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TC3041 Base de Datos Avanzadas
Práctica Data Warehousing con NorthwindDB y Tableau

1. Estatutos de creación de tablas

```
create database DWNorthwind
  go
  use DWNorthwind
```

```
create table DimCustomer (
    CustomerID    char(5),
    CustomerName  varchar (40),
    City varchar (15),
    Country varchar (15),
    Region varchar (15),
primary key (CustomerID)
);
```

```
create table DimEmployee (
    EmployeeID    int,
    Name  varchar (30),
    City varchar (15),
    Country varchar (15),
    Region varchar (15),
    hiredate datetime,
    primary key (EmployeeID)
);
```

```
create table DimTime (
  orderDate  Datetime,
  primary key (orderDate)
);
```

```
create table DimProduct (
  ProductID    int,
  ProductName  varchar (40),
  categoryName varchar (15),
  primary key (productID)
);
```

```
create table FactSales (
  ProductID       int ,
  EmployeeID      int ,
```

```
  CustomerID      char(5) ,
  orderDate       datetime ,
  OrderID         int,
  Quantity        smallint,
  unitPrice       money,
  discountPercent real,
  discountAmount  money,
  total           money,
  primary key (ProductID, EmployeeID, CustomerID, orderDate),
  foreign key (ProductID)  references dbo.DimProduct(productID),
  foreign key (EmployeeID)     references dbo.DimEmployee(employeeID),
  foreign key (CustomerID)     references dbo.DimCustomer(CustomerID),
  foreign key (orderDate)  references dbo.DimTime(orderDate)
);
```

2. Estatutos de ETL para DWNorthwin indicando que acción o acciones se llevan a cabo en el estatuto

```
/* El estatuto E01 extrae la informacion de products de la NorthwindDB y la
carga en la tabla DIMemployee en DWNorthwind */
```

```
/*E01:*/Insert into DimProduct
   select p.productId, p.productName, c.categoryName
   from JC0_Northwind.dbo.products p, JC0_Northwind.dbo.categories c
   where p.categoryID=c.categoryID;
```

```
/* El estatuto E02 extrae la informacion de empleado de la NorthwindDB y la
 carga en la tabla DIMemployee en DWNorthwind, además transforma el nombre del
 empleado a un representacion de un solo string */
```

```
/*E02:*/Insert into DimEmployee
   select e.EmployeeID, e.FirstName + ' ' + e.LastName as Name, e.City,
   e.Country, e.Region,e.HireDate
   from JC0_Northwind.dbo.Employees e;
```

```
 /* El estatuto E03 extrae la informacion de orders dates de la NorthwindDB y la
 carga en la tabla DIMemployee en DWNorthwind */
```

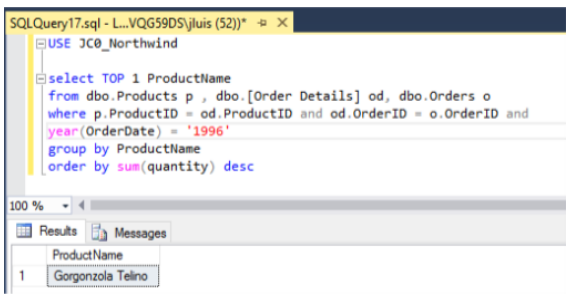
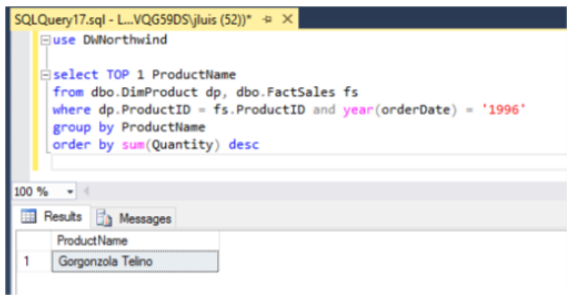
```
/*E03:*/Insert into DimTime
  select DISTINCT o.OrderDate
  from JC0_Northwind.dbo.Orders o;
```

```
/* El estatuto E04 extrae la informacion de customer de la NorthwindDB y la
carga en la tabla DIMemployee en DWNorthwind */
```

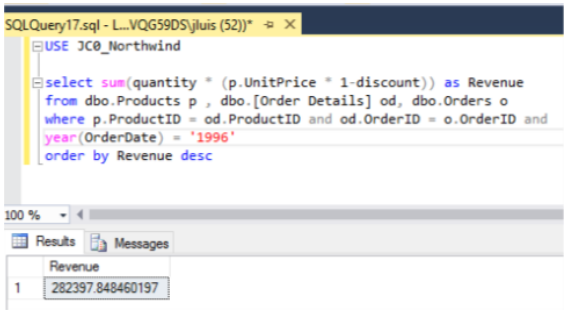
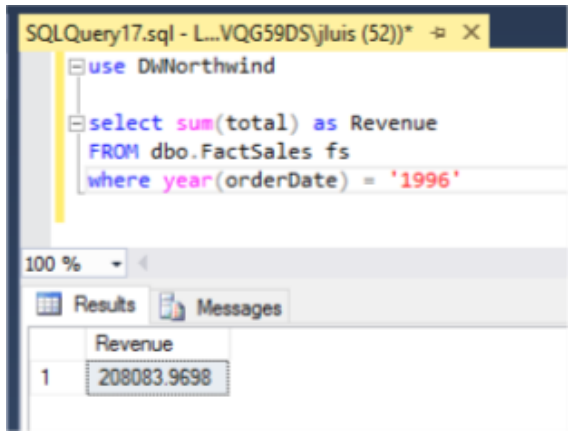
```
/*E04:*/Insert into DimCustomer
  select c.CustomerID, c.ContactName, c.City, c.Country, c.Region
  from JC0_Northwind.dbo.Customers c;
```

```
/* El estatuto E05 contiene las llaves primarias y atributos medibles */
/*E05:*/Insert into FactSales
  select od.ProductID, o.EmployeeID, o.CustomerID, o.OrderDate ,
    o.orderID, od.quantity, od.unitPrice,
    od.discount,
    od.unitPrice * od.quantity * od.discount ,
    od.unitPrice * od.quantity - od.unitPrice * od.quantity * od.discount
  from JC0_Northwind.dbo.Orders o, JC0_Northwind.dbo.[Order Details] od
  where o.OrderID = od.OrderID;
```

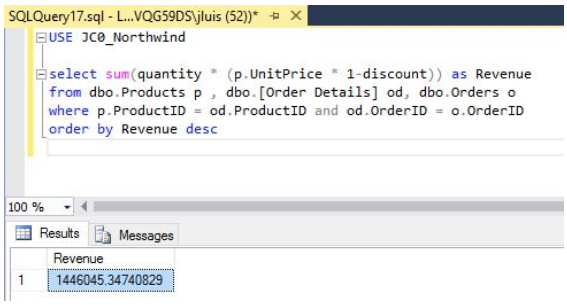
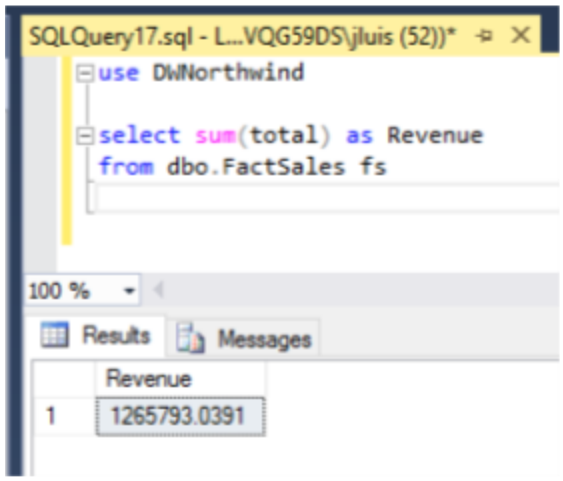
3. Solución a los queries

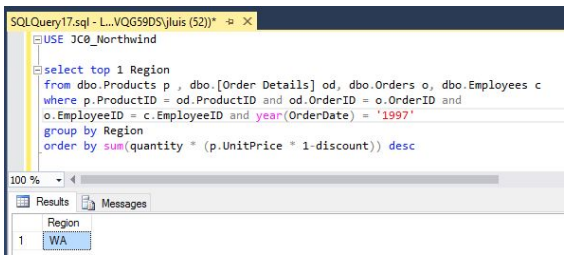
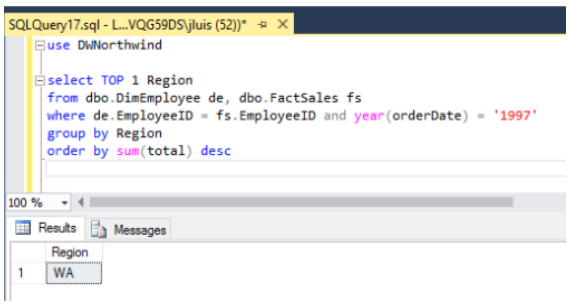
Q1 ¿Cuál es el producto más vendido en 1996?	
DB	DW
select TOP 1 p.ProductName from Northwind.dbo.Products p , dbo.[Order Details] od, Northwind.dbo.Orders o where p.ProductID = od.ProductID and od.OrderID = o.OrderID and year(OrderDate) = '1996' group by ProductName order by sum(quantity) desc	select top 1 dp.ProductName from dbo.FactSales fs, dbo.DimProduct dp, DimTime dt where dp.ProductID = fs.ProductID and YEAR(fs.OrderDate) = '1996' group by dp.ProductName order by sum(Quantity) desc
	

Q2 ¿Cuál es el total de ventas(dinero) en 1996?	
DB	DW
select sum(od.UnitPrice*od.Quantity) * (1-od.Discount * 1-discount)) as Ventas	select sum(total) as Revenue from dbo.FactSales fs where YEAR(OrderDate) = '1996'

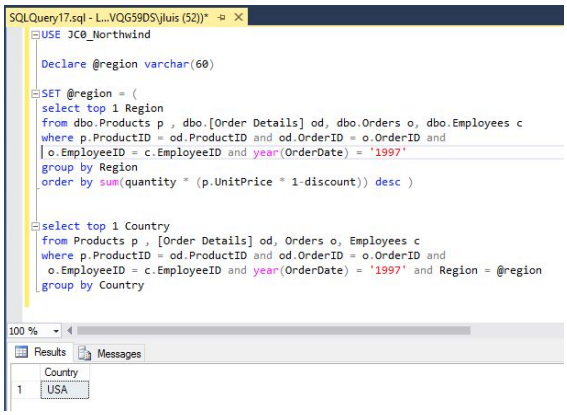
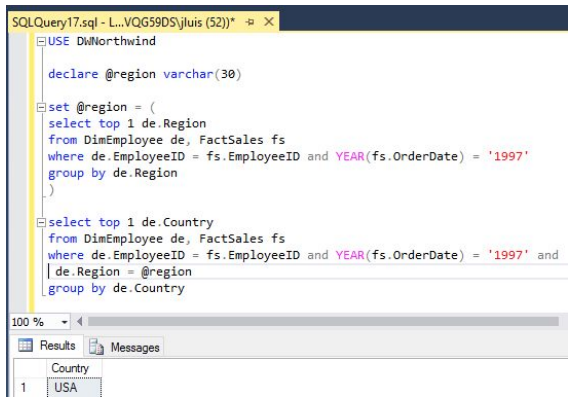
from Northwind.dbo.[Order Details] od, Northwind.dbo.Orders o where od.OrderID = o.OrderID and year(OrderDate) = '1996' order by VentasTotal	
	

Q3 ¿Cuál es el total de ventas en total (todos los años incluidos en la BD)?	
DB	DW
select sum((od.UnitPrice.od.Quantity)*ed.Quantity)*(1-od.Discount)) as VentasTotal from Northwind.dbo.[Order Details] od, Northwind.dbo.Orders o Where od.OrderID = o.OrderID group by Region order by sum(quantity * (p.UnitPrice * 1-discount)) desc	select sum(total) as Revenue from dbo.FactSales fs

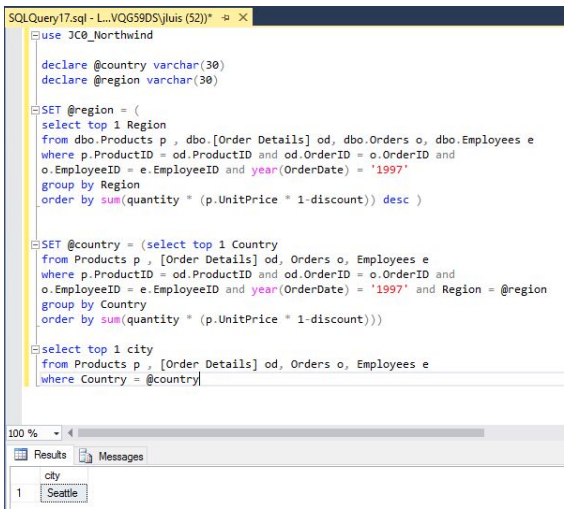
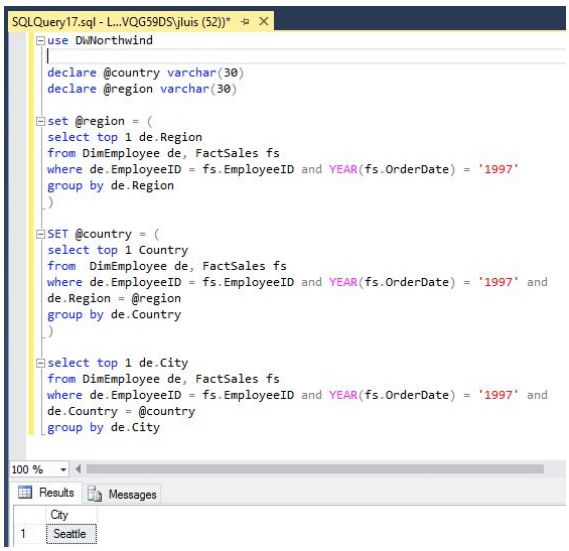
	

Q4.¿Cuál es la Región) que más vendió en 1997?	
DB	DW
select top 1 Region from dbo.Products p , dbo.[Order Details] od, dbo.Orders o, dbo.Employees c where p.ProductID = od.ProductID and od.OrderID = o.OrderID and o.EmployeeID = c.EmployeeID and year(OrderDate) = '1997' group by Region order by sum(quantity * (p.UnitPrice * 1-discount)) desc	select top 1 de.Region from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997' group by de.Region order by sum(total)desc
	

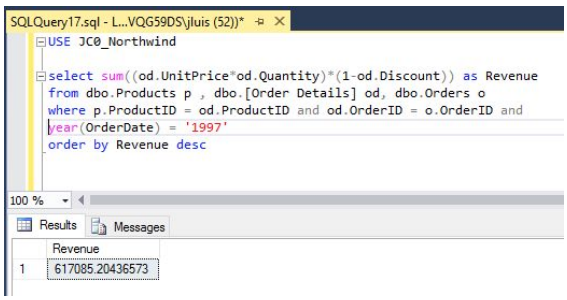
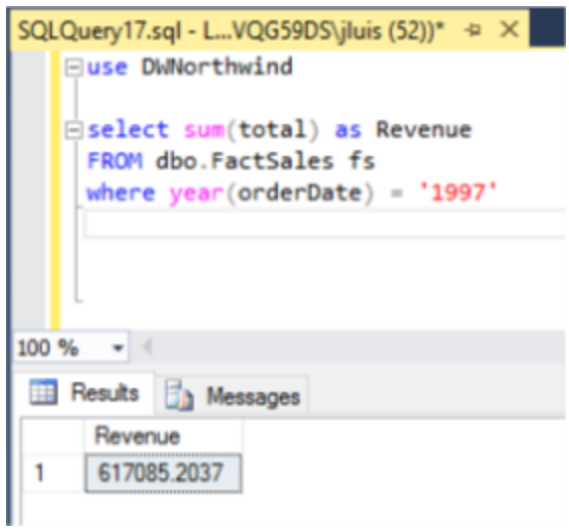
Q5 para la región de Q4 cuál es la el estado(si región es USA o país si región es diferente de USA) que más vendió en 1997	
DB	DW
Declare @region varchar(60) SET @region = (	declare @region varchar(30) set @region = (

select top 1 Region from dbo.Products p , dbo.[Order Details] od, dbo.Orders o, dbo.Employees c where p.ProductID = od.ProductID and od.OrderID = o.OrderID and o.EmployeeID = c.EmployeeID and year(OrderDate) = '1997' group by Region order by sum(quantity * (p.UnitPrice * 1-discount)) desc) select top 1 Country from Products p , [Order Details] od, Orders o, Employees c where p.ProductID = od.ProductID and od.OrderID = o.OrderID and o.EmployeeID = c.EmployeeID and year(OrderDate) = '1997' and Region = @region group by Country	select top 1 de.Region from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997' group by de.Region) select top 1 de.Country from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997' and de.Region = @region group by de.Country
	

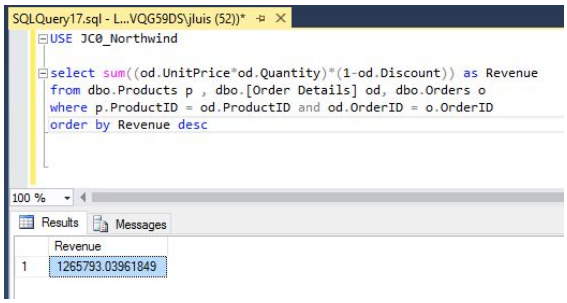
Q6 para pregunta Q5 cuál es la ciudad que más vendió en esa región o país.	
DB	DW
Declare @country varchar(60) SET @region = (select top 1 Region from dbo.Products p , dbo.[Order Details] od, dbo.Orders o, dbo.Employees e	declare @country varchar(30) set @region = (select top 1 de.Region from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997'

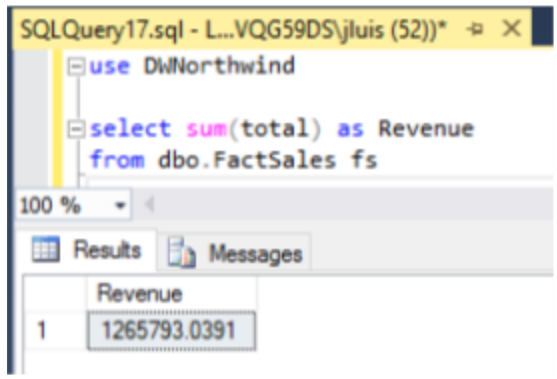
where p.ProductID = od.ProductID and od.OrderID = o.OrderID and o.EmployeeID = e.EmployeeID and year(OrderDate) = '1997' group by Region order by sum(quantity * (p.UnitPrice * 1-discount)) desc) SET @country = (select top 1 Country from Products p , [Order Details] od, Orders o, Employees e where p.ProductID = od.ProductID and od.OrderID = o.OrderID and o.EmployeeID = e.EmployeeID and year(OrderDate) = '1997' and Region = @region group by Country order by sum(quantity * (p.UnitPrice * 1-discount))) select top 1 city from Products p , [Order Details] od, Orders o, Employees e where Country = @country	group by de.Region) SET @country = (select top 1 Country from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997' and de.Region = @region group by de.Country) select top 1 de.City from DimEmployee de, FactSales fs where de.EmployeeID = fs.EmployeeID and YEAR(fs.OrderDate) = '1997' and de.Country = @country group by de.City
	

Q7 ¿Cuál es el total de ventas en 1997?	
DB	DW

select sum((od.UnitPrice*od.Quantity)*(1-od.Discount)) as Revenue from dbo.Products p , dbo.[Order Details] od, dbo.Orders o where p.ProductID = od.ProductID and od.OrderID = o.OrderID and year(OrderDate) = '1997' order by Revenue desc	select sum(total) as Revenue from dbo.FactSales fs where YEAR(OrderDate) = '1997'
	

Q8 ¿Cuál es el total de ventas en total (todos los años)?	
DB	DW
select sum((od.UnitPrice*od.Quantity)*(1-od.Discount)) as Revenue from dbo.Products p , dbo.[Order Details] od, dbo.Orders o where p.ProductID = od.ProductID and od.OrderID = o.OrderID order by Revenue desc	select sum(fs.Total) as Revenue from dbo.FactSales fs





4. Liga de video

https://www.youtube.com/watch?v=cRKTiYc07wU

5. Experiencia

Durante el desarrollo de este proyecto nos enfrentamos al uso de herramientas nuevas en las cuales nos vimos en la necesidad de investigar y aprender sobre estas. El desarrollo de la base de datos fue sencilla sin embargo nos encontramos con un nivel de dificultad mayor en los siguientes pasos del proyecto. La organización de las tareas del proyecto en el equipo fue parte clave durante esta etapa ya que se dividieron las tareas de manera que fuera más sencillo. Una de las herramientas nuevas que utilizamos fue “Tableau” la cual no teníamos conocimiento previo sobre cómo funcionaba, es ahí donde comenzó nuestro autoaprendizaje ya que tuvimos que educarnos en esta herramienta para poder llevar a cabo la tarea que nos estaban pidiendo. En general aprender herramientas de bases de datos puede ser algo complicado, pero contábamos con la ventaja de haber estados expuestos previamente a mySQL, por lo tanto ya contábamos con los fundamentos de bases de datos y esto hizo la transición de una herramienta a otra más fácil.