

## Validating Power BI HR Analytics Dashboard using SQL

### Displaying the table and Feature Engineering

SELECT \* FROM hr\_analysis

Adding age\_group column

```
Update HR_Analysis
Set age_group = (CASE
WHEN age < 25 THEN 'Under 25'
WHEN age BETWEEN 25 AND 34 THEN '25 - 34'
      WHEN age BETWEEN 35 AND 44 THEN '35 - 44'
      WHEN age BETWEEN 45 AND 54 THEN '45 - 54'
      ELSE 'Over 55'
END)
-- check the table SELECT * FROM HR_Analysis
```

Output Messages Notifications

g_years	work_life_balance	years_at_company	years_in_current_role	years_since_last_promotion	years_with_curr_manager	age_group
8	1	6	4	0	5	35 - 44
10	3	10	7	1	7	45 - 54
7	3	0	0	0	0	35 - 44
8	3	8	7	3	0	25 - 34
6	3	2	2	2	2	25 - 34
8	2	7	7	3	6	25 - 34
12	2	1	0	0	0	Over 55

### 1. Total Employee KIP

HR Analysis/postgres@PostgreSQL 16

Query

Query History

```
1 select * from hr_analysis
2
3 SELECT COUNT(*) AS total_employees FROM hr_analysis
4 --where education = 'High School'
5 --where education = 'Associates Degree'
6 where education_field = 'Medical'
```

Data Output Messages Notifications

total_employees
bigint
1 464

## 2. Attrition Count KPI

HR Analysis/postgres@PostgreSQL 16

Query Query History

```
1 --SELECT SUM(cf_attrition_count) AS total_attrition_count
2 --FROM HR_Analysis;
3
4 SELECT COUNT(attrition) FROM HR_Analysis
5 WHERE attrition = 'Yes'
6
```

Data Output Messages Notifications

	count bigint
1	237

HR Analysis/postgres@PostgreSQL 16

Query Query History

```
1 SELECT COUNT(attrition) FROM HR_Analysis
2 WHERE attrition = 'Yes' and department = 'R&D'
```

Data Output Messages Notifications

	count bigint
1	133

HR Analysis/postgres@PostgreSQL 16

Query Query History

```
1 SELECT COUNT(attrition) FROM HR_Analysis
2 WHERE attrition = 'Yes' and department = 'R&D' and education_field = 'Medical'
```

Data Output Messages Notifications

	count bigint
1	47

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT COUNT(attrition) FROM HR_Analysis
2 WHERE attrition = 'Yes' and department = 'R&D' and education_field = 'Medical'
3 and education = 'High School'

```

Data Output Messages Notifications

	count bigint
1	9

### 3. Attrition Rate KPI

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT
2     ROUND((attrition_count * 100.0) / total_employees, 2) AS attrition_rate
3 FROM
4     (SELECT COUNT(*) AS total_employees, SUM(cf_attrition_count) AS attrition_count
5      FROM HR_Analysis) AS counts;
6
7

```

Data Output Messages Notifications

	attrition_rate numeric
1	16.12

- Attrition Rate Sales Department

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT
2     ROUND((attrition_count * 100.0) / total_employees, 2) AS attrition_rate_sales
3 FROM
4     (SELECT COUNT(*) AS total_employees, SUM(cf_attrition_count) AS attrition_count
5      FROM HR_Analysis
6      WHERE department = 'Sales') AS counts;
7
8

```

Data Output Messages Notifications

	attrition_rate_sales numeric
1	20.63

- **Attrition rate where education\_field = 'Life Sciences'**

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT
2   ROUND((attrition_count * 100.0) / total_employees, 2) AS attrition_rate
3 FROM
4   (SELECT COUNT(*) AS total_employees, SUM(cf_attrition_count) AS attrition_count
5    FROM HR_Analysis
6    WHERE education_field = 'Life Sciences') AS counts;
7

```

Data Output Messages Notifications

	attrition_rate numeric
1	14.69

- **Attrition by Gender**

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT gender, COUNT(attrition) FROM hr_analysis
2 where attrition = 'Yes'
3 Group by gender
4 Order by count (attrition) desc
5

```

Data Output Messages Notifications

	gender character varying (255)	count bigint
1	Male	150
2	Female	87

## 4. Active Employee KPI

The screenshot shows a SQL query editor with the following query:

```
1 --SELECT (SUM(employee_count) - SUM(cf_attrition_count)) AS active_employee_count
2 --FROM HR_Analysis;
3
4 SELECT SUM(employee_count) - (SELECT COUNT(attrition) FROM HR_Analysis
5 WHERE attrition = 'Yes')
6 FROM HR_Analysis;
7
```

The query is executed, and the results are displayed in the Data Output tab:

	?column? bigint
1	1233

## Active Employee where Gender = 'Male'

The screenshot shows a SQL query editor with the following query:

```
1 SELECT (SUM(employee_count) - SUM(cf_attrition_count)) AS active_male_employee_count
2 FROM HR_Analysis WHERE gender = 'Male';
3
4
```

The query is executed, and the results are displayed in the Data Output tab:

	active_male_employee_count bigint
1	732

## 5. Average Age KPI

The screenshot shows a SQL query editor with the following query:

```
1 SELECT ROUND(AVG(age), 0) AS average_age
2 FROM HR_Analysis;
3
```

The query is executed, and the results are displayed in the Data Output tab:

	average_age numeric
1	37

## Charts

### 1. Attrition count by Department

**HR Analysis/postgres@PostgreSQL 16**

**Query** Query History

```

1 SELECT department, COUNT(attrition) AS attrition_count FROM hr_analysis
2 where attrition = 'Yes'
3 Group by department
4 Order by count (attrition) desc

```

**Data Output** Messages Notifications

	department character varying (255)	attrition_count bigint
1	R&D	133
2	Sales	92
3	HR	12

- **Percentage count**

HR Analysis/postgres@PostgreSQL 16

**Query** Query History

```

1 SELECT department, COUNT(attrition) AS attrition_count,
2     ROUND((COUNT(attrition) * 100.0 / (SELECT COUNT(*) FROM hr_analysis
3     WHERE attrition = 'Yes')), 2) AS attrition_percentage
4 FROM hr_analysis
5 WHERE attrition = 'Yes'
6 GROUP BY department
7 ORDER BY attrition_count DESC;
8

```

**Data Output** Messages Notifications

	department character varying (255)	attrition_count bigint	attrition_percentage numeric
1	R&D	133	56.12
2	Sales	92	38.82
3	HR	12	5.06

## 2. No of employee by age group

HR Analysis/postgres@PostgreSQL 16

Query

```
1 SELECT gender, age_group, COUNT(*) AS employee_count
2 FROM HR_Analysis
3 GROUP BY gender, age_group
4 ORDER BY gender, MIN(age);
5
```

Data Output

	gender character varying (255)	age_group character varying (20)	employee_count bigint
1	Female	Under 25	37
2	Female	25 - 34	217
3	Female	35 - 44	196
4	Female	45 - 54	113
5	Female	Over 55	25
6	Male	Under 25	60
7	Male	25 - 34	337
8	Male	35 - 44	309
9	Male	45 - 54	132
10	Male	Over 55	44

## 3. Attrition Count by Education field

HR Analysis/postgres@PostgreSQL 16

Query

```
1 SELECT education_field, count(attrition) From HR_Analysis
2 Where attrition = 'Yes'
3 Group by education_field
4 Order by count(attrition) desc
5
```

Data Output

	education_field character varying (255)	count bigint
1	Life Sciences	89
2	Medical	63
3	Marketing	35
4	Technical Degree	32
5	Other	11
6	Human Resources	7

- **And in Sales Department**

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT education_field, count(attrition) From HR_Analysis
2 Where attrition = 'Yes'AND department = 'Sales'
3 Group by education_field
4 Order by count(attrition) desc
5

```

Data Output Messages Notifications

	education_field character varying (255)	count bigint
1	Marketing	35
2	Life Sciences	29
3	Medical	14
4	Technical Degree	10
5	Other	4

#### 4. Attrition Rate by Gender for Different age group

HR Analysis/postgres@PostgreSQL 16

Query Query History

```

1 SELECT gender, age_group,COUNT(attrition) AS attrition_count
2 FROM HR_Analysis
3 WHERE attrition = 'Yes'
4 GROUP BY gender, age_group
5 ORDER BY age_group, gender;
6

```

Data Output Messages Notifications

	gender character varying (255)	age_group character varying (20)	attrition_count bigint
1	Female	25 - 34	43
2	Male	25 - 34	69
3	Female	35 - 44	14
4	Male	35 - 44	37
5	Female	45 - 54	9
6	Male	45 - 54	16
7	Female	Over 55	3
8	Male	Over 55	8
9	Female	Under 25	18
10	Male	Under 25	20



## 5. Job Satisfaction Rating

HR Analysis/postgres@PostgreSQL 16			
No limit			
Query Query History			
<pre>1 SELECT job_role, job_satisfaction, COUNT(*) AS total_employees 2 FROM HR_Analysis 3 GROUP BY job_role, job_satisfaction 4 ORDER BY job_role, job_satisfaction</pre>			
Data Output Messages Notifications			
	job_role character varying (255)	job_satisfaction integer	total_employees bigint
1	Healthcare Representative	1	17
2	Healthcare Representative	2	20
3	Healthcare Representative	3	54
4	Healthcare Representative	4	40
5	Human Resources	1	4
6	Human Resources	2	13
7	Human Resources	3	19
8	Human Resources	4	16
9	Laboratory Technician	1	53
10	Laboratory Technician	2	69
11	Laboratory Technician	3	74