Problem statement:

A leading multinational corporation has been experiencing some puzzling trends in their employee turnover rate they suspect there may be hidden factors causing valuable employees to leave it is our job to dig deep into their HR data and uncover the affecting factors.

Technologies used:

Structured Query Language (SQL): Using SQL a powerful language for querying and managing databases we unleashed the power of the SQL queries to extract relevant insights.

Power Bi: Using Power Bi a robust data visualisation tool we created interactive dashboards and visually explore the relationships between various HR metrics.

Excel

GitHub

Key Performance Indicators:

- A performance indicator or key performance indicator (KPI) is a type of performance measurement. KPI's evaluate the success of an organization or of a particular activity (such as projects, programs, products and other initiatives) in which it engages. KPIs provide a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most.

- The key performance indicators play an important part in the analysis these are the information retrieved after exploratory analysis of the Human resource data of the multinational company.
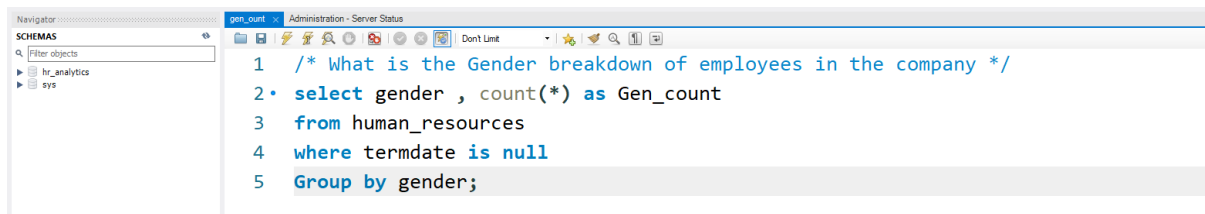
Objective:

- Digging deep into the employee data provided by the Human resource department.
- Track the trends and get a clear understanding of employee turnover rate.

Analysis:

Gender breakdown of employees in the company:
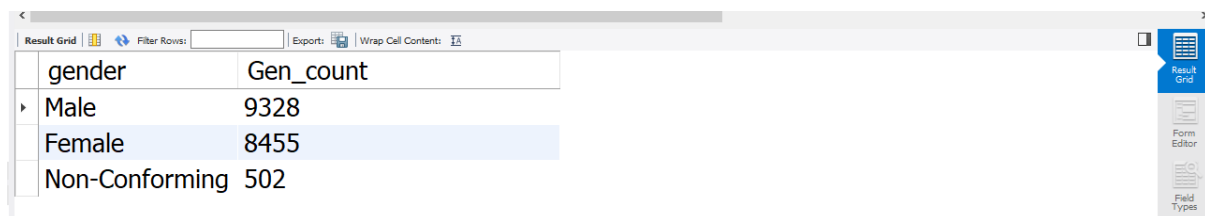
Query:


```
1    /* What is the Gender breakdown of employees in the company */
2•   select gender , count(*) as Gen_count
3    from human_resources
4    where termdate is null
5    Group by gender;
```
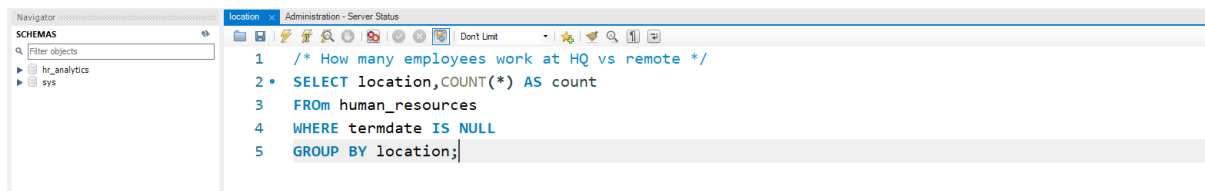
Result:

gender	Gen_count
Male	9328
Female	8455
Non-Conforming	502

Count of employees working at headquarters and employees working remotely:
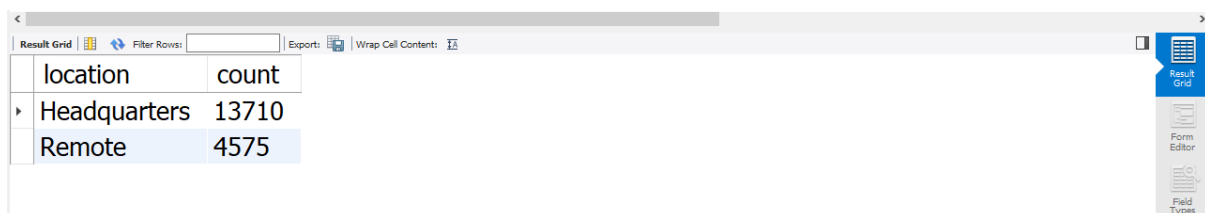
Query:


```
1    /* How many employees work at HQ vs remote */
2•   SELECT location,COUNT(*) AS count
3    FROm human_resources
4    WHERE termdate IS NULL
5    GROUP BY location;
```

Result:

location	count
Headquarters	13710
Remote	4575

<u>Age distribution of employees</u>:

Query:

```
1    /* What is the age distribution of employees in the company */
2 •  SELECT
3        CASE
4            WHEN age>=18 AND age<=24 THEN '18-24'
5            WHEN age>=25 AND age<=34 THEN '25-34'
6            WHEN age>=35 AND age<=44 THEN '35-44'
7            WHEN age>=45 AND age<=54 THEN '45-54'
8            WHEN age>=55 AND age<=64 THEN '55-64'
9            ELSE '65+'
10       END AS age_group,
11       COUNT(*) AS count
12       FROM human_resources
13       WHERE termdate IS NULL
14       GROUP BY age_group
15       ORDER BY age_group;
```
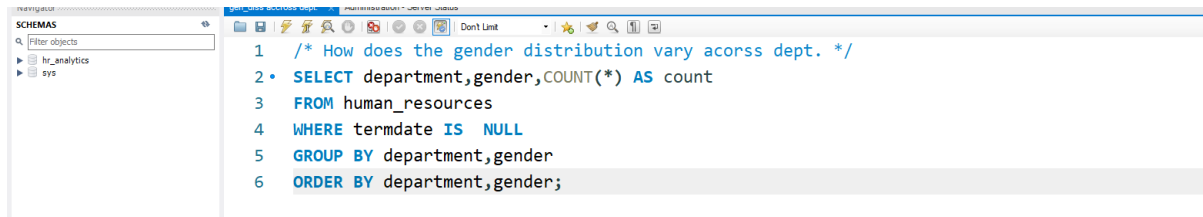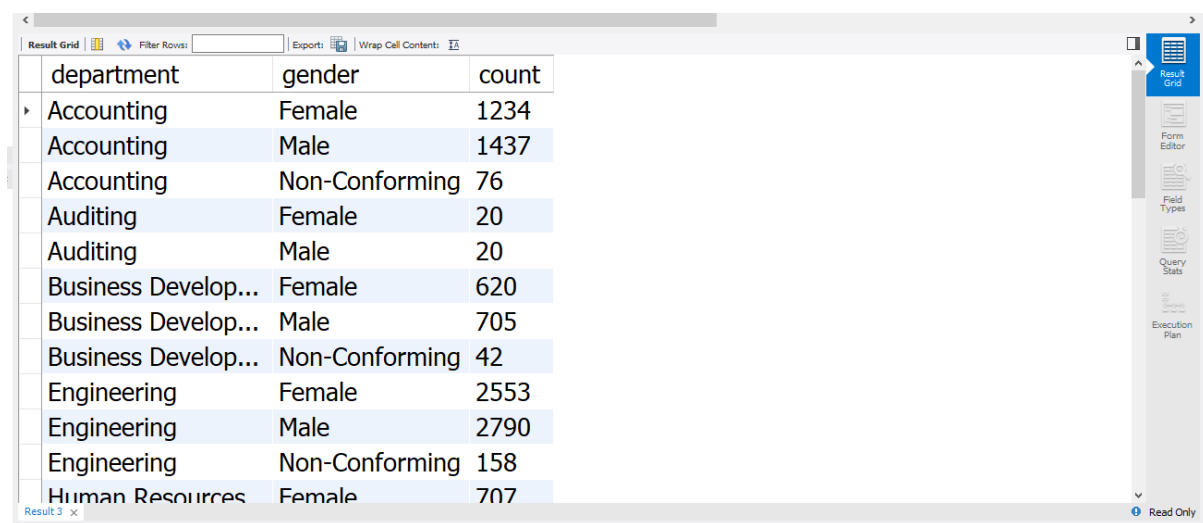
Result:

age_group	count
18-24	1753
25-34	4929
35-44	5003
45-54	4936
55-64	1664

Department vs Gender distribution of employees:

Query:

```
1    /* How does the gender distribution vary acorss dept. */
2 •  SELECT department,gender,COUNT(*) AS count
3    FROM human_resources
4    WHERE termdate IS NULL
5    GROUP BY department,gender
6    ORDER BY department,gender;
```

Result:

department	gender	count
Accounting	Female	1234
Accounting	Male	1437
Accounting	Non-Conforming	76
Auditing	Female	20
Auditing	Male	20
Business Develop...	Female	620
Business Develop...	Male	705
Business Develop...	Non-Conforming	42
Engineering	Female	2553
Engineering	Male	2790
Engineering	Non-Conforming	158
Human Resources	Female	707

Race breakdown of the company:

Query:

```
1   /* What is the race breakdown of employees in the company */
2 • select race, count(*) as race_count
3   from human_resources
4   where termdate is null
5   group by race;
```

Result:

race	race_count
Hispanic or Latino	2074
White	5214
Black or African A...	2983
Asian	2936
Two or More Races	2989
American Indian ...	1098
Native Hawaiian ...	991

Distribution of employees across location states:
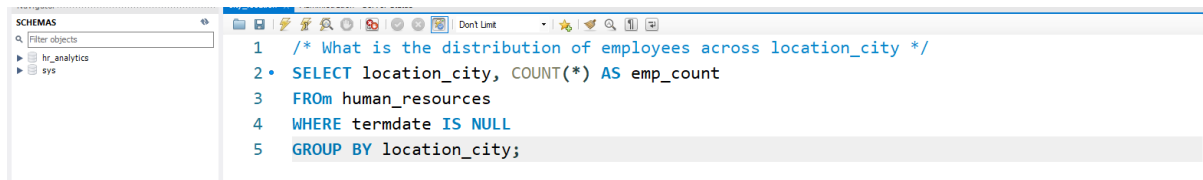
Query:

```
1   /* What is the distribution of employees across location_city */
2 • SELECT location_state, COUNT(*) AS emp_count
3   FROm human_resources
4   WHERE termdate IS NULL
5   GROUP BY location_state;
```
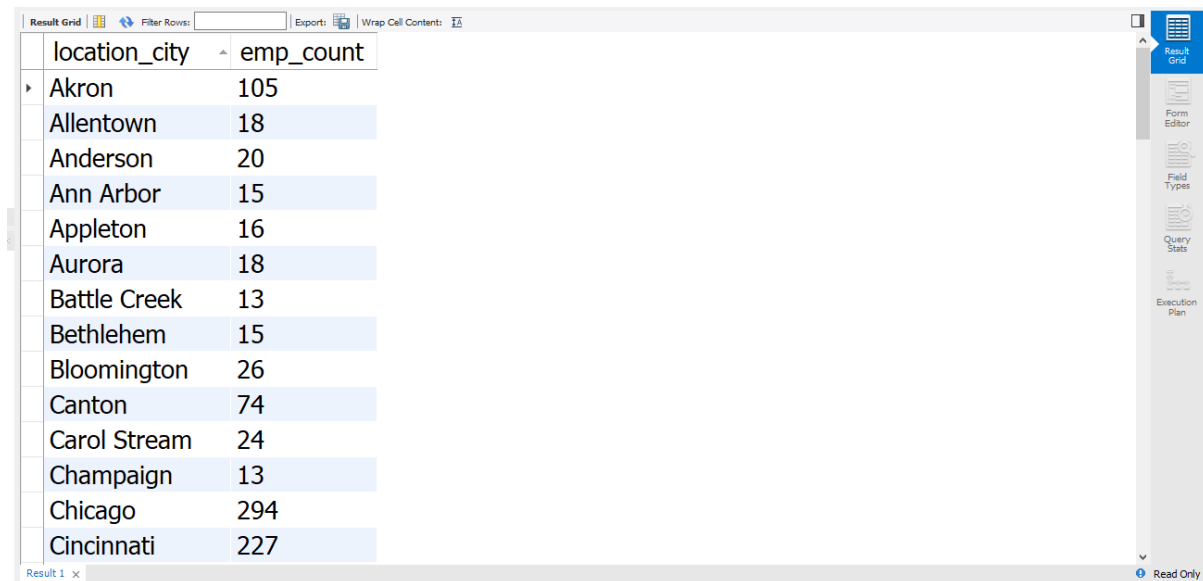
Result:

location_state	emp_count
Ohio	14788
Michigan	569
Pennsylvania	930
Wisconsin	321
Illinois	730
Indiana	572
Kentucky	375

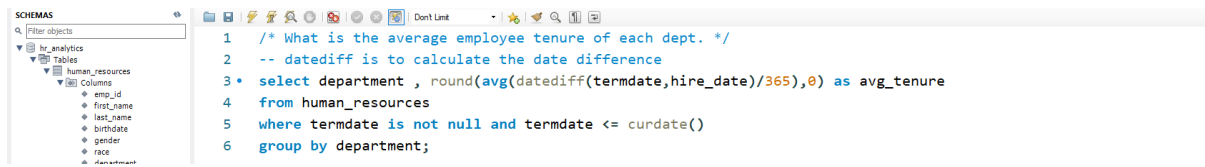**Distribution of employees across location cities:**

Query:

```
1    /* What is the distribution of employees across location_city */
2 •  SELECT location_city, COUNT(*) AS emp_count
3    FROm human_resources
4    WHERE termdate IS NULL
5    GROUP BY location_city;
```
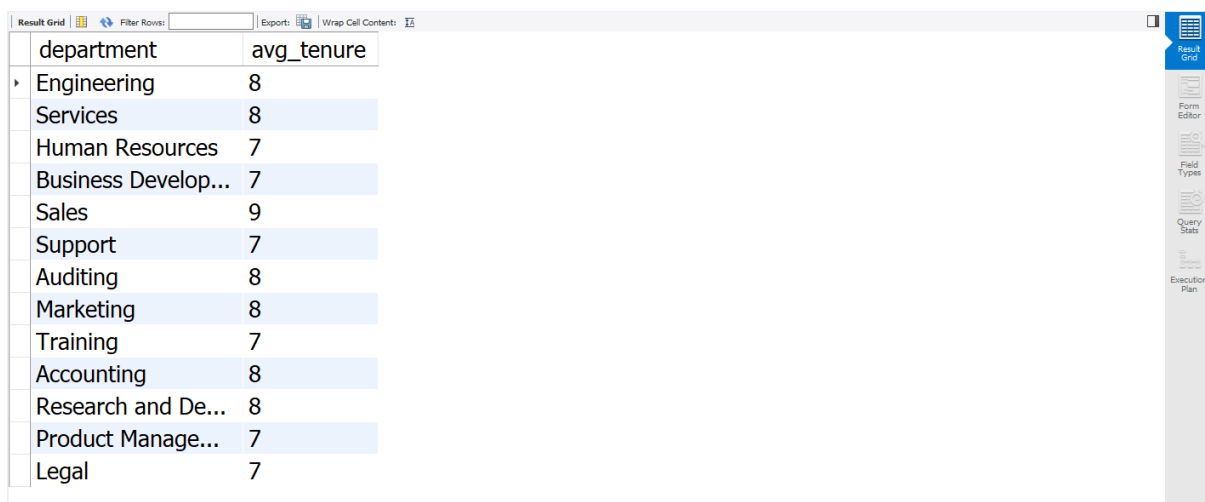
Result:

location_city	emp_count
Akron	105
Allentown	18
Anderson	20
Ann Arbor	15
Appleton	16
Aurora	18
Battle Creek	13
Bethlehem	15
Bloomington	26
Canton	74
Carol Stream	24
Champaign	13
Chicago	294
Cincinnati	227

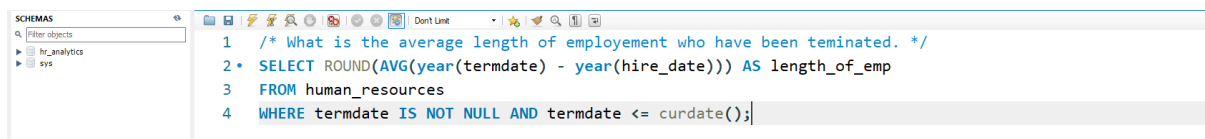## Average tenure of employees left by departments:

Query:

```
1    /* What is the average employee tenure of each dept. */
2    -- datediff is to calculate the date difference
3 •  select department , round(avg(datediff(termdate,hire_date)/365),0) as avg_tenure
4    from human_resources
5    where termdate is not null and termdate <= curdate()
6    group by department;
```

Result:

department	avg_tenure
Engineering	8
Services	8
Human Resources	7
Business Develop...	7
Sales	9
Support	7
Auditing	8
Marketing	8
Training	7
Accounting	8
Research and De...	8
Product Manage...	7
Legal	7

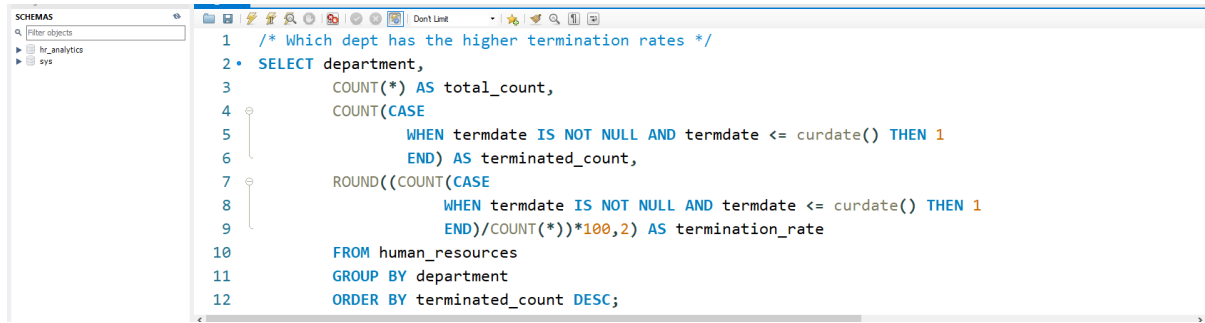## Average tenure of terminated employees:

Query:

```
1    /* What is the average length of employement who have been teminated. */
2 •  SELECT ROUND(AVG(year(termdate) - year(hire_date))) AS length_of_emp
3    FROM human_resources
4    WHERE termdate IS NOT NULL AND termdate <= curdate();
```

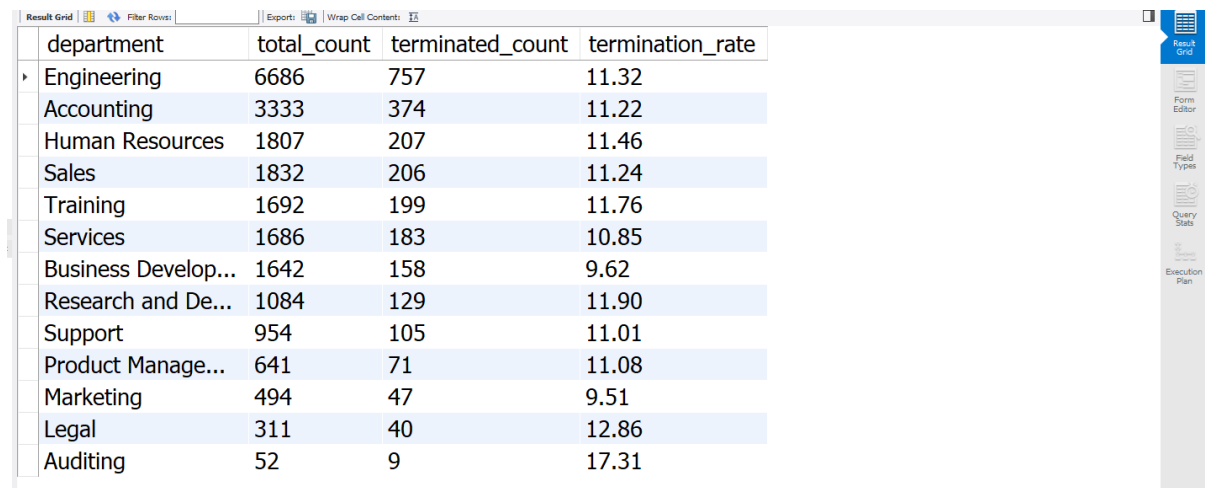### Result:

length_of_emp
8

Distribution of departments with highest rate of termination:

Query:


```
1    /* Which dept has the higher termination rates */
2 •  SELECT department,
3            COUNT(*) AS total_count,
4            COUNT(CASE
5                    WHEN termdate IS NOT NULL AND termdate <= curdate() THEN 1
6                    END) AS terminated_count,
7            ROUND((COUNT(CASE
8                    WHEN termdate IS NOT NULL AND termdate <= curdate() THEN 1
9                    END)/COUNT(*))*100,2) AS termination_rate
10           FROM human_resources
11           GROUP BY department
12           ORDER BY terminated_count DESC;
```

Result:

department	total_count	terminated_count	termination_rate
Engineering	6686	757	11.32
Accounting	3333	374	11.22
Human Resources	1807	207	11.46
Sales	1832	206	11.24
Training	1692	199	11.76
Services	1686	183	10.85
Business Develop...	1642	158	9.62
Research and De...	1084	129	11.90
Support	954	105	11.01
Product Manage...	641	71	11.08
Marketing	494	47	9.51
Legal	311	40	12.86
Auditing	52	9	17.31

Conclusion:

The findings of this analysis will help the human resource team to get a proper knowledge of the puzzling trends in their employee turnover rate and detect any hidden factors causing valuable employees to leave the company.