Data Analysis on Socio-Economic and Well-being Fitness

Objective:

The project is based on Data Analysis for Economy, Seasonality, Product selling, Financial exchange, Well-being Fitness and Sports interest. This project would help in analyzing socio-economic status, their wellbeing fitness on various factors like age group and period of time, etc.

Given Data:

Sports & Fitness Equipment sales details and Customer details

Trans id	Date	Cust id	Amount	Category	Item name	City	State	Mode of payment

Cust id	First Name	Last Name	Age	Profession

Analysis on following factors:

1. Economic Status
2. Seasonality
3. Financial Exchanges
4. Well-being Fitness
5. Sports Awareness

1. Economic Status:

Economic Analysis is powerful way of thinking about business world. The phenomenal growth of e-commerce is increased access to the internet. Financial Services organizations are using data mined from customer interactions to slice and dice their users into finely tuned segments. It also tells us how much individual, single organization or government using e-commerce.

For Example: Analyzing Economic status in for each age group and each profession on citizenship i.e. finding out the sales happened for person with age groups and profession.

We have achieved the same in our project in various Tasks mentioned below.

Task1: Finding all the transaction where Amount>160.

Task2: Counting all the transaction where amount is between 175 and 200.

Task3: Calculating the total sum, total count, average of all the transaction for each user id.

2. Seasonality

We know that retail sales move with the seasons. Seasonality is a characteristic of a time series in which the data experiences regular and predictable changes that recur every calendar year. Any predictable change or pattern in a time series that recurs or repeats over a one-year period can be said to be seasonal. Retail sales in general always rise in the fourth quarter, but e-commerce sales do so even more intensely.

For Example: Finding the period of time with maximum sales.

We have achieved the same in our project in various Tasks mentioned below.

Task 4: Calculating total sales amount for each Month.

Task 5: Dividing the file into 12 files, where each file containing each month of data. For ex: file 1 should contain data of January transactions, file 2 should contain data of February transactions and soon.

Task 9: Finding the user who has spent the max amount in July month.

3. Financial Exchanges:

E-Commerce or Electronics Commerce sites use cash and electronic payment where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by various factors. This enables these financial institutions to create increasingly relevant and sophisticated offers. Being user friendly and less time consuming than manual processing, helps business organization to expand its market reach / expansion.

For Example: Finding out the persons who made their purchases on various modes of payment by cash, credit card, debit card, Internet Banking NEFT.

We have achieved the same in our project in various Tasks mentioned below.

Task 6: Sorting the whole file on the basis of amt.

Task 7: Finding the name of top 3 spenders.

Task 8: Finding the name of user who has spent the maximum amount.

Future Enhancement: Finding the number of persons who made their purchase based on mode of payment.

4. Well-being Fitness:

We have to focus on Healthcare - both in terms of fitness and diseases outbreak.

Healthcare organizations are turning to data analysis to improve their care delivery and the cost of care. This services to this population to help fight the obesity.

EX: identifying No of persons being physically fit i.e. finding their interest in sports, gyms, yoga exc.

Future Enhancement:

We can implement the same in our project in various Tasks likes finding the total number of persons based on category of purchase. Grouping the data based on Exercise & Fitness and Gymnastics.

5. Sports Awareness:

Sports and games form an essential part of human resource Development. Sport development is a national priority, as it promotes active Lifestyle, child and youth

development, social inclusiveness, Employment opportunities, peace and development, and above all a Sense of belongingness and national pride.

For example: Finding the number of person who is interest in various sports.

Future Enhancement:

We can implement the same in our project in various Tasks likes finding the total number of persons who were interest in various sports, we can group the persons in based on their interest. Also we can find the maximum persons who were interested in particular sports.

Technology used:

Apache Hadoop:

Apache Hadoop an open-source software framework used for distributed storage and processing of very large data sets. It consists of computer clusters built from commodity hardware.

Characteristics of Hadoop:

- Reliable
- Flexible
- Economical
- Scalable

Map reduce:

Hadoop MapReduce is a software framework for easily writing applications which process vast amounts of data (multi-terabyte data-sets) in-parallel on large clusters (thousands of nodes) of commodity hardware in a reliable, fault-tolerant manner.

A MapReduce job usually splits the input data-set into independent chunks which are processed by the map tasks in a completely parallel manner. The framework sorts the outputs of the maps, which are then input to the reduce tasks. Typically both the input and the output of the job are stored in a file-system. The framework takes care of scheduling tasks, monitoring them and re-executes the failed tasks.

Apache Pig:

Apache Pig is a platform for analyzing large data sets that consists of a high-level language for expressing data analysis programs, coupled with infrastructure for evaluating these programs. The salient property of Pig programs is that their structure is amenable to substantial parallelization, which in turns enables them to handle very large data sets**.**

Features:

- Ease of programming
- Optimization opportunities
- Extensibility.

Apache Hive:

The Apache Hive data warehouse software facilitates reading, writing, and managing large datasets residing in distributed storage using SQL. Structure can be projected onto data already in storage

HARDWARE & SOFTWARE REQUIREMENTS:

Operating System	:	LINUX
RAM	:	8GB
System Type	:	64 bit OS
Development Tool	:	Eclipse
Language Used	:	MapReduce Java, Hive, Pig

TASK1: To Find all the transaction on given amount.

INPUT: MAPREDUCE **: Data from user:Enter the amount**

Data Validation:Yes

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f2
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
1
Enter the Amount---
199
```

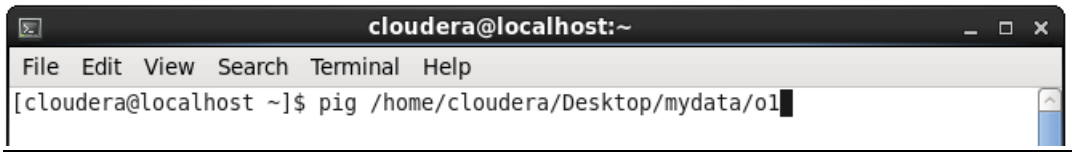
1.OUTPUT(MAPREDUCE JAVA)

```
hduser@ubuntu64server: ~
user id--->4000698---Amount---> 199.17
user id--->4001145---Amount---> 199.21
user id--->4003204---Amount---> 199.37
user id--->4009181---Amount---> 199.81
user id--->4001178---Amount---> 199.69
user id--->4006367---Amount---> 199.11
user id--->4006767---Amount---> 199.96
user id--->4003016---Amount---> 199.15
user id--->4003093---Amount---> 199.05
user id--->4001051---Amount---> 199.29
user id--->4009311---Amount---> 199.43
user id--->4005503---Amount---> 199.74
user id--->4008144---Amount---> 199.13
user id--->4008188---Amount---> 199.84
user id--->4008525---Amount---> 199.02
user id--->4001490---Amount---> 199.6
user id--->4008334---Amount---> 199.05
user id--->4002736---Amount---> 199.34
user id--->4009382---Amount---> 199.31
user id--->4006933---Amount---> 199.21
user id--->4009465---Amount---> 199.16
user id--->4009693---Amount---> 199.22
user id--->4002624---Amount---> 199.68
user id--->4003035---Amount---> 199.26
user id--->4000521---Amount---> 199.49
user id--->4000695---Amount---> 199.13
user id--->4002060---Amount---> 199.54
user id--->4007135---Amount---> 199.41
user id--->4008313---Amount---> 199.32
user id--->4007299---Amount---> 199.69
user id--->4004125---Amount---> 199.65
user id--->4000519---Amount---> 199.9
user id--->4009239---Amount---> 199.09
user id--->4003783---Amount---> 199.98
user id--->4006138---Amount---> 199.91
user id--->4002136---Amount---> 199.18
user id--->4003050---Amount---> 199.89
user id--->4007911---Amount---> 199.32
user id--->4005705---Amount---> 199.81
user id--->4002687---Amount---> 199.06
user id--->4009559---Amount---> 199.63
user id--->4008746---Amount---> 199.42
user id--->4006098---Amount---> 199.49
user id--->4003750---Amount---> 199.93
user id--->4007255---Amount---> 199.16
user id--->4005076---Amount---> 199.92
user id--->4000454---Amount---> 199.35
user id--->4000978---Amount---> 199.39
user id--->4004318---Amount---> 199.07
hduser@ubuntu64server:~$
```

1.OUTPUT(HIVE)

```
00048177        08-03-2015      4002687 199.06  Jumping Jumping Stilts  Scottsda
le      Arizona credit
00048324        04-26-2015      4009559 199.63  Indoor Games    Darts   Springfi
eld     Illinois        credit
00048673        02-15-2015      4008746 199.42  Jumping Bungee Jumping  Eugene O
regon   credit
00049043        02-26-2015      4006098 199.49  Water Sports    Kitesurfing    J
ersey City      New Jersey      credit
00049336        05-17-2015      4003750 199.93  Gymnastics      Balance Beams  C
olumbia Missouri        credit
00049472        07-17-2015      4007255 199.16  Exercise & Fitness      Cardio M
achine Accessories      Pasadena        Texas   credit
00049851        04-20-2015      4005076 199.92  Team Sports     Basketball     S
tamford Connecticut     credit
00049939        09-07-2015      4000454 199.35  Games   Portable Electronic Game
s       Newark  New Jersey      credit
00049955        09-13-2015      4000978 199.39  Exercise & Fitness      Jump Rop
es      Birmingham      Alabama credit
00049980        03-13-2015      4004318 199.07  Outdoor Recreation      Track &
Field   Omaha   Nebraska        credit
Time taken: 33.587 seconds
hive>
```

1.OUTPUT(PIG)




```
a = load '/user/cloudera/trans.dat' using PigStorage(',');
b = foreach a generate $2,$3;
c = filter b by $1>=199;
dump c;
```

```
cloudera@localhost:~
File  Edit  View  Search  Terminal  Help
(4002060,199.54)
(4007135,199.41)
(4008313,199.32)
(4007299,199.69)
(4004125,199.65)
(4000519,199.90)
(4009239,199.09)
(4003783,199.98)
(4006138,199.91)
(4002136,199.18)
(4003050,199.89)
(4007911,199.32)
(4005705,199.81)
(4002687,199.06)
(4009559,199.63)
(4008746,199.42)
(4006098,199.49)
(4003750,199.93)
(4007255,199.16)
(4005076,199.92)
(4000454,199.35)
(4000978,199.39)
(4004318,199.07)
[cloudera@localhost ~]$
```

TASK2: To Count all the transaction where amount is between Given values

2INPUT:MAPREDUCE:DATA from user Enter Max and Min amount:

Data Validation: Yes

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f2
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
2
Enter the Min amount
190
Enter the Max amount
199
16/11/24 00:30:37 INFO client.RMProxy: Connecting to ResourceManager at /192.168
```

2OUTPUT:MAPREDUCE

```
hduser@ubuntu64server: ~
                Reduce output records=1
                Spilled Records=4620
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=240
                CPU time spent (ms)=2880
                Physical memory (bytes) snapshot=313249792
                Virtual memory (bytes) snapshot=3754459136
                Total committed heap usage (bytes)=186126336
        Shuffle Errors
                BAD_ID=0
                CONNECTION=0
                IO_ERROR=0
                WRONG_LENGTH=0
                WRONG_MAP=0
                WRONG_REDUCE=0
        File Input Format Counters
                Bytes Read=4418139
        File Output Format Counters
                Bytes Written=50
hduser@ubuntu64server:~$ hadoop fs -cat /f2/p*
Total transaction between those amount is-->    2310
hduser@ubuntu64server:~$
```

2OUTPUT:HIVE

```
ite: 5 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 770 msec
OK
2310
Time taken: 25.386 seconds
hive>
```

2 OUTPUT :PIG

```
A = load '/user/cloudera/trans.dat' using PigStorage (',') as (tid, d, uid, amt : double , cat, prod,city,state,pt);
B = foreach  A generate uid, amt;
C = filter B by ($1>190 and $1<199);
D = foreach C generate 1 as one;
E = group D by one;
F = foreach E generate COUNT(D.one);
dump F;
```

cloudera@localhost:~

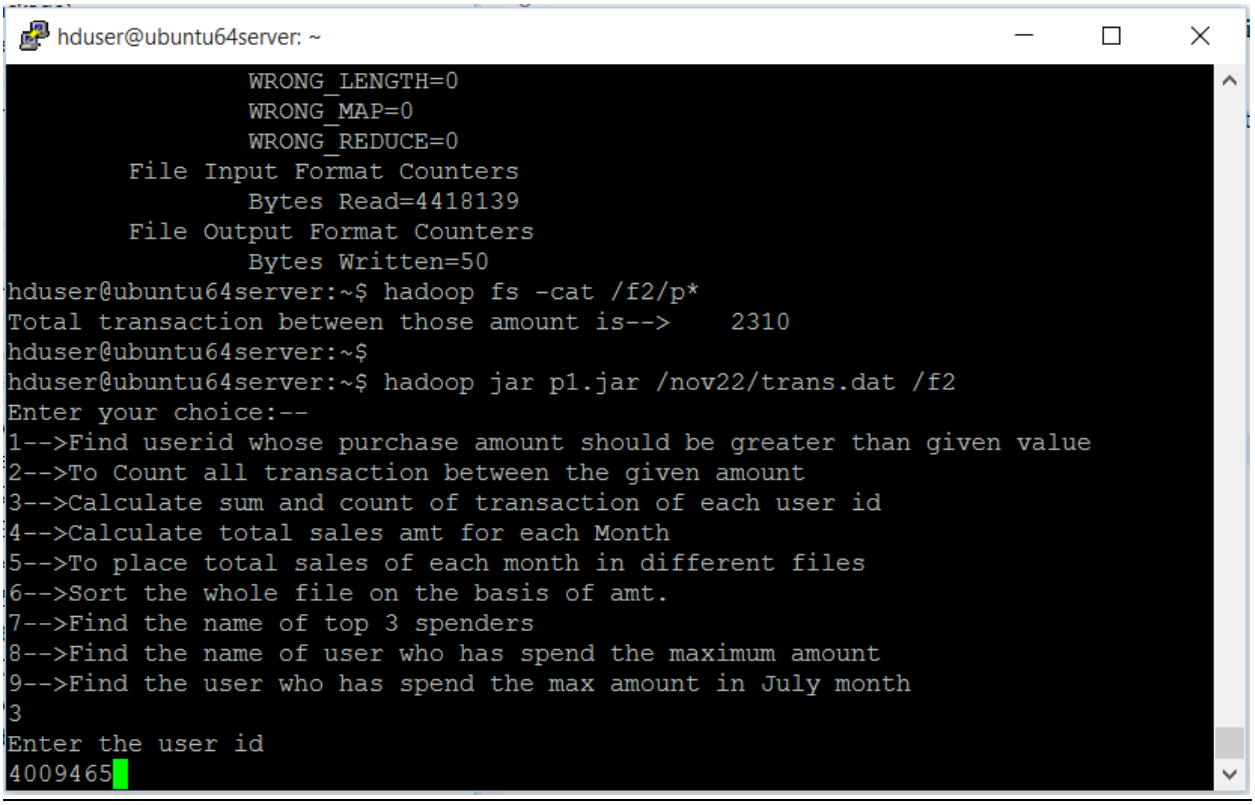
File Edit View Search Terminal Help

```
Successfully stored 1 records (7 bytes) in: "hdfs://localhost.localdomain:8020/tmp/temp-1578850325/tmp-567632441"

Counters:
Total records written : 1
Total bytes written : 7
Spillable Memory Manager spill count : 0
Total bags proactively spilled: 0
Total records proactively spilled: 0

Job DAG:
job_201611240252_0006


2016-11-24 03:25:39,557 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2016-11-24 03:25:39,560 [main] INFO  org.apache.pig.data.SchemaTupleBackend - Key [pig.schematuple] was not set... will not generate code.
2016-11-24 03:25:39,582 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2016-11-24 03:25:39,582 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
(2310)
[cloudera@localhost ~]$
```

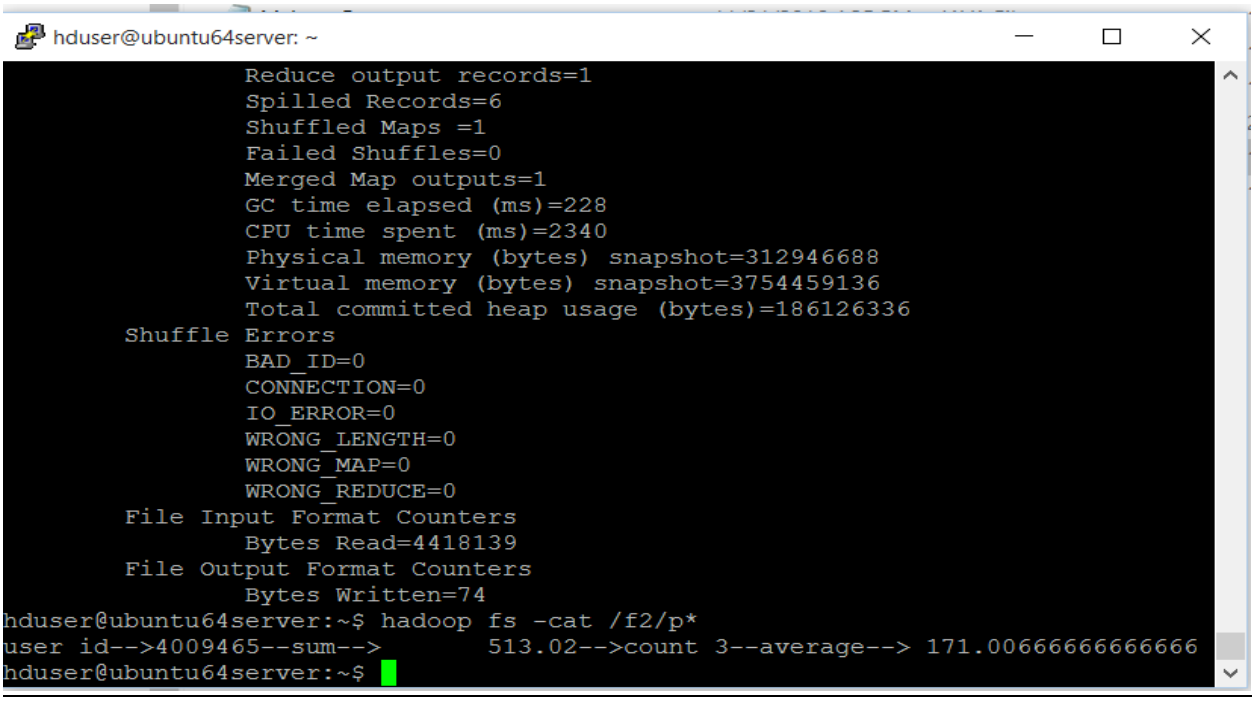
TASK3: Calculate the total sum, count and average of all the transaction for given user id.

INPUT :MAPREDUCE :DATA from user : Enter the userid

Data Validation: Yes



3OUTPUT:Mapreduce



3OUTPUT:HIVE

```
hive> Select sum(amt),count(uid),avg(amt),uid from trans group by uid having uid
=4009465;
```

```
OK
513.02  3       171.00666666666666      4009465
Time taken: 25.95 seconds
hive>
```

3OUTPUT:PIG

```
A = load '/user/cloudera/trans.dat' using PigStorage (',') as (tid, d, uid, amt : double , cat, prod,city,state,pt);
B = foreach  A generate uid, amt;
C = group B by uid;
D = foreach C generate group,SUM(B.amt
dump D;
```

cloudera@localhost:~

File Edit View Search Terminal Help

```
(4009977,400.78,3,133.59333333333333)
(4009978,106.42,2,53.21)
(4009979,785.28,10,78.52799999999999)
(4009980,567.1199999999999,5,113.42399999999998)
(4009981,395.14,4,98.785)
(4009982,325.23,3,108.41000000000001)
(4009983,342.75000000000006,3,114.25000000000001)
(4009984,522.66,5,104.532)
(4009985,430.03000000000003,5,86.006)
(4009986,230.87,4,57.7175)
(4009987,516.98,5,103.396)
(4009988,234.05,2,117.025)
(4009989,200.95,2,100.475)
(4009990,754.4200000000001,7,107.77428571428572)
(4009991,372.45,3,124.14999999999999)
(4009992,336.73,3,112.24333333333334)
(4009993,331.90000000000003,3,110.63333333333334)
(4009994,461.03999999999996,4,115.25999999999999)
(4009995,455.13,7,65.01857142857143)
(4009996,836.1200000000001,8,104.51500000000001)
(4009997,486.19000000000005,4,121.54750000000001)
(4009998,665.7,6,110.95)
(4009999,682.0200000000001,8,85.25250000000001)
[cloudera@localhost ~]$
```

TASK4: Calculate total sales amt for each Month.

User Data: Enter the month

Data Validation: Yes

INPUT: MAPREDUCE

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f10
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
4
Enter the Month
4
```

4OUTPUT:MAPREDUCE

```
                Bytes Written=22
hduser@ubuntu64server:~$ hadoop fs -cat /f10/p*
04      420695.24000000075
hduser@ubuntu64server:~$
hduser@ubuntu64server:~$
```

4OUTPUT:PIG

pigtasks | o1

```
a = load '/user/cloudera/trans.dat' using PigStorage(',') as (tid,tdate:chararray,uid,amt:double,cat,acc,city,state,pay);;
b = foreach a generate SUBSTRING(tdate,0,2) as mon, a
c = group b by mon;
d = foreach c generate group, SUM(b.amt) as sum;
Dump d;
```

cloudera@localhost:~

File Edit View Search Terminal Help

```
job_201611240252_0013


2016-11-24 03:49:23,042 [main] INFO  org.apache.pig.backend.hadoop.executionengi
ne.mapReduceLayer.MapReduceLauncher - Success!
2016-11-24 03:49:23,045 [main] INFO  org.apache.pig.data.SchemaTupleBackend - Ke
y [pig.schematuple] was not set... will not generate code.
2016-11-24 03:49:23,065 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileI
nputFormat - Total input paths to process : 1
2016-11-24 03:49:23,065 [main] INFO  org.apache.pig.backend.hadoop.executionengi
ne.util.MapRedUtil - Total input paths to process : 1
(01,438165.7599999988)
(02,395262.3699999991)
(03,444664.2399999998)
(04,420695.2400000012)
(05,432627.57999999984)
(06,421074.55000000197)
(07,439560.8000000005)
(08,434255.01000000205)
(09,429321.6299999997)
(10,424856.28000000014)
(11,408846.34999999864)
(12,421490.7299999994)
[cloudera@localhost ~]$
```

TASK5: Dividing the file into 12 files, each file containing each month of data.

5INPUT: MAPREDUCE **: Data from user: Enter the month:**

Data Validation: NA

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f11
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
5
```

5OUTPUT:MAPREDUCE

```
hduser@ubuntu64server:~$ hadoop fs -ls /f11
Found 13 items
-rw-r--r--   1 hduser supergroup          0 2016-11-24 01:00 /f11/_SUCCESS
-rw-r--r--   1 hduser supergroup     432933 2016-11-24 00:59 /f11/part-r-00000
-rw-r--r--   1 hduser supergroup     389153 2016-11-24 00:59 /f11/part-r-00001
-rw-r--r--   1 hduser supergroup     442575 2016-11-24 00:59 /f11/part-r-00002
-rw-r--r--   1 hduser supergroup     422696 2016-11-24 00:59 /f11/part-r-00003
-rw-r--r--   1 hduser supergroup     426463 2016-11-24 00:59 /f11/part-r-00004
-rw-r--r--   1 hduser supergroup     422470 2016-11-24 00:59 /f11/part-r-00005
-rw-r--r--   1 hduser supergroup     430830 2016-11-24 00:59 /f11/part-r-00006
-rw-r--r--   1 hduser supergroup     429555 2016-11-24 01:00 /f11/part-r-00007
-rw-r--r--   1 hduser supergroup     422035 2016-11-24 01:00 /f11/part-r-00008
-rw-r--r--   1 hduser supergroup     427267 2016-11-24 01:00 /f11/part-r-00009
-rw-r--r--   1 hduser supergroup     409774 2016-11-24 01:00 /f11/part-r-00010
-rw-r--r--   1 hduser supergroup     424714 2016-11-24 01:00 /f11/part-r-00011
hduser@ubuntu64server:~$
```

```
ennis   Salt Lake City  Utah    credit
5        00046731       05-16-2011      4002373         128.91  Water Sports   S
wimming         Anaheim         California      credit
5        00025007       05-02-2011      4003900         120.62  Exercise & Fitne
ss      Stopwatches     Lexington       Kentucky        credit
5        00009184       05-03-2011      4009617         134.06  Team Sports    C
urling  Durham  North Carolina  credit
5        00046734       05-14-2011      4000255         189.73  Exercise & Fitne
ss      Weightlifting Machines  Boston  Massachusetts   credit
5        00015614       05-23-2011      4001576         184.97  Winter Sports  S
nowmobiling     Columbia        South Carolina  credit
5        00017570       05-13-2011      4007333         033.80  Gymnastics     B
alance Beams    Irving  Texas   cash
5        00001152       05-19-2011      4005034         045.61  Outdoor Recreati
on      Equestrian      Portland        Oregon  cash
5        00012862       05-31-2011      4009007         110.53  Exercise & Fitne
ss      Weightlifting Machines  Everett         Washington      credit
5        00020746       05-05-2011      4000389         054.42  Outdoor Recreati
on      Ice Climbing    Jersey City     New Jersey      credit
5        00009190       05-14-2011      4004470         099.20  Outdoor Play Equ
ipment  Slides  Paterson        New Jersey      credit
5        00016279       05-03-2011      4005730         134.61  Games   Mahjong
Scottsdale      Arizona         credit
hduser@ubuntu64server:~$
```

5OUTPUT: PIG

```
a = load '/user/cloudera/trans.dat' using PigStorage(',') as (tid,tdate:chararray,uid,amt:double,cat,acc,city,state,pay);;
b = foreach a generate SUBSTRING(tdate,0,2) as month,
c = filter b by month=='01';
dump c;
```

```
cloudera@localhost:~
File  Edit  View  Search  Terminal  Help
(01,00049838,01-29-2015,4005761,22.55,Exercise & Fitness,Jump Ropes,Flint,Michig
an,credit)
(01,00049855,01-28-2015,4007031,172.86,Team Sports,Basketball,St. Louis  ,Missou
ri,credit)
(01,00049881,01-28-2015,4006842,56.56,Gymnastics,Vaulting Horses,Columbia,South
Carolina,credit)
(01,00049887,01-30-2015,4009340,39.27,Outdoor Recreation,Lawn Games,Louisville,K
entucky,cash)
(01,00049889,01-20-2015,4007694,42.09,Team Sports,Hockey,Omaha,Nebraska,cash)
(01,00049914,01-14-2015,4007397,83.47,Outdoor Play Equipment,Outdoor Playsets,Mo
ntgomery,Alabama,credit)
(01,00049933,01-02-2015,4006816,17.37,Combat Sports,Martial Arts,Des Moines,Iowa
,credit)
(01,00049959,01-21-2015,4006137,28.39,Exercise & Fitness,Free Weights,Sacramento
,California,cash)
(01,00049962,01-01-2015,4002152,58.55,Water Sports,Kitesurfing,San Diego,Califor
nia,credit)
(01,00049973,01-27-2015,4004311,184.18,Outdoor Recreation,Running,Coral Springs,
Florida,credit)
(01,00049974,01-22-2015,4001002,20.71,Team Sports,Rugby,Vancouver,Washington,cas
h)
(01,00049994,01-05-2015,4005772,177.22,Outdoor Recreation,Archery,Baltimore,Mary
land,credit)
[cloudera@localhost ~]$
```

TASK6: Sort the whole file on the basis of amt.

DATA Validation:NA

6INPUT: MAPREDUCE

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f12
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
6
```

6OUTPUT:MAPREDUCE

```
199.93  00049336,05-17-2011,4003750,199.93,Gymnastics,Balance Beams,Columbia,Mis
souri,credit
199.93  00002373,05-01-2011,4002671,199.93,Racquet Sports,Squash,Stamford,Connec
ticut,credit
199.94  00007970,03-15-2011,4000156,199.94,Winter Sports,Snowshoeing,Montgomery,
Alabama,credit
199.94  00017491,06-11-2011,4004350,199.94,Exercise & Fitness,Free Weights,Dayto
n,Ohio,credit
199.96  00042768,09-12-2011,4006767,199.96,Exercise & Fitness,Yoga & Pilates,Was
hington,District of Columbia,credit
199.97  00032452,06-19-2011,4007666,199.97,Outdoor Recreation,Archery,Madison,Wi
sconsin,credit
199.98  00047835,10-17-2011,4003783,199.98,Outdoor Play Equipment,Sandboxes,Minn
eapolis,Minnesota,credit
199.99  00001263,08-31-2011,4001222,199.99,Winter Sports,Bobsledding,Columbus,Ge
orgia,credit
199.99  00024867,11-01-2011,4009524,199.99,Water Sports,Kitesurfing,Boise,Idaho,
credit
199.99  00031257,02-09-2011,4005726,199.99,Winter Sports,Bobsledding,Scottsdale,
Arizona,credit
200.0   00036291,06-23-2011,4005620,200.00,Exercise & Fitness,Stopwatches,Gilber
t,Arizona,credit
hduser@ubuntu64server:~$
```

6OUTPUT:PIG

```
a = load '/user/cloudera/trans.dat' using PigStorage(',') as (tid,tdate:chararray,uid,amt:double,cat,acc,city,state,pay);;
b = foreach a generate tid,tdate,uid,amt,cat,acc,city
c = order b by amt;
dump c;
```

cloudera@localhost:~

File Edit View Search Terminal Help

```
(00019383,08-25-2015,4004377,199.92,Gymnastics,Gymnastics Protective Gear,Orange
,California,credit)
(00049336,05-17-2015,4003750,199.93,Gymnastics,Balance Beams,Columbia,Missouri,c
redit)
(00002373,05-01-2015,4002671,199.93,Racquet Sports,Squash,Stamford,Connecticut,c
redit)
(00017491,06-11-2015,4004350,199.94,Exercise & Fitness,Free Weights,Dayton,Ohio,
credit)
(00007970,03-15-2015,4000156,199.94,Winter Sports,Snowshoeing,Montgomery,Alabama
,credit)
(00042768,09-12-2015,4006767,199.96,Exercise & Fitness,Yoga & Pilates,Washington
,District of Columbia,credit)
(00032452,06-19-2015,4007666,199.97,Outdoor Recreation,Archery,Madison,Wisconsin
,credit)
(00047835,10-17-2015,4003783,199.98,Outdoor Play Equipment,Sandboxes,Minneapolis
,Minnesota,credit)
(00024867,11-01-2015,4009524,199.99,Water Sports,Kitesurfing,Boise,Idaho,credit)
(00031257,02-09-2015,4005726,199.99,Winter Sports,Bobsledding,Scottsdale,Arizona
,credit)
(00001263,08-31-2015,4001222,199.99,Winter Sports,Bobsledding,Columbus,Georgia,c
redit)
(00036291,06-23-2015,4005620,200.0,Exercise & Fitness,Stopwatches,Gilbert,Arizon
a,credit)
[cloudera@localhost ~]$
```

TASK7: Find the name of top 3 spenders.

Data Validation: NA

7INPUT:MAPREDUCE

```
        at org.apache.hadoop.util.RunJar.main(RunJar.java:136)
hduser@ubuntu64server:~$
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/cus.dat /nov22/trans.dat /f13
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
7
```

7OUTPUT:MAPREDUCE

```
hduser@ubuntu64server:~$
hduser@ubuntu64server:~$ hadoop fs -cat /f39/p*
Ted     16991.869999999995
Calvin  16891.920000000006
Gretchen        16762.39
hduser@ubuntu64server:~$
```

7OUTPUT:PIG

```
a = load '/user/cloudera/trans.dat' using PigStorage(',') as (tid,tdate,uid:int,amt:double,cat,acc,city,state,pay);
b = load '/user/cloudera/cus.dat' using PigStorage(',
(uid:int,fname:chararray,lname,age,prof);
c = join a by uid,b by uid;
d = foreach c generate $2 as uid, $3 as amt,$10 as fn
e = group d by (uid,fname);
f = foreach e generate group, SUM(d.amt) as Total;
g = order f by Total DESC;
h = limit g 3;
dump h;
```

```
cloudera@localhost:~
File  Edit  View  Search  Terminal  Help
Spillable Memory Manager spill count : 0
Total bags proactively spilled: 0
Total records proactively spilled: 0

Job DAG:
job_201611240252_0017   ->      job_201611240252_0018,
job_201611240252_0018   ->      job_201611240252_0019,
job_201611240252_0019   ->      job_201611240252_0020,
job_201611240252_0020   ->      job_201611240252_0021,
job_201611240252_0021


2016-11-24 04:05:47,167 [main] INFO  org.apache.pig.backend.hadoop.executionengi
ne.mapReduceLayer.MapReduceLauncher - Success!
2016-11-24 04:05:47,170 [main] INFO  org.apache.pig.data.SchemaTupleBackend - Ke
y [pig.schematuple] was not set... will not generate code.
2016-11-24 04:05:47,179 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileI
nputFormat - Total input paths to process : 1
2016-11-24 04:05:47,179 [main] INFO  org.apache.pig.backend.hadoop.executionengi
ne.util.MapRedUtil - Total input paths to process : 1
((4009485,Stuart),1973.3)
((4006425,Joe),1732.09)
((4000221,Glenda),1671.47)
[cloudera@localhost ~]$
```

TASK8:To Find the name of user who has spend the maximum amount.

Data Validation: NA

8INPUT:Map reduce

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f37
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
8
```

8OUTPUT:MAP reduce

```
hduser@ubuntu64server:~$ hadoop fs -cat /f42/p*
Ted     16991.869999999995
hduser@ubuntu64server:~$
```

TASK9: To find the user who has spent the max amount in July month

9INPUT: Map Reduce

```
hduser@ubuntu64server:~$ hadoop jar p1.jar /nov22/trans.dat /f37
Enter your choice:--
1-->Find userid whose purchase amount should be greater than given value
2-->To Count all transaction between the given amount
3-->Calculate sum and count of transaction of each user id
4-->Calculate total sales amt for each Month
5-->To place total sales of each month in different files
6-->Sort the whole file on the basis of amt.
7-->Find the name of top 3 spenders
8-->Find the name of user who has spend the maximum amount
9-->Find the user who has spend the max amount in July month
9
```

9 OUTPUT: Map Reduce

```
                Bytes Written=13
hduser@ubuntu64server:~$ hadoop fs -cat /f37/p*
Toni    2082.44
hduser@ubuntu64server:~$
```

Conclusion:

Data Analysis in E-Commerce can enhance various factors in terms of sales, transaction, communication with the customers. The project analyzed the status of Economy, Seasonality, product selling, well-being Fitness, Financial exchange, Sports interest on factors like each age group and various period.