HR Employee Attrition & Workforce Analytics Dashboard (Power BI)

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GitLink -
https://github.com/ajokbyy/Hr_DashBoard_PowerBI

Video Demo Link -

https://drive.google.com/file/d/1U-iSUf-_hnuMOP32Cj550B6kJwyRQ8E9/view?usp=sharing

2. Dataset Used

- **Dataset Name:** HR Employee Attrition Dataset
- **Rows:** 588
- **Columns:** 35 (after cleaning 31)
- **Source:** Public HR Analytics Sample Dataset (IBM HR Attrition)

  Link -
  https://www.kaggle.com/datasets/pavansubhasht/ibm-hr-analytics-attrition-dataset

Contains:

- Personal attributes (Age, Gender, Education, JobRole, Department)
- Behavioral attributes (OverTime, JobSatisfaction, WorkLifeBalance)

- Employment factors (MonthlyIncome, YearsAtCompany, HireYear)
- Attrition indicator

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3. Tool Used

Microsoft Power BI Desktop And Excel

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4. Data Preparation (Cleaning + Transformation)

✔ Data Cleaning

- Removed unnecessary columns: `EmployeeCount`, `Over18`, `StandardHours`, `EmployeeNumber`.
- Verified and corrected data types:
    - Numeric: Age, MonthlyIncome, YearsAtCompany, TotalWorkingYears
    - Text: Department, Gender, JobRole, EducationField
- Checked for duplicates (none found).

✔ Data Transformation

Created the following calculated columns:

1. **Attrition Flag**

- Yes = 1
- No = 0

Age Group

```
18–25, 26–35, 36–45, 46+
```

2.

Income Band

```
Low (<4k), Medium (4k–8k), High (>8k)
```

3.

HireYear (approx.)

```
HireYear = 2025 – YearsAtCompany
```

4.

HireDate

```
HireDate = DATE(HireYear, 1, 1)
```

5.

✔ Data Model

A **single-table model** was used (simple and appropriate for this dataset).
No relationships required.

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5. Dashboard Design

✔ KPIs (Top Row)

Your dashboard includes the following metrics:

- **Total Employees:** 588
- **Employees Left:** 87
- **Attrition Rate:** 15%
- **Average Monthly Income:** ₹6.69K
- **Average Years at Company:** 7.23 years

✔ Filters / Slicers (Left Panel)

- Department
- Job Role
- Age Group
- OverTime

These slicers filter **all visuals** on the page.

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6. Visualizations (Center & Right Area)

(Write exactly what visuals you used)

✔ 1. Line Chart — Total Employees by Year

Shows hiring trend and workforce growth over time.

✔ 2. Bar Chart — Attrition Rate by Job Role

Highlights which job roles experience the highest attrition.

✔ 3. Donut Chart — Attrition by Gender

Shows male vs. female attrition distribution.

✔ 4. Stacked Column Chart — Attrition by Income Band

Shows attrition distribution across income categories.

✔ 5. Bar Chart — Attrition Count by Department

Shows department-level turnover.

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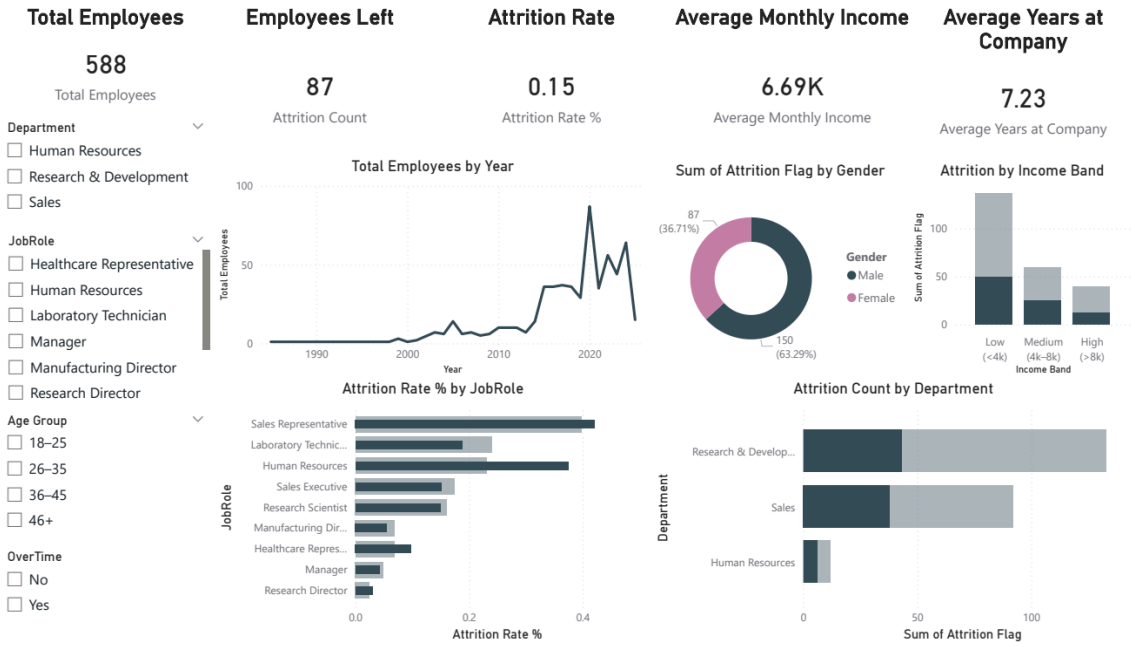
7. Screenshot of the Dashboard



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8. Insights & Summary

The overall attrition rate is 15%, with 87 employees leaving out of 588 total staff.

1. **Sales and Research & Development show the highest attrition**, indicating department-level retention issues.

2. **Job roles like Sales Representative, Laboratory Technician, and Human Resources show higher attrition percentages**, requiring role-specific retention strategies.

3. **Female employees have a slightly higher attrition share compared to male employees**, as shown in the donut chart.

4. **Employees in the low-income band (<4k) show significantly higher attrition**, suggesting salary dissatisfaction contributes to turnover.

5. **Attrition is highest among employees aged 26–35**, indicating mid-career employees are more likely to leave.

6. **OverTime = Yes employees contribute more to attrition**, showing workload imbalance impacts resignations.

7. **Line chart reveals workforce fluctuations over hiring years**, indicating hiring spikes and drop-offs.

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9. Challenges & Solutions

Challenge 1: No date column in raw data

Solution: Created a synthetic `HireDate` using YearsAtCompany to enable trend analysis.

Challenge 2: Choosing meaningful KPIs

Solution: Selected workforce health metrics — Total Employees, Employees Left, Attrition Rate, Monthly Income, and Average Tenure — to give clear business insight.

Challenge 3: Avoiding clutter

Solution: Used a single clean layout: KPIs on top → slicers on left → charts on center/right.

Challenge 4: Interactivity across visuals

Solution: Ensured slicers controlled all charts using Power BI's "Edit Interactions".