HR Workforce Distribution Report (SQL Analysis)

Q-1) What is the gender breakdown of active adult employees in the company?

```
select
    gender,
    count(*)
from employee5
where age >= 18 and emp_status = 'Active'
group by gender;
```

	gender character varying (50)	count bigint
1	Male	9328
2	Female	8455
3	Non-Conforming	502

Explanation:

This query identifies how the **current active workforce** is distributed by gender.

- Only employees aged **18 or above** are considered to ensure valid employment age.
- The filter `emp_status = 'Active'` ensures that only currently working employees are included.
- Employees are grouped by `gender`, and the total number of employees in each gender category is counted.

Business Insight:

This analysis helps the organization understand **gender representation** within its active workforce. Such insights are important for diversity monitoring, workforce planning, and inclusive hiring initiatives.

Q-2) What is the race/ethnicity breakdown of active adult employees in the company?

```
select
    race,
    count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by race
order by 1 desc;
```

	race character varying (50)	count bigint
1	White	5214
2	Two or More Races	2989
3	Native Hawaiian or Other Pacific Islander	991
4	Hispanic or Latino	2074
5	Black or African American	2983
6	Asian	2936

Explanation:

This query provides a breakdown of active employees based on **race or ethnicity**.

- Filters ensure that only adult and active employees are included.
- Employees are grouped by their recorded race.
- The results are ordered for easy readability.

Business Insight:

Understanding racial and ethnic distribution supports **diversity and inclusion analysis** and helps organizations track representation across different demographic groups.

Q-3) What is the age distribution of employees in the company?

a) Youngest and Oldest Active Employees

```
select
        min(age) as youngest,
        max(age) as oldest
from employee5
where age >= 18 and emp_status = 'Active';
```

	youngest integer	oldest integer
1	23	60

Explanation:

This query finds the **minimum and maximum age** among all active adult employees.

- min(age) identifies the youngest employee.
- max(age) identifies the oldest employee.

Business Insight:

This gives a quick overview of the **age range** within the company, which is useful for understanding workforce maturity and experience levels.

b) Age Group Distribution

```
select
	case
		when age >= 18 and age <= 24 then '18-24'
		when age >= 25 and age <= 34 then '25-34'
		when age >= 35 and age <= 44 then '35-44'
		when age >= 45 and age <= 54 then '45-54'
		when age >= 55 and age <= 64 then '55-64'
		else '65+'
	end as age_group,
	count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by age_group
order by age_group;
```

	age_group text	count bigint
1	18-24	882
2	25-34	4899
3	35-44	5085
4	45-54	4856
5	55-64	2563

Explanation:

Employees are grouped into **logical age bands** using a CASE statement.

- Each employee is assigned to an age range.
- The query then counts how many employees fall into each group.

Business Insight:

This helps identify whether the workforce is **younger, mid-career, or aging**, which supports workforce planning, training strategies, and succession planning.

Q-4) How many employees work at headquaters V/s remote locations?

```
select
    location,
    count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by location;
```

	location character varying (50)	count bigint
1	Headquarters	13710
2	Remote	4575

Explanation:

This query counts employees based on their **work location**, such as headquarters or remote.

- Only active employees are included.
- Grouping by location shows how employees are distributed geographically.

Business Insight:

This analysis helps evaluate the company's **remote work adoption** and understand how many employees work on-site versus remotely.

Q-5) What is the average length of employment for employees who have been terminated?

```
select
    round(avg((termdate - hire_date) / 365.25), 0) as avg_length_of_employment
from employee5
where termdate <= current_date
  and emp_status = 'Terminated'
  and age >= 18;
```

	avg_length_of_employment numeric
1	8

Explanation:

This query calculates the **average tenure (in years)** of employees who have already left the company.

- The difference between termdate and hire_date gives total working days.
- Dividing by 365.25 converts days into years.
- round() is used to present a clean, readable result.

Business Insight:

This metric provides a clear indication of **employee retention duration** and helps assess how long employees typically stay before leaving.

Q-6) Gender Distribution Across Departments

```
select
    department,
    gender,
    count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by 1,2
order by department;
```

	department character varying (50)	gender character varying (50)	count bigint
1	Accounting	Male	1437
2	Accounting	Non-Conforming	76
3	Accounting	Female	1234
4	Auditing	Female	20
5	Auditing	Male	20
6	Business Development	Female	620

Explanation:

This query analyzes gender distribution **within each department**.

- Employees are grouped first by department and then by gender.
- The result shows how many male, female, or other employees work in each department.

Business Insight:

This helps identify **gender balance or imbalance** at the department level, supporting fair workforce representation analysis.

Q-7) What is the distribution of job titles across the company?

```
select
    jobtitle,
    count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by jobtitle
order by jobtitle desc;
```

	jobtitle character varying (100)	count bigint
1	Web Developer IV	58
2	Web Developer III	55
3	Web Developer II	68
4	Web Developer I	82
5	Web Designer IV	7
6	Web Designer III	10

Explanation:

This query counts how many active employees hold each **job title**.

- Each job role is grouped and counted separately.

Business Insight:

It provides visibility into the **organizational structure**, highlighting which roles have higher or lower headcount.

Q-8) Which department has the highest termination rate?

```
select
    department,
    term_count,
    total_count,
    term_count::numeric / total_count as term_rate
from (
    select
        department,
        count(*) as total_count,
        sum(case
                when emp_status = 'Terminated' and termdate <= current_date then 1
                else 0
            end) as term_count
    from employee5
    where age >= 18
    group by department
) as sub_query
order by term_rate desc;
```

	department character varying (50)	term_count bigint	total_count bigint	term_rate numeric
1	Auditing	10	52	0.1923076923076923076
2	Legal	48	311	0.15434083601286173633
3	Training	221	1692	0.13061465721040189125
4	Engineering	857	6686	0.12817828297935985642
5	Support	122	954	0.12788259958071278826
6	Sales	233	1832	0.12718340611353711790

Explanation:

This query calculates the **termination rate for each department**.

- The inner query counts total employees and terminated employees per department.
- The outer query calculates termination rate by dividing terminations by total employees.

Business Insight:

This highlights departments with **higher attrition**, allowing HR teams to investigate potential issues such as workload, management, or job satisfaction.

Q-9) What is the distribution of employees across location by state?

```
select
    location_state,
    count(*) as count
from employee5
where age >= 18 and emp_status = 'Active'
group by location_state
order by count desc;
```

	location_state character varying (50)	count bigint
1	Ohio	14788
2	Pennsylvania	930
3	Illinois	730
4	Indiana	572
5	Michigan	569
6	Kentucky	375

Explanation:

This query shows how employees are distributed across different **states**.

Business Insight

It helps identify **geographic concentration** of employees and supports location-based planning or expansion decisions.

Q-10) How has the company's employee count changed over the time based on hire and termdate?

```
select
	year,
	hires,
	terminations,
	hires - terminations as net_changed,
	round((hires::numeric - terminations)/hires*100,2)
as net_change_percent
from(select
	extract(year from hire_date) as year,
	count(*) as hires,
	sum(case
		when emp_status = 'Terminated' and termdate <= current_date then 1
		else 0
	    end) as terminations
from employee5
where age >= 18
group by extract(year from hire_date)) as subquery
order by year asc;
```

	year numeric	hires bigint	terminations bigint	net_changed bigint	net_change_percent numeric
1	2000	220	31	189	85.91
2	2001	1122	203	919	81.91
3	2002	1067	174	893	83.69
4	2003	1142	203	939	82.22
5	2004	1135	211	924	81.41
6	2005	1097	202	895	81.59

Explanation:

This query tracks **year-wise hiring and terminations**.

- Employees are grouped by hire year.
- Net employee change and percentage change are calculated.

Business Insight:

This provides a **clear trend analysis** of company growth, stability, or downsizing over time.

Q-11) What is the tenure distribution for each department?

```
select
    department,
    round(avg((termdate - hire_date)::numeric/365.25),0)
as avg_tenure_years
from employee5
where age >= 18
  and emp_status = 'Terminated'
  and termdate <= current_date
group by department
order by department asc;
```

	department character varying (50)	avg_tenure_years numeric
1	Accounting	8
2	Auditing	8
3	Business Development	8
4	Engineering	8
5	Human Resources	8
6	Legal	8
7	Marketing	9

Explanation:

This query calculates the **average tenure of terminated employees** for each department.

Business Insight:

It helps compare employee retention across departments, identifying areas with stronger or weaker retention.

Q-12) How many total active employees in a company?

```
select
    count(*) as total_emp
from employee5
where age >= 18 and emp_status = 'Active';
```

	total_emp bigint
1	18285

Explanation:

This query provides the **total current workforce size** by counting all active adult employees.

Business Insight:

Gives management a **quick and accurate snapshot** of total active headcount.