

## HR Analytics Project - SQL Insights

**Objective:** Analyze employee data to find attrition, salary, and performance insights.

**Dataset:** 1,470 employees

### 1. Attrition by Department

```
SELECT Department,  
       SUM(CASE WHEN Attrition='Yes' THEN 1 ELSE 0 END)*100.0/COUNT(*) AS AttritionRate  
FROM Employees  
GROUP BY Department  
ORDER BY AttritionRate DESC;
```

**Result:**

- Sales department shows the highest attrition rate (20.6%), followed closely by Human Resources (19%).
- Research & Development has the lowest attrition at 13.8%.
- This indicates that employees in Sales and HR are at higher risk of leaving, suggesting the need for better retention strategies, training, and engagement programs in these departments.

Department	AttritionRate
Sales	20.62780
Human Resources	19.04762
Research & Development	13.83975

### 2. Average Salary by JobRole

```
SELECT JobRole, ROUND(AVG(MonthlyIncome),2) AS AvgSalary  
FROM Employees  
GROUP BY JobRole  
ORDER BY AvgSalary DESC;
```

**Result:**

JobRole	AvgSalary
Manager	17181.68
Research Director	16033.55
Healthcare Representative	7528.76
Manufacturing Director	7295.14
Sales Executive	6924.28
Human Resources	4235.75
Research Scientist	3239.97
Laboratory Technician	3237.17
Sales Representative	2626.00

- Managers (17,181) and Research Directors (16,033) earn the highest salaries, nearly 6 times higher than many other roles.
- Healthcare Representatives (7,528), Research Scientists (6,924), and Lab Technicians (3,237) earn the lowest average salaries.

- Sales Representatives (2,626), Research Scientists (3,239), and Lab Technicians (3,237) earn the lowest average salaries.
- The significant salary gap across job roles may cause dissatisfaction among employees in lower-paying positions, potentially contributing to higher attrition rates in those groups

### 3. Gender-wise Salary

```
SELECT Gender, ROUND(AVG(MonthlyIncome),2) AS AvgSalary
FROM Employees
GROUP BY Gender;
```

Result:

	Gender	AvgSalary
▶	Female	6686.57
	Male	6380.51

- On average, female employees earn slightly higher salaries (₹6686) compared to male employees (₹6380).
- This is interesting because in many organizations, males are usually paid more.
- The result suggests that salary distribution is relatively balanced across genders in this dataset, though further analysis is needed to confirm equity across all job roles and departments.

### 4. Attrition by Age Group

```
SELECT AgeGroup,
       COUNT(*) AS TotalEmployees,
       SUM(Attrition='Yes') AS AttritionCount,
       ROUND(SUM(Attrition='Yes')*100.0/COUNT(*),2) AS AttritionRate
FROM Employees
GROUP BY AgeGroup
ORDER BY AttritionRate DESC;
```

Result:

	AgeGroup	TotalEmployees	AttritionCount	AttritionRate
▶	20s	326	91	27.91
	30s	622	89	14.31
	50+	173	23	13.29
	40s	349	34	9.74

- Employees in their 20s have the highest attrition rate (27.9%), nearly 3 times higher than employees in their 40s.
- Attrition decreases with age, with employees in their 40s showing the lowest attrition (9.7%).
- This trend suggests that younger employees are more likely to leave early in their careers, possibly due to better opportunities, lack of growth, or dissatisfaction with current roles.

- Companies should focus on career development, mentoring, and retention programs targeted at younger employees to reduce turnover.

## 5. Attrition By Tenure

```
SELECT
    TenureGroup,
    COUNT(*) AS TotalEmployees,
    SUM(Attrition='Yes') AS AttritionCount,
    ROUND(SUM(Attrition='Yes')*100.0/COUNT(*),2) AS AttritionRate
FROM (
    SELECT
        CASE
            WHEN YearsAtCompany BETWEEN 0 AND 2 THEN '0-2 Years'
            WHEN YearsAtCompany BETWEEN 3 AND 5 THEN '3-5 Years'
            WHEN YearsAtCompany BETWEEN 6 AND 10 THEN '6-10 Years'
            ELSE '10+ Years'
        END AS TenureGroup,
        Attrition
    FROM Employees
) AS sub
GROUP BY TenureGroup
ORDER BY AttritionRate DESC;
```

Result:

	TenureGroup	TotalEmployees	AttritionCount	AttritionRate
▶	0-2 Years	342	102	29.82
	3-5 Years	434	60	13.82
	6-10 Years	448	55	12.28
	10+ Years	246	20	8.13

- Employees with 0–2 years of experience have the highest attrition rate (29.8%), meaning nearly 1 in 3 new hires leave within the first 2 years.
- Attrition steadily decreases with tenure, with employees staying longer (10+ years) showing the lowest attrition (8.1%).
- This pattern indicates that the company faces major challenges in early-career retention, suggesting the need for stronger onboarding, mentorship, and career growth opportunities in the initial years.