# SQL Case Study - 1

## 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 (Cost of Goods Sold), budget profit etc. You plan on using these insights to help find out which items are being sold the most. You have been provided with the sample of the 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 answer the questions.

## Dataset:

The 3 key datasets for this case study:

a. **FactTable:** The Fact Table has 14 columns mentioned below and 4200 rows. Date, ProductID, Profit, Sales, Margin, COGS, Total Expenses, Marketing, Inventory, Budget Profit, Budget COGS, Budget Margin, Budget Sales, and Area Code
Note: COGS stands for Cost of Goods Sold

COGS = Beche gaye maal ko banane/khareedne ka cost

b. **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.

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

## Tasks to be performed:

1. Display the number of states present in the LocationTable.
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 the max Cost of Good Sold (COGS).
6. Display the details of the product where product type is coffee.
7. Display the details where total expenses are 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 of the Product where the 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 an individual date.

15. Display the table with the following attributes such as date, product ID, 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 Table.

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 product ID 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, product ID 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.