Fetching the minimum and maximum values by year, by symbol and bring the date of said values. By Ricardo Kazuo

MinMax.sql

Step 1

Let's first fetch the minimum value for the current year.

```
select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto]
where YEAR(Date) = YEAR(GETDATE()) group by [Crypto]
```

	Crypto	Min
1	ETH-USD	2210.761962890625
2	BONK-USD	1.1000000085914508e-05
3	WOO-USD	0.378244012594223
4	AXS-USD	7.473691940307617
5	KLAY-USD	0.17833499610424042

Step 2

Let's join the previous result to find out the date of the fetched values, the join will use the crypto name and the crypto values as key.

```
select b.[Crypto], [Date], [Close] as 'Min Close' FROM [Stocks].[dbo].[Crypto]  as a
join
(
	select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto]
	where YEAR(Date) = YEAR(GETDATE())  group by [Crypto]
) as b
on a.Crypto = b.Crypto and a.[Close] = b.Min
```

	Crypto	Date	Min Close
1	BNB-USD	2024-01-12 00:00:00.000	296.6304626464844
2	WBTC-USD	2024-01-14 00:00:00.000	41864.484375
3	SHIB-USD	2021-05-24 00:00:00.000	1.1000000085914508e-05
4	SHIB-USD	2022-05-12 00:00:00.000	1.1000000085914508e-05
5	SHIB-USD	2022-05-26 00:00:00.000	1.1000000085914508e-05
6	SHIB-USD	2022-05-28 00:00:00.000	1.1000000085914508e-05

Step 3

In case we have days with the same result, let's clean it up.

```
;WITH cte AS (
	SELECT*, row_number() OVER(PARTITION BY Crypto, 'Min Close' ORDER BY Date desc) AS
[rn]
	FROM
	(
		select b.[Crypto], [Date], [Close] as 'Min Close' FROM
[Stocks].[dbo].[Crypto]  as a
		join
		(select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto] where
YEAR(Date) = 2024  group by [Crypto]) as b
		on a.Crypto = b.Crypto and a.[Close] = b.Min
	) as temp
)
select Crypto, Date, [Min Close] from cte WHERE [rn] = 1
```

Results | Messages

	Crypto	Date	Min Close
1	1000SATS-USD	2024-01-09 00:00:00.000	0.000592999751970172
2	AAVE-USD	2024-01-17 00:00:00.000	101.45032501220703
3	ADA-USD	2024-01-07 00:00:00.000	0.4941740036010742
4	ALGO-USD	2024-01-07 00:00:00.000	0.17802099883556366
5	APT21794-USD	2024-01-13 00:00:00.000	10.0178804397583
6	ARB11841-USD	2024-01-07 00:00:00.000	1.7200419902801514
7	ASTR-USD	2024-01-07 00:00:00.000	0.12780599296092987
8	ATOM-USD	2024-01-17 00:00:00.000	10.099952697753906
9	AVAX-USD	2024-01-07 00:00:00.000	33.62965393066406
10	AXS-USD	2024-01-09 00:00:00.000	7.473691940307617

Step 4

Let's create a while to loop into all the available years.

```
DECLARE @MinYear INT
DECLARE @MaxYear INT
SET @MinYear= (SELECT YEAR(MIN(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
SET @MaxYear= (SELECT YEAR(MAX(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
WHILE ( @MinYear <= @MaxYear)
BEGIN
	PRINT 'The counter value is = ' + CONVERT(VARCHAR,@MinYear)
	SET @MinYear  = @MinYear  + 1
END
```

Messages

```
The counter value is = 2014
The counter value is = 2015
The counter value is = 2016
The counter value is = 2017
The counter value is = 2018
The counter value is = 2019
The counter value is = 2020
The counter value is = 2021
The counter value is = 2022
The counter value is = 2023
The counter value is = 2024
```

Step 5

Let's join steps 3 and 4 to fetch the data for all the years.

```
DECLARE @MinYear INT
DECLARE @MaxYear INT
SET @MinYear= (SELECT YEAR(MIN(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
SET @MaxYear= (SELECT YEAR(MAX(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
WHILE ( @MinYear <= @MaxYear)
BEGIN
	--PRINT 'The counter value is = ' + CONVERT(VARCHAR,@MinYear)
	;WITH cte AS (
		SELECT*, row_number() OVER(PARTITION BY Crypto, 'Min Close' ORDER BY Date
desc) AS [rn]
		FROM
		(
			select b.[Crypto], [Date], [Close] as 'Min Close' FROM
[Stocks].[dbo].[Crypto]  as a
			join
			(	select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto]
				where YEAR(Date) = @MinYear  group by [Crypto]
			) as b
			on a.Crypto = b.Crypto and a.[Close] = b.Min
		) as temp
	)
	select Crypto, Date, [Min Close] from cte WHERE [rn] = 1
	SET @MinYear  = @MinYear  + 1
END
```

Results Messages

	Crypto	Date	Min Close
1	BTC-USD	2014-12-30 00:00:00.000	310.73699951171875
2	LTC-USD	2014-12-29 00:00:00.000	2.694819927215576

	Crypto	Date	Min Close
1	BTC-USD	2015-01-14 00:00:00.000	178.10299682617188
2	LTC-USD	2015-01-14 00:00:00.000	1.1570099592208862

	Crypto	Date	Min Close
1	BTC-USD	2016-01-15 00:00:00.000	364.33099365234375
2	LTC-USD	2016-01-15 00:00:00.000	2.9967799186706543

	Crypto	Date	Min Close
1	ADA-USD	2017-11-12 00:00:00.000	0.023977000266313553
2	BCH-USD	2017-11-10 00:00:00.000	1007.4199829101562
3	BNB-USD	2017-11-17 00:00:00.000	1.5103600025177002
4	BTC-USD	2017-02-11 00:00:00.000	1004.4500122070312

As we can see, we have a paginated result, so we will add an insert query for each result.

Step 6

Let's add the insert query in the final query for the minimum value.

```
DECLARE @MinYear INT
DECLARE @MaxYear INT
SET @MinYear= (SELECT YEAR(MIN(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
SET @MaxYear= (SELECT YEAR(MAX(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
WHILE ( @MinYear <= @MaxYear)
BEGIN
    --PRINT 'The counter value is = ' + CONVERT(VARCHAR,@MinYear)
    ;WITH cte AS (
        SELECT*, row_number() OVER(PARTITION BY Crypto, 'Min Close' ORDER BY Date desc) AS [rn]
        FROM
        (
            select b.[Crypto], [Date], [Close] as 'Min Close' FROM [Stocks].[dbo].[Crypto]  as a
            join
            (   select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto]
                where YEAR(Date) = @MinYear  group by [Crypto]
            ) as b
            on a.Crypto = b.Crypto and a.[Close] = b.Min
        ) as temp
    )
    insert into [Stocks].[dbo].[Crypto_Min_Max_Close] (Crypto,Date,[Close],[Type])
    select Crypto, Date, [Min Close], 'Min' from cte WHERE [rn] = 1
    SET @MinYear  = @MinYear  + 1
END
```

In the beginning of the query we can add a delete query, so there won't be any repeated values.

```
DELETE from [Stocks].[dbo].[Crypto_Min_Max_Close]
GO
```

Let's repeat all the above steps for the maximum value as well.

The final query

```
DELETE from [Stocks].[dbo].[Crypto_Min_Max_Close]
GO

DECLARE @MinYear INT
DECLARE @MaxYear INT
SET @MinYear= (SELECT YEAR(MIN(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
SET @MaxYear= (SELECT YEAR(MAX(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
WHILE ( @MinYear <= @MaxYear)
BEGIN
    ;WITH cte AS (
    SELECT*, row_number() OVER(PARTITION BY Crypto, 'Min Close' ORDER BY Date desc) AS [rn]
    FROM
    (
        select b.[Crypto], [Date], [Close] as 'Min Close' FROM [Stocks].[dbo].[Crypto]  as a
        join
        (select Crypto, min([Close]) Min FROM [Stocks].[dbo].[Crypto] where YEAR(Date) = @MinYear  group by [Crypto]) as b
        on a.Crypto = b.Crypto and a.[Close] = b.Min
    ) as temp)
    insert into [Stocks].[dbo].[Crypto_Min_Max_Close] (Crypto,Date,[Close],[Type])
    select Crypto, Date, [Min Close], 'Min' from cte WHERE [rn] = 1
  SET @MinYear  = @MinYear  + 1
END

SET @MinYear= (SELECT YEAR(MIN(Date)) AS MinYear FROM [Stocks].[dbo].[Crypto])
WHILE ( @MinYear <= @MaxYear)
BEGIN
    ;WITH cte AS (
    SELECT*, row_number() OVER(PARTITION BY Crypto, 'Max Close' ORDER BY Date desc) AS [rn]
    FROM
    (
        select b.[Crypto], [Date], [Close] as 'Max Close' FROM [Stocks].[dbo].[Crypto]  as a
        join
        (select Crypto, max([Close]) Max FROM [Stocks].[dbo].[Crypto] where YEAR(Date) = @MinYear  group by [Crypto]) as b
        on a.Crypto = b.Crypto and a.[Close] = b.Max
    ) as temp)
    insert into [Stocks].[dbo].[Crypto_Min_Max_Close] (Crypto,Date,[Close],[Type])
    select Crypto, Date, [Max Close], 'Max' from cte WHERE [rn] = 1
  SET @MinYear  = @MinYear  + 1
END
```