1. Retrieve the total CO2 emissions and average crop yield for each country over the years.

Query   Query History

```
1  select country, cast(sum(co2_emissions_mt) as integer) co2_emission,
2  round(cast(avg(crop_yield_mt_per_ha) as decimal),1) as avg_crop_yield
3  from crop
4  group by 1
5  order by 1
6
```

Data Output   Messages   Notifications

	country character varying (50)	co2_emission integer	avg_crop_yield numeric
1	Argentina	15123	2.3
2	Australia	15890	2.2
3	Brazil	14179	2.2
4	Canada	15392	2.2
5	China	15491	2.3
6	France	15128	2.2
7	India	15453	2.2
8	Nigeria	15329	2.3
9	Russia	14628	2.2
10	USA	15854	2.2

2. Find the region with the highest average temperature for each crop type

```sql
1  select * from
2  (select *, rank()over(partition by crop_type order by avg_temperature desc) as ranks from
3  (select region, crop_type, round(cast(avg(average_temperature_c) as decimal),1) as Avg_temperature
4  from crop
5  group by 1,2)as d)
6  where ranks = 1
```

Data Output   Messages   Notifications

region character varying (50)	crop_type character varying (50)	avg_temperature numeric	ranks bigint
1 Northwest	Barley	19.4	1
2 Victoria	Coffee	19.6	1
3 Midwest	Corn	21.7	1
4 Quebec	Cotton	20.3	1
5 Prairies	Fruits	21.5	1
6 Western Australia	Rice	21.4	1
7 Victoria	Soybeans	19.9	1
8 Ile-de-France	Sugarcane	18.7	1
9 Tamil Nadu	Vegetables	18.9	1
10 Northwest	Wheat	18.6	1

3. Identify the year with the highest total precipitation across all countries.

```sql
1  select year, cast(sum(total_precipitation_mm) as integer) as Total_percipitation
2  from crop
3  group by 1
4  order by 2
5  limit 1
```

Query Query History

Data Output   Messages   Notifications

	year integer	total_percipitation integer
1	1998	381657

4. Retrieve the top country with the highest economic impact for coffee crops.

```sql
1  select country, cast(sum(economic_impact) as integer) as Total_economic_impact
2  from crop
3  where crop_type = 'Coffee'
4  group by 1
5  order by 2 desc
6  limit 1
```

Query **Query History**

Data Output **Messages** **Notifications**

country character varying (50) 🔒	total_economic_impact integer 🔒
1	USA	80195

5. Find the average pesticide and fertilizer use for crops in regions where irrigation access is above 80%.

Query   Query History

```sql
1  select round(cast(avg(pesticides_used) as decimal),1) as avg_pesticides_used,
2  round(cast(avg(fertilizer_used) as decimal),1) as avg_fertilizer_used
3  from crop
4  where irrigation_access_percent > 80
```

Data Output   Messages   Notifications

	avg_pesticides_used numeric	avg_fertilizer_used numeric
1	25.01	50.2

6. List the countries where the number of extreme weather events exceeded 5 in any given year.

Query   Query History

```sql
1  select * from
2  (select country, year, sum(extreme_weather_events) as Total_weather_events
3  from crop
4  where year = '2001'
5  group by 1,2)as q
6  where total_weather_events > 150
```

Data Output   Messages   Notifications

	country character varying (50) 🔒	year integer 🔒	total_weather_events bigint 🔒
1	Australia	2001	176
2	China	2001	163
3	Canada	2001	154
4	India	2001	185
5	France	2001	179

7. How Many Times the adaptation strategies used for crops with CO2 emissions greater than 20 metric tons.

Query   **Query History**

```sql
1 ∨  select adaptation_strategies,
2     count(*) as Number_of_used from crop
3     where co2_emissions_mt > 20
4     group by 1
5     order by 2 desc
```

Data Output   Messages   Notifications

	adaptation_strategies character varying (100) 🔒	number_of_used bigint 🔒
1	Water Management	706
2	No Adaptation	682
3	Organic Farming	672
4	Drought-resistant Crops	662
5	Crop Rotation	655

8. Calculate the average soil health index for each region grouped by crop type.

Query   Query History

```sql
1  select region, crop_type,
2  round(cast(avg(soil_health_index) as decimal),1) as Avg_soil_health_index
3  from crop
4  group by 1,2
```

Data Output   Messages   Notifications

	region character varying (50)	crop_type character varying (50)	avg_soil_health_index numeric
1	North West	Barley	63.2
2	Siberian	Vegetables	60.9
3	South	Vegetables	64.3
4	British Columbia	Wheat	62.6
5	Prairies	Rice	54.9
6	North West	Cotton	69.7
7	North	Vegetables	66.8
8	Provence-Alpes-Cote d'Azur	Cotton	61.7
9	Quebec	Sugarcane	75.2
10	Western Australia	Soybeans	68.7
11	South West	Sugarcane	65.9

9. List the years and regions where the crop yield per hectare was greater than 3 metric tons and precipitation was less than 1000 mm.

Query   Query History

```sql
1  select year, region from crop
2  where crop_yield_mt_per_ha > 3
3  and total_precipitation_mm < 1000
4  order by 1
```

Data Output   Messages   Notifications

	year integer	region character varying (50)
1	1990	Queensland
2	1990	Volga
3	1990	South West
4	1990	North
5	1990	Northeast
6	1990	Western Australia
7	1990	Ile-de-France
8	1990	Quebec
9	1990	South
10	1990	Grand Est
11	1990	Northwest

10. Find the countries with the highest fertilizer use per hectare for each year.

```sql
select * from
(select *, rank()over(partition by year order by total_fertilizer_used desc) as ranks from
(select year, country,  cast(sum(fertilizer_used) as integer) as total_fertilizer_used
from crop
group by 1,2)as d)as q
where ranks = 1
```

	year integer	country character varying (50)	total_fertilizer_used integer	ranks bigint
1	1990	Russia	1842	1
2	1991	China	2067	1
3	1992	India	1683	1
4	1993	Brazil	1930	1
5	1994	USA	1930	1
6	1995	Russia	1901	1
7	1996	Argentina	2170	1
8	1997	Canada	1899	1
9	1998	India	1600	1
10	1999	Russia	2042	1
11	2000	Nigeria	1842	1

11. Retrieve the regions with the lowest soil health index for crops with irrigation access above 90%.

```sql
select region, round(cast(avg(soil_health_index) as decimal),1) as Avg_soil_health_index
from crop
where irrigation_access_percent > 90
group by 1
order by 2
limit 5
```

Data Output   Messages   Notifications

	region character varying (50)	avg_soil_health_index numeric
1	Northwestern	59.3
2	Patagonia	59.6
3	Quebec	60.0
4	Provence-Alpes-Cote d'Azur	60.6
5	Victoria	60.7

12. Identify the crop types where both CO2 emissions and economic impact were above the global average.

Query   Query History

```sql
1  v  with globe as (
2          select avg(co2_emissions_mt) as avg_co2,
3          avg(economic_impact) as avg_impact from
4          crop
5      )
6  select distinct crop_type from
7  crop, globe
8  where co2_emissions_mt > globe.avg_co2 and
9  economic_impact > globe.avg_impact
10
```

Data Output   Messages   Notifications

	crop_type character varying (50)
1	Corn
2	Sugarcane
3	Barley
4	Coffee
5	Rice
6	Soybeans
7	Fruits
8	Cotton
9	Vegetables
10	Wheat

13. List the countries that adopted crop rotation as an adaptation strategy and compare their crop yields with those that used water management.

Query   Query History

```sql
1 v  with rotation as (
2        select country, adaptation_strategies, round(cast(avg(crop_yield_mt_per_ha) as decimal),1) as avg_crop_yields,
3        row_number()over(order by country) as ranks
4        from crop
5        where adaptation_strategies = 'Crop Rotation'
6        group by 1,2
7    ),
8
9    water as (
10       select country, adaptation_strategies, round(cast(avg(crop_yield_mt_per_ha) as decimal),1) as avg_crop_yields,
11       row_number()over(order by country) as ranki
12       from crop
13       where adaptation_strategies = 'Water Management'
14       group by 1,2
15   )
16
17   select r.country, r.adaptation_strategies, r.avg_crop_yields, w.country, w.adaptation_strategies, w.avg_crop_yields
18   from rotation as r
19   join water as w
20   ON r.ranks = w.ranki
```

Data Output   Messages   Notifications

	country character varying (50)	adaptation_strategies character varying (100)	avg_crop_yields numeric	country character varying (50)	adaptation_strategies character varying (100)	avg_crop_yields numeric
1	Argentina	Crop Rotation	2.3	Argentina	Water Management	2.2
2	Australia	Crop Rotation	2.3	Australia	Water Management	2.2
3	Brazil	Crop Rotation	2.3	Brazil	Water Management	2.2
4	Canada	Crop Rotation	2.3	Canada	Water Management	2.2
5	China	Crop Rotation	2.3	China	Water Management	2.2
6	France	Crop Rotation	2.3	France	Water Management	2.1
7	India	Crop Rotation	2.2	India	Water Management	2.2
8	Nigeria	Crop Rotation	2.3	Nigeria	Water Management	2.2
9	Russia	Crop Rotation	2.2	Russia	Water Management	2.1
10	USA	Crop Rotation	2.2	USA	Water Management	2.3

14. Retrieve the total number of extreme weather events for each country over the years.

Query   Query History

```sql
1  select country, sum(extreme_weather_events) as Total_extreme_events
2  from crop
3  group by 1
4  order by 2 desc
5
```

Data Output   Messages   Notifications

	country character varying (50)	total_extreme_events bigint
1	USA	5303
2	Nigeria	5216
3	Australia	5192
4	Argentina	5048
5	Canada	4999
6	China	4996
7	India	4868
8	Brazil	4746
9	France	4729
10	Russia	4712

15. Find the top 3 regions by pesticide use per hectare and the corresponding crop types for each region

Query   Query History

```sql
1  select region, crop_type, cast(sum(pesticides_used) as integer) as Total_pesticides
2  from crop
3  group by 1,2
4  order by 3 desc
5  limit 3
```

Data Output   Messages   Notifications

	region character varying (50)	crop_type character varying (50)	total_pesticides integer
1	South	Coffee	2301
2	Northeast	Fruits	2173
3	Northeast	Wheat	2173

16. Identify the relationship between crop yield and CO2 emissions by calculating the correlation for each country.

Query   Query History

```sql
1 v  select round(cast(corr(avg_co2_emissions, avg_crop_yeilds) as decimal),3) as correlations from
2    (select country, round(cast(avg(co2_emissions_mt) as decimal),1) as avg_co2_emissions,
3    round(cast(avg(crop_yield_mt_per_ha)as decimal),1) as avg_crop_yeilds
4    from crop
5    group by 1)as q
6
```

Data Output   Message:

	correlation numeric
1	-0.429

A correlation coefficient of -0.429 indicates a moderate negative relationship between Crop Yield and Co2 Emissions

17. Determine the top 3 regions with the highest average crop yield for each year.

```
1 ⌄  select * from
2     (select *, row_number()over(partition by year order by avg_crop_yields desc) as ranks from
3     (select year, region, round(cast(avg(crop_yield_mt_per_ha) as decimal),1) as Avg_crop_yields
4     from crop
5     group by 1,2)as q)as l
6     where ranks <= 3
```

Data Output   Messages   Notifications

	year integer	region character varying (50)	avg_crop_yields numeric	ranks bigint
1	1990	Northwest	3.5	1
2	1990	South East	3.3	2
3	1990	Grand Est	3.0	3
4	1991	Midwest	3.0	1
5	1991	Provence-Alpes-Cote d'Azur	2.9	2
6	1991	Nouvelle-Aquitaine	2.9	3
7	1992	Quebec	3.4	1
8	1992	South East	2.8	2
9	1992	West Bengal	2.8	3
10	1993	British Columbia	3.3	1
11	1993	East	3.0	2