Employee Database Management Analysis and Findings

Tools Used: MySQL, Tableau

1. Departments Overview
This query counts the number of distinct departments in the company. It helps establish how many unique departments the organization operates, providing insight into its structure and diversity.

Finding: The company has several distinct departments, each responsible for different functions. Understanding the total number of departments can assist in resource allocation and decision-making processes.

2. Total Salary Expenditure Since 1997
The query calculates the total salary expenditure for all contracts starting after January 1, 1997.

Finding: This is essential for understanding how much the company has spent on employee compensation since that time, which could be useful for budgeting, auditing, and salary distribution planning.

3. Employee Number Range
This query returns the lowest and highest employee numbers, which gives the range of employee IDs.

Finding: This query helps to identify the range of employee numbers and provides an idea of how many employees have been hired. It also assists in determining employee seniority based on hire date.

4. Average Annual Salary for Employees Starting Post-1997
The query calculates the average salary for employees hired after January 1, 1997.

Finding: This helps understand the typical salary offered to employees who joined more recently, reflecting the company's recent compensation trends and the competitiveness of its salary offers in the last few decades.

5. Managers Information
This query lists the employee numbers, names, department details, and hire dates of all managers.

Finding: It highlights the distribution of managers across departments, providing a way to examine leadership structure and manager-to-department ratios, essential for organizational analysis and management efficiency reviews.

6. Subset of Employees with Last Name 'Markovitch'
The query retrieves a list of employees with the last name 'Markovitch.'

Finding: This is useful for identifying individuals with a common surname and investigating their roles, departments, and hire dates. This information can help in personalized employee management or addressing issues like family dynamics within the company.

7. Detailed Information on 'Margareta Markovitch'
This query gathers information about employees with the first name “Margareta” and the last name “Markovitch.”

Finding: It provides detailed personal and employment-related information, which could be useful for HR purposes, including determining roles, salary, and performance reviews for specific employees.

8. Manager-Department 9 Combinations
This query generates all possible combinations of managers and department number 9.

Finding: It allows for potential assignment planning by showing which managers could fit in a particular department. This can be useful for cross-departmental assignments or project-based work.

9. First 10 Employees and Their Departments
This query lists the first 10 employees along with the departments they are assigned to.

Finding: It provides a snapshot of employees and the departments they are associated with. This is useful for understanding employee distribution in smaller teams or within departments.

10. All Managers Information
This query retrieves the details (name, hire date, job title, etc.) of all managers in the company.

Finding: This is crucial for auditing managerial roles and can be leveraged to ensure appropriate qualifications for leadership positions, as well as understanding the historical evolution of managers in the company.

11. Count of Male and Female Managers

This query compares the number of male and female managers.

Finding: This helps to understand gender distribution in managerial roles, providing valuable insights into gender diversity and equality within leadership positions.

12. Managers Hired Between 1990 and 1995
This query returns details of department managers who were hired within the time frame of 1990 to 1995.

Finding: It provides insight into long-serving managers and could be useful for loyalty and experience analysis, as well as for determining promotion and compensation structures.

13. Assistant Engineers Information
This query retrieves all employees with the job title "Assistant Engineer."

Finding: It provides information specific to a technical role within the organization, which is helpful for resource planning, technical team structuring, and career development initiatives for engineers.

14. View for Manager Average Salary
This query creates a view that extracts the average salary for all managers.

Finding: This helps the organization assess whether its compensation for management is competitive and fair relative to industry standards or company expectations.

15. View for Latest Employee Dates
This query creates a view that provides the latest start and end dates for employees.

Finding: This view is useful for tracking the most recent employment status of employees, helping with managing current workforce data, contract renewals, and employee activity.

16. Procedure for Average Salary
This stored procedure calculates the average salary of all employees.

Finding: Having this procedure simplifies checking the average salary over time. It is useful for compensation reviews and financial planning.

17. Procedure for Employee Salary Information
This procedure retrieves salary details based on employee numbers.

Finding: It allows for quick access to individual employee salary information, which is useful for HR during compensation reviews, issuing bonuses, or conducting performance reviews.

18. Procedure for Employee Number by Name
This procedure retrieves an employee number based on their first and last name.

Finding: It simplifies retrieving employee records based on common identity fields (names), which is particularly useful in large organizations where multiple employees may share common names.

19. Role of Employees Based on Employee Number

This query determines whether employees with an employee number greater than 109990 are managers or regular employees based on their presence in the dept_manager table.

Finding: The query helps identify the roles of newer employees (with higher employee numbers), which can be useful for organizational mapping and understanding the distribution of managerial positions among recent hires.

20. Salary Differences Among Department Managers

This query calculates the difference between the maximum and minimum salaries for each department manager and determines whether their salary increased by more than $30,000.

Finding: Identifying managers who received substantial raises can indicate recognition of performance, promotions, or adjustments to meet market rates.

21. Current Employment Status of Employees

The query checks the latest department assignment end date for employees to determine their current employment status.

Finding: This provides an up-to-date view of which employees are currently active in the company, aiding in workforce planning and HR management.

22. Index Creation on Salary Column

An index is created on the salary column for salaries greater than $89,000 to optimize query performance when retrieving high salaries.

Finding: Implementing this index benefits queries that focus on higher salary ranges, which is useful for analyses involving top earners.

23. Row Numbers for Department Managers' Salaries

This query retrieves each department manager's employee number and salary, assigning sequential row numbers overall and within each employee group ordered by salary.

Finding: It helps in understanding salary distributions and identifying trends or anomalies in managerial compensation.

24. Minimum Salary for Each Employee

This query finds the minimum salary each employee has received based on their salary history.

Finding: It allows the company to analyze salary progression and ensure that compensation is competitive and fair.

25. Second-Lowest Salary for Each Employee

This query retrieves the second-lowest salary for each employee.

Finding: It can highlight significant salary increases or identify periods of low compensation.

26. Salary Rankings for Employee Number 10560

This query ranks the different salary amounts for employee number 10560 in descending order.

Finding: It provides a clear picture of the employee's earnings progression and can be used for performance reviews.

27. Ranking Employees Based on Highest Salaries

Employees with numbers between 10500 and 10600 are ranked based on their highest salaries, showing each salary and their rank relative to other salaries they've received.

Finding: Useful for identifying top earners, salary disparities, or potential candidates for promotions.

28. Contracts Signed After Five Years of Employment

This query retrieves contracts signed by employees (IDs between 10500 and 10600) at least five years after their hire date and ranks their salaries.

Finding: It helps assess how salaries evolve for long-term employees and supports retention analysis.

29. Salary Evolution Over Time

The query examines how employees' salaries have changed over time, including previous and next salaries, for those earning over $80,000 with employee numbers between 10500 and 10600.

Finding: It identifies trends in salary increases or decreases, which can inform compensation policies.

30. Comparison of Current, Previous, and Future Salaries

This query expands on the previous one by also considering salaries before the previous and after the next salary levels.

Finding: Helps in detailed analysis of an employee's compensation history, potentially revealing patterns or irregularities.

31. Male Employees with Highest Salaries Below Company Average

The query calculates how many male employees have their highest recorded salary below the company's average salary.

Finding: Useful for assessing compensation fairness and addressing any discrepancies in pay equity.

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32: Breakdown of Male and Female Employees by Year (Starting from 1990)

- **Purpose**: This query generates a yearly count of male and female employees in the company, starting from 1990. It utilizes the dept_emp table to associate employees with their respective years of employment.
- **Findings**:
    - **Demographic Trends**: This visualization will allow for the analysis of trends in hiring practices and employee composition over the years. It is possible to observe whether there has been an increase in the hiring of female employees relative to male employees.
    - **Workforce Diversity**: Understanding the gender breakdown by year helps the organization assess its progress toward gender diversity goals. If there is a consistent increase in female employees, it may indicate successful diversity initiatives.
    - **Business Insights**: This data can be crucial for workforce planning and can inform strategies to improve gender diversity in future hiring.

33: Average Salary Comparison by Gender Until 2002

- **Purpose**: This query calculates the average salaries of male and female employees across different departments until the year 2002, providing insights into gender pay disparities.
- **Findings**:
    - **Salary Disparities**: Analyzing average salaries by gender can reveal whether there is a significant pay gap within departments. If male employees have consistently higher average salaries than female employees, it may indicate underlying issues in compensation practices.
    - **Department-Level Analysis**: This query allows for department-level insights, making it possible to identify specific areas where gender disparities may be more pronounced. Departments that show significant discrepancies may need further investigation.
    - **Strategic Planning**: Such insights are valuable for human resources in developing policies aimed at closing the gender pay gap and ensuring equitable compensation practices.

34: Average Salary by Gender Within a User-Defined Range

- **Purpose**: This query creates a stored procedure that calculates the average salary of male and female employees within a specified salary range defined by two input parameters. This allows for flexibility in analyzing salary data.
- **Findings**:
    - **Customized Analysis**: The ability to filter salaries within a range makes it easier to focus on specific salary bands, which is particularly useful for targeted analyses. Organizations can examine how different salary ranges affect gender averages.
    - **Compensation Strategies**: By assessing salaries within specific ranges, HR can identify areas needing adjustment or review to maintain competitiveness and fairness in compensation.
    - **User-Friendly Interface**: This stored procedure can be easily called from applications or reporting tools, facilitating regular reviews of salary data by management and HR teams