SQL PROJECT

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Topic- Analysed the current mining scenario in Australia by using SQL.

Table used in this project-

- 1.Mining Employment

```
SELECT * FROM mining_db.mining_employment;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

State_Territory	Employment_Thousands	Percentage_Total_Workforce
Western Australia	125	4.50
Queensland	90	3.80
New South Wales	60	1.50
Victoria	20	0.50
South Australia	15	1.00

2.Mining Accidents

```
SELECT * FROM mining_db.mining_accidents_safety;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Year	Fatalities	Major_Injuries	Minor_Injuries
2020	5	25	300
2021	4	20	280
2022	6	30	310
2023	3	15	290

- 3.Mining Companies

```
SELECT * FROM mining_db.major_mining_companies;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Company_Name	Headquarters	Main_Commodities	Established_Year
BHP Group	Melbourne	Iron ore, coal, copper	1885
Rio Tinto	Melbourne	Iron ore, aluminium	1873
Fortescue Metals Group	Perth	Iron ore	2003
Newcrest Mining	Melbourne	Gold, copper	1966
South32	Perth	Aluminium, coal	2015

4.Mineral produced

```
SELECT * FROM mining_db.key_minerals_produced;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Mineral	Production_Volume_Million_Tonnes	Export_Value_Billion_AUD
Iron Ore	900.00	120.00
Coal	450.00	70.00
Gold	330.00	25.00
Bauxite	110.00	15.00
Copper	50.00	10.00

5.Environmental Impacts

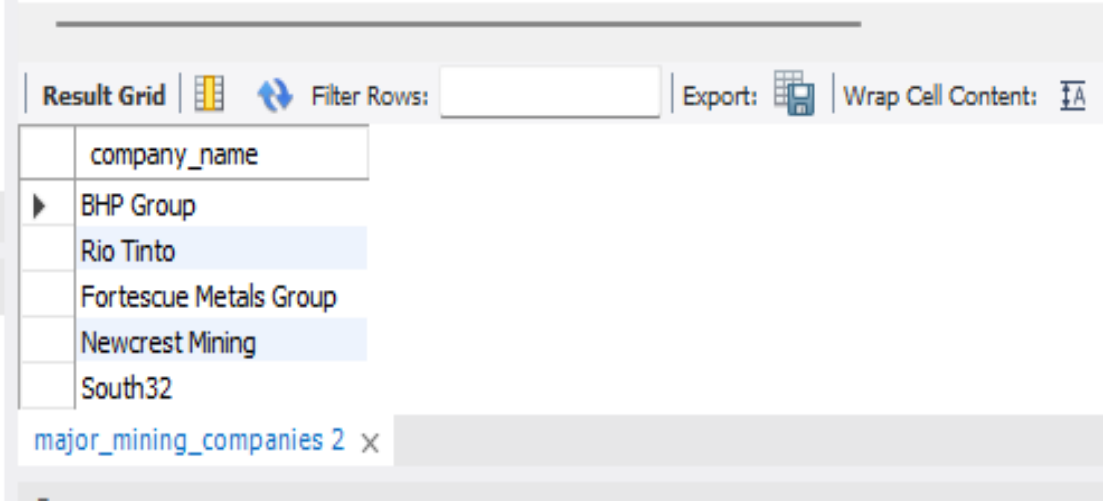
```
SELECT * FROM mining_db.environmental_impact;
```

State_Territory	CO2_Emissions_Million_Tonnes	Land_Area_Disturbed_km2	Water_Usage_Billion_Litres
Western Australia	50.00	120.00	500.00
Queensland	35.00	90.00	350.00
New South Wales	25.00	60.00	200.00
Victoria	10.00	30.00	150.00
South Australia	5.00	20.00	100.00

1. Major Mining Companies in Australia-

```
select * from major_mining_companies;

select company_name from major_mining_companies
where established_year <2020;
```



2.Mining Employment in Australia in 2023-

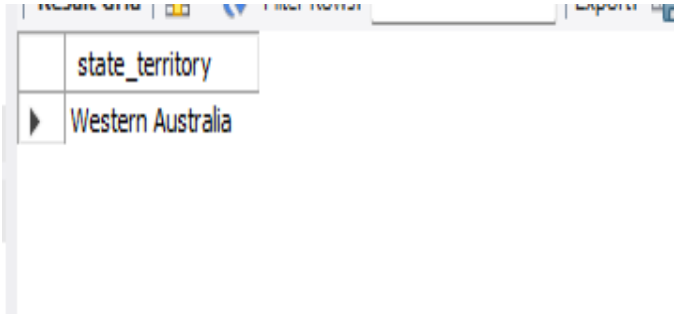
We have to write a SQL query to find the state/territory with the highest mining employment.

```
select * from mining_employment;

select state_territory from mining_employment

order by percentage_total_workforce desc

limit 1;
```



	state_territory
▶	Western Australia

3.Write a SQL query to calculate the total mining employment in Australia.

- Here we have to use sum() function to calculate the total mining employment.

```
select * from mining_employment;
select sum(employment_thousands) as total_employment
 from mining_employment;
```

total_employment
310

Key mineral produce(2023)

4.Write a SQL query to list all minerals that have an export value greater than 20 billion AUD.

```
select * from key_minerals_produced;
select mineral from key_minerals_produced
where Export_Value_Billion_AUD>20;
```

mineral
Iron Ore
Coal
Gold

Combining Datasets-

5.Write a SQL query to list the states/territories along with their total mining employment and CO2 emissions.

In this question we have to use the concept of inner join.

```
select * from mining_employment;

select * from environmental_impact;

select e.state_territory, e.employment_thousands, i.CO2_emissions_million_tonnes

from mining_employment as e

join environmental_impact as i

on e.State_Territory=i.State_Territory;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

state_territory	employment_thousands	CO2_emissions_million_tonnes
Western Australia	125	50.00
Queensland	90	35.00
New South Wales	60	25.00
Victoria	20	10.00
South Australia	15	5.00

Subquery to Find Maximum Employment

6.Write a SQL query to find the state/territory with the highest mining employment.

```
select * from mining_employment;
select state_territory from
mining_employment
where employment_thousands in (select max(employment_thousands) from mining_employment);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

state_territory
Western Australia

7.Write a SQL query to list all minerals with an export value above the average export value of all minerals.

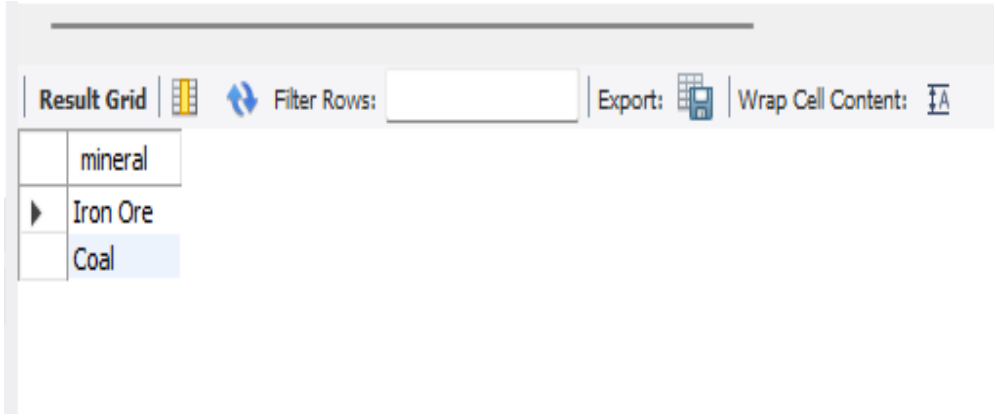
```
select * from key_minerals_produced;

select mineral

from key_minerals_produced

where export_value_billion_AUD>

(SELECT AVG(export_value_billion_AUD) from key_minerals_produced);
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

mineral
Iron Ore
Coal

Window Function-

8.Write a SQL query using a window function to calculate the cumulative employment in mining across states/territories, ordered by employment.

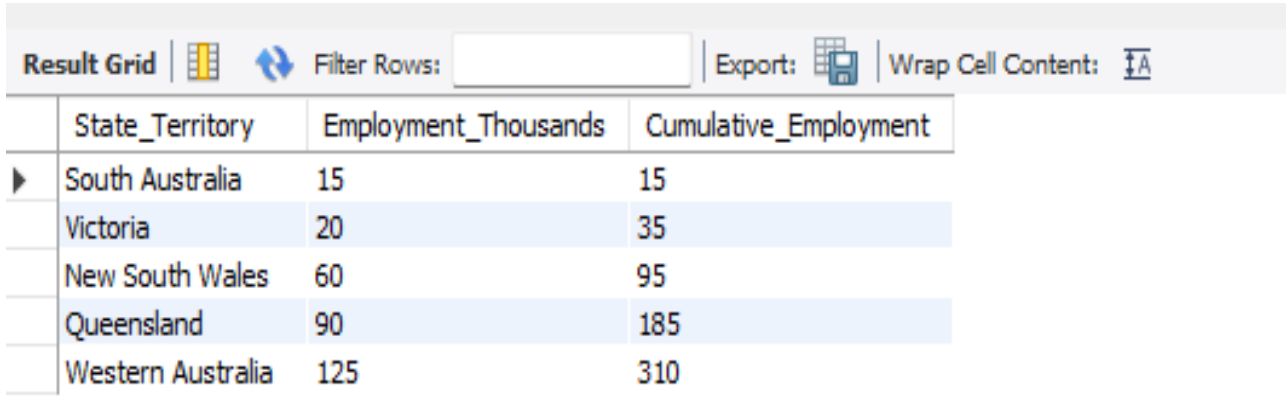
```
select * from  mining_employment;

SELECT State_Territory, Employment_Thousands,

       SUM(Employment_Thousands) OVER (ORDER BY Employment_Thousands) AS Cumulative_Employment

FROM Mining_Employment

ORDER BY Employment_Thousands;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

State_Territory	Employment_Thousands	Cumulative_Employment
South Australia	15	15
Victoria	20	35
New South Wales	60	95
Queensland	90	185
Western Australia	125	310

Application of window function in SQL

9.Write a SQL query using a window function to rank the states/territories by CO2 emissions.

```
select * from  environmental_impact;

select state_territory, CO2_emissions_million_tonnes,
rank() over(order by CO2_emissions_million_tonnes) as emission_rank
from environmental_impact;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

state_territory	CO2_emissions_million_tonnes	emission_rank
South Australia	5.00	1
Victoria	10.00	2
New South Wales	25.00	3
Queensland	35.00	4
Western Australia	50.00	5

10.Write a SQL query using a window function to calculate the rolling average of minor injuries over the years.

```
SELECT Year, Minor_Injuries,
       AVG(Minor_Injuries)
       OVER (ORDER BY Year ROWS BETWEEN 1 PRECEDING AND 1 FOLLOWING) AS Rolling_Avg_Minor_Injuries
FROM Mining_Accidents_Safety
ORDER BY Year;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Year	Minor_Injuries	Rolling_Avg_Minor_Injuries
2020	300	290.0000
2021	280	296.6667
2022	310	293.3333
2023	290	300.0000