



Synergizing Success: Improving Operational Efficiency and Employee Engagement

Problem Statement:

Enhancing Operational Efficiency and Growth Strategies in a Multi-Departmental Business

Context:

- Business operations involve a complex interaction between departments, products, suppliers, and employees, where each element contributes to overall performance. Challenges such as managing inventory levels, optimizing employee performance, maintaining customer satisfaction, and navigating supply chain dependencies require constant data analysis for informed decision-making. Effective alignment between leadership, employees, and market trends is also crucial for future planning and sustainable growth.

Problem:

- The company is experiencing several operational inefficiencies:
- Employee Performance & Retention Challenges: Inconsistent employee performance and high turnover rates negatively impact productivity. The company needs to evaluate whether training programs, salary, and tenure influence employee retention and performance.
- Product Sales & Customer Satisfaction Issues: Some products have low customer feedback scores despite high sales, indicating potential quality or support issues. Additionally, low sales for certain products may suggest gaps in marketing strategies or misalignment with market demands.
- Supply Chain & Inventory Management Issues: Supply chain risks are posed by low inventory levels approaching reorder points, potentially leading to missed sales opportunities if not addressed promptly.

- **Technology Usage & Future Planning Concerns:** The company is underutilizing technology in several departments, leading to inefficiencies. Weak market research and unclear company direction could affect long-term growth and competitiveness.

DataSet :

- https://drive.google.com/file/d/1LcbxWSQrTjYbEyJuFqLf487_fYZR9Osm/view?usp=sharing

Analysis Questions:

- **Employee Performance:**
 - Which department had the highest average profit margin among its products?
 - Which employee in the IT department had the highest performance score, and what was their role?
- **Product Sales & Customer Satisfaction:**
 - Identify the product with the highest revenue generated in the HR department.
 - What is the average customer feedback score for products in the Accessories category, and which product received the highest score?
- **Supply Chain & Inventory Management:**
 - Which supplier had the highest total inventory level across all departments?
 - Which product in the Gadgets category had the lowest inventory level?
- **Employee Training & Sales:**
 - How many employees in the Sales department have completed training programs, and what percentage does this represent of the total employees in that department?

Product Sales Contribution:

- What is the total number of units sold for all products in the Marketing department, and which product contributed the most to this total?

Advanced SQL Questions

- Write a query to rank employees in each department by their revenue generated using a window function.
- Create a CTE to find the average salary of employees in each department and then select departments where the average salary is above \$70,000.
- Create a view that shows only the product name, revenue, and profit margin for products in the Accessories category.
- Write a query to create a non-clustered index on the employee_name column to improve query performance.
- Create a stored procedure that accepts a department name as a parameter and returns the total revenue generated by that department.
- Write a trigger that logs changes to the revenue column in a separate table whenever an update occurs.
- Create a scalar UDF that calculates the profit from a given product's revenue and profit margin.
- Provide a query to create a clustered index on the company_id column.