Domain: HR

Goal: To analyse the data using SQL and Power BI.

Topics in SQL: SQL queries, Functions, Procedures, Triggers

Analyse the data using SQL queries:

1. Write a SQL query to find the average, minimum, and maximum **total working years** for employees who have 'High' **environment satisfaction** but have not received any **promotions** ('Years Since Last Promotion' is 0) in their current role.

2. Identify any patterns in performance ratings for employees who have 'Over Time' enabled and 'Job Involvement' level greater than 3.

3 Calculate the attrition rate of employees in the company. The attrition rate is defined as the percentage of employees who have left the company (Attrition = 'Yes') compared to the total number of employees. Round the attrition rate to two decimal places.

4. Determine the probability of an employee receiving a promotion. The promotion probability is defined as the percentage of employees who have received at least one promotion ('Years Since Last Promotion' > 0) compared to the total number of employees. Round the probability to two decimal places.

5. Find the top 5 employees who received the maximum salary hike ('Percent Salary Hike') during their last performance review. Display the employee's name and the corresponding salary hike in descending order.

Functions and Procedures:

1. Create an SQL function that calculates the total working experience of an employee based on their 'Years At Company' and 'Years In Current Role' columns.

2. Write an SQL procedure to update the 'Job Level' of an employee by one level when they receive a performance rating of 5.

3. Design an SQL function that returns the number of employees in a given department with a specific level of job involvement.

4. Create an SQL procedure that generates a unique employee number for new hires and inserts the new employee record into the database.

5. Write an SQL function that calculates the average monthly income for employees in a specified age band and department.

Triggers:

1. Create an SQL trigger that automatically updates the 'Num Companies Worked' column for employees whenever their job satisfaction level is updated, and the new satisfaction level is higher than the previous level. The 'employees' table contains the following relevant columns:

   emp_no (INT, PRIMARY KEY): Employee Number
   job_satisfaction (INT): Employee's job satisfaction level
   num_companies_worked (INT): Number of companies the employee has worked for

Write the SQL code to create the trigger and ensure it increments the 'Num Companies Worked' column by one whenever an employee's job satisfaction level increases during an update.

2. Create a trigger that updates the 'Environment Satisfaction' to 'High' for all employees in the 'Sales' department when their 'Monthly Income' exceeds a certain threshold. (Change the threshold with any_value you desired)

Visualization Queries

Create a Dashboard and make a visual report out of the below queries.

Question 1: Attrition Analysis by Department

Visualize the attrition rate for each department in a column chart. Use colours to distinguish between 'Yes' and 'No' attrition. Add a tooltip to display the exact attrition percentage for each department.

Question 2: Monthly Income Distribution

Create a visual to show the distribution of monthly income among employees. Group the income values into bins and display the frequency of employees in each income range. Add data labels to the bars to show the number of employees in each bin.

Question 3: Age vs. Total Working Years

Visualize the relationship between employee age and total working years. Use a trendline to identify any correlation between these two variables.

Question 4: Employee Tenure by Age Band and Job Role

Visualize the distribution of employee tenure (sum of 'Years At Company' and 'Years In Current Role') across different age bands. Group the bars by job role within each age band. Use a slicer to allow users to select a specific department and highlight the tenure of employees in that department.

Question 5: Performance Rating and Environment Satisfaction

Analyze the relationship between performance rating and environmental satisfaction. Use performance rating as the x-axis and environment satisfaction as the y-axis. Color the cells based on the count of employees falling into each combination of rating and satisfaction level. Add a conditional formatting rule to highlight cells with the highest count.

Question 6: Employee Age Group Analysis

Requirement: Create a parameter to allow users to select an age group range (e.g., 20-29, 30-39, etc.) and analyse the attrition rate within that age group.

Scenario 7: Employee Performance Rating Trend

Requirement: Analyse the trend of average performance ratings over time.

Question 6: use any Analysis based on your Analytical skills and visualize it in the Dashboard along with the above queries.