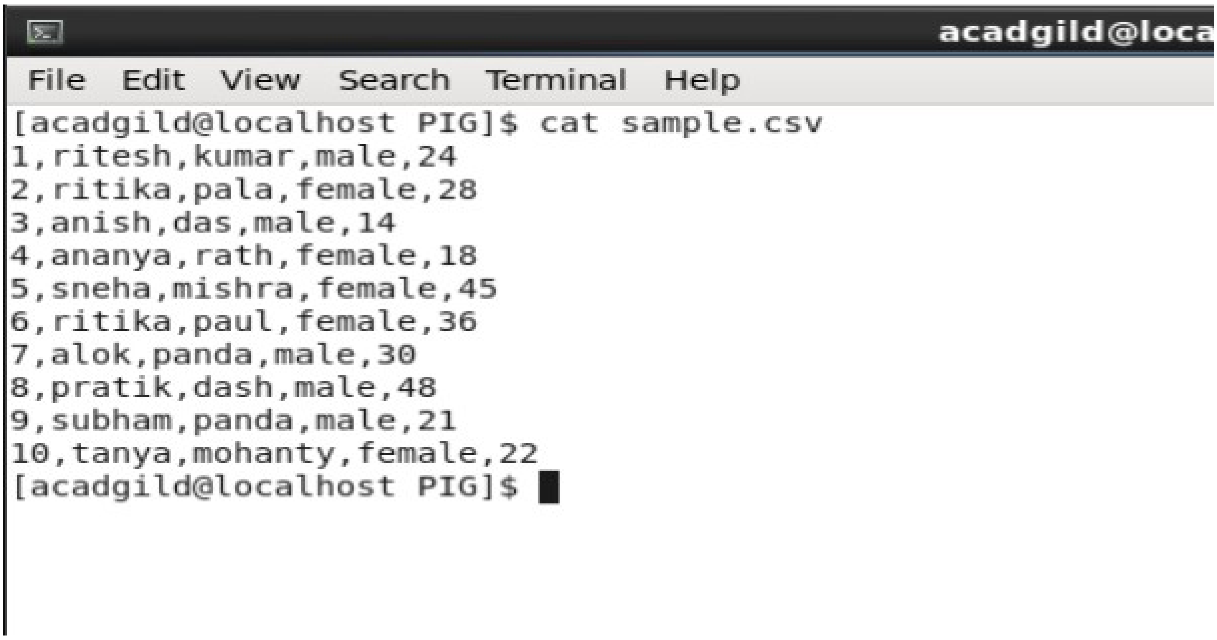
Bigdata Assignment2.2

<u>Created the dataset:-</u>

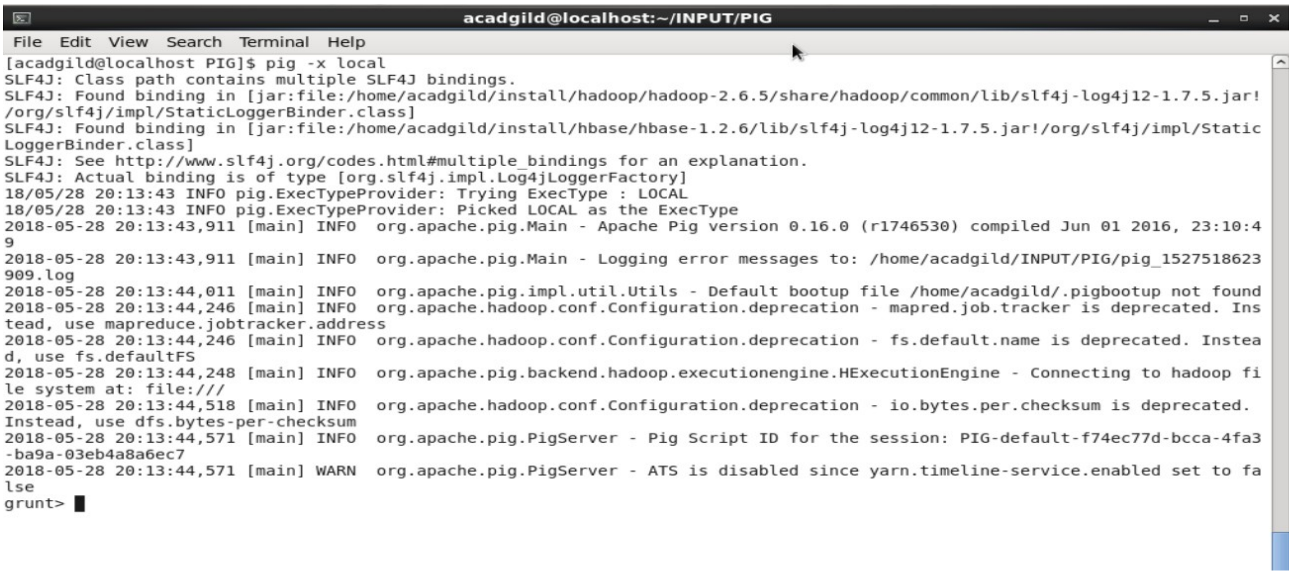
cat sample.csv;



```
[acadgild@localhost PIG]$ cat sample.csv
1,ritesh,kumar,male,24
2,ritika,pala,female,28
3,anish,das,male,14
4,ananya,rath,female,18
5,sneha,mishra,female,45
6,ritika,paul,female,36
7,alok,panda,male,30
8,pratik,dash,male,48
9,subham,panda,male,21
10,tanya,mohanty,female,22
[acadgild@localhost PIG]$ 
```

<u>Entered into grunt shell:-</u>

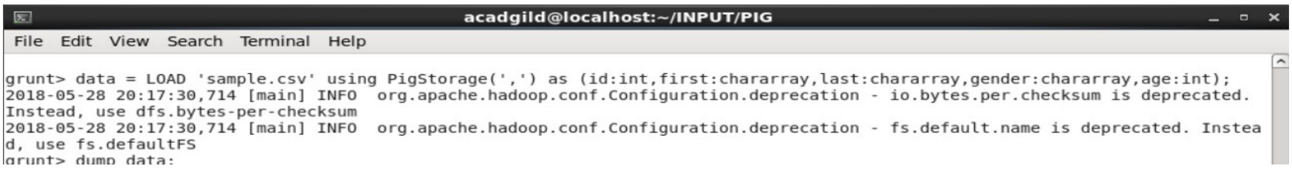
Command - **pig -x local;**


acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

```
[acadgild@localhost PIG]$ pig -x local
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/common/lib/slf4j-log4j12-1.7.5.jar!
/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/acadgild/install/hbase/hbase-1.2.6/lib/slf4j-log4j12-1.7.5.jar!/org/slf4j/impl/Static
LoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
18/05/28 20:13:43 INFO pig.ExecTypeProvider: Trying ExecType : LOCAL
18/05/28 20:13:43 INFO pig.ExecTypeProvider: Picked LOCAL as the ExecType
2018-05-28 20:13:43,911 [main] INFO  org.apache.pig.Main - Apache Pig version 0.16.0 (r1746530) compiled Jun 01 2016, 23:10:4
9
2018-05-28 20:13:43,911 [main] INFO  org.apache.pig.Main - Logging error messages to: /home/acadgild/INPUT/PIG/pig_1527518623
909.log
2018-05-28 20:13:44,011 [main] INFO  org.apache.pig.impl.util.Utils - Default bootup file /home/acadgild/.pigbootup not found
2018-05-28 20:13:44,246 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - mapred.job.tracker is deprecated. Ins
tead, use mapreduce.jobtracker.address
2018-05-28 20:13:44,246 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instea
d, use fs.defaultFS
2018-05-28 20:13:44,248 [main] INFO  org.apache.pig.backend.hadoop.executionengine.HExecutionEngine - Connecting to hadoop fi
le system at: file:///
2018-05-28 20:13:44,518 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated.
Instead, use dfs.bytes-per-checksum
2018-05-28 20:13:44,571 [main] INFO  org.apache.pig.PigServer - Pig Script ID for the session: PIG-default-f74ec77d-bcca-4fa3
-ba9a-03eb4a8a6ec7
2018-05-28 20:13:44,571 [main] WARN  org.apache.pig.PigServer - ATS is disabled since yarn.timeline-service.enabled set to fa
lse
grunt> 
```

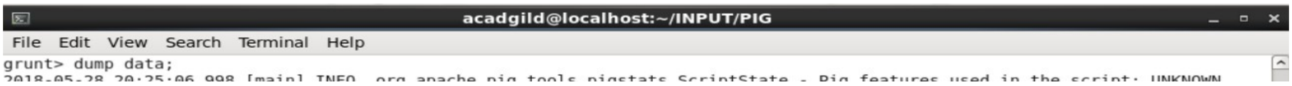
Loaded the data into alias:-

Command - **data = LOAD 'sample.csv' using PigStorage(',') as (id:int,first:charaaray,last:chararray,gender:chararray,age:int);**

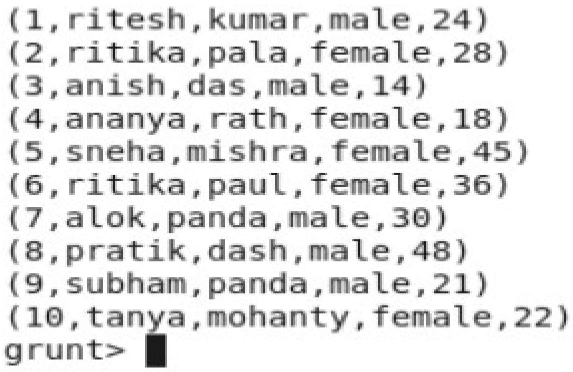

acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

```
grunt> data = LOAD 'sample.csv' using PigStorage(',') as (id:int,first:chararray,last:chararray,gender:chararray,age:int);
2018-05-28 20:17:30,714 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated.
Instead, use dfs.bytes-per-checksum
2018-05-28 20:17:30,714 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instea
d, use fs.defaultFS
grunt> dump data;
```

Displayed the data:-


acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

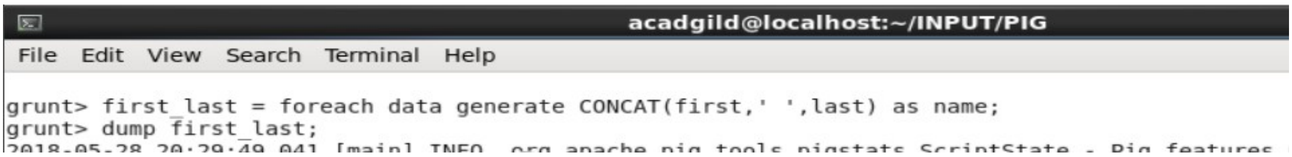
```
grunt> dump data;
2018-05-28 20:25:06,998 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features used in the script: UNKNOWN
```



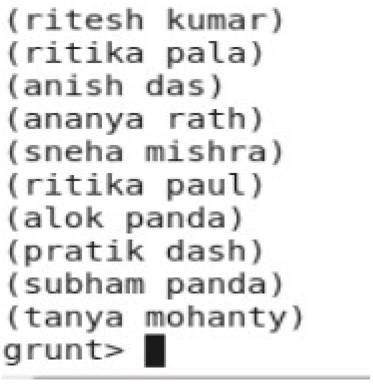
```
(1,ritesh,kumar,male,24)
(2,ritika,pala,female,28)
(3,anish,das,male,14)
(4,ananya,rath,female,18)
(5,sneha,mishra,female,45)
(6,ritika,paul,female,36)
(7,alok,panda,male,30)
(8,pratik,dash,male,48)
(9,subham,panda,male,21)
(10,tanya,mohanty,female,22)
grunt> 
```

1. Concat -

first_last = foreach data generate CONCAT(first,' ',last) as name;
dump first_last;


acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

```
grunt> first_last = foreach data generate CONCAT(first,' ',last) as name;
grunt> dump first_last;
2018-05-28 20:29:49,041 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features
```

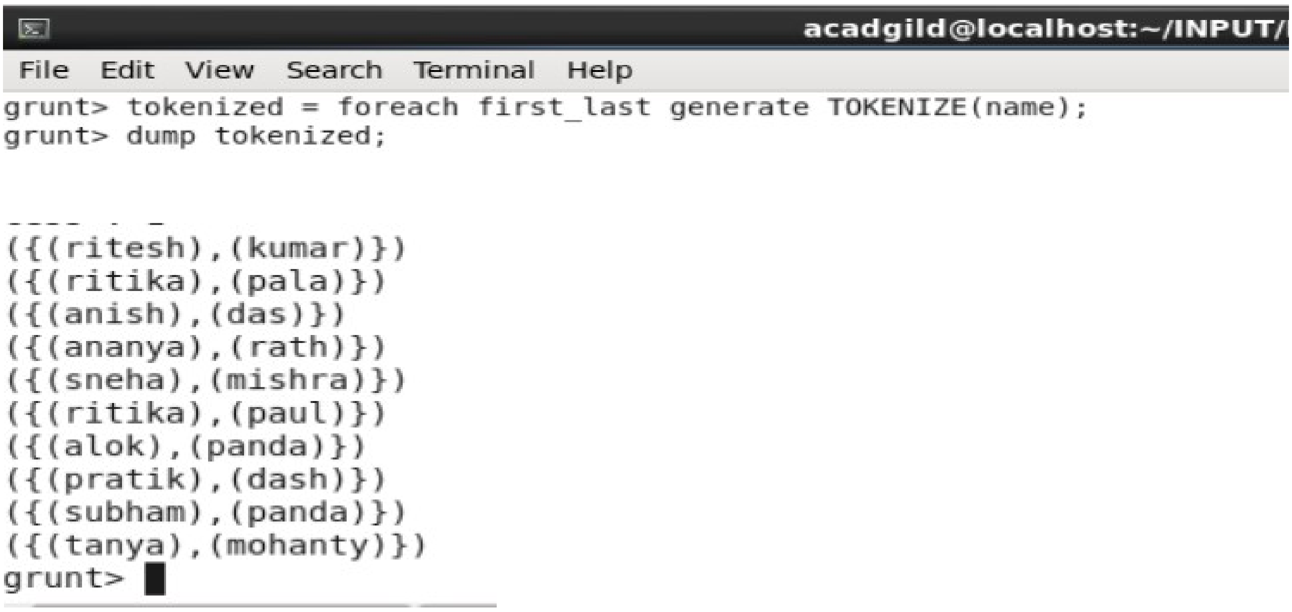


```
(ritesh kumar)
(ritika pala)
(anish das)
(ananya rath)
(sneha mishra)
(ritika paul)
(alok panda)
(pratik dash)
(subham panda)
(tanya mohanty)
grunt> 
```

O/p – Here using CONCAT we concated the two columns first and last. Hence two columns merged data was the output.

2. Tokenize -

tokenized = foreach first_last generate TOKENIZE(name);


acadgild@localhost:~/INPUT/
File Edit View Search Terminal Help

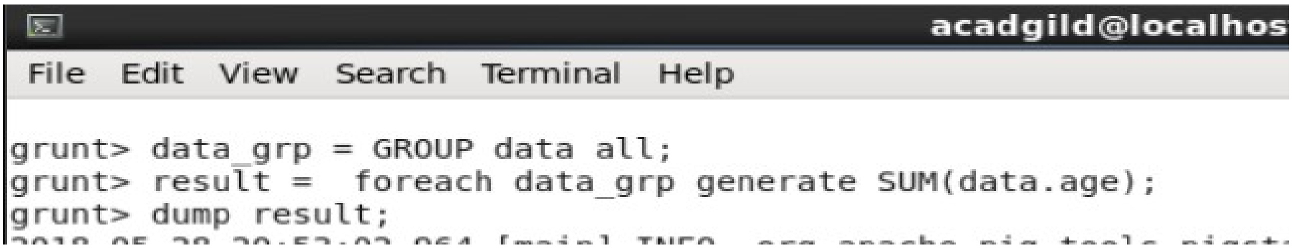
```
grunt> tokenized = foreach first_last generate TOKENIZE(name);
grunt> dump tokenized;


({(ritesh),(kumar)})
({(ritika),(pala)})
({(anish),(das)})
({(ananya),(rath)})
({(sneha),(mishra)})
({(ritika),(paul)})
({(alok),(panda)})
({(pratik),(dash)})
({(subham),(panda)})
({(tanya),(mohanty)})
grunt> 
```

O/p- Here using TOKENIZE when a chararray is given as an argument, this method will split the chararray and return a bag with a tuple for each chararray that results from the split.
We slitted the first_last charaaray.

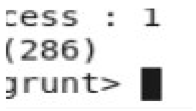
3.SUM:-

data_grp = GROUP data all;
result = foreach data_grp generate SUM(data.age);

dump result;



```
grunt> data_grp = GROUP data all;
grunt> result =  foreach data_grp generate SUM(data.age);
grunt> dump result;
2018-05-28 20:53:03,064 [main] INFO  org.apache.pig.tools.pigstat
```

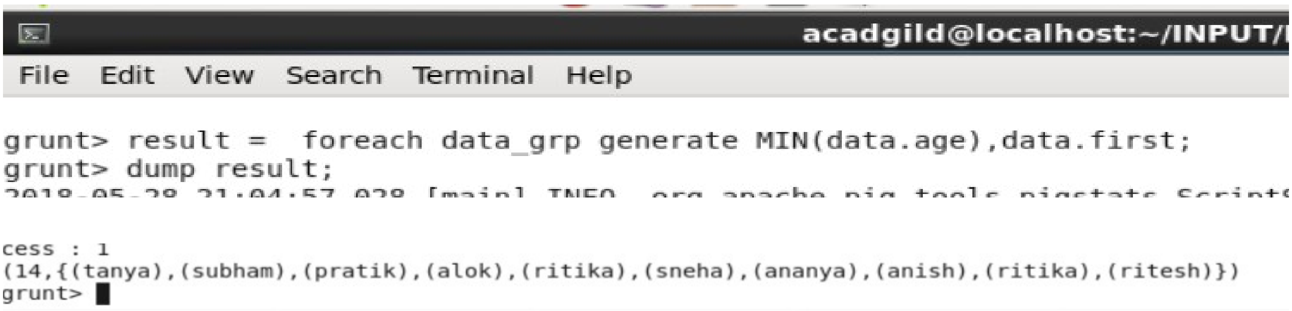


```
cess : 1
(286)
grunt> █
```

O/P- SUM function is used get the total of the numeric values of a column in a single-column bag. Here we first made the data into a single column bag then we found the sum of the age column.

4. MIN:-

result = foreach data_grp generate MIN(data.age) , data.first;
dump result;

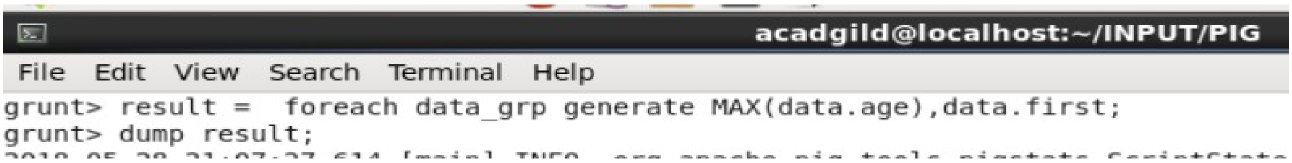

acadgild@localhost:~/INPUT/
File Edit View Search Terminal Help

```
grunt> result =  foreach data_grp generate MIN(data.age),data.first;
grunt> dump result;
2018-05-28 21:04:57,028 [main] INFO  org.apache.pig.tools.pigstats.ScriptS

cess : 1
(14,{(tanya),(subham),(pratik),(alok),(ritika),(sneha),(ananya),(anish),(ritika),(ritesh)})
grunt> █
```

O/P- MIN function is used get the minimum value of a certain column in a single-column bag. Here we first made the data into a single column bag then we found the minimum value of the age column.

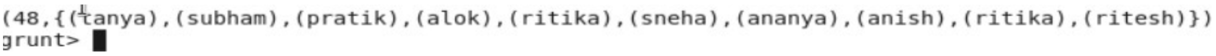
5.MAX:-

result = foreach data_grp generate MAX(data.age) , data.first;
dump result;



acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

```
grunt> result =  foreach data_grp generate MAX(data.age),data.first;
grunt> dump result;
2018-05-28 21:07:27,614 [main] INFO  org.apache.pig.tools.pigstats.ScriptState
```

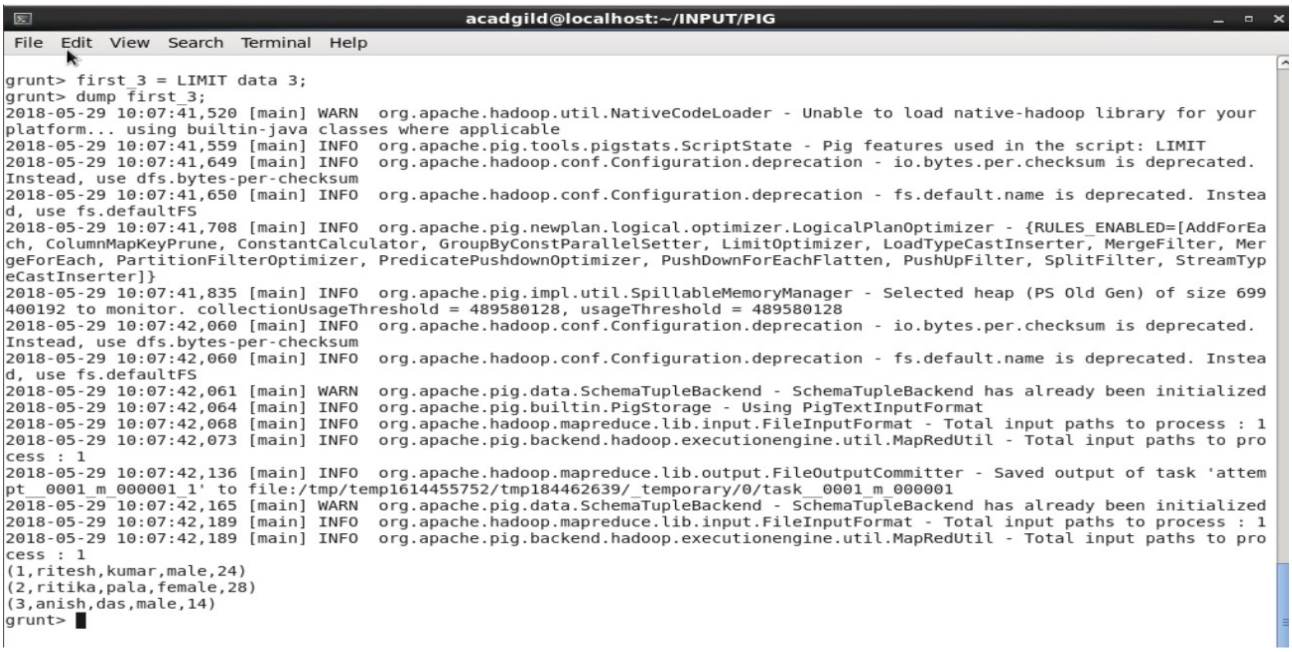


```
(48,{(tanya),(subham),(pratik),(alok),(ritika),(sneha),(ananya),(anish),(ritika),(ritesh)})
grunt>
```

O/P- MAX function is used get the minimum value of a certain column in a single-column bag. Here we first made the data into a single column bag then we found the maximum value of the age column.

6.LIMIT:-

first_3 = LIMIT data 3;
dump first_3;



acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

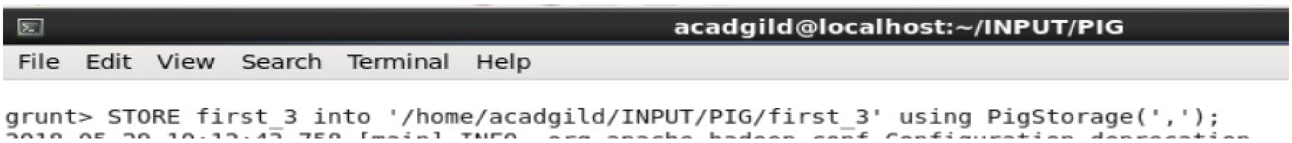
```
grunt> first_3 = LIMIT data 3;
grunt> dump first_3;
2018-05-29 10:07:41,520 [main] WARN  org.apache.hadoop.util.NativeCodeLoader - Unable to load native-hadoop library for your
platform... using builtin-java classes where applicable
2018-05-29 10:07:41,559 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features used in the script: LIMIT
2018-05-29 10:07:41,649 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated.
Instead, use dfs.bytes-per-checksum
2018-05-29 10:07:41,650 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instea
d, use fs.defaultFS
2018-05-29 10:07:41,708 [main] INFO  org.apache.pig.newplan.logical.optimizer.LogicalPlanOptimizer - {RULES_ENABLED=[AddForEa
ch, ColumnMapKeyPrune, ConstantCalculator, GroupByConstParallelSetter, LimitOptimizer, LoadTypeCastInserter, MergeFilter, Mer
geForEach, PartitionFilterOptimizer, PredicatePushdownOptimizer, PushDownForEachFlatten, PushUpFilter, SplitFilter, StreamTyp
eCastInserter]}
2018-05-29 10:07:41,835 [main] INFO  org.apache.pig.impl.util.SpillableMemoryManager - Selected heap (PS Old Gen) of size 699
400192 to monitor. collectionUsageThreshold = 489580128, usageThreshold = 489580128
2018-05-29 10:07:42,060 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated.
Instead, use dfs.bytes-per-checksum
2018-05-29 10:07:42,060 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instea
d, use fs.defaultFS
2018-05-29 10:07:42,061 [main] WARN  org.apache.pig.data.SchemaTupleBackend - SchemaTupleBackend has already been initialized
2018-05-29 10:07:42,064 [main] INFO  org.apache.pig.builtin.PigStorage - Using PigTextInputFormat
2018-05-29 10:07:42,068 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2018-05-29 10:07:42,073 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to pro
cess : 1
2018-05-29 10:07:42,136 [main] INFO  org.apache.hadoop.mapreduce.lib.output.FileOutputCommitter - Saved output of task 'attem
pt__0001_m_000001_1' to file:/tmp/temp1614455752/tmp184462639/_temporary/0/task__0001_m_000001
2018-05-29 10:07:42,165 [main] WARN  org.apache.pig.data.SchemaTupleBackend - SchemaTupleBackend has already been initialized
2018-05-29 10:07:42,189 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2018-05-29 10:07:42,189 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to pro
cess : 1
(1,ritesh,kumar,male,24)
(2,ritika,pala,female,28)
(3,anish,das,male,14)
grunt>
```

O/p – LIMIT is used to get limited no of tuples from a relation.Here we got 3 no of tuples.

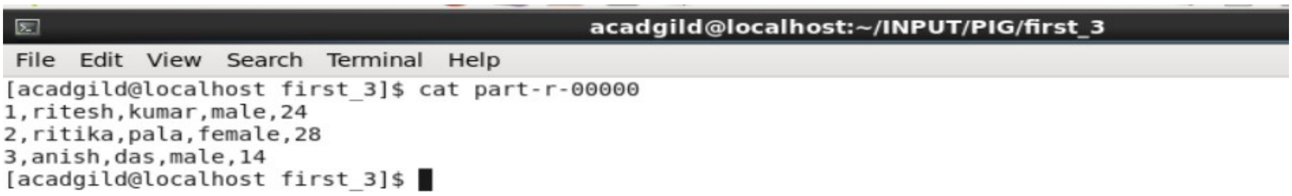
7. STORE:-

STORE first_3 into '/home/acadgild/INPUT/PIG/first_3';

To check the content – **cat part-r-00000;**


acadgild@localhost:~/INPUT/PIG
File Edit View Search Terminal Help

```
grunt> STORE first_3 into '/home/acadgild/INPUT/PIG/first_3' using PigStorage(',');
2018-05-20 10:12:43,758 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation
```

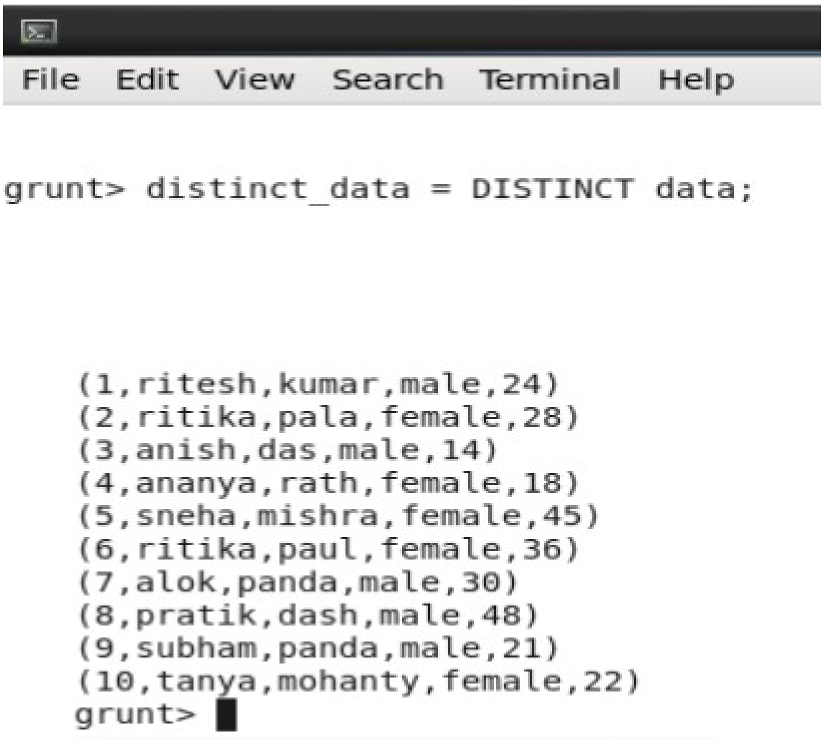

acadgild@localhost:~/INPUT/PIG/first_3
File Edit View Search Terminal Help

```
[acadgild@localhost first_3]$ cat part-r-00000
1,ritesh,kumar,male,24
2,ritika,pala,female,28
3,anish,das,male,14
[acadgild@localhost first_3]$ █
```

O/P – STORE is used to store the loaded data into the file system . Here we , loaded the data first_3 into a folder in the file system and then checked it.

8.DISTINCT:-

distinct_data = DISTINCT data;



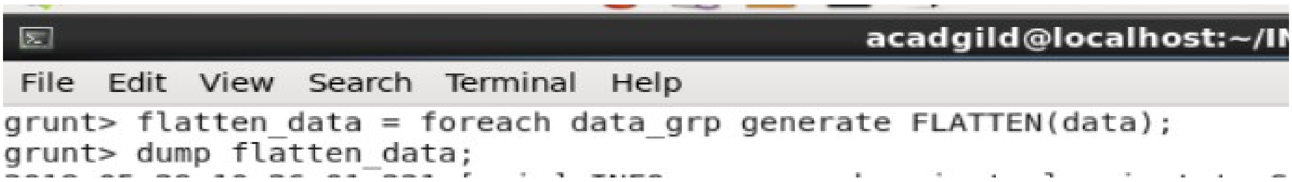
```
grunt> distinct_data = DISTINCT data;
```

```
(1,ritesh,kumar,male,24)
(2,ritika,pala,female,28)
(3,anish,das,male,14)
(4,ananya,rath,female,18)
(5,sneha,mishra,female,45)
(6,ritika,paul,female,36)
(7,alok,panda,male,30)
(8,pratik,dash,male,48)
(9,subham,panda,male,21)
(10,tanya,mohanty,female,22)
grunt> █
```

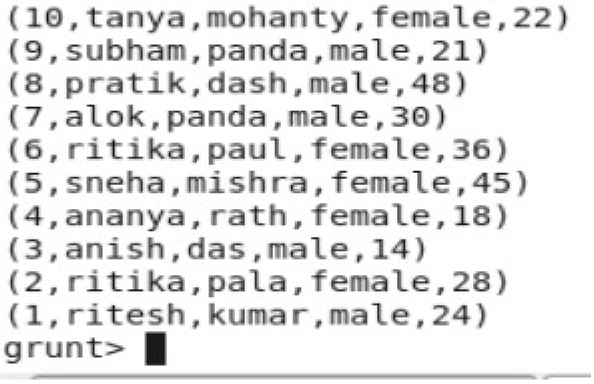
O/P- DISTINCT is used to remove redundant tuples from a relation. Here , as there were no redundant tuples , the entire data was the output.

9. FLATTEN:-

flatten_data = foreach data_grp generate FLATTEN(data);
dump flatten-data;



```
grunt> flatten_data = foreach data_grp generate FLATTEN(data);
grunt> dump flatten_data;
```

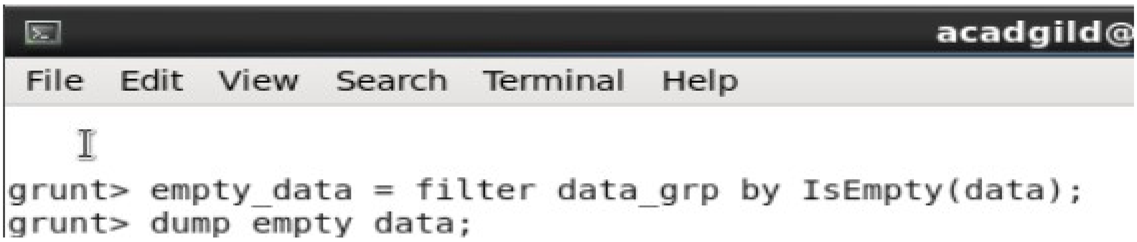


```
(10,tanya,mohanty,female,22)
(9,subham,panda,male,21)
(8,pratik,dash,male,48)
(7,alok,panda,male,30)
(6,ritika,paul,female,36)
(5,sneha,mishra,female,45)
(4,ananya,rath,female,18)
(3,anish,das,male,14)
(2,ritika,pala,female,28)
(1,ritesh,kumar,male,24)
grunt>
```

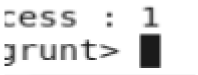
O/P – This flattens the nested schema into unnested schema. Here , we converted the data_grp bag into flatten-data.

10. IsEmpty:-

empty_data = filter data_grp by IsEmpty(data);
dump empty_data;



```
grunt> empty_data = filter data_grp by IsEmpty(data);
grunt> dump empty data;
```



```
cess : 1
grunt>
```

O/P – ISEmpty is used to check if empty map or bags are present. Here , the output is nothing since there are no empty bags.