



SQL - Case Study

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Problem Statement:

You are a database administrator. You want to use the data to answer a few questions about your customers, especially about the sales and profit coming from different states, Money spent in marketing and various other factors such as COGS, Budget profit etc. You plan on using these insights to help him decide whether which items is being sold most. Additionally, he needs help to generate some basic datasets so his team can easily inspect the data without needing to use SQL. You have provided the sample of his overall customer data due to privacy issues - but you hope that these samples are enough for you to write fully functioning SQL queries to help him answer his questions.

Dataset :

The 3 key datasets for this case study:

- **FactTable**

The FactTable has 13 columns mentioned below and 4200 rows.

Profit, Margin, Sales, COGS, Total Expenses, Marketing, Inventory, Budget, Profit, Budget COGS, Budget Margin, Budget Sales, Area Code, and ProductID

Note - COGS stands for Cost of Goods Sold

- **ProductTable**

The ProductTable has four columns named Product Type, Product, ProductId, and Type. It has 13 rows, which can be broken down into further details to retrieve the information mentioned in the FactTable.

- **LocationTable**

Finally, the LocationTable has 156 rows and follows a similar approach to ProductTable and has four columns named Area Code, State, Market, and Market Size.

- 1) How many states are there where products have been sold ?
- 2) How many products are of regular type ?
- 3) How much spending has been done on marketing of product id 1
- 4) What is the minimum sales of a product ?
- 5) Display max Cost of Good Sold(COGS).
- 6) Display the Details of the productid where product type is coffee
- 7) Display the details where total_expenses is greater than 40.
- 8) What is the average sales in Area_Code 719 ?
- 9) Find out the total profit generated by Colorado state.
- 10) Display the average inventory for each product id.
- 11) Display state in a sequential order in a location table.
- 12) Display the average budget margin of the store where average budget margin should be greater than 100.
- 13) What is the total sales done on date 2010-01-01
- 14) Display the average total expense of each product id on individual date
- 15) Display the table with the following attributes such as
Date, productid, product_type, product, Sales, profit, state, area_code
- 16) Display the rank without any gap to show the Sales wise rank.
- 17) Find the State wise Profit and Sales.
- 18) Find the State wise Profit and Sales along with the Product Name.
- 19) If there is an increase in sales of 5%. Calculate the increased sales.
- 20) Find the maximum profit along with the Product id and Product Type.
- 21) Create a Stored Procedure to fetch the result according to the product type from Product.
- 22) Write a query by creating a condition in which if the total expenses is less than 60 then it is a profit or else loss.
- 23) Give the total weekly sales value with the Date and productid details. Use roll-up to pull the data in hierarchical order.
- 24) Apply union and intersection operator on the tables which consist of attribute area code.
- 25) Create a user-defined function for the product table to fetch a particular product type based upon the user's preference.
- 26) Change the product type from coffee to tea where product id is 1 and undo it.
- 27) Display the Date, productid and sales where total expenses are between 100 to 200.
- 28) Delete the records in the product table for regular type.
- 29) Display the ASCII value of the fifth character from the column product.