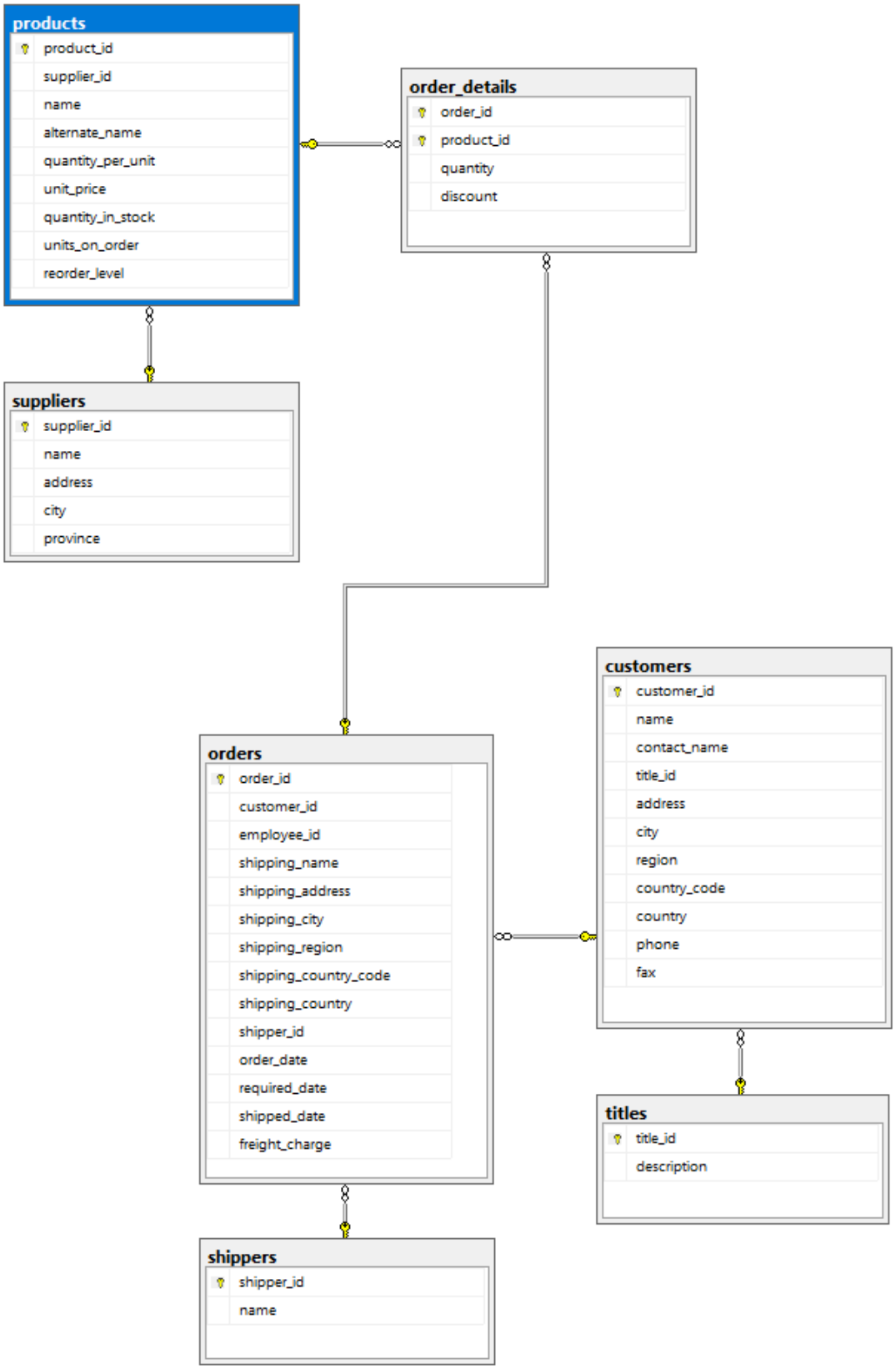
```sql
ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_orders FOREIGN KEY (order_id)
REFERENCES orders(order_id);

ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_products FOREIGN KEY (product_id) REFERENCES products(product_id);

ALTER TABLE products
ADD CONSTRAINT fk_products_suppliers FOREIGN KEY (supplier_id)
REFERENCES suppliers(supplier_id);

GO
```

100 %

Messages

```
Command(s) completed successfully.
```

## Database Diagram on Following Page


products
product_id
supplier_id
name
alternate_name
quantity_per_unit
unit_price
quantity_in_stock
units_on_order
reorder_level
order_details
order_id
product_id
quantity
discount
suppliers
supplier_id
name
address
city
province
customers
customer_id
name
contact_name
title_id
address
city
region
country_code
country
phone
fax
orders
order_id
customer_id
employee_id
shipping_name
shipping_address
shipping_city
shipping_region
shipping_country_code
shipping_country
shipper_id
order_date
required_date
shipped_date
freight_charge
titles
title_id
description
shippers
shipper_id
name

# Step 5

## Question:

Set the **constraints** as follows:

**customers table** - country should default to Canada

**orders table** - required_date should default to today's date plus ten days

**order details table** - quantity must be greater than or equal to 1

**products table** - reorder_level must be greater than or equal to 1

- quantity_in_stock value must not be greater than 150

**suppliers table** - province should default to BC

## Solution:

```
ALTER TABLE customers
ADD CONSTRAINT default_country DEFAULT('Canada') FOR country;

ALTER TABLE orders
ADD CONSTRAINT default_required_date DEFAULT(GETDATE() + 10) FOR required_date;

ALTER TABLE order_details
ADD CONSTRAINT min_quant CHECK (quantity >= 1);

ALTER TABLE products
ADD CONSTRAINT min_reorder_level CHECK (reorder_level >= 1);

ALTER TABLE products
ADD CONSTRAINT max_quant_in_stock CHECK (quantity_in_stock < 150);

ALTER TABLE suppliers
ADD CONSTRAINT default_province DEFAULT('BC') FOR province;
```

## Results:

SQLQuery1.sql - DD...IIORIO\danny (52))*

```
ADD CONSTRAINT min_quant CHECK (quantity >= 1);

ALTER TABLE products
ADD CONSTRAINT min_reorder_level CHECK (reorder_level >= 1);

ALTER TABLE products
ADD CONSTRAINT max_quant_in_stock CHECK (quantity_in_stock < 150);

ALTER TABLE suppliers
ADD CONSTRAINT default_province DEFAULT('BC') FOR province;

GO
```

100 %

Messages

```
Command(s) completed successfully.
```

# Step 6

## Question:

Load the data into your created tables using the following files:

| | | |
|---|---|---|
| customers.txt | into the customers table | (91 rows) |
| orders.txt | into the orders table | (1078 rows) |
| order_details.txt | into the order_details table | (2820 rows) |
| products.txt | into the products table | (77 rows) |
| shippers.txt | into the shippers table | (3 rows) |
| suppliers.txt | into the suppliers table | (15 rows) |
| titles.txt | into the titles table | (12 rows) |
| *employees.txt* | *into the employees table which is created in Part C* | |

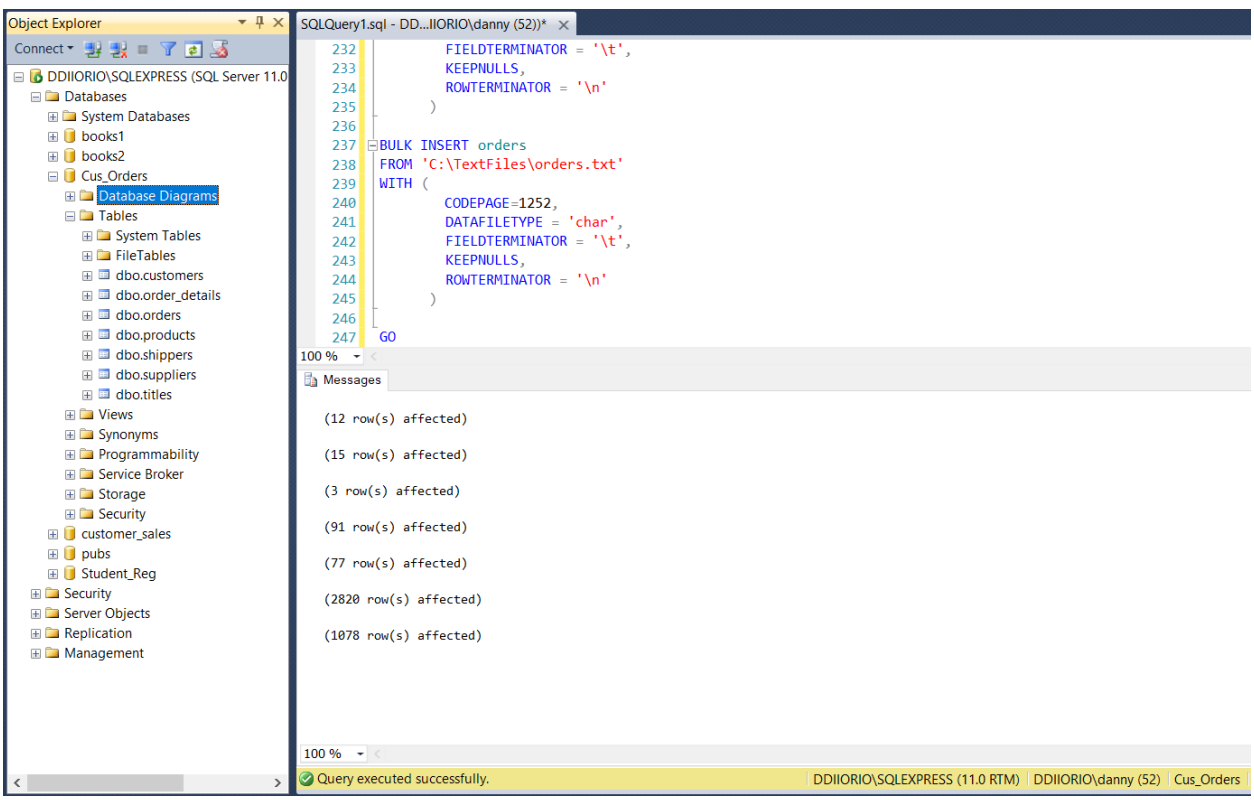
## Solution:

```
BULK INSERT titles
FROM 'C:\TextFiles\titles.txt'
WITH (
```

```
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )

BULK INSERT suppliers
FROM 'C:\TextFiles\suppliers.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )


BULK INSERT shippers
FROM 'C:\TextFiles\shippers.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )

BULK INSERT customers
FROM 'C:\TextFiles\customers.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )

BULK INSERT products
FROM 'C:\TextFiles\products.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )
```

```
BULK INSERT order_details
FROM 'C:\TextFiles\order_details.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )

BULK INSERT orders
FROM 'C:\TextFiles\orders.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
        )

GO
```

## Result:



# Part B – SQL Statements

## Step 1

### Question:

List the customer id, name, city, and country from the customer table. Order the result set by the **customer id**. The query should produce the result set listed below.

| customer_id | name | city | country |
|---|---|---|---|
| ALFKI | Alfreds Futterkiste | Berlin | Germany |
| ANATR | Ana Trujillo Emparedados y helados | México D.F. | Mexico |
| ANTON | Antonio Moreno Taquería | México D.F. | Mexico |
| AROUT | Around the Horn | London | United Kingdom |
| BERGS | Berglunds snabbköp | Luleå | Sweden |
| ... | | | |
| WHITC | White Clover Markets | Seattle | United States |
| WILMK | Wilman Kala | Helsinki | Finland |
| WOLZA | Wolski Zajazd | Warszawa | Poland |

(91 row(s) affected)

### Solution:

```
SELECT customer_id, name, city, country
FROM customers
ORDER BY customer_id;
GO
```

## Result:

```
249 SELECT customer_id, name, city, country
250 FROM customers
251 ORDER BY customer_id;
252 GO
```

100 %

Results | Messages

| | customer_id | name | city | country |
|---|---|---|---|---|
| 1 | ALFKI | Alfreds Futterkiste | Berlin | Germany |
| 2 | ANATR | Ana Trujillo Emparedados y helados | México D.F. | Mexico |
| 3 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico |
| 4 | AROUT | Around the Horn | London | United Kingdom |
| 5 | BERGS | Berglunds snabbköp | Luleå | Sweden |
| 6 | BLAUS | Blauer See Delikatessen | Mannheim | Germany |
| 7 | BLONP | Blondel père et fils | Strasbourg | France |
| 8 | BOLID | Bólido Comidas preparadas | Madrid | Spain |
| 9 | BONAP | Bon app' | Marseille | France |
| 10 | BOTTM | Bottom-Dollar Markets | Tsawwassen | Canada |
| 11 | BSBEV | B's Beverages | London | United Kingdom |
| 12 | CACTU | Cactus Comidas para llevar | Buenos Aires | Argentina |

```
249 SELECT customer_id, name, city, country
250 FROM customers
251 ORDER BY customer_id;
252 GO
```

100 %

Results | Messages

| | customer_id | name | city | country |
|---|---|---|---|---|
| 80 | TORTU | Tortuga Restaurante | México D.F. | Mexico |
| 81 | TRADH | Tradição Hipermercados | São Paulo | Brazil |
| 82 | TRAIH | Trail's Head Gourmet Provisioners | Kirkland | United States |
| 83 | VAFFE | Vaffeljernet | Århus | Denmark |
| 84 | VICTE | Victuailles en stock | Lyon | France |
| 85 | VINET | Vins et alcools Chevalier | Reims | France |
| 86 | WANDK | Die Wandernde Kuh | Stuttgart | Germany |
| 87 | WARTH | Wartian Herkku | Oulu | Finland |
| 88 | WELLI | Wellington Importadora | Resende | Brazil |
| 89 | WHITC | White Clover Markets | Seattle | United States |
| 90 | WILMK | Wilman Kala | Helsinki | Finland |
| 91 | WOLZA | Wolski Zajazd | Warszawa | Poland |

# Step 2

## Question:

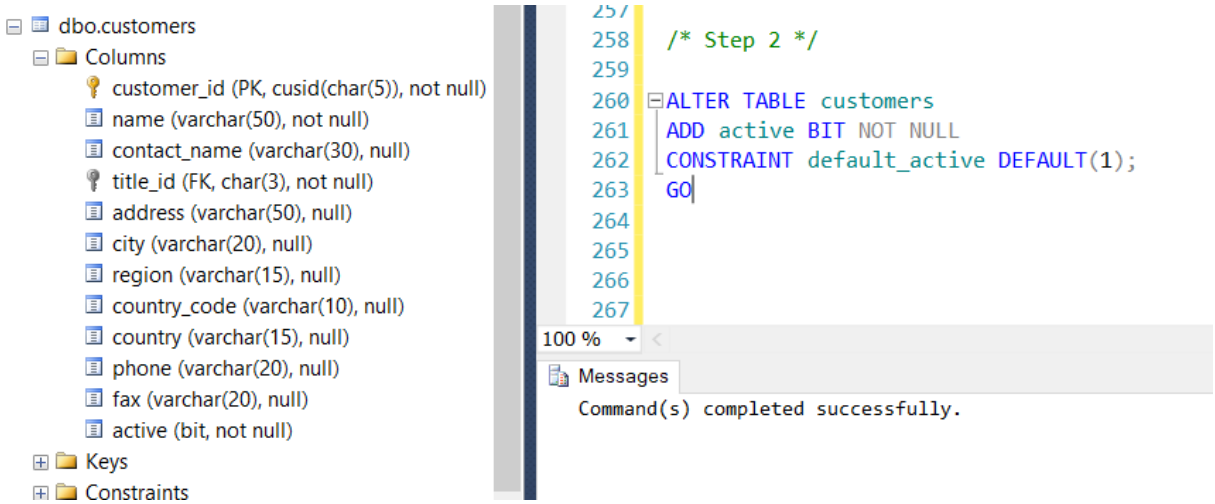
Add a new column called **active** to the customers table using the ALTER statement. The only valid values are 1 or 0. The default should be **1**.

## Solution:

```
ALTER TABLE customers
```

```
ADD active BIT NOT NULL
CONSTRAINT default_active DEFAULT(1);
GO
```

## Result:




# Step 3

## Question:

List all the orders where the order date is between **January 1** and **December 31, 2001**. Display the order id, order date, and a new shipped date calculated by adding 7 days to the shipped date from the orders table, the product name from the product table, the customer 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 (quantity * unit_price) to calculate the cost of the order. The query should produce the result set listed below.

| order_id | product_name | customer_name | order_date | new_shipped_date | order_cost |
|---|---|---|---|---|---|
| 10000 | Alice Mutton | Franchi S.p.A. | May 10 2001 | May 22 2001 | 156.0000 |
| 10001 | NuNuCa Nuß-Nougat-Crème | Mère Paillarde | May 13 2001 | May 30 2001 | 420.0000 |
| 10001 | Boston Crab Meat | Mère Paillarde | May 13 2001 | May 30 2001 | 736.0000 |
| 10001 | Raclette Courdavault | Mère Paillarde | May 13 2001 | May 30 2001 | 440.0000 |
| 10001 | Wimmers gute Semmelknödel | Mère Paillarde | May 13 2001 | May 30 2001 | 498.7500 |
| ... | | | | | |
| 10138 | Inlagd Sill | Du monde entire | Dec 27 2001 | Jan 10 2002 | 228.0000 |
| 10138 | Louisiana Hot Spiced Okra | Du monde entire | Dec 27 2001 | Jan 10 2002 | 204.0000 |
| 10139 | Camembert Pierrot | Vaffeljernet | Dec 30 2001 | Jan 16 2002 | 680.0000 |

(383 row(s) affected)

## Solution:

```
SELECT
       orders.order_id,
       'product_name' = products.name,
       'customer_name' = customers.name,
       'order_date' = CONVERT(char(11), orders.order_date, 100),
       'new_shipped_date' = CONVERT(char(11), orders.shipped_date + 7, 100),
       'order_cost' = (order_details.quantity * products.unit_price)
FROM orders
INNER JOIN order_details ON orders.order_id = order_details.order_id
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN customers ON customers.customer_id = orders.customer_id
WHERE orders.order_date BETWEEN 'Jan 1 2001' AND 'Dec 31 2001'
GO
```

## Result:

```
267 SELECT
268     orders.order_id,
269     'product_name' = products.name,
270     'customer_name' = customers.name,
271     'order_date' = CONVERT(char(11), orders.order_date, 100),
272     'new_shipped_date' = CONVERT(char(11), orders.shipped_date + 7,100),
273     'order_cost' = (order_details.quantity * products.unit_price)
274 FROM orders
275 INNER JOIN order_details ON orders.order_id = order_details.order_id
276 INNER JOIN products ON order_details.product_id = products.product_id
277 INNER JOIN customers ON customers.customer_id = orders.customer_id
278 WHERE orders.order_date BETWEEN 'Jan 1 2001' AND 'Dec 31 2001'
279 GO
```

100 %

Results | Messages

| | order_id | product_name | customer_name | order_date | new_shipped_date | order_cost |
|---|---|---|---|---|---|---|
| 1 | 10000 | Alice Mutton | Franchi S.p.A. | May 10 2001 | May 22 2001 | 156.00 |
| 2 | 10001 | NuNuCa Nuß-Nougat-Creme | Mère Paillarde | May 13 2001 | May 30 2001 | 420.00 |
| 3 | 10001 | Boston Crab Meat | Mère Paillarde | May 13 2001 | May 30 2001 | 736.00 |
| 4 | 10001 | Raclette Courdavault | Mère Paillarde | May 13 2001 | May 30 2001 | 440.00 |
| 5 | 10001 | Wimmers gute Semmelknödel | Mère Paillarde | May 13 2001 | May 30 2001 | 498.75 |
| 6 | 10002 | Gorgonzola Telino | Folk och fä HB | May 14 2001 | May 24 2001 | 437.50 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 383 rows

```
276 INNER JOIN products ON order_details.product_id = products.product_id
277 INNER JOIN customers ON customers.customer_id = orders.customer_id
278 WHERE orders.order_date BETWEEN 'Jan 1 2001' AND 'Dec 31 2001'
279 GO
```

100 %

Results | Messages

| | order_id | product_name | customer_name | order_date | new_shipped_date | order_cost |
|---|---|---|---|---|---|---|
| 378 | 10137 | Konbu | Antonio More... | Dec 26 2001 | Jan 29 2002 | 120.00 |
| 379 | 10137 | Scottish Longbreads | Antonio More... | Dec 26 2001 | Jan 29 2002 | 187.50 |
| 380 | 10137 | Mozzarella di Giovanni | Antonio More... | Dec 26 2001 | Jan 29 2002 | 870.00 |
| 381 | 10138 | Inlagd Sill | Du monde en... | Dec 27 2001 | Jan 10 2002 | 228.00 |
| 382 | 10138 | Louisiana Hot Spiced Okra | Du monde en... | Dec 27 2001 | Jan 10 2002 | 204.00 |
| 383 | 10139 | Camembert Pierrot | Vaffeljernet | Dec 30 2001 | Jan 16 2002 | 680.00 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 383 rows

# Step 4

## Question:

List all the orders that have **not** been shipped. Display the customer id, name and phone number from the customers table, and the order id and order date from the orders table. Order the result set by the customer name. The query should produce the result set listed below.

| customer_id | name | phone | order_id | order_date |
|---|---|---|---|---|
| BLAUS | Blauer See Delikatessen | 0621-08460 | 11058 | 2004-03-23 00:00:00.000 |
| BONAP | Bon app' | 91.24.45.40 | 11076 | 2004-03-30 00:00:00.000 |
| ERNSH | Ernst Handel | 7675-3425 | 11008 | 2004-03-02 00:00:00.000 |
| ..... | | | | |
| RICAR | Ricardo Adocicados | (21) 555-3412 | 11059 | 2004-03-23 00:00:00.000 |
| RICSU | Richter Supermarkt | 0897-034214 | 11075 | 2004-03-30 00:00:00.000 |
| SIMOB | Simons bistro | 31 12 34 56 | 11074 | 2004-03-30 00:00:00.000 |

(21 row(s) affected)

## Solution:

```
SELECT
      orders.customer_id,
      'name' = customers.name,
      customers.phone,
      orders.order_id,
      orders.order_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
WHERE shipped_date IS NULL
ORDER BY name
GO
```

## Result:

```sql
SELECT
    orders.customer_id,
    'name' = customers.name,
    customers.phone,
    orders.order_id,
    orders.order_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
WHERE shipped_date IS NULL
ORDER BY name
GO
```

100 %

Results | Messages

| | customer... | name | phone | order... | order_date |
|---|---|---|---|---|---|
| 1 | BLAUS | Blauer See Delikatessen | 0621-08460 | 11058 | 2004-03-23 00:00:00.000 |
| 2 | BONAP | Bon app' | 91.24.45.40 | 11076 | 2004-03-30 00:00:00.000 |
| 3 | BOTTM | Bottom-Dollar Markets | (604) 555-4729 | 11045 | 2004-03-17 00:00:00.000 |
| 4 | CACTU | Cactus Comidas para llevar | (1) 135-5555 | 11054 | 2004-03-22 00:00:00.000 |
| 5 | ERNSH | Ernst Handel | 7675-3425 | 11008 | 2004-03-02 00:00:00.000 |
| 6 | ERNSH | Ernst Handel | 7675-3425 | 11072 | 2004-03-29 00:00:00.000 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 21 rows

```sql
WHERE shipped_date IS NULL
ORDER BY name
GO
```

100 %

Results | Messages

| | customer... | name | phone | order... | order_date |
|---|---|---|---|---|---|
| 16 | RANCH | Rancho grande | (1) 123-5555 | 11019 | 2004-03-07 00:00:00.000 |
| 17 | RATTC | Rattlesnake Canyon Gro... | (505) 555-5939 | 11077 | 2004-03-30 00:00:00.000 |
| 18 | REGGC | Reggiani Caseifici | 0522-556721 | 11062 | 2004-03-24 00:00:00.000 |
| 19 | RICAR | Ricardo Adocicados | (21) 555-3412 | 11059 | 2004-03-23 00:00:00.000 |
| 20 | RICSU | Richter Supermarkt | 0897-034214 | 11075 | 2004-03-30 00:00:00.000 |
| 21 | SIMOB | Simons bistro | 31 12 34 56 | 11074 | 2004-03-30 00:00:00.000 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 21 rows

# Step 5

## Question:

List all the customers where the region is **NULL**. Display the customer id, name, and city from the customers table, and the title description from the titles table. The query should produce the result set listed below.

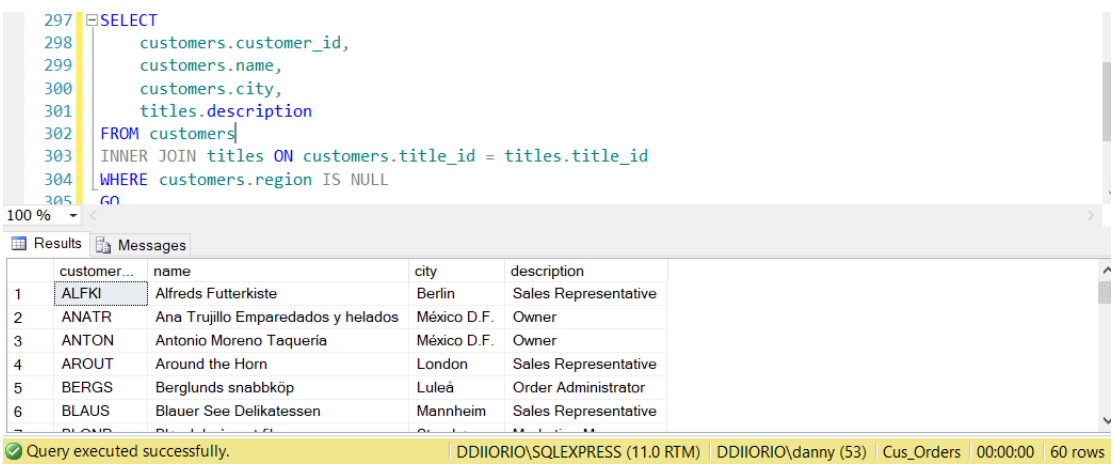
| customer_id | name | city | description |
|---|---|---|---|
| ALFKI | Alfreds Futterkiste | Berlin | Sales Representative |
| ANATR | Ana Trujillo Emparedados y helados | México D.F. | Owner |
| ANTON | Antonio Moreno Taquería | México D.F. | Owner |
| AROUT | Around the Horn | London | Sales Representative |
| BERGS | Berglunds snabbköp | Luleå | Order Administrator |
| ... | | | |
| WARTH | Wartian Herkku | Oulu | Accounting Manager |
| WILMK | Wilman Kala | Helsinki | Owner/Marketing Assistant |
| WOLZA | Wolski Zajazd | Warszawa | Owner |

(60 row(s) affected)

## Solution:

```
SELECT
      customers.customer_id,
      customers.name,
      customers.city,
      titles.description
FROM customers
INNER JOIN titles ON customers.title_id = titles.title_id
WHERE customers.region IS NULL
GO
```

## Result:



```
303 INNER JOIN titles ON customers.title_id = titles.title_id
304 WHERE customers.region IS NULL
305 GO
```

100 %

Results | Messages

| | customer... | name | city | description |
|---|---|---|---|---|
| 55 | VICTE | Victuailles en stock | Lyon | Sales Agent |
| 56 | VINET | Vins et alcools Chevalier | Reims | Accounting Manager |
| 57 | WANDK | Die Wandernde Kuh | Stuttgart | Sales Representative |
| 58 | WARTH | Wartian Herkku | Oulu | Accounting Manager |
| 59 | WILMK | Wilman Kala | Helsinki | Owner/Marketing A... |
| 60 | WOLZA | Wolski Zajazd | Warszawa | Owner |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 60 rows

# Step 6

## Question:

List the products where the reorder level is **higher than** the quantity in stock. Display the supplier name from the suppliers table, the product name, reorder level, and quantity in stock from the products table. Order the result set by the supplier name. The query should produce the result set listed below.

| supplier_name | product_name | reorder_level | quantity_in_stock |
|---|---|---|---|
| Armstrong Company | Queso Cabrales | 30 | 22 |
| Cadbury Products Ltd. | Ipoh Coffee | 25 | 17 |
| Cadbury Products Ltd. | Røgede sild | 15 | 5 |
| Campbell Company | Gnocchi di nonna Alice | 30 | 21 |
| Dare Manufacturer Ltd. | Scottish Longbreads | 15 | 6 |
| ... | | | |
| Steveston Export Company | Gravad lax | 25 | 11 |
| Steveston Export Company | Outback Lager | 30 | 15 |
| Yves Delorme Ltd. | Longlife Tofu | 5 | 4 |

(18 row(s) affected)

## Solution:

```
SELECT
       'supplier_name' = suppliers.name,
       'products_name' = products.name,
       products.reorder_level,
       products.quantity_in_stock
FROM suppliers
INNER JOIN products ON suppliers.supplier_id = products.supplier_id
WHERE products.reorder_level > products.quantity_in_stock
ORDER BY supplier_name
GO
```

## Result:

```sql
SELECT
    'supplier_name' = suppliers.name,
    'products_name' = products.name,
    products.reorder_level,
    products.quantity_in_stock
FROM suppliers
INNER JOIN products ON suppliers.supplier_id = products.supplier_id
WHERE products.reorder_level > products.quantity_in_stock
ORDER BY supplier_name
GO
```

100 %

Results | Messages

| | supplier_name | products_name | reorder_le... | quantity_in_st... |
|---|---|---|---|---|
| 1 | Armstrong Company | Queso Cabrales | 30 | 22 |
| 2 | Cadbury Products Ltd. | Ipoh Coffee | 25 | 17 |
| 3 | Cadbury Products Ltd. | Røgede sild | 15 | 5 |
| 4 | Campbell Company | Gnocchi di nonna Alice | 30 | 21 |
| 5 | Dare Manufacturer Ltd. | Scottish Longbreads | 15 | 6 |
| 6 | Dare Manufacturer Ltd. | Sir Rodney's Scones | 5 | 3 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 18 rows

```sql
WHERE products.reorder_level > products.quantity_in_stock
ORDER BY supplier_name
GO
```

100 %

Results | Messages

| | supplier_name | products_name | reorder_le... | quantity_in_st... |
|---|---|---|---|---|
| 13 | South Harbour Produ... | Wimmers gute Semm... | 30 | 22 |
| 14 | St. Jean's Company | Gorgonzola Telino | 20 | 0 |
| 15 | St. Jean's Company | Mascarpone Fabioli | 25 | 9 |
| 16 | Steveston Export Co... | Gravad lax | 25 | 11 |
| 17 | Steveston Export Co... | Outback Lager | 30 | 15 |
| 18 | Yves Delorme Ltd. | Longlife Tofu | 5 | 4 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 18 rows

# Step 7

## Question:

Calculate the length in years from **January 1, 2008** and when an order was shipped where the shipped date is **not null**. Display the order id, and the shipped date from the orders table, the customer name, and the contact name from the customers table, and the 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.

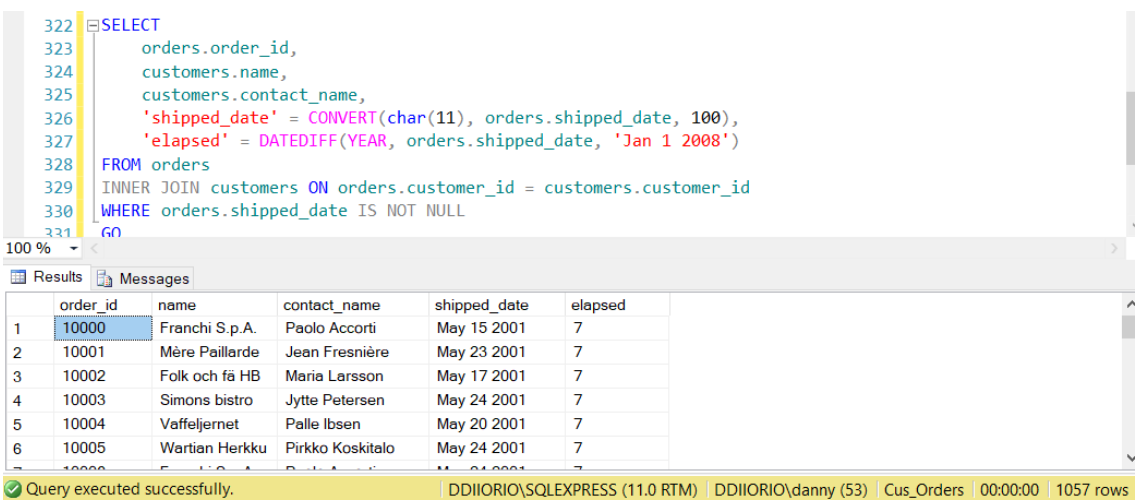
| order_id | name | contact_name | shipped_date | elapsed |
|---|---|---|---|---|
| 10000 | Franchi S.p.A. | Paolo Accorti | May 15 2001 | 7 |
| 10001 | Mère Paillarde | Jean Fresnière | May 23 2001 | 7 |
| 10002 | Folk och fä HB | Maria Larsson | May 17 2001 | 7 |
| 10003 | Simons bistro | Jytte Petersen | May 24 2001 | 7 |
| 10004 | Vaffeljernet | Palle Ibsen | May 20 2001 | 7 |
| ... | | | | |
| 11066 | White Clover Markets | Karl Jablonski | Mar 28 2004 | 4 |
| 11067 | Drachenblut Delikatessen | Sven Ottlieb | Mar 30 2004 | 4 |
| 11069 | Tortuga Restaurante | Miguel Angel Paolino | Mar 30 2004 | 4 |

(1057 row(s) affected)

## Solution:

```
SELECT
      orders.order_id,
      customers.name,
      customers.contact_name,
      'shipped_date' = CONVERT(char(11), orders.shipped_date, 100),
      'elapsed' = DATEDIFF(YEAR, orders.shipped_date, 'Jan 1 2008')
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
WHERE orders.shipped_date IS NOT NULL
GO
```

## Result:



```
329 INNER JOIN customers ON orders.customer_id = customers.customer_id
330 WHERE orders.shipped_date IS NOT NULL
331 GO
```

100 %

Results | Messages

| | order_id | name | contact_name | shipped_date | elapsed |
|---|---|---|---|---|---|
| 1052 | 11060 | Franchi S.p.A. | Paolo Accorti | Mar 28 2004 | 4 |
| 1053 | 11063 | Hungry Owl A... | Patricia McKenna | Mar 30 2004 | 4 |
| 1054 | 11064 | Save-a-lot M... | Jose Pavarotti | Mar 28 2004 | 4 |
| 1055 | 11066 | White Clover ... | Karl Jablonski | Mar 28 2004 | 4 |
| 1056 | 11067 | Drachenblut ... | Sven Ottlieb | Mar 30 2004 | 4 |
| 1057 | 11069 | Tortuga Rest... | Miguel Angel Pao... | Mar 30 2004 | 4 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 1057 rows

# Step 8

## Question:

List number of customers with names beginning with each letter of the alphabet. Ignore customers whose name begins with the letter **S**. Do not display the letter and count unless **at least two** customer's names begin with the letter. The query should produce the result set listed below.

```
name        total
------      -----------
A           4
B           7
C           5
D           3
E           2
...
T           6
V           3
W           5

(17 row(s) affected)
```

## Solution:

```
SELECT
       'name' = LEFT(name, 1),
       'total' = COUNT(name)
FROM customers
GROUP BY LEFT(name, 1)
HAVING COUNT(name) >= 2 AND LEFT(name, 1) != 'S'
GO
```

## Result:

```
SELECT
    'name' = LEFT(name, 1),
    'total' = COUNT(name)
FROM customers
GROUP BY LEFT(name, 1)
HAVING COUNT(name) >= 2 AND LEFT(name, 1) != 'S'
GO
```

100 %

Results | Messages

| | name | total |
|---|---|---|
| 1 | A | 4 |
| 2 | B | 7 |
| 3 | C | 5 |
| 4 | D | 3 |
| 5 | E | 2 |
| 6 | F | 8 |
| 7 | G | 5 |
| 8 | H | 4 |
| 9 | L | 9 |
| 10 | M | 4 |
| 11 | O | 3 |
| 12 | P | 4 |
| 13 | Q | 3 |
| 14 | R | 6 |
| 15 | T | 6 |
| 16 | V | 3 |
| 17 | W | 5 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 17 rows

# Step 9

## Question:

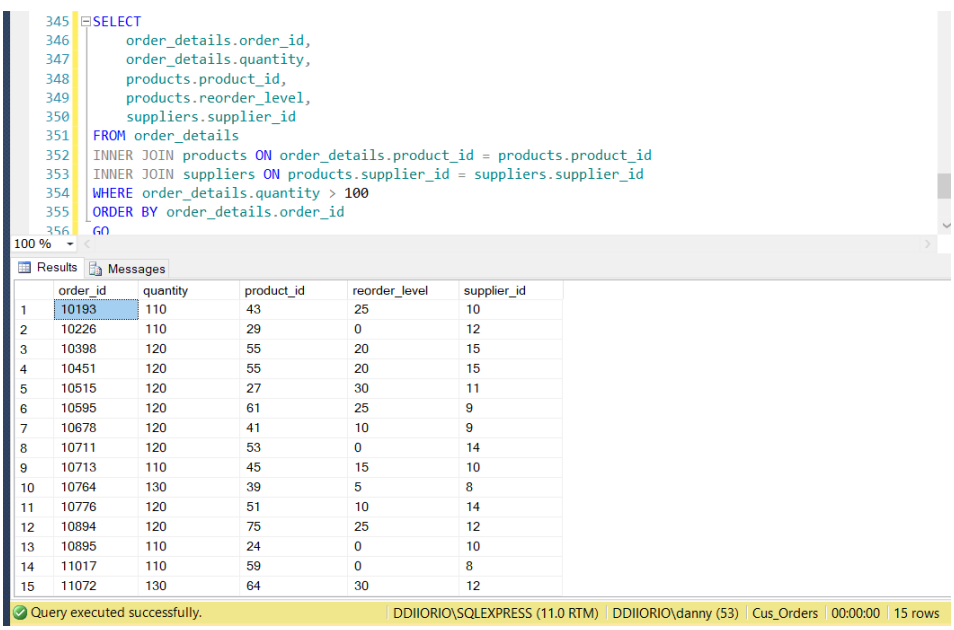
List the order details where the quantity is **greater than 100**. Display the order id and quantity from the order_details table, the product id and reorder level from the products table, and the supplier id from the suppliers table. Order the result set by the order id. The query should produce the result set listed below.

```
order_id    quantity    product_id    reorder_level    supplier_id
----------  ----------  ------------  ---------------  ----------
10193       110         43            25               10
10226       110         29            0                12
10398       120         55            20               15
10451       120         55            20               15
10515       120         27            30               11
...
10895       110         24            0                10
11017       110         59            0                8
11072       130         64            30               12

(15 row(s) affected)
```

## Solution:

```sql
SELECT
      order_details.order_id,
      order_details.quantity,
      products.product_id,
      products.reorder_level,
      suppliers.supplier_id
FROM order_details
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
WHERE order_details.quantity > 100
ORDER BY order_details.order_id
GO
```

## Result:



| | order_id | quantity | product_id | reorder_level | supplier_id |
|---|---|---|---|---|---|
| 1 | 10193 | 110 | 43 | 25 | 10 |
| 2 | 10226 | 110 | 29 | 0 | 12 |
| 3 | 10398 | 120 | 55 | 20 | 15 |
| 4 | 10451 | 120 | 55 | 20 | 15 |
| 5 | 10515 | 120 | 27 | 30 | 11 |
| 6 | 10595 | 120 | 61 | 25 | 9 |
| 7 | 10678 | 120 | 41 | 10 | 9 |
| 8 | 10711 | 120 | 53 | 0 | 14 |
| 9 | 10713 | 110 | 45 | 15 | 10 |
| 10 | 10764 | 130 | 39 | 5 | 8 |
| 11 | 10776 | 120 | 51 | 10 | 14 |
| 12 | 10894 | 120 | 75 | 25 | 12 |
| 13 | 10895 | 110 | 24 | 0 | 10 |
| 14 | 11017 | 110 | 59 | 0 | 8 |
| 15 | 11072 | 130 | 64 | 30 | 12 |

# Step 10

## Question:

List the products which contain **tofu** or **chef** 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 name. The query should produce the result set listed below.

| product_id | name | quantity_per_unit | unit_price |
|---|---|---|---|
| 4 | Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22.0000 |
| 5 | Chef Anton's Gumbo Mix | 36 boxes | 21.3500 |
| 74 | Longlife Tofu | 5 kg pkg. | 10.0000 |
| 14 | Tofu | 40 - 100 g pkgs. | 23.2500 |

(4 row(s) affected)

## Solution:

```
SELECT
       product_id,
       name,
       quantity_per_unit,
       unit_price
FROM products
WHERE name LIKE '%tofu%' OR name LIKE '%chef%'
ORDER BY name
GO
```

## Result:


| | product_id | name | quantity_per_unit | unit_price |
|---|---|---|---|---|
| 1 | 4 | Chef Anton's Cajun Seasoning | 48 - 6 oz jars | 22.00 |
| 2 | 5 | Chef Anton's Gumbo Mix | 36 boxes | 21.35 |
| 3 | 74 | Longlife Tofu | 5 kg pkg. | 10.00 |
| 4 | 14 | Tofu | 40 - 100 g pkgs. | 23.25 |

# Part C – INSERT, UPDATE, DELETE and VIEWS Statements

## Step 1

### Question:

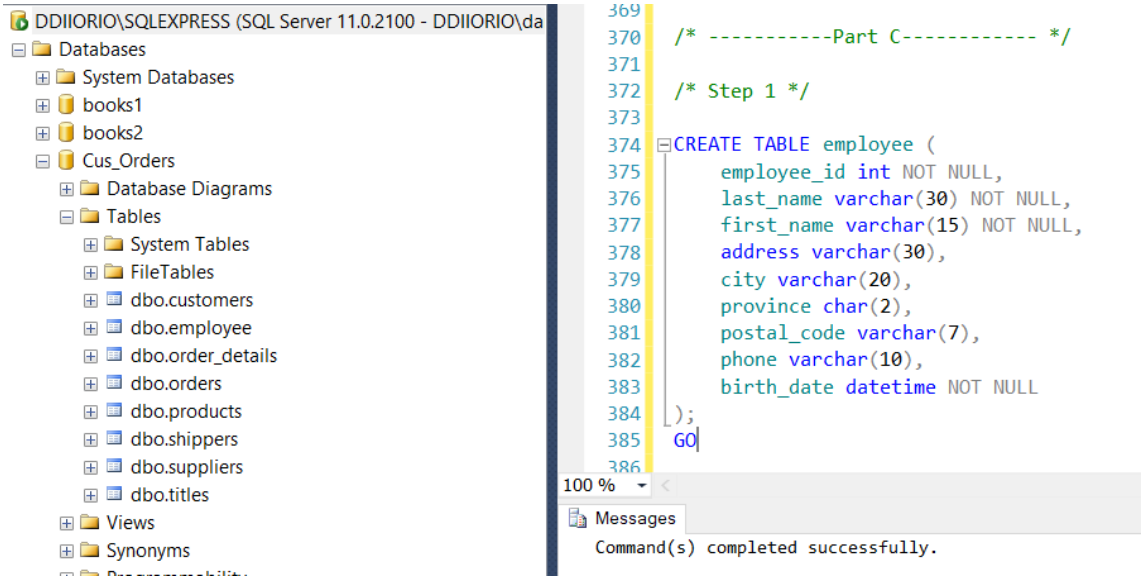
Create an **employee** table with the following columns:

| *Column Name* | *Data Type* | *Length* | *Null Values* |
|---|---|---|---|
| employee_id | int | | No |
| last_name | varchar | 30 | No |
| first_name | varchar | 15 | No |
| address | varchar | 30 | |
| city | varchar | 20 | |
| province | char | 2 | |
| postal_code | varchar | 7 | |
| phone | varchar | 10 | |
| birth_date | datetime | | No |

### Solution:

```
CREATE TABLE employee (
       employee_id int NOT NULL,
       last_name varchar(30) NOT NULL,
       first_name varchar(15) NOT NULL,
       address varchar(30),
       city varchar(20),
       province char(2),
       postal_code varchar(7),
       phone varchar(10),
       birth_date datetime NOT NULL
);
GO
```

## Results:




# Step 2

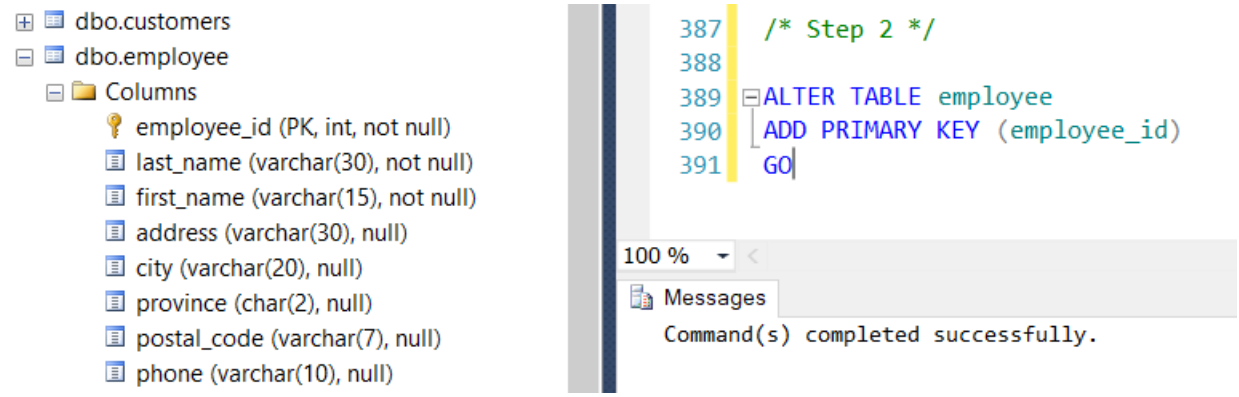
## Question:

The **primary key** for the employee table should be the employee id.

## Solution:

```
ALTER TABLE employee
ADD PRIMARY KEY (employee_id)
GO
```

## Results:



# Step 3

## Question:

Load the data into the employee table using the employee.txt file; **9** rows. In addition, **create the relationship** to enforce referential integrity between the employee and orders tables.

## Solution:

```
BULK INSERT employee
FROM 'C:\TextFiles\employee.txt'
WITH (
            CODEPAGE=1252,
            DATAFILETYPE = 'char',
            FIELDTERMINATOR = '\t',
            KEEPNULLS,
            ROWTERMINATOR = '\n'
      )

ALTER TABLE orders
ADD CONSTRAINT fk_employee_orders FOREIGN KEY (employee_id)
REFERENCES employee(employee_id);
GO
```

## Results:

```
BULK INSERT employee
FROM 'C:\TextFiles\employee.txt'
WITH (
        CODEPAGE=1252,
        DATAFILETYPE = 'char',
        FIELDTERMINATOR = '\t',
        KEEPNULLS,
        ROWTERMINATOR = '\n'
    )

ALTER TABLE orders
ADD CONSTRAINT fk_employee_orders FOREIGN KEY (employee_id)
REFERENCES employee(employee_id);
GO
```

100 %

Messages

```
(9 row(s) affected)
```

# Step 4

## Question:

Using the INSERT statement, add the shipper **Quick Express** to the shippers table.

## Solution:

```
INSERT INTO shippers(name)
VALUES('Quick Express')
GO
```

## Results:

```
412 INSERT INTO shippers(name)
413 VALUES('Quick Express')
414
415 SELECT * FROM shippers
416 GO
```

100 %

Results | Messages

| | shipper_id | name |
|---|---|---|
| 1 | 1 | Speedy Express |
| 2 | 2 | United Package |
| 3 | 3 | Federal Shipping |
| 4 | 4 | Quick Express |

# Step 5

## Question:

Using the UPDATE statement, increate the unit price in the products table of all rows with a current unit price between **$5.00** and **$10.00** by **5%**; 12 rows affected.

## Solution:

```
UPDATE products
SET unit_price = unit_price * 1.05
WHERE unit_price >= 5 AND unit_price <= 10
GO
```

### Results:

```
418 UPDATE products
419 SET unit_price = unit_price * 1.05
420 WHERE unit_price >= 5 AND unit_price <= 10
421 GO
```

100 %

Messages

```
(12 row(s) affected)
```

## Step 6

### Question:

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.

### Solution:

```
UPDATE customers
SET fax = 'Unknown'
WHERE fax IS NULL
GO
```

### Results:

```
425 UPDATE customers
426 SET fax = 'Unknown'
427 WHERE fax IS NULL
428 GO
```

100 %

Messages

```
(22 row(s) affected)
```

# Step 7

## Question:

Create a view called **vw_order_cost** to list the cost of the orders. Display the order id and order_date from the orders table, the product id from the products table, the customer name from the customers tble, and the order cost. To calculate the cost of the orders, use the formula (order_details.quantity * products.unit_price). Run the view for the order ids between **10000** and **10200**. The view should produce the result set listed below.

| order_id | order_date | product_id | name | order_cost |
|---|---|---|---|---|
| 10000 | 2001-05-10 00:00:00.000 | 17 | Franchi S.p.A. | 156.0000 |
| 10001 | 2001-05-13 00:00:00.000 | 25 | Mère Paillarde | 420.0000 |
| 10001 | 2001-05-13 00:00:00.000 | 40 | Mère Paillarde | 736.0000 |
| 10001 | 2001-05-13 00:00:00.000 | 59 | Mère Paillarde | 440.0000 |
| 10001 | 2001-05-13 00:00:00.000 | 64 | Mère Paillarde | 498.7500 |
| ... | | | | |
| 10199 | 2002-03-27 00:00:00.000 | 3 | Save-a-lot Markets | 400.0000 |
| 10199 | 2002-03-27 00:00:00.000 | 39 | Save-a-lot Markets | 720.0000 |
| 10200 | 2002-03-30 00:00:00.000 | 11 | Bólido Comidas preparadas | 588.0000 |

(540 row(s) affected)

## Solution:

```sql
CREATE VIEW vw_order_cost
AS
SELECT
	orders.order_id,
	orders.order_date,
	products.product_id,
	customers.name,
	'order_cost' = (order_details.quantity * products.unit_price)
FROM orders
INNER JOIN order_details ON order_details.order_id = orders.order_id
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN customers ON orders.customer_id = customers.customer_id
GO

SELECT * FROM vw_order_cost
WHERE order_id BETWEEN 10000 AND 10200
GO
```

## Results:

```sql
CREATE VIEW vw_order_cost
AS
SELECT
    orders.order_id,
    orders.order_date,
    products.product_id,
    customers.name,
    'order_cost' = (order_details.quantity * products.unit_price)
FROM orders
INNER JOIN order_details ON order_details.order_id = orders.order_id
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN customers ON orders.customer_id = customers.customer_id
GO

SELECT * FROM vw_order_cost
WHERE order_id BETWEEN 10000 AND 10200
```

100 %

Results | Messages

| | order_id | order_date | product_id | name | order_cost |
|---|---|---|---|---|---|
| 1 | 10000 | 2001-05-10 00:00:00.000 | 17 | Franchi S.p.A. | 156.00 |
| 2 | 10001 | 2001-05-13 00:00:00.000 | 25 | Mère Paillarde | 420.00 |
| 3 | 10001 | 2001-05-13 00:00:00.000 | 40 | Mère Paillarde | 736.00 |
| 4 | 10001 | 2001-05-13 00:00:00.000 | 59 | Mère Paillarde | 440.00 |
| 5 | 10001 | 2001-05-13 00:00:00.000 | 64 | Mère Paillarde | 498.75 |
| 6 | 10002 | 2001-05-14 00:00:00.000 | 31 | Folk och fä HB | 437.50 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 540 rows

```sql
SELECT * FROM vw_order_cost
WHERE order_id BETWEEN 10000 AND 10200
```

100 %

Results | Messages

| | order_id | order_date | product_id | name | order_cost |
|---|---|---|---|---|---|
| 535 | 10198 | 2002-03-26 00:00:00.000 | 56 | Océano Atlántico Ltda. | 684.00 |
| 536 | 10198 | 2002-03-26 00:00:00.000 | 76 | Océano Atlántico Ltda. | 540.00 |
| 537 | 10199 | 2002-03-27 00:00:00.000 | 1 | Save-a-lot Markets | 1188.00 |
| 538 | 10199 | 2002-03-27 00:00:00.000 | 3 | Save-a-lot Markets | 420.00 |
| 539 | 10199 | 2002-03-27 00:00:00.000 | 39 | Save-a-lot Markets | 720.00 |
| 540 | 10200 | 2002-03-30 00:00:00.000 | 11 | Bólido Comidas preparadas | 588.00 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 540 rows

# Step 8

## Question:

Create a view called **vw_list_employees** to list all the employees and all the columns in the employee table. Run the view for employee ids **5**, **7**, and **9**. Display the employee id, last name, first name, and birth date. Format the name as last name followed by a comma and a space followed by the first name. Format the birth date as **YYYY.MM.DD**. The view should produce the result set listed below.

```
employee_id  name                          birth_date
-----------  ------------------------------ ----------
5            Buchanan, Steven               1955.03.04
7            King, Robert                   1960.05.29
9            Dodsworth, Anne                1966.01.27

(3 row(s) affected)
```

## Solution:

```sql
CREATE VIEW vw_list_employees
AS
SELECT * FROM employee
GO

SELECT
       employee_id,
       'name' = last_name + ', ' + first_name,
       'birth_date' = convert(char(10), birth_date, 102)
FROM vw_list_employees
WHERE employee_id = 5 OR employee_id = 7 OR employee_id = 9
GO
```

## Results:

```sql
452 CREATE VIEW vw_list_employees
453 AS
454 SELECT * FROM employee
455 GO
456
457 SELECT
458     employee_id,
459     'name' = last_name + ', ' + first_name,
460     'birth_date' = convert(char(10), birth_date, 102)
461 FROM vw_list_employees
462 WHERE employee_id = 5 OR employee_id = 7 OR employee_id = 9
463 GO
```

100 %

Results | Messages

| | employee_id | name | birth_date |
|---|---|---|---|
| 1 | 5 | Buchanan, Steven | 1955.03.04 |
| 2 | 7 | King, Robert | 1960.05.29 |
| 3 | 9 | Dodsworth, Anne | 1966.01.27 |

# Step 9

## Question:

Create a view called **vw_all_orders** to list all the orders. Display the order id and shipped date from the orders table, and the customer id, name, city, and country from the customers table. Run the view for orders shipped from **January 1, 2002** and **December 31, 2002**, formatting the shipped date as **MON DD YYYY**. Order the result set by customer name and country. The view should produce the result set listed below.

| order_id | customer_id | customer_name | city | country | shipped_date |
|---|---|---|---|---|---|
| 10308 | ANATR | Ana Trujillo Emparedados y helados | México D.F. | Mexico | Aug 18 2002 |
| 10365 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Oct 26 2002 |
| 10137 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Jan 22 2002 |
| 10142 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Jan 8 2002 |
| 10218 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | May 25 2002 |
| ... | | | | | |
| 10344 | WHITC | White Clover Markets | Seattle | United States | Sep 29 2002 |
| 10269 | WHITC | White Clover Markets | Seattle | United States | Jul 3 2002 |
| 10374 | WOLZA | Wolski Zajazd | Warszawa | Poland | Nov 2 2002 |

(293 row(s) affected)

## Solution:

```sql
CREATE VIEW vw_all_orders
AS
SELECT
	orders.order_id,
	orders.shipped_date,
	customers.customer_id,
	'customer_name' = customers.name,
	customers.city,
	customers.country
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
GO

SELECT
	order_id,
	customer_id,
	customer_name,
	city,
	country,
	'shipped_date' = CONVERT(char(11), shipped_date, 100)
FROM vw_all_orders
```

```sql
WHERE shipped_date BETWEEN 'Jan 1 2002' AND 'Dec 31 2002'
ORDER BY customer_name, country
GO
```

## Results:

```sql
467 CREATE VIEW vw_all_orders
468 AS
469 SELECT
470     orders.order_id,
471     orders.shipped_date,
472     customers.customer_id,
473     'customer_name' = customers.name,
474     customers.city,
475     customers.country
476 FROM orders
477 INNER JOIN customers ON orders.customer_id = customers.customer_id
478 GO
479
480 SELECT
481     order_id,
482     customer_id,
483     customer_name,
484     city,
485     country,
486     'shipped_date' = CONVERT(char(11), shipped_date, 100)
487 FROM vw_all_orders
488 WHERE shipped_date BETWEEN 'Jan 1 2002' AND 'Dec 31 2002'
489 ORDER BY customer_name, country
490 GO
```

100 %

Results | Messages

| | order... | customer... | customer_name | city | country | shipped_date |
|---|---|---|---|---|---|---|
| 1 | 10308 | ANATR | Ana Trujillo Emparedados y helados | México D.F. | Mexico | Aug 18 2002 |
| 2 | 10365 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Oct 26 2002 |
| 3 | 10137 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Jan 22 2002 |
| 4 | 10142 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | Jan 8 2002 |
| 5 | 10218 | ANTON | Antonio Moreno Taquería | México D.F. | Mexico | May 25 2002 |
| 6 | 10144 | AROUT | Around the Horn | London | United Kingdom | Jan 13 2002 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 293 rows

```sql
489 ORDER BY customer_name, country
490 GO
```

100 %

Results | Messages

| | order... | customer... | customer_name | city | country | shipped_date |
|---|---|---|---|---|---|---|
| 288 | 10333 | WARTH | Wartian Herkku | Oulu | Finland | Sep 18 2002 |
| 289 | 10420 | WELLI | Wellington Importadora | Resende | Brazil | Dec 21 2002 |
| 290 | 10256 | WELLI | Wellington Importadora | Resende | Brazil | Jun 10 2002 |
| 291 | 10269 | WHITC | White Clover Markets | Seattle | United States | Jul 3 2002 |
| 292 | 10344 | WHITC | White Clover Markets | Seattle | United States | Sep 29 2002 |
| 293 | 10374 | WOLZA | Wolski Zajazd | Warszawa | Poland | Nov 2 2002 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 293 rows

# Step 10

## Question:

Create a view listing the suppliers and the items they have shipped. Display the supplier id and

name from the suppliers table, and the product id and name from the products table. Run the view. The view should produce the result set listed below, *although not necessarily in the same order.*

| supplier_id | supplier_name | product_id | product_name |
|---|---|---|---|
| 9 | Silver Spring Wholesale Market | 23 | Tunnbröd |
| 11 | Ovellette Manufacturer Company | 46 | Spegesild |
| 15 | Campbell Company | 69 | Gudbrandsdalsost |
| 12 | South Harbour Products Ltd. | 77 | Original Frankfurter grüne Soße |
| 14 | St. Jean's Company | 31 | Gorgonzola Telino |
| ... | | | |
| 7 | Steveston Export Company | 63 | Vegie-spread |
| 3 | Macaulay Products Company | 8 | Northwoods Cranberry Sauce |
| 15 | Campbell Company | 55 | Pâté chinois |

(77 row(s) affected)

## Solution:

```
CREATE VIEW vw_supplier_products_shipped
AS
SELECT
       suppliers.supplier_id,
       'supplier_name' = suppliers.name,
       products.product_id,
       'product_name' = products.name
FROM suppliers
INNER JOIN products ON products.supplier_id = suppliers.supplier_id
GO

SELECT * FROM vw_supplier_products_shipped
GO
```

## Results:

```sql
CREATE VIEW vw_supplier_products_shipped
AS
SELECT
    suppliers.supplier_id,
    'supplier_name' = suppliers.name,
    products.product_id,
    'product_name' = products.name
FROM suppliers
INNER JOIN products ON products.supplier_id = suppliers.supplier_id
GO

SELECT * FROM vw_supplier_products_shipped
GO
```

100 %

Results | Messages

| | supplier_id | supplier_name | product_id | product_name |
|---|---|---|---|---|
| 1 | 1 | Edward's Products Ltd. | 1 | Chai |
| 2 | 1 | Edward's Products Ltd. | 2 | Chang |
| 3 | 1 | Edward's Products Ltd. | 3 | Aniseed Syrup |
| 4 | 2 | New Orlean's Spices Ltd. | 4 | Chef Anton's Cajun Seasoning |
| 5 | 2 | New Orlean's Spices Ltd. | 5 | Chef Anton's Gumbo Mix |
| 6 | 3 | Macaulay Products Company | 6 | Grandma's Boysenberry Spread |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 77 rows

```sql
SELECT * FROM vw_supplier_products_shipped
GO
```

100 %

Results | Messages

| | supplier_id | supplier_name | product_id | product_name |
|---|---|---|---|---|
| 72 | 14 | St. Jean's Company | 72 | Mozzarella di Giovanni |
| 73 | 7 | Steveston Export Company | 73 | Röd Kaviar |
| 74 | 4 | Yves Delorme Ltd. | 74 | Longlife Tofu |
| 75 | 12 | South Harbour Products Ltd. | 75 | Rhönbräu Klosterbier |
| 76 | 12 | South Harbour Products Ltd. | 76 | Lakkalikööri |
| 77 | 12 | South Harbour Products Ltd. | 77 | Original Frankfurter grüne Soße |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 77 rows

# Part D – Stored Procedures and Triggers

## Step 1

### Question:

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, name, address, city and phone from the customers table. Run the stored procedure displaying customers living in **London**. The stored procedure should produce the result set listed below.

| customer_id | name | address | city | phone |
|---|---|---|---|---|
| AROUT | Around the Horn | 120 Hanover Sq. | London | (71) 555-7788 |
| BSBEV | B's Beverages | Fauntleroy Circus | London | (71) 555-1212 |
| CONSH | Consolidated Holdings | Berkeley Gardens 12 Brewery | London | (71) 555-2282 |
| EASTC | Eastern Connection | 35 King George | London | (71) 555-0297 |
| NORTS | North/South | South House 300 Queensbridge | London | (71) 555-7733 |
| SEVES | Seven Seas Imports | 90 Wadhurst Rd. | London | (71) 555-1717 |

(6 row(s) affected)

### Solution:

```
CREATE PROCEDURE sp_customer_city (
      @city varchar(30)
)
AS
SELECT
      customer_id,
      name,
      address,
      city,
      phone
FROM customers
WHERE city = @city
GO

EXECUTE sp_customer_city 'London'
GO
```

## Results:

```sql
CREATE PROCEDURE sp_customer_city (
    @city varchar(30)
)
AS
SELECT
    customer_id,
    name,
    address,
    city,
    phone
FROM customers
WHERE city = @city
GO

EXECUTE sp_customer_city 'London'
```

100 %

Results | Messages

| | customer_id | name | address | city | phone |
|---|---|---|---|---|---|
| 1 | AROUT | Around the Horn | 120 Hanover Sq. | London | (71) 555-7788 |
| 2 | BSBEV | B's Beverages | Fauntleroy Circus | London | (71) 555-1212 |
| 3 | CONSH | Consolidated Holdings | Berkeley Gardens 12 Brewery | London | (71) 555-2282 |
| 4 | EASTC | Eastern Connection | 35 King George | London | (71) 555-0297 |
| 5 | NORTS | North/South | South House 300 Queensbridge | London | (71) 555-7733 |
| 6 | SEVES | Seven Seas Imports | 90 Wadhurst Rd. | London | (71) 555-1717 |

# Step 2

## Question:

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 customer name from the customer table, and the shipper name from the shippers table. Run the stored procedure displaying orders from **January 1, 2003** to **June 30, 2003**. The stored procedure should produce the result set listed below.

| order_id | customer_id | customer_name | shipper_name | shipped_date |
|---|---|---|---|---|
| 10423 | GOURL | Gourmet Lanchonetes | Federal Shipping | 2003-01-18 00:00:00.000 |
| 10425 | LAMAI | La maison d'Asie | United Package | 2003-01-08 00:00:00.000 |
| 10427 | PICCO | Piccolo und mehr | United Package | 2003-01-25 00:00:00.000 |
| 10429 | HUNGO | Hungry Owl All-Night Grocers | United Package | 2003-01-01 00:00:00.000 |
| 10431 | BOTTM | Bottom-Dollar Markets | United Package | 2003-01-01 00:00:00.000 |
| ... | | | | |
| 10615 | WILMK | Wilman Kala | Federal Shipping | 2003-06-30 00:00:00.000 |
| 10616 | GREAL | Great Lakes Food Market | United Package | 2003-06-29 00:00:00.000 |
| 10617 | GREAL | Great Lakes Food Market | United Package | 2003-06-28 00:00:00.000 |

(188 row(s) affected)

## Solution:

```
CREATE PROCEDURE sp_orders_by_dates (
	@start datetime,
	@end datetime
)
AS
SELECT
	orders.order_id,
	orders.customer_id,
	'customer_name' = customers.name,
	'shipper_name' = shippers.name,
	orders.shipped_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
INNER JOIN shippers ON orders.shipper_id = shippers.shipper_id
WHERE shipped_date BETWEEN @start AND @end
GO

EXECUTE sp_orders_by_dates 'Jan 1 2003', 'Jun 30 2003'
GO
```

## Results:

```sql
CREATE PROCEDURE sp_orders_by_dates (
    @start datetime,
    @end datetime
)
AS
SELECT
    orders.order_id,
    orders.customer_id,
    'customer_name' = customers.name,
    'shipper_name' = shippers.name,
    orders.shipped_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
INNER JOIN shippers ON orders.shipper_id = shippers.shipper_id
WHERE shipped_date BETWEEN @start AND @end
GO

EXECUTE sp_orders_by_dates 'Jan 1 2003', 'Jun 30 2003'
GO
```

100 %

Results | Messages

| | order... | customer... | customer_name | shipper_name | shipped_date |
|---|---|---|---|---|---|
| 1 | 10423 | GOURL | Gourmet Lanchonetes | Federal Shipping | 2003-01-18 00:00:00.000 |
| 2 | 10425 | LAMAI | La maison d'Asie | United Package | 2003-01-08 00:00:00.000 |
| 3 | 10427 | PICCO | Piccolo und mehr | United Package | 2003-01-25 00:00:00.000 |
| 4 | 10429 | HUNGO | Hungry Owl All-Night Grocers | United Package | 2003-01-01 00:00:00.000 |
| 5 | 10431 | BOTTM | Bottom-Dollar Markets | United Package | 2003-01-01 00:00:00.000 |
| 6 | 10432 | SPLIR | Split Rail Beer & Ale | United Package | 2003-01-01 00:00:00.000 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 188 rows

```sql
EXECUTE sp_orders_by_dates 'Jan 1 2003', 'Jun 30 2003'
GO
```

100 %

Results | Messages

| | order... | customer... | customer_name | shipper_name | shipped_date |
|---|---|---|---|---|---|
| 183 | 10612 | SAVEA | Save-a-lot Markets | United Package | 2003-06-25 00:00:00.000 |
| 184 | 10613 | HILAA | HILARIÓN-Abastos | United Package | 2003-06-25 00:00:00.000 |
| 185 | 10614 | BLAUS | Blauer See Delikatessen | Federal Shipping | 2003-06-25 00:00:00.000 |
| 186 | 10615 | WILMK | Wilman Kala | Federal Shipping | 2003-06-30 00:00:00.000 |
| 187 | 10616 | GREAL | Great Lakes Food Market | United Package | 2003-06-29 00:00:00.000 |
| 188 | 10617 | GREAL | Great Lakes Food Market | United Package | 2003-06-28 00:00:00.000 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 188 rows

# Step 3

## Question:

Create a stored procedure called **sp_product_listing** listing a specified product ordered during a specified month and year. The **product** and the **month** and **year** will be **input parameters** for the stored procedure. Display the product name, unit price, and quantity in stock from the products table, and the supplier name from the suppliers table. Run the stored procedure displaying a product name containing **Jack** and the month of the order date is **June** and the year is **2001**. The stored procedure should produce the result set listed below.

| product_name | unit_price | quantity_in_stock | supplier_name |
|---|---|---|---|
| Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |

(4 row(s) affected)

## Solution:

```
CREATE PROCEDURE sp_product_listing (
      @product varchar(50),
      @month varchar(8),
      @year int
)
AS
SELECT
      'product_name' = products.name,
      products.unit_price,
      products.quantity_in_stock,
      'supplier_name' = suppliers.name
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
INNER JOIN order_details ON products.product_id = order_details.product_id
INNER JOIN orders ON order_details.order_id = orders.order_id
WHERE products.name LIKE '%' + @product + '%'
AND DATENAME(Month, orders.order_date) = @month
AND DATENAME(Year, orders.order_date) = @year
GO

EXECUTE sp_product_listing 'Jack', June, 2001
GO
```

## Results:

```sql
CREATE PROCEDURE sp_product_listing (
    @product varchar(50),
    @month varchar(8),
    @year int
)
AS
SELECT
    'product_name' = products.name,
    products.unit_price,
    products.quantity_in_stock,
    'supplier_name' = suppliers.name
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
INNER JOIN order_details ON products.product_id = order_details.product_id
INNER JOIN orders ON order_details.order_id = orders.order_id
WHERE products.name LIKE '%' + @product + '%'
AND DATENAME(Month, orders.order_date) = @month
AND DATENAME(Year, orders.order_date) = @year
GO
```

100 %

Results | Messages

| | product_name | unit_price | quantity_in_st... | supplier_name |
|---|---|---|---|---|
| 1 | Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| 2 | Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| 3 | Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |
| 4 | Jack's New England Clam Chowder | 10.1325 | 85 | Silver Spring Wholesale Market |

# Step 4

## Question:

Create a **DELETE** trigger on the order_details table to display the information shown below when you issue the following statement:

```sql
DELETE order_details
WHERE order_id=10001 AND product_id=25
```

You should get the following results:

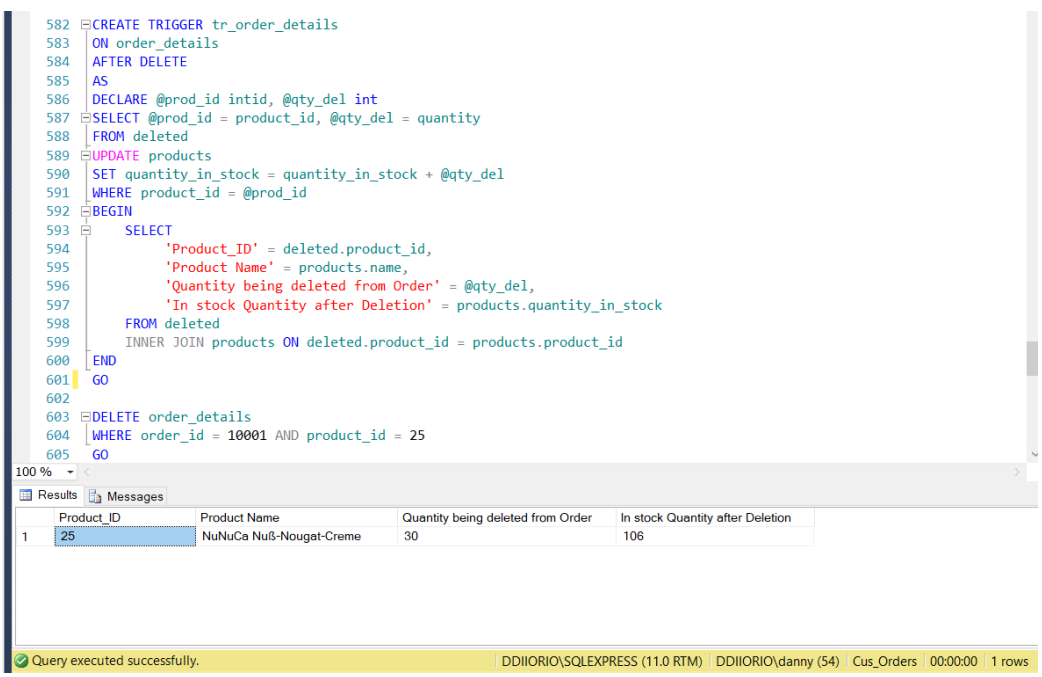
Results | Messages

| | Product_ID | Product Name | Quantity being deleted from Order | In stock Quantity after Deletion |
|---|---|---|---|---|
| 1 | 25 | NuNuCa Nuß-Nougat-Creme | 30 | 106 |

## Solution:

```
CREATE TRIGGER tr_order_details
ON order_details
AFTER DELETE
AS
DECLARE @prod_id intid, @qty_del int
SELECT @prod_id = product_id, @qty_del = quantity
FROM deleted
UPDATE products
SET quantity_in_stock = quantity_in_stock + @qty_del
WHERE product_id = @prod_id
BEGIN
	SELECT
		'Product_ID' = deleted.product_id,
		'Product Name' = products.name,
		'Quantity being deleted from Order' = @qty_del,
		'In stock Quantity after Deletion' = products.quantity_in_stock
	FROM deleted
	INNER JOIN products ON deleted.product_id = products.product_id
END
GO

DELETE order_details
WHERE order_id = 10001 AND product_id = 25
GO
```

## Results:



# Step 5

## Question:

Create an **INSERT** and **UPDATE** trigger called **tr_check_qty** on the order_details table to only allow orders of products that have a quantity in stock greater than or equal to the units ordered. Run the following query to verify your trigger.

UPDATE order_details
SET quantity = 30
WHERE order_id = '10044'
AND product_id = 7

## Solution:

```
CREATE TRIGGER tr_check_qty
ON order_details
FOR INSERT, UPDATE
AS
DECLARE @prod_id intid
SELECT @prod_id = product_id
FROM inserted
IF (
       SELECT products.quantity_in_stock
       FROM products
       WHERE products.product_id = @prod_id
       )
>=
(
       SELECT products.units_on_order
       FROM products
       WHERE products.product_id = @prod_id
)

BEGIN
       ROLLBACK TRANSACTION
       PRINT 'Quantity in stock is too low'
END
GO

UPDATE order_details
SET quantity = 30
WHERE order_id = '10044' AND product_id = 7
GO
```

## Results:

```
609 CREATE TRIGGER tr_check_qty
610 ON order_details
611 FOR INSERT, UPDATE
612 AS
613 DECLARE @prod_id intid
614 SELECT @prod_id = product_id
615 FROM inserted
616 IF (
617     SELECT products.quantity_in_stock
618     FROM products
619     WHERE products.product_id = @prod_id
620     )
621 >=
622 (
623     SELECT products.units_on_order
624     FROM products
625     WHERE products.product_id = @prod_id
626 )
627
628 BEGIN
629     ROLLBACK TRANSACTION
630     PRINT 'Quantity in stock is too low'
631 END
632 GO
633
634 UPDATE order_details
635 SET quantity = 30
636 WHERE order_id = '10044' AND product_id = 7
637 GO
```

100 %

Messages

```
Quantity in stock is too low
Msg 3609, Level 16, State 1, Line 1
The transaction ended in the trigger. The batch has been aborted.
```

100 %

Query completed with errors. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (52) | Cus_Orders | 00:00:00 | 0 rows

# Step 6

## Question:

Create a stored procedure called **sp_del_inactive_cust** to **delete** customers that have no orders. The stored procedure should delete **1** row.

## Solution:

```
CREATE PROCEDURE sp_del_inactive_cust
AS
DELETE
FROM customers
WHERE customers.customer_id NOT IN (
       SELECT orders.customer_id
       FROM orders
 )
```

```
EXECUTE sp_del_inactive_cust
GO
```

## Results:


# Step 7

## Question:

Create a stored procedure called **sp_employee_information** to display the employee information for a particular employee. The **employee id** will be an **input parameter** for the stored procedure. Run the stored procedure displaying information for employee id of **5**. The stored procedure should produce the result set listed below.

| employee_id | last_name | first_name | address | city | province | postal_code | phone | birth_date |
|---|---|---|---|---|---|---|---|---|
| 5 | Buchanan | Steven | 14 Garrett Hill | New Westminster | BC | V1G 8J7 | 6045554848 | 1955-03-04 00:00:00.000 |

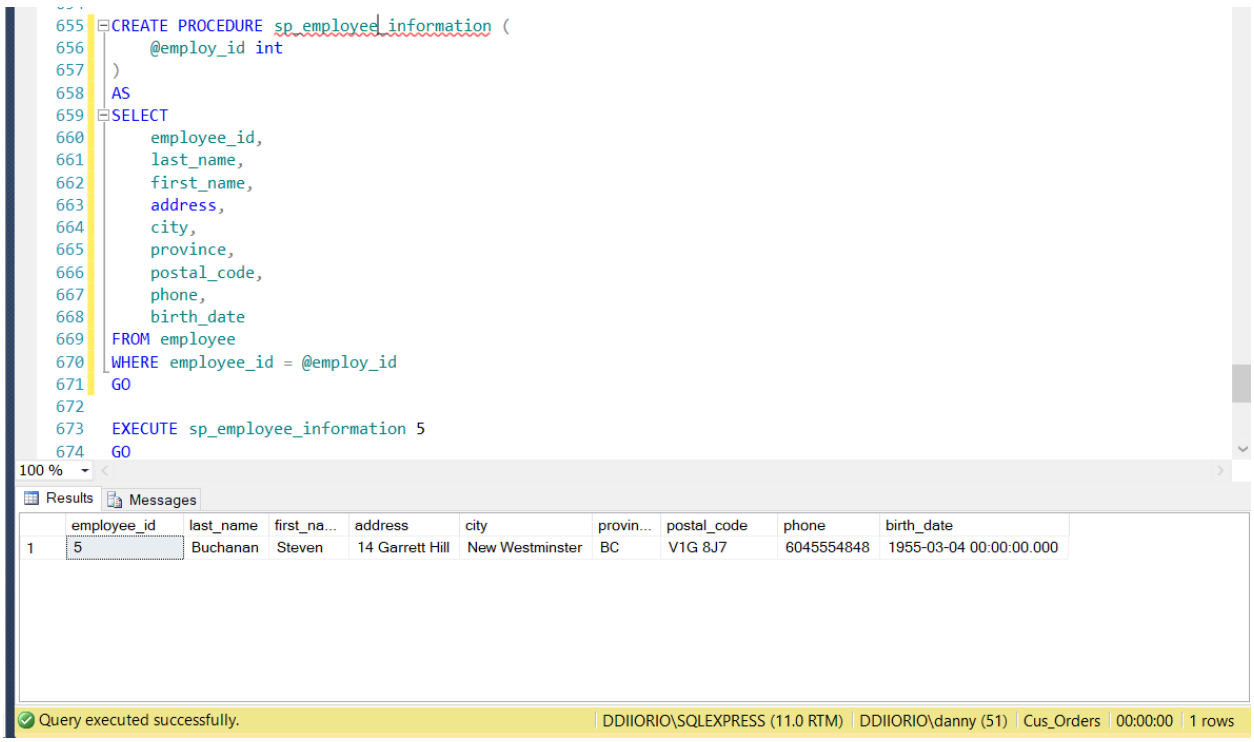
(1 row(s) affected)

## Solution:

```
CREATE PROCEDURE sp_employee_information (
	@employ_id int
)
AS
SELECT
	employee_id,
	last_name,
```

```
        first_name,
        address,
        city,
        province,
        postal_code,
        phone,
        birth_date
FROM employee
WHERE employee_id = @employ_id
GO

EXECUTE sp_employee_information 5
GO
```

## Results:




# Step 8

## Question:

Create a stored procedure called **sp_reorder_qty** to show when the reorder level subtracted from the quantity in stock is less than a specified value. The **unit** value will be an **input parameter** for the stored procedure. Display the product id, quantity in stock, and reorder level from the products

table, and the supplier name, address, city, and province from the suppliers table. Run the stored procedure displaying the information for a value of **5**. The stored procedure should produce the result set listed below.

| product_id | name | address | city | province | qty | reorder_level |
|---|---|---|---|---|---|---|
| 2 | Edward's Products Ltd. | 1125 Howe Street | Vancouver | BC | 17 | 25 |
| 3 | Edward's Products Ltd. | 1125 Howe Street | Vancouver | BC | 13 | 25 |
| 5 | New Orlean's Spices Ltd. | 1040 Georgia Street | West Vancouver | BC | 0 | 0 |
| 11 | Armstrong Company | 1638 Derwent Way | Richmond | BC | 22 | 30 |
| 17 | Steveston Export Company | 2951 Moncton Street | Richmond | BC | 0 | 0 |
| ... | | | | | | |
| 68 | Dare Manufacturer Ltd. | 1603 3rd Avenue | West Burnaby | BC | 6 | 15 |
| 70 | Steveston Export Company | 2951 Moncton Street | Richmond | BC | 15 | 30 |
| 74 | Yves Delorme Ltd. | 3050 Granville Street | New Westminster | BC | 4 | 5 |

(23 row(s) affected)

## Solution:

```
CREATE PROCEDURE sp_reorder_qty (
	@unit int
)
AS
SELECT
	products.product_id,
	suppliers.name,
	suppliers.address,
	suppliers.city,
	suppliers.province,
	'qty' = products.quantity_in_stock,
	products.reorder_level
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
WHERE (products.quantity_in_stock - products.reorder_level) < @unit
GO

EXECUTE sp_reorder_qty 5
GO
```

## Results:

```sql
CREATE PROCEDURE sp_reorder_qty (
    @unit int
)
AS
SELECT
    products.product_id,
    suppliers.name,
    suppliers.address,
    suppliers.city,
    suppliers.province,
    'qty' = products.quantity_in_stock,
    products.reorder_level
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
WHERE (products.quantity_in_stock - products.reorder_level) < @unit
GO

EXECUTE sp_reorder_qty 5
GO
```

100 %

Results | Messages

| | product... | name | address | city | provin... | qty | reorder_le... |
|---|---|---|---|---|---|---|---|
| 1 | 2 | Edward's Products Ltd. | 1125 Howe Street | Vancouver | BC | 17 | 25 |
| 2 | 3 | Edward's Products Ltd. | 1125 Howe Street | Vancouver | BC | 13 | 25 |
| 3 | 5 | New Orlean's Spices Ltd. | 1040 Georgia Street West | Vancouver | BC | 0 | 0 |
| 4 | 11 | Armstrong Company | 1638 Derwent Way | Richmond | BC | 22 | 30 |
| 5 | 17 | Steveston Export Company | 2951 Moncton Street | Richmond | BC | 0 | 0 |
| 6 | 21 | Dare Manufacturer Ltd. | 1603 3rd Avenue West | Burnaby | BC | 3 | 5 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 23 rows

```sql
GO
```

100 %

Results | Messages

| | product... | name | address | city | provin... | qty | reorder_le... |
|---|---|---|---|---|---|---|---|
| 18 | 56 | Campbell Company | 892 Farrell Avenue | New We... | BC | 21 | 30 |
| 19 | 64 | South Harbour Products Ltd. | 35 Yale Crescent | Surrey | BC | 22 | 30 |
| 20 | 66 | New Orlean's Spices Ltd. | 1040 Georgia Street West | Vancouver | BC | 4 | 20 |
| 21 | 68 | Dare Manufacturer Ltd. | 1603 3rd Avenue West | Burnaby | BC | 6 | 15 |
| 22 | 70 | Steveston Export Company | 2951 Moncton Street | Richmond | BC | 15 | 30 |
| 23 | 74 | Yves Delorme Ltd. | 3050 Granville Street | New We... | BC | 4 | 5 |

Query executed successfully. | DDIIORIO\SQLEXPRESS (11.0 RTM) | DDIIORIO\danny (53) | Cus_Orders | 00:00:00 | 23 rows

# Step 9

## Question:

Create a stored procedure called **sp_unit_prices** for the product table 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, alternate name, and unit price from the products table. Run the stored procedure to display products where the unit price is between **$5.00** and **$10.00**. The stored procedure should produce the result set listed below.

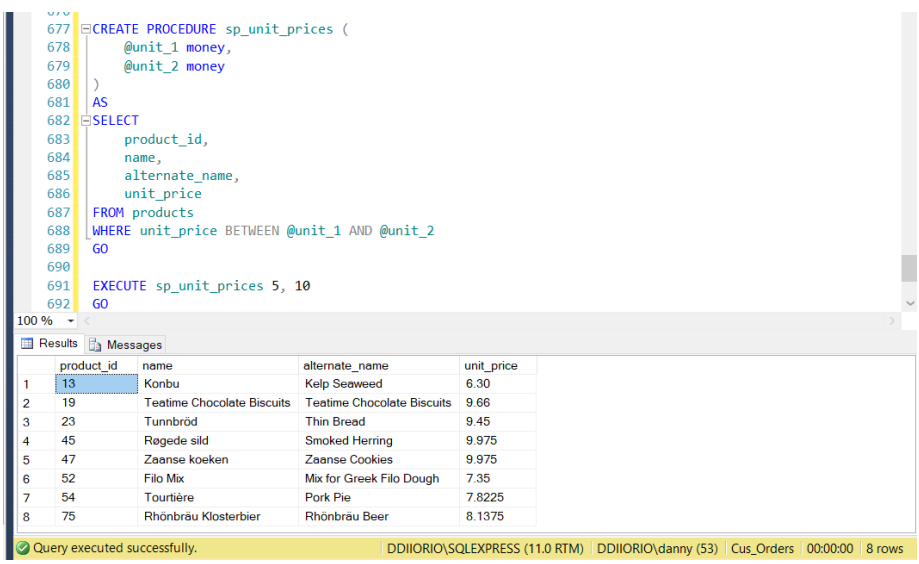
| product_id | name | alternate_name | unit_price |
|---|---|---|---|
| 13 | Konbu | Kelp Seaweed | 6.30 |
| 19 | Teatime Chocolate Biscuits | Teatime Chocolate Biscuits | 9.66 |
| 23 | Tunnbr÷d | Thin Bread | 9.45 |
| 45 | R°gede sild | Smoked Herring | 9.975 |
| 47 | Zaanse koeken | Zaanse Cookies | 9.975 |
| 52 | Filo Mix | Mix for Greek Filo Dough | 7.35 |
| 54 | TourtiÞre | Pork Pie | 7.8225 |
| 75 | Rh÷nbrõu Klosterbier | Rh÷nbrõu Beer | 8.1375 |

(8 row(s) affected)

## Solution:

```
CREATE PROCEDURE sp_unit_prices (
      @unit_1 money,
      @unit_2 money
)
AS
SELECT
      product_id, name,
      alternate_name,
      unit_price
FROM products
WHERE unit_price BETWEEN @unit_1 AND @unit_2
GO

EXECUTE sp_unit_prices 5, 10
GO
```

## Results:



# 3. CONCLUSION

The project has been a great learning experience, putting to use close to everything I have learned in COMP 1630. The strength and flexibility of the SQL language was entertaining to work though and see positive results being achieved.

All questions have been completed to my satisfaction with no obvious errors or missing parts.

# 4. SQL SCRIPT

```
/* ------------- Daniel Di Iorio  A01004145 ------------------ */

/* ------------------------------------------------------------ */
/* ------------------------ Part A --------------------------- */
/* ------------------------------------------------------------ */

/* Step 1 */

USE master

GO

if exists (select * from sysdatabases where name='Cus_Orders')
begin
  raiserror('Dropping existing Cus_Orders ....',0,1)
  DROP database Cus_Orders
end
GO

CREATE DATABASE Cus_Orders
GO

USE Cus_orders
GO

/* Step 2 */

CREATE TYPE cusid FROM char(5) NOT NULL;
CREATE TYPE intid FROM int NOT NULL;
GO

/* Step 3 */

CREATE TABLE customers (
       customer_id cusid,
       name varchar(50) NOT NULL,
       contact_name varchar(30),
       title_id char(3) NOT NULL,
       address varchar(50),
       city varchar(20),
       region varchar(15),
       country_code varchar(10),
       country varchar(15),
       phone varchar(20),
```

```
	fax varchar(20)
);

CREATE TABLE orders (
	order_id intid,
	customer_id cusid,
	employee_id int NOT NULL,
	shipping_name varchar(50),
	shipping_address varchar(50),
	shipping_city varchar(20),
	shipping_region varchar(15),
	shipping_country_code varchar(10),
	shipping_country varchar(15),
	shipper_id int NOT NULL,
	order_date datetime,
	required_date datetime,
	shipped_date datetime,
	freight_charge money
);

CREATE TABLE order_details (
	order_id intid,
	product_id intid,
	quantity int NOT NULL,
	discount float NOT NULL
);

CREATE TABLE products (
	product_id intid,
	supplier_id int NOT NULL,
	name varchar(40) NOT NULL,
	alternate_name varchar(40),
	quantity_per_unit varchar(25),
	unit_price money,
	quantity_in_stock int,
	units_on_order int,
	reorder_level int
);

CREATE TABLE shippers (
	shipper_id int IDENTITY NOT NULL,
	name varchar(20)
);

CREATE TABLE suppliers (
	supplier_id int IDENTITY NOT NULL,
	name varchar(40),
	address varchar(30),
```

```
	city varchar(20),
	province char(2)
);

CREATE TABLE titles (
	title_id char(3) NOT NULL,
	description varchar(35)
);
GO

/* Step 4 */

ALTER TABLE customers
ADD PRIMARY KEY (customer_id);

ALTER TABLE shippers
ADD PRIMARY KEY (shipper_id);

ALTER TABLE titles
ADD PRIMARY KEY (title_id);

ALTER TABLE orders
ADD PRIMARY KEY (order_id);

ALTER TABLE suppliers
ADD PRIMARY KEY (supplier_id);

ALTER TABLE products
ADD PRIMARY KEY (product_id);

ALTER TABLE order_details
ADD PRIMARY KEY (order_id, product_id);
GO

ALTER TABLE customers
ADD CONSTRAINT fk_cust_titles FOREIGN KEY (title_id)
REFERENCES titles(title_id);

ALTER TABLE orders
ADD CONSTRAINT fk_orders_cust FOREIGN KEY (customer_id)
REFERENCES customers(customer_id);

ALTER TABLE orders
ADD CONSTRAINT fk_orders_shippers FOREIGN KEY (shipper_id)
REFERENCES shippers(shipper_id);

ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_orders FOREIGN KEY (order_id)
```

```
REFERENCES orders(order_id);

ALTER TABLE order_details
ADD CONSTRAINT fk_order_details_products FOREIGN KEY (product_id)
REFERENCES products(product_id);

ALTER TABLE products
ADD CONSTRAINT fk_products_suppliers FOREIGN KEY (supplier_id)
REFERENCES suppliers(supplier_id);
GO

/* Step 5 */

ALTER TABLE customers
ADD CONSTRAINT default_country DEFAULT('Canada') FOR country;

ALTER TABLE orders
ADD CONSTRAINT default_required_date DEFAULT(GETDATE() + 10)
FOR required_date;

ALTER TABLE order_details
ADD CONSTRAINT min_quant CHECK (quantity >= 1);

ALTER TABLE products
ADD CONSTRAINT min_reorder_level CHECK (reorder_level >= 1);

ALTER TABLE products
ADD CONSTRAINT max_quant_in_stock CHECK (quantity_in_stock < 150);

ALTER TABLE suppliers
ADD CONSTRAINT default_province DEFAULT('BC') FOR province;
GO

/* Step 6 */

BULK INSERT titles
FROM 'C:\TextFiles\titles.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
        )

BULK INSERT suppliers
FROM 'C:\TextFiles\suppliers.txt'
WITH (
```

```
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )


BULK INSERT shippers
FROM 'C:\TextFiles\shippers.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )

BULK INSERT customers
FROM 'C:\TextFiles\customers.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )

BULK INSERT products
FROM 'C:\TextFiles\products.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )

BULK INSERT order_details
FROM 'C:\TextFiles\order_details.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )
```

```
BULK INSERT orders
FROM 'C:\TextFiles\orders.txt'
WITH (
        CODEPAGE=1252,
             DATAFILETYPE = 'char',
             FIELDTERMINATOR = '\t',
             KEEPNULLS,
             ROWTERMINATOR = '\n'
         )
GO

/* ---------------------------------------------------------- */
/* ------------------------ Part B -------------------------- */
/* ---------------------------------------------------------- */

/* Step 1 */

SELECT customer_id, name, city, country
FROM customers
ORDER BY customer_id;
GO

/* Step 2 */

ALTER TABLE customers
ADD active BIT NOT NULL
CONSTRAINT default_active DEFAULT(1);
GO

/* Step 3 */

SELECT
       orders.order_id,
       'product_name' = products.name,
       'customer_name' = customers.name,
       'order_date' = CONVERT(char(11), orders.order_date, 100),
       'new_shipped_date' = CONVERT(char(11), orders.shipped_date + 7,100),
       'order_cost' = (order_details.quantity * products.unit_price)
FROM orders
INNER JOIN order_details ON orders.order_id = order_details.order_id
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN customers ON customers.customer_id = orders.customer_id
WHERE orders.order_date BETWEEN 'Jan 1 2001' AND 'Dec 31 2001'
GO

/* Step 4 */

SELECT
```

```
       orders.customer_id,
       'name' = customers.name,
       customers.phone,
       orders.order_id,
       orders.order_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
WHERE shipped_date IS NULL
ORDER BY name
GO

/* Step 5 */

SELECT
       customers.customer_id,
       customers.name,
       customers.city,
       titles.description
FROM customers
INNER JOIN titles ON customers.title_id = titles.title_id
WHERE customers.region IS NULL
GO

/* Step 6 */

SELECT
       'supplier_name' = suppliers.name,
       'products_name' = products.name,
       products.reorder_level,
       products.quantity_in_stock
FROM suppliers
INNER JOIN products ON suppliers.supplier_id = products.supplier_id
WHERE products.reorder_level > products.quantity_in_stock
ORDER BY supplier_name
GO

/* Step 7 */

SELECT
       orders.order_id,
       customers.name,
       customers.contact_name,
       'shipped_date' = CONVERT(char(11), orders.shipped_date, 100),
       'elapsed' = DATEDIFF(YEAR, orders.shipped_date, 'Jan 1 2008')
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
WHERE orders.shipped_date IS NOT NULL
GO
```

```
/* Step 8 */

SELECT
       'name' = LEFT(name, 1),
       'total' = COUNT(name)
FROM customers
GROUP BY LEFT(name, 1)
HAVING COUNT(name) >= 2 AND LEFT(name, 1) != 'S'
GO

/* Step 9 */

SELECT
       order_details.order_id,
       order_details.quantity,
       products.product_id,
       products.reorder_level,
       suppliers.supplier_id
FROM order_details
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
WHERE order_details.quantity > 100
ORDER BY order_details.order_id
GO

/* Step 10 */

SELECT
       product_id,
       name,
       quantity_per_unit,
       unit_price
FROM products
WHERE name LIKE '%tofu%' OR name LIKE '%chef%'
ORDER BY name
GO

/* ------------------------------------------------------------ */
/* ------------------------- Part C --------------------------- */
/* ------------------------------------------------------------ */

/* Step 1 */

CREATE TABLE employee (
       employee_id int NOT NULL,
       last_name varchar(30) NOT NULL,
       first_name varchar(15) NOT NULL,
```

```
	address varchar(30),
	city varchar(20),
	province char(2),
	postal_code varchar(7),
	phone varchar(10),
	birth_date datetime NOT NULL
);
GO

/* Step 2 */

ALTER TABLE employee
ADD PRIMARY KEY (employee_id)
GO

/* Step 3 */

BULK INSERT employee
FROM 'C:\TextFiles\employee.txt'
WITH (
		CODEPAGE=1252,
		DATAFILETYPE = 'char',
		FIELDTERMINATOR = '\t',
		KEEPNULLS,
		ROWTERMINATOR = '\n'
	)

ALTER TABLE orders
ADD CONSTRAINT fk_employee_orders FOREIGN KEY (employee_id)
REFERENCES employee(employee_id);
GO

/* Step 4 */

INSERT INTO shippers(name)
VALUES('Quick Express')
GO

/* Step 5 */

UPDATE products
SET unit_price = unit_price * 1.05
WHERE unit_price >= 5 AND unit_price <= 10
GO

/* Step 6 */

UPDATE customers
```

```
SET fax = 'Unknown'
WHERE fax IS NULL
GO

/* Step 7 */

CREATE VIEW vw_order_cost
AS
SELECT
       orders.order_id,
       orders.order_date,
       products.product_id,
       customers.name,
       'order_cost' = (order_details.quantity * products.unit_price)
FROM orders
INNER JOIN order_details ON order_details.order_id = orders.order_id
INNER JOIN products ON order_details.product_id = products.product_id
INNER JOIN customers ON orders.customer_id = customers.customer_id
GO

SELECT * FROM vw_order_cost
WHERE order_id BETWEEN 10000 AND 10200
GO

/* Step 8 */

CREATE VIEW vw_list_employees
AS
SELECT * FROM employee
GO

SELECT
       employee_id,
       'name' = last_name + ', ' + first_name,
       'birth_date' = convert(char(10), birth_date, 102)
FROM vw_list_employees
WHERE employee_id = 5 OR employee_id = 7 OR employee_id = 9
GO

/* Step 9 */

CREATE VIEW vw_all_orders
AS
SELECT
       orders.order_id,
       orders.shipped_date,
       customers.customer_id,
       'customer_name' = customers.name,
```

```
	customers.city,
	customers.country
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
GO

SELECT
	order_id,
	customer_id,
	customer_name,
	city,
	country,
	'shipped_date' = CONVERT(char(11), shipped_date, 100)
FROM vw_all_orders
WHERE shipped_date BETWEEN 'Jan 1 2002' AND 'Dec 31 2002'
ORDER BY customer_name, country
GO

/* Step 10 */

CREATE VIEW vw_supplier_products_shipped
AS
SELECT
	suppliers.supplier_id,
	'supplier_name' = suppliers.name,
	products.product_id,
	'product_name' = products.name
FROM suppliers
INNER JOIN products ON products.supplier_id = suppliers.supplier_id
GO

SELECT * FROM vw_supplier_products_shipped
GO

/* ------------------------------------------------------------ */
/* ------------------------ Part D -------------------------- */
/* ------------------------------------------------------------ */

/* Step 1 */

CREATE PROCEDURE sp_customer_city (
	@city varchar(30)
)
AS
SELECT
	customer_id,
	name,
	address,
```

```
	city,
	phone
FROM customers
WHERE city = @city
GO

EXECUTE sp_customer_city 'London'
GO

/* Step 2 */

CREATE PROCEDURE sp_orders_by_dates (
	@start datetime,
	@end datetime
)
AS
SELECT
	orders.order_id,
	orders.customer_id,
	'customer_name' = customers.name,
	'shipper_name' = shippers.name,
	orders.shipped_date
FROM orders
INNER JOIN customers ON orders.customer_id = customers.customer_id
INNER JOIN shippers ON orders.shipper_id = shippers.shipper_id
WHERE shipped_date BETWEEN @start AND @end
GO

EXECUTE sp_orders_by_dates 'Jan 1 2003', 'Jun 30 2003'
GO

/* Step 3 */

CREATE PROCEDURE sp_product_listing (
	@product varchar(50),
	@month varchar(8),
	@year int
)
AS
SELECT
	'product_name' = products.name,
	products.unit_price,
	products.quantity_in_stock,
	'supplier_name' = suppliers.name
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
INNER JOIN order_details ON products.product_id = order_details.product_id
INNER JOIN orders ON order_details.order_id = orders.order_id
```

```
WHERE products.name LIKE '%' + @product + '%'
AND DATENAME(Month, orders.order_date) = @month
AND DATENAME(Year, orders.order_date) = @year
GO

EXECUTE sp_product_listing 'Jack', June, 2001
GO

/* Step 4 */

CREATE TRIGGER tr_order_details
ON order_details
AFTER DELETE
AS
DECLARE @prod_id intid, @qty_del int
SELECT @prod_id = product_id, @qty_del = quantity
FROM deleted
UPDATE products
SET quantity_in_stock = quantity_in_stock + @qty_del
WHERE product_id = @prod_id
BEGIN
	SELECT
		'Product_ID' = deleted.product_id,
		'Product Name' = products.name,
		'Quantity being deleted from Order' = @qty_del,
		'In stock Quantity after Deletion' = products.quantity_in_stock
	FROM deleted
	INNER JOIN products ON deleted.product_id = products.product_id
END
GO

DELETE order_details
WHERE order_id = 10001 AND product_id = 25
GO

/* Step 5 */

CREATE TRIGGER tr_check_qty
ON order_details
FOR INSERT, UPDATE
AS
DECLARE @prod_id intid
SELECT @prod_id = product_id
FROM inserted
IF (
	SELECT products.quantity_in_stock
	FROM products
	WHERE products.product_id = @prod_id
```

```
	)
>=
(
	SELECT products.units_on_order
	FROM products
	WHERE products.product_id = @prod_id
)

BEGIN
	ROLLBACK TRANSACTION
	PRINT 'Quantity in stock is too low'
END
GO

UPDATE order_details
SET quantity = 30
WHERE order_id = '10044' AND product_id = 7
GO

/* Step 6 */

CREATE PROCEDURE sp_del_inactive_cust
AS
DELETE
FROM customers
WHERE customers.customer_id NOT IN (
	SELECT orders.customer_id
	FROM orders
 )

EXECUTE sp_del_inactive_cust
GO

/* Step 7 */

CREATE PROCEDURE sp_employee_information (
	@employ_id int
)
AS
SELECT
	employee_id,
	last_name,
	first_name,
	address,
	city,
	province,
	postal_code,
	phone,
```

```
	birth_date
FROM employee
WHERE employee_id = @employ_id
GO

EXECUTE sp_employee_information 5
GO

/* Step 8 */

CREATE PROCEDURE sp_reorder_qty (
	@unit int
)
AS
SELECT
	products.product_id,
	suppliers.name,
	suppliers.address,
	suppliers.city,
	suppliers.province,
	'qty' = products.quantity_in_stock,
	products.reorder_level
FROM products
INNER JOIN suppliers ON products.supplier_id = suppliers.supplier_id
WHERE (products.quantity_in_stock - products.reorder_level) < @unit
GO

EXECUTE sp_reorder_qty 5
GO

/* Step 9 */

CREATE PROCEDURE sp_unit_prices (
	@unit_1 money,
	@unit_2 money
)
AS
SELECT
	product_id,
	name,
	alternate_name,
	unit_price
FROM products
WHERE unit_price BETWEEN @unit_1 AND @unit_2
GO

EXECUTE sp_unit_prices 5, 10
GO
```