Pig Assignment 5.2

Airline usage test case :

Problem 1 :

Top 5 most visited stations:

Commands:

REGISTER '/home/acadgild/airline_usecase/piggybank.jar';

Custom Jar which is meant for easy handling of special characters in the input files is registered first via above command

A = load '/home/acadgild/airline_usecase/DelayedFlights.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

The first input file is loaded from local FS.

B = foreach A generate (int)$1 as year, (int)$10 as flight_num, (chararray)$17 as origin,(chararray) $18 as dest;

The required attributes are chosen while assigning datatypes to them based on the problem statement.

C = filter B by dest is not null;

Null entries are filtered out

D = group C by dest;

The valid entries are group based on the destination and their count is also arrived at via the below command

E = foreach D generate group, COUNT(C.dest);

The schema of E will be E : {group : chararray,long}

F = order E by $1 DESC;

The value of relation E is sorted in descending order so the top 5 can be limited via below command

Result = LIMIT F 5;

A1 = load '/home/acadgild/airline_usecase/airports.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

The second input file containing airport details are loaded so the result obtained in the previos step can be presented with the relevant information in terms of descriptions and not codes

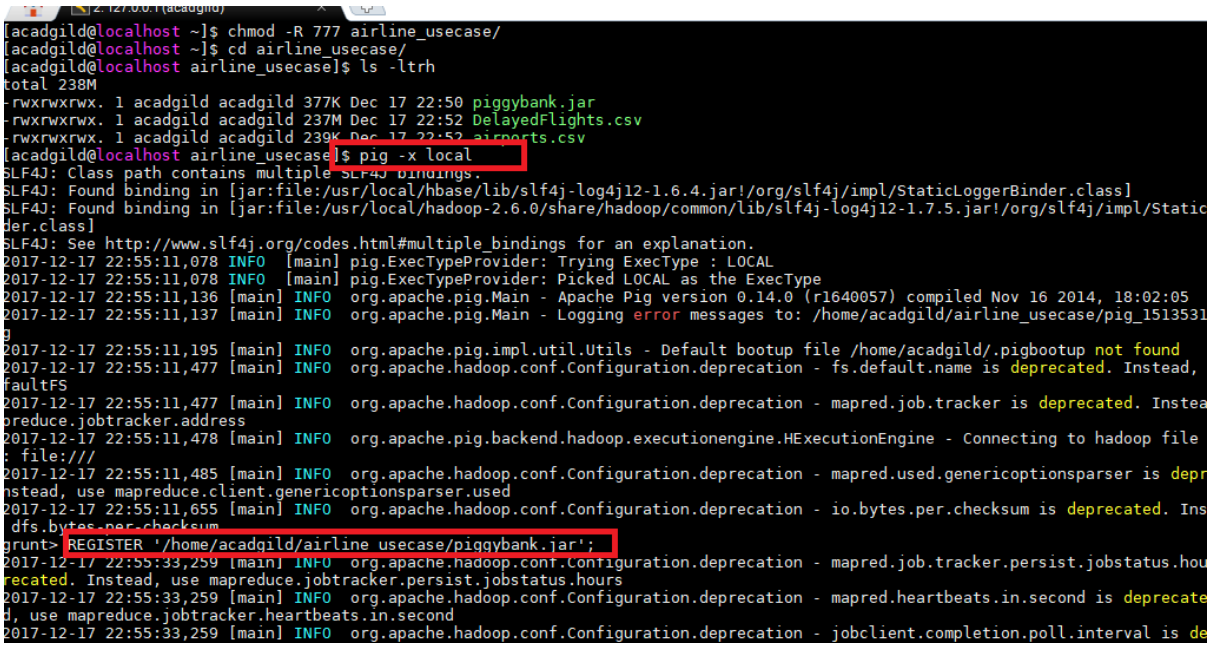
A2 = foreach A1 generate (chararray)$0 as dest, (chararray)$2 as city, (chararray)$4 as country;

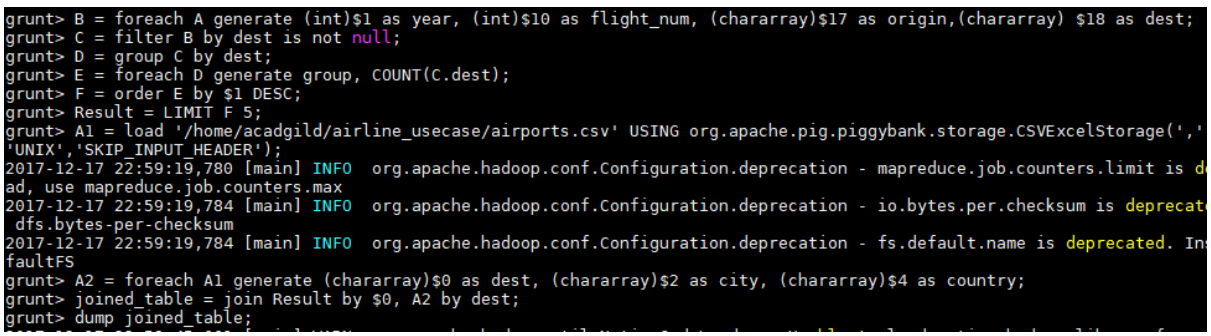
Only the relevant attributes are chosen using above command and the joint table is created based on the common attribute which is destination.

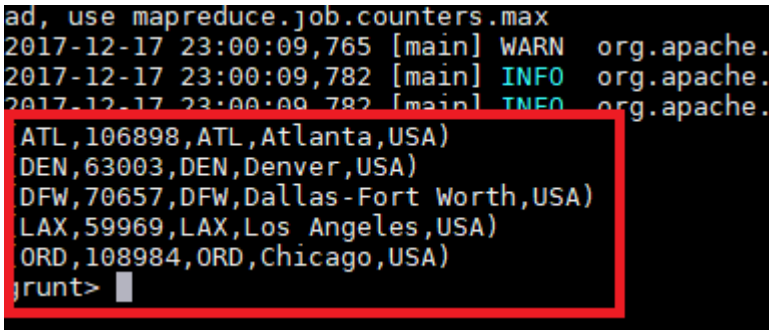
joined_table = join Result by $0, A2 by dest;

dump joined_table;

Screenshot and output :







Problem 2 :

REGISTER '/home/acadgild/airline_usecase/piggybank.jar';

A = load '/home/acadgild/airline_usecase/DelayedFlights.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

B = foreach A generate (int)$2 as month,(int)$10 as flight_num,(int)$22 as cancelled,(chararray)$23 as cancel_code;

C = filter B by cancelled == 1 AND cancel_code =='B';

D = group C by month;

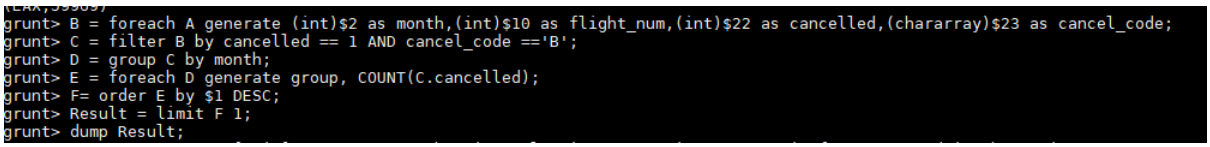
E = foreach D generate group, COUNT(C.cancelled);

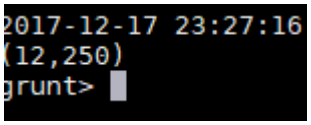
F= order E by $1 DESC;

Result = limit F 1;

dump Result;

Output :





Problem 3 :

REGISTER '/home/acadgild/airline_usecase/piggybank.jar';

A = load '/home/acadgild/airline_usecase/DelayedFlights.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

B1 = foreach A generate (int)$16 as dep_delay, (chararray)$17 as origin;

C1 = filter B1 by (dep_delay is not null) AND (origin is not null);

D1 = group C1 by origin;

E1 = foreach D1 generate group, AVG(C1.dep_delay);

Result = order E1 by $1 DESC;

Top_ten = limit Result 10;

Lookup = load '/home/acadgild/airline_usecase/airports.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

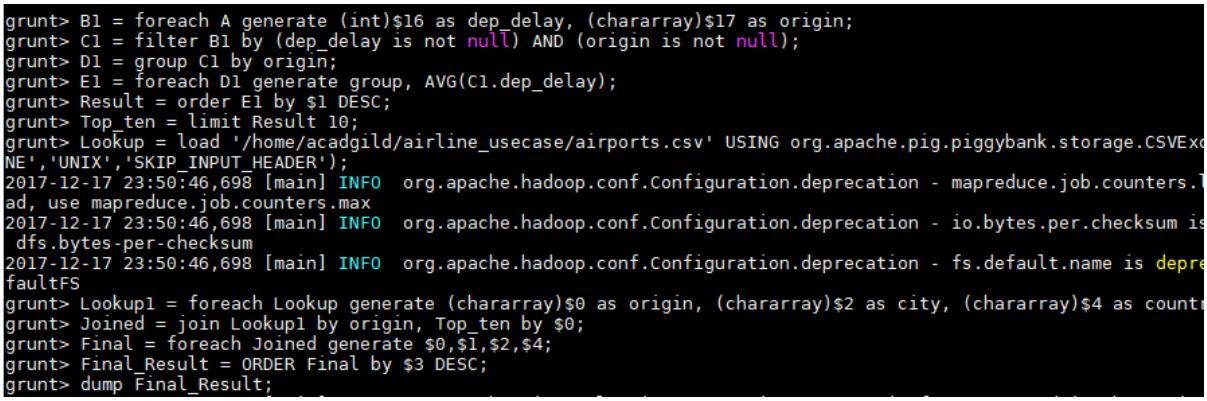
Lookup1 = foreach Lookup generate (chararray)$0 as origin, (chararray)$2 as city, (chararray)$4 as country;

Joined = join Lookup1 by origin, Top_ten by $0;

Final = foreach Joined generate $0,$1,$2,$4;

Final_Result = ORDER Final by $3 DESC;

dump Final_Result;



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(CMX,Hancock,USA,116.1470588235294)
(PLN,Pellston,USA,93.76190476190476)
(SPI,Springfield,USA,83.84873949579831)
(ALO,Waterloo,USA,82.2258064516129)
(MQT,NA,USA,79.55665024630542)
(ACY,Atlantic City,USA,79.3103448275862)
(MOT,Minot,USA,78.66165413533835)
(HHH,NA,USA,76.53005464480874)
(EGE,Eagle,USA,74.12891986062718)
(BGM,Binghamton,USA,73.15533980582525)
grunt>
```

Problem 4 :

REGISTER '/home/acadgild/airline_usecase/piggybank.jar';

A = load '/home/acadgild/airline_usecase/DelayedFlights.csv' USING org.apache.pig.piggybank.storage.CSVExcelStorage(',','NO_MULTILINE','UNIX','SKIP_INPUT_HEADER');

B = FOREACH A GENERATE (chararray)$17 as origin, (chararray)$18 as dest, (int)$24 as diversion;

C = FILTER B BY (origin is not null) AND (dest is not null) AND (diversion == 1);

D = GROUP C by (origin,dest);

E = FOREACH D generate group, COUNT(C.diversion);

F = ORDER E BY $1 DESC;

Result = limit F 10;

dump Result;

Execution & Output :

```
grunt> B = FOREACH A GENERATE (chararray)$17 as origin, (chararray)$18 as dest, (int)$24 as diversion;
grunt> C = FILTER B BY (origin is not null) AND (dest is not null) AND (diversion == 1);
grunt> D = GROUP C by (origin,dest);
grunt> E = FOREACH D generate group, COUNT(C.diversion);
grunt> F = ORDER E BY $1 DESC;
grunt> Result = limit F 10;
grunt> dump Result;
```


((ORD,LGA),39)
((DAL,HOU),35)
((DFW,LGA),33)
((ATL,LGA),32)
((ORD,SNA),31)
((SLC,SUN),31)
((MIA,LGA),31)
((BUR,JFK),29)
((HRL,HOU),28)
((BUR,DFW),25)
grunt>