**📊 HR Data Analysis**

**In this project, we analyzed an HR dataset using Power BI to extract insights related to employee performance, satisfaction, attrition, and more. Below are the main steps followed:**

**Step 1: Importing the Data**

**- We began by loading the data from multiple sources, including:**

* **Excel sheets** (**performance, satisfaction, attrition**, **Employee**)
* **CSV files** (**from the dataset**)

**Each file was carefully checked and imported using Power BI's "Get Data".**

**Step 2: Identifying Fact and Dimension Tables**

**To build a proper data model, we identified the following:**

* **Fact Table**: **fPerformanceRating**
* **Dimension Tables**: **dEmployee, dRatingLevel, dEducationLevel, dSatisfiedLevel**

**Step 3: Data Transformation in Power Query**

**- Next, we cleaned and transformed the data using Power Query Editor:**

**General Cleaning:**

* **Removed unnecessary or empty columns from the fact table.**

**- Transformations in dEmployee:**

* **Changed the data types of columns like:**
  + **YearsAtCompany, YearsInMostRecentRole, YearsSinceLastPromotion, and YearsWithCurrManager → Converted to Text (to treat them as categorical or display labels).**
  + **Salary and DistanceFromHome (KM) → Changed to Fixed Decimal Number to maintain precision in financial and distance data.**

**- Transformations in fPerformanceRating:**

* **Adjusted column data types for consistency.**
* **Removed empty or redundant columns.**

**- Unpivoted columns** **related to satisfaction and training to convert them into a more analytical and relational structure, making it easier to work with in the** **Data Model view**.

**Step 4: Relationships Defined in the Model**

**1. dEmployee (Main Fact Table) Connects to fPerformanceRating via EmployeeID (One-to-Many)**

**- Connects to dEducationLevel via Education ID (Many-to-One)**

**- Connects to dSatisfiedLevel via SatisfactionLevel (Many-to-One)**

**2. fPerformanceRating**

**- Connects to dRatingLevel via rating field → RatingLevelID**

**- Connects to dSatisfiedLevel via Satisfaction field → SatisfactionID**

**- Connects to Calender via ReviewDate → Date**

**3. Calender**

**Used as a date table (connected to fPerformanceRating via ReviewDate)**

**Step 5: Building a Calendar Table**

**To support time-based analysis, we created a custom Calendar Table using DAX, which helps in:**

**• Analyzing trends over time (employee satisfaction by Data Hierarchy)**

**The calendar was linked to the ReviewDate in the fPerformanceRating table.**

**1) Attrition Risk Prediction (Dashboard 1)**

**1) What percentage of employees have left the company?**

**- Is attrition increasing or decreasing over time or across departments?**

**Attrition Rate (%) =**

**VAR TotalEmployees = COUNT(Employee[EmployeeID])**

**VAR EmployeesLeft = CALCULATE(COUNT(Employee[EmployeeID]), Employee[Attrition] = "Yes")**

**RETURN DIVIDE(EmployeesLeft, TotalEmployees) \* 100**

**- Why use it? Shows the percentage of employees who left a critical HR KPI.**

**2) How long do employees typically stay in the company?**

**- Do departments with higher attrition also have lower tenure?**

**Avg Years at Company = AVERAGE('dEmployee'[YearsAtCompany])**

**- Why use it? Gives insight into employee tenure longer tenure usually means stability.**

**3) Are employees who receive more training less likely to leave?**

**-Which departments are undertrained and have high attrition?**

**Training Intensity =**

**CALCULATE(**

**AVERAGE('fPerformanceRating'[Value of trainng oportunity]),**

**ALLEXCEPT('fPerformanceRating', 'fPerformanceRating'[EmployeeID])**

**)**

**- Why use it? Measures how much training an employee is getting which could relate to retention.**

**2) Time-Based HR Trends (Dashboard 2)**

**3) Performance vs. Training Effectiveness (Dashboard 3)**

**1) What is the average self-rating score given by employees?**

**AVERAGE('fPerformanceRating'[rating])**

**2) What is the impact of training opportunities on employee self-performance ratings?**

**Training Impact Score =**

**AVERAGE('fPerformanceRating'[Value of trainng oportunity]) \***

**AVERAGE('fPerformanceRating'[rating])**

**3) What is the average satisfaction rate reported by employees?**

**Average Satisfaction Rate = AVERAGE('fPerformanceRating'[satisfaction rate])**

**4) How many total training opportunities have employees taken?**

**Total Training Opportunities Taken = SUM('fPerformanceRating'[Value of trainng oportunity])**

**4) Salary Analysis (Dashboard 4)**

**- We analyzed the salary distribution in terms of education, years of experience, years of work in the company and departments.**

**Avg Salary = AVERAGE('Employee'[Salary])**

**Avg Years at company = AVERAGE('Employee'[yearsatcompany])**

**Gender Pay Gap =**

**Male : CALCULATE([Avg Salary], 'Employee'[Gender] = "Male") -**

**Female: CALCULATE([Avg Salary], 'Employee'[Gender] = "Female")**

**Salary per Year at Company = DIVIDE([Avg Salary], [Avg Years at company])**

**Down : Avg Salary of The education level**

**5) HR KPI (Dashboard 5)**

**1) Avg Salary : What is the average salary of employees ?**

**Avg Male Salary =**

**CALCULATE( [Avg Salary], FILTER( dEmployee, dEmployee[Gender] = "Male" ) )**

**Avg Female Salary =**

**CALCULATE( [Avg Salary], FILTER( dEmployee, dEmployee[Gender] = "Female" ) )**

**2) Total Training Hours Taken : What is the total training hours taken?**

**total Training Hours Taken = SUM( fPerformanceRating[Value of trainng oportunity] )**

**3) Total Employees : How many employees do we have ?**

**Total Employees = DISTINCTCOUNT( dEmployee[EmployeeID] )**

**4) Overtime Rate : How many staff work extra hours as a rate ?**

**Overtime Rate =**

**DIVIDE( COUNTROWS( FILTER( dEmployee, dEmployee[OverTime] = "Yes" ) ), DISTINCTCOUNT( dEmployee[EmployeeID] ), 0 )**

**Q&A**

**1)**