# MODELOS Y BASES DE DATOS

**Consultas SQL Básico 2020-1**

**Laboratorio 1/6**

## OBJETIVOS

Evaluar el logro de las competencias adquiridas para:

* Hacer ingeniería reversa de una base de datos relacional: modelo lógico y conceptual.
* Proponer consultas gerenciales y operativas para una organización
* Implementar consultas (simples o anidadas) en cálculo, algebra y SQL

## PARTE UNO. Conociendo la organización

1. **Ingeniería reversa** [En adventureWorks.astah]

## Revisando el contenido

[En lab01.doc adventureWorks.astah]

[Escriban la sentencia en SQL en lab01.doc y ejecuten la sentencia SQL en SQLZoo.net.Si no lograron escribir alguna sentencia indiquen el punto de problema]

* 1. ¿Qué tipos de productos ofrece? ¿Qué subtipos?
     + Tipos de productos:
       - SELECT Name

FROM ProductCategory

* + - Subtipos:
      * SELECT Name

FROM Product

* 1. ¿Cuántos productos ofrece? ¿En qué rango de precios?
     + SELECT COUNT(Name) AS TotalProducts,MIN(ListPrice) AS Min,MAX(ListPrice) AS Max

FROM Product

* 1. ¿Cuántos clientes tiene? ¿En qué ciudades?
     + Cuantos clientes tiene:
       - SELECT COUNT(CustomerID) AS TotalCustomer

FROM Customer

* + - En que ciudades:
      * SELECT DISTINCT(City)

FROM Address

* 1. ¿Cuál es el valor de sus ventas? ¿Entre que años?
     + Valor de sus ventas:
       - SELECT Commnt

FROM SalesOrderHeader

* + - Entre que años:
      * SELECT OrderDate

FROM SalesOrderHeader

* 1. Proponga una pregunta y respóndala
     + ¿A qué países están?
       - SELECT CountryRegion

FROM Address

* + - ¿Cuáles son sus códigos postales?
      * SELECT PostalCode

FROM Address

## Contexto

* 1. **Misión.** ¿Cuál creen que es la misión de la organización?[3](#_bookmark2)
     + Vender productos a clientes a diferentes países
  2. **Servicios.** ¿Qué ofrece a sus clientes?
     + Productos de distintas categorías

## Usuarios

1. ¿Cuáles son tres posibles usuarios de esta información? ¿Qué papel juegan en la organización? [En adventureWorks.astah] DESPACHADOR, COMPRADOR,

## PARTE DOS. Implementando.

-Easy Questions:

* + 1. Show the first name and the email address of customer with CompanyName 'Bike World'
       - SELECT FirstName,EmailAddress

FROM Customer

WHERE CompanyName = 'Bike World'

* + 1. Show the CompanyName for all customers with an address in City 'Dallas'
       - SELECT CompanyName

FROM Customer,CustomerAddress,Address

WHERE Customer.CustomerID = CustomerAddress.CustomerID AND CustomerAddress.AddressID = Address.AddressID AND Address.City = 'Dallas'

* + 1. How many items with ListPrice more than $1000 have been sold?
       - SELECT COUNT(Name) AS NumberOfItems

FROM Product,SalesOrderDetail

WHERE Product.ProductID = SalesOrderDetail.ProductID AND Product.ListPrice > 1000

* + 1. Give the CompanyName of those customers with orders over $100000. Include the subtotal plus tax plus freight.
       - SELECT CompanyName

FROM Customer,SalesOrderHeader

WHERE Customer.CustomerID = SalesOrderHeader.CustomerID AND(SubTotal+TaxAmt+Freight)>100000

* + 1. Find the number of left racing socks ('Racing Socks, L') ordered by CompanyName 'Riding Cycles'
       - SELECT OrderQty

FROM Product,SalesOrderDetail,SalesOrderHeader,Customer

WHERE Product.ProductID = SalesOrderDetail.ProductID AND SalesOrderDetail.SalesOrderID =SalesOrderHeader.SalesOrderID AND SalesOrderHeader.CustomerID = Customer.CustomerID AND

Product.Name IN ('Racing Socks, L') AND Customer.CompanyName = 'Riding Cycles'

-Medium Questions:

* + 1. A "Single Item Order" is a customer order where only one item is ordered. Show the SalesOrderID and the UnitPrice for every Single Item Order.
       - SELECT SalesOrderID,UnitPrice

FROM SalesOrderDetail

WHERE OrderQty = 1

* + 1. Where did the racing socks go? List the product name and the CompanyName for all Customers who ordered ProductModel 'Racing Socks'.
       - SELECT Product.Name,Customer.CompanyName

FROM Product,SalesOrderDetail,SalesOrderHeader,Customer,ProductModel

WHERE ProductModel.ProductModelID = Product.ProductModelID AND Product.ProductID = SalesOrderDetail.ProductID AND

SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID AND SalesOrderHeader.CustomerID = Customer.CustomerID AND

ProductModel.Name IN ('Racing Socks')

* + 1. Show the product description for culture 'fr' for product with ProductID 736.
       - SELECT ProductDescription.Description

FROM ProductDescription,ProductModelProductDescription,Product

WHERE ProductDescription.ProductDescriptionID = ProductModelProductDescription.ProductDescriptionID AND

ProductModelProductDescription.ProductModelID = Product.ProductModelID AND ProductModelProductDescription.Culture = 'fr' AND Product.ProductID = 736

* + 1. Use the SubTotal value in SalesOrderHeader to list orders from the largest to the smallest. For each order show the CompanyName and the SubTotal and the total weight of the order.
       - SELECT Customer.CompanyName, SalesOrderHeader.SubTotal,SUM(SalesOrderDetail.OrderQty \* Product.weight) AS Total

FROM Product,SalesOrderDetail,SalesOrderHeader,Customer

WHERE Product.ProductID = SalesOrderDetail.ProductID AND

SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID AND SalesOrderHeader.CustomerID = Customer.CustomerID

GROUP BY SalesOrderHeader.SubTotal

ORDER BY SalesOrderHeader.SubTotal DESC

* + 1. How many products in ProductCategory 'Cranksets' have been sold to an address in 'London'?
       - SELECT SUM(SalesOrderDetail.OrderQty) AS Cranksets

FROM Product, SalesOrderDetail,SalesOrderHeader,Address,ProductCategory

WHERE Product.ProductCategoryID =ProductCategory.ProductCategoryID AND

Product.ProductID = SalesOrderDetail.ProductID AND

SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID AND SalesOrderHeader.BillToAddressID = Address.AddressID AND

Address.City = 'London' AND ProductCategory.Name = 'Cranksets'

-Hard Questions

* + 1. For every customer with a 'Main Office' in Dallas show AddressLine1 of the 'Main Office' and AddressLine1 of the 'Shipping' address - if there is no shipping address leave it blank. Use one row per customer.
       - SELECT Customer.CompanyName, MAX(CASE WHEN AddressType = 'Main Office' THEN AddressLine1 ELSE '' END) AS 'Main Office',MAX(CASE WHEN AddressType = 'Shipping' THEN AddressLine1 ELSE '' END) AS 'Shipping'

FROM CustomerAddress,Address,Customer

WHERE Customer.CustomerID = CustomerAddress.CustomerID AND

CustomerAddress.AddressID = Address.AddressID AND Address.City = 'Dallas'

GROUP By Customer.CompanyName

* + 1. For each order show the SalesOrderID and SubTotal calculated three ways: A)From the SalesOrderHeader, B)Sum of OrderQty\*UnitPrice, C)Sum of OrderQty\*ListPrice
       - SELECT SalesOrderDetail.SalesOrderID, SalesOrderHeader.SubTotal, SUM(SalesOrderDetail.OrderQty\*SalesOrderDetail.UnitPrice) AS 'QTY\*UnitPrice', SUM(SalesOrderDetail.OrderQty\*Product.ListPrice) AS 'QTY\*listPrice'

FROM Product,SalesOrderDetail,SalesOrderHeader

WHERE Product.ProductID = SalesOrderDetail.ProductID AND

SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID

GROUP BY SalesOrderHeader.SalesOrderID

* + 1. Show the best selling item by value.
       - SELECT Product.Name, SUM(SalesOrderDetail.OrderQty\*SalesOrderDetail.UnitPrice) AS Total

FROM Product, SalesOrderDetail

WHERE Product.ProductId = SalesOrderDetail.ProductID

GROUP BY Product.Name

* + 1. Show how many orders are in the following ranges (in $):
    2. Identify the three most important cities. Show the break down of top level product category against city.

-Resit Questions

1. List the SalesOrderNumber for the customer 'Good Toys' 'Bike World'
   * SELECT SalesOrderDetail.SalesOrderID, Customer.CompanyName

FROM SalesOrderHeader, Customer

WHERE SalesOrderHeader.CustomerID = Customer.CustomerID AND

(Customer.CompanyName = 'Good Toys' OR Customer.CompanyName = 'Bike World')

1. List the ProductName and the quantity of what was ordered by 'Futuristic Bikes'
   * SELECT Product.Name, SalesOrderDetail.OrderQty AS 'Quantity'

FROM Product, SalesOrderDetail, SalesOrderHeader, Customer

WHERE Product.ProductID = SalesOrderDetail.ProductID AND

SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID AND

SalesOrderHeader.CustomerID = Customer.CustomerID AND

Customer.CompanyName = 'Futuristic Bikes'

1. List the name and addresses of companies containing the word 'Bike' (upper or lower case) and companies containing 'cycle' (upper or lower case). Ensure that the 'bike's are listed before the 'cycles's.
2. Show the total order value for each CountryRegion. List by value with the highest first.
   * SELECT Address.CountyRegion, SUM(SalesOrderDetail.OrderQty\*SalesOrderDetail.UnitPrice) AS 'Total Order'

FROM Address, SalesOrderHeader, SalesOrderDetail

WHERE Address.AddressID = SalesOrderHeader.BillToAddressID AND

SalesOrderHeader.SalesOrderID = SalesOrderDetail.SalesOrderID

GROUP BY Address.CountyRegion

1. Find the best customer in each region.
   * SELECT Address.CountyRegion, Customer.CompanyName,COUNT(Customer.CompanyName)
   * FROM Product,SalesOrderDetail,SalesOrderHeader,Customer,Address

WHERE Product.ProductID = SalesOrderDetail.ProductID AND SalesOrderDetail.SalesOrderID = SalesOrderHeader.SalesOrderID AND SalesOrderHeader.CustomerID=Customer.CustomerID AND Address.AddressID = SalesOrderHeader.BillToAddressID AND Address.AddressID = SalesOrderHeader.ShipToAddressID

GROUP BY Address.CountyRegion,Customer.CompanyName

HAVING COUNT (Customer.CompanyName)>1

ORDER BY COUNT (Customer.CompanyName) DESC

## PARTE TRES. Definiendo e implementando consultas gerenciales.

[En lab01.doc adventureWorks.astah]

1. Considerando la misión propuesta (si lo requieren redefínanla), definan e implementen la consulta más adecuada para que la organización conozca que tan bien está cumpliendo su misión. Justifíquenla como la mejor consulta[5](#_bookmark4).
   * SELECT ROUND(SUM(Commnt),0) AS 'Ventas Totales:', SUM(OrderQty) AS 'Total Productos Vendidos'

FROM SalesOrderHeader, SalesOrderDetail

1. Proponga una pregunta, orientada a validar el logro en el cumplimiento de la misión, que no se pueda contestar actualmente. ¿Qué cambios se deberían incluir en el modelo para poder responderla?[6](#_bookmark5)
   * Las Ventas fueron superiores a 60000000
2. Considerando los tres usuarios detectados anteriormente, defina e implemente una consulta que le den información útil para cumplir con sus responsabilidades o satisfacer una necesidad. [7](#_bookmark6).
   * Despachador:
     + SELECT Address.AddressLine1, Address.City, SalesOrderDetail.OrderQty

FROM SalesOrderHeader, Address, SalesOrderDetail

WHERE SalesOrderHeader. BillToAddressID = Address.AddressID AND SalesOrderHeader.SalesOrderID = SalesOrderDetail.SalesOrderID

GROUP BY AddressLine1

* + Comprador:” Donde 609 corresponderia al ID del comprador”
    - SELECT SalesOrderDetail.SalesOrderID, Customer.CustomerID, Customer.CompanyName, Commnt AS 'Total'

FROM SalesOrderDetail, Customer, SalesOrderHeader

WHERE SalesOrderHeader.SalesOrderID = SalesOrderDetail.SalesOrderID AND SalesOrderHeader.CustomerID = Customer.CustomerID AND Customer.CustomerID = 609

GROUP BY SalesOrderDetail.SalesOrderID

* + GerenteInventario:
    - SELECT Product.ProductID, Address.AddressLine1

FROM Product, SalesOrderHeader, SalesOrderDetail, Address

WHERE Product.ProductID = SalesOrderDetail.ProductID AND SalesOrderHeader.SalesOrderID = SalesOrderDetail.SalesOrderID AND SalesOrderHeader.BillToAddressID = Address.AddressLine1

GROUP BY SalesOrderDetail.SalesOrderID

## RETROSPECTIVA

1. ¿Cuál fue el tiempo total invertido en el laboratorio por cada uno de ustedes? (Horas/Hombre)
   * (12H/12H)
2. ¿Cuál es el estado actual del laboratorio? ¿Por qué?
   * Parcialmente Completo, Porque se logro realizar cada uno de los apartados propuestos a excepción de un par de consultas
3. ¿Cuál consideran fue el mayor logro? ¿Por qué?
   * Terminar la mayoría de las consultas, debido a que se logro entender nuevos conceptos necesarios para realizarlas
4. ¿Cuál consideran que fue el mayor problema técnico? ¿Qué hicieron para resolverlo?
   * No existió ningún problema
5. ¿Qué hicieron bien como equipo? ¿Qué se comprometen a hacer para mejorar los resultados?
   * Trabajar en conjunto para lograr la culminación exitosa del laboratorio