

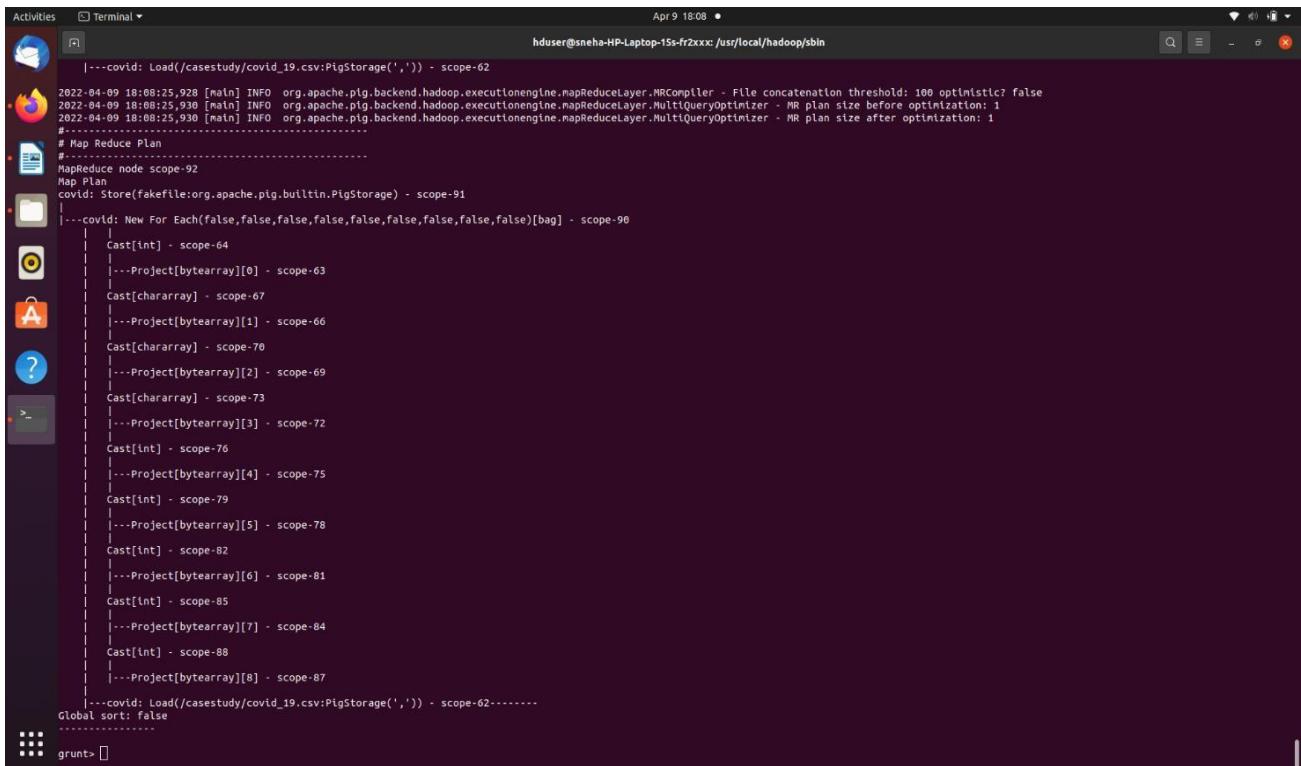
## COVID-19 THE INDIAN SCENARIO

### PIG queries

#### Loading dataset

```
covid = load '/casestudy/covid_19.csv' USING PigStorage(',') as  
(Sno:int,Datee:chararray,Timee:chararray,State:chararray,ConfirmedIndianNational:int,Con  
firmedForeignNational:int,Cured:int,Deaths:int,Confirmed:int);
```

#### Explain covid;



```
Activities Terminal ▾ Apr 9 18:08 ●  
hduser@sneha-HP-Laptop-15s-fr2xxx:/usr/local/hadoop/sbin  
|---covid: Load(/casestudy/covid_19.csv:PigStorage(',')) - scope-62  
2022-04-09 18:08:25,928 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MRCompiler - File concatenation threshold: 100 optimistic? false  
2022-04-09 18:08:25,930 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size before optimization: 1  
2022-04-09 18:08:25,930 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size after optimization: 1  
#-----  
# Map Reduce Plan  
#-----  
MapReduce node scope-92  
Map Plan  
covid: Store(fakefile:org.apache.pig.builtin.PigStorage) - scope-91  
|---covid: New For Each(false,false,false,false,false,false,false,false) [bag] - scope-90  
|   |  
|   Cast[int] - scope-64  
|   |---Project[bytearray][0] - scope-63  
|   Cast[chararray] - scope-67  
|   |---Project[bytearray][1] - scope-66  
|   Cast[chararray] - scope-70  
|   |---Project[bytearray][2] - scope-69  
|   Cast[chararray] - scope-73  
|   |---Project[bytearray][3] - scope-72  
|   Cast[int] - scope-76  
|   |---Project[bytearray][4] - scope-75  
|   Cast[int] - scope-79  
|   |---Project[bytearray][5] - scope-78  
|   Cast[int] - scope-82  
|   |---Project[bytearray][6] - scope-81  
|   Cast[int] - scope-85  
|   |---Project[bytearray][7] - scope-84  
|   Cast[int] - scope-88  
|   |---Project[bytearray][8] - scope-87  
Global sort: false  
-----  
covid: Load(/casestudy/covid_19.csv:PigStorage(',')) - scope-62-----  
grunt> []
```

## Illustrate covid;

## **1. a = Group covid by State;**

c = FOREACH a Generate FLATTEN (covid.State), COUNT(covid.State);

**dump c;**

## **2. s = Group covid by State;**

```
cur = FOREACH s Generate FLATTEN (covid.State), MAX(covid.Cured);
```

**DUMP cur;**

### **3. s= Group covid by State;**

d= FOREACH s Generate FLATTEN (covid.State), MIN(covid.Datee);

**DUMP d;**

#### **4. S = Group covid by State;**

**recovery= FOREACH S Generate FALTEN (covid.State),(Float) ((Float)**

**SUM(covid.Cured) / SUM(covidConfirmed))\*100;**

**dump recovery;**

5. s= Group covid by State;

d= FOREACH s Generate FLATTEN (covid.State), SUM(covid.Deaths) as

**death;**

```
f = filter d by death <= 20000;
```

**dump f;**

## 6. s= Group covid by State;

d= FOREACH s Generate FLATTEN (covid.State), SUM(covidConfirmed) as

**add;**

**f = filter d by add >=50;**

**o = order f by add;**

## DUMP o;

7. SPLIT covid INTO T6 IF Timee=='6:00 PM', T8 IF Timee=='8:00 PM' ;

**dump T6;**

```
Activities ┌ Terminal ─
          ┌ hduuser@sneha-HP-Laptop-15s-fr2xxx: ~
          ┌ Apr 9 05:46 •
          ┌
          ┌ (686,06-04-2020,6:00 PM,Delhi,,,19,7,523)
          ┌ (687,06-04-2020,6:00 PM,Goa,,,0,0,7)
          ┌ (688,06-04-2020,6:00 PM,Gujarat,,,22,12,144)
          ┌ (689,06-04-2020,6:00 PM,Haryana,,,25,5,84)
          ┌ (690,06-04-2020,6:00 PM,Himachal Pradesh,,,2,1,13)
          ┌ (691,06-04-2020,6:00 PM,Jammu and Kashmir,,,4,2,189)
          ┌ (692,06-04-2020,6:00 PM,Jharkhand,,,0,0,4)
          ┌ (693,06-04-2020,6:00 PM,Karnataka,,,12,4,151)
          ┌ (694,06-04-2020,6:00 PM,Kerala,,,55,2,314)
          ┌ (695,06-04-2020,6:00 PM,Ladakh,,,10,0,14)
          ┌ (696,06-04-2020,6:00 PM,Lahore,Pakistan,,,0,9,165)
          ┌ (697,06-04-2020,6:00 PM,Maharashtra,,,55,45,748)
          ┌ (698,06-04-2020,6:00 PM,Manipur,,0,0,2)
          ┌ (699,06-04-2020,6:00 PM,Mizoram,,0,0,1)
          ┌ (700,06-04-2020,6:00 PM,Odisha,,,2,0,21)
          ┌ (701,06-04-2020,6:00 PM,Puducherry,,,1,0,5)
          ┌ (702,06-04-2020,6:00 PM,Punjab,,,4,6,76)
          ┌ (703,06-04-2020,6:00 PM,Rajasthan,,,20,0,274)
          ┌ (704,06-04-2020,6:00 PM,Tamil Nadu,,,8,5,571)
          ┌ (705,06-04-2020,6:00 PM,Telangana,,,34,7,321)
          ┌ (706,06-04-2020,6:00 PM,Uttarakhand,,,4,0,26)
          ┌ (707,06-04-2020,6:00 PM,Uttar Pradesh,,,21,3,305)
          ┌ (708,06-04-2020,6:00 PM,West Bengal,,,10,3,88)
          ┌ (709,07-04-2020,6:00 PM,Andhra Pradesh,,,1,3,266)
          ┌ (710,07-04-2020,6:00 PM,Armanan and Nicobar Islands,,,0,0,10)
          ┌ (711,07-04-2020,6:00 PM,Bihar,Pakistan,,,0,0,1)
          ┌ (712,07-04-2020,6:00 PM,Assam,,0,0,25)
          ┌ (713,07-04-2020,6:00 PM,Bihar,,,0,1,32)
          ┌ (714,07-04-2020,6:00 PM,Chandigarh,,,7,0,18)
          ┌ (715,07-04-2020,6:00 PM,Chhattisgarh,,,9,0,10)
          ┌ (716,07-04-2020,6:00 PM,Delhi,,,21,7,576)
          ┌ (717,07-04-2020,6:00 PM,Goa,,,0,0,7)
          ┌ (718,07-04-2020,6:00 PM,Haryana,,,25,1,165)
          ┌ (719,07-04-2020,6:00 PM,Haryana,,,25,1,190)
          ┌ (720,07-04-2020,6:00 PM,Himachal Pradesh,,,2,1,13)
          ┌ (721,07-04-2020,6:00 PM,Jammu and Kashmir,,,4,2,116)
          ┌ (722,07-04-2020,6:00 PM,Jharkhand,,,0,0,4)
          ┌ (723,07-04-2020,6:00 PM,Karnataka,,,25,4,175)
          ┌ (724,07-04-2020,6:00 PM,Kerala,,,58,2,327)
          ┌ (725,07-04-2020,6:00 PM,Lahore,Pakistan,,,0,14)
          ┌ (726,07-04-2020,6:00 PM,Madhya Pradesh,,,0,13,229)
          ┌ (727,07-04-2020,6:00 PM,Maharashtra,,,55,48,868)
          ┌ (728,07-04-2020,6:00 PM,Manipur,,0,0,2)
          ┌ (729,07-04-2020,6:00 PM,Mizoram,,0,0,1)
          ┌ (730,07-04-2020,6:00 PM,Odisha,,,2,1,42)
          ┌ (731,07-04-2020,6:00 PM,Puducherry,,,1,0,5)
          ┌ (732,07-04-2020,6:00 PM,Punjab,,,4,6,791)
          ┌ (733,07-04-2020,6:00 PM,Rajasthan,,,13,3,288)
          ┌ (734,07-04-2020,6:00 PM,Tamil Nadu,,,8,5,621)
          ┌ (735,07-04-2020,6:00 PM,Telangana,,,35,7,364)
          ┌ (736,07-04-2020,6:00 PM,Tripura,,0,0,1)
          ┌ (737,07-04-2020,6:00 PM,Uttarakhand,,,5,0,31)
          ┌ (738,07-04-2020,6:00 PM,Uttar Pradesh,,,21,3,305)
          ┌ (739,07-04-2020,6:00 PM,West Bengal,,,13,3,91)
gruntr> [ ]
```

## **8. s= Group covid by State;**

d= FOREACH s Generate FLATTEN (covid.State), MAX(covid.Confirmed) AS

TotalCases;

**o = order d by TotalCases DESC;**

**DUMP o;**

9. **d = Group covid by State;**

**mortality= FOREACH d Generate FLATTEN**

(covid.State),(Float) ((Float) SUM(covid.Deaths) / SUM(covid.Confirmed))\*100;

**dump mortality;**

A screenshot of a Linux desktop environment. The top bar shows the title "Activities Terminal" and the date/time "Apr 9 09:51". The terminal window contains 30 identical command outputs, each consisting of the text "(Dadra and Nagar Haveli and Daman and Diu, 0.052166947)" followed by a new line. This indicates a loop or an infinite process running in the background.

## **10. A = Group covid by State;**

Active = FOREACH A Generate FLATTEN (covid.State),SUM(covid.Confirmed)-

**SUM( covid.Cured)-SUM(covid.Deaths);**

## **dump Active;**

## **11. COGROUPING DATA:**

```
t5 = LOAD '/user/hive/warehouse/static_covid19/timee=5%3A00' USING  
PigStorage(',') as (Sno:chararray, Datee:chararray, Timee:chararray,  
State:chararray, ConfirmedIndianNational:chararray,  
ConfirmedForeignNational:chararray, Cured:int ,Deaths:int,Confirmed:int);
```

**Dump t5;**

```
2022-04-04 23:51:17,518 [main] INFO org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1  
("Sno","Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,,)  
(1,"12-04-2020","5:00","Delhi",,,25,19,1069)  
(2,"12-04-2020","5:00","Goa",,,5,0,7)  
(3,"12-04-2020","5:00","Gujarat",,,44,22,432)  
(4,"12-04-2020","5:00","Haryana",,,29,3,185)  
(5,"12-04-2020","5:00","HimachalPradesh",,,6,1,32)  
(6,"12-04-2020","5:00","JammuandKashmir",,,6,4,224)  
(7,"12-04-2020","5:00","Jharkhand",,,0,1,17)  
(8,"12-04-2020","5:00","Karnataka",,,37,6,226)  
(9,"12-04-2020","5:00","Kerala",,,142,2,374)  
(10,"12-04-2020","5:00","Ladakh",,,10,0,15)  
(11,"12-04-2020","5:00","MadhyaPradesh",,,0,36,564)  
(12,"12-04-2020","5:00","Maharashtra",,,208,127,1761)  
("Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,,)  
(1,"12-04-2020","5:00","Delhi",,,25,19,1069)  
(2,"12-04-2020","5:00","Goa",,,5,0,7)  
(3,"12-04-2020","5:00","Gujarat",,,44,22,432)  
(4,"12-04-2020","5:00","Haryana",,,29,3,185)  
(5,"12-04-2020","5:00","HimachalPradesh",,,6,1,32)  
(6,"12-04-2020","5:00","JammuandKashmir",,,6,4,224)  
(7,"12-04-2020","5:00","Jharkhand",,,0,1,17)  
(8,"12-04-2020","5:00","Karnataka",,,37,6,226)  
(9,"12-04-2020","5:00","Kerala",,,142,2,374)  
(10,"12-04-2020","5:00","Ladakh",,,10,0,15)  
(11,"12-04-2020","5:00","MadhyaPradesh",,,0,36,564)  
(12,"12-04-2020","5:00","Maharashtra",,,208,127,1761)  
grunt> □
```

**t6 = LOAD '/user/hive/warehouse/static\_covid19/timee=6%3A00' USING**

```
PigStorage(',') as (Sno:chararray, Datee:chararray, Timee:chararray, State:chararray,  
ConfirmedIndianNational:chararray, ConfirmedForeignNational:chararray,  
Cured:int ,Deaths:int,Confirmed:int);
```

**Dump t6;**

```
(1,"29-02-2020","6:00","Kerala",3,0,0,0,3)  
(2,"29-02-2020","6:00","Kerala",3,0,1,0,4)  
(3,"29-02-2020","6:00","Kerala",1,0,2,0,5)  
(4,"29-02-2020","6:00","Kerala",3,0,3,0,6)  
(5,"29-02-2020","6:00","Kerala",1,0,4,0,7)  
(6,"29-02-2020","6:00","Kerala",1,1,5,0,8)  
(7,"29-02-2020","6:00","Kerala",0,2,6,0,9)  
(8,"29-02-2020","6:00","Kerala",3,3,7,0,10)  
(9,"29-02-2020","6:00","Kerala",1,4,8,0,11)  
(10,"29-02-2020","6:00","Kerala",6,5,9,0,12)  
(11,"29-02-2020","6:00","Kerala",4,6,10,0,13)  
(12,"29-02-2020","6:00","Kerala",4,7,11,0,14)  
("Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,,)  
(1,"29-02-2020","6:00","Kerala",3,0,0,0,3)  
(2,"29-02-2020","6:00","Kerala",3,0,1,0,4)  
(3,"29-02-2020","6:00","Kerala",1,0,2,0,5)  
(4,"29-02-2020","6:00","Kerala",3,0,3,0,6)  
(5,"29-02-2020","6:00","Kerala",1,0,4,0,7)  
(6,"29-02-2020","6:00","Kerala",1,1,5,0,8)  
(7,"29-02-2020","6:00","Kerala",0,2,6,0,9)  
(8,"29-02-2020","6:00","Kerala",3,3,7,0,10)  
(9,"29-02-2020","6:00","Kerala",1,4,8,0,11)  
(10,"29-02-2020","6:00","Kerala",6,5,9,0,12)  
(11,"29-02-2020","6:00","Kerala",4,6,10,0,13)  
(12,"29-02-2020","6:00","Kerala",4,7,11,0,14)  
grunt> □
```

```
cogroup_data = COGROUP t5 by Datee, t6 by Datee;
```

**Dump cgroup\_data;**

```
2022-04-04 23:55:13,300 [main] WARN org.apache.pig.data.SchemaUpdateBackend - SchemaUpdateBackend has already been initialized
2022-04-04 23:55:13,312 [main] INFO org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input files to process : 1
2022-04-04 23:55:13,313 [main] INFO org.apache.pig.backend.hadoop.executionengine.util.MapReduceUtil - Total input paths to process : 1
("Sno",{"("Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",),(("Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,"),{("Sno","Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,,),(("Sno","Sno","Sno","ConfirmedIndianNational","ConfirmedForeignNational",,,))}),"("12-04-2028",{("12","12-04-2028","5:00","Maharashtra",,,208,127,1761),(11,"12-04-2028","5:00","MadhyaPradesh",,,0,36,564),(10,"12-04-2028","5:00","Ladakh",,,10,0,15),(9,"12-04-2028","5:00","Kerala",,,142,2,374),(8,"12-04-2028","5:00","Karnataka",,,37,6,226),(7,"12-04-2028","5:00","Jharkhand",,,0,1,17),(6,"12-04-2028","5:00","JammuandKashmir",,,6,4,224),(5,"12-04-2028","5:00","HimachalPradesh",,,6,1,32),(4,"12-04-2028","5:00","Haryana",,,29,3,185),(3,"12-04-2028","5:00","Gujarat",,,44,22,432),(2,"12-04-2028","5:00","Goa",,,5,0,7),(1,"12-04-2028","5:00","Delhi",,,25,19,1069),(11,"12-04-2028","5:00","MadhyaPradesh",,,0,36,564),(10,"12-04-2028","5:00","Ladakh",,,10,0,15),(9,"12-04-2028","5:00","Kerala",,,142,2,374),(8,"12-04-2028","5:00","Karnataka",,,37,6,226),(7,"12-04-2028","5:00","Jharkhand",,,0,1,17),(6,"12-04-2028","5:00","JammuandKashmir",,,6,4,224),(5,"12-04-2028","5:00","HimachalPradesh",,,6,1,32),(4,"12-04-2028","5:00","Haryana",,,29,3,185),(3,"12-04-2028","5:00","Gujarat",,,44,22,432),(2,"12-04-2028","5:00","Goa",,,5,0,7),(1,"12-04-2028","5:00","Delhi",,,25,19,1069),(12,"12-04-2028","5:00","Maharashtra",,,208,127,1761),{}),"("29-02-2028",{},{"("29-02-2028","6:00","Kerala",4,7,11,0,14),(11,"29-02-2028","6:00","Kerala",4,6,10,0,13),(10,"29-02-2028","6:00","Kerala",6,5,9,0,12),(9,"29-02-2028","6:00","Kerala",1,4,8,0,11),(8,"29-02-2028","6:00","Kerala",3,3,7,0,10),(7,"29-02-2028","6:00","Kerala",0,2,6,0,9),(6,"29-02-2028","6:00","Kerala",1,1,5,0,8),(5,"29-02-2028","6:00","Kerala",1,0,4,0,7),(4,"29-02-2028","6:00","Kerala",3,0,3,0,6),(3,"29-02-2028","6:00","Kerala",1,0,2,0,5),(2,"29-02-2028","6:00","Kerala",3,0,1,0,4),(1,"29-02-2028","6:00","Kerala",3,0,0,0,3),(11,"29-02-2028","6:00","Kerala",4,6,10,0,13),(10,"29-02-2028","6:00","Kerala",6,5,9,0,12),(9,"29-02-2028","6:00","Kerala",1,4,8,0,11),(8,"29-02-2028","6:00","Kerala",3,3,7,0,10),(7,"29-02-2028","6:00","Kerala",0,2,6,0,9),(6,"29-02-2028","6:00","Kerala",1,1,5,0,8),(5,"29-02-2028","6:00","Kerala",1,0,4,0,7),(4,"29-02-2028","6:00","Kerala",3,0,3,0,6),(3,"29-02-2028","6:00","Kerala",1,0,2,0,5),(2,"29-02-2028","6:00","Kerala",3,0,1,0,4),(1,"29-02-2028","6:00","Kerala",3,0,0,0,3),(12,"29-02-2028","6:00","Kerala",4,7,11,0,14)})}
grunt> []
```

#### **12.A = GROUP covid by State;**

```
max_deaths = FOREACH A GENERATE LATTEN (covid.State), MAX (covid.Deaths);
```

Dump max\_deaths;

## 13. SPLIT covid into Danger if (Confirmed>6 and Confirmed<20), safe if

Confirmed<6;

Dump Danger;

```
Activities Terminal Apr 9 06:07 • hduser@sneha-HP-Laptop-15s-fr2xxx: ~
(1813,11-05-2020,8:00 AM,Goa,,,7,0,7)
(1825,11-05-2020,8:00 AM,Meghalaya,,10,1,13)
(1844,12-05-2020,8:00 AM,Goa,,7,0,9)
(1846,12-05-2020,8:00 AM,Goa,,7,0,7)
(1858,12-05-2020,8:00 AM,Meghalaya,,10,1,13)
(1861,12-05-2020,8:00 AM,Puducherry,,6,0,12)
(1879,13-05-2020,8:00 AM,Goa,,7,0,7)
(1891,13-05-2020,8:00 AM,Meghalaya,,10,1,13)
(1894,13-05-2020,8:00 AM,Puducherry,,9,1,13)
(1901,13-05-2020,8:00 AM,Meghalaya,,10,1,13)
(1924,14-05-2020,8:00 AM,Meghalaya,,10,1,13)
(1927,14-05-2020,8:00 AM,Puducherry,,9,1,13)
(1945,15-05-2020,8:00 AM,Goa,,7,0,14)
(1957,15-05-2020,8:00 AM,Meghalaya,,11,1,13)
(1960,15-05-2020,8:00 AM,Puducherry,,9,1,13)
(1978,16-05-2020,8:00 AM,Goa,,7,0,15)
(1980,16-05-2020,8:00 AM,Meghalaya,,11,1,13)
(1993,16-05-2020,8:00 AM,Puducherry,,9,1,13)
(2011,17-05-2020,8:00 AM,Goa,,7,0,17)
(2022,17-05-2020,8:00 AM,Manipur,,2,0,7)
(2023,17-05-2020,8:00 AM,Meghalaya,,11,1,13)
(2026,17-05-2020,8:00 AM,Puducherry,,9,1,13)
(2055,18-05-2020,8:00 AM,Manipur,,2,0,7)
(2085,18-05-2020,8:00 AM,Meghalaya,,11,1,13)
(2059,19-05-2020,8:00 AM,Puducherry,,9,1,13)
(2088,19-05-2020,8:00 AM,Manipur,,2,0,7)
(2089,19-05-2020,8:00 AM,Meghalaya,,11,1,13)
(2092,19-05-2020,8:00 AM,Puducherry,,9,1,18)
(2121,20-05-2020,8:00 AM,Manipur,,2,0,9)
(2122,20-05-2020,8:00 AM,Meghalaya,,12,1,13)
(2123,20-05-2020,8:00 AM,Puducherry,,9,1,18)
(2156,21-05-2020,8:00 AM,Meghalaya,,10,1,14)
(2159,21-05-2020,8:00 AM,Puducherry,,9,0,18)
(2190,22-05-2020,8:00 AM,Meghalaya,,12,1,14)
(2224,23-05-2020,8:00 AM,Meghalaya,,12,1,14)
(2258,24-05-2020,8:00 AM,Meghalaya,,12,1,14)
(2293,25-05-2020,8:00 AM,Meghalaya,,12,1,14)
(2328,26-05-2020,8:00 AM,Meghalaya,,12,1,14)
(2364,27-05-2020,8:00 AM,Meghalaya,,12,1,15)
(2414,28-05-2020,8:00 AM,Meghalaya,,12,1,15)
(2417,03-06-2020,8:00 AM,Mizoram,,1,0,13)
(2638,04-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,1,0,8)
(2653,04-06-2020,8:00 AM,Mizoram,,1,0,14)
(2674,05-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,1,0,12)
(2689,05-06-2020,8:00 AM,Mizoram,,1,0,17)
(2705,05-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,1,0,19)
(2746,07-06-2020,8:00 AM,Sikkim,,0,0,7)
(2767,07-06-2020,8:00 AM,Sikkim,,0,0,7)
(2803,08-06-2020,8:00 AM,Sikkim,,0,0,7)
(2839,09-06-2020,8:00 AM,Sikkim,,0,0,7)
(2875,10-06-2020,8:00 AM,Sikkim,,0,0,13)
(2912,11-06-2020,8:00 AM,Sikkim,,0,0,13)
(2948,12-06-2020,8:00 AM,Sikkim,,2,0,14)
(10748,19-01-2021,8:00 AM,Lakshadweep,,0,0,14)
grunts> [ ]
```

Dump safe

```
Activities Terminal Apr 9 06:08 • hduser@sneha-HP-Laptop-15s-fr2xxx: ~
(2494,31-05-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,0,0,2)
(2509,31-05-2020,8:00 AM,Mizoram,,1,0,1)
(2510,01-06-2020,8:00 AM,Mizoram,,1,0,1)
(2515,01-06-2020,8:00 AM,Arunchal Pradesh,,1,0,4)
(2530,01-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,0,0,2)
(2545,01-06-2020,8:00 AM,Mizoram,,1,0,1)
(2551,01-06-2020,8:00 AM,Sikkim,,0,0,1)
(2566,02-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,1,0,3)
(2581,02-06-2020,8:00 AM,Mizoram,,1,0,1)
(2587,03-06-2020,8:00 AM,Sikkim,,0,0,1)
(2602,03-06-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,1,0,4)
(2623,03-06-2020,8:00 AM,Sikkim,,0,0,2)
(2659,04-06-2020,8:00 AM,Sikkim,,0,0,2)
(2695,05-06-2020,8:00 AM,Sikkim,,0,0,2)
(2731,06-06-2020,8:00 AM,Sikkim,,0,0,3)
(2938,12-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9416,13-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9452,14-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9488,15-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9524,16-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9581,17-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9606,18-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9632,19-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9668,20-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9704,21-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9740,22-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9776,23-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9812,24-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9848,25-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9884,26-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9920,27-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9956,28-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(9992,29-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(10008,30-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(10064,31-12-2020,8:00 AM,Lakshadweep,,0,0,0)
(10100,01-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10136,02-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10172,03-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10208,04-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10244,05-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10280,06-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10316,07-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10352,08-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10388,09-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10424,10-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10460,11-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10496,12-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10532,13-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10568,14-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10604,15-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10640,16-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10676,17-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(10712,18-01-2021,8:00 AM,Lakshadweep,,0,0,0)
grunts> [ ]
```

## 14. foreach\_date= FOREACH covid GENERATE Cured,Deaths,Confirmed;

Dump foreach\_date;

```
Activities Terminal ▾ Apr 9 06:10 •
hduser@sneha-HP-Laptop-15s-fr2xxx: ~
(10145, 50, 10249)
(781307, 10514, 791970)
(6151956, 134064, 6357833)
((10-08-2021), (Lakshadweep), (50))
(((10-08-2021), (Madhya Pradesh), (19514)))
(((10-08-2021), (Maharashtra), (134064)))
(((10-08-2021), (Manipur), (1657)))
(((10-08-2021), (Meghalaya), (1174)))
(((10-08-2021), (Mizoram), (169)))
(((10-08-2021), (Nagaland), (585)))
(((10-08-2021), (Odisha), (6501)))
(((10-08-2021), (Punjab), (1600)))
(((10-08-2021), (Punjab), (16320)))
(((10-08-2021), (Rajasthan), (8954)))
(((10-08-2021), (Sikkim), (355)))
(((10-08-2021), (Tamil Nadu), (14340)))
(((10-08-2021), (Telangana), (3831)))
(((10-08-2021), (Tripura), (773)))
(((10-08-2021), (Uttarakhand), (7368)))
(((10-08-2021), (Uttar Pradesh), (22774)))
(((10-08-2021), (West Bengal), (18240)))
(((11-08-2021), (Andaman and Nicobar Islands), (129)))
(((11-08-2021), (Assam), (13584)))
(((11-08-2021), (Arunachal Pradesh), (248)))
(((11-08-2021), (Assam), (5420)))
(((11-08-2021), (Bihar), (9646)))
(((11-08-2021), (Chandigarh), (811)))
(((11-08-2021), (Chhattisgarh), (1354)))
(((11-08-2021), (Dadra and Nagar Haveli and Daman and Diu), (4)))
(((11-08-2021), (Delhi), (75068)))
(((11-08-2021), (Goa), (3164)))
(((11-08-2021), (Gujarat), (10077)))
(((11-08-2021), (Haryana), (9652)))
(((11-08-2021), (Jharkhand), (3237)))
(((11-08-2021), (Jammu and Kashmir), (4392)))
(((11-08-2021), (Jharkhand), (5130)))
(((11-08-2021), (Karnataka), (36848)))
(((11-08-2021), (Kerala), (18004)))
(((11-08-2021), (Lakshadweep), (20)))
(((11-08-2021), (Lakshadweep), (51)))
(((11-08-2021), (Madhya Pradesh), (10514)))
(((11-08-2021), (Maharashtra), (134201)))
(((11-08-2021), (Manipur), (1664)))
(((11-08-2021), (Meghalaya), (1185)))
(((11-08-2021), (Mizoram), (171)))
(((11-08-2021), (Nagaland), (585)))
(((11-08-2021), (Odisha), (6565)))
(((11-08-2021), (Puducherry), (1800)))
(((11-08-2021), (Punjab), (16322)))
(((11-08-2021), (Rajasthan), (8954)))
(((11-08-2021), (Sikkim), (355)))
(((11-08-2021), (Tamil Nadu), (43467)))
(((11-08-2021), (Telangana), (3831)))
(((11-08-2021), (Tripura), (773)))
(((11-08-2021), (Uttarakhand), (7368)))
(((11-08-2021), (Uttar Pradesh), (22775)))
(((11-08-2021), (West Bengal), (18252)))
grun> [ ]
```

## 15. tobag = FOREACH covid GENERATE TOBAG (Datee,State,Deaths);

Dump tobag;

```
Activities Terminal ▾ Apr 9 06:11 •
hduser@sneha-HP-Laptop-15s-fr2xxx: ~
(((10-08-2021), (Lakshadweep), (50)))
(((10-08-2021), (Madhya Pradesh), (19514)))
(((10-08-2021), (Maharashtra), (134064)))
(((10-08-2021), (Manipur), (1657)))
(((10-08-2021), (Meghalaya), (1174)))
(((10-08-2021), (Mizoram), (169)))
(((10-08-2021), (Nagaland), (585)))
(((10-08-2021), (Odisha), (6501)))
(((10-08-2021), (Punjab), (1600)))
(((10-08-2021), (Punjab), (16320)))
(((10-08-2021), (Rajasthan), (8954)))
(((10-08-2021), (Sikkim), (355)))
(((10-08-2021), (Tamil Nadu), (14340)))
(((10-08-2021), (Telangana), (3831)))
(((10-08-2021), (Tripura), (773)))
(((10-08-2021), (Uttarakhand), (7368)))
(((10-08-2021), (Uttar Pradesh), (22774)))
(((10-08-2021), (West Bengal), (18240)))
(((11-08-2021), (Andaman and Nicobar Islands), (129)))
(((11-08-2021), (Assam), (13584)))
(((11-08-2021), (Arunachal Pradesh), (248)))
(((11-08-2021), (Assam), (5420)))
(((11-08-2021), (Bihar), (9646)))
(((11-08-2021), (Chandigarh), (811)))
(((11-08-2021), (Chhattisgarh), (1354)))
(((11-08-2021), (Dadra and Nagar Haveli and Daman and Diu), (4)))
(((11-08-2021), (Delhi), (75068)))
(((11-08-2021), (Goa), (3164)))
(((11-08-2021), (Gujarat), (10077)))
(((11-08-2021), (Haryana), (9652)))
(((11-08-2021), (Jharkhand), (3237)))
(((11-08-2021), (Jammu and Kashmir), (4392)))
(((11-08-2021), (Jharkhand), (5130)))
(((11-08-2021), (Karnataka), (36848)))
(((11-08-2021), (Kerala), (18004)))
(((11-08-2021), (Lakshadweep), (20)))
(((11-08-2021), (Lakshadweep), (51)))
(((11-08-2021), (Madhya Pradesh), (10514)))
(((11-08-2021), (Maharashtra), (134201)))
(((11-08-2021), (Manipur), (1664)))
(((11-08-2021), (Meghalaya), (1185)))
(((11-08-2021), (Mizoram), (171)))
(((11-08-2021), (Nagaland), (585)))
(((11-08-2021), (Odisha), (6565)))
(((11-08-2021), (Puducherry), (1800)))
(((11-08-2021), (Punjab), (16322)))
(((11-08-2021), (Rajasthan), (8954)))
(((11-08-2021), (Sikkim), (355)))
(((11-08-2021), (Tamil Nadu), (43467)))
(((11-08-2021), (Telangana), (3831)))
(((11-08-2021), (Tripura), (773)))
(((11-08-2021), (Uttarakhand), (7368)))
(((11-08-2021), (Uttar Pradesh), (22775)))
(((11-08-2021), (West Bengal), (18252)))
grun> [ ]
```

**16.order\_by\_deaths= ORDER covid BY Deaths DESC;**

Dump order\_by\_deaths;

```
Activities Terminal Apr 9 06:12 •
hduser@sneha-HP-Laptop-15s-frxxx: ~
(77,09-03-2020,6:00 PM,Maharashtra,2,0,0,0,2)
(78,09-03-2020,6:00 PM,Kerala,1,0,0,0,1)
(79,09-03-2020,6:00 PM,Punjab,1,0,0,0,1)
(75,09-03-2020,6:00 PM,Ladakh,2,0,0,0,2)
(73,08-03-2020,6:00 PM,Uttar Pradesh,7,0,0,0,7)
(72,08-03-2020,6:00 PM,Delhi,3,0,0,0,3)
(74,08-03-2020,6:00 PM,Haryana,2,0,0,0,2)
(76,08-03-2020,6:00 PM,Goa,0,0,0,0,0)
(69,08-03-2020,6:00 PM,Rajasthan,1,15,0,0,15)
(68,08-03-2020,6:00 PM,Tamil Nadu,1,0,0,0,1)
(67,08-03-2020,6:00 PM,Telangana,1,0,0,0,1)
(66,07-03-2020,6:00 PM,Assam,2,0,0,0,2)
(65,07-03-2020,6:00 PM,Rajasthan,1,15,0,0,15)
(64,07-03-2020,6:00 PM,Haryana,0,2,0,0,2)
(63,07-03-2020,6:00 PM,Delhi,3,0,0,0,3)
(62,07-03-2020,6:00 PM,Tamil Nadu,1,0,0,0,1)
(61,07-03-2020,6:00 PM,Odisha,1,0,0,0,1)
(60,07-03-2020,6:00 PM,Ladakh,2,0,0,0,2)
(59,07-03-2020,6:00 PM,Uttar Pradesh,7,0,0,0,7)
(58,07-03-2020,6:00 PM,Kerala,3,0,3,0,3)
(57,06-03-2020,6:00 PM,Telangana,1,0,0,0,1)
(56,06-03-2020,6:00 PM,Assam,2,0,0,0,2)
(55,06-03-2020,6:00 PM,Rajasthan,1,14,0,0,15)
(54,06-03-2020,6:00 PM,Kerala,3,0,3,0,3)
(53,06-03-2020,6:00 PM,Haryana,0,2,0,0,2)
(52,06-03-2020,6:00 PM,Delhi,3,0,0,0,3)
(51,05-03-2020,8:00 AM,Andaman and Nicobar Islands,,,66,0,119)
(50,05-03-2020,8:00 AM,Chhattisgarh,1,0,0,0,1)
(49,05-03-2020,8:00 PM,Telangana,1,0,0,0,1)
(48,05-03-2020,6:00 PM,Rajasthan,1,14,0,0,15)
(47,05-03-2020,6:00 PM,Haryana,0,2,0,0,2)
(46,04-03-2020,8:00 AM,Assam,2,0,0,0,2)
(45,04-03-2020,6:00 PM,Rajasthan,1,14,0,0,15)
(44,04-03-2020,6:00 PM,Telangana,1,0,0,0,1)
(3740,04-07-2020,8:00 AM,Sikkim,,,53,0,102)
(3748,05-07-2020,8:00 AM,Andaman and Nicobar Islands,,,66,0,119)
(3739,05-07-2020,8:00 AM,Assam,2,0,0,0,2)
(3734,04-07-2020,8:00 AM,Mizoram,,,126,0,162)
(3732,04-07-2020,8:00 AM,Manipur,,,639,0,136)
(6584,23-09-2020,8:00 AM,Mizoram,,,1923,0,1713)
(3735,05-07-2020,8:00 AM,Assam,2,0,0,0,2)
(16640,16-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(16644,15-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(3719,04-07-2020,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,,96,0,257)
(3768,05-07-2020,8:00 AM,Manipur,,,667,0,1325)
(3769,05-07-2020,8:00 AM,Assam,2,0,0,0,2)
(3770,05-07-2020,8:00 AM,Mizoram,,,130,0,164)
(3771,05-07-2020,8:00 AM,Nagaland,,,228,0,563)
(18568,14-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(3704,03-07-2020,8:00 AM,Sikkim,,,53,0,102)
(3705,03-07-2020,8:00 AM,Assam,2,0,0,0,2)
(16676,17-01-2021,8:00 AM,Lakshadweep,,0,0,0)
(3699,03-07-2020,8:00 AM,Nagaland,,,482,0,561)
(grunt> [
```

## **17.A=GROUP covid BY State;**

**RESULT = FOREACH A GENERATE FLATTEN (covid.State), AVG**

(covidConfirmedIndianNational);

## DUMP RESULT;

A screenshot of a Linux desktop environment. The top bar shows the title "Activities Terminal" and the date/time "Apr 9 06:52". The terminal window contains 24 identical lines of text: "(Jammu and Kashmir) 4.75". The desktop background is white, and the taskbar includes icons for various applications like the Dash, Home, and Help.

```

Activities Terminal ~ Apr 9 01:12
hduser@ubuntu-HP: ~

GC Time elapsed (ms)=0
Total compressed heap usage (bytes)=382205952
File Input Format Counters
  Bytes Read=0
File Output Format Counters
  Bytes Written=0

2022-04-09 01:11:58,215 [LocalJobRunner Map Task Executor #0] INFO org.apache.hadoop.mapred.LocalJobRunner - Finishing task: attempt_local1907993328_0004_n_000000_0
2022-04-09 01:11:58,216 [Thread-139] INFO org.apache.hadoop.mapred.LocalJobRunner - map task executor complete.
2022-04-09 01:11:58,216 [Thread-139] INFO org.apache.hadoop.mapred.LocalJobRunner - map task executor complete.
2022-04-09 01:11:58,667 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Running jobs are [job_local1907993328_0004]
2022-04-09 01:12:03,179 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!
2022-04-09 01:12:03,179 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!
2022-04-09 01:12:03,183 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!
2022-04-09 01:12:03,186 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 100% complete
2022-04-09 01:12:03,186 [main] INFO org.apache.pig.tools.pigstats.PigReduce - Script Statistics:
HadoopVersion PigVersion UserId StartedAt FinishedAt Features
3.3.1 0.17.0 hduser 2022-04-09 01:11:56 2022-04-09 01:12:03 UNKNOWN
Success!
Job Stats (Time in seconds):
JobId Maps Reduces MaxMapTime MinMapTime AvgMapTime MedianMapTime MaxReduceTime MinReduceTime AvgReduceTime MedianReduceTime Alias Feature Outputs
job_local1907993328_0004 1 0 n/a n/a n/a 0 0 0 telangana MAP_ONLY hdfs://localhost:54310/tmp/temp514796901/tmp600807326,
Input(s):
Successfully read 5 records (13696202 bytes) from: "/user/hive/warehouse/covid19_india/state=Telangana"
Output(s):
Successfully stored 5 records (24241946 bytes) in: "hdfs://localhost:54310/tmp/temp514796901/tmp600807326"

Counters:
Total records written : 5
Total records written : 5
Available Memory Manager spill count : 0
Total bags proactively spilled: 0
Total records proactively spilled: 0
Job DAG:
job_local1907993328_0004

2022-04-09 01:12:03,187 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!
2022-04-09 01:12:03,187 [main] INFO org.apache.hadoop.mapred.LocalJobRunner - LocalJobRunner state: FINISHED
2022-04-09 01:12:03,190 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!
2022-04-09 01:12:03,194 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2022-04-09 01:12:03,194 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2022-04-09 01:12:03,199 [main] INFO org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input files to process : 1
2022-04-09 01:12:03,199 [main] INFO org.apache.pig.backend.hadoop.executionengine.util.MapReduceUtil - Total input paths to process : 1
(33,05-03-2020,01:00:00 PM,Telangana,1,0,0,0,1)
(34,05-03-2020,01:00:00 PM,Telangana,1,0,0,0,1)
(44,04-03-2020,01:00:00 PM,Telangana,1,0,0,0,1)
(50,05-03-2020,01:00:00 PM,Telangana,1,0,0,0,1)
(56,05-03-2020,01:00:00 PM,Telangana,1,0,0,0,1)
grunt> []

```

## 18. Result= DISTINCT covid\_19;

### Dump Result;

```

Activities Terminal ~ Apr 9 01:17
hduser@ubuntu-HP: ~

(16218,20-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10432,4,10510,...)
(16246,21-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10442,4,10514,...)
(16282,22-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10452,4,10516,...)
(16314,23-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10453,4,10517,...)
(16354,24-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10459,4,10523,...)
(16390,25-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10463,4,10526,...)
(16420,26-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10468,4,10530,...)
(16456,27-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10484,4,10534,...)
(16498,28-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10490,4,10539,...)
(16534,29-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10501,4,10547,...)
(16570,30-06-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10502,4,10550,...)
(16606,01-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10511,4,10560,...)
(16642,02-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10514,4,10561,...)
(16678,03-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10518,4,10565,...)
(16714,04-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10522,4,10567,...)
(16750,05-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10527,4,10569,...)
(16786,06-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10530,4,10569,...)
(16822,07-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10533,4,10570,...)
(16858,08-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10534,4,10576,...)
(16894,09-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10542,4,10579,...)
(16930,10-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10547,4,10584,...)
(16966,11-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10552,4,10584,...)
(17002,12-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10557,4,10586,...)
(17038,13-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10563,4,10588,...)
(17074,14-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10564,4,10589,...)
(17110,15-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10565,4,10591,...)
(17146,16-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10565,4,10591,...)
(17182,17-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10570,4,10594,...)
(17218,18-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10574,4,10594,...)
(17254,19-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10575,4,10597,...)
(17290,20-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10577,4,10605,...)
(17326,21-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10581,4,10613,...)
(17362,22-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10581,4,10619,...)
(17398,23-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10584,4,10624,...)
(17434,24-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10585,4,10630,...)
(17470,25-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10585,4,10637,...)
(17506,26-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10587,4,10637,...)
(17542,27-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10588,4,10638,...)
(17578,28-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10589,4,10639,...)
(17614,29-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10597,4,10642,...)
(17650,30-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10603,4,10643,...)
(17686,31-07-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10607,4,10650,...)
(17722,01-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10617,4,10650,...)
(17758,02-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10622,4,10650,...)
(17794,03-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10627,4,10650,...)
(17830,04-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10633,4,10650,...)
(17866,05-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10633,4,10652,...)
(17902,06-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10634,4,10652,...)
(17938,07-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10634,4,10652,...)
(17974,08-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10639,4,10652,...)
(18010,09-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10641,4,10653,...)
(18046,10-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10641,4,10653,...)
(18082,11-08-2021,8:00 AM,Dadra and Nagar Haveli and Daman and Diu,,10646,4,10654,...)
(Sno,Date,Time,State,ConfirmedIndianNational,ConfirmedForeignNational,Cured,Deaths,Confirmed,...)
grunt> []

```

## 19. telangana = LOAD '/user/hive/warehouse/covid19\_india/state=Telangana'

USING PigStorage(',') as (Sno:chararray, Datee:chararray, Timeee:chararray,  
 State:chararray, ConfirmedIndianNational:chararray, Cured:int ,Deaths:int,Confirmed:int);  
 Dump telegana;

```

Activities Terminal Apr 9 01:14
hduser@ubuntu-HP:~
```

2022-04-09 01:14:07.939 [Thread-12] INFO org.apache.hadoop.mapred.LocalJobRunner - reduce task executor complete.

2022-04-09 01:14:07.953 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - Running jobs are [job\_local1551386391\_0002]

2022-04-09 01:14:12.463 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.463 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.463 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.477 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - 100% complete

HadoopVersion PigVersion UserId StartedAt FinishedAt Features

3.3.1 0.17.0 hduser 2022-04-09 01:14:06 2022-04-09 01:14:12 COGROUP

Success!

Job Stats (time in seconds):

JobId	Maps	Reduces	MaxMapTime	AvgMapTime	MedianMapTime	MaxReduceTime	AvgReduceTime	MedianReduceTime	Alias	Feature	Outputs
job_local1551386391_0002	2	1	n/a	n/a	n/a	n/a	n/a	n/a	Kerala, cogroup1, telangana	COGROUP	hdfs://localhost:54310/tmp/temp1058059660/tmp504964368

Input(s):

Successfully read 5 records from: "/user/hive/warehouse/covid19\_india/state=Telangana"

Successfully read 33 records from: "/user/hive/warehouse/covid19\_india/state=Kerala"

Output(s):

Successfully stored 3 records (34542006 bytes) in: "hdfs://localhost:54310/tmp/temp1058059660/tmp504964368"

Counters:

- Total records written : 3
- Total bytes written : 34542006
- Spillable Memory Manager spill count : 0
- Total bags proactively spilled: 0
- Total records proactively spilled: 0

Job DAG:

```

graph TD
    job_local1551386391_0002 --> map1[Map Task]
    map1 --> reduce1[Reduce Task]
    reduce1 --> final[Final Output]

```

2022-04-09 01:14:12.479 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.483 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.483 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:14:12.488 [main] WARN org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - Encountered Warning FIELD\_DISCARDED\_TYPE\_CONVERSION\_FAILED 3 time(s).

2022-04-09 01:14:12.488 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - Success!

2022-04-09 01:14:12.493 [main] WARN org.apache.pig.backend.hadoop.executionengine.mapreduce.lib.SchematupleBackend has already been initialized!

2022-04-09 01:14:12.493 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.lib.SchematupleBackend - Total input paths to process : 1

2022-04-09 01:14:12.493 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.lib.SchematupleBackend - Total input paths to process : 1

(State,(Sno,Datee,Timee,State,ConfirmedIndianNational,ConfirmedForeignNational,,))

(Kerala,1,01-01-2020,6:00 PM,Kerala,1,0,0,0,1),(3,01-01-2020,6:00 PM,Kerala,1,0,0,0,1),(29,20-02-2020,6:00 PM,Kerala,1,0,0,0,1),(28,20-02-2020,6:00 PM,Kerala,1,0,0,0,1),(27,20-02-2020,6:00 PM,Kerala,1,0,0,0,1),(26,20-02-2020,6:00 PM,Kerala,1,0,0,0,1),(25,23-02-2020,6:00 PM,Kerala,1,0,0,0,1),(24,23-02-2020,6:00 PM,Kerala,1,0,0,0,1),(23,21-02-2020,6:00 PM,Kerala,1,0,0,0,1),(22,20-02-2020,6:00 PM,Kerala,1,0,0,0,1),(21,19-02-2020,6:00 PM,Kerala,1,0,0,0,1),(20,18-02-2020,6:00 PM,Kerala,1,0,0,0,1),(19,17-02-2020,6:00 PM,Kerala,1,0,0,0,1),(18,16-02-2020,6:00 PM,Kerala,1,0,0,0,1),(17,15-02-2020,6:00 PM,Kerala,1,0,0,0,1),(16,14-02-2020,6:00 PM,Kerala,1,0,0,0,1),(15,13-02-2020,6:00 PM,Kerala,1,0,0,0,1),(14,12-02-2020,6:00 PM,Kerala,1,0,0,0,1),(13,11-02-2020,6:00 PM,Kerala,1,0,0,0,1),(12,10-02-2020,6:00 PM,Kerala,1,0,0,0,1),(11,09-02-2020,6:00 PM,Kerala,1,0,0,0,1),(10,08-02-2020,6:00 PM,Kerala,1,0,0,0,1),(9,07-02-2020,6:00 PM,Kerala,1,0,0,0,1),(8,06-02-2020,6:00 PM,Kerala,1,0,0,0,1),(7,05-02-2020,6:00 PM,Kerala,1,0,0,0,1),(6,04-02-2020,6:00 PM,Kerala,1,0,0,0,1),(5,03-02-2020,6:00 PM,Kerala,1,0,0,0,1),(4,02-02-2020,6:00 PM,Kerala,1,0,0,0,1),(3,01-02-2020,6:00 PM,Kerala,1,0,0,0,1),(2,31-01-2020,6:00 PM,Kerala,1,0,0,0,1),(2,30-01-2020,6:00 PM,Telangana,1,0,0,0,1),(1,29-01-2020,6:00 PM,Telangana,1,0,0,0,1))

{Telangana,(),(57,06-03-2020,6:00 PM,Telangana,1,0,0,0,1),(58,05-03-2020,6:00 PM,Telangana,1,0,0,0,1),(44,04-03-2020,6:00 PM,Telangana,1,0,0,0,1),(36,03-03-2020,6:00 PM,Telangana,1,0,0,0,1),(33,02-03-2020,6:00 PM,Telangana,1,0,0,0,1)}

grun> []

**Kerala = LOAD '/user/hive/warehouse/covid19\_india/state=Kerala' USING**

**PigStorage(',') as (Sno:chararray, Datee:chararray, Timeee:chararray, State:chararray,**

**ConfirmedIndianNational:chararray, ConfirmedForeignNational:chararray,**

**Cured:int ,Deaths:int,Confirmed:int);**

```

Activities Terminal Apr 9 01:13
hduser@ubuntu-HP:~
```

Successfully stored 33 records (5757557 bytes) in: "hdfs://localhost:54310/tmp/temp1058059660/tmp-1680798739"

Counters:

- Total records written : 33
- Total bytes written : 5757557
- Spillable Memory Manager spill count : 0
- Total bags proactively spilled: 0
- Total records proactively spilled: 0

Job DAG:

```

graph TD
    job_local11156541383_0001 --> map1[Map Task]
    map1 --> reduce1[Reduce Task]
    reduce1 --> final[Final Output]

```

2022-04-09 01:13:37.234 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:13:37.236 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:13:37.236 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2022-04-09 01:13:37.242 [main] WARN org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - Encountered Warning FIELD\_DISCARDED\_TYPE\_CONVERSION\_FAILED 3 time(s).

2022-04-09 01:13:37.242 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.MapReduceLauncher - Success!

2022-04-09 01:13:37.243 [main] WARN org.apache.pig.backend.hadoop.executionengine.mapreduce.lib.SchematupleBackend - SchematupleBackend has already been initialized!

2022-04-09 01:13:37.252 [main] INFO org.apache.pig.backend.hadoop.executionengine.mapreduce.lib.MrPigUtil - Total Input files to process : 1

(Sno,Datee,Timee,State,ConfirmedIndianNational,ConfirmedForeignNational,,)

(1,30-01-2020,6:00 PM,Kerala,1,0,0,0,1),(2,31-01-2020,6:00 PM,Kerala,1,0,0,0,1),(3,01-02-2020,6:00 PM,Kerala,1,0,0,0,2),(4,02-02-2020,6:00 PM,Kerala,1,0,0,0,3),(5,03-02-2020,6:00 PM,Kerala,1,0,0,0,3),(6,04-02-2020,6:00 PM,Kerala,1,0,0,0,3),(7,05-02-2020,6:00 PM,Kerala,1,0,0,0,3),(8,06-02-2020,6:00 PM,Kerala,1,0,0,0,3),(9,07-02-2020,6:00 PM,Kerala,1,0,0,0,3),(10,08-02-2020,6:00 PM,Kerala,1,0,0,0,3),(11,09-02-2020,6:00 PM,Kerala,1,0,0,0,3),(12,10-02-2020,6:00 PM,Kerala,1,0,0,0,3),(13,11-02-2020,6:00 PM,Kerala,1,0,0,0,3),(14,12-02-2020,6:00 PM,Kerala,1,0,0,0,3),(15,13-02-2020,6:00 PM,Kerala,1,0,0,0,3),(16,14-02-2020,6:00 PM,Kerala,1,0,0,0,3),(17,15-02-2020,6:00 PM,Kerala,1,0,0,0,3),(18,16-02-2020,6:00 PM,Kerala,1,0,0,0,3),(19,17-02-2020,6:00 PM,Kerala,1,0,0,0,3),(20,18-02-2020,6:00 PM,Kerala,1,0,0,0,3),(21,19-02-2020,6:00 PM,Kerala,1,0,0,0,3),(22,20-02-2020,6:00 PM,Kerala,1,0,0,0,3),(23,21-02-2020,6:00 PM,Kerala,1,0,0,0,3),(24,22-02-2020,6:00 PM,Kerala,1,0,0,0,3),(25,23-02-2020,6:00 PM,Kerala,1,0,0,0,3),(26,24-02-2020,6:00 PM,Kerala,1,0,0,0,3),(27,25-02-2020,6:00 PM,Kerala,1,0,0,0,3),(28,26-02-2020,6:00 PM,Kerala,1,0,0,0,3),(29,27-02-2020,6:00 PM,Kerala,1,0,0,0,3),(30,28-02-2020,6:00 PM,Kerala,1,0,0,0,3),(31,29-02-2020,6:00 PM,Kerala,1,0,0,0,3),(32,01-03-2020,6:00 PM,Kerala,1,0,0,0,3)

grun> []

**cogroup1= COGROUP Kerala by State, telangana by State;**

**DUMP cogroup1;**

**20.a = Group covid by State;**

**Result= FOREACH a GENERATE FLATTEN (covid.State), FLOOR ((FLOAT**

**AVG (covid.ConfirmedIndianNational));**

## Dump Result;

## User defined function

Displays the records of the state Gujarat having zero cured cases.

```
import java.io.IOException;  
  
import org.apache.pig.EvalFunc;  
  
import org.apache.pig.data.Tuple;  
  
import java.io.IOException;  
  
import org.apache.pig.EvalFunc;  
  
import org.apache.pig.data.Tuple;
```

```
public class Sample_Eval extends EvalFunc<String>{

    public String exec(Tuple input) throws IOException {
        if (cured == 0||state=='Gujarat')

            return null;

        String str = (String)input.get(0);

        return str.toUpperCase();

    }

}
```