1- Upload COVID-19.csv to a DBMS (attached).  
  
2- "ConfirmedCases" and "Fatalities" both contain "cumulative" data. Use "WIndowing/Partition" statement and transform "cumulative" numbers to "daily" numbers and call them "ConfirmedDaily" and "FatalitiesDaily" respectively. The following is an example of "Cumulative" and "Daily" numbers.

|  |  |
| --- | --- |
| Cumulative | Daily |
| 1 | 1 |
| 10 | 9 |
| 128 | 118 |
| 235 | 107 |
| 1000 | 765 |

3- Aggregate  "ConfirmedDaily" and "FatalitiesDaily"  by "Country\_Region and WeekOfYear(Date)" and copy the aggregated data into a new table called "COVID\_19\_aggr".

|  |  |
| --- | --- |
| COVID\_19\_aggr | |
| Country\_Region | dimension |
| WeekOfYear | dimension |
| ConfirmedDaily | measurement |
| FatalitiesDaily | measurement |

4- Use "GROUP BY CUBE", "GROUP BY ROLLUP", and "GROUPING SETS" against "COVID\_19\_aggr" table.  
  
5- Use RANK(), DENSE\_RANK(), PERCENT\_RANK() and CUME\_DIST() against "COVID\_19\_aggr" table.  
  
6- Build two PIVOT tables as follows.  
  
PIVOT #1:  
Dimension 1: WeekOfYear   
Dimension 2: Top 10 Country\_Region  
Measurement 1: ConfirmedDaily  
  
PIVOT #2:  
Dimension 1: WeekOfYear   
Dimension 2: Top 10 Country\_Region  
Measurement 2: FatalitiesDaily

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Week4 | Week5 | Week6 | Week7 | Week8 | Week9 | Week10 | Week11 | Week12 | Week13 | Week14 |
| Country1 | ConfirmedDaily and FatalitiesDaily | | | | | | | | | | |
| Country2 |
| Country3 |
| Country4 |
| Country5 |
| Country6 |
| Country7 |
| Country8 |
| Country9 |
| Country10 |

Reference:  
[https://docs.microsoft.com/en-us/sql/t-sql/queries/from-using-pivot-and-unpivot?view=sql-server-ver15](https://docs.microsoft.com/en-us/sql/t-sql/queries/from-using-pivot-and-unpivot?view=sql-server-ver15" \t "_blank)  
  
7- Use DRILL DOWN, DRILL UP, SLICING and DICING against the above PIVOT tables.