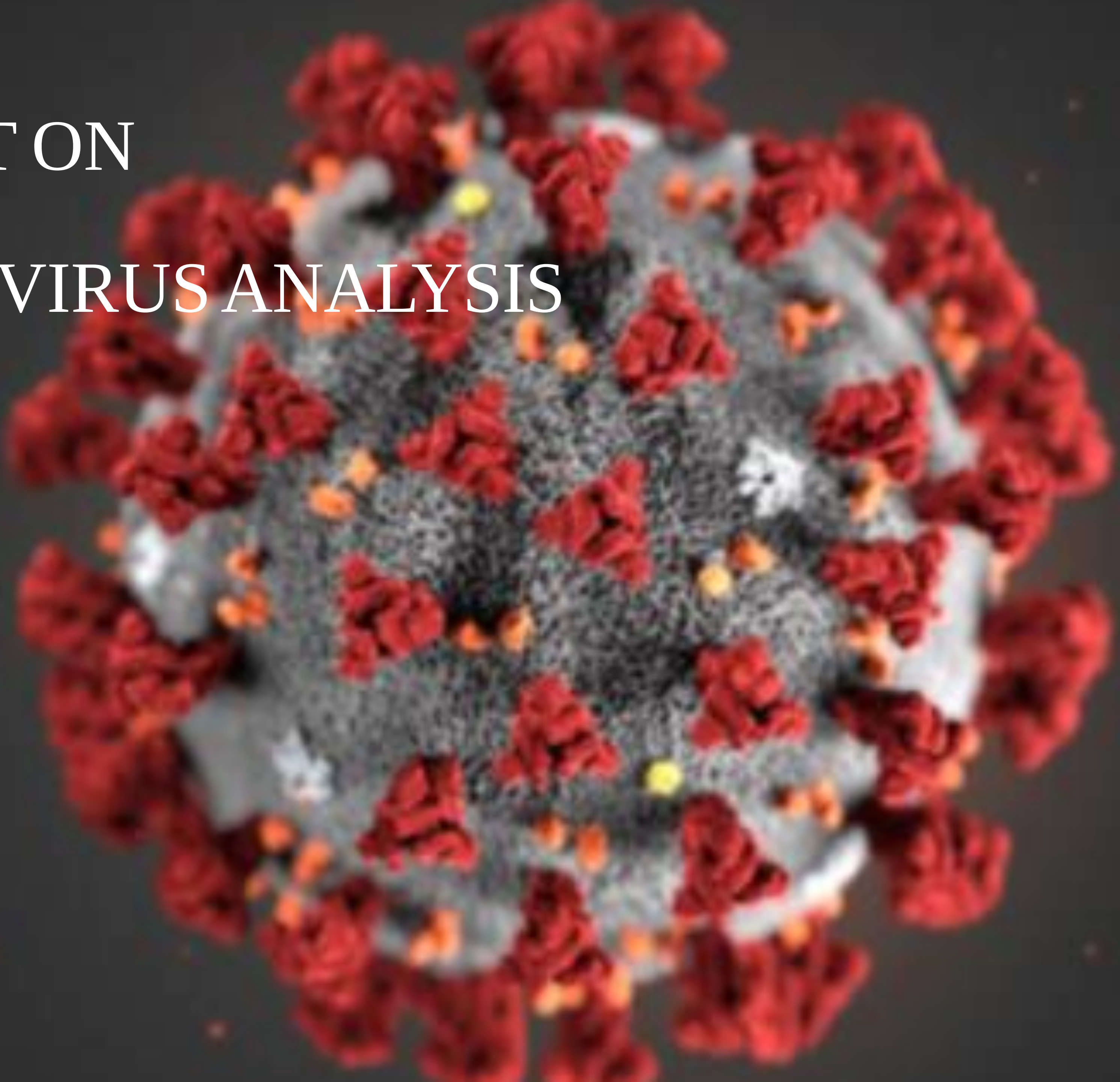
PROJECT ON

CORONA VIRUS ANALYSIS

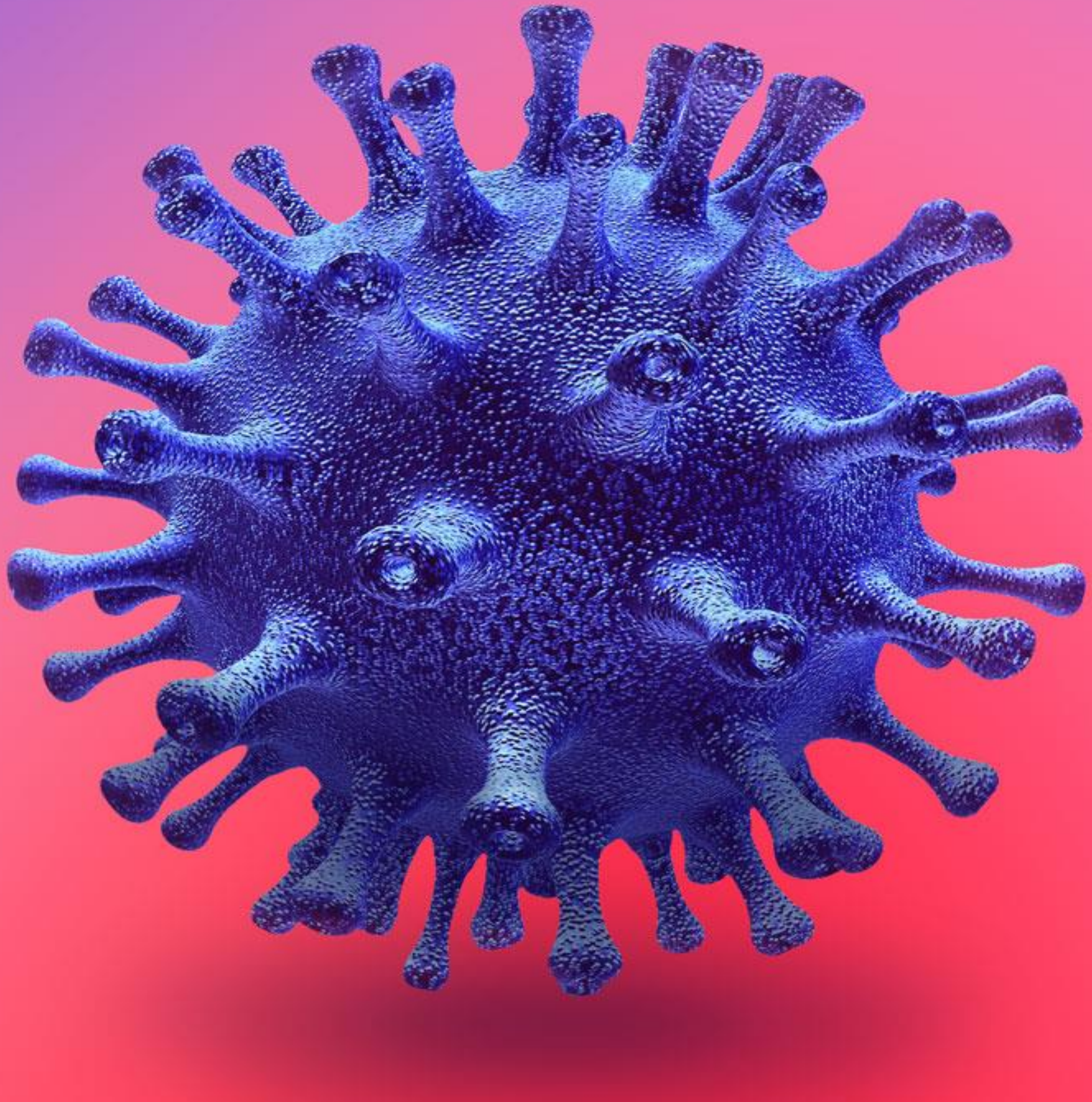


Overview Dataset

Problem statement query with output

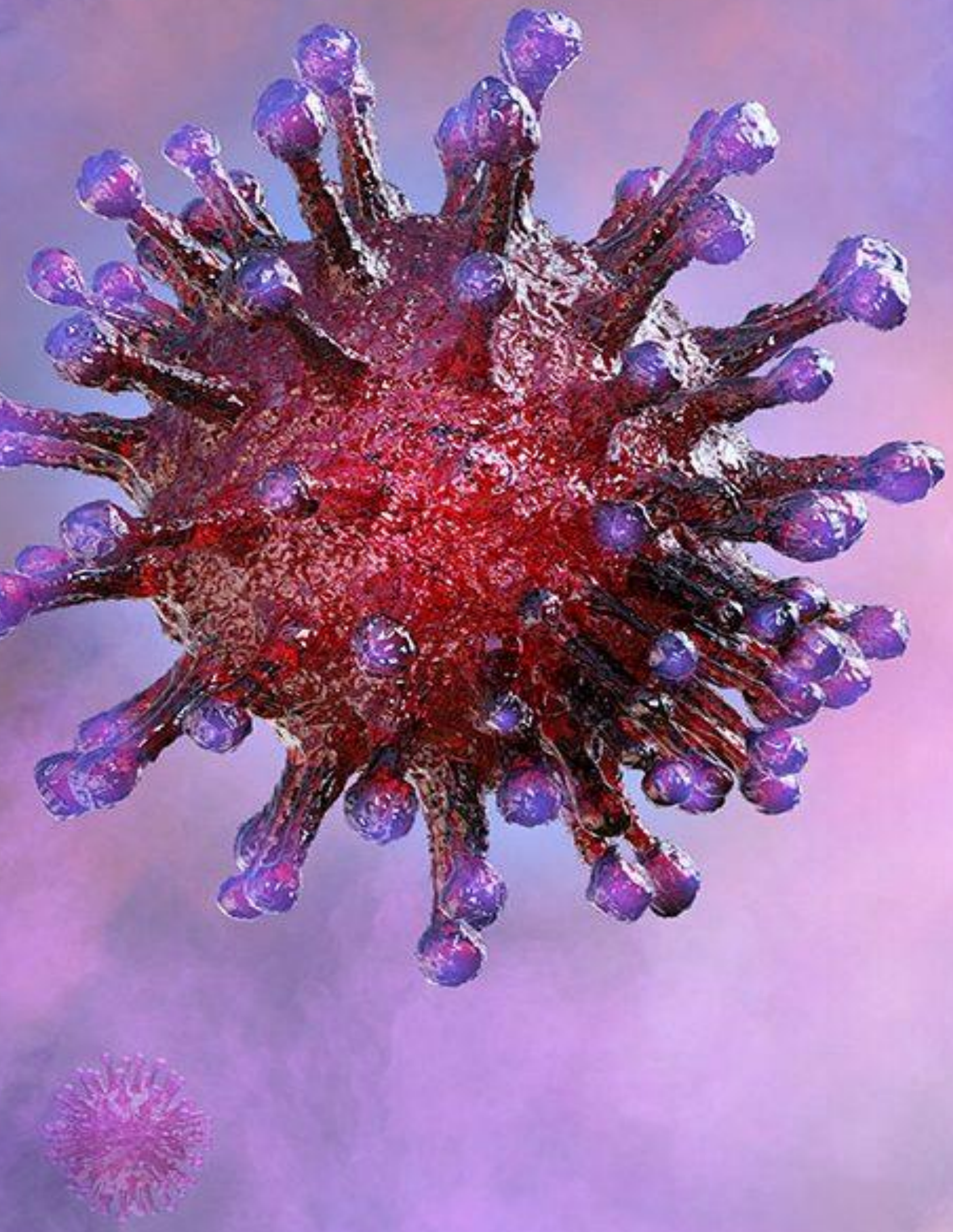
Conclusion

CORONA VIRUS ANALYSIS PROJECT



THE CORONA VIRUS PANDEMIC HAS HAD A 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.

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.

DATA-DRIVEN INSIGHTS

Critical Need for Data

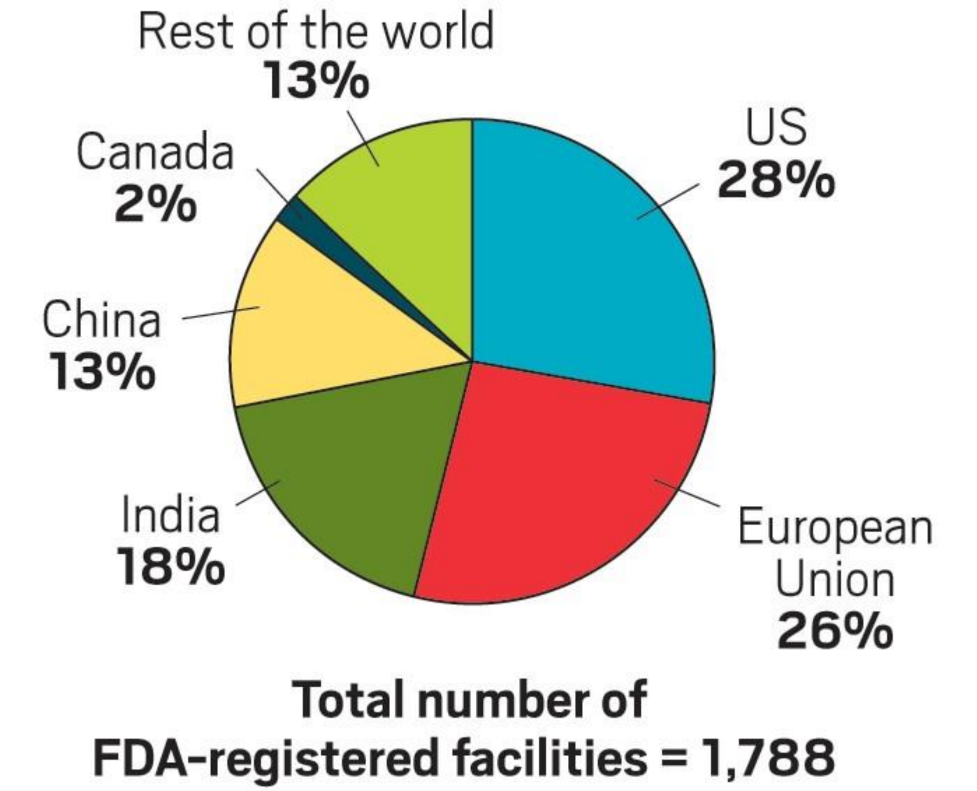
Data-driven insights are crucial to accurately assess the spread and impact of the virus.

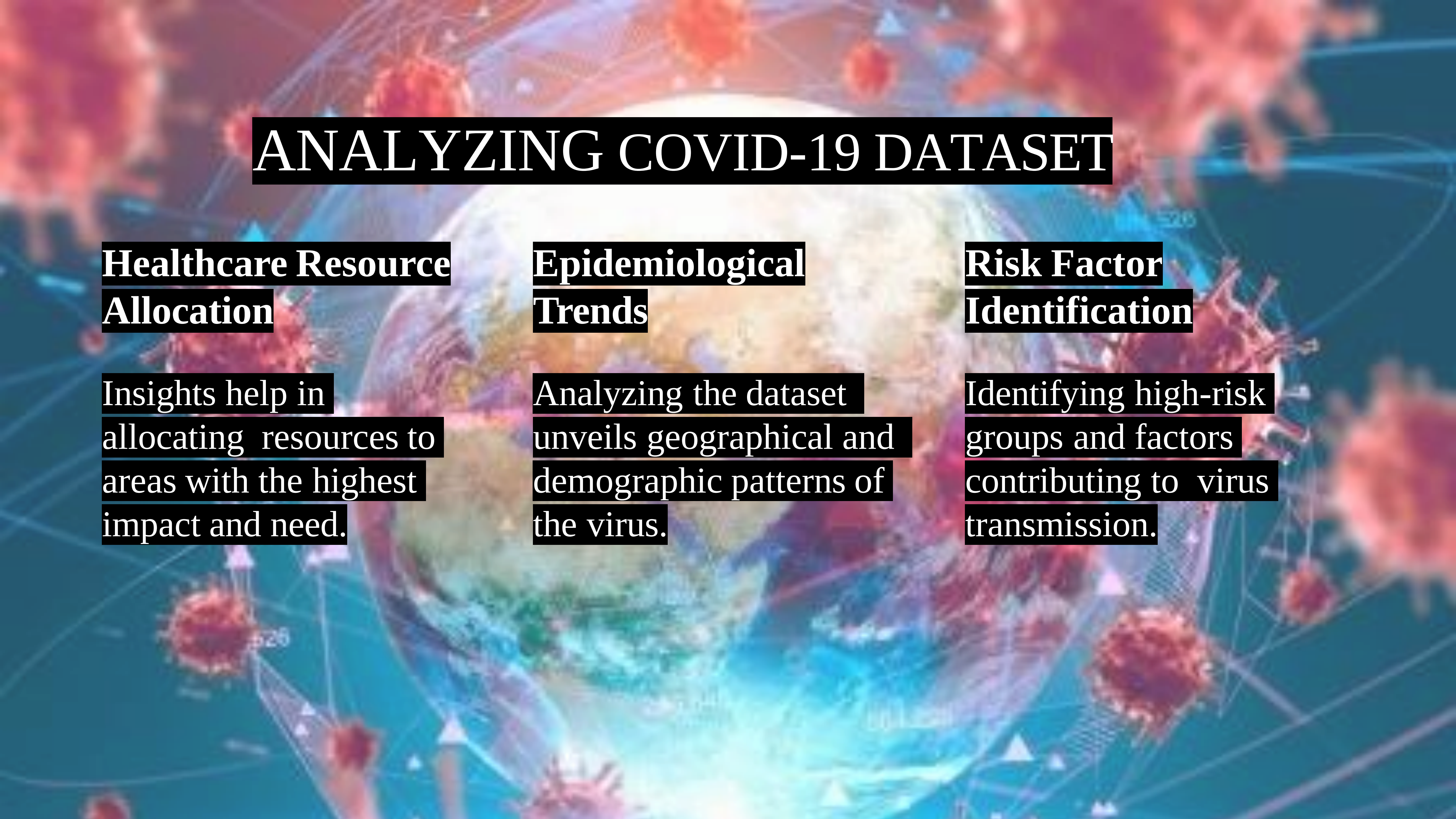
Real-time Analysis

Real-time data analysis aids in understanding transmission patterns and predicting trends.

Policy Decision Support

Data insights guide policymakers in implementing effective mitigation strategies.





ANALYZING COVID-19 DATASET

Healthcare Resource Allocation

Insights help in allocating resources to areas with the highest impact and need.

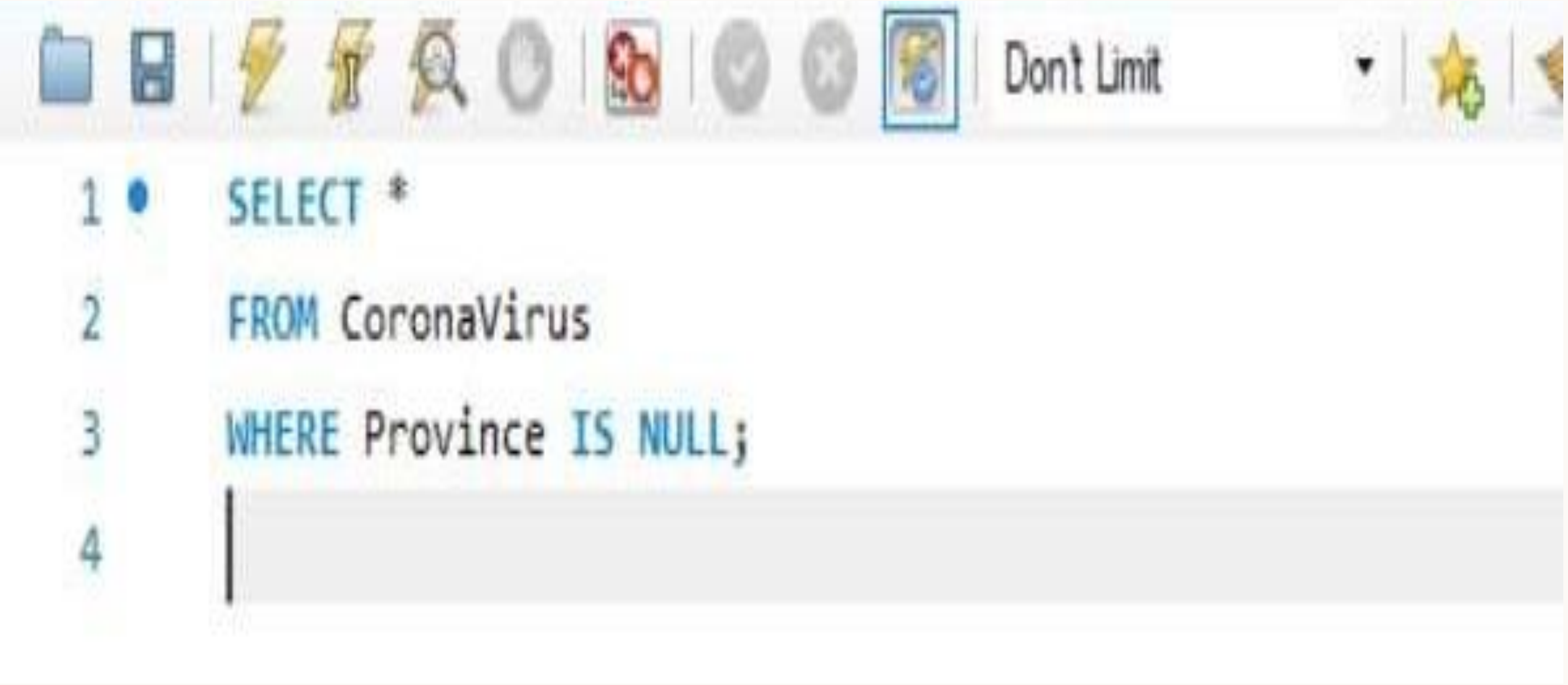
Epidemiological Trends

Analyzing the dataset unveils geographical and demographic patterns of the virus.

Risk Factor Identification

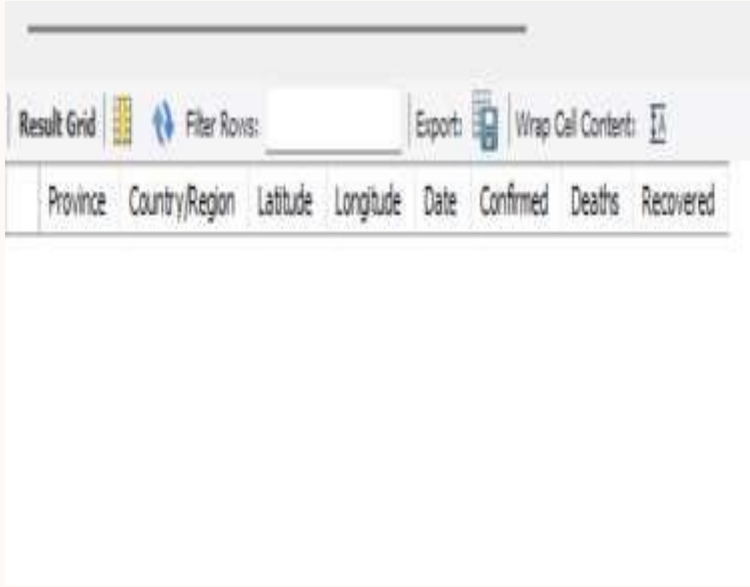
Identifying high-risk groups and factors contributing to virus transmission.

Q1. Write a code to check NULL values



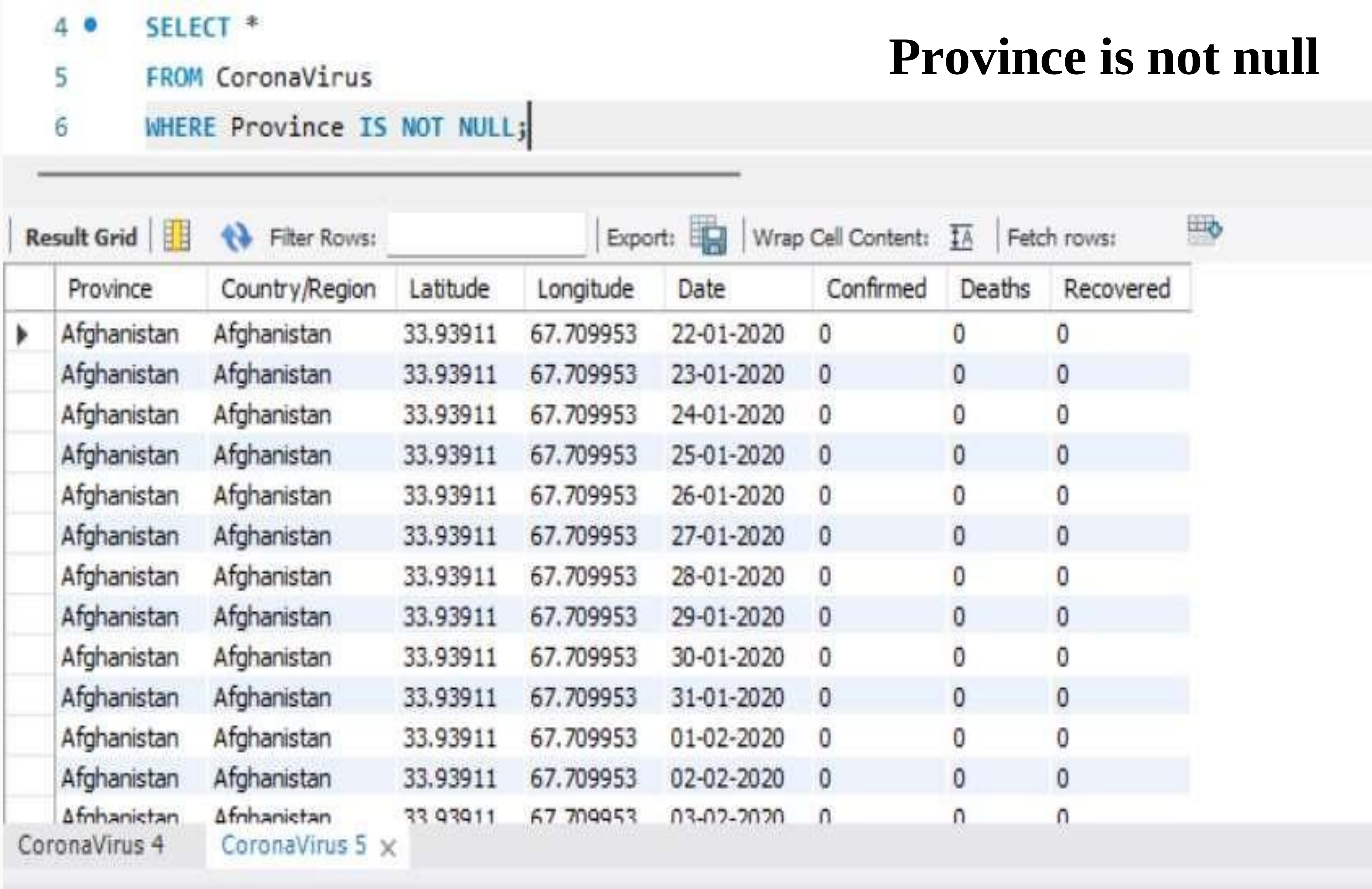
```
SELECT *
FROM CoronaVirus
WHERE Province IS NULL;
```

output



Province	Country/Region	Latitude	Longitude	Date	Confirmed	Deaths	Recovered

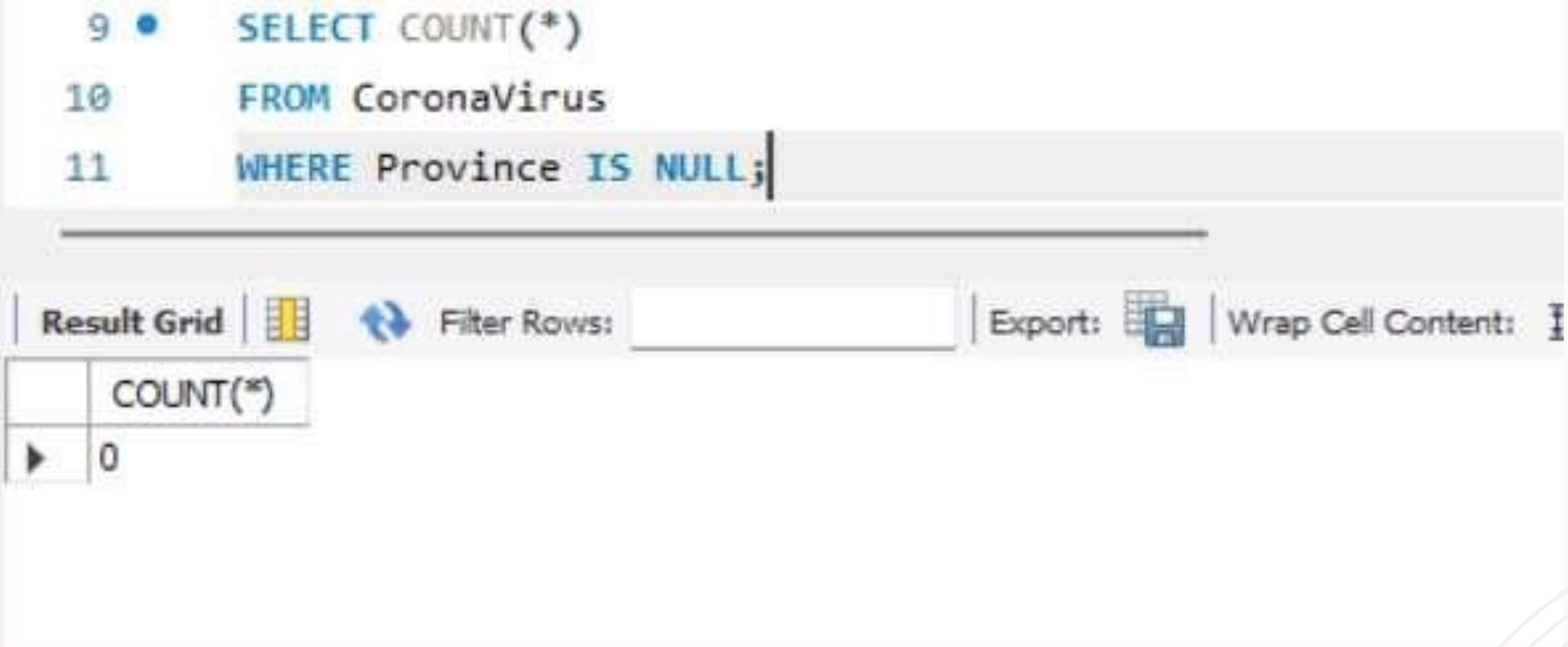
Province is not null



```
SELECT *
FROM CoronaVirus
WHERE Province IS NOT NULL;
```

Province	Country/Region	Latitude	Longitude	Date	Confirmed	Deaths	Recovered
Afghanistan	Afghanistan	33.93911	67.709953	22-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	23-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	24-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	25-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	26-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	27-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	28-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	29-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	30-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	31-01-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	01-02-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	02-02-2020	0	0	0
Afghanistan	Afghanistan	33.93911	67.709953	03-02-2020	0	0	0

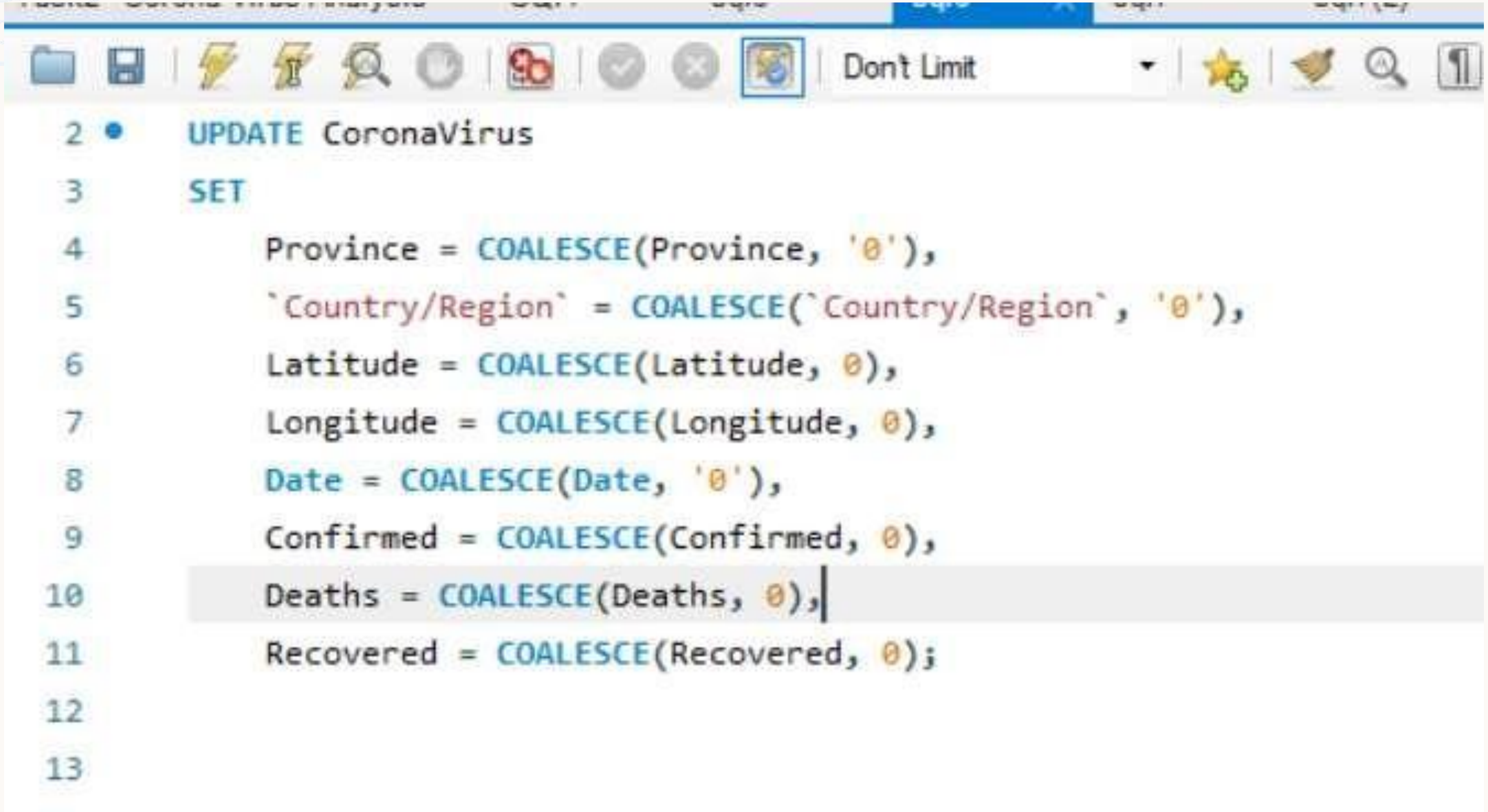
Count all and Province is null



```
SELECT COUNT(*)
FROM CoronaVirus
WHERE Province IS NULL;
```

COUNT(*)
0

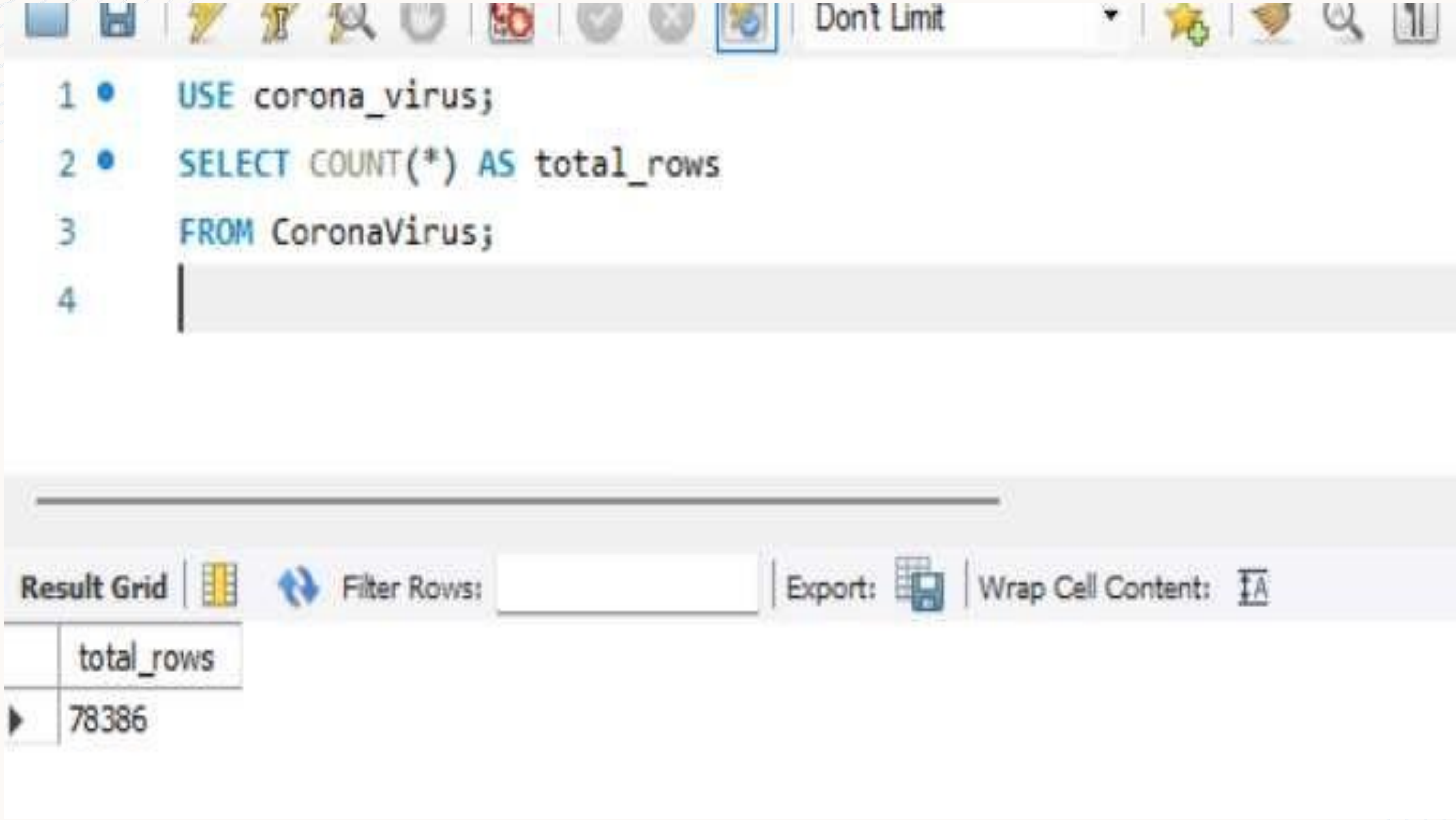
If NULL values are present, update them with zeros for all columns.



```
UPDATE CoronaVirus
SET
    Province = COALESCE(Province, '0'),
    `Country/Region` = COALESCE(`Country/Region`, '0'),
    Latitude = COALESCE(Latitude, 0),
    Longitude = COALESCE(Longitude, 0),
    Date = COALESCE(Date, '0'),
    Confirmed = COALESCE(Confirmed, 0),
    Deaths = COALESCE(Deaths, 0),
    Recovered = COALESCE(Recovered, 0);
```

0 Row Effected

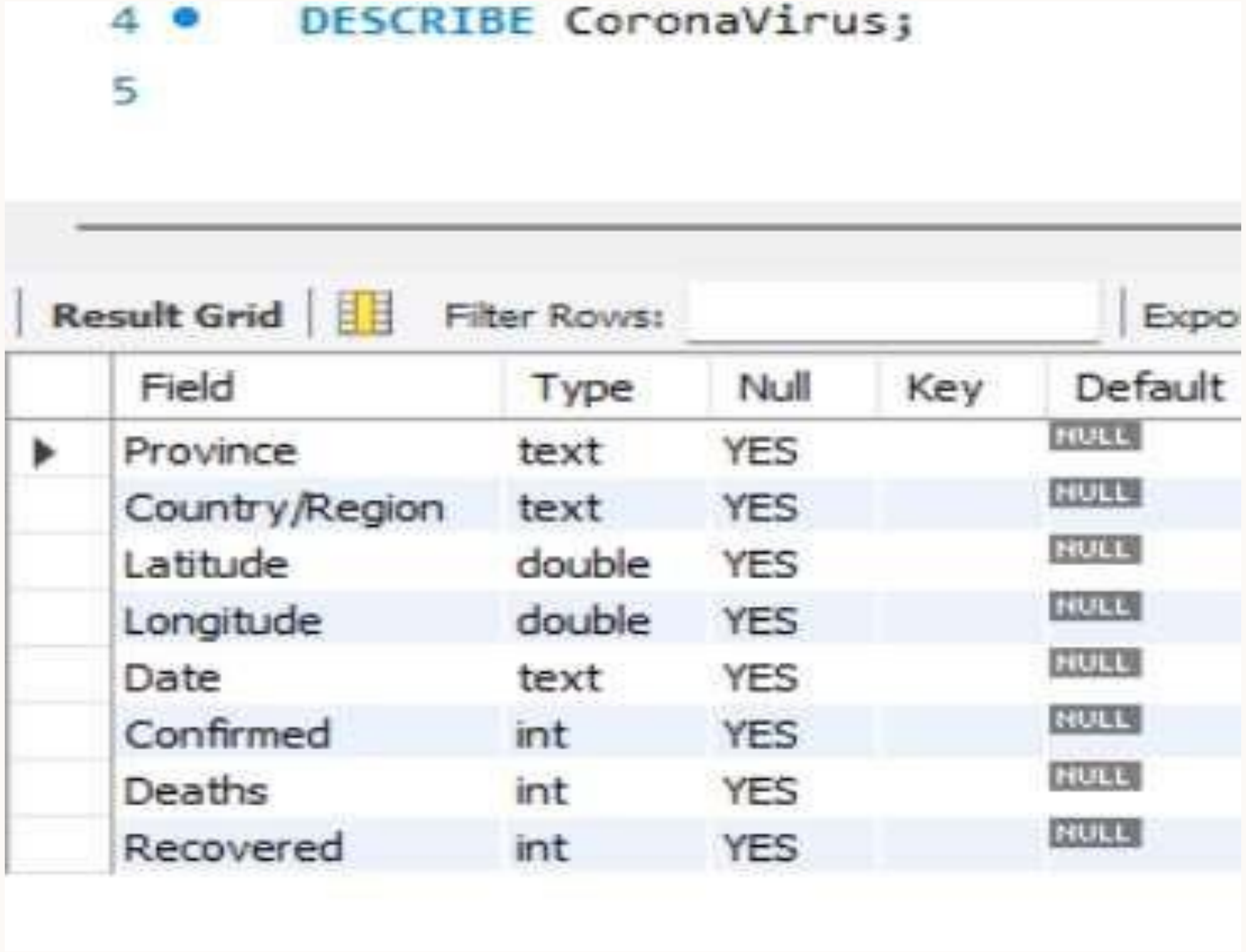
check total number of rows



```
USE corona_virus;
SELECT COUNT(*) AS total_rows
FROM CoronaVirus;
```

total_rows
78386

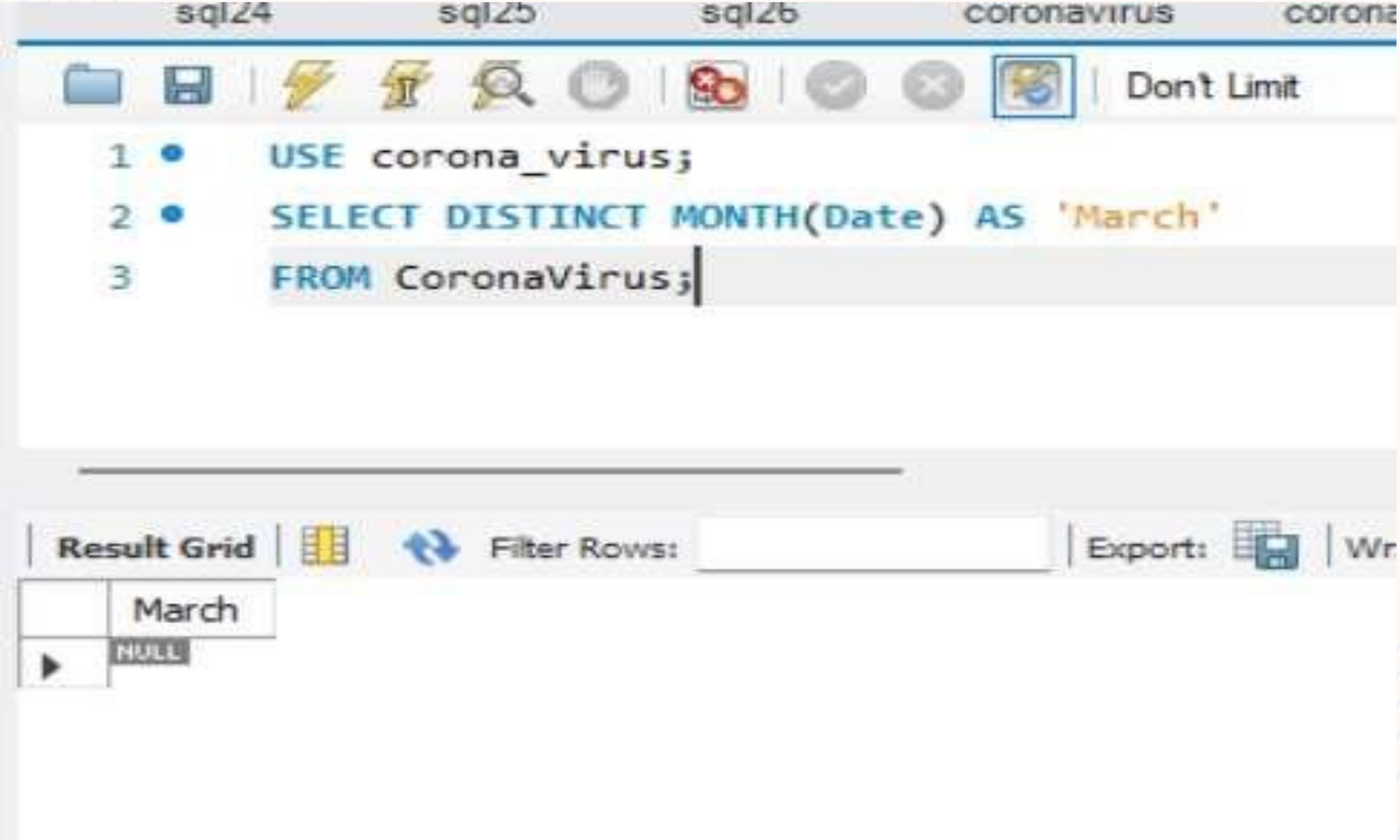
Check what is start_date and end_date



```
DESCRIBE CoronaVirus;
```

Field	Type	Null	Key	Default
Province	text	YES		NULL
Country/Region	text	YES		NULL
Latitude	double	YES		NULL
Longitude	double	YES		NULL
Date	text	YES		NULL
Confirmed	int	YES		NULL
Deaths	int	YES		NULL
Recovered	int	YES		NULL

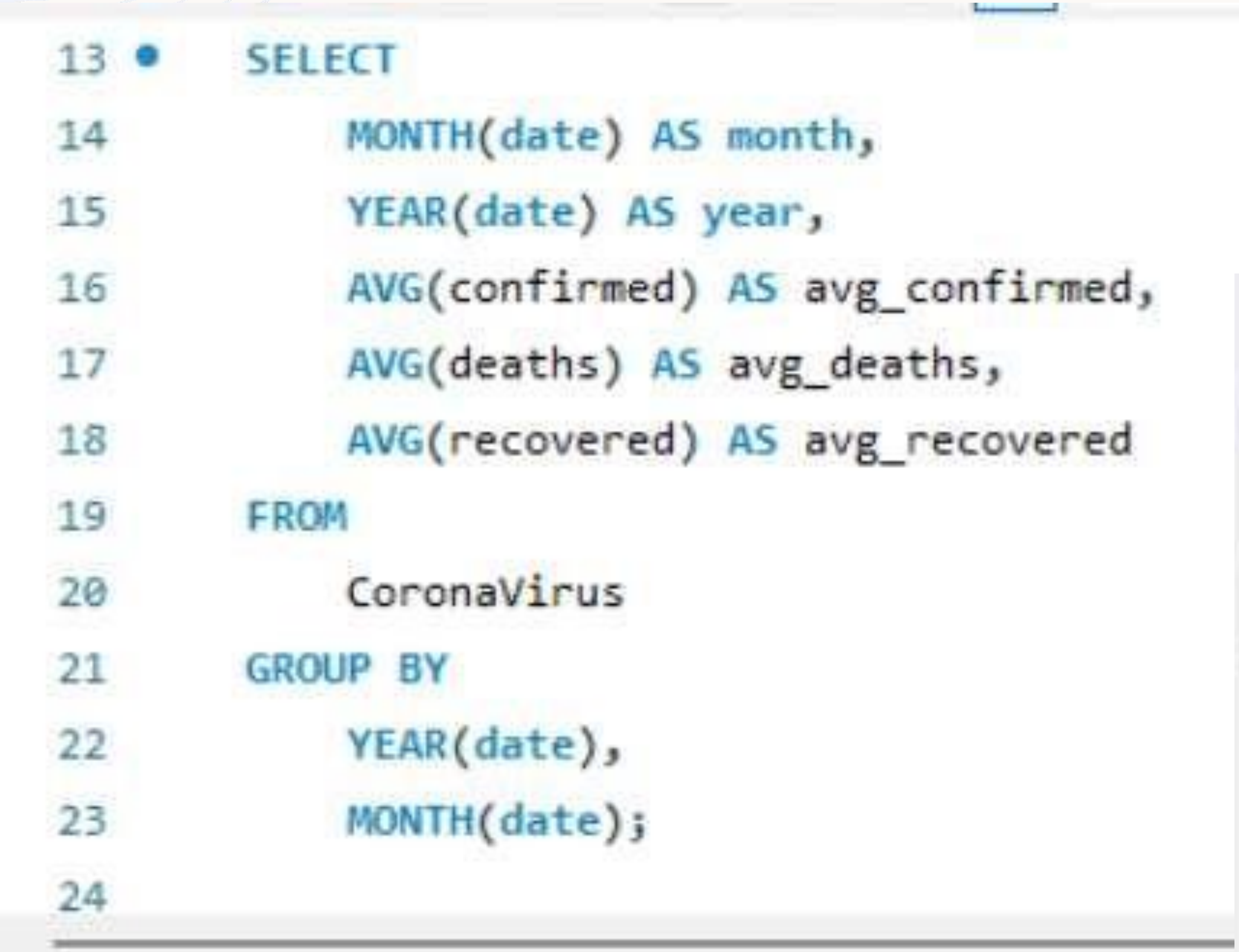
Number of month present in dataset



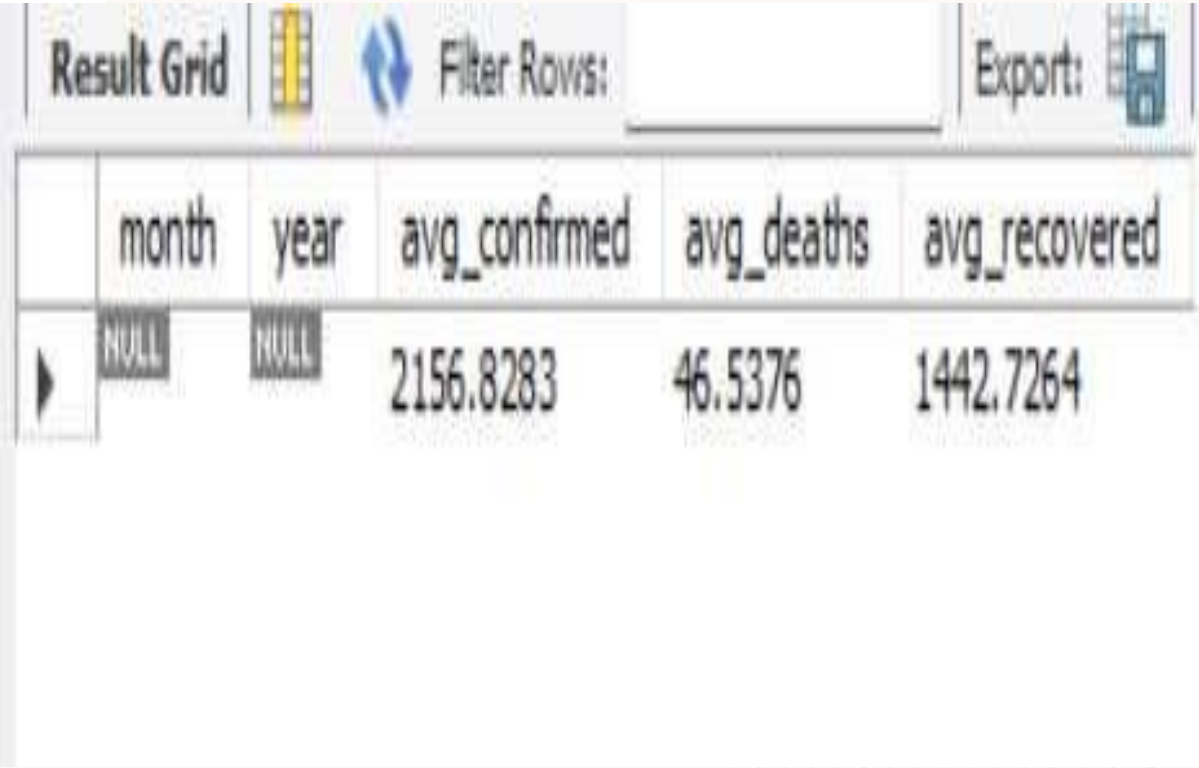
```
USE corona_virus;
SELECT DISTINCT MONTH(Date) AS 'March'
FROM CoronaVirus;
```

```
March
NULL
```

Find monthly average for confirmed, deaths, recovered

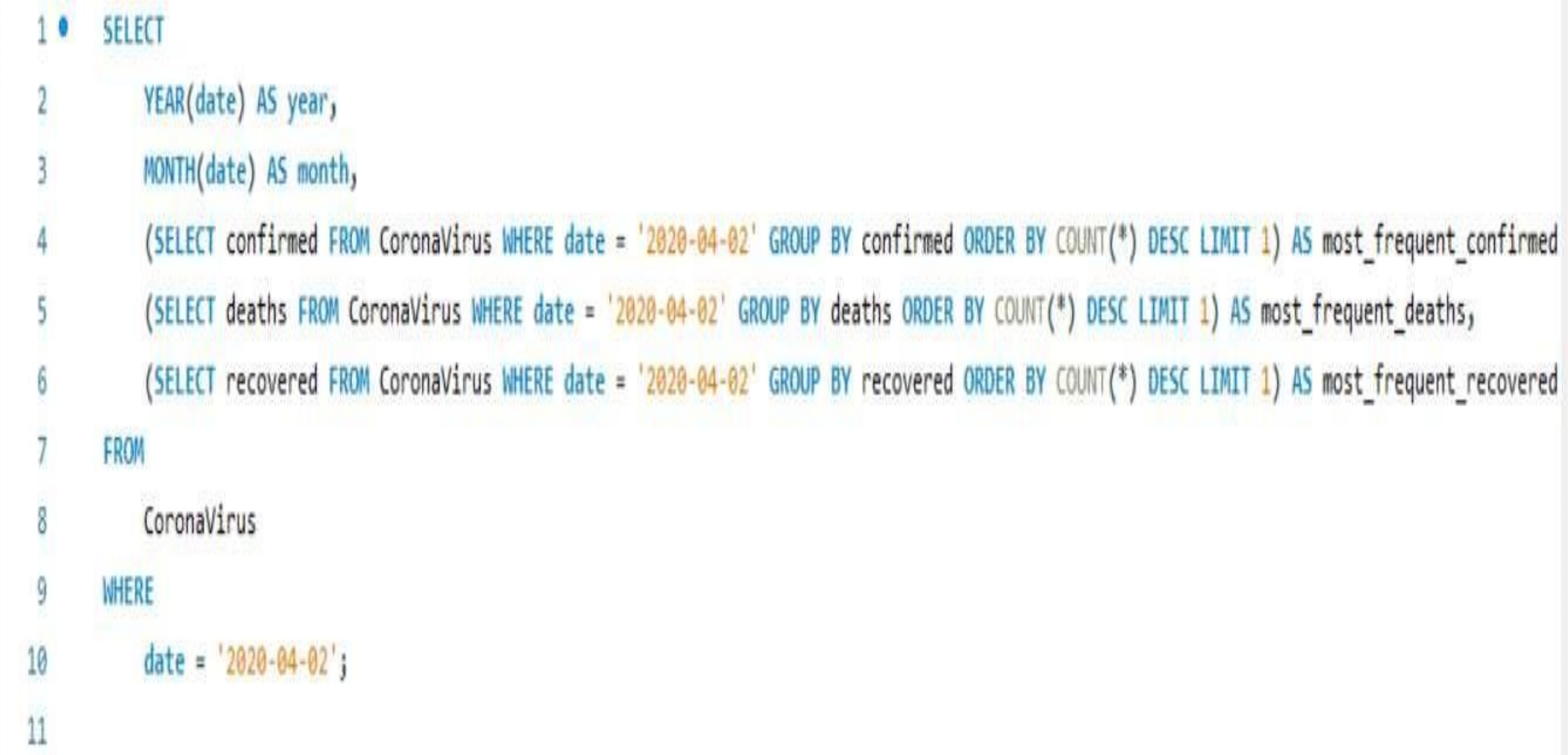


```sql
SELECT
    MONTH(date) AS month,
    YEAR(date) AS year,
    AVG(confirmed) AS avg_confirmed,
    AVG(deaths) AS avg_deaths,
    AVG(recovered) AS avg_recovered
FROM
    CoronaVirus
GROUP BY
    YEAR(date),
    MONTH(date);
```



month	year	avg_confirmed	avg_deaths	avg_recovered
NULL	NULL	2156.8283	46.5376	1442.7264

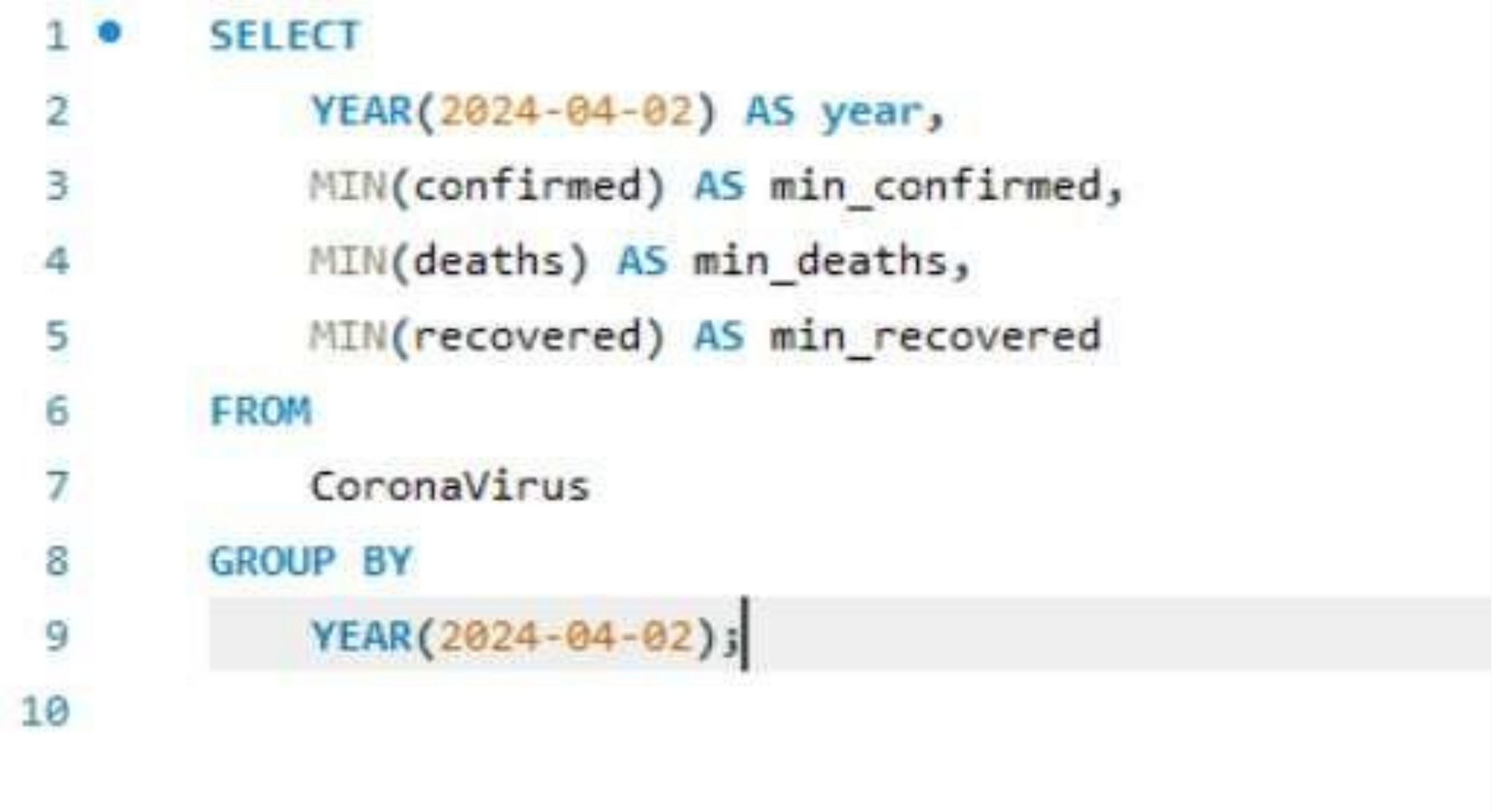
Find most frequent value for confirmed, deaths, recovered each month



```sql
SELECT
    YEAR(date) AS year,
    MONTH(date) AS month,
    (SELECT confirmed FROM CoronaVirus WHERE date = '2020-04-02' GROUP BY confirmed ORDER BY COUNT(*) DESC LIMIT 1) AS most_frequent_confirmed
    (SELECT deaths FROM CoronaVirus WHERE date = '2020-04-02' GROUP BY deaths ORDER BY COUNT(*) DESC LIMIT 1) AS most_frequent_deaths,
    (SELECT recovered FROM CoronaVirus WHERE date = '2020-04-02' GROUP BY recovered ORDER BY COUNT(*) DESC LIMIT 1) AS most_frequent_recovered
FROM
    CoronaVirus
WHERE
    date = '2020-04-02';

```

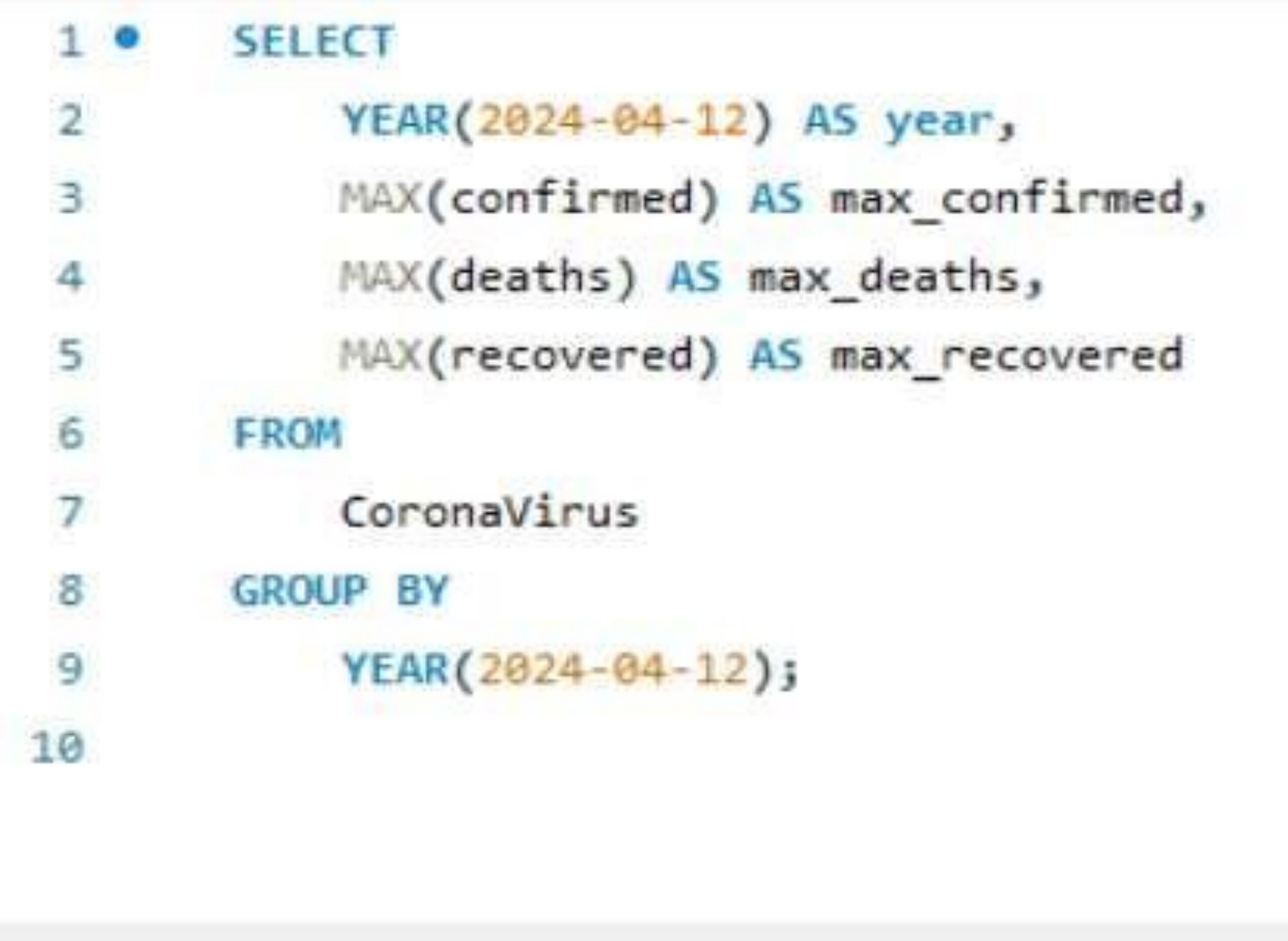
Find minimum values for confirmed, deaths, recovered per year



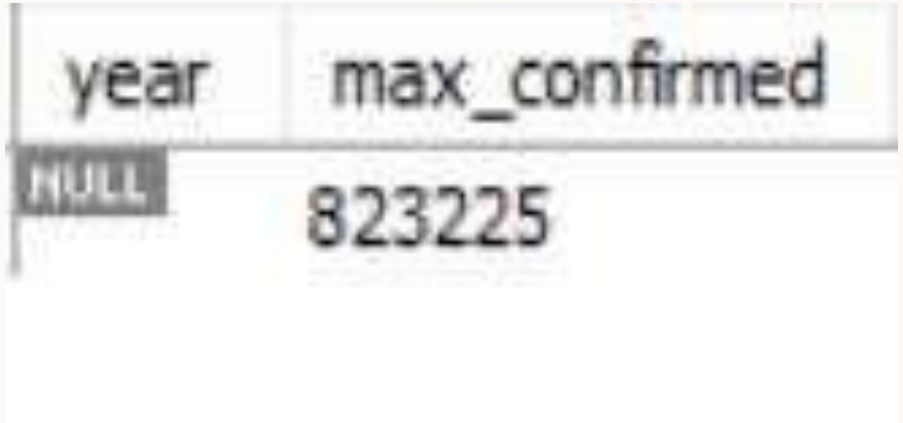
```sql
SELECT
    YEAR(2024-04-02) AS year,
    MIN(confirmed) AS min_confirmed,
    MIN(deaths) AS min_deaths,
    MIN(recovered) AS min_recovered
FROM
    CoronaVirus
GROUP BY
    YEAR(2024-04-02);
```

0
confirmed,
deaths,
recovered

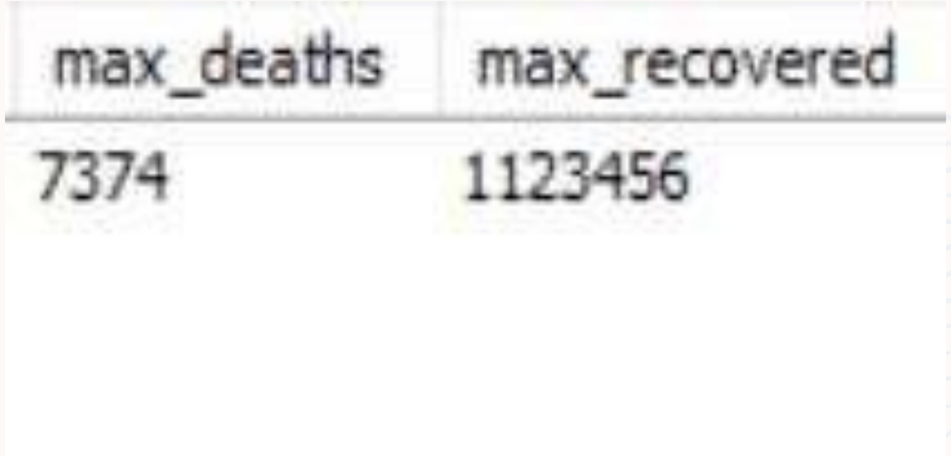
Find maximum values of confirmed, deaths, recovered per year



```sql
SELECT
    YEAR(2024-04-12) AS year,
    MAX(confirmed) AS max_confirmed,
    MAX(deaths) AS max_deaths,
    MAX(recovered) AS max_recovered
FROM
    CoronaVirus
GROUP BY
    YEAR(2024-04-12);
```

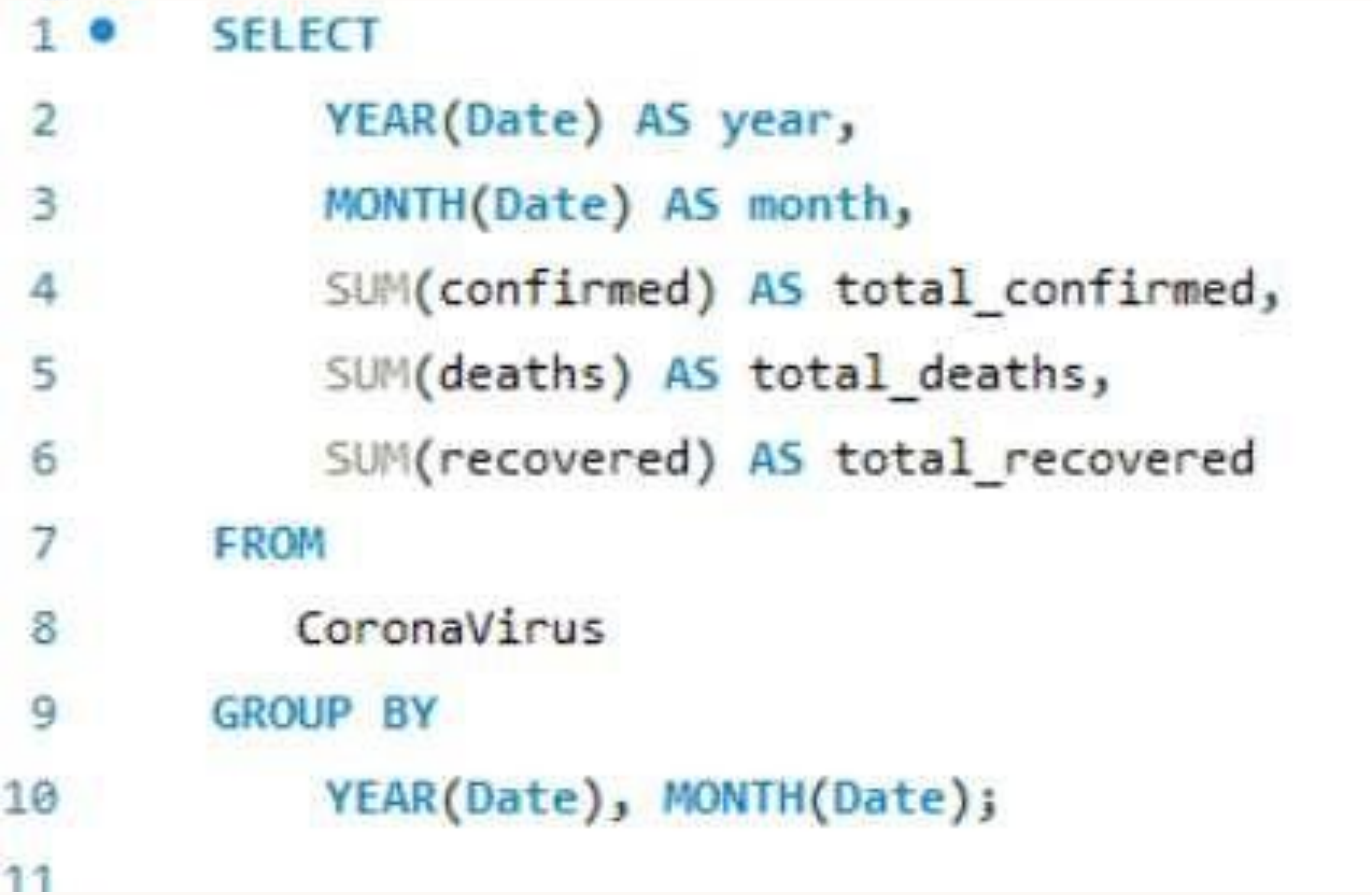


```
year    max_confirmed
NULL    823225
```

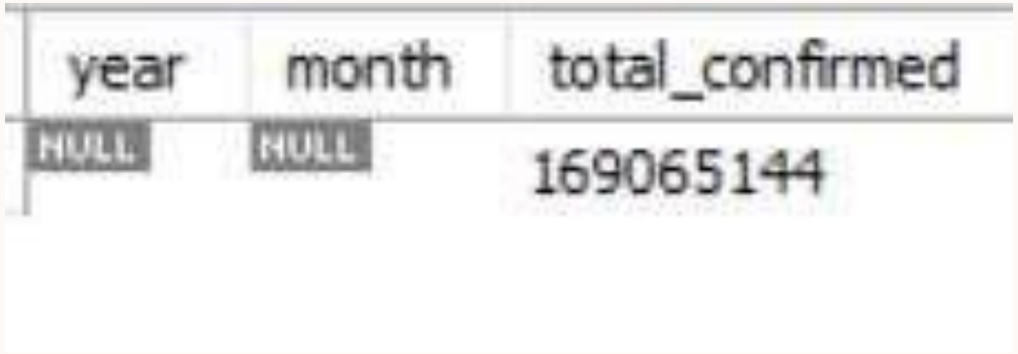


```
max_deaths    max_recovered
7374          1123456
```

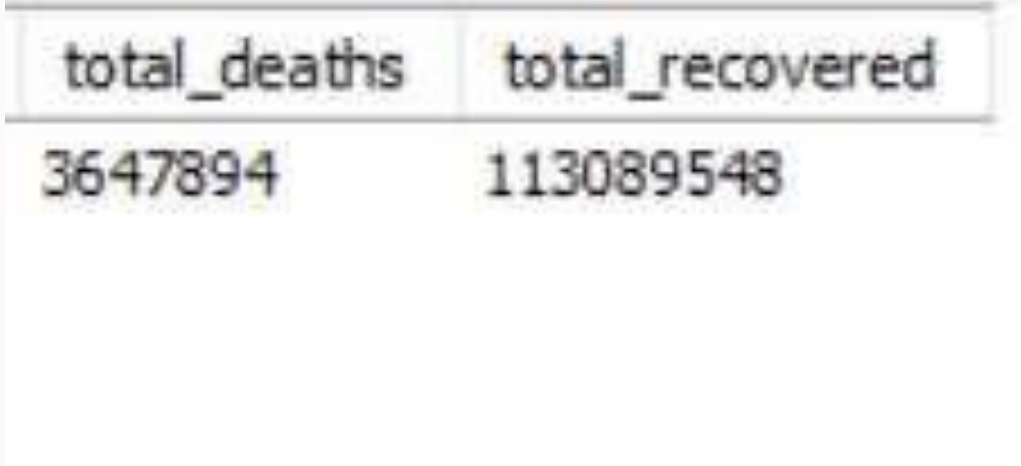
The total number of case of confirmed, deaths, recovered each month



```
SELECT
        YEAR(Date) AS year,
        MONTH(Date) AS month,
        SUM(confirmed) AS total_confirmed,
        SUM(deaths) AS total_deaths,
        SUM(recovered) AS total_recovered
FROM
       CoronaVirus
GROUP BY
        YEAR(Date), MONTH(Date);
```



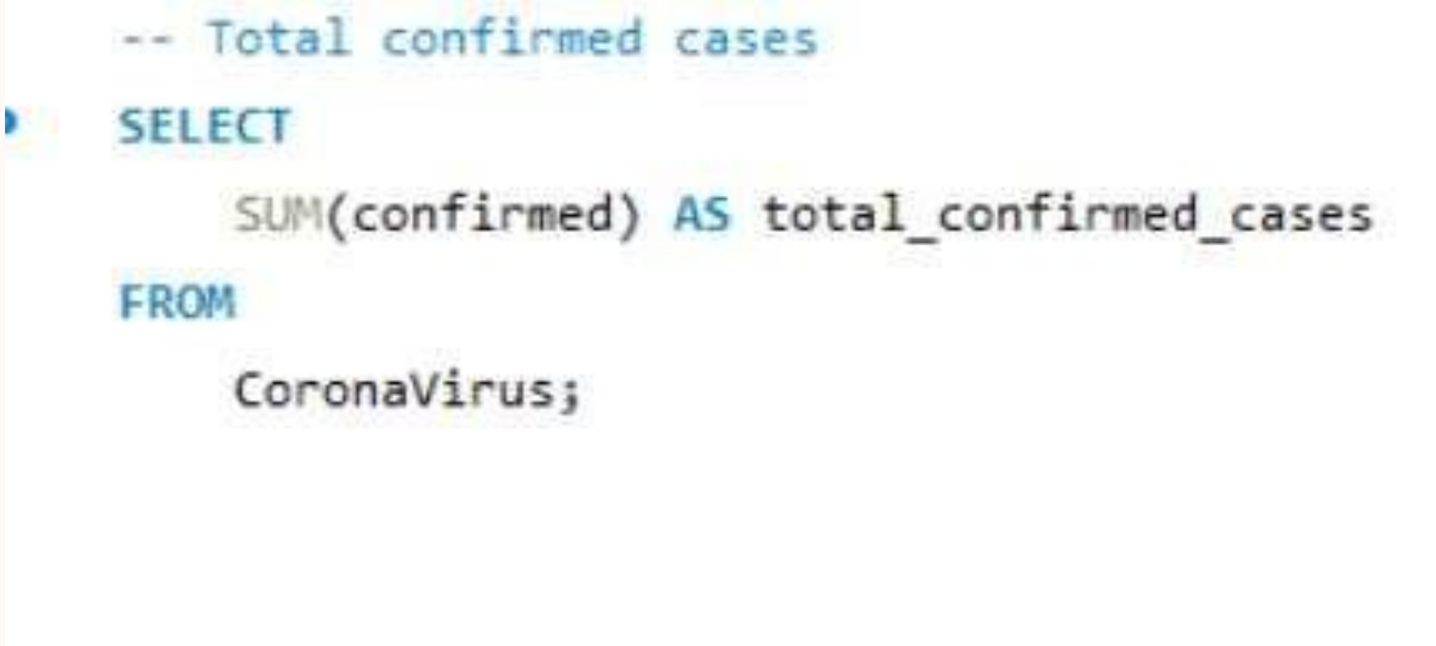
year	month	total_confirmed
NULL	NULL	169065144



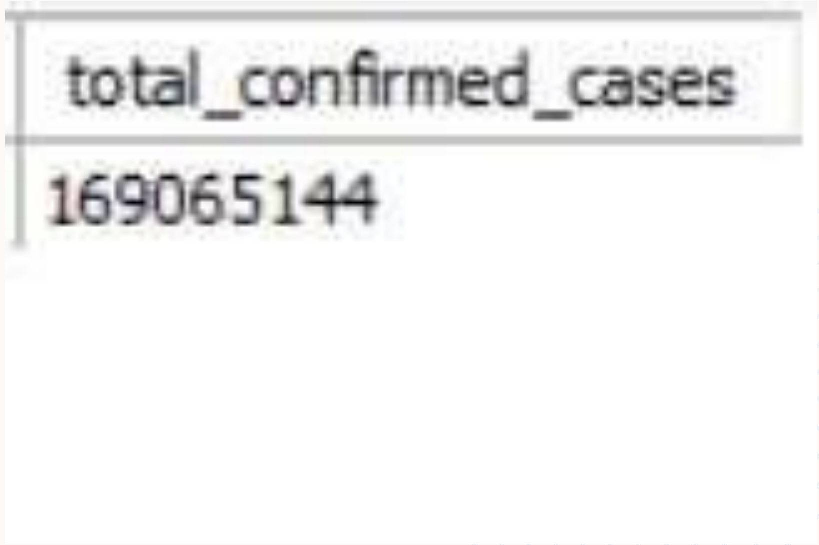
total_deaths	total_recovered
3647894	113089548

Check how corona virus spread out with respect to confirmed case

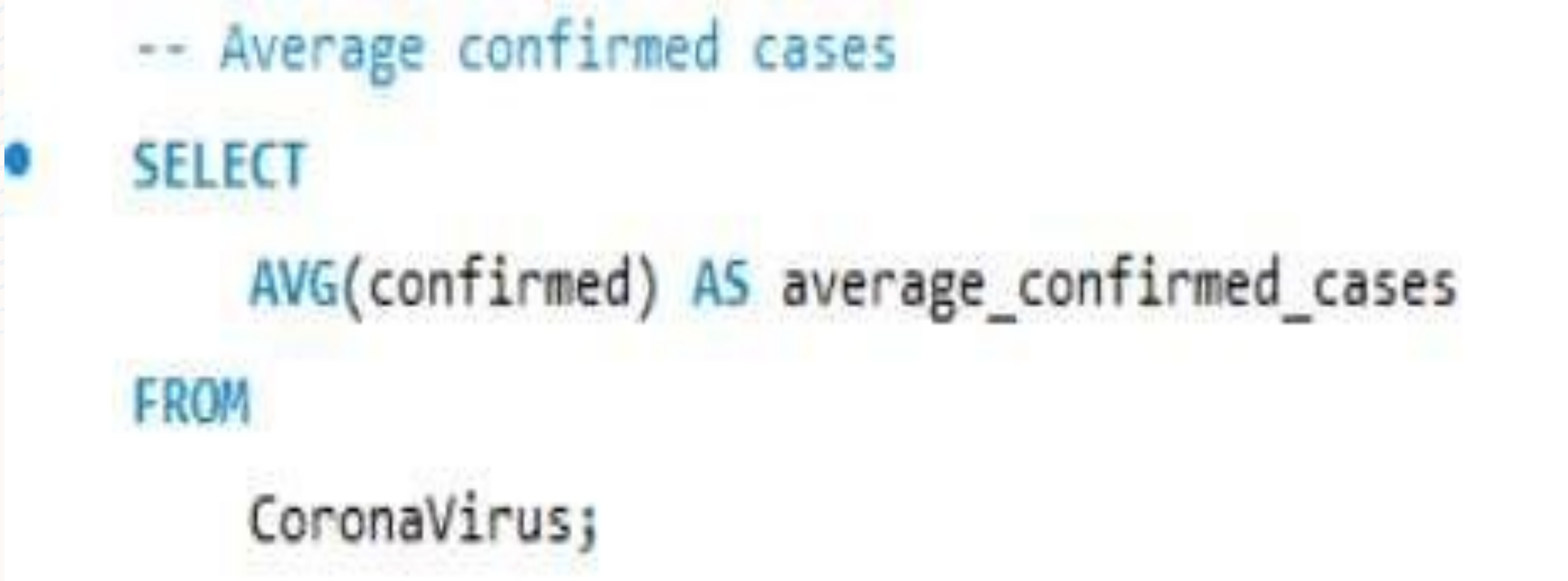
(Eg.: total confirmed cases, their average, variance & STDEV)



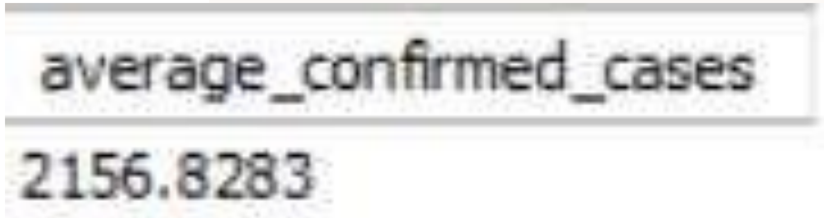
```
-- Total confirmed cases
SELECT
    SUM(confirmed) AS total_confirmed_cases
FROM
    CoronaVirus;
```



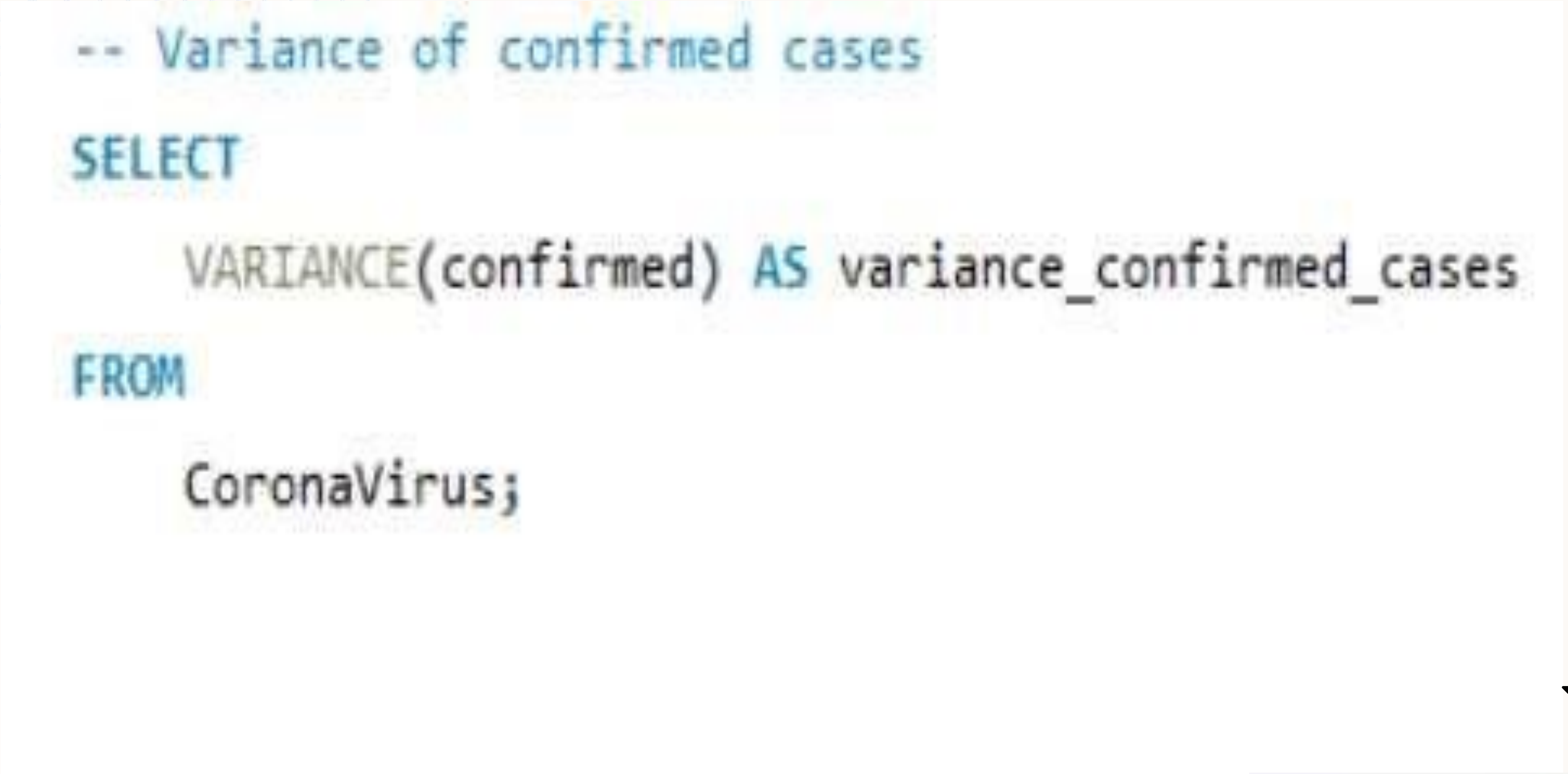
total_confirmed_cases
169065144



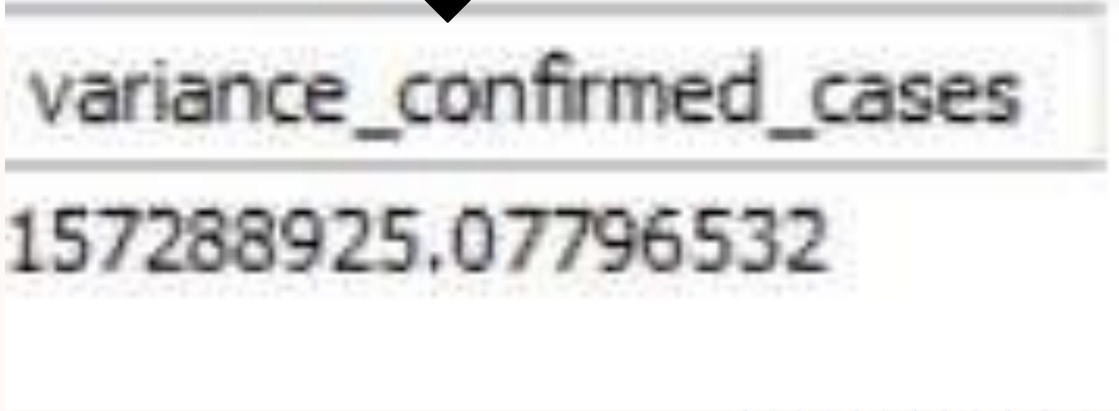
```
-- Average confirmed cases
SELECT
    AVG(confirmed) AS average_confirmed_cases
FROM
    CoronaVirus;
```



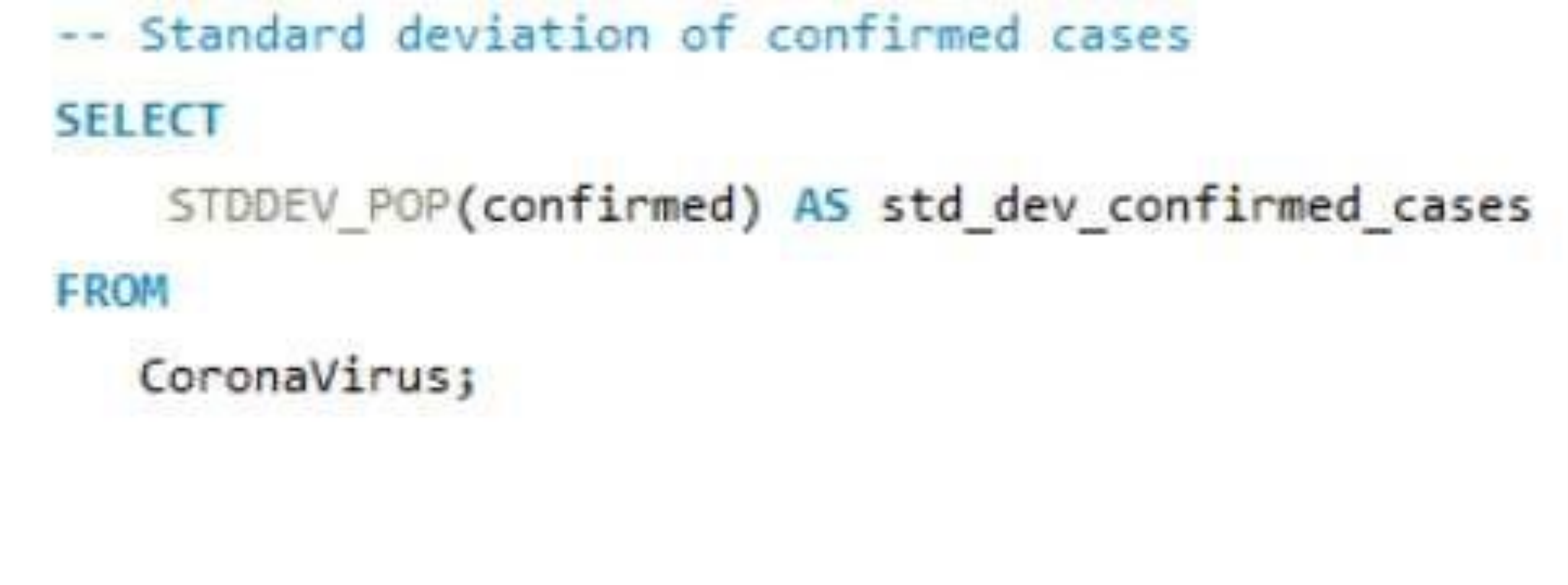
```
average_confirmed_cases
2156.8283
```



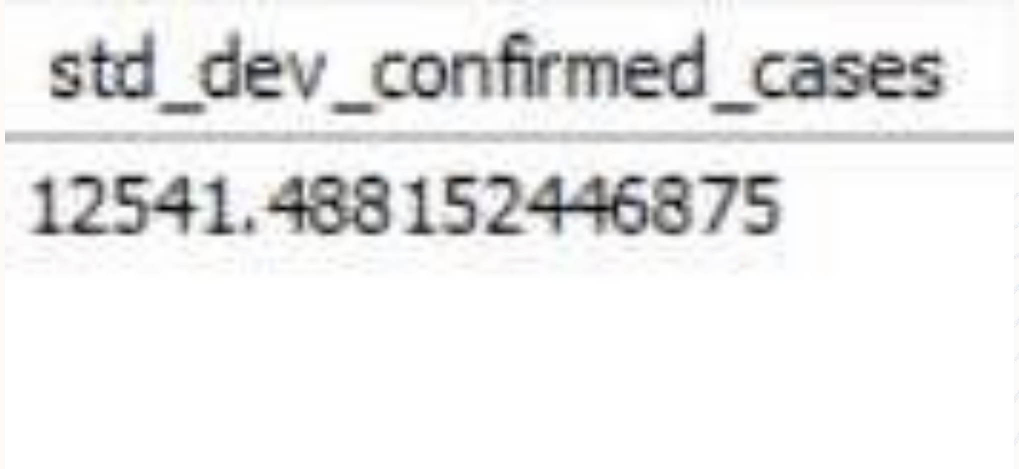
```
-- Variance of confirmed cases
SELECT
    VARIANCE(confirmed) AS variance_confirmed_cases
FROM
    CoronaVirus;
```



```
variance_confirmed_cases
157288925.07796532
```

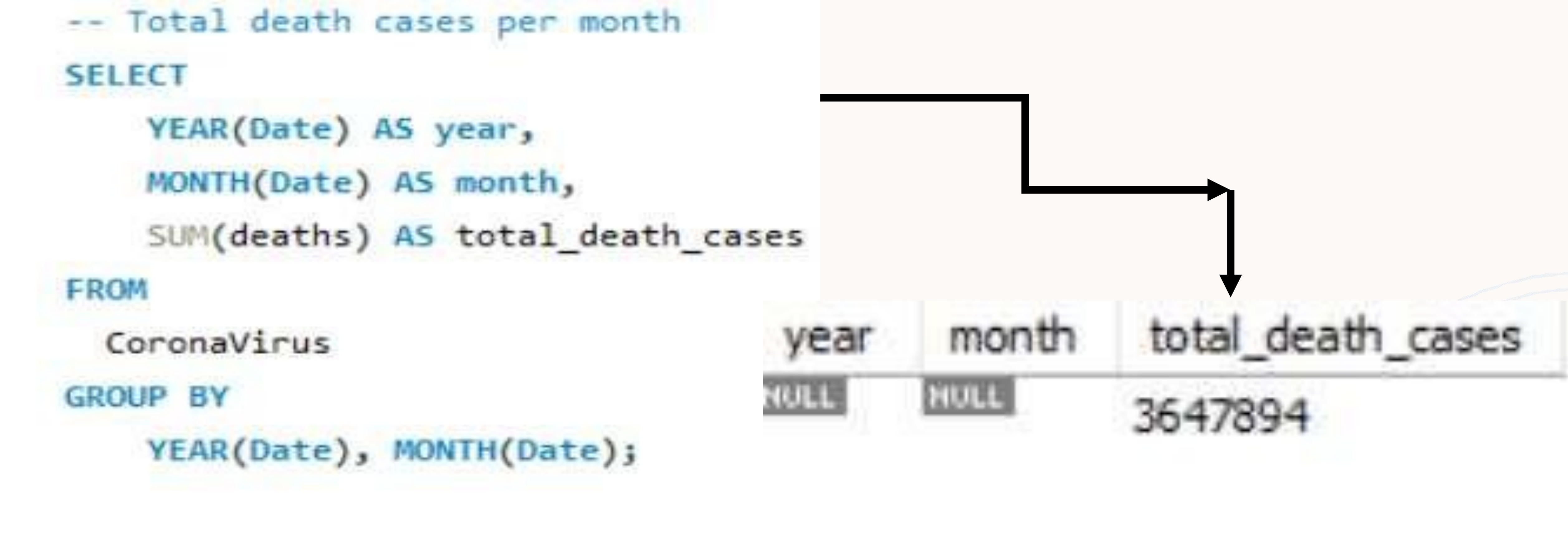


```
-- Standard deviation of confirmed cases
SELECT
    STDDEV_POP(confirmed) AS std_dev_confirmed_cases
FROM
  CoronaVirus;
```



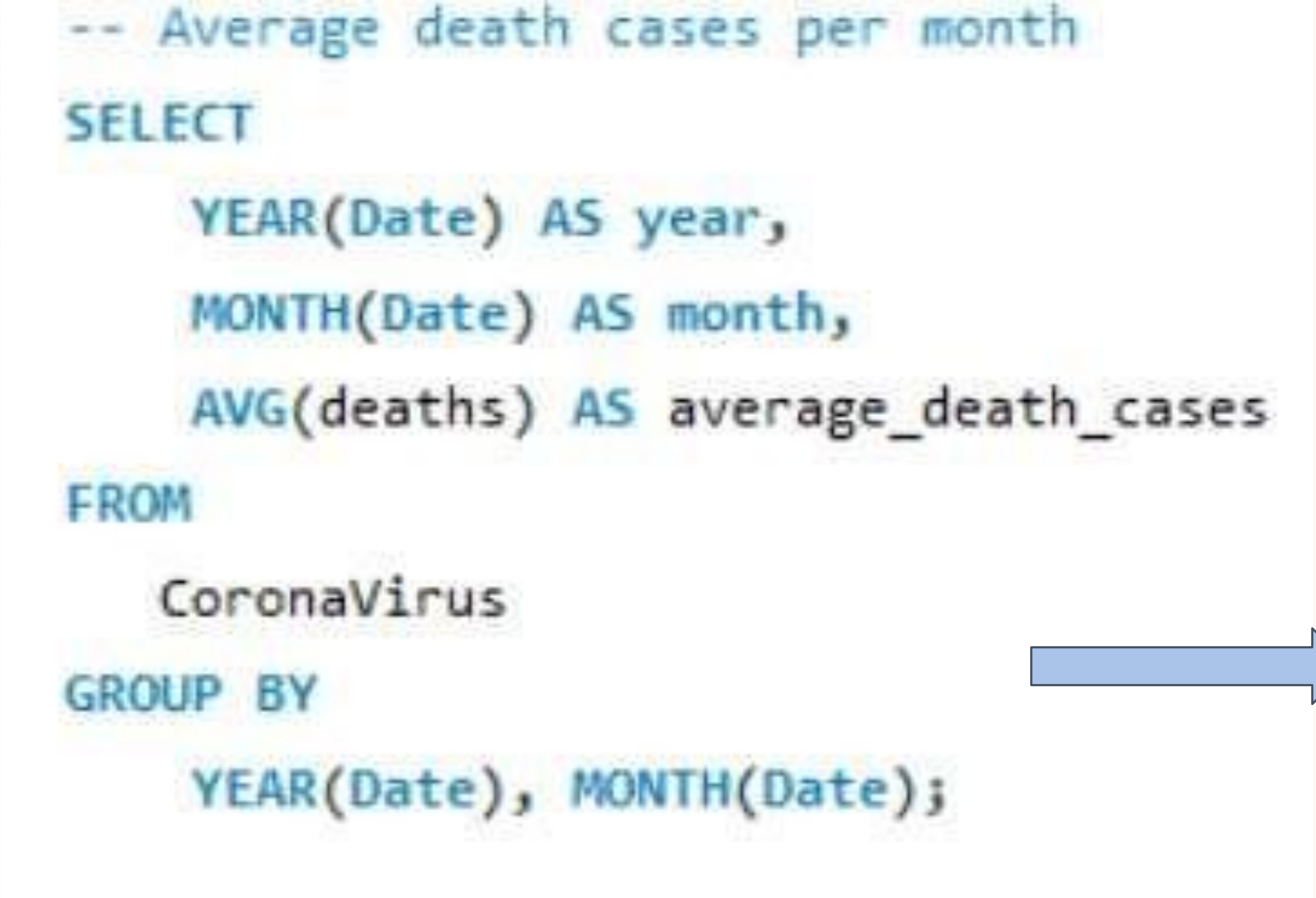
```
std_dev_confirmed_cases
12541.488152446875
```

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

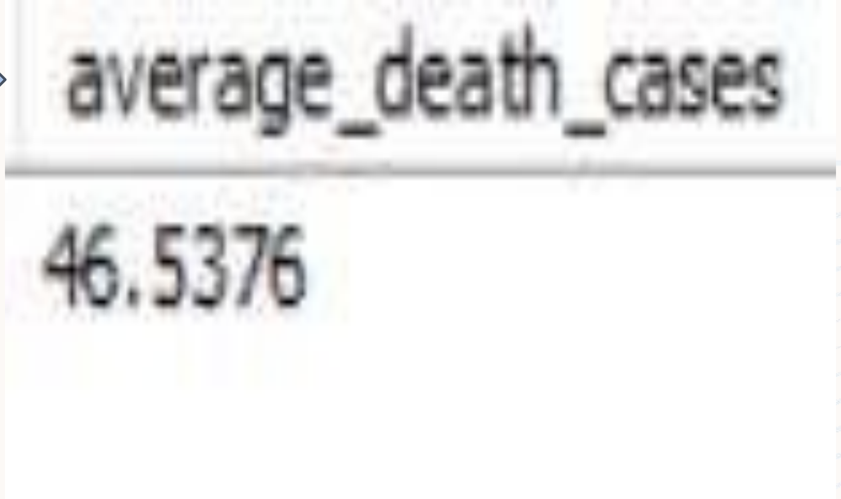


```
-- Total death cases per month
SELECT
    YEAR(Date) AS year,
    MONTH(Date) AS month,
    SUM(deaths) AS total_death_cases
FROM
  CoronaVirus
GROUP BY
    YEAR(Date), MONTH(Date);
```

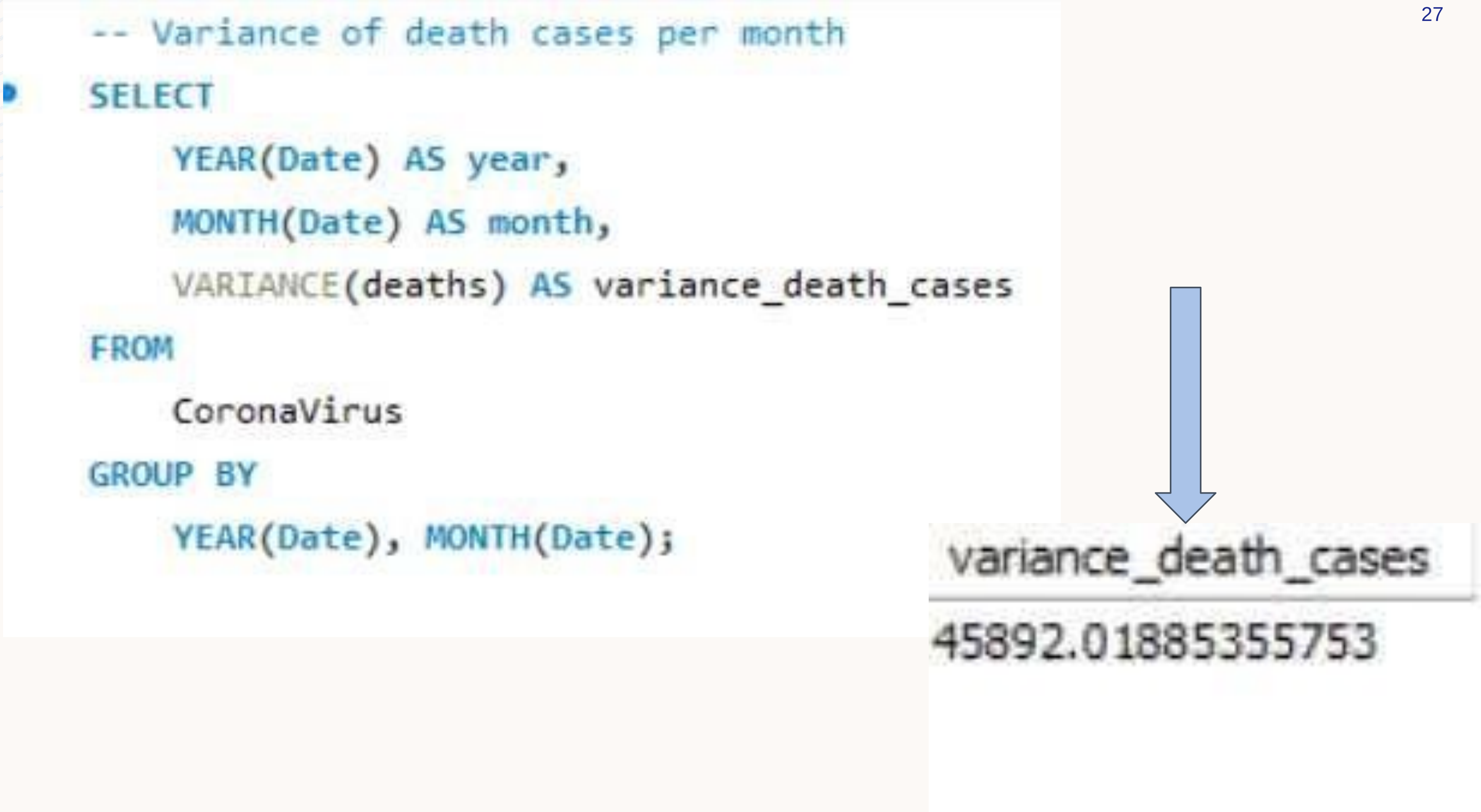
```
year   month   total_death_cases
NULL   NULL    3647894
```



```
-- Average death cases per month
SELECT
    YEAR(Date) AS year,
    MONTH(Date) AS month,
    AVG(deaths) AS average_death_cases
FROM
  CoronaVirus
GROUP BY
    YEAR(Date), MONTH(Date);
```

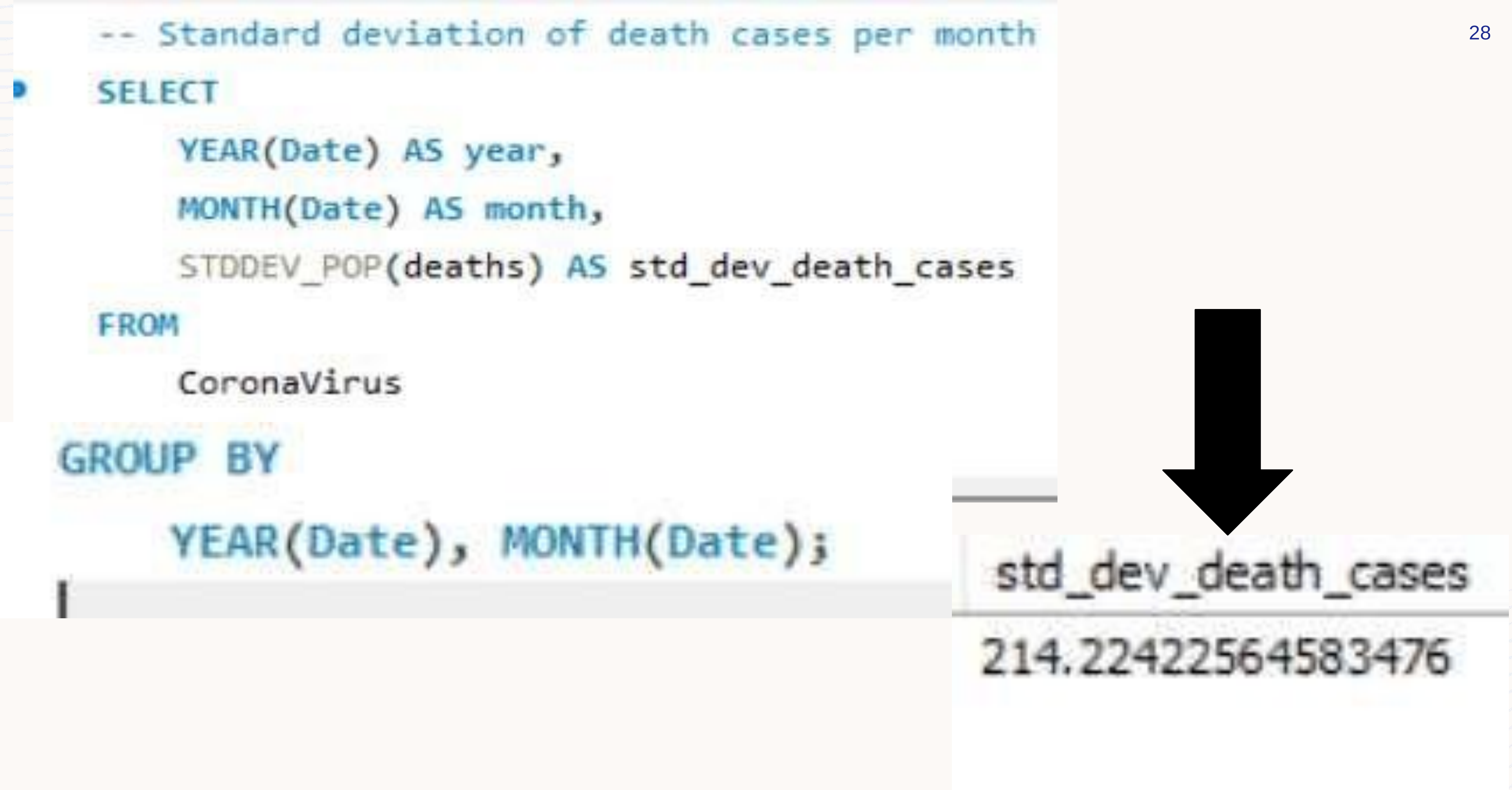


```
average_death_cases
46.5376
```



```
-- Variance of death cases per month
SELECT
    YEAR(Date) AS year,
    MONTH(Date) AS month,
    VARIANCE(deaths) AS variance_death_cases
FROM
    CoronaVirus
GROUP BY
    YEAR(Date), MONTH(Date);
```

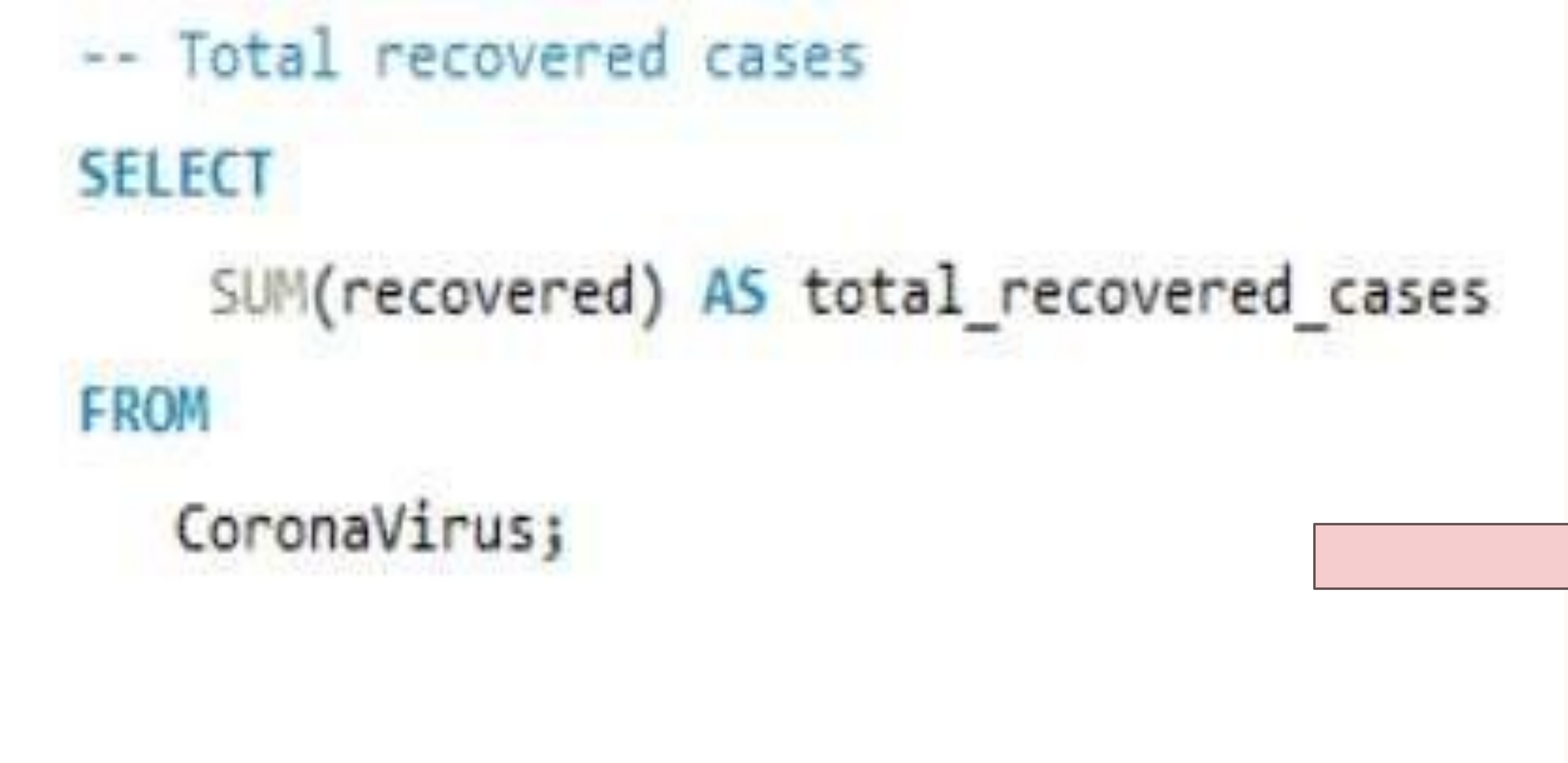
```
variance_death_cases
45892.01885355753
```



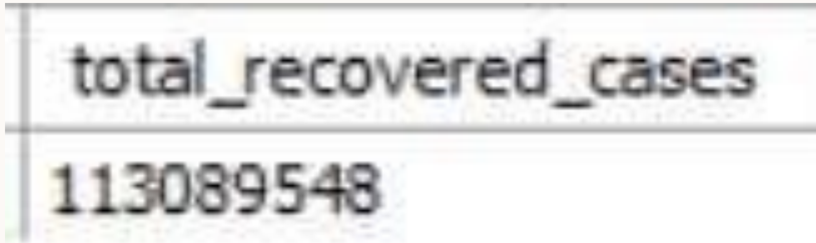
```
-- Standard deviation of death cases per month
SELECT
    YEAR(Date) AS year,
    MONTH(Date) AS month,
    STDDEV_POP(deaths) AS std_dev_death_cases
FROM
    CoronaVirus
GROUP BY
    YEAR(Date), MONTH(Date);
```

```
std_dev_death_cases
214.22422564583476
```

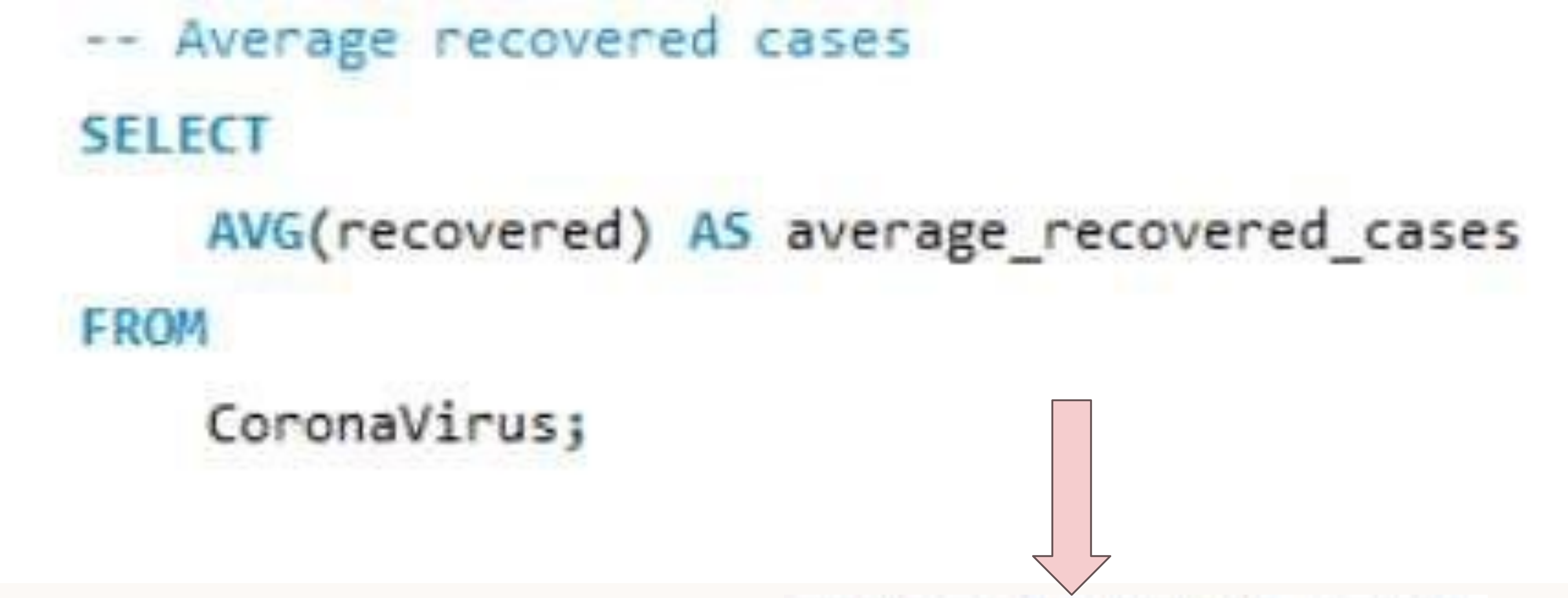
Check how corona virus spread out with respect to recovered case -- (Eg.: total confirmed cases, their average, variance & STDEV)



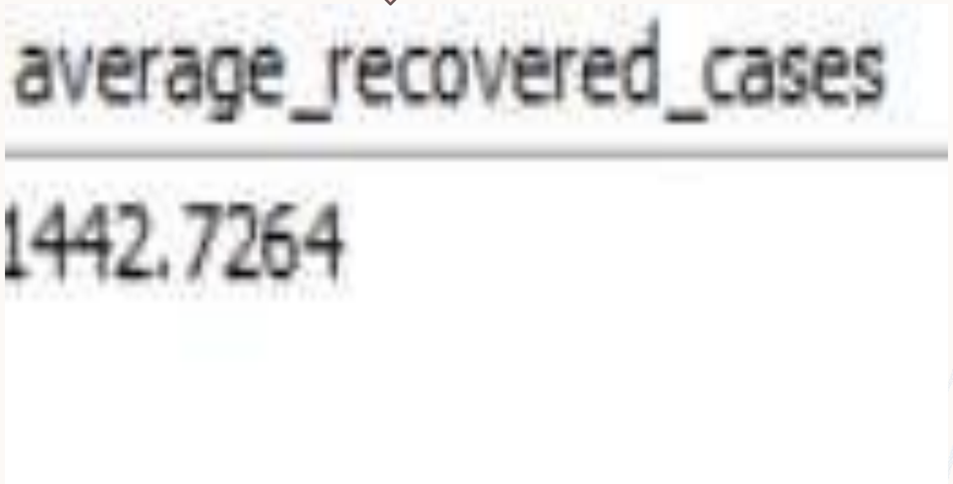
```
-- Total recovered cases
SELECT
    SUM(recovered) AS total_recovered_cases
FROM
   CoronaVirus;
```



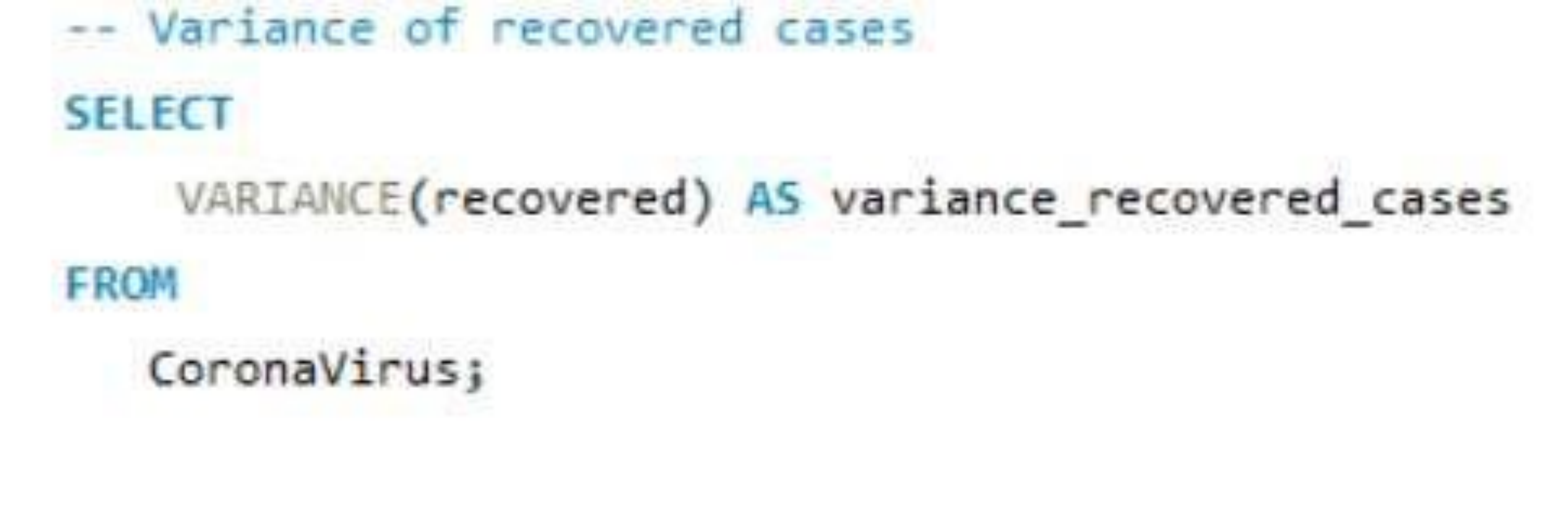
```
total_recovered_cases
113089548
```



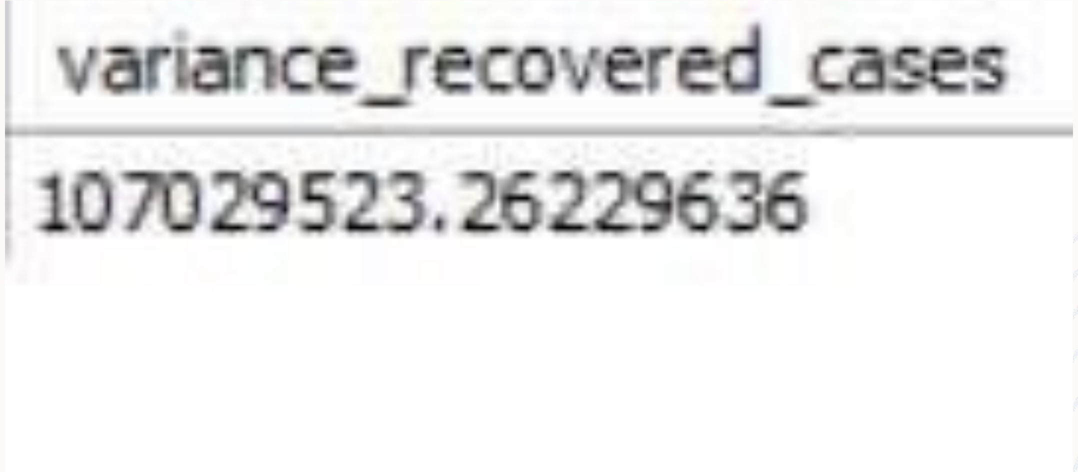
```
-- Average recovered cases
SELECT
    AVG(recovered) AS average_recovered_cases
FROM
    CoronaVirus;
```



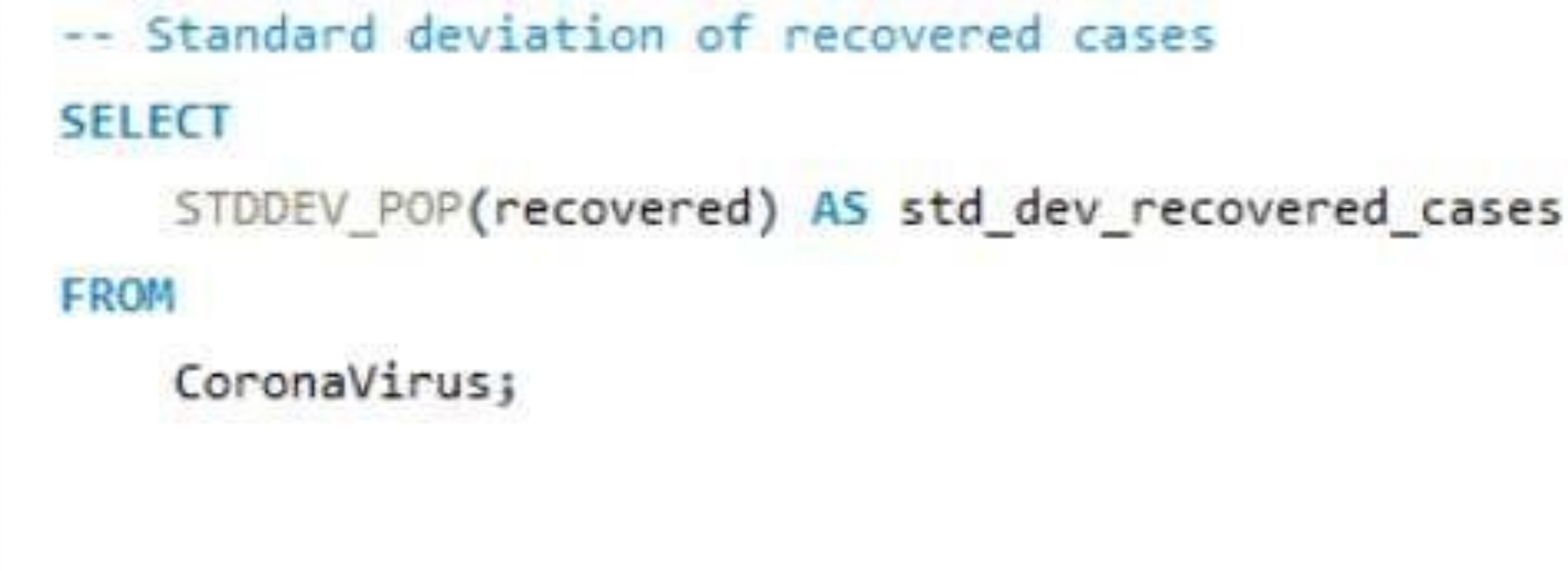
```
average_recovered_cases
1442.7264
```



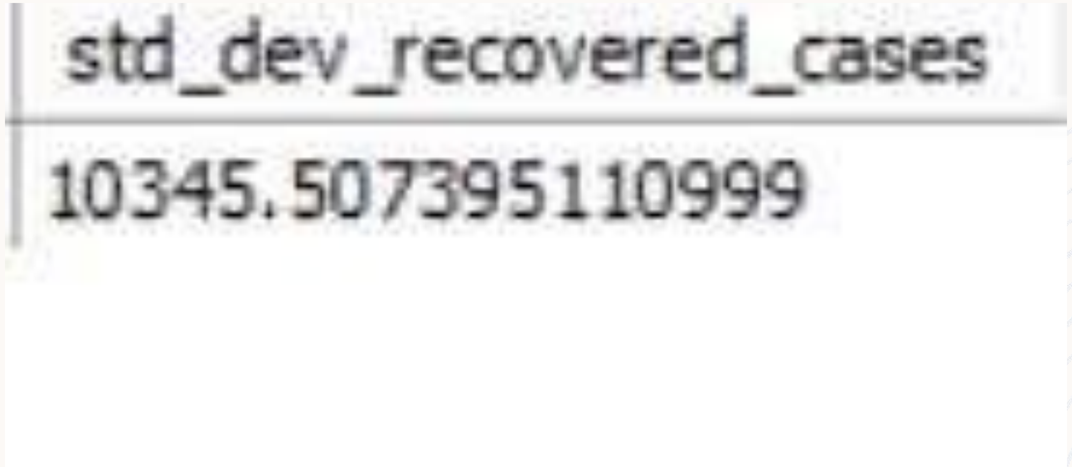
```
-- Variance of recovered cases
SELECT
    VARIANCE(recovered) AS variance_recovered_cases
FROM
   CoronaVirus;
```



```
variance_recovered_cases
107029523.26229636
```

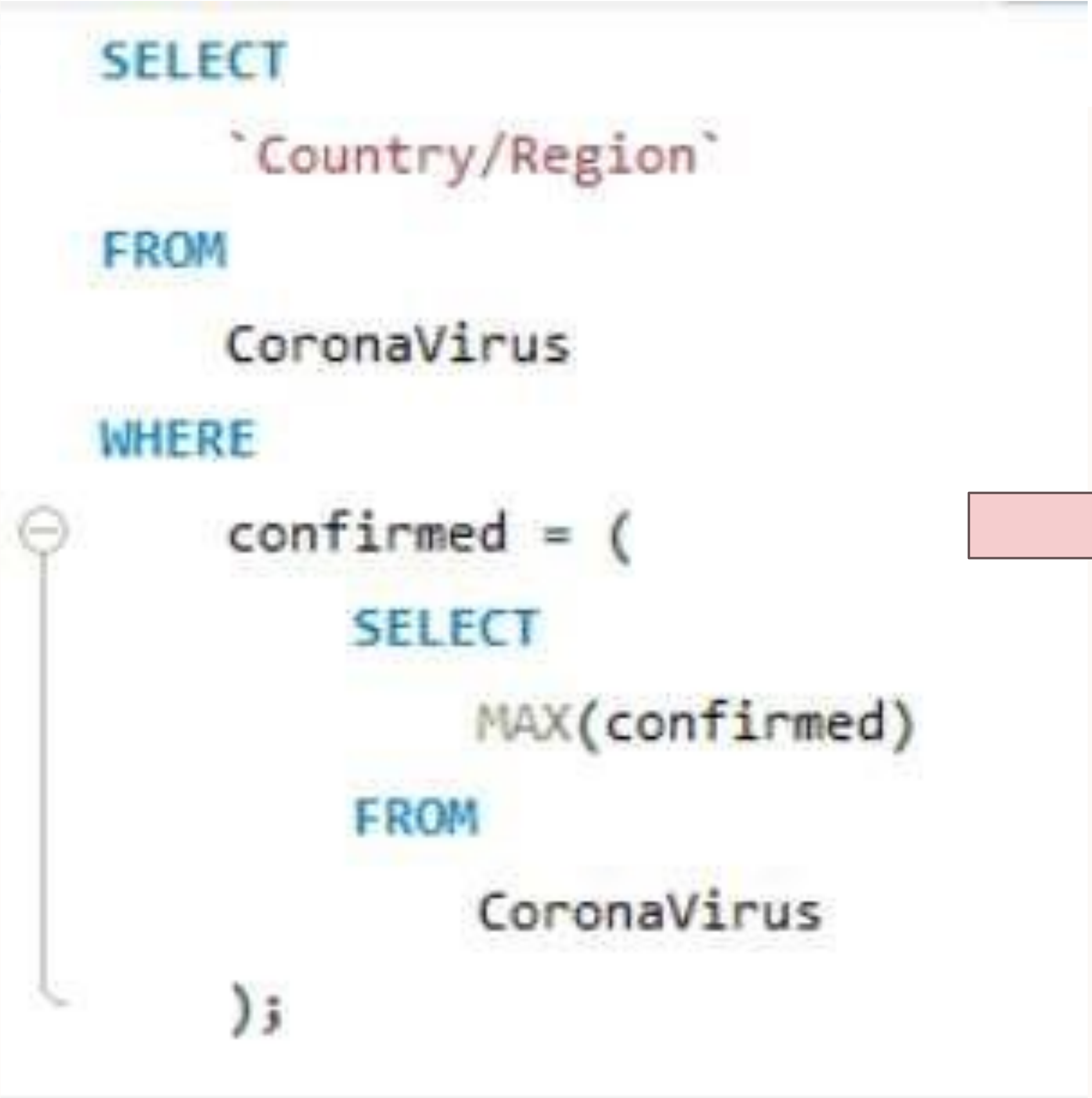


```
-- Standard deviation of recovered cases
SELECT
    STDDEV_POP(recovered) AS std_dev_recovered_cases
FROM
    CoronaVirus;
```

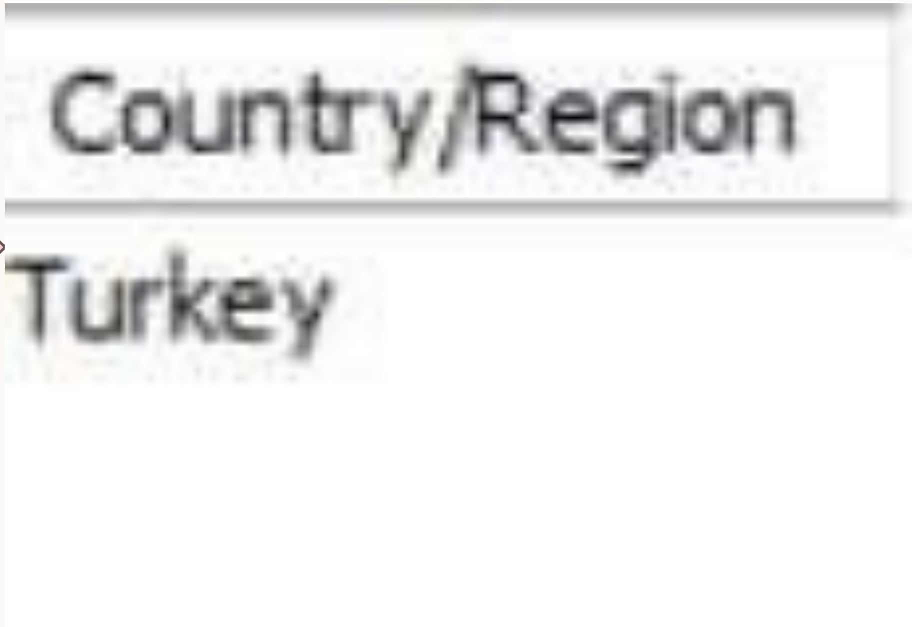


```
std_dev_recovered_cases
10345.507395110999
```

Find Country having highest number of the Confirmed case

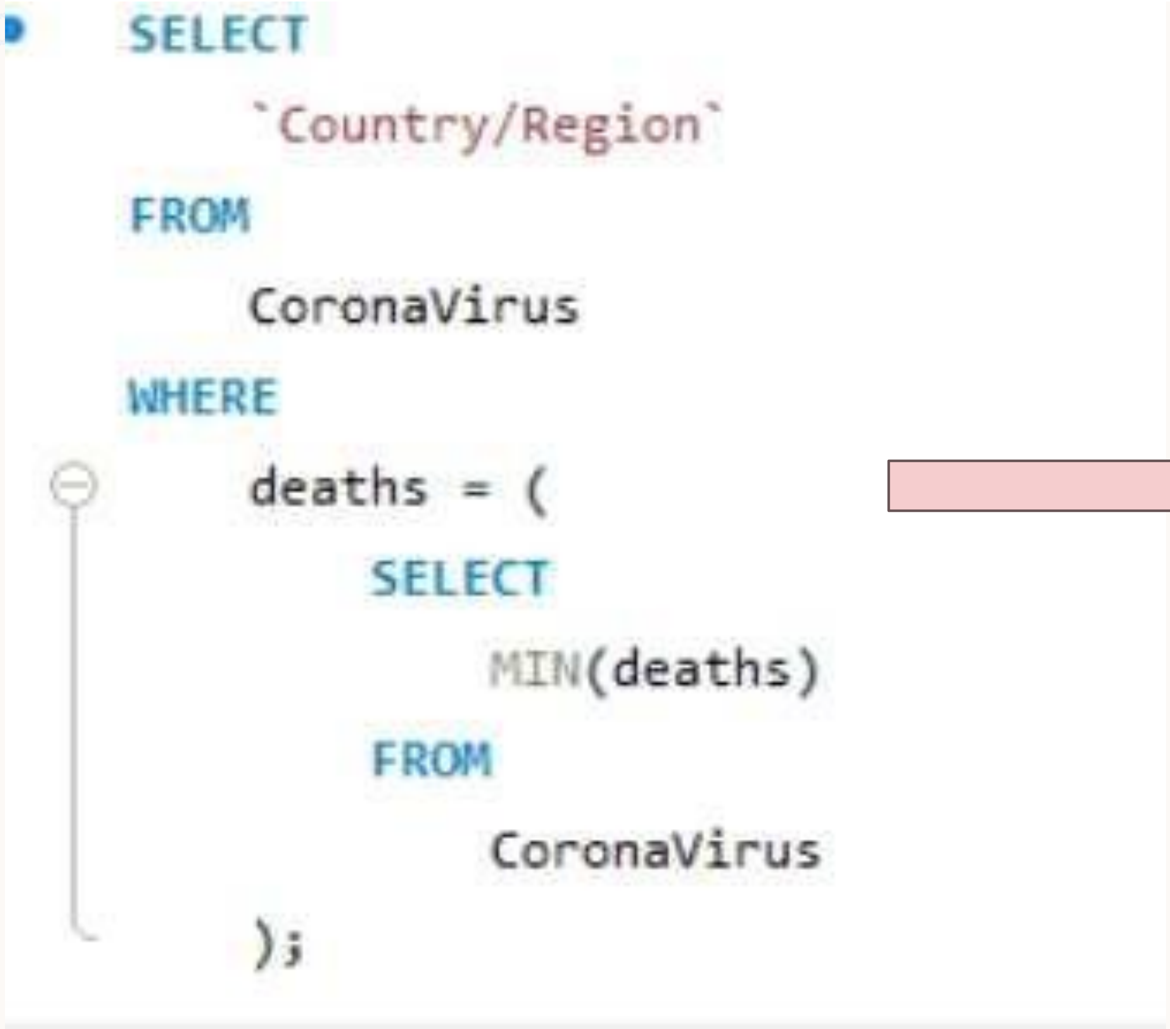


```
SELECT
    `Country/Region`
FROM
    CoronaVirus
WHERE
    confirmed = (
        SELECT
            MAX(confirmed)
        FROM
            CoronaVirus
    );
```

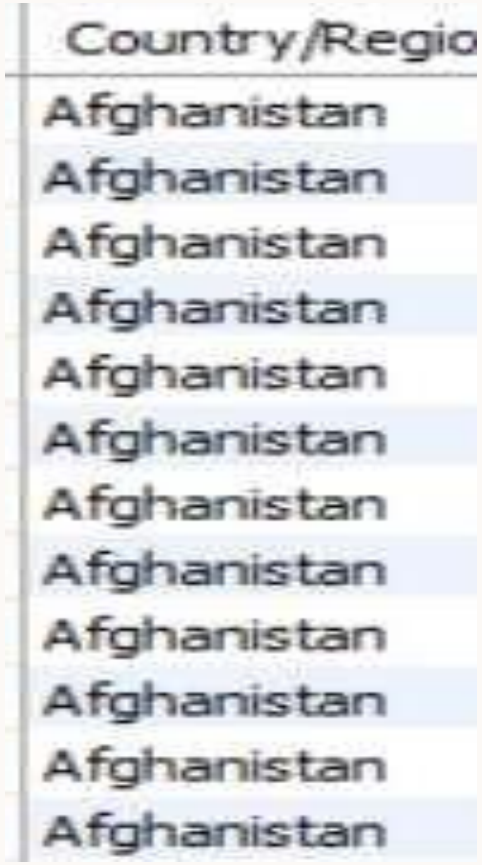


Country/Region
Turkey

Find Country having lowest number of the death case



```
SELECT
    `Country/Region`
FROM
    CoronaVirus
WHERE
    deaths = (
        SELECT
            MIN(deaths)
        FROM
            CoronaVirus
    );
```



Country/Regio
Afghanistan
Afghanistan
Afghanistan
Afghanistan
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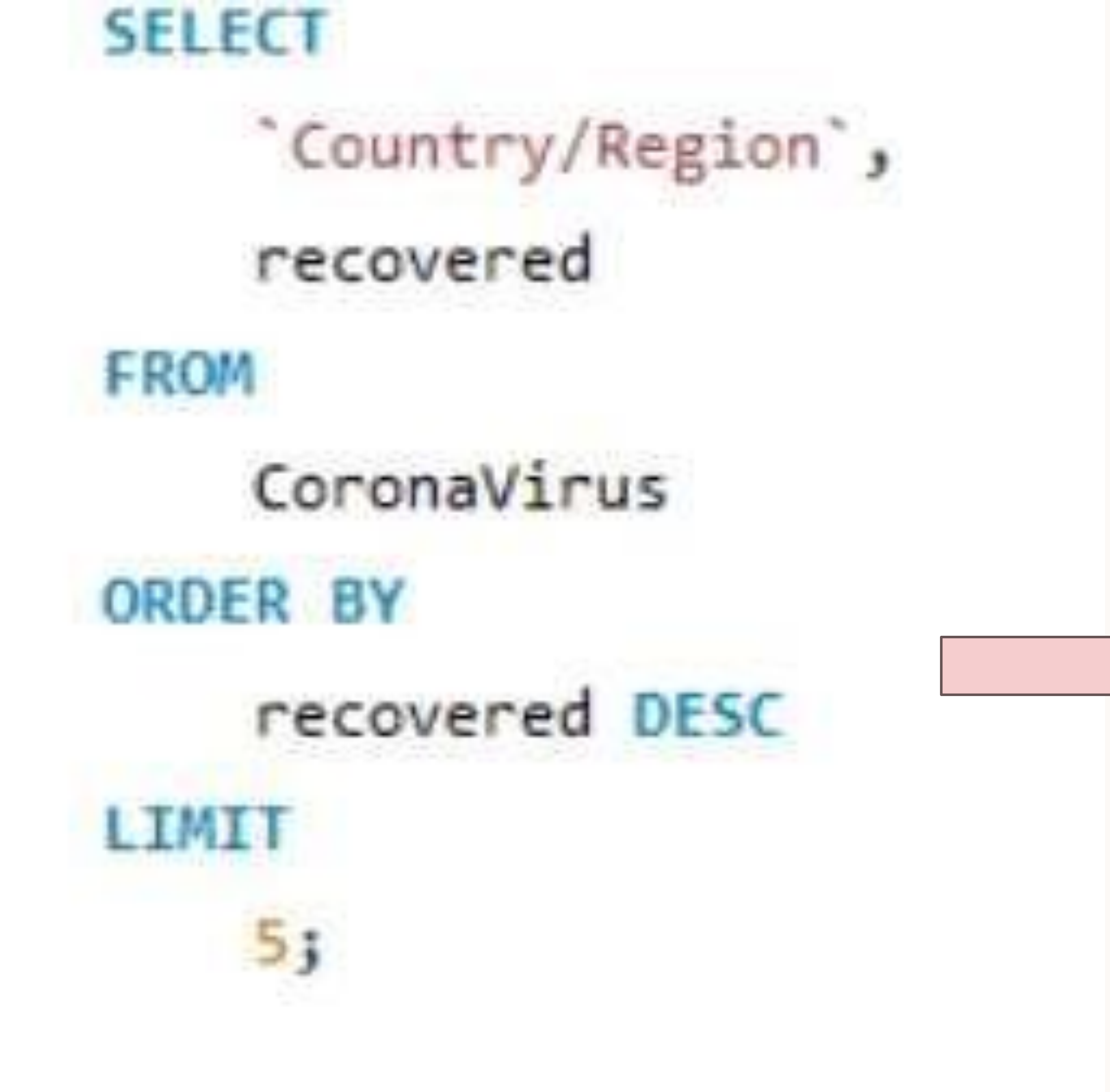
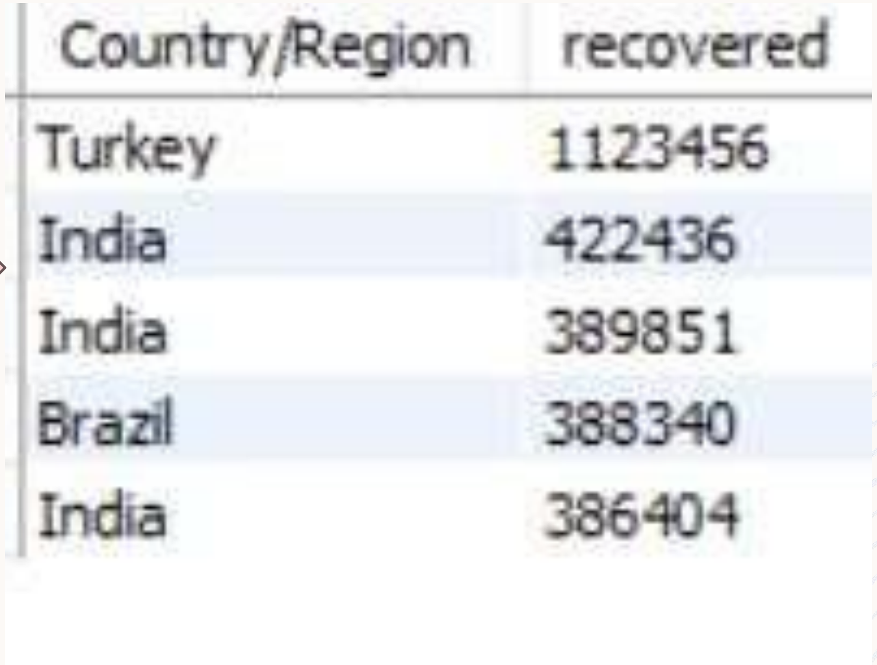
Afghanistan
Afghanistan
Afghanistan
Afghanistan
Afghanistan
Afghanistan
Afghanistan

43082 Country/ Region

Find top 5 countries having highest recovered case



```
SELECT
    `Country/Region`,
    recovered
FROM
    CoronaVirus
ORDER BY
    recovered DESC
LIMIT
    5;
```



Country/Region	recovered
Turkey	1123456
India	422436
India	389851
Brazil	388340
India	386404

Conclusion

The SQL analysis of the corona dataset provides insights into the pandemic's spread, including trends over time, monthly averages, and country-specific metrics. It reveals patterns of infection, recovery, and mortality, aiding in understanding and managing the crisis efficiently.

THANK YOU