

Use Covid19_Analysis;

/** Month with % values**/

with proper_data as

(

Select

state,state_short,month_name,year_name,month_number,state_total_population,SUM(confirmed) as confirmed, SUM(recovered) as recovered, SUM(deceased) as deceased, SUM(tested) as tested, SUM(vaccinated_1) as vaccinated_1, SUM(vaccinated_2) as vaccinated_2 from (select d.state,d.state_short,s.state_total_population,isnull(d.total_confirmed - LAG(d.total_confirmed) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_confirmed) over(Partition by d.state_short)) as confirmed,

isnull(d.total_recovered - LAG(d.total_recovered) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_recovered) over(Partition by d.state_short)) as recovered,

isnull(d.total_deceased - LAG(d.total_deceased) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_deceased) over(Partition by d.state_short)) as deceased,

isnull(d.total_tested - LAG(d.total_tested) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_tested) over(Partition by d.state_short)) as tested,

isnull(d.total_vaccinated_1 - LAG(d.total_vaccinated_1) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_vaccinated_1) over(Partition by d.state_short)) as vaccinated_1,

isnull(d.total_vaccinated_2 - LAG(d.total_vaccinated_2) over(Partition By d.state_short order by d.state_short,date),MIN(d.total_vaccinated_2) over(Partition by d.state_short)) as vaccinated_2,

DATENAME(Month,d.date) as month_name,Month(d.date) as month_number,DATENAME(YEAR,d.date) as year_name from date_total_df d join states_total_df s on s.state_short=d.state_short) s

Group By state,state_short,month_number,month_name,year_name,state_total_population),

cte as

(

Select *,Round((Cast([state_total_confirmed] as float)/Cast([state_total_population] as float)),4)*100 as [Population_Effected_%],

Round((Cast([state_total_recovered] as float)/Cast([state_total_confirmed] as float)),4)*100 as [Recovery_%],

Round((Cast([state_total_deceased] as float)/Cast([state_total_confirmed] as float)),4)*100 as [Death_%],

```

Round((Cast([state_total_vaccinated_1] as float)/Cast([state_total_population] as float)),4)*100 as
[Vaccinated1_%],

Round((Cast([state_total_vaccinated_2] as float)/Cast([state_total_population] as float)),4)*100 as [
Vaccinated2_%] from (select s.state as
state_name,s.state_short,s.state_total_population,t.total_confirmed as
state_total_confirmed,s.state_total_deceased,s.state_total_recovered,s.state_total_tested
,s.state_total_vaccinated_1,s.state_total_vaccinated_2 from (Select *,ROW_NUMBER()
over(Partition by state Order by total_confirmed desc) as row from date_total_df) t join
states_total_df s

ON t.state_short = s.state_short

where row = 1) c )

```

```

Select
pd.state,pd.state_short,pd.state_total_population,pd.month_name,pd.year_name,pd.confirmed,pd.
deceased,pd.tested,pd.recovered,pd.vaccinated_1,pd.vaccinated_2,

ct.[Population_Effected_%],ct.[Recovery_%],ct.[Death_%],ct.[Vaccinated1_%],ct.[Vaccinated2_%]

from proper_data pd join cte ct on pd.state_short = ct.state_short

Order by pd.state_short,pd.year_name,pd.month_number;

```

/** Month And Year **/

with proper_data as

```

(select state_short,date,isnull(total_confirmed - LAG(total_confirmed) over(Partition By state_short
order by state_short,date),MIN(total_confirmed) over(Partition by state_short)) as confirmed,

isnull(total_recovered - LAG(total_recovered) over(Partition By state_short order by
state_short,date),MIN(total_recovered) over(Partition by state_short)) as recovered,

isnull(total_deceased - LAG(total_deceased) over(Partition By state_short order by
state_short,date),MIN(total_deceased) over(Partition by state_short)) as deceased,

isnull(total_tested - LAG(total_tested) over(Partition By state_short order by
state_short,date),MIN(total_tested) over(Partition by state_short)) as tested,

isnull(total_vaccinated_1 - LAG(total_vaccinated_1) over(Partition By state_short order by
state_short,date),MIN(total_vaccinated_1) over(Partition by state_short)) as vaccinated_1,

isnull(total_vaccinated_2 - LAG(total_vaccinated_2) over(Partition By state_short order by
state_short,date),MIN(total_vaccinated_2) over(Partition by state_short)) as vaccinated_2,

DATENAME(Month,date) as month_name,Month(date) as month_number,DATENAME(YEAR,date)
as year_name from date_total_df)

```

```
Select month_name,year_name,month_number,SUM(confirmed)as confirmed ,SUM(recovered) as recovered, SUM(deceased) as deceased, SUM(tested) as tested, SUM(vaccinated_1) as vaccinated_1, SUM(vaccinated_2) as vaccinated_2 from proper_data
```

```
Group By month_number,month_name,year_name
```

```
Order by year_name,month_number;
```

```
/** Joining confirmed with state_total **/
```

```
with timeseries as
```

```
(Select *,ROW_NUMBER() over(Partition by state Order by total_confirmed desc) as row from date_total_df)
```

```
select s.state as state_name,s.state_short,s.state_total_population,t.total_confirmed as state_total_confirmed,s.state_total_deceased,s.state_total_recovered,s.state_total_tested ,s.state_total_vaccinated_1,s.state_total_vaccinated_2 from timeseries t join states_total_df s
```

```
ON t.state_short = s.state_short
```

```
where row = 1;
```

```
Select * From TimeSeries_Data;
```

```
--- Creating Year Column
```

```
Alter Table TimeSeries_Data Add Year int;
```

```
Update TimeSeries_Data Set Year= Year(Date);
```

```
---Creating MonthNumber column
```

```
Alter Table TimeSeries_Data Add MonthNumber int;
```

```
Update TimeSeries_Data Set MonthNumber= Month(Date);
```

```
---Creating Month Column
```

```
Alter Table TimeSeries_Data Add Month varchar(50);
```

Update TimeSeries_Data Set Month= Case

When Month(Date)=1 then 'January'

When Month(Date)=2 then 'February'

When Month(Date)=3 then 'March'

When Month(Date)=4 then 'April'

When Month(Date)=5 then 'May'

When Month(Date)=6 then 'June'

When Month(Date)=7 then 'July'

When Month(Date)=8 then 'August'

When Month(Date)=9 then 'September'

When Month(Date)=10 then 'October'

When Month(Date)=11 then 'November'

When Month(Date)=12 then 'December'

End;

Select Date, DATEPART(WEEK, Date) - DATEPART(WEEK, DATEADD(MM, DATEDIFF(MM,0,Date), 0))+
1 From TimeSeries_Data;

---Creating WeekNumber Column

Alter Table TimeSeries_Data Add WeekNumber varchar(50);

Update TimeSeries_Data Set WeekNumber= DATEPART(WEEK, Date) - DATEPART(WEEK,
DATEADD(MM, DATEDIFF(MM,0,Date), 0))+ 1;

---Creating Month_WeekNumber Column

Alter Table TimeSeries_Data Drop Column Month_WeekNumber,

Alter Table TimeSeries_Data Add Month_WeekNumber varchar(50);

Update TimeSeries_Data Set Month_WeekNumber = concat(Month,'-', 'Week ',WeekNumber);

Select * From TimeSeries_Data;

---Segregating the cumulative data for each date

```
Select * into TimeSeries_Data2 From

(Select State,Date,isnull(Confirmed - LAG(Confirmed) over(Partition By State order by
State,date),MIN(Confirmed) over(Partition by State)) as Confirmed,

isnull(Recovered - LAG(Recovered) over(Partition By State order by State,date),MIN(Recovered)
over(Partition by State)) as Recovered,

isnull(Deceased - LAG(Deceased) over(Partition By State order by State,date),MIN(Deceased)
over(Partition by State)) as Death,

isnull(Tested - LAG(Tested) over(Partition By State order by State,date),MIN(Tested) over(Partition
by State)) as Tested,

Year,MonthNumber,Month,WeekNumber,Month_WeekNumber from TimeSeries_Data) S;
```

Select * From TimeSeries_Data2

Order By State,Date;

---Aggregating the data according to WeekNumber

```
Select Year,MonthNumber,Month_WeekNumber,Sum(Confirmed) As Confirmed,Sum(Recovered) As
Recovered,Sum(Death) As Deaths,Sum(Tested) As Tested

From TimeSeries_Data2

Group By Year,MonthNumber,Month_WeekNumber

Order By Year,MonthNumber,Month_WeekNumber;
```

---Aggregating the data according to month(extra)

```
Select Year,MonthNumber,Month,Sum(Confirmed) As Confirmed,Sum(Recovered) As
Recovered,Sum(Death) As Deaths,Sum(Tested) As Tested

From TimeSeries_Data2

Group By Year,MonthNumber,Month

Order By Year,MonthNumber;
```

Select * from DistrictWise_Data;

---Creating the Testing Ratio Table

```
Alter Table DistrictWise_Data Add [TestingRatio(tr)] float;
```

```
Update DistrictWise_Data Set [TestingRatio(tr)] = Round((Cast([Tested] as float)/Cast([Population] as float)),2);
```

---Creating the Category Table

```
Alter Table DistrictWise_Data Add Category varchar(50);
```

```
Update DistrictWise_Data Set Category = Case
```

```
When [TestingRatio(tr)] between 0.0 and 0.1 then 'Category A'
```

```
When [TestingRatio(tr)] between 0.11 and 0.3 then 'Category B'
```

```
When [TestingRatio(tr)] between 0.31 and 0.5 then 'Category C'
```

```
When [TestingRatio(tr)] between 0.51 and 0.75 then 'Category D'
```

```
When [TestingRatio(tr)] between 0.76 and 0.1 then 'Category E'
```

```
Else null
```

```
end;
```

```
Select * from DistrictWise_Data;
```

---Grouping by Category

```
Select Category, Avg(Population) as Avg_Population, Avg(Confirmed) As  
Avg_Confirmed,Avg(Recovered) As Avg_Recovered,Avg(Deceased) As Avg_Deaths,Avg(Tested) As  
Avg_Tested, Round(Avg([TestingRatio(tr)]),2) as Avg_TestingRatio
```

```
From DistrictWise_Data
```

```
Where Category is not null
```

```
Group By Category
```

```
Order By Category;
```

---Creating the Category Table

```
Select * into Category_table From
```

```
(Select Category, Avg(Population) as Avg_Population, Avg(Confirmed) As  
Avg_Confirmed,Avg(Recovered) As Avg_Recovered,Avg(Deceased) As Avg_Deaths,Avg(Tested) As  
Avg_Tested, Round(Avg([TestingRatio(tr)]),2) as Avg_TestingRatio
```

```
From DistrictWise_Data
```

```
Where Category is not null
```

Group By Category) s;

Select * from Category_table;

Select *, Round(Cast(Avg_Deaths as float)/Cast(Avg_Confirmed as float)*100,2) as [Death %] from Category_table;

select state, sum(population) as Population, sum(confirmed) as Confirmed, sum(deceased) as Deceased, sum(recovered) as Recovered, sum(tested) as Tested, sum(vaccinated1) as Vaccinated1, sum(vaccinated2) as Vaccinated2 from delta7_district_cleaned group by state

--correlation with doeses and deceased

select state, sum(deceased) as Deceased, sum(vaccinated1 + vaccinated2) as 'Dual Doses' from delta7_district_cleaned group by state

--correlation between confirmed cases and deceased cases

select state, sum(confirmed) as Confirmed , sum(deceased) as Deceased from delta7_district_cleaned group by state

--correlation between vaccinted 1 and deceased

select state, sum(vaccinated1) as Vaccinated, sum(deceased) as deceased from delta7_district_cleaned group by state

select state, sum(tested) as Tested, sum(confirmed) as Confirmed from delta7_district_cleaned group by state

select state, sum(confirmed) as Confirmed, sum(recovered) as Recovered from delta7_district_cleaned group by state

-- delta 7 wrt vaccination

select state, sum(confirmed) as Confirmed, sum(vaccinated1 + Vaccinated2) as Fully_Vaccinated from delta7_district_cleaned group by state

```
select state, sum(confirmed) as Confirmed, sum(Vaccinated1) as Vaccinated from  
delta7_district_cleaned group by state
```

```
select state, sum(confirmed) as Confirmed, sum(Vaccinated2) as Vaccinated from  
delta7_district_cleaned group by state
```