

# Employee Attrition Analysis - SQL Queries

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## Problem Statement

Employee attrition is a critical issue for organizations, as losing skilled employees leads to increased hiring costs, reduced productivity, and disrupted workflows. This project aims to analyze patterns and causes of employee attrition using structured SQL queries on HR data. The insights will support HR managers in identifying at-risk employees, improving job satisfaction, and designing retention strategies.

## SQL Queries

### 1. How many employees have left the company?

```
SELECT 'Total Employees' AS Category, COUNT(*) AS Count
FROM Employee_attrition_
UNION ALL
SELECT 'Employees Left', COUNT(*)
FROM Employee_attrition_
WHERE Attrition = 1;
```

Output

	Category	Count
1	Total Employees	1470
2	Employees Left	237

### 2. Attrition rate by department

```
SELECT Department,
COUNT(*) AS TotalEmployees,
SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) AS EmployeesLeft,
ROUND(100.0 * SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) / COUNT(*), 2) AS AttritionRate
FROM Employee_attrition_
GROUP BY Department;
```

Output

Results		Messages		
	Department	TotalEmployees	EmployeesLeft	AttritionRate
1	Sales	446	92	20.630000000000
2	Research & Development	961	133	13.840000000000
3	Human Resources	63	12	19.050000000000

### 3. Which job roles have the highest attrition?

```

SELECT JobRole,
       COUNT(*) AS TotalEmployees,
       SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) AS EmployeesLeft,
       ROUND(100.0 * SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) / COUNT(*), 2) AS
AttritionRate
FROM Employee_attrition_
GROUP BY JobRole
ORDER BY AttritionRate DESC;

```

Output

Results		Messages		
	JobRole	TotalEmployees	EmployeesLeft	AttritionRate
1	Sales Representative	83	33	39.760000000000
2	Laboratory Technician	259	62	23.940000000000
3	Human Resources	52	12	23.080000000000
4	Sales Executive	326	57	17.480000000000
5	Research Scientist	292	47	16.100000000000
6	Manufacturing Director	145	10	6.900000000000
7	Healthcare Representative	131	9	6.870000000000
8	Manager	102	5	4.900000000000
9	Research Director	80	2	2.500000000000

### 4. Is overtime affecting attrition?

```

SELECT OverTime,
       COUNT(*) AS TotalEmployees,
       SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) AS EmployeesLeft,
       ROUND(100.0 * SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) / COUNT(*), 2) AS
AttritionRate
FROM Employee_attrition_
GROUP BY OverTime;

```

Output

Results		Messages		
	OverTime	TotalEmployees	EmployeesLeft	AttritionRate
1	0	1054	110	10.440000000000
2	1	416	127	30.530000000000

## 5. Does monthly income affect attrition? (Income bands)

```
SELECT 'Low Income (<3000)' AS IncomeBand, COUNT(*) AS EmployeesLeft
FROM Employee_attrition_
WHERE MonthlyIncome < 3000 AND Attrition = 1
```



UNION ALL

```
SELECT 'Medium Income (3000-6000)', COUNT(*)
FROM Employee_attrition_
WHERE MonthlyIncome BETWEEN 3000 AND 6000 AND Attrition = 1
```

UNION ALL

```
SELECT 'High Income (>6000)', COUNT(*)
FROM Employee_attrition_
WHERE MonthlyIncome > 6000 AND Attrition = 1;
```



Output

 Results  Messages		
	IncomeBand	EmployeesLeft
1	Low Income (<3000)	113
2	Medium Income (3000-6000)	66
3	High Income (>6000)	58

## 6. Attrition by Job Satisfaction level

```
SELECT JobSatisfaction,
       COUNT(*) AS TotalEmployees,
       SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) AS EmployeesLeft,
       ROUND(100.0 * SUM(CASE WHEN Attrition = 1 THEN 1 ELSE 0 END) / COUNT(*), 2) AS
AttritionRate
FROM Employee_attrition_
GROUP BY JobSatisfaction
ORDER BY JobSatisfaction;
```

Output

 Results  Messages				
	JobSatisfaction	TotalEmployees	EmployeesLeft	AttritionRate
1	1	289	66	22.840000000000
2	2	280	46	16.430000000000
3	3	442	73	16.520000000000
4	4	459	52	11.330000000000

## 7. Attrition by Years at Company bucket

```
SELECT '0-1 years' AS ExperienceGroup, COUNT(*) AS EmployeesLeft
FROM Employee_attrition_
WHERE YearsAtCompany <= 1 AND Attrition = 1
```

UNION ALL

```
SELECT '2-5 years', COUNT(*)  
FROM Employee_attrition_  
WHERE YearsAtCompany BETWEEN 2 AND 5 AND Attrition = 1
```

UNION ALL

```
SELECT '6-10 years', COUNT(*)  
FROM Employee_attrition_  
WHERE YearsAtCompany BETWEEN 6 AND 10 AND Attrition = 1
```

UNION ALL

```
SELECT '10+ years', COUNT(*)  
FROM Employee_attrition_  
  
WHERE YearsAtCompany > 10 AND Attrition = 1;
```

Output

Results		Messages
	ExperienceGroup	EmployeesLeft
1	0-1 years	75
2	2-5 years	87
3	6-10 years	55
4	10+ years	20