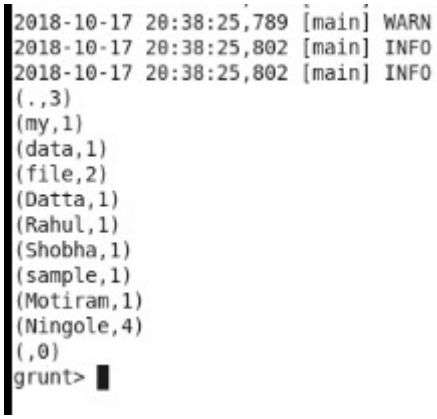
Task 1
Write a program to implement wordcount using Pig.

Solution:

```
lines = LOAD 'demo.txt' AS (line:chararray);
words = FOREACH lines GENERATE FLATTEN(TOKENIZE(line)) as word;
grouped = GROUP words BY word;
wordcount = FOREACH grouped GENERATE group, COUNT(words);
DUMP wordcount;
```



Task 2

(a) Top 5 employees (employee id and employee name) with highest rating. (In case two employees have same rating, employee with name coming first in dictionary should get preference)

Solution:

```
1. emp_details = LOAD 'employee_details.txt' Using PigStorage(',') as
(EmpID:int,Name:chararray,Salary:int,EmployeeRating:int);
2. emp_grp = GROUP emp_details by EmployeeRating;
3. emp_order = ORDER emp_grp by group desc;

4.
data_top = FOREACH emp_order {
   top = TOP(1, 0, emp_details);
   GENERATE top;
}

5.
getIdName = FOREACH data_top GENERATE emp_details.EmpID,emp_details.Name;
```

```
grunt> emp_details = LOAD 'employee_details.txt' Using PigStorage(',') as (EmpID:int,Name:chararray,Salary:int,EmployeeRating:int);
grunt> emp_grp = GROUP emp_details by EmployeeRating;
grunt> emp_order = ORDER emp_grp by group desc;
grunt> data_top = FOREACH emp_order {
>>     top = TOP(1, 0, emp_details);
>>     GENERATE top;
>> }
grunt> getIdName = FOREACH data_top GENERATE emp_details.EmpID,emp_details.Name;
grunt>
```

```
2018-10-17 20:46:02,941 [main] 
2018-10-17 20:46:02,941 [main] 
({(110)},{(Priyanka)})
({(109)},{(Katrina)})
({(108)},{(Ranbir)})
({(114)},{(Madhuri)})
({(113)},{(Jubeen)})
grunt>
```

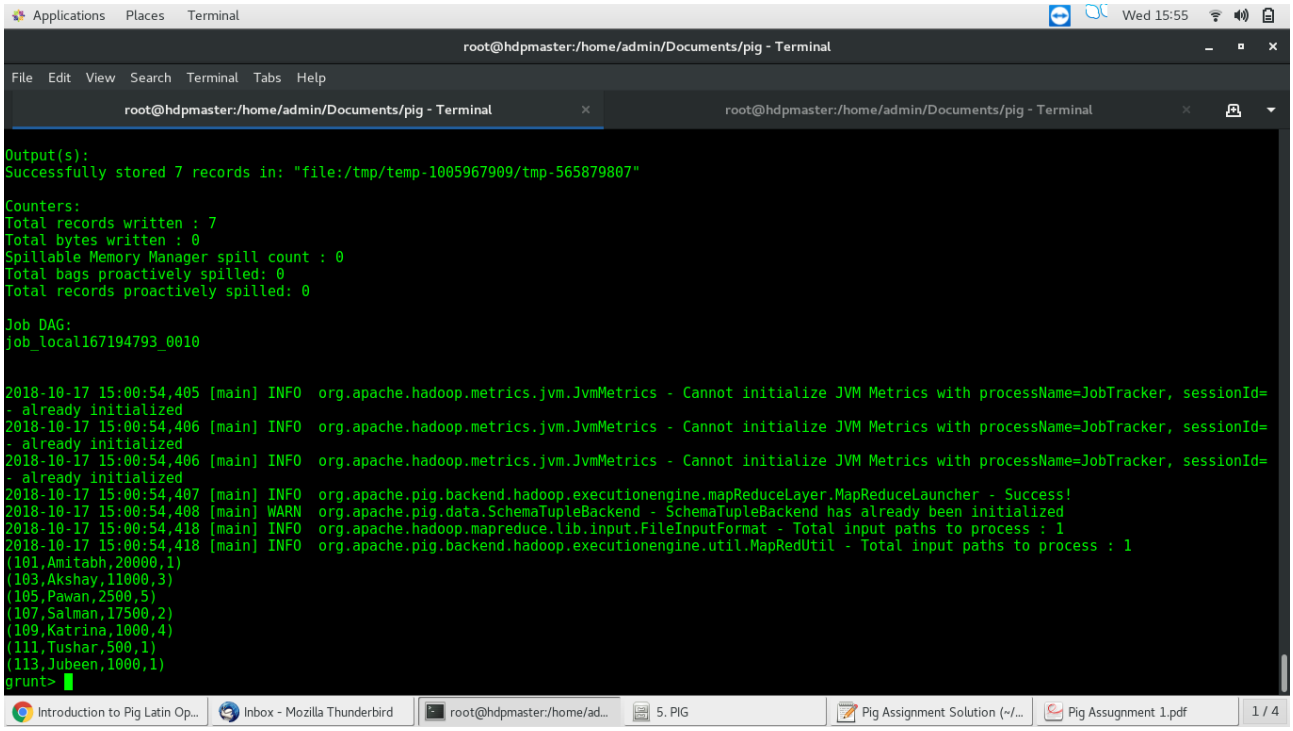
B)
(b) Top 3 employees (employee id and employee name) with highest salary, whose employee id is an odd number. (In case two employees have same salary, employee with name coming first in dictionary should get preference)

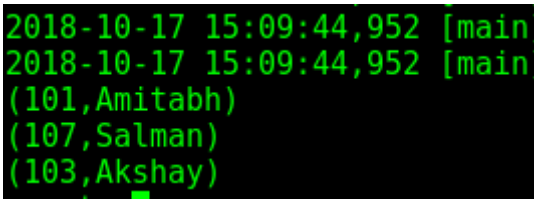
Solution:

SPLIT emp_details into empwithevenid if EmpID%2==0,empwithevenodd if EmpID%2!=0;
empoddhighestsalary = ORDER empwithevenodd by Salary desc;

empoddhighestsalarytop3 = LIMIT empoddhighestsalary 3;

empoddhighestsalarytop3idname = FOREACH empoddhighestsalarytop3 GENERATE EmpID,Name;





C)
(c) Employee (employee id and employee name) with maximum expense (In case two employees have same expense, employee with name coming first in dictionary should get preference)

Solution:

```
employee_expenses = LOAD 'employee_expenses.txt' Using PigStorage('\t') as (EID:int,Expence:int);

emp_details_expenses = JOIN emp_details BY EmpID, employee_expenses BY EID;

getlistOfEmpviaExpenses =  ORDER emp_details_expenses by Expence

grpEmpExpenses =  GROUP emp_details_expenses by Expence;

orderbyhighestexpenses = ORDER grpEmpExpenses by group desc;

data_top = FOREACH orderbyhighestexpenses {
  top = TOP(1, 0, emp_details_expenses);
  GENERATE top;
}
```

CfinalResult = FOREACH data_top GENERATE
emp_details_expenses.EmpID,emp_details_expenses.Name;

```
(101,Amitabh,20000,1,101,100)
(101,Amitabh,20000,1,101,200)
(102,Shahrukh,10000,2,102,400)
(102,Shahrukh,10000,2,102,100)
(104,Anubhav,5000,4,104,300)
(105,Pawan,2500,5,105,100)
(110,Priyanka,2000,5,110,400)
(114,Madhuri,2000,2,114,200)
```

```
grunt> grpEmpExpenses =  GROUP emp_details_expenses by Expence;
grunt>
```

```
2018-10-17 16:32:45,621 [main] INFO
2018-10-17 16:32:45,621 [main] INFO
({(110,Priyanka,2000,5,110,400)})
({(104,Anubhav,5000,4,104,300)})
({(114,Madhuri,2000,2,114,200)})
({(105,Pawan,2500,5,105,100)})
```

```
2018-10-17 16:37:11,495 [ma
({(110)},{(Priyanka)})
({(104)},{(Anubhav)})
({(114)},{(Madhuri)})
({(105)},{(Pawan)})
```

(d) List of employees (employee id and employee name) having entries in employee_expenses file.

Solution:

joinwithemployee_expenses = JOIN emp_details BY EmpID RIGHT, employee_expenses BY EID;

datainemployee_expenses = FILTER joinwithemployee_expenses;

getID = FILTER joinwithemployee_expenses by EmpID is not null;

```
(101,Amitabh,20000,1,101,100)
(101,Amitabh,20000,1,101,200)
(102,Shahrukh,10000,2,102,400)
(102,Shahrukh,10000,2,102,100)
(104,Anubhav,5000,4,104,300)
(105,Pawan,2500,5,105,100)
(110,Priyanka,2000,5,110,400)
(114,Madhuri,2000,2,114,200)
(,,,,119,200)
```

```
(101,Amitabh,20000,1,101,100)
(101,Amitabh,20000,1,101,200)
(102,Shahrukh,10000,2,102,400)
(102,Shahrukh,10000,2,102,100)
(104,Anubhav,5000,4,104,300)
(105,Pawan,2500,5,105,100)
(110,Priyanka,2000,5,110,400)
(114,Madhuri,2000,2,114,200)
grunt> getID = FILTER joinwithemployee_expenses by EmpID is not null;
```

E:
List of employees (employee id and employee name) having no entry in employee_expenses file.

Solution:

joinwithemployee_details = JOIN emp_details BY EmpID LEFT, employee_expenses BY EID;

no_entry_in_employee_expenses = FILTER joinwithemployee_details by EID is null;

no_entry_in_employee_expenses_id_name = FOREACH no_entry_in_employee_expenses GENERATE EmpID,Name;

dump no_entry_in_employee_expenses_id_name;

```
(103,Akshay,11000,3,,)
(106,Aamir,25000,1,,)
(107,Salman,17500,2,,)
(108,Ranbir,14000,3,,)
(109,Katrina,1000,4,,)
(111,Tushar,500,1,,)
(112,Ajay,5000,2,,)
(113,Jubeen,1000,1,,)
grunt> no_entry_in_employee_expenses_id_name = FOREACH no_entry_in_employee_expenses GENERATE EmpID,Name;
grunt> dump no_entry_in_employee_expenses_id_name
```

```
(103,Akshay)
(106,Aamir)
(107,Salman)
(108,Ranbir)
(109,Katrina)
(111,Tushar)
(112,Ajay)
(113,Jubeen)
```