**IBM Employee Profile & Compensation Dashboard Documentation**

This document serves as the official reference sheet for the IBM Employee Profile & Compensation Dashboard, ensuring data consistency, logic transparency, and ease of use for all stakeholders.

**1. Data Model Notes**

**Dataset Used:** IBM HR Analytics Attrition dataset (1470 employees, 35 columns).

1. **Age** – Age of the employee in years (range ~18–60).
2. **Attrition** – Whether the employee left the company (Yes/No).
3. **BusinessTravel** – Frequency of work travel (Non-Travel / Travel Rarely / Travel Frequently).
4. **DailyRate** – Daily pay rate (numeric scale).
5. **Department** – Department of work (HR, Research & Development, Sales).
6. **DistanceFromHome** – Distance between home and office (in miles/units).
7. **Education** – Education level (1 = Below College, 2 = College, 3 = Bachelor, 4 = Master, 5 = Doctor).
8. **EducationField** – Field of study (HR, Life Sciences, Marketing, Medical, Technical Degree, Other).
9. **EmployeeCount** – Always 1 (constant, not useful).
10. **EmployeeNumber** – Unique employee ID (identifier, not predictive).
11. **EnvironmentSatisfaction** – Satisfaction with environment (1 = Low, 2 = Medium, 3 = High, 4 = Very High).
12. **Gender** – Gender of the employee (Male/Female).
13. **HourlyRate** – Hourly pay rate (numeric).
14. **JobInvolvement** – Level of job involvement (1 = Low, 2 = Medium, 3 = High, 4 = Very High).
15. **JobLevel** – Job level in company hierarchy (1–5).
16. **JobRole** – Role/position (e.g., Manager, Sales Executive, Research Scientist, etc.).
17. **JobSatisfaction** – Job satisfaction (1 = Low, 2 = Medium, 3 = High, 4 = Very High).
18. **MaritalStatus** – Marital status (Single, Married, Divorced).
19. **MonthlyIncome** – Monthly income of employee (numeric).
20. **MonthlyRate** – Internal monthly rate (numeric, different from MonthlyIncome).
21. **NumCompaniesWorked** – Number of companies worked at previously.
22. **Over18** – Indicates if over 18 (always “Y”, constant).
23. **OverTime** – Whether employee works overtime (Yes/No).
24. **PercentSalaryHike** – Percentage salary hike (range ~11–25).
25. **PerformanceRating** – Performance rating (1 = Low, 2 = Good, 3 = Excellent, 4 = Outstanding; in dataset usually 3 or 4).
26. **RelationshipSatisfaction** – Satisfaction with relationships at work (1 = Low, 2 = Medium, 3 = High, 4 = Very High).
27. **StandardHours** – Always 80 (constant, not useful).
28. **StockOptionLevel** – Stock option level (0–3).
29. **TotalWorkingYears** – Total years of professional experience.
30. **TrainingTimesLastYear** – Number of trainings attended in last year.
31. **WorkLifeBalance** – Work-life balance rating (1 = Bad, 2 = Good, 3 = Better, 4 = Best).
32. **YearsAtCompany** – Total years in current company.
33. **YearsInCurrentRole** – Years spent in current role.
34. **YearsSinceLastPromotion** – Years since last promotion.
35. **YearsWithCurrManager** – Years spent with current manager.

**Relationships:**

1. EmployeeNumber serves as a unique key but is not used for analysis.
2. Department ↔ JobRole: Each job role belongs to one department.
3. Education ↔ EducationField: Used to group employees by qualification background.
4. Gender, MaritalStatus, Attrition, OverTime act as categorical dimensions for slicing metrics.

**2. Calculated Columns / Measures and Descrip:**

1. **Average Age** = AVERAGE(Age) → Mean employee age across the selected group.
2. **Average Monthly Income** = AVERAGE(MonthlyIncome) → Average salary across department and role.
3. **Attrition Rate** = (Number of Attrition = "Yes") / Total Employees → Percentage of employees who have left the company.
4. **Employee Count by Category** = COUNTROWS() grouped by Department, Role, Gender, etc. → Total number of employees filtered by dimension (gender, department, role, marital status, education).
5. **Average Years at Company** = AVERAGE(YearsAtCompany) → Average tenure of employees at the current company.
6. **Average Total Working Years** = AVERAGE(TotalWorkingYears) → Average lifetime career experience.
7. **Custom** **aggregations:** Gender-wise splits, Education field totals, Company-wise experience.
8. **Distribution by Job Role** → Count of employees by role within each department.
9. **Distribution by Gender** → Proportion of male vs. female employees (pie chart).
10. **Companies Worked** → Past employment history distribution (histogram by count of companies).

**3. Version Control**

1. **Initial Version (v1.0):** Created dashboard with IBM dataset, visualizing age, gender, tenure, income, and job role distributions.
2. **Planned Change Logs:**
3. Add KPIs for Attrition Rate segmented by JobRole and Department.
4. Introduce trend charts for Age vs. Attrition.
5. Apply slicers for EducationField and WorkLifeBalance.
6. Document each new filter/KPI in a “Change Notes” section.
7. **Tracking:** Maintain a simple log table with fields → *Date, Version, Change Description, Owner.*

**4. User Guide**

* **Top Left (Average Age by Department & Role):** Heatmap showing mean age split by gender and job role.
* **Top Center (Gender in the Company):** Pie chart summarizing male/female distribution.
* **Top Right (Gender & Job Role):** Matrix showing role distribution across gender.
* **Center Left (Gender & Marital Status):** Treemap combining gender with marital status groups.
* **Center (KPIs):**
  + Average Age = 36.92 years
  + Avg. Years at Company = 7.0 years
  + Avg. Total Working Years = 11.28 years
  + Total Employees = 1470
* **Center Right (Companies Worked):** Line chart of number of employees vs. companies worked.
* **Bottom Left (Education Field):** Count of employees by education background.
* **Bottom Center (Monthly Income):** Average monthly income by department and role.
* **Bottom Right (Employees by Department & Role):** Horizontal bar chart with employee counts by role within each department.
* Use slicers (if added) to filter by Department, Gender, EducationField.
* Combine multiple views: e.g., “Attrition by Gender + Job Role” to explore hidden patterns.
* Hover over bars/heatmaps to see exact counts.