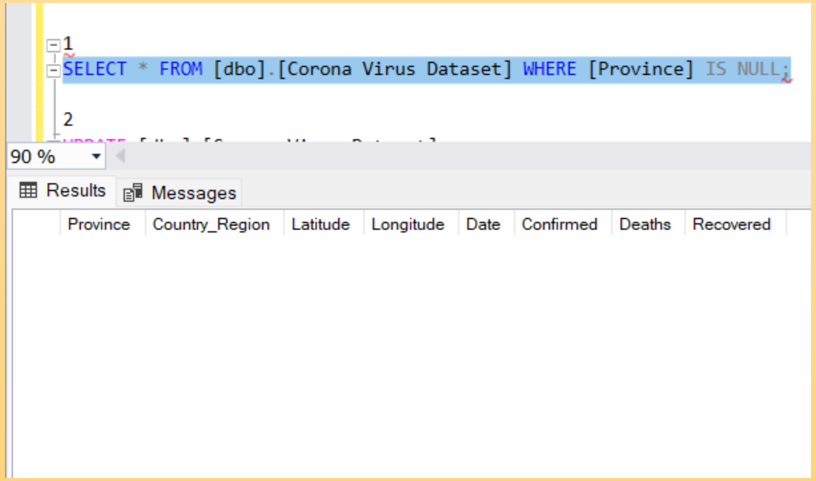
Corona Virus Analysis

1. Write code to check null values.

```
SELECT * FROM [dbo].[Corona Virus Dataset] WHERE [Province] IS NULL;
```



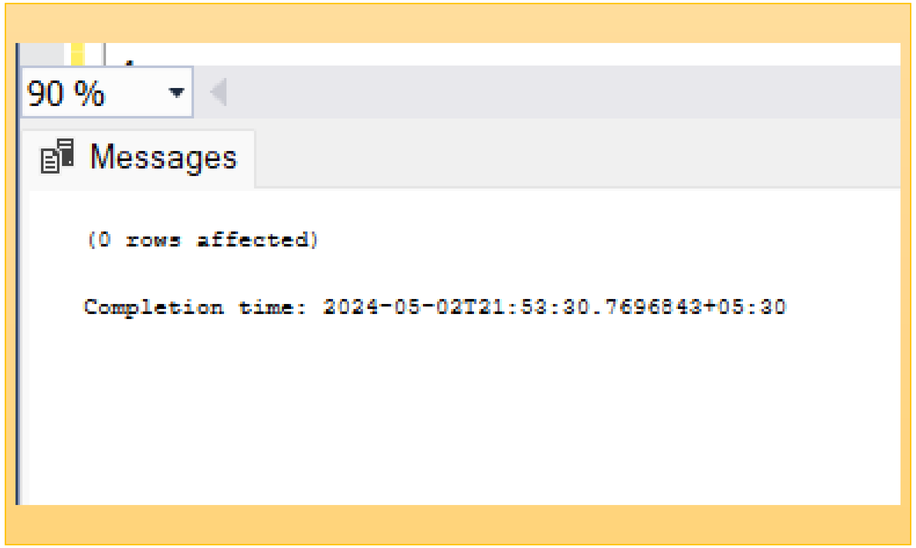
```
1
SELECT * FROM [dbo].[Corona Virus Dataset] WHERE [Province] IS NULL;

2
```

	Province	Country_Region	Latitude	Longitude	Date	Confirmed	Deaths	Recovered

> There are no null values in given database

2. If null values are present, update them to zeros for all columns

```
UPDATE [dbo].[Corona Virus Dataset]
SET Confirmed = ISNULL(Confirmed, 0),
    Deaths = ISNULL(Deaths, 0)
WHERE Confirmed IS NULL OR Deaths IS NULL;
```

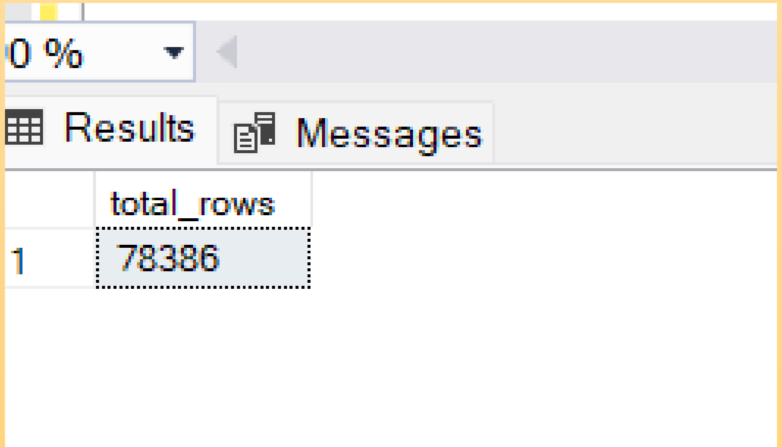


```
(0 rows affected)

Completion time: 2024-05-02T21:53:30.7696843+05:30
```

> There are no null values in given database

3. Check total number of rows.

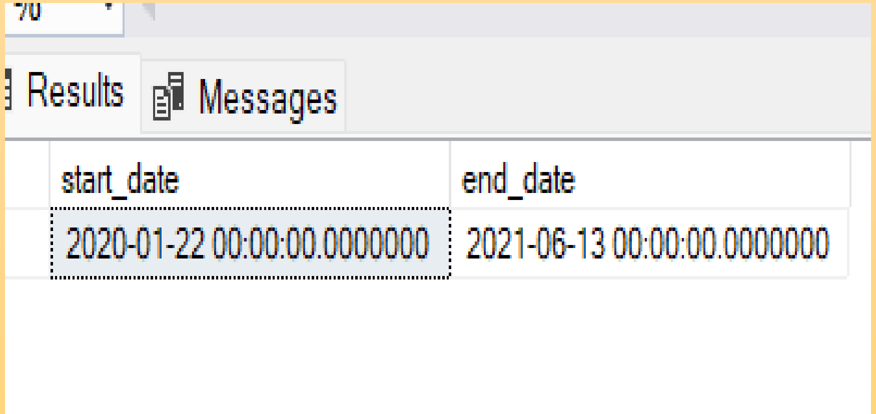
```
SELECT COUNT(*) AS total_rows FROM [dbo].[Corona Virus Dataset];
```



```
  total_rows
1 78386
```

4.Check what is start_date and end_date.

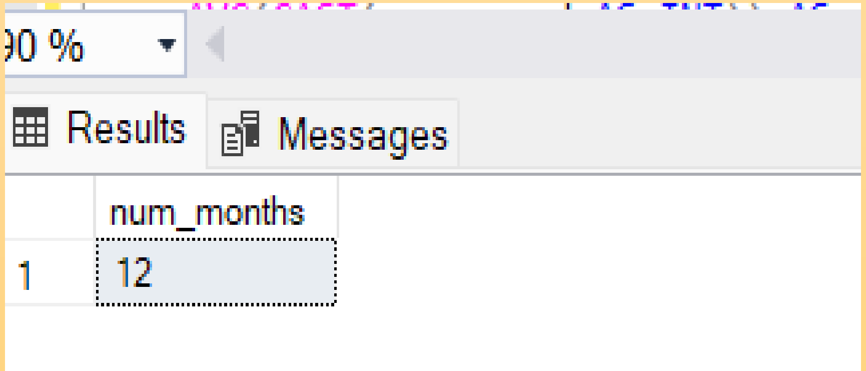
```
SELECT
   MIN(Date) AS start_date,
   MAX(Date) AS end_date
FROM  [dbo].[Corona Virus Dataset]
```



start_date	end_date
2020-01-22 00:00:00.0000000	2021-06-13 00:00:00.0000000

5.Number of month present in dataset.

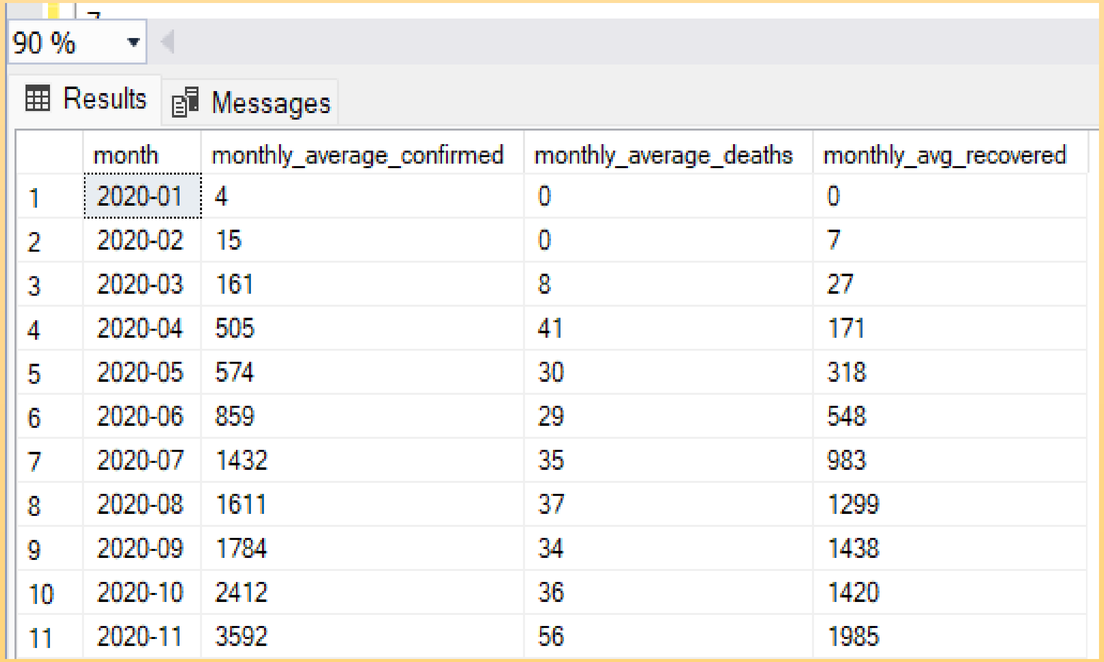
```
SELECT COUNT(DISTINCT MONTH(Date)) AS num_months
FROM [dbo].[Corona Virus Dataset];
```



	num_months
1	12

6. Find monthly average for confirmed,deaths,recovered.

```
SELECT
  FORMAT(Date, 'yyyy-MM') AS month,
  AVG(CAST(Confirmed AS INT)) AS monthly_average_confirmed,
           AVG(CAST(deaths AS INT)) AS monthly_average_deaths,
           AVG(CAST(recovered AS INT)) AS monthly_avg_recovered
FROM
  [dbo].[Corona Virus Dataset]
           GROUP BY
  FORMAT(Date, 'yyyy-MM')
ORDER BY
  month;
```

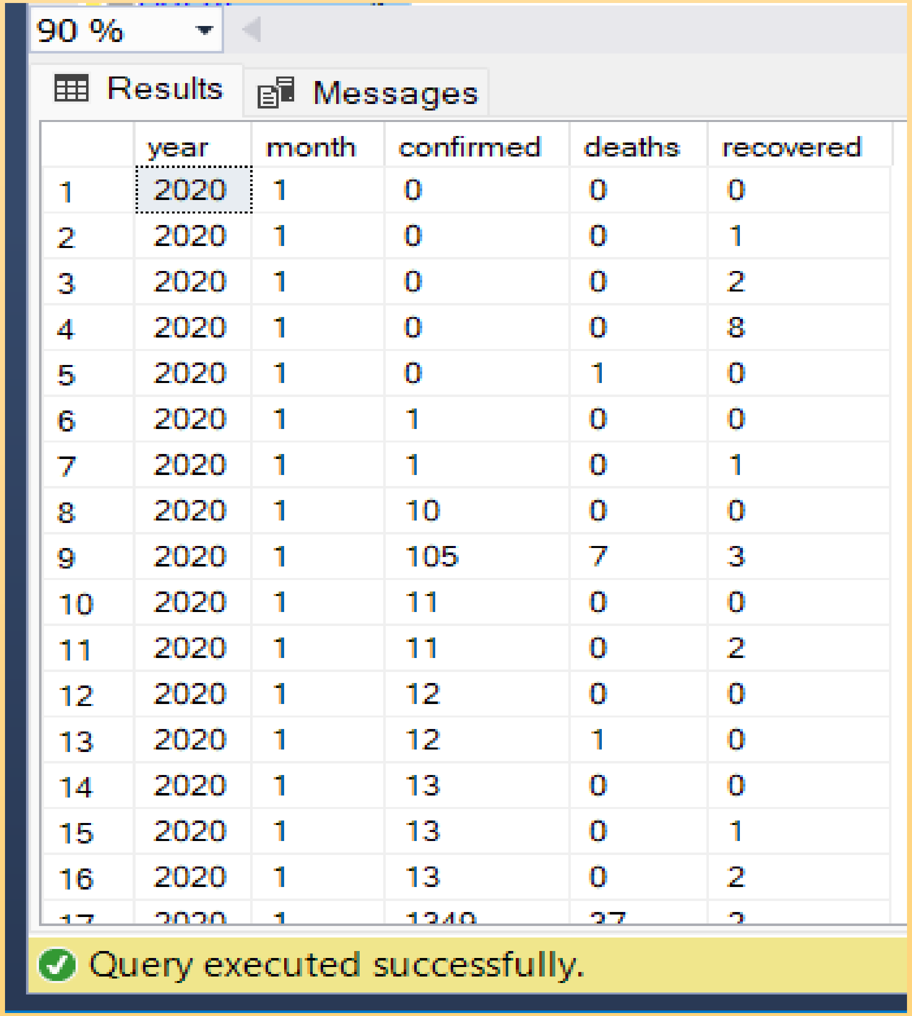


	month	monthly_average_confirmed	monthly_average_deaths	monthly_avg_recovered
1	2020-01	4	0	0
2	2020-02	15	0	7
3	2020-03	161	8	27
4	2020-04	505	41	171
5	2020-05	574	30	318
6	2020-06	859	29	548
7	2020-07	1432	35	983
8	2020-08	1611	37	1299
9	2020-09	1784	34	1438
10	2020-10	2412	36	1420
11	2020-11	3592	56	1985

7. Find most frequent value for confirmed,deaths,recovered each month.

```
WITH MonthlyCounts AS (
   SELECT
      YEAR(Date) AS year,
      MONTH(Date) AS month,
      confirmed,
      deaths,
      recovered,
      ROW_NUMBER() OVER (PARTITION BY YEAR(Date), MONTH(Date), confirmed, deaths, recovered ORDER BY COUNT(*) DESC) AS rn
   FROM  [dbo].[Corona Virus Dataset]
   GROUP BY YEAR(Date), MONTH(Date), confirmed, deaths, recovered
)
SELECT
   year,
   month,
   confirmed,
   deaths,
   recovered
FROM MonthlyCounts
WHERE rn = 1;
```

output 7

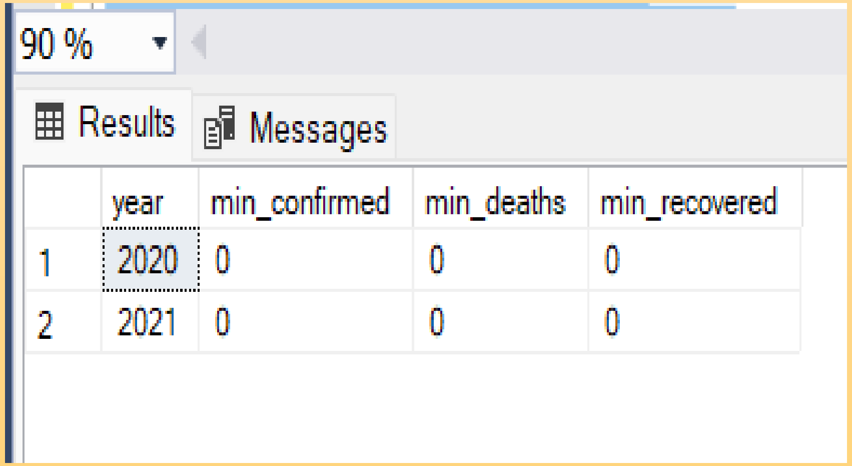


	year	month	confirmed	deaths	recovered
1	2020	1	0	0	0
2	2020	1	0	0	1
3	2020	1	0	0	2
4	2020	1	0	0	8
5	2020	1	0	1	0
6	2020	1	1	0	0
7	2020	1	1	0	1
8	2020	1	10	0	0
9	2020	1	105	7	3
10	2020	1	11	0	0
11	2020	1	11	0	2
12	2020	1	12	0	0
13	2020	1	12	1	0
14	2020	1	13	0	0
15	2020	1	13	0	1
16	2020	1	13	0	2
17	2020	1	1349	37	2

Query executed successfully.

8.Find minimum values for confirmed,deaths,recovered per month.

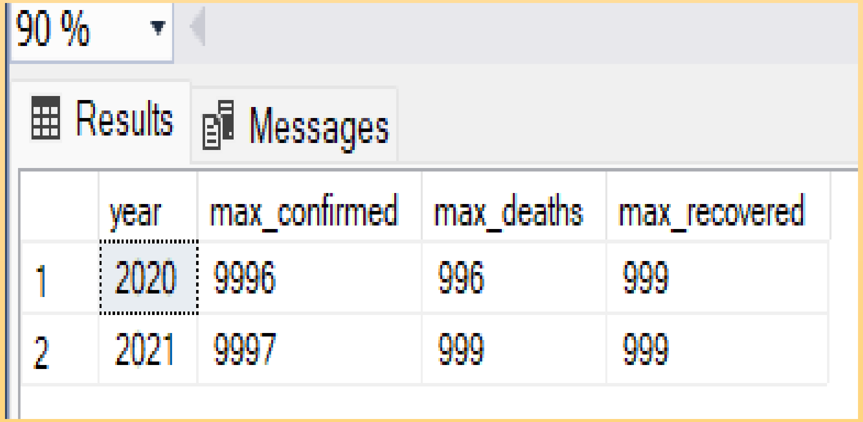
```
SELECT
   YEAR(Date) AS year,
   MIN(confirmed) AS min_confirmed,
   MIN(deaths) AS min_deaths,
   MIN(recovered) AS min_recovered
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
   YEAR(Date)
ORDER BY
   YEAR(Date) ASC;
```



	year	min_confirmed	min_deaths	min_recovered
1	2020	0	0	0
2	2021	0	0	0

9.Find maximum values of confirmed,deaths,recovered per year.

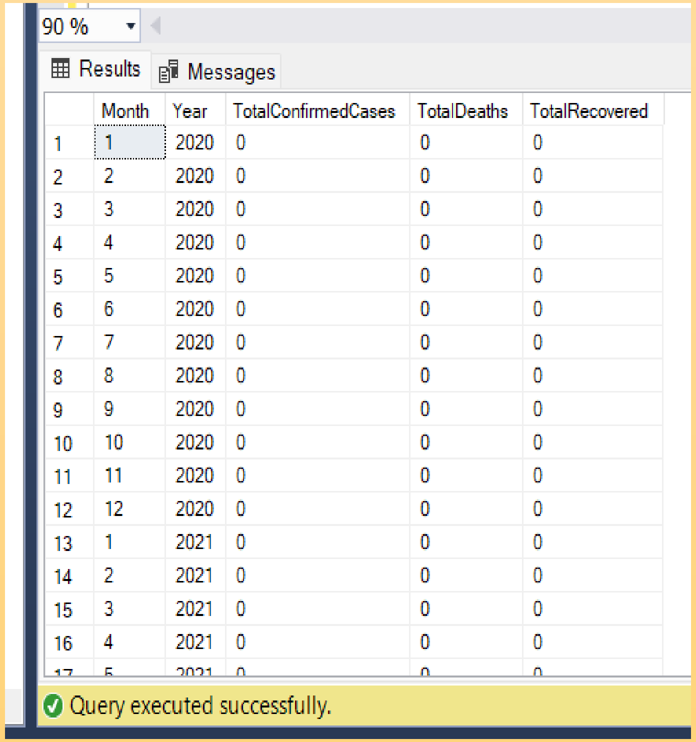
```
SELECT
    YEAR(Date) AS year,
    MAX(confirmed) AS max_confirmed,
    MAX(deaths) AS max_deaths,
    MAX(recovered) AS max_recovered
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
    YEAR(Date)
ORDER BY
    YEAR(Date) ASC;
```



	year	max_confirmed	max_deaths	max_recovered
1	2020	9996	996	999
2	2021	9997	999	999

10.The total number of case of confirmed,deaths,recovered each month.

```
SELECT
   MONTH(Date) AS Month,
   YEAR(Date) AS Year,
   SUM(CASE WHEN Confirmed = 'Confirmed' THEN 1 ELSE 0 END) AS TotalConfirmedCases,
   SUM(CASE WHEN Deaths = 'Deaths' THEN 1 ELSE 0 END) AS TotalDeaths,
   SUM(CASE WHEN Recovered = 'Recovered' THEN 1 ELSE 0 END) AS TotalRecovered
FROM [dbo].[Corona Virus Dataset]
GROUP BY YEAR(Date), MONTH(Date)
ORDER BY YEAR(Date), MONTH(Date);
```

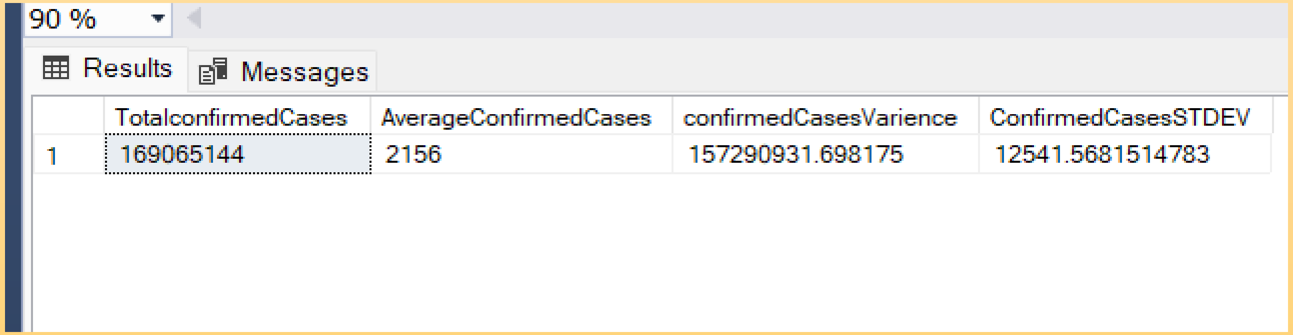


	Month	Year	TotalConfirmedCases	TotalDeaths	TotalRecovered
1	1	2020	0	0	0
2	2	2020	0	0	0
3	3	2020	0	0	0
4	4	2020	0	0	0
5	5	2020	0	0	0
6	6	2020	0	0	0
7	7	2020	0	0	0
8	8	2020	0	0	0
9	9	2020	0	0	0
10	10	2020	0	0	0
11	11	2020	0	0	0
12	12	2020	0	0	0
13	1	2021	0	0	0
14	2	2021	0	0	0
15	3	2021	0	0	0
16	4	2021	0	0	0
17	5	2021	0	0	0

Query executed successfully.

11.Check how corona virus spread out with respect to confirmed case (Eg.: total confirmed cases, their average, variance & STDEV).

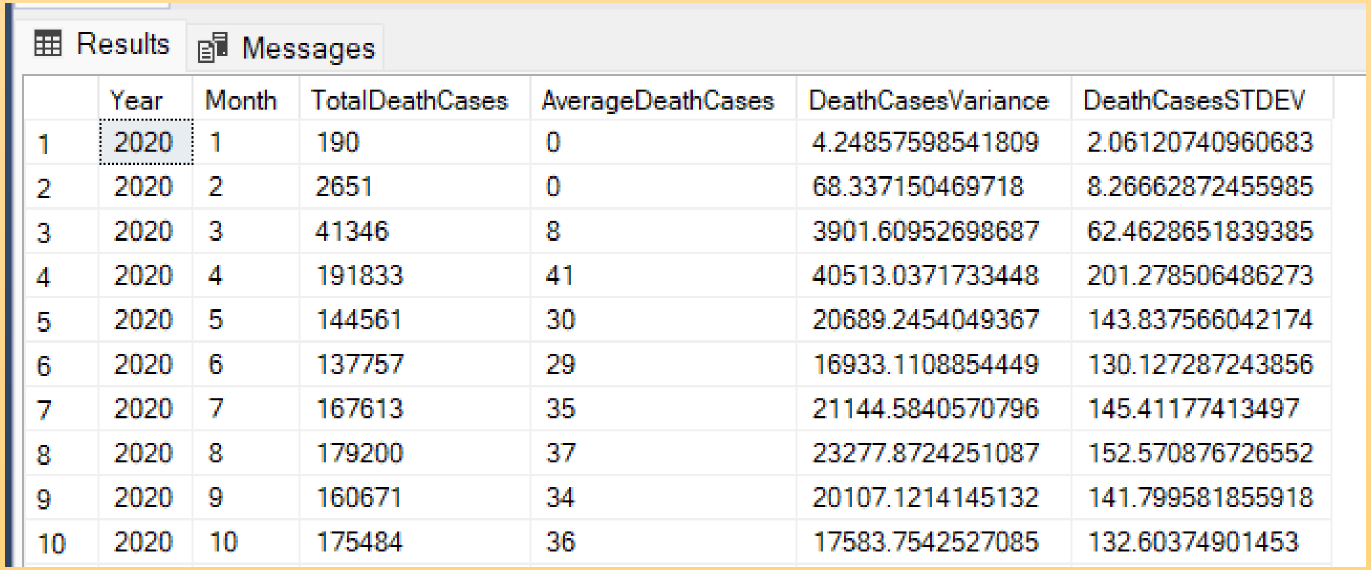
```
SELECT
  SUM(CAST(Confirmed AS INT)) AS TotalconfirmedCases,
  AVG(CAST(Confirmed AS INT)) AS AverageConfirmedCases,
              VAR(CAST(Confirmed AS INT)) AS confirmedCasesVarience,
  STDEV(CAST(Confirmed AS INT)) AS ConfirmedCasesSTDEV
  FROM [dbo].[Corona Virus Dataset]
```



	TotalconfirmedCases	AverageConfirmedCases	confirmedCasesVarience	ConfirmedCasesSTDEV
1	169065144	2156	157290931.698175	12541.5681514783

12. Check how corona virus spread out with respect to death case per month (Eg.: total confirmed cases, their average, variance & STDEV).

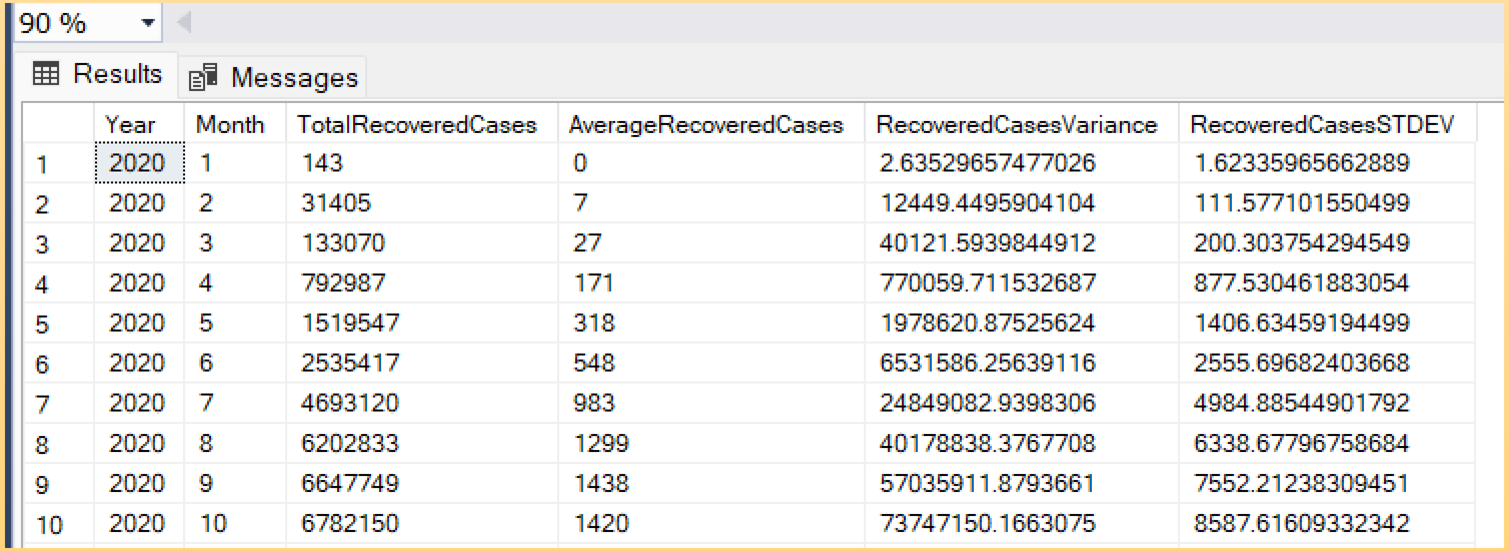
```
SELECT
   YEAR(Date) AS Year,
   MONTH(Date) AS Month,
   SUM(CAST(Deaths AS INT)) AS TotalDeathCases,
   AVG(CAST(Deaths AS INT)) AS AverageDeathCases,
   VAR( CAST(Deaths AS INT)) AS DeathCasesVariance,
   STDEV(CAST(Deaths AS INT)) AS DeathCasesSTDEV
FROM [dbo].[Corona Virus Dataset]
GROUP BY YEAR(Date), MONTH(Date)
ORDER BY Year, Month;
```



	Year	Month	TotalDeathCases	AverageDeathCases	DeathCasesVariance	DeathCasesSTDEV
1	2020	1	190	0	4.24857598541809	2.06120740960683
2	2020	2	2651	0	68.337150469718	8.26662872455985
3	2020	3	41346	8	3901.60952698687	62.4628651839385
4	2020	4	191833	41	40513.0371733448	201.278506486273
5	2020	5	144561	30	20689.2454049367	143.837566042174
6	2020	6	137757	29	16933.1108854449	130.127287243856
7	2020	7	167613	35	21144.5840570796	145.41177413497
8	2020	8	179200	37	23277.8724251087	152.570876726552
9	2020	9	160671	34	20107.1214145132	141.799581855918
10	2020	10	175484	36	17583.7542527085	132.60374901453

13 Check how corona virus spread out with respect to recovered case (Eg.: total confirmed cases, their average, variance & STDEV).

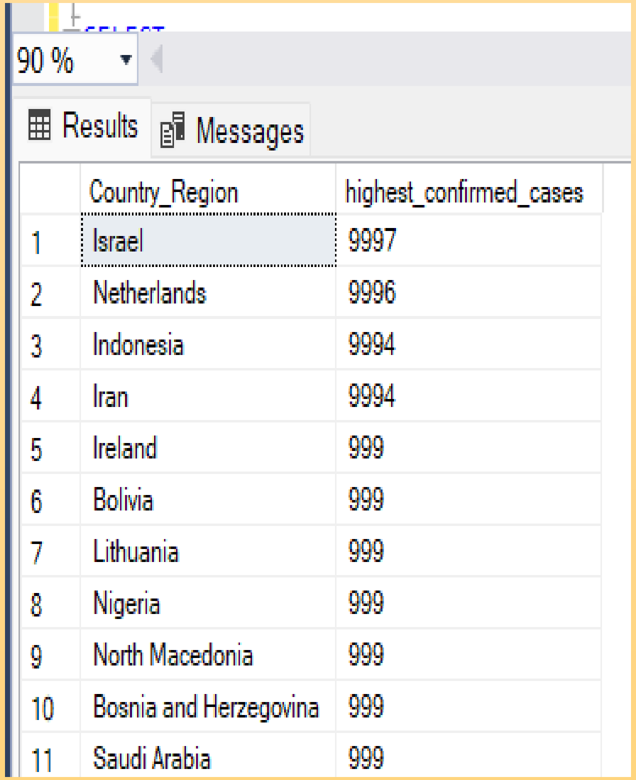
```
SELECT
   YEAR(Date) AS Year,
   MONTH(Date) AS Month,
   SUM(CAST(Recovered AS INT)) AS TotalRecoveredCases,
   AVG(CAST(Recovered AS INT)) AS AverageRecoveredCases,
   VAR( CAST(Recovered AS INT)) AS RecoveredCasesVariance,
   STDEV(CAST(Recovered AS INT)) AS RecoveredCasesSTDEV
FROM [dbo].[Corona Virus Dataset]
GROUP BY YEAR(Date), MONTH(Date)
ORDER BY Year, Month;
```



	Year	Month	TotalRecoveredCases	AverageRecoveredCases	RecoveredCasesVariance	RecoveredCasesSTDEV
1	2020	1	143	0	2.63529657477026	1.62335965662889
2	2020	2	31405	7	12449.4495904104	111.577101550499
3	2020	3	133070	27	40121.5939844912	200.303754294549
4	2020	4	792987	171	770059.711532687	877.530461883054
5	2020	5	1519547	318	1978620.87525624	1406.63459194499
6	2020	6	2535417	548	6531586.25639116	2555.69682403668
7	2020	7	4693120	983	24849082.9398306	4984.88544901792
8	2020	8	6202833	1299	40178838.3767708	6338.67796758684
9	2020	9	6647749	1438	57035911.8793661	7552.21238309451
10	2020	10	6782150	1420	73747150.1663075	8587.61609332342

14. Find Country having highest number of the Confirmed case.

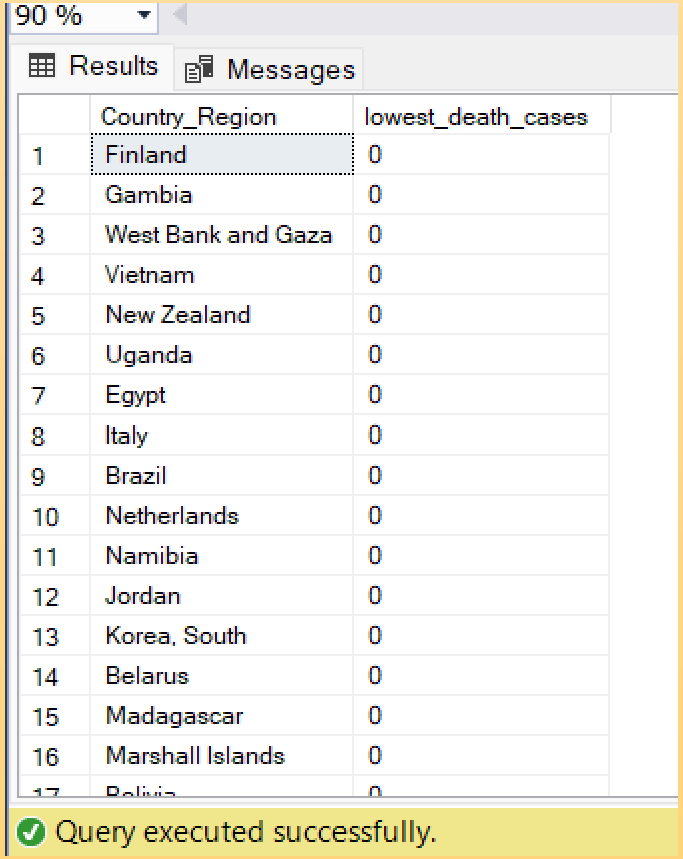
```
SELECT
    [Country_Region],
    MAX(confirmed) AS highest_confirmed_cases
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
    [Country_Region]
ORDER BY
    highest_confirmed_cases DESC;
```



	Country_Region	highest_confirmed_cases
1	Israel	9997
2	Netherlands	9996
3	Indonesia	9994
4	Iran	9994
5	Ireland	999
6	Bolivia	999
7	Lithuania	999
8	Nigeria	999
9	North Macedonia	999
10	Bosnia and Herzegovina	999
11	Saudi Arabia	999

15.Find the country having lowest number of death cases.

```
SELECT
     [Country_Region],
    MIN(deaths) AS lowest_death_cases
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
     [Country_Region]
ORDER BY
    lowest_death_cases ASC;
```

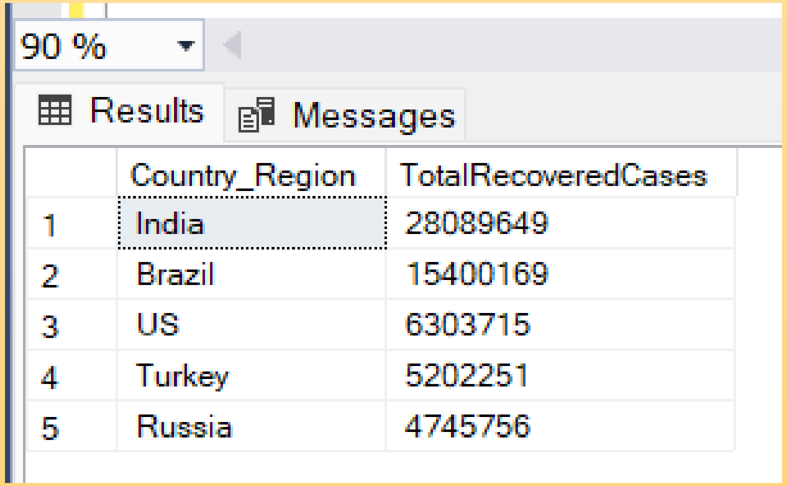


	Country_Region	lowest_death_cases
1	Finland	0
2	Gambia	0
3	West Bank and Gaza	0
4	Vietnam	0
5	New Zealand	0
6	Uganda	0
7	Egypt	0
8	Italy	0
9	Brazil	0
10	Netherlands	0
11	Namibia	0
12	Jordan	0
13	Korea, South	0
14	Belarus	0
15	Madagascar	0
16	Marshall Islands	0
17	Bolivia	0

Query executed successfully.

16. Find the top 5 countries having highest recovered case.

```
SELECT TOP 5 Country_Region, SUM(CAST(Recovered AS INT)) AS TotalRecoveredCases
FROM  [dbo].[Corona Virus Dataset]
GROUP BY Country_Region
ORDER BY TotalRecoveredCases DESC
```



	Country_Region	TotalRecoveredCases
1	India	28089649
2	Brazil	15400169
3	US	6303715
4	Turkey	5202251
5	Russia	4745756