Modularizing Data Retrieval Logic and Creating a Star Schema

Lab Exercises

Summary

Key West Cars would like you to create some database objects in CarDealer in order to make it easier and more efficient to retrieve data for analysis. In addition, they've asked you to create a star schema including a date table.

The star schema should include the following tables and columns:

1. **vCustomers**: implemented as a view with the following columns:
    a. CustomerID
    b. FirstName
    c. LastName
    d. MiddleInitial
    e. City
    f. State
    g. Zip
    h. Email
    i. MaritalStatus
    j. Gender
    k. IncomeBracket
    l. RuralUrban
2. **vCars**: Implemented as a view with the following columns:
    a. CarID
    b. Make
    c. Model
    d. Year
    e. Color
3. **vDates**: Implemented as a view with the following columns:
    a. SalesDate
    b. Year
    c. Month
    d. DayofWeek (from DayOfWeekUSA or DayOfWeekUK)
    e. DayofMonth
    f. MonthName
    g. DayofYear
    h. DayName
4. **vSales**: Implemented as a view with the following columns:
    a. SaleID
    b. CarID

c. CustomerID
d. SalesDate
e. SalesAmount
f. DealerPrice
g. GrossProfit

Exercise 1: Create a stored procedure

Create a stored procedure named ***dbo.uspGetSalesForCustomer*** that takes the last name of a customer as an input and returns a list of all cars purchase by all customers with that last name, including the customer's full name, CarID, make, model, year, sales amount, and sales date of the sale.

Exercise 2: Create an inline, table-valued function

Create an inline table-valued function that takes make, model, and year as input parameters and returns a list of sales including customer full name, the Car ID of the car sold, the sales date, and the sales amount of the sale.

Exercise 3: Create a date table

Create a date table named dbo.Dates in the CarDealer database. It should cover 25 years from 2000 to 2025, with the columns listed in the above summary. Use CreateTimeDimensionTable.sql. This will create a table with more columns than are required for the exercise.

Exercise 4: Create a star schema using views

Create the vSales, vCars, vDates and vCustomers views in the CarDealer database to implement a star schema as specified in the summary above.

Exercise 5: Create data sets from your star schema

1. Using your star schema, create a data set with the following columns:
    a. Revenue (defined as the sum of the SalesAmount column)
    b. MonthName: grouping factor
    c. Make: grouping factor
    d. Model: grouping factor
    e. Year: grouping factor

2. Using your star schema, write a query that returns the top 10 City,State,IncomeBracket,RuralUrban groups on Total Gross Profit (defined as the sum of the GrossProfit column).

    In other words, your query should have the following columns:
    a. [Total Gross Profit]: defined as the sum of the GrossProfit column
    b. NameOfMonth: grouping factor
    c. City: grouping factor

d. State: grouping factor
e. IncomeBracket: grouping factor
f. RuralUrban: grouping factor

Sort the results by [Total Gross Profit] in descending order, and return the top 10.