1. **What are the sales, product costs, profit, number of orders & quantity ordered for internet sales by product category and ranked by sales?**

SELECT pc.Name,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

RANK() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

FROM Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID

AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON ps.ProductSubcategoryID = p.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID = ps.ProductCategoryID

WHERE sh.OnlineOrderFlag=1

GROUP BY pc.Name;

1. **What are the sales, product costs, profit, number of orders & quantity ordered for reseller sales by product category and ranked by sales?**

SELECT pc.Name,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

RANK() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON ps.ProductSubcategoryID = p.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID = ps.ProductCategoryID

WHERE sh.OnlineOrderFlag='0'

GROUP BY pc.Name;

1. **What are the sales, product costs, profit, number of orders & quantity ordered for both internet & reseller sales by product category and ranked by sales?**

SELECT pc.Name,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

RANK() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON ps.ProductSubcategoryID = p.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID = ps.ProductCategoryID

WHERE sh.OnlineOrderFlag IN (0,1)

GROUP BY pc.Name;

1. **What are the sales, product costs, profit, number of orders & quantity ordered for product category Accessories broken-down by Product Hierarchy (Category, Subcategory, Model & Product) for both internet & reseller sales?**

SELECT pc.Name, ps.Name,pm.Name, p.Name,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

ROW\_NUMBER() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON ps.ProductSubcategoryID = p.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID = ps.ProductCategoryID

INNER JOIN Production.ProductModel pm ON pm.ProductModelId = p.ProductModelId

WHERE sh.OnlineOrderFlag IN (0,1) AND pc.Name='Accessories'

GROUP BY pc.Name, ps.Name,pm.Name, p.Name;

1. **What are the sales, product costs, profit, number of orders & quantity ordered for both internet & reseller sales by country and ranked by sales?**

SELECT cr.Name,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

RANK() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON ps.ProductSubcategoryID = p.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID = ps.ProductCategoryID

INNER JOIN Sales.SalesTerritory t ON t.TerritoryID=sh.TerritoryID

INNER JOIN Person.CountryRegion cr ON t.CountryRegionCode=cr.CountryRegionCode

WHERE sh.OnlineOrderFlag IN (0,1)

GROUP BY cr.Name;

1. **What are the sales, product costs, profit, number of orders & quantity ordered for France by city and ranked by sales for both internet & reseller sales?**

SELECT a.City,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered',

ROW\_NUMBER() OVER(ORDER BY SUM(sod.OrderQty\*sod.UnitPrice) DESC) AS 'Rank by sales'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader sh ON sh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Sales.SalesTerritory t ON t.TerritoryID=sh.TerritoryID

INNER JOIN Person.CountryRegion cr ON t.CountryRegionCode=cr.CountryRegionCode

INNER JOIN Person.StateProvince state ON state.CountryRegionCode=cr.CountryRegionCode

INNER JOIN Person.Address a ON a.StateProvinceID= state.StateProvinceID

WHERE sh.OnlineOrderFlag IN (0,1) AND cr.Name='France'

GROUP BY a.City;

1. **What are the top ten resellers by reseller hierarchy (business type, reseller name) ranked by sales?**

SELECT top 10 vdemo.BusinessType,

vdemo.Name,

CONCAT('$',SUM(sod.UnitPrice\*sod.OrderQty)) AS 'Sales',

ROW\_NUMBER() OVER(ORDER BY CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) DESC) AS 'Rank'

FROM Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader soh ON soh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.Customer c ON c.CustomerId=soh.CustomerId

INNER JOIN Sales.Store s ON s.BusinessEntityID=c.StoreID

INNER JOIN Sales.vStoreWithDemographics vdemo ON vdemo.BusinessEntityID=s.BusinessEntityID

WHERE soh.OnlineOrderFlag=0

AND vdemo.Name=s.Name

GROUP BY vdemo.BusinessType,

vdemo.Name;

1. **What are the top ten (internet) customers ranked by sales?**

SELECT top 10 vdemo.LastName,

vdemo.FirstName,

CONCAT('$',SUM(sod.UnitPrice\*sod.OrderQty)) AS 'Sales',

ROW\_NUMBER() OVER(ORDER BY CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) DESC) AS 'Rank by sales'

FROM Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader soh ON soh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.Customer c ON c.CustomerId=soh.CustomerId

INNER JOIN Sales.vIndividualCustomer vdemo ON vdemo.BusinessEntityID=c.CustomerId

WHERE soh.OnlineOrderFlag=1

GROUP BY vdemo.FirstName,

vdemo.LastName;

1. **What are the sales, product costs, profit, number of orders & quantity ordered by Customer Occupation?**

SELECT vdemo.Occupation,

CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

CONCAT('$',SUM(p.StandardCost)) ProductCosts,

CONCAT('$',(SUM(sod.OrderQty\*sod.UnitPrice)-SUM(p.StandardCost))) AS 'Profit',

COUNT(sod.SalesOrderID) AS 'Number of Orders',

SUM(sod.OrderQty) AS 'Quantity ordered'

from Sales.SalesOrderDetail sod

INNER JOIN Sales.SalesOrderHeader soh ON soh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON pp.ProductID = sp.ProductID

INNER JOIN Production.Product p ON p.ProductID = sod.ProductID

INNER JOIN Sales.Customer c ON c.CustomerId=soh.CustomerId

INNER JOIN Sales.SalesPerson s ON s.TerritoryID=soh.TerritoryID

INNER JOIN Person.Person per ON per.BusinessEntityID=c.PersonID

INNER JOIN Sales.vPersonDemographics vdemo ON vdemo.BusinessEntityID=per.BusinessEntityID

WHERE vdemo.Occupation IS NOT NULL

GROUP BY vdemo.Occupation;

1. **What are the ranked sales of the sales people (employees)?**

SELECT vdemo.FirstName AS FirstName,

vdemo.LastName AS LastName,

concat('$',sum(sp.SalesYTD)) AS TotalSales,

ROW\_NUMBER() OVER (ORDER BY concat('$',sum(sp.SalesYTD)) DESC) AS Rank\_by\_Sales

FROM Sales.SalesPerson sp

INNER JOIN sales.vSalesPerson vdemo ON vdemo.BusinessEntityID=sp.BusinessEntityID

GROUP BY vdemo.FirstName,

vdemo.LastName;

1. **What are the sales, discount amounts (promotion discounts), profit and promotion % of sales for Reseller Sales by Promotion Hierarchy (Category, Type & Name) – sorted descending by sales.?**

SELECT prodcat.ProductCategoryID as Category,

prodcat.Name as ProductCategoryName,

concat('$',sum(sod.OrderQty\*sod.UnitPrice))as Sales,

concat('$',(sum(sod.OrderQty\*sod.UnitPrice)-SUM(prod.StandardCost))) as Profit,

concat('$',sum(specialop.DiscountPct\*100)) as DiscountAmount,

sum(specialop.DiscountPct%((sod.OrderQty\*sod.UnitPrice))) as promotionPercentSales,

ROW\_NUMBER() OVER(ORDER BY (sum(sod.OrderQty\*sod.UnitPrice)) DESC) as RankBySales

FROM Sales.SalesOrderDetail sod

JOIN Sales.SalesOrderHeader soh ON sod.SalesOrderID=soh.SalesOrderID

JOIN Sales.SpecialOfferProduct sop ON sop.ProductID=sod.ProductID AND sop.ProductID=sod.ProductID

JOIN Sales.SpecialOffer specialop ON specialop.SpecialOfferID=sop.SpecialOfferID

JOIN Production.ProductProductPhoto as ppp ON ppp.ProductID=sop.ProductID

JOIN Production.Product as prod ON prod.ProductID = sop.ProductID

JOIN Production.ProductSubcategory AS prodsub ON prodsub.ProductSubcategoryID=prod.ProductSubcategoryID

JOIN Production.ProductCategory as prodcat ON prodcat.ProductCategoryID=prodsub.ProductCategoryID

WHERE soh.OnlineOrderFlag='0'

GROUP BY prodcat.Name,prodcat.ProductCategoryID;

1. **What are the sales, product costs, profit, number of orders & quantity ordered by Sales Territory Hierarchy (Group, Country, region) and ranked by sales for both internet & reseller sales?**

Select [Sales].[SalesTerritory].Name as TerritoryName,

[Sales].[SalesTerritory].[Group] as TerritoryGroup,

[Person].[CountryRegion].Name as CountryRegion,

CONCAT('$',SUM(LineTotal)) as Sales,

CONCAT('$',SUM([StandardCost])) as ProductCosts ,

CONCAT('$',SUM(LineTotal - StandardCost)) as Profit,

COUNT(Sales.SalesOrderDetail.SalesOrderID) as 'Number of Orders',

SUM(OrderQty) as OrderedQuantity

from [Sales].[SalesOrderDetail]

join Sales.SalesOrderHeader on Sales.SalesOrderHeader.SalesOrderID = Sales.SalesOrderDetail.SalesOrderID

join [Production].[Product] on [Production].[Product].[ProductID] = [Sales].[SalesOrderDetail].ProductID

join [Sales].[SalesTerritory]on [Sales].[SalesOrderHeader].TerritoryID = [Sales].[SalesTerritory].TerritoryID

join [Person].[CountryRegion] on [Sales].[SalesTerritory].CountryRegionCode = [Person].[CountryRegion].CountryRegionCode

group by [Sales].[SalesTerritory].Name,

[Sales].[SalesTerritory].[Group],

[Person].[CountryRegion].Name

order by SUM(LineTotal)desc ;

1. **What are the sales by year by sales channels (internet, reseller & total)?**

SELECT CONCAT('$',SUM(sod.OrderQty\*sod.UnitPrice)) Sales,

YEAR(soh.OrderDate) AS 'Year',

CASE

WHEN soh.OnlineOrderFlag=0 THEN 'Reseller Sales'

ELSE 'Internet Sales'

END AS 'Channel'

FROM sales.SalesOrderHeader soh

INNER JOIN Sales.SalesOrderDetail sod ON soh.SalesOrderID=sod.SalesOrderID

INNER JOIN Sales.SpecialOfferProduct sp ON sp.SpecialOfferID = sod.SpecialOfferID AND sp.ProductID=sod.ProductID

INNER JOIN Production.ProductProductPhoto pp ON PP.ProductID = sod.ProductID

INNER JOIN Production.Product p ON p.ProductID = pp.ProductID

INNER JOIN Production.ProductSubcategory ps ON p.ProductSubcategoryID=ps.ProductSubcategoryID

INNER JOIN Production.ProductCategory pc ON pc.ProductCategoryID=ps.ProductCategoryID

GROUP BY YEAR(soh.OrderDate), soh.OnlineOrderFlag

ORDER BY YEAR(soh.OrderDate), soh.OnlineOrderFlag;

1. **What are total sales by month (& year)**

select datename(month,sales.SalesOrderHeader.OrderDate) as Month,

year(sales.SalesOrderHeader.OrderDate) as Year,sum(TotalDue) as Total\_Sales

from Sales.SalesOrderHeader

inner join Sales.SalesOrderDetail on Sales.SalesOrderHeader.SalesOrderID=sales.SalesOrderDetail.SalesOrderID

group by year(sales.SalesOrderHeader.OrderDate),datename(month,sales.SalesOrderHeader.OrderDate)

order by year(sales.SalesOrderHeader.OrderDate), datename(month,sales.SalesOrderHeader.OrderDate);

1. **Please explain (briefly) the differences between SQL queries used to answer the same questions between AdventureWorksDW2017 & AdventureWorks2017**
2. AdventureWorks database consist of normalized records whereas AdventureWorksDW database follows dimensional model methodology
3. AdventureWorks2017 has a process- specific and application-specific design where as AdventureWorksDW2017 has a data-driven and subject area–driven design.
4. AdventureWorksDW is easy to understand and facts and dimensions are separately stored which is not followed in AdventureWorks database
5. AdventureWorksDW SQL queries requires less number of join to extract result set whereas AdventureWorks comparatively needs joining of more tables
6. AdventureWorks2017 has more entity and relationships than that of AdventureWorksDW2017
7. AdventureWorksDW is used for BI reporting and analysis where as AdventureWorks is and operational model