Show only the top 5 rows from the members table?

select * from `cryptocurrency.members` limit 5

member_id ▼	first_name ▼	region ▼
c20ad4	Leah	Asia
6512bd	Vikram	India
d3d944	Enoch	Africa
c4ca42	Danny	Australia
45c48c	Ben	Australia

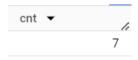
Sort all the rows in the members table by first_name in alphabetical order and show the top 3 rows with all columns?

```
select *
from `cryptocurrency.members`
order by first_name
limit 3
```



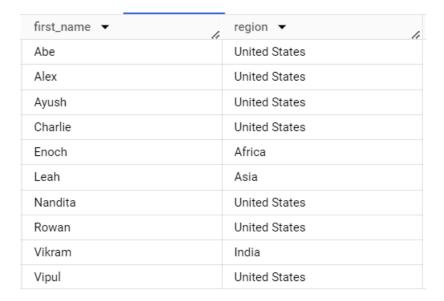
Count the number of records from the members table which have United States as the region value?

select count(*) as cnt
from `cryptocurrency.members`
where region = "United States"



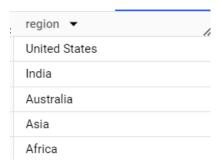
Select only the first_name and region columns for mentors who are not from Australia?

select first_name, region
from `cryptocurrency.members`
where region <> 'Australia'
order by first_name



Return only the unique region values from the members table and sort the output by reverse alphabetical order?

select distinct region from `cryptocurrency.members` order by region desc



How many records are there per ticker value in the prices table?

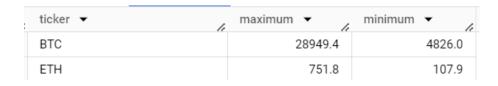
select ticker, count(*) cnt
from `cryptocurrency.prices`

group by ticker



What is the maximum, minimum values for the price column for both Bitcoin and Ethereum in 2020?

select ticker, max(price) as maximum, min(price) minimum from `cryptocurrency.prices` where extract(year from market_date) = 2020 group by ticker



What is the annual minimum, maximum and average price for each ticker?

```
select ticker, years, min(price) min_price, max(price) max_price ,
avg(price) avg_price
from
(select extract(year from market_date) as years, ticker, price
from `cryptocurrency.prices`
) x
group by ticker, years
order by years
```

ticker ▼	years ▼	min_price ▼	max_price ▼	avg_price ▼
BTC	2017	785.4	19345.5	3981.072328767
ETH	2017	8.2	799.98	220.3373698630
BTC	2018	3228.7	17172.3	7552.158356164
ETH	2018	83.81	1380.0	481.3285753424
BTC	2019	3397.7	13063.8	7371.821917808
ETH	2019	104.55	338.54	180.9929863013
BTC	2020	4826.0	28949.4	11111.63114754
ETH	2020	107.9	751.8	307.2967759562
BTC	2021	29359.9	63540.9	44353.54979253
ETH	2021	729.12	4167.78	2199.116514522

What is the monthly average of the price column for each ticker from January 2020 and after?

select ticker, month, round(avg(price),2) as avg_price from

```
(select ticker, format_date('%Y-%m', market_date) as month,price
from `cryptocurrency.prices`
) x
where month >= '2020-01'
group by ticker, month
order by ticker, month, avg_price desc
```

ticker ▼	month ▼	avg_price ▼
BTC	2020-01	8378.8
BTC	2020-02	9636.56
BTC	2020-03	6863.11
BTC	2020-04	7211.03
BTC	2020-05	9253.55
BTC	2020-06	9481.85
BTC	2020-07	9592.1
BTC	2020-08	11638.41
BTC	2020-09	10643.33
BTC	2020-10	11888.36
BTC	2020-11	16660.77
BTC	2020-12	21982.05

Convert the volume column in the prices table with an adjusted integer value to take into the unit values

Return only the market_date, price, volume and adjusted_volume columns for the first 10 days of August 2021 for Ethereum only

```
select market_date, price, volume,
    case when substr(volume, -1) = 'K' then cast(left(volume,
length(volume)-1) as numeric) *1000
        when substr(volume, -1) = 'M' then cast(left(volume,
length(volume)-1) as numeric) *1000000
        end adjusted_volume
from `cryptocurrency.prices`
where market_date between '2021-08-01' and '2021-08-10' and ticker =
"ETH"
order by market_date, adjusted_volume desc
```

market_date ▼	price ▼	volume ▼	adjusted_volume
2021-08-01	2556.23	1.20M	1200000
2021-08-02	2608.04	970.67K	970670
2021-08-03	2506.65	158.45K	158450
2021-08-04	2725.29	1.23M	1230000
2021-08-05	2827.21	1.65M	1650000
2021-08-06	2889.43	1.06M	1060000
2021-08-07	3158.0	64.84K	64840
2021-08-08	3012.07	1.25M	1250000
2021-08-09	3162.93	1.44M	1440000
2021-08-10	3140.71	1.12M	1120000

How many "breakout" days were there in 2020 where the price column is greater than the open column for each ticker? In the same query also calculate the number of "non breakout" days where the price column was lower than or equal to the open column.

```
with cte_1 as (select ticker, count(market_date) breakout_days from `cryptocurrency.prices` where extract(year from market_date) = 2020 and price > open
```

```
group by ticker),
```

```
cte_2 as (select ticker, count(market_date) non_breakout_days from `cryptocurrency.prices` where extract(year from market_date) = 2020 and price <= open group by ticker)
```

```
select c1.*, c2.non_breakout_days
from cte_1 c1
join cte_2 c2
on c1.ticker = c2.ticker
```

ticker ▼	breakout_days ▼	non_breakout_days
BTC	207	159
ETH	200	166

What was the final quantity Bitcoin and Ethereum held by all Data With Danny mentors based off the transactions table?

select t.ticker,

```
round(sum(case when txn_type = 'BUY' then quantity
  else -quantity
  end ),2) quantity_sum
```

from `cryptocurrency.transactions` t join `cryptocurrency.members` m
on m.member_id = t.member_id
where first_name = 'Danny'
group by t.ticker

ticker ▼	11	quantity_sum ▼
BTC		3304.88
ETH		3505.04

What are the market_date, price and volume and price_rank values for the days with the top 5 highest price values for each tickers in the prices table?

```
with cte_1 as (select_ticker, market_date, volume, price, rank()over(partition by ticker order by price desc) as price_rank from `cryptocurrency.prices`
```

```
order by price desc
)
select * from cte_1
where price_rank <=5
```

ticker ▼	market_date ▼	volume ▼	price ▼	price_rank ▼
BTC	2021-04-13	126.56K	63540.9	1
BTC	2021-04-15	76.97K	63216.0	2
BTC	2021-04-14	130.43K	62980.4	3
BTC	2021-04-16	136.85K	61379.7	4
BTC	2021-03-13	134.64K	61195.3	5
ETH	2021-05-11	1.27M	4167.78	1
ETH	2021-05-14	2.06M	4075.38	2
ETH	2021-05-10	2.70M	3947.9	3
ETH	2021-05-09	1.94M	3922.23	4
ETH	2021-05-08	1.34M	3905.55	5

Calculate a 7 day rolling average for the price and volume columns in the prices table for each ticker..

Return only the first 10 days of August 2021

```
with cte_1 as (select ticker,
             market date.
             price,
             volume.
             case when substr(volume, -1) = 'K' then cast(left(volume,
length(volume)-1) as numeric)*1000
            when substr(volume, -1) = 'M' then cast(left(volume,
length(volume)-1) as numeric) *1000000
            end volume1
from `cryptocurrency.prices`),
cte_2 as (select ticker,
          market_date, price,
          round(avg(price)over(partition by ticker order by
market_date rows between 6 preceding and current row ),2) as
rolling_avg_price,
          round(avg(volume1)over(partition by ticker order by
market_date desc rows between 6 preceding and current row ),2) as
rolling avg volume,
           row_number()over(partition by ticker order by market_date)
rn
from cte 1
```

where market_date between '2021-08-01' and '2021-08-10')

select ticker, market_date, price, rolling_avg_price, rolling_avg_volume
from cte_2

order by ticker, market_date

Row	ticker ▼	market_date ▼	price ▼	rolling_avg_price	rolling_avg_volume
1	BTC	2021-08-01	39878.3	39878.3	84284.29
2	BTC	2021-08-02	39168.4	39523.35	87844.29
3	BTC	2021-08-03	38130.3	39059.0	93882.86
4	BTC	2021-08-04	39736.9	39228.48	105352.86
5	BTC	2021-08-05	40867.2	39556.22	109708.33
6	BTC	2021-08-06	42795.4	40096.08	105530
7	BTC	2021-08-07	44614.2	40741.53	103930
8	BTC	2021-08-08	43792.8	41300.74	100960
9	BTC	2021-08-09	46284.3	42317.3	98815
10	BTC	2021-08-10	45593.8	43383.51	80550

Calculate the daily percentage change in volume for each ticker in the prices table?

- a)Percentage change can be calculated as (current previous) / previous
- b)Multiply the percentage by 100 and round the value to 2 decimal places
- c)Return data for the first 10 days of August 2021

```
with cte_1 as (select ticker, volume, market_date,
  (case when substr(volume, -1) = 'K' then
  cast(left(volume,length(volume)-1) as numeric)*1000
     when substr(volume, -1) = 'M' then cast(left(volume,length(volume)-
1) as numeric) *1000000
     end ) volume1
from `cryptocurrency.prices`
where market_date between '2021-08-01' and '2021-08-10'
)
select ticker,
     market_date,
     volume1 as volume,
     lag(volume1)over(partition by ticker order by market_date) as
lag_volume,
```

ifnull(round((volume1 - lag(volume1)over(partition by ticker order by market_date))/ lag(volume1)over(partition by ticker order by market_date)*100,2),0) as percentage_change from cte_1 order by ticker

ticker ▼	market_date ▼	volume ▼	lag_volume ▼	percentage_change
BTC	2021-08-01	80330	null	0
BTC	2021-08-02	74810	80330	-6.87
BTC	2021-08-03	260	74810	-99.65
BTC	2021-08-04	79220	260	30369.23
BTC	2021-08-05	130600	79220	64.86
BTC	2021-08-06	111930	130600	-14.3
BTC	2021-08-07	112840	111930	0.81
BTC	2021-08-08	105250	112840	-6.73
BTC	2021-08-09	117080	105250	11.24
BTC	2021-08-10	80550	117080	-31.2
ETH	2021-08-01	1200000	null	0
ETH	2021-08-02	970670	1200000	-19.11
ETH	2021-08-03	158450	970670	-83.68
ETH	2021-08-04	1230000	158450	676.27
ETH	2021-08-05	1650000	1230000	34.15
ETH	2021-08-06	1060000	1650000	-35.76
ETH	2021-08-07	64840	1060000	-93.88
ETH	2021-08-08	1250000	64840	1827.82
ETH	2021-08-09	1440000	1250000	15.2
ETH	2021-08-10	1120000	1440000	-22.22

Which top 3 mentors have the most Bitcoin quantity? Return the first_name of the mentors and sort the output from highest to lowest total_quantity?

```
select first_name,
sum(case when txn_type = 'BUY' then quantity else -quantity end) as
Bitcoin_quantity
from `cryptocurrency.members` m
left join `cryptocurrency.transactions` t
on m.member_id = t.member_id
where ticker = 'BTC'
```

group by first_name order by Bitcoin_quantity desc limit 3

first_name ▼	Bitcoin_quantity 🔻
Nandita	4160.219869513
Leah	4046.090896666
Ayush	3945.198083265

Show the market_date values which have less than 5 transactions? Sort the output in reverse chronological order.

```
select txn_date, count(t.txn_id) as transactions
from `cryptocurrency.prices` p
join `cryptocurrency.transactions` t
on p.ticker = t.ticker
and p.market_date = t.txn_date
group by txn_date
having count(t.txn_id) <5
order by transactions</pre>
```

txn_date ▼	transactions 🔻
2019-06-14	3
2021-07-17	3
2021-01-06	4
2018-10-20	4
2019-07-15	4
2020-01-17	4

Multiple Table Joins

For this question - we will generate a single table output which solves a multi-part problem about the dollar cost average of BTC purchases.

Part 1: Calculate the Dollar Cost Average a) What is the dollar cost average (btc_dca) for all Bitcoin purchases by region for each calendar year? Create a column called year_start and use the start of the calendar year The dollar cost average calculation is btc_dca = SUM(quantity x price) / SUM(quantity)

Part 2: Yearly Dollar Cost Average Ranking b) Use this btc_dca value to generate a dca_ranking column for each year The region with the lowest btc_dca each year has a rank of 1

Part 3: Dollar Cost Average Yearly Percentage Change c) Calculate the yearly percentage change in DCA for each region to 2 decimal places This calculation is (current - previous) / previous Finally order the output by region and year_start columns.

```
with cte 1 as
(select region, DATE_TRUNC( market_date, YEAR)
year_start, sum(quantity*price)/sum(quantity) as btc_dca
from `cryptocurrency.members` m
join `cryptocurrency.transactions` t
on t.member_id = m.member id
join `cryptocurrency.prices` p
on p.ticker = t.ticker
and p.market date = t.txn date
where txn_type = 'BUY' and p.ticker = 'BTC'
group by region, year_start)
select *.
    dense_rank()over(partition by region order by btc_dca) as
dca ranking.
   ifnull(round((btc_dca - lag(btc_dca)over(partition by region order by
year_start))/ lag(btc_dca)over(partition by region order by
year_start)*100,2),0)
from cte_1
order by region, year_start
```

Row	region ▼	year_start ▼	btc_dca ▼	dca_ranking ▼	percentage_change
1	Africa	2017-01-01	3987.626286717	1	0.0
2	Africa	2018-01-01	7690.712833435	3	92.86
3	Africa	2019-01-01	7368.820379877	2	-4.19
4	Africa	2020-01-01	11114.12477256	4	50.83
5	Africa	2021-01-01	44247.21525962	5	298.12
6	Asia	2017-01-01	4002.938702624	1	0.0
7	Asia	2018-01-01	7829.998856964	3	95.61
8	Asia	2019-01-01	7267.678553097	2	-7.18
9	Asia	2020-01-01	10759.62115482	4	48.05
10	Asia	2021-01-01	44570.90086971	5	314.24