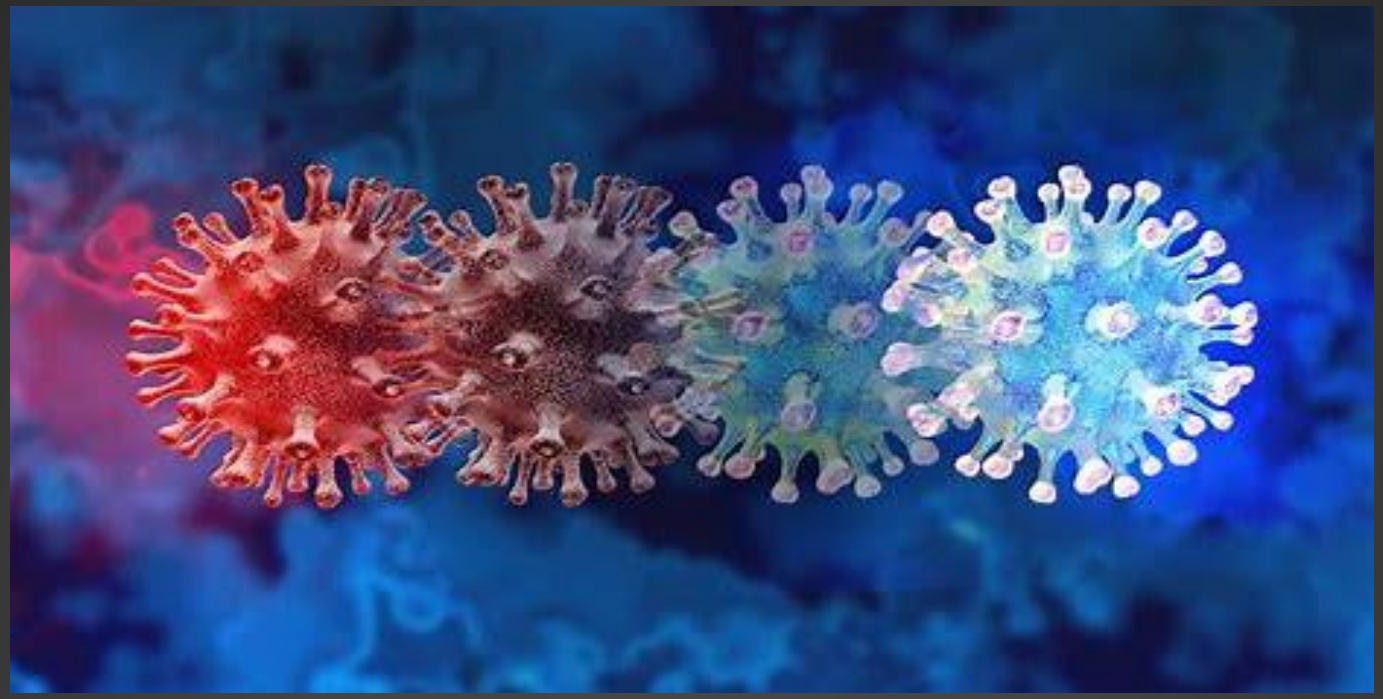


CORONA VIRUS ANALYSIS

PRESENTING BY:
AMBIKA BAI

CORONA VIRUS ANALYSIS

Overview:

The CORONA VIRUS pandemic has had significant impact on public health and has created an urgent need for data-driven insights to understand the spread of the virus. As a data analyst, you have been tasked with analyzing a CORONA VIRUS dataset to derive meaningful insights and present your findings.

- DATASET:

Description of each column in dataset:

Province: Geographic subdivision within a country/region.

Country/Region: Geographic entity where data is recorded.

Latitude: North-south position on Earth's surface

Longitude: East-west position on Earth's surface

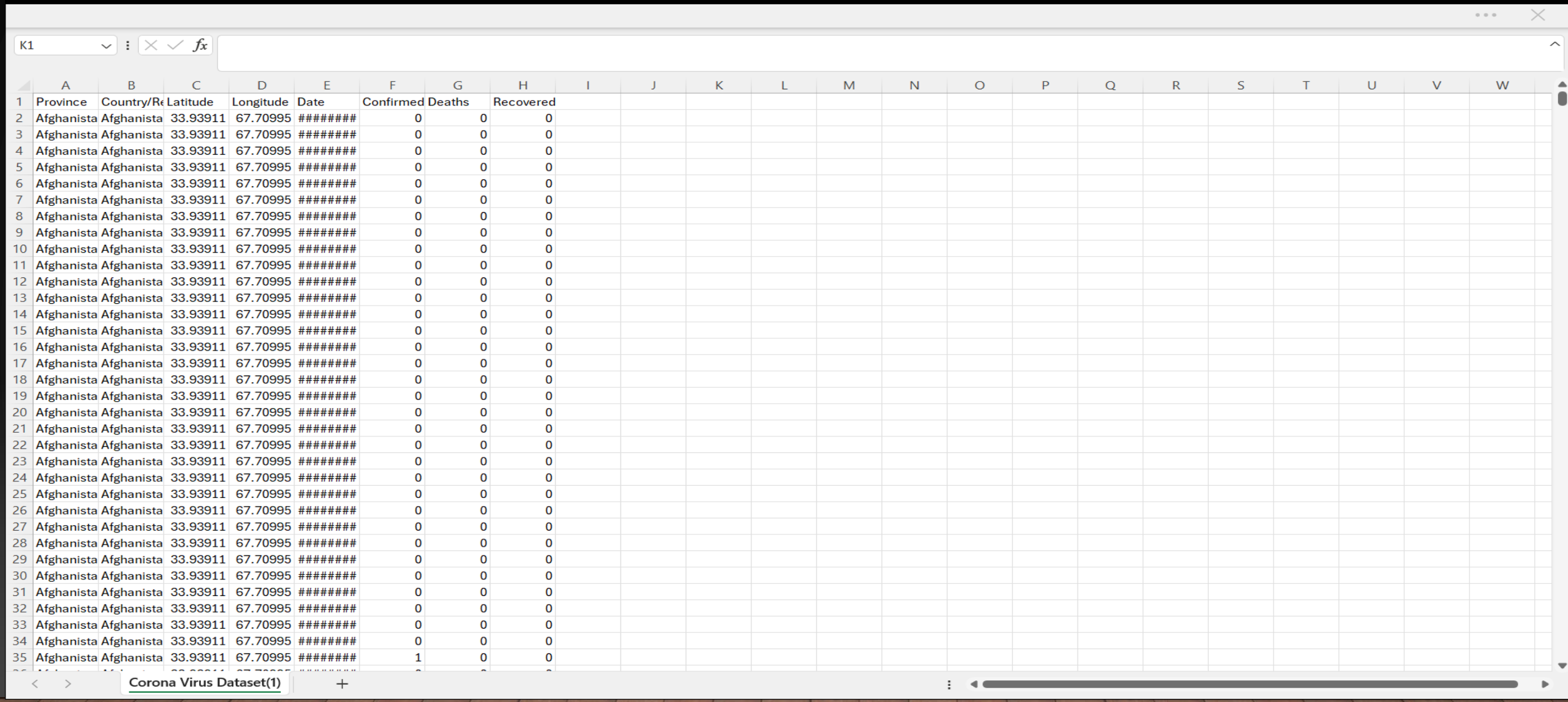
Date: Recorded date of CORONA VIRUS data.

Confirmed: Number of diagnosed CORONA VIRUS cases.

Deaths: Number of CORONA VIRUS related deaths.

Recovered: Number of recovered CORONA VIRUS cases.

CORONA VIRUS ANALYSIS DATABASE



K1

	A	B	C	D	E	F	G	H
1	Province	Country/Re	Latitude	Longitude	Date	Confirmed	Deaths	Recovered
2	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
3	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
4	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
5	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
6	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
7	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
8	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
9	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
10	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
11	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
12	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
13	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
14	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
15	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
16	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
17	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
18	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
19	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
20	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
21	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
22	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
23	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
24	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
25	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
26	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
27	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
28	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
29	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
30	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
31	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
32	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
33	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
34	Afghanista	Afghanista	33.93911	67.70995	########	0	0	0
35	Afghanista	Afghanista	33.93911	67.70995	########	1	0	0

Corona Virus Dataset(1)

TOOL USED FOR ANALYSIS

- MICROSOFT SQL SERVER MANAGEMENT STUDIO
- SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure, from SQL Server to Azure SQL Database. SSMS provides tools to configure, monitor, and administer instances of SQL Server and databases. Use SSMS to deploy, monitor, and upgrade the data-tier components used by your applications and build queries and scripts.

Corona Virus Analysis Dashboard

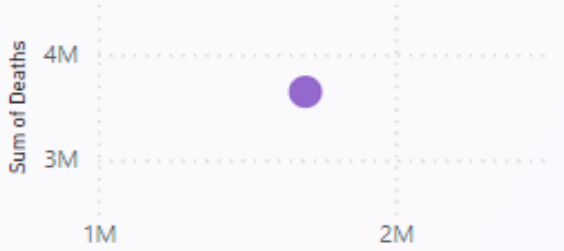
Year	Afghanistan	Algeria	Argentina	Australia
2020	51526	99610	1625514	
2021	38335	33778	2498676	
Total	89861	133388	4124190	

Year	Quarter	Month	Day	Sum of Deaths	Province
2020	Qtr 1	January	22	0	Algeria
2020	Qtr 1	January	22	0	Argenti
2020	Qtr 1	January	22	0	Australi
2020	Qtr 1	January	22	0	Austria
2020	Qtr 1	January	22	0	Banglac
2020	Qtr 1	January	22	0	Barbad
2020	Qtr 1	January	22	0	Beijing
2020	Qtr 1	January	22	0	Belarus
2020	Qtr 1	January	22	0	Belgiun
2020	Qtr 1	January	22	0	Bermuc
2020	Qtr 1	January	22	0	Bhutan
2020	Qtr 1	January	22	0	Bolivia
2020	Qtr 1	January	22	0	Bosnia
Total				3647894	

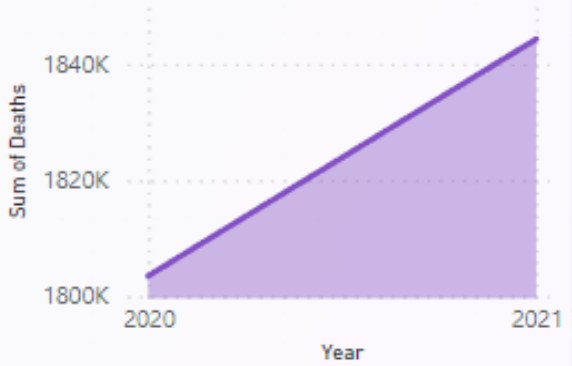
2020	Qtr 1
Year	Quarter
January	22
Month	Day
0	Afghanistan
Sum of Confirmed	Province

2020	Qtr 1
Year	Quarter
January	22
Month	Day
0	Algeria
Sum of Confirmed	Province

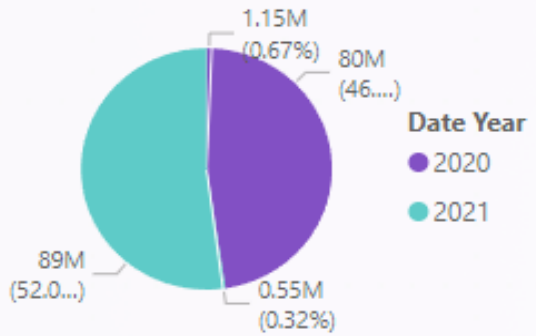
Sum of Latitude, Sum of Deaths, Sum of Recovered and Sum of Confirmed



Sum of Deaths by Year

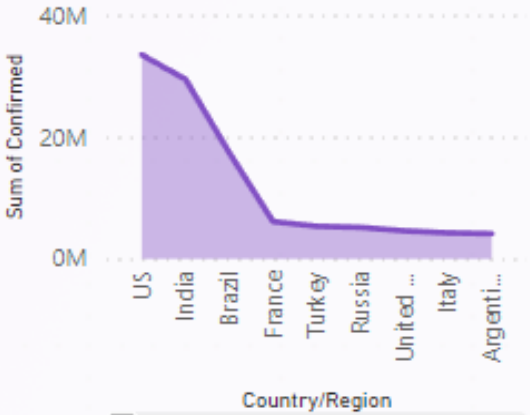


Sum of Latitude and Sum of Confirmed by Year

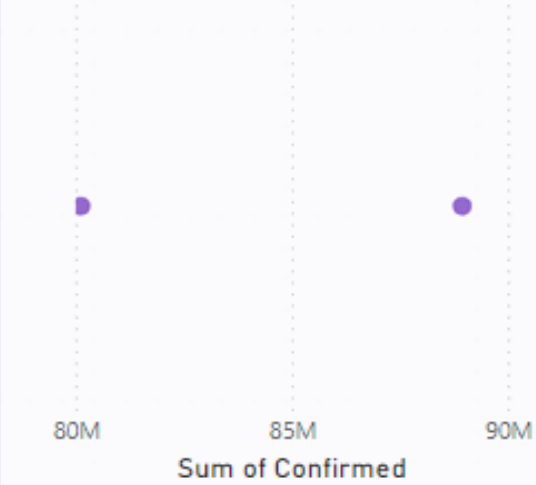


Year	Afghanistan	Algeria	Argentina
2020	2191	2756	43245
2021	1336	815	42098
Total	3527	3571	85343

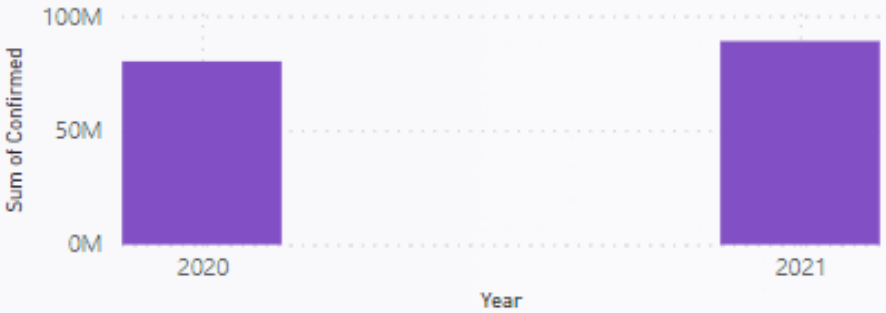
Sum of Confirmed by Country/Region



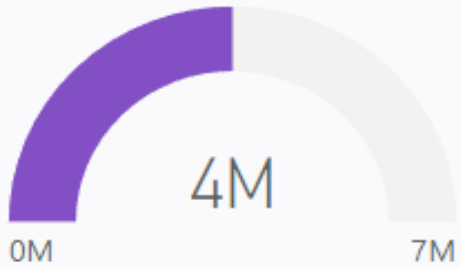
Sum of Confirmed by Year



Sum of Confirmed by Year



Sum of Deaths and First Country/Region



KEY QUESTIONS:

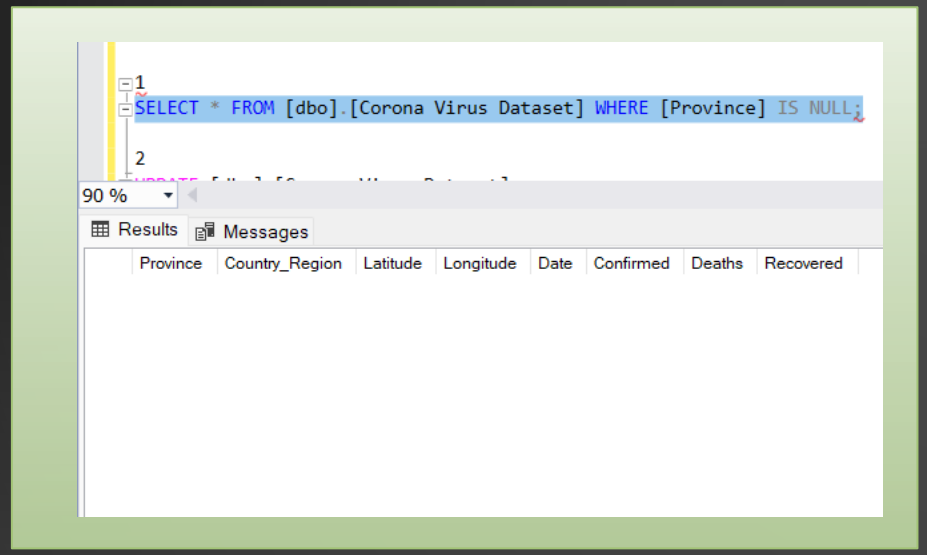
1. Write a code to check NULL values
2. If NULL values are present, update them with zeros for all columns.
3. check total number of rows
4. Check what is start_date and end_date .
5. Number of month present in dataset
6. Find monthly average for confirmed, deaths, recovered
7. Find most frequent value for confirmed, deaths, recovered each month
8. Find minimum values for confirmed, deaths, recovered per year
9. Find maximum values of confirmed, deaths, recovered per year
10. The total number of case of confirmed, deaths, recovered each month
11. Check how corona virus spread out with respect to confirmed case.

- (Eg.: total confirmed cases, their average, variance & STDEV)
- 12. Check how corona virus spread out with respect to death case per month
- (Eg.: total confirmed cases, their average, variance & STDEV)
- Q13. Check how corona virus spread out with respect to recovered case
- (Eg.: total confirmed cases, their average, variance & STDEV)
- 14. Find Country having highest number of the Confirmed case.
- 15. Find Country having lowest number of the death case
- 16. Find top 5 countries having highest recovered case
-

CORONA VIRUS ANALYSIS

1. Write code to check null values.

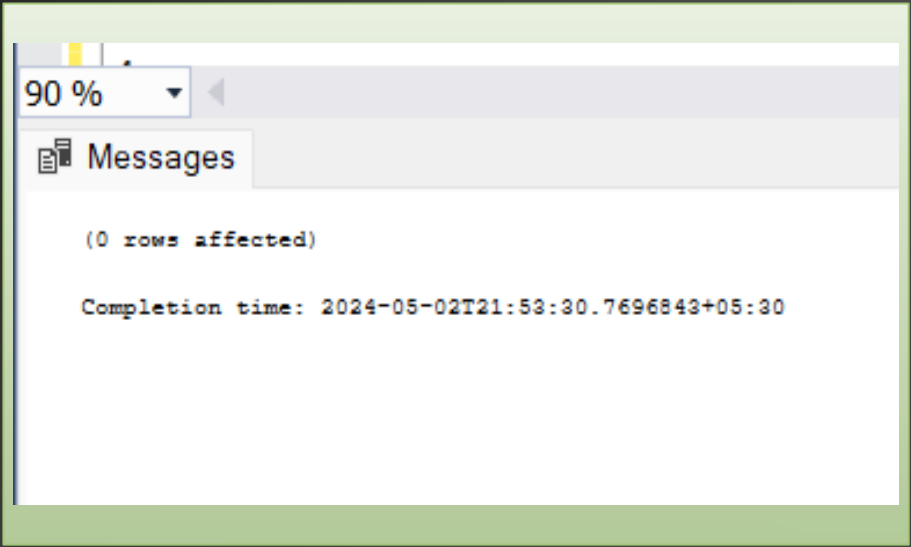
```
SELECT * FROM [dbo].[Corona Virus Dataset] WHERE [Province] IS NULL;
```



> There are no null values in given database

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

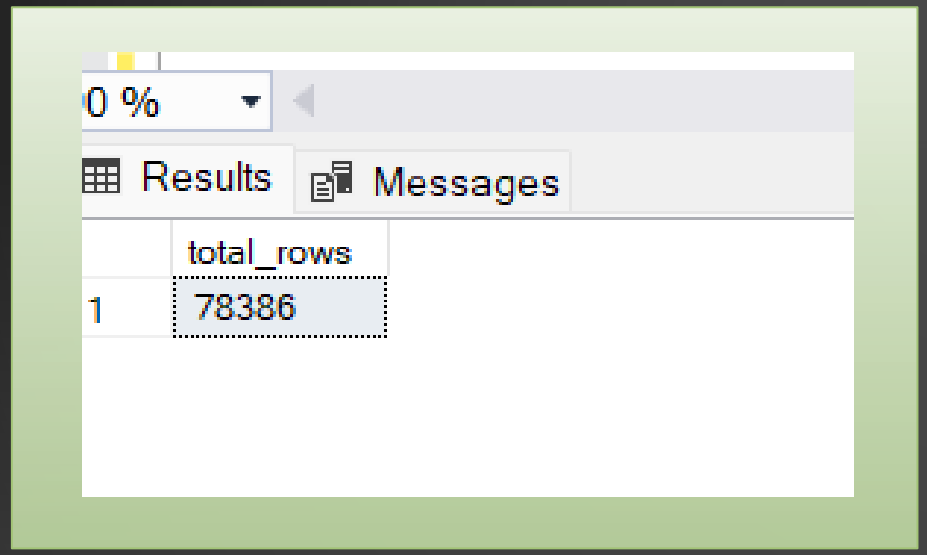
```
UPDATE [dbo].[Corona Virus Dataset]
SET Confirmed = ISNULL(Confirmed, 0),
    Deaths = ISNULL(Deaths, 0)
WHERE Confirmed IS NULL OR Deaths IS NULL;
```



> There are no null values in given database

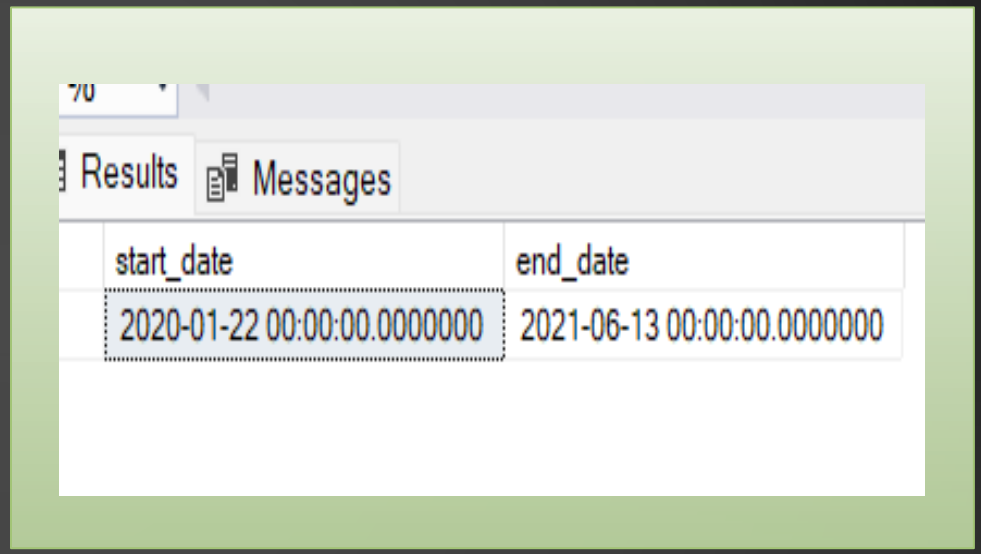
3. Check total number of rows.

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



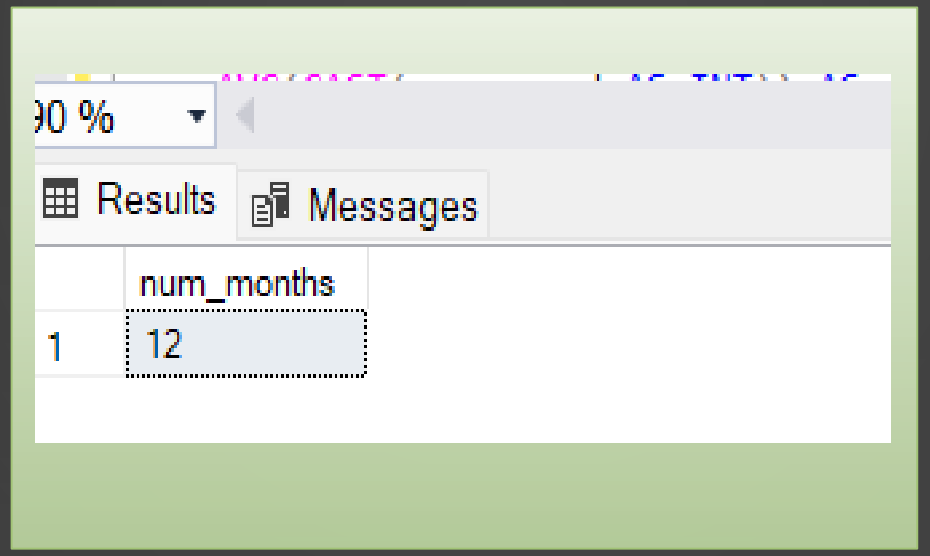
4.Check what is start_date and end_date.

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



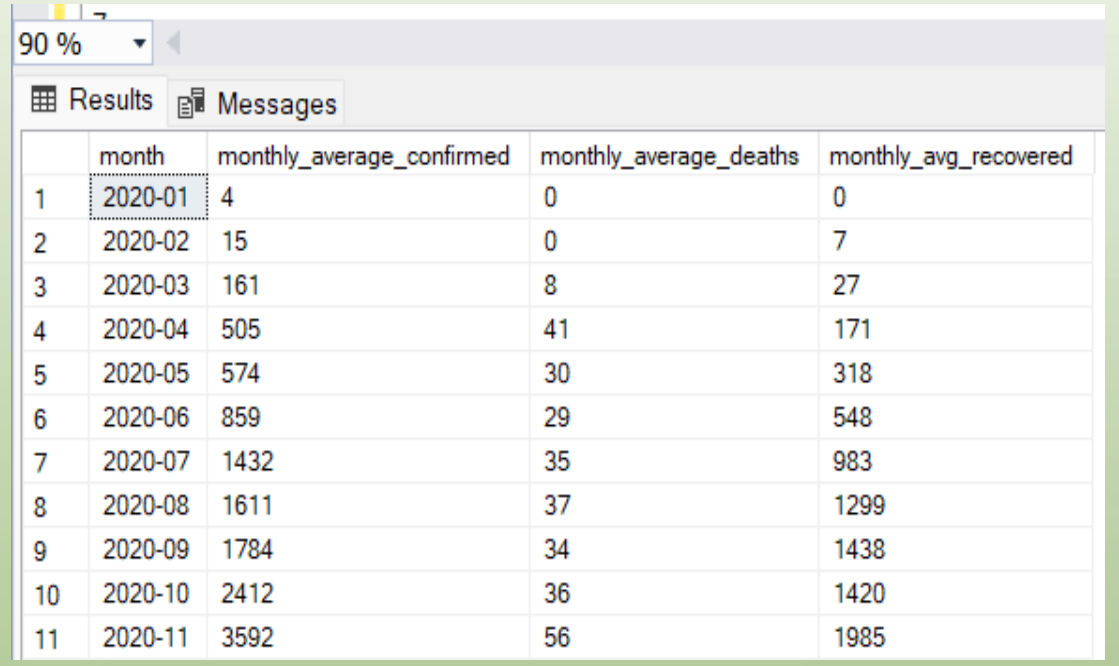
5.Number of month present in dataset.

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



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;
```


90 %

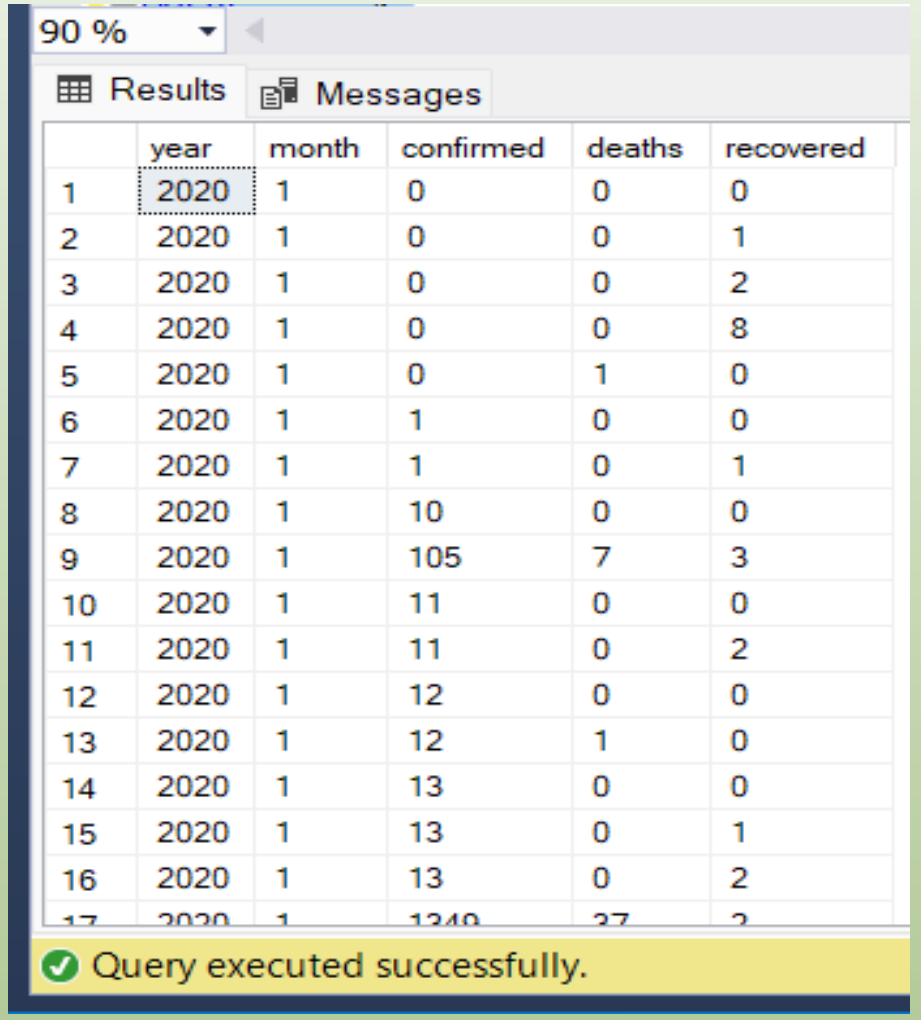
Results Messages

	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;
```

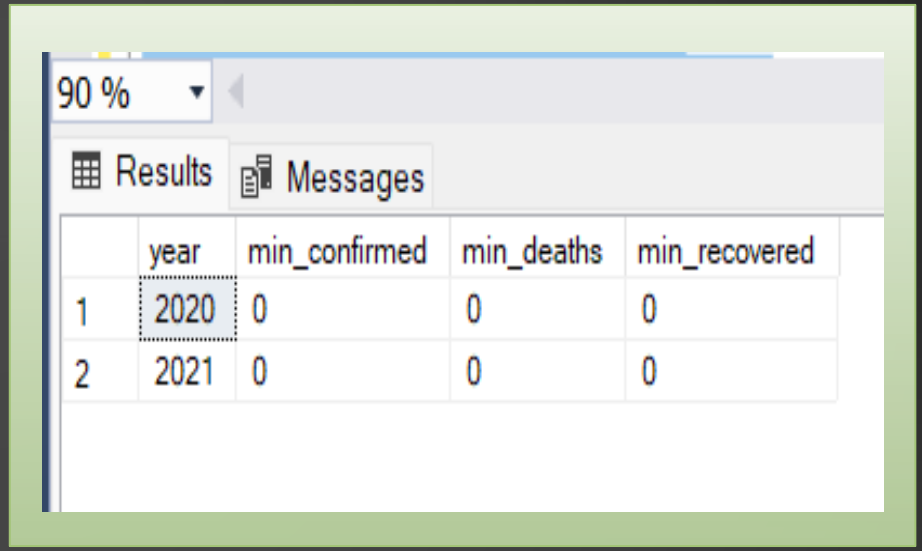
output 7



	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

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

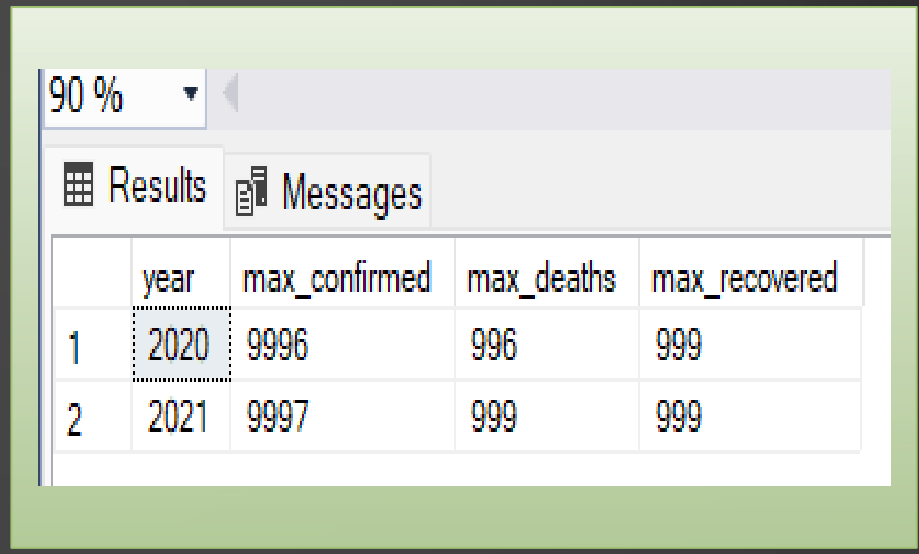
```
SELECT
   YEAR(Date) AS year,
   MIN(confirmed) AS min_confirmed,
   MIN(deaths) AS min_deaths,
   MIN(recovered) AS min_recovered
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
   YEAR(Date)
ORDER BY
   YEAR(Date) ASC;
```



	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.

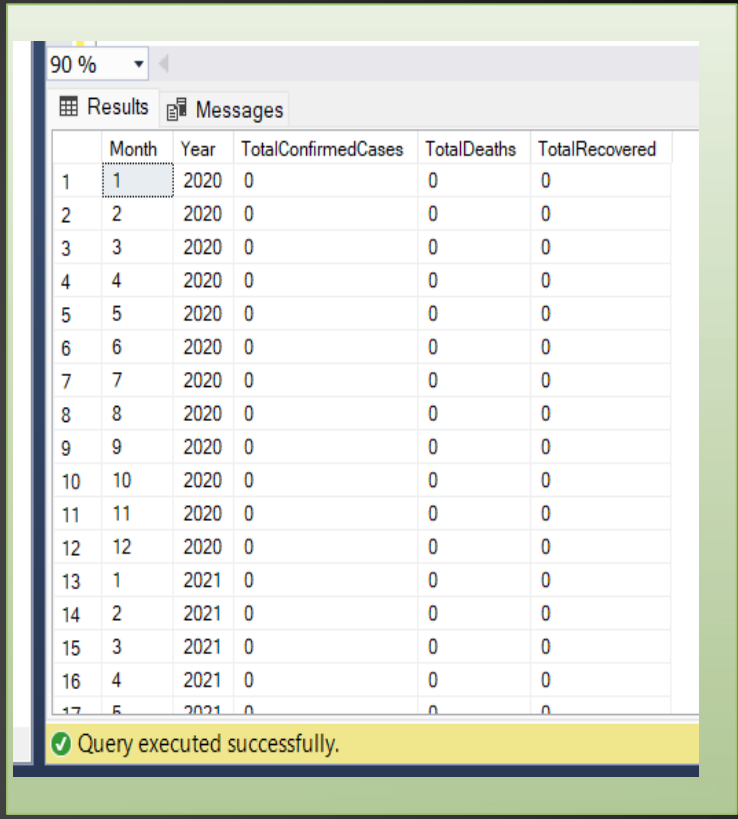
```
SELECT
   YEAR(Date) AS year,
   MAX(confirmed) AS max_confirmed,
   MAX(deaths) AS max_deaths,
   MAX(recovered) AS max_recovered
FROM
   [dbo].[Corona Virus Dataset]
GROUP BY
   YEAR(Date)
ORDER BY
   YEAR(Date) ASC;
```



	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.

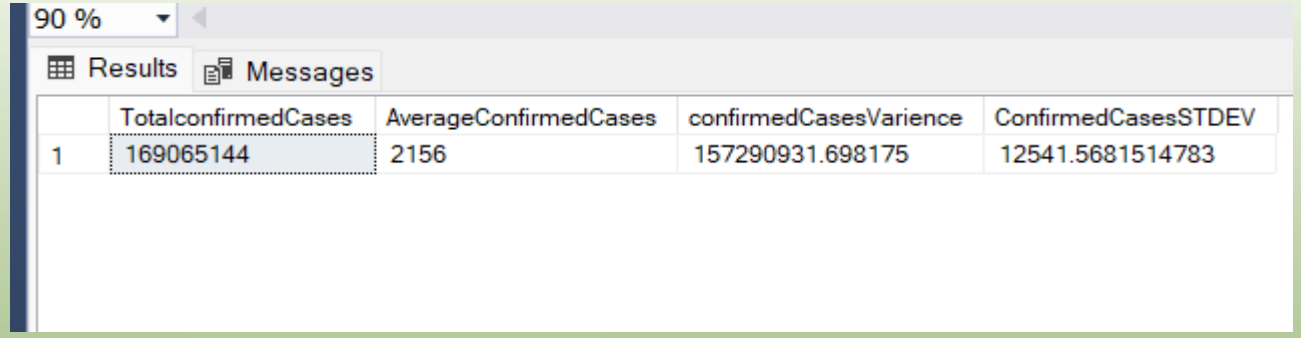
```
SELECT
    MONTH(Date) AS Month,
    YEAR(Date) AS Year,
    SUM(CASE WHEN Confirmed = 'Confirmed' THEN 1 ELSE 0 END) AS
TotalConfirmedCases,
    SUM(CASE WHEN Deaths = 'Deaths' THEN 1 ELSE 0 END) AS TotalDeaths,
    SUM(CASE WHEN Recovered = 'Recovered' THEN 1 ELSE 0 END) AS
TotalRecovered
FROM [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

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

MENTOR NESS

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

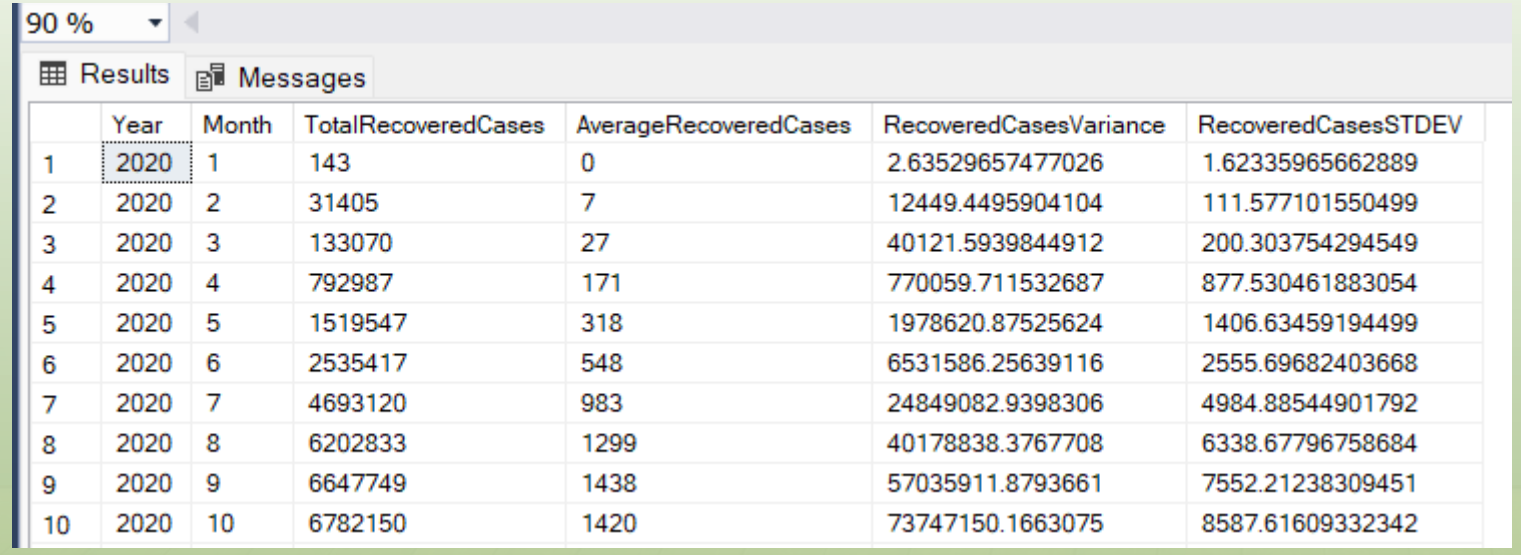
```
SELECT
    YEAR(Date) AS Year,
    MONTH(Date) AS Month,
    SUM(CAST(Deaths AS INT)) AS TotalDeathCases,
    AVG(CAST(Deaths AS INT)) AS
AverageDeathCases,
    VAR( CAST(Deaths AS INT)) AS
DeathCasesVariance,
    STDEV(CAST(Deaths AS INT)) AS
DeathCasesSTDEV
FROM [dbo].[Corona Virus Dataset]
GROUP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

Results | Messages

	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;
```



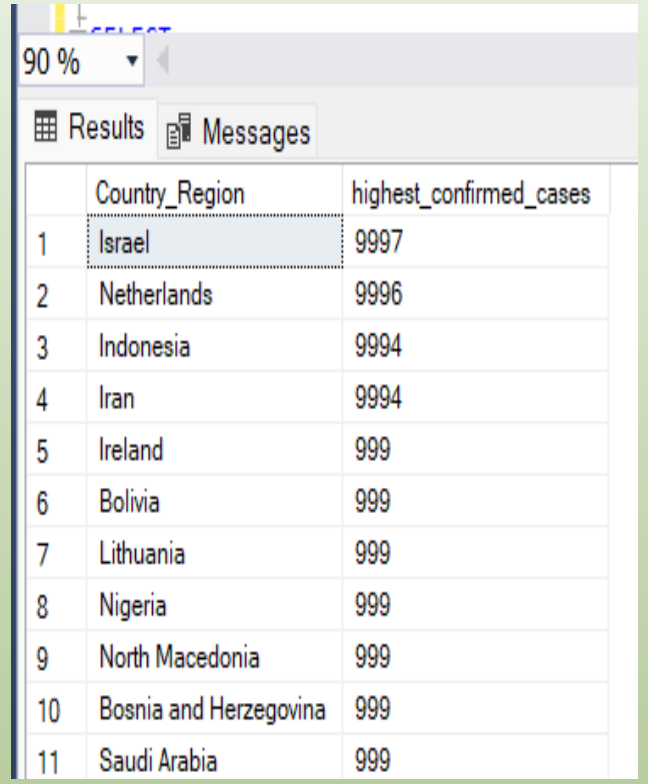
90 %

Results | Messages

	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.

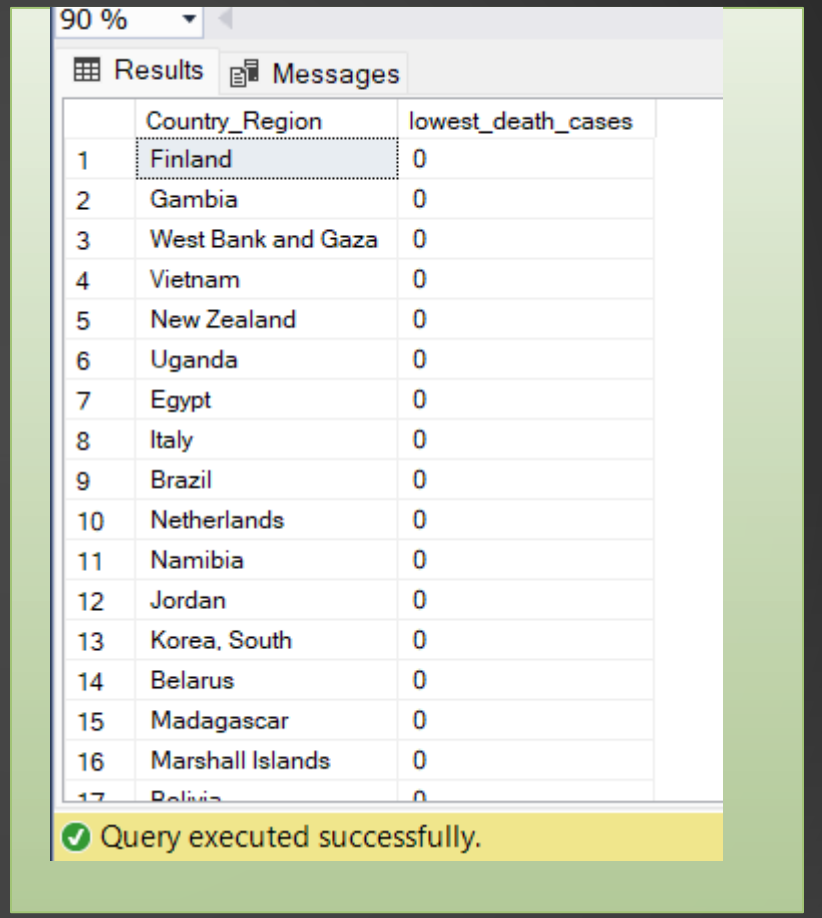
```
SELECT
    [Country_Region],
    MAX(confirmed) AS highest_confirmed_cases
FROM
    [dbo].[Corona Virus Dataset]
GROUP BY
    [Country_Region]
ORDER BY
    highest_confirmed_cases DESC;
```



	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;
```


90 %

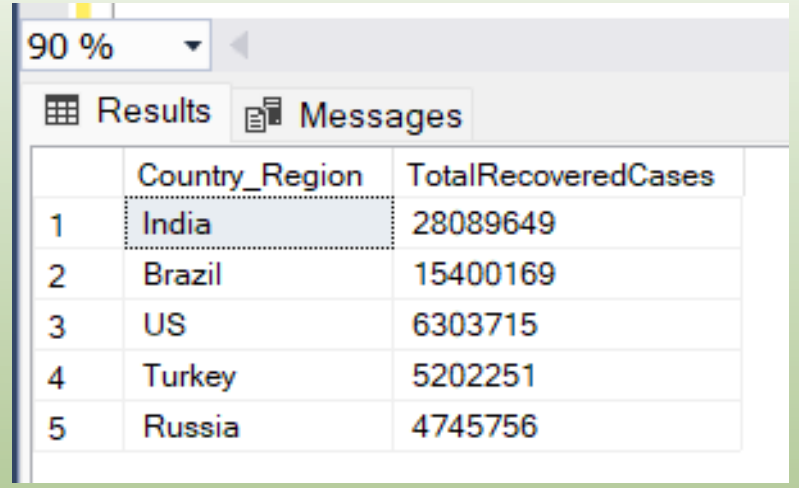
Results | Messages

	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

THANK YOU