poc

by Aryan Sengar

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PROOF OF CONCEPT (POC)

REPORT ON BIG DATA

Topic: COVID-19 and its Impact on Students

Submitted by:
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2020BTechCSE013

CS1312: Big Data Engineering

Under the Guidance of:
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April 2023

DECLARATION

I hereby declare that I have learnt the concepts of Big Data under the course CS1312: Big Data Engineering under the guidance of (Dr. Alok Kumar). I hereby undertake that the project undertaken by me is the genuine work of mine.

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ACKNOWLEDGEMENT

I would like to express my thanks and gratitude to my teachers (**Dr. Alok Kumar**) who have equipped me and motivated to do this project on the field of Data analysis (COVID-19 and its Impact on Students), I have learned some terms of big data explored the data with new tools and techniques that I have learned and I am really thankful to him.

- Aryan Sengar

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1. INTRODUCTION

1.1. Purpose

The aim of this project is to analyse the Covid-19 student survey data. The data consists of data for Covid-19 student responses about impact on studies due to the lockdown and online mode education.

1.2. Project Scope

1. It could be used to understand the effectiveness of online based learning.
2. It could be used to check impact of social media on education.
3. The insights from the data can be used to make better education transformation and how the quality of online classes can be improved.

1.3. References

https://www.kaggle.com/datasets/kunal28chaturvedi/covid19-and-its-impact-on-students

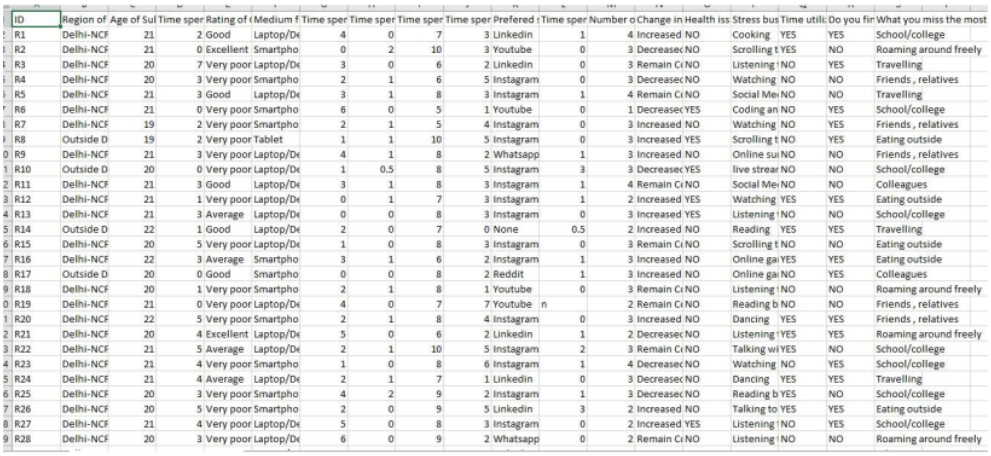
1.4 About Data Set

In this data, a cross-sectional survey is conducted with a sample size of 1182 students of different age groups from different educational institutions in Delhi National Capital Region (NCR).

1.5 The details of the data set are given below:

The data set is in csv (comma delimited) format. The data is hosted on Kaggle. This data contains student responses on the impact on their studies due to Covid-19.

1.6 Screenshots



ID	Region of	Age of Sul	Time sper	Rating of	Medium f	Time sper	Time sper	Time sper	Time sper	Prefered	Time sper	Number o	Change in	Health iss	Stress bus	Time utili	Do you fir	What you miss the most
R1	Delhi-NCF	21	2	Good	Laptop/De	4	0	7	3	Linkedin	1	4	Increased	NO	Cooking	YES	YES	School/college
R2	Delhi-NCF	21	0	Excellent	Smartpho	0	2	10	3	Youtube	0	3	Decreasec	NO	Scrolling t	YES	NO	Roaming around freely
R3	Delhi-NCF	20	7	Very poor	Laptop/De	3	0	6	2	LinkedIn	0	3	Remain Ca	NO	Listening t	NO	YES	Travelling
R4	Delhi-NCF	20	3	Very poor	Smartpho	2	1	6	5	Instagram	0	3	Decreasec	NO	Watching	NO	NO	Friends , relatives
R5	Delhi-NCF	21	3	Good	Laptop/De	3	1	8	3	Instagram	1	4	Remain Ca	NO	Social Me	NO	NO	Travelling
R6	Delhi-NCF	21	0	Very poor	Smartpho	6	0	5	1	Youtube	0	1	Decreasec	YES	Coding an	NO	YES	School/college
R7	Delhi-NCF	19	2	Very poor	Smartpho	2	1	5	4	Instagram	0	3	Increased	NO	Watching	NO	YES	Friends , relatives
R8	Outside D	19	2	Very poor	Tablet	1	1	10	5	Instagram	0	3	Increased	YES	Scrolling t	NO	YES	Eating outside
R9	Delhi-NCF	21	3	Very poor	Laptop/De	4	1	8	2	Whatsapp	1	3	Increased	NO	Online sui	NO	NO	Friends , relatives
R10	Outside D	20	0	Very poor	Laptop/De	1	0.5	8	5	Instagram	3	3	Decreasec	YES	live strear	NO	NO	School/college
R11	Delhi-NCF	21	3	Good	Laptop/De	3	1	8	3	Instagram	1	4	Remain Ca	NO	Social Me	NO	NO	Colleagues
R12	Delhi-NCF	21	1	Very poor	Laptop/De	0	1	7	3	Instagram	1	2	Increased	YES	Watching	YES	YES	Eating outside
R13	Delhi-NCF	21	3	Average	Laptop/De	0	0	8	3	Instagram	0	3	Increased	YES	Listening t	NO	NO	School/college
R14	Outside D	22	1	Good	Laptop/De	2	0	7	0	None	0.5	2	Increased	NO	Reading	YES	YES	Travelling
R15	Delhi-NCF	20	5	Very poor	Laptop/De	1	0	8	3	Instagram	0	3	Remain Ca	NO	Scrolling t	NO	NO	Eating outside
R16	Delhi-NCF	22	3	Average	Smartpho	3	1	6	2	Instagram	1	3	Increased	NO	Online gai	YES	YES	Eating outside
R17	Outside D	20	0	Good	Smartpho	0	0	8	2	Reddit	1	3	Increased	NO	Online gai	NO	YES	Colleagues
R18	Delhi-NCF	20	1	Very poor	Smartpho	2	1	8	1	Youtube	0	3	Remain Ca	NO	Listening t	NO	NO	Roaming around freely
R19	Delhi-NCF	21	0	Very poor	Laptop/De	4	0	7	7	Youtube	n	2	Remain Ca	NO	Reading b	NO	NO	Friends , relatives
R20	Delhi-NCF	22	5	Very poor	Smartpho	2	1	8	4	Instagram	0	3	Increased	NO	Dancing	YES	YES	Friends , relatives
R21	Delhi-NCF	20	4	Excellent	Laptop/De	5	0	6	2	Linkedin	1	2	Decreasec	NO	Listening t	YES	YES	Roaming around freely
R22	Delhi-NCF	21	5	Average	Laptop/De	2	1	10	5	Instagram	2	3	Remain Ca	NO	Talking wi	YES	NO	School/college
R23	Delhi-NCF	21	4	Very poor	Smartpho	1	0	8	6	Instagram	1	4	Decreasec	NO	Watching	NO	YES	School/college
R24	Delhi-NCF	21	4	Average	Laptop/De	2	1	7	1	Linkedin	0	3	Decreasec	NO	Dancing	YES	YES	Travelling
R25	Delhi-NCF	20	3	Very poor	Smartpho	4	2	9	2	Instagram	1	3	Decreasec	NO	Reading b	YES	NO	School/college
R26	Delhi-NCF	20	5	Very poor	Smartpho	2	0	9	5	Linkedin	3	2	Increased	NO	Talking to	YES	YES	Eating outside
R27	Delhi-NCF	21	4	Very poor	Laptop/De	5	0	8	3	Instagram	0	2	Increased	YES	Listening t	NO	YES	School/college
R28	Delhi-NCF	20	3	Very poor	Laptop/De	6	0	9	2	Whatsapp	0	2	Remain Ca	NO	Listening t	NO	NO	Roaming around freely

1.7 Attribute Information

Attribute	Description
ID	Unique id of each student
Region of residence	Name of the region
Age of Subject	Age of subjects
Time spent on Online Class	Time spent daily on online classes
Rating of Online Class experience	Rating given by all students about their experience about online classes.
Medium for online class	This contains the medium used to attend online class.
Time spent on self-study	Time spent on self-study by subject per day.

Time spent on fitness	Time spent on fitness by subject per day.

Time spent on sleep	Time spent on sleep by subject per day.
Time spent on social media	Time spent on social media by subject per day.
Prefered social media platform	Preferred social media platform of each subject
Time spent on TV	Time spent on television by subject per day.
Number of meals per day	Number of meals per day of each student
Change in your weight	Does the weight of subject change during lockdown
Health issue during lockdown	Does subject have any health issue during lockdown
Stress busters	Stress buster of each subject
Time utilized	Does the time utilize by the student in this period
Do you find yourself more connected with your family, close friends, relatives?	This contains information if student find themselves more connected to their close people.
What you miss the most	This contains information what the subject missed the most during this interval

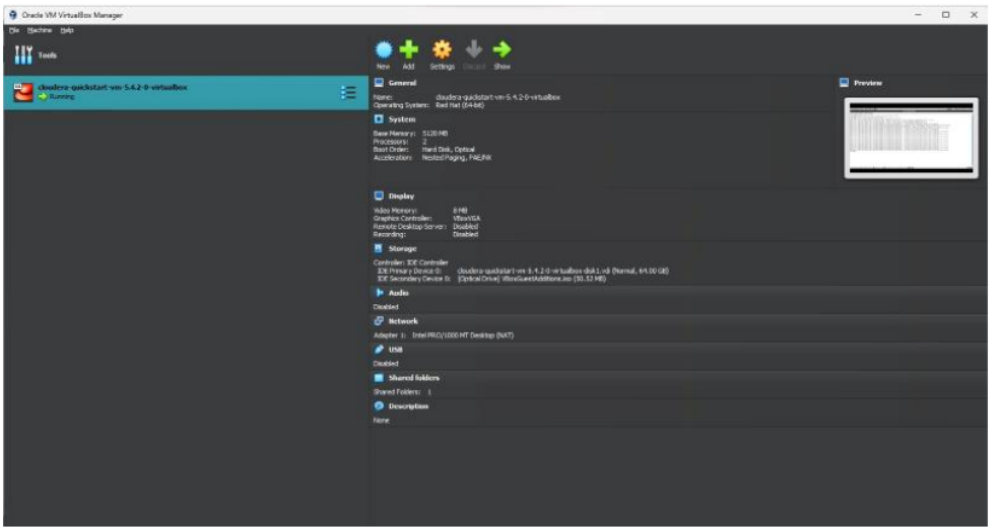
2. TOOLS AND WORKING ENVIRONMENT:

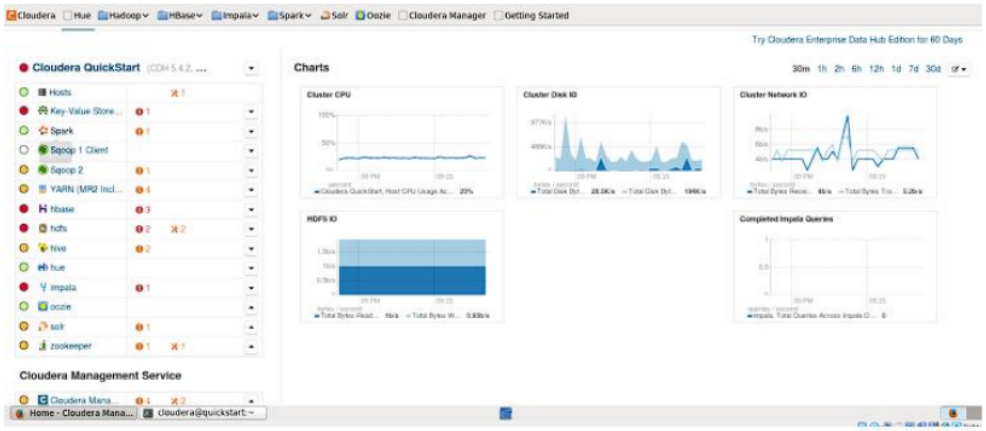
1. HDFS (Hadoop Distributed File System)
2. Sqoop
3. Hive
4. Pig

2.1 Assumptions and Dependencies

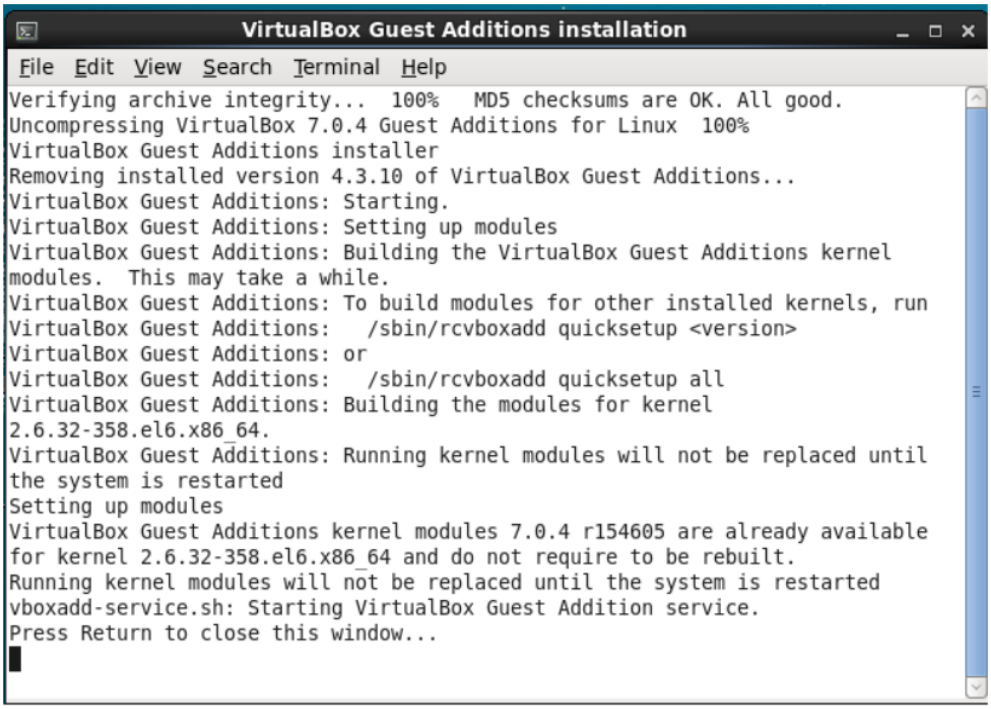
1. VM Ware - This software is needed for accessing a cloud and work on data using the tools HDFS, Sqoop, Hive and Pig.
2. Cloudera - This is a cloud data platform with essential tools for data analysis.

2.2 Installation:





INSTALLION OF FILE TRANSFER FROM LOCAL TO CLOUDERA:



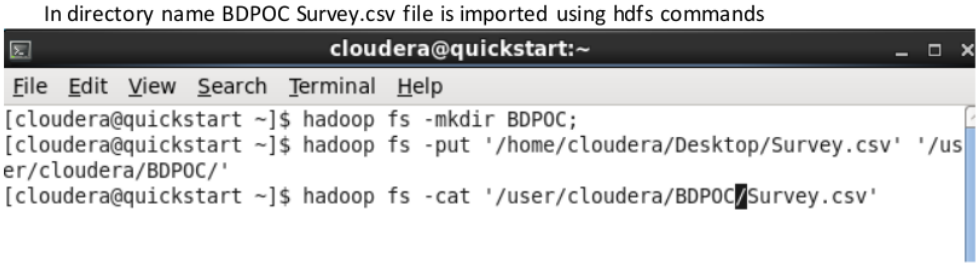
3. Coding On Tools:

3.1. HDFS

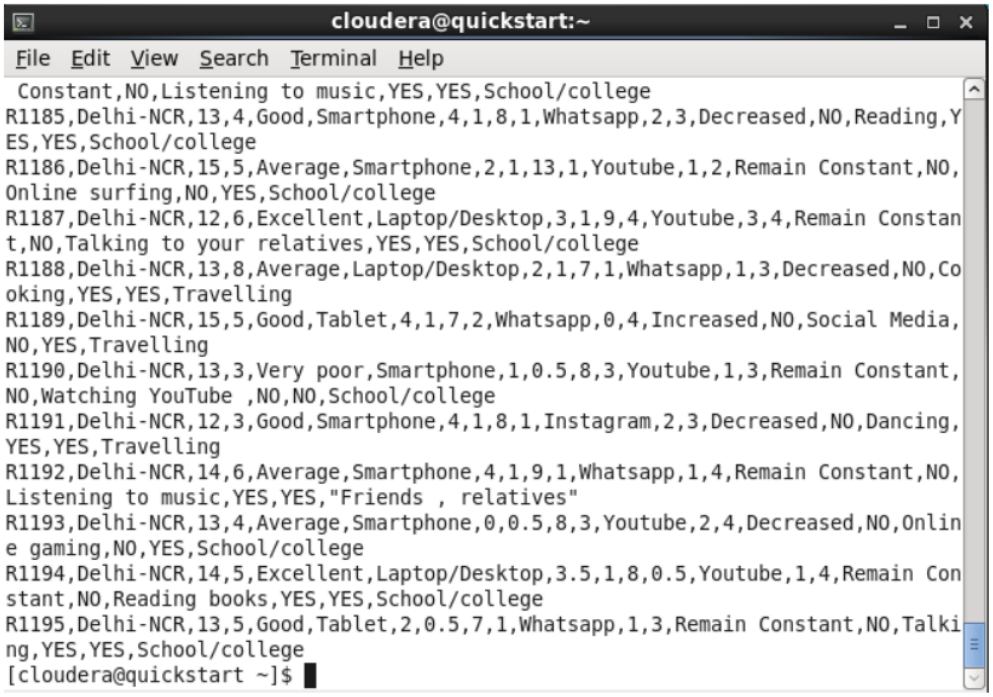
HDFS stands for Hadoop Distributed File System. By using HDFS we will run commands to move the dataset to Hadoop. So, the commands snapshots: -

1. Loading data into hdfs:

In directory name BDPOC Survey.csv file is imported using hdfs commands

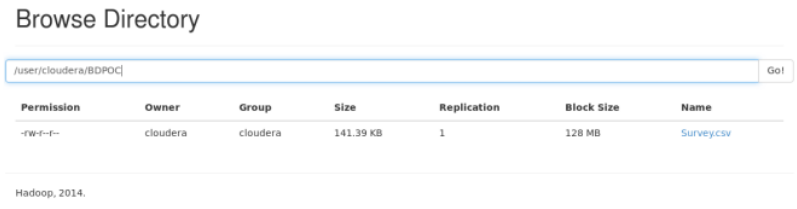


2. Data loaded successfully in hdfs here is the output from the above command in the terminal window here all attributed can be viewed in csv format.



3. LOADED FILE CAN BE VIEWED IN DIRECTORY AND TERMINAL:

```
[cloudera@quickstart ~]$ hdfs dfs -ls
Found 3 items
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:44 13ar
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:46 BDPOC
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:39 POCBD
[cloudera@quickstart ~]$
```



3.2. SQOOP:

To Load Data into Sqoop.

1. Open the terminal.
2. Write the Sqoop command on the terminal.
3. This will open the shell.
4. Now you need to create the table in SQL and insert data into it from Sqoop.

1. Database name BDPOC is created in sqoop and can be viewed:

```
[cloudera@quickstart ~]$ mysql -uroot -pcloudera
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 62
Server version: 5.1.66 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database BDPOC;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+----------------------+
| Database             |
+----------------------+
| information_schema   |
| BDPOC                |
| cm                   |
| firehose             |
| hue                  |
| metastore            |
| mysql                |
| nav                  |
| navms                |
| oozie                |
| retail_db            |
| rman                 |
| sentry               |
+----------------------+
13 rows in set (0.01 sec)

mysql> ■
```

2. Then table is created in the database and values are inserted in the table

```
mysql> use inpoc;
Database changed
mysql> create table table(name varchar(35), age int, class varchar(35));
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'table(name varchar(35), age int, class var
char(35))' at line 1
mysql> create table student(name varchar(35),age int,enrolledbatch varchar(35));
Query OK, 0 rows affected (0.14 sec)

mysql> insert into student("Aryan","20","JKLU20")
    -> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '"Aryan","20","JKLU20")' at line 1
mysql> insert into student("Aryan","20","JKLU20");
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '"Aryan","20","JKLU20")' at line 1
mysql> insert into student values("Aryan","20","JKLU20");
Query OK, 1 row affected (0.02 sec)

mysql> insert into student values("Piyush","19","JKLU20");
Query OK, 1 row affected (0.05 sec)

mysql> insert into student values("Dhawal","21","JKLU20");
Query OK, 1 row affected (0.06 sec)
```

3. Description of the table:

```
mysql> desc student;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| name          | varchar(35) | YES  |     | NULL    |       |
| age           | int(11)     | YES  |     | NULL    |       |
| enrolledbatch | varchar(35) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
3 rows in set (0.05 sec)
```

4. After creating the database and table we will first connect with Cloudera sqoop with our local directory:

```
[cloudera@quickstart ~]$ hostname -f
quickstart.cloudera
[cloudera@quickstart ~]$ sqoop list-datbases --connect jdbc:mysql://localhost -username root --password cloudera;
Warning: /usr/lib/sqoop/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
No such sqoop tool: list-datbases. See 'sqoop help'.
[cloudera@quickstart ~]$ sqoop list-databases --connect jdbc:mysql://localhost -username root --password cloudera;
Warning: /usr/lib/sqoop/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
23/03/19 22:03:52 INFO sqoop.Sqoop: Running Sqoop version: 1.4.5-cdh5.4.2
23/03/19 22:03:52 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
23/03/19 22:03:53 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
information_schema
BDPOC
cm
firehose
hue
inpoc
metastore
mysql
nav
navms
oozie
retail_db
rman
sentry
[cloudera@quickstart ~]$
```

5. Listing table in sqoop:

```
[cloudera@quickstart ~]$ sqoop list-tables --connect jdbc:mysql://localhost/BDPOC -username root --password cloudera
Warning: /usr/lib/sqoop/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
23/03/19 21:10:39 INFO sqoop.Sqoop: Running Sqoop version: 1.4.5-cdh5.4.2
23/03/19 21:10:39 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P
23/03/19 21:10:40 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
student
```

6. After this, we will load the data by importing the table into the Sqoop cluster.

```
[cloudera@quickstart ~]$ sqoop import --connect jdbc:mysql://localhost/BDPOC -username root --password cloudera --table student --m 1;
Warning: /usr/lib/sqoop/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
23/03/19 21:13:47 INFO sqoop.Sqoop: Running Sqoop version: 1.4.5-cdh5.4.2
23/03/19 21:13:47 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
23/03/19 21:13:51 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
23/03/19 21:13:51 INFO tool.CodeGenTool: Beginning code generation
23/03/19 21:13:52 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `student` AS t LIMIT 1
23/03/19 21:13:52 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `student` AS t LIMIT 1
23/03/19 21:13:52 INFO orm.CompilationManager: HADOOP_MAPRED_HOME is /usr/lib/hadoop-mapreduce
Note: /tmp/sqoop-cloudera/compile/498f7a583dcc2059be2b158ca92a11cd/student.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
23/03/19 21:14:16 INFO orm.CompilationManager: Writing jar file: /tmp/sqoop-cloudera/compile/498f7a583dcc2059be2b158ca92a11cd/student.jar
23/03/19 21:14:16 WARN manager.MySQLManager: It looks like you are importing from mysql.
23/03/19 21:14:16 WARN manager.MySQLManager: This transfer can be faster! Use the --direct
23/03/19 21:14:16 WARN manager.MySQLManager: option to exercise a MySQL-specific fast path.
23/03/19 21:14:16 INFO manager.MySQLManager: Setting zero DATETIME behavior to convertToNull (mysql)
23/03/19 21:14:16 INFO mapreduce.ImportJobBase: Beginning import of student
23/03/19 21:14:23 INFO Configuration.deprecation: mapred.jar is deprecated. Instead, use mapreduce.job.jar
23/03/19 21:14:29 INFO Configuration.deprecation: mapred.map.tasks is deprecated. Instead, use mapreduce.job.maps
23/03/19 21:14:31 INFO client.RMProxy: Connecting to ResourceManager at quickstart.cloudera/10.0.2.15:8032
23/03/19 21:14:45 INFO db.DBInputFormat: Using read commited transaction isolation
23/03/19 21:14:46 INFO mapreduce.JobSubmitter: number of splits:1
23/03/19 21:14:47 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1679285152671_0001
23/03/19 21:14:55 INFO impl.YarnClientImpl: Submitted application application_1679285152671_0001
23/03/19 21:14:55 INFO mapreduce.Job: The url to track the job: http://quickstart.cloudera:8088/proxy/application_1679285152671_0001/
23/03/19 21:14:55 INFO mapreduce.Job: Running job: job_1679285152671_0001
23/03/19 21:15:49 INFO mapreduce.Job: Job job_1679285152671_0001 running in uber mode : false
23/03/19 21:15:49 INFO mapreduce.Job:  map 0% reduce 0%
23/03/19 21:16:24 INFO mapreduce.Job:  map 100% reduce 0%
23/03/19 21:16:25 INFO mapreduce.Job: Job job_1679285152671_0001 completed successfully
23/03/19 21:16:25 INFO mapreduce.Job: Counters: 30
        File System Counters
                FILE: Number of bytes read=0
                FILE: Number of bytes written=135428
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
```

```
23/03/19 21:16:25 INFO mapreduce.Job: Job job_1679285152671_0001 completed successfully
23/03/19 21:16:25 INFO mapreduce.Job: Counters: 30
        File System Counters
                FILE: Number of bytes read=0
                FILE: Number of bytes written=135428
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=87
                HDFS: Number of bytes written=50
                HDFS: Number of read operations=4
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
        Job Counters
                Launched map tasks=1
                Other local map tasks=1
                Total time spent by all maps in occupied slots (ms)=3081728
                Total time spent by all reduces in occupied slots (ms)=0
                Total time spent by all map tasks (ms)=24076
                Total vcore-seconds taken by all map tasks=24076
                Total megabyte-seconds taken by all map tasks=3081728
        Map-Reduce Framework
                Map input records=3
                Map output records=3
                Input split bytes=87
                Spilled Records=0
                Failed Shuffles=0
                Merged Map outputs=0
                GC time elapsed (ms)=1669
                CPU time spent (ms)=870
                Physical memory (bytes) snapshot=103182336
                Virtual memory (bytes) snapshot=718426112
                Total committed heap usage (bytes)=47710208
        File Input Format Counters
                Bytes Read=0
        File Output Format Counters
                Bytes Written=50
23/03/19 21:16:25 INFO mapreduce.ImportJobBase: Transferred 50 bytes in 116.388 seconds (0.4296 bytes/sec)
23/03/19 21:16:25 INFO mapreduce.ImportJobBase: Retrieved 3 records.
```

7. This is the table that we loaded into Sqoop cluster:

```
[cloudera@quickstart ~]$ hadoop fs -ls
Found 7 items
drwx------   - cloudera cloudera          0 2023-03-19 21:16 .staging
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:44 13ar
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:46 BDPOC
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 01:39 POCBD
drwxr-xr-x   - cloudera cloudera          0 2023-03-17 02:02 bhavishidata
drwxr-xr-x   - cloudera cloudera          0 2023-03-16 02:13 inpoc
drwxr-xr-x   - cloudera cloudera          0 2023-03-19 21:16 student
```

8. These are the values that we created in our local storage and now it is loaded into the sqoop cluster.

```
[cloudera@quickstart ~]$ hadoop fs -ls student
Found 2 items
-rw-r--r--   1 cloudera cloudera          0 2023-03-19 21:16 student/_SUCCESS
-rw-r--r--   1 cloudera cloudera         50 2023-03-19 21:16 student/part-m-000
[cloudera@quickstart ~]$ hadoop fs -cat /user/cloudera/student/part*/
Aryan,20,JKLU20
Piyush,19,JKLU20
Dhawal,21,JKLU20
[cloudera@quickstart ~]$
```

3.3. HIVE:

Load Data into hive environments.

- Open the terminal.
- Write the Hive command on the terminal.
- This will open the hive shell: -

```
[cloudera@quickstart ~]$ hive

Logging initialized using configuration in jar:file:/usr/jars/hive-common-1.1.0-cdh5.4.2.jar!/hive-log4j.properties
WARNING: Hive CLI is deprecated and migration to Beeline is recommended.
hive>
```

1. Create table in hive:

```
hive> create table survey(ID string ,Region_of_residence string ,Age_of_subject int, Time_spent_on_Online_Class float,Rating_of_Online_Class_experience string, Medium_for_online_class string, Time_
spent_on_self_study float, Time_spent_on_fitness float, Time_spent_on_sleep float, Time_spent_on_social_media float, Prefered_social_media_platform string, Time_spent_on_TV float, Number_of_meals_p
er_day int, Change_in_your_weight string, Health_issue_during_lockdown string, Stress_busters string, Time_utilized boolean, Do_you_find_yourself_more_connected_with_your_family_close_friend_relati
ves boolean, What_you_miss_the_most string)row format delimited fields terminated by ',' stored as textfile;
OK
Time taken: 3.792 seconds
hive>
```

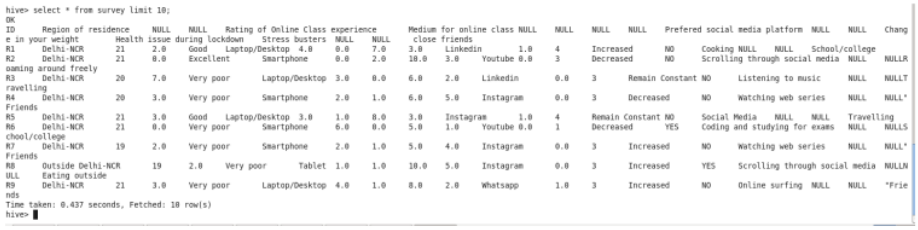
2. Description of the table:

```
hive> desc survey;
OK
id                      string
region_of_residence     string
age_of_subject          int
time_spent_on_online_class      float
rating_of_online_class_experience       string
medium_for_online_class string
time_spent_on_self_study        float
time_spent_on_fitness   float
time_spent_on_sleep     float
time_spent_on_social_media      float
prefered_social_media_platform  string
time_spent_on_tv        float
number_of_meals_per_day int
change_in_your_weight   string
health_issue_during_lockdown    string
stress_busters          string
time_utilized           boolean
do_you_find_yourself_more_connected_with_your_family_close_friend_relatives     boolean
what_you_miss_the_most  string
Time taken: 0.379 seconds, Fetched: 19 row(s)
hive>
```

3. Now importing Survey table into hive table:

```
hive> load data local inpath '/home/cloudera/Desktop/Survey.csv' overwrite into table survey;
Loading data to table default.survey
Table default.survey stats: [numFiles=1, numRows=0, totalSize=144782, rawDataSize=0]
OK
Time taken: 0.709 seconds
hive>
```

4. Table is imported into database and can be viewed in terminal:



```
hive> select * from survey limit 10;
OK
ID      Region of residence     NULL    NULL    Rating of Online Class experience       Medium for online class NULL    NULL    NULL    NULL    Prefered social media platform  NULL    NULL    Chang
e in your weight        Health issue during lockdown    Stress busters  NULL    NULL    close friends
R1      Delhi-NCR       21      2.0     Good    Laptop/Desktop  4.0     0.0     7.0     3.0     Linkedin        1.0     4       Increased       NO      Cooking NULL    NULL    School/college
R2      Delhi-NCR       21      0.0     Excellent       Smartphone      0.0     2.0     10.0    3.0     Youtube 0.0     3       Decreased       NO      Scrolling through social media  NULL    NULLR
oaming around freely
R3      Delhi-NCR       20      7.0     Very poor       Laptop/Desktop  3.0     0.0     6.0     2.0     Linkedin        0.0     3       Remain Constant NO      Listening to music      NULL    NULLT
ravelling
R4      Delhi-NCR       20      3.0     Very poor       Smartphone      2.0     1.0     6.0     5.0     Instagram       0.0     3       Decreased       NO      Watching web series     NULL    NULL"
Friends
R5      Delhi-NCR       21      3.0     Good    Laptop/Desktop  3.0     1.0     8.0     3.0     Instagram       1.0     4       Remain Constant NO      Social Media    NULL    NULL    Travelling
R6      Delhi-NCR       21      0.0     Very poor       Smartphone      6.0     0.0     5.0     1.0     Youtube 0.0     1       Decreased       YES     Coding and studying for exams   NULL    NULLS
chool/college
R7      Delhi-NCR       19      2.0     Very poor       Smartphone      2.0     1.0     5.0     4.0     Instagram       0.0     3       Increased       NO      Watching web series     NULL    NULL"
Friends
R8      Outside Delhi-NCR       19      2.0     Very poor       Tablet  1.0     1.0     10.0    5.0     Instagram       0.0     3       Increased       YES     Scrolling through social media  NULLN
ULL     Eating outside
R9      Delhi-NCR       21      3.0     Very poor       Laptop/Desktop  4.0     1.0     8.0     2.0     Whatsapp        1.0     3       Increased       NO      Online surfing  NULL    NULL    "Frie
nds
Time taken: 0.437 seconds, Fetched: 10 row(s)
hive>
```

QUERIES ON HIVE:

1. Retrieve all students which have health issue during the lockdown period:

```
hive> SELECT ID,Health_issue_during_lockdown FROM survey WHERE Health_issue_during_lockdown IS NOT NULL and Health_issue_during_lockdown="YES";
OK
R6      YES
R8      YES
R10     YES
R12     YES
R13     YES
R27     YES
R31     YES
R34     YES
R43     YES
R48     YES
R51     YES
R56     YES
R59     YES
R69     YES
R76     YES
R81     YES
R87     YES
R89     YES
R91     YES
R93     YES
R99     YES
R103    YES
R112    YES
R125    YES
R141    YES
R147    YES
R149    YES
R155    YES
R156    YES
R160    YES
R162    YES
R164    YES
R165    YES
R171    YES
R172    YES
R176    YES
R183    YES
```

```
R826    YES
R829    YES
R830    YES
R837    YES
R853    YES
R865    YES
R872    YES
R878    YES
R890    YES
R891    YES
R895    YES
R904    YES
R907    YES
R934    YES
R937    YES
R938    YES
R947    YES
R950    YES
R963    YES
R970    YES
R971    YES
R974    YES
R992    YES
R995    YES
R998    YES
R1009   YES
R1012   YES
R1020   YES
R1023   YES
R1028   YES
R1035   YES
R1041   YES
R1047   YES
R1051   YES
R1060   YES
R1082   YES
R1126   YES
R1151   YES
Time taken: 0.186 seconds, Fetched: 161 row(s)
hive>
```

2. Retrieve count of each social media platform preferred during the lockdown period:

```
hive> SELECT Prefered_social_media_platform, COUNT(*) AS count FROM survey GROUP BY Prefered_social_media_platform ORDER BY count DESC;
Query ID = cloudera_20230320021313_6035bb3f-b1fb-4e58-809f-75664e961b0c
Total jobs = 2
Launching Job 1 out of 2
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0002, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0002/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0002
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-03-20 02:13:45,954 Stage-1 map = 0%,  reduce = 0%
2023-03-20 02:14:04,633 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.02 sec
2023-03-20 02:14:13,967 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 1.99 sec
MapReduce Total cumulative CPU time: 1 seconds 990 msec
Ended Job = job_1679285152671_0002
Launching Job 2 out of 2
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0003, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0003/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0003
Hadoop job information for Stage-2: number of mappers: 1; number of reducers: 1
2023-03-20 02:14:23,797 Stage-2 map = 0%,  reduce = 0%
2023-03-20 02:14:29,141 Stage-2 map = 100%,  reduce = 0%, Cumulative CPU 0.63 sec
2023-03-20 02:14:36,406 Stage-2 map = 100%,  reduce = 100%, Cumulative CPU 1.63 sec
MapReduce Total cumulative CPU time: 1 seconds 630 msec
Ended Job = job_1679285152671_0003
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 1.99 sec   HDFS Read: 154770 HDFS Write: 567 SUCCESS
Stage-Stage-2: Map: 1  Reduce: 1   Cumulative CPU: 1.63 sec   HDFS Read: 4959 HDFS Write: 203 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 620 msec
```

RESULT:

```
OK
Instagram       352
Whatsapp        336
Youtube 314
Linkedin        61
Facebook        52
Twitter 28
None    17
Snapchat        8
Reddit  5
Telegram        3
Quora   1
WhatsApp        1
Talklife        1
Prefered social media platform  1
Omegle  1
None    1
Elyment 1
Time taken: 77.375 seconds, Fetched: 17 row(s)
hive>
```

3. Retrieve count of each stress buster activity preferred during the lockdown period:

```
Time taken: 27.777 seconds, Fetched: 1 row(s)
hive> SELECT Stress_busters, COUNT(*) AS count FROM survey GROUP BY Stress_busters;
Query ID = cloudera_20230320022525_e3057c90-14e2-4907-8a89-fe901ba86407
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0006, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0006/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0006
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-03-20 02:25:41,223 Stage-1 map = 0%,  reduce = 0%
2023-03-20 02:25:47,532 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 0.84 sec
2023-03-20 02:25:56,015 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.02 sec
MapReduce Total cumulative CPU time: 2 seconds 20 msec
Ended Job = job_1679285152671_0006
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.02 sec   HDFS Read: 155523 HDFS Write: 1647 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 20 msec
OK
" listening music       1
"Drawing        1
"Netflix        1
"Online gaming  1
"Painting       1
"Poetry 1
"Reading books  1
"Sleeping       1
"listening to music     1
"sketching      1
"watching movies        1
All reading books watching web series listening to music and talking to friends 1
Anime Manga     1
```

```
Reading 19
Reading books   77
Running 1
Scrolling through social media  74
Sketching       1
Sketching and writing   1
Sleep   34
Sleeping        71
Social Media    26
Sports  1
Stress busters  1
Taking with parents     1
Talk with childhood friends.    1
Talking 19
Talking to friends      1
Talking to your relatives       37
Talking with friends    1
Watching YouTube        1
Watching orgasm releasing videos        1
Watching ted talks and music and books  1
Watching web series     102
Web Series      21
Whatever want   1
With a friend   1
Work    1
Workout         1
Workout and listening music     1
Writing 2
Writing my own Comics & novels  1
Youtube 2
drawing         1
gardening cartoon       1
live stream watching    1
no stress       1
pubg    1
singing 1
working out and some physical activity  1
workout 1
Time taken: 22.048 seconds, Fetched: 87 row(s)
hive>
```

4. Retrieve the preferred social media platform with the highest usage time:

```
hive> SELECT Prefered_social_media_platform, SUM(Time_spent_on_social_media) AS total_time_social_media
    > from survey
    > GROUP BY Prefered_social_media_platform
    > ORDER BY total_time_social_media DESC
    > LIMIT 1;
Query ID = cloudera_20230410030606_640529ec-ddbd-4d30-a90e-902e2ce91ec0
Total jobs = 2
Launching Job 1 out of 2
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0008, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0008/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0008
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:06:51,936 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:07:15,649 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 0.96 sec
2023-04-10 03:07:24,020 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.07 sec
MapReduce Total cumulative CPU time: 2 seconds 70 msec
Ended Job = job_1679285152671_0008
Launching Job 2 out of 2
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0009, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0009/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0009
Hadoop job information for Stage-2: number of mappers: 1; number of reducers: 1
2023-04-10 03:07:33,019 Stage-2 map = 0%,  reduce = 0%
2023-04-10 03:08:05,166 Stage-2 map = 100%,  reduce = 0%, Cumulative CPU 1.25 sec
2023-04-10 03:08:13,422 Stage-2 map = 100%,  reduce = 100%, Cumulative CPU 2.21 sec
MapReduce Total cumulative CPU time: 2 seconds 210 msec
Ended Job = job_1679285152671_0009
```


```
Launching Job 1 out of 2
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0008, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0008/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0008
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:06:51,936 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:07:15,649 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 0.96 sec
2023-04-10 03:07:24,020 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.07 sec
MapReduce Total cumulative CPU time: 2 seconds 70 msec
Ended Job = job_1679285152671_0008
Launching Job 2 out of 2
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0009, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0009/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0009
Hadoop job information for Stage-2: number of mappers: 1; number of reducers: 1
2023-04-10 03:07:33,019 Stage-2 map = 0%,  reduce = 0%
2023-04-10 03:08:05,166 Stage-2 map = 100%,  reduce = 0%, Cumulative CPU 1.25 sec
2023-04-10 03:08:13,422 Stage-2 map = 100%,  reduce = 100%, Cumulative CPU 2.21 sec
MapReduce Total cumulative CPU time: 2 seconds 210 msec
Ended Job = job_1679285152671_0009
```


```
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.07 sec   HDFS Read: 154795 HDFS Write: 672 SUCCESS
Stage-Stage-2: Map: 1  Reduce: 1   Cumulative CPU: 2.21 sec   HDFS Read: 5202 HDFS Write: 29 SUCCESS
Total MapReduce CPU Time Spent: 4 seconds 280 msec
OK
Instagram       1025.0999999716878
Time taken: 115.779 seconds, Fetched: 1 row(s)
```

5. Retrieve the number of students who reported a change in weight:

```
hive> SELECT COUNT(*) AS num_stud
    > FROM survey
    > WHERE Change_in_your_weight IS NOT NULL;
Query ID = cloudera_20230410031919_e5b6f971-cfc9-4c86-a02a-7804e889d9c1
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0010, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0010/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0010
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:20:04,043 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:20:30,189 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.45 sec
2023-04-10 03:20:37,366 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.48 sec
MapReduce Total cumulative CPU time: 2 seconds 480 msec
Ended Job = job_1679285152671_0010
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.48 sec   HDFS Read: 155840 HDFS Write: 5 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 480 msec
OK
1183
Time taken: 45.053 seconds, Fetched: 1 row(s)
hive>
```

6. Retrieve the total time spent on fitness activities for students who rated online class experience as "Excellent":

```
hive> SELECT SUM(time_spent_on_fitness) AS total_TT
    > FROM survey
    > WHERE rating_of_online_class_experience= 'Excellent';
Query ID = cloudera_20230410032626_70e6663c-b20f-4522-ac00-8ee49bbb8b66
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0011, Tracking URL = http://quickstart.cloudera:8088/proxy/appli
cation_1679285152671_0011/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0011
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:26:10,747 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:26:39,805 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.61 sec
2023-04-10 03:26:48,317 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.78 sec
MapReduce Total cumulative CPU time: 2 seconds 780 msec
Ended Job = job_1679285152671_0011
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.78 sec   HDFS Read: 156014 HDFS Write: 18 SU
CCESS
Total MapReduce CPU Time Spent: 2 seconds 780 msec
OK
97.85000002384186
Time taken: 46.778 seconds, Fetched: 1 row(s)
```

7. Retrieve the average time spent on self-study for students below the age of 18:

```
hive> SELECT AVG(time_spent_on_self_study) AS avg_time
    > FROM survey
    > WHERE age_of_subject < 18;
Query ID = cloudera_20230410033030_1307f644-b150-4023-8d61-d52e7c6f25a9
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0012, Tracking URL = http://quickstart.cloudera:8088/proxy/appli
cation_1679285152671_0012/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0012
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:30:54,499 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:31:10,019 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.45 sec
2023-04-10 03:31:19,418 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.71 sec
MapReduce Total cumulative CPU time: 2 seconds 710 msec
Ended Job = job_1679285152671_0012
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.71 sec   HDFS Read: 156413 HDFS Write: 19 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 710 msec
OK
2.8294701986754967
Time taken: 34.335 seconds, Fetched: 1 row(s)
```

8. Retrieve the number of students who spent more than 3 hours on TV and reported a health issue:

```
hive> SELECT COUNT(*) AS num_stud_tvhealth
    > FROM survey
    > WHERE time_spent_on_tv > 3 AND health_issue_during_lockdown="YES";
Query ID = cloudera_20230410035353_3893d13b-dc4f-4dd3-8b24-fe6274451479
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0014, Tracking URL = http://quickstart.cloudera:8088/proxy/appli
cation_1679285152671_0014/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0014
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-10 03:53:30,730 Stage-1 map = 0%,  reduce = 0%
2023-04-10 03:53:39,230 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.28 sec
2023-04-10 03:53:46,483 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.46 sec
MapReduce Total cumulative CPU time: 2 seconds 460 msec
Ended Job = job_1679285152671_0014
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.46 sec   HDFS Read: 156398 HDFS Write: 2 SUC
CESS
Total MapReduce CPU Time Spent: 2 seconds 460 msec
OK
6
Time taken: 24.517 seconds, Fetched: 1 row(s)
```

9. Retrieve the total time utilized by students, calculated as the sum of time spent on online classes, self-study, fitness activities, and sleep:

```
hive> SELECT (SUM(time_spent_on_self_study)/SUM(time_spent_on_online_class + time_spent_on_fitnes
s + time_spent_on_social_media + time_spent_on_tv)) * 100 as studpercnt
    > FROM survey;
Query ID = cloudera_20230411230606_4d6a3b9e-bac9-4b1f-9ee7-90386c2a3a8a
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0015, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0015/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0015
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-11 23:06:41,551 Stage-1 map = 0%,  reduce = 0%
2023-04-11 23:07:22,224 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.68 sec
2023-04-11 23:07:31,456 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.38 sec
MapReduce Total cumulative CPU time: 3 seconds 380 msec
Ended Job = job_1679285152671_0015
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.38 sec   HDFS Read: 157511 HDFS Write: 18 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 380 msec
OK
40.01976857677319
Time taken: 67.209 seconds, Fetched: 1 row(s)
```

10. Retrieve the number of students who reported a health issue and spent more time on fitness activities than on online classes:

```
hive> SELECT COUNT(*) AS num_stud
    > FROM survey
    > WHERE health_issue_during_lockdown= 'YES' AND time_spent_on_fitness > time_spent_on_online_
class
    > ;
Query ID = cloudera_20230411231616_f7694562-64a9-4262-beda-f9294fd99bbc
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1679285152671_0016, Tracking URL = http://quickstart.cloudera:8088/proxy/application_1679285152671_0016/
Kill Command = /usr/lib/hadoop/bin/hadoop job  -kill job_1679285152671_0016
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-04-11 23:16:09,514 Stage-1 map = 0%,  reduce = 0%
2023-04-11 23:16:24,486 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 0.9 sec
2023-04-11 23:16:34,256 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.15 sec
MapReduce Total cumulative CPU time: 2 seconds 150 msec
Ended Job = job_1679285152671_0016
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.15 sec   HDFS Read: 155223 HDFS Write: 5 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 150 msec
OK
1183
Time taken: 33.062 seconds, Fetched: 1 row(s)
```

Queries on PIG:

Load Data into Pig environments.

1. Open the terminal.
2. Write the Pig Command (pig –x local) on the terminal.
3. This will open the grunt shell in the local mode.
4. Now you need to create a table and load data into it from the local file system.

Pig in terminal:

```
[cloudera@quickstart ~]$ pig -x local
log4j:WARN No appenders could be found for logger (org.apache.hadoop.util.Shell).
log4j:WARN Please initialize the log4j system properly.
log4j:WARN See http://logging.apache.org/log4j/1.2/faq.html#noconfig for more info.
2023-04-12 02:23:54,549 [main] INFO  org.apache.pig.Main - Apache Pig version 0.12.0-cdh5.4.2 (rexported) compiled May 19 2015, 17:03:41
2023-04-12 02:23:54,550 [main] INFO  org.apache.pig.Main - Logging error messages to: /home/cloudera/pig_1681291434506.log
2023-04-12 02:23:54,638 [main] INFO  org.apache.pig.impl.util.Utils - Default bootup file /home/cloudera/.pigbootup not found
2023-04-12 02:23:54,960 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:54,960 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - mapred.job.tracker is deprecated. Instead, use mapreduce.jobtracker.address
2023-04-12 02:23:54,961 [main] INFO  org.apache.pig.backend.hadoop.executionengine.HExecutionEngine - Connecting to hadoop file system at: file:///
2023-04-12 02:23:55,336 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,340 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,454 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,456 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,507 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,509 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,546 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,547 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,594 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,595 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,620 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,621 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,655 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,656 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,689 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,691 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 02:23:55,736 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 02:23:55,747 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
grunt>
```

1. Create table in pig :

```
grunt> Survey= LOAD 'Desktop/Survey.csv' USING PigStorage(',') AS (id: chararray, region_of_residence: chararray, age_of_subject: int, time_spent_on_online_class: float, rating_of_online_class_expe
rience: chararray, medium_for_online_class: chararray, time_spent_on_self_study: float, time_spent_on_fitness: float, time_spent_on_sleep: float, time_spent_on_social_media: float,prefered_social_m
edia_platform: chararray, time_spent_on_tv: float, number_of_meals_per_day: int , change_in_your_weight: chararray, health_issue_during_lockdown: chararray, stress_busters: chararray, time_utilized
: boolean, do_you_find_yourself_more_connected_to_family: boolean, what_you_miss_the_most: chararray );
```

2. Created table can be viewed in terminal:

```
(R727,Outside Delhi-NCR,18,3.0,Good,Laptop/Desktop,3.0,0.0,10.0,2.0,Instagram,0.0,2,Increased,NO,Listening to music,,,Colleagues)
(R728,Delhi-NCR,20,5.0,Very poor,Laptop/Desktop,2.0,3.0,10.0,1.0,Youtube,0.5,2,Decreased,YES,Writing my own Comics & novels,,,Playing)
(R729,Delhi-NCR,20,2.0,Very poor,Smartphone,6.0,1.0,5.0,4.0,Youtube,0.5,1,Increased,YES,Listening to music,,,Travelling)
(R730,Delhi-NCR,23,0.0,Average,Laptop/Desktop,1.0,1.0,9.0,3.0,Linkedin,0.0,3,Increased,NO,Listening to music,,,Travelling)
(R731,Outside Delhi-NCR,29,2.0,Average,Laptop/Desktop,2.0,1.0,8.0,0.0,Youtube,0.0,2,Remain Constant,NO,Reading books,,,nothing)
(R732,Delhi-NCR,20,0.0,Very poor,Laptop/Desktop,6.0,0.0,9.0,1.0,Whatsapp,1.0,3,Increased,NO,Sleeping,,,Travelling)
(R733,Outside Delhi-NCR,22,1.0,Very poor,Smartphone,4.0,0.25,10.0,1.0,Linkedin,0.0,3,Remain Constant,NO,Sleeping,,,.)
(R734,Delhi-NCR,18,2.0,Average,Laptop/Desktop,3.0,1.0,8.0,2.0,Youtube,3.0,3,Increased,NO,Online surfing,,,School/college)
(R735,Delhi-NCR,15,4.0,Good,Smartphone,4.0,1.0,4.0,3.0,Youtube,2.0,3,Remain Constant,NO,Sleeping,,,Colleagues)
(R736,Delhi-NCR,19,4.0,Average,Smartphone,5.0,1.0,8.0,2.0,Youtube,1.0,3,Remain Constant,NO,Meditation,,,Travelling)
(R737,Delhi-NCR,20,2.0,Very poor,Smartphone,2.0,0.0,9.0,10.0,Youtube,1.0,2,Decreased,NO,Online gaming,,,Nothing)
(R738,Outside Delhi-NCR,21,1.0,Very poor,Smartphone,4.0,1.0,9.0,1.0,Whatsapp,1.0,3,Remain Constant,NO,Watching web series,,,Eating outside)
(R739,Outside Delhi-NCR,21,4.0,Average,Laptop/Desktop,3.0,0.0,8.0,2.0,Youtube,1.0,3,Decreased,NO,Online gaming,,,Roaming around freely)
(R740,Delhi-NCR,20,4.0,Very poor,Smartphone,1.0,1.0,10.0,2.0,Instagram,1.0,3,Increased,YES,Dancing,,,Eating outside)
(R741,Delhi-NCR,20,2.0,Average,Smartphone,1.0,2.0,8.0,4.0,Facebook,2.0,4,Decreased,NO,Reading books,,,Travelling)
(R742,Outside Delhi-NCR,19,0.0,Very poor,Smartphone,2.0,1.0,7.0,4.0,Instagram,0.0,2,Remain Constant,NO,Meditation,,,Travelling)
(R743,Outside Delhi-NCR,28,3.0,Good,Laptop/Desktop,1.0,0.0,10.0,1.0,Whatsapp,0.0,2,Increased,NO,Online gaming,,,Eating outside)
(R744,Delhi-NCR,19,6.0,Good,Laptop/Desktop,6.0,0.0,8.0,2.0,Youtube,0.5,2,Increased,NO,Listening to music,,,Travelling)
(R745,Delhi-NCR,21,2.0,Average,Smartphone,2.0,1.0,8.0,1.0,Youtube,0.0,3,Remain Constant,NO,Sleeping,,,"Friends )
(R746,Delhi-NCR,23,0.0,Good,Laptop/Desktop,3.0,0.0,10.0,4.0,Youtube,1.0,3,Increased,NO,Online gaming,,,Eating outside)
(R747,Delhi-NCR,20,3.0,Good,Laptop/Desktop,2.0,1.0,7.0,5.0,Whatsapp,2.0,3,Remain Constant,NO,Reading,,,School/college)
(R748,Delhi-NCR,22,4.0,Good,Laptop/Desktop,2.0,1.0,12.0,2.0,Instagram,2.0,3,Remain Constant,NO,Talking,,,School/college)
(R749,Delhi-NCR,20,2.0,Average,Smartphone,4.0,1.0,8.0,2.0,Youtube,0.0,3,Increased,NO,Listening to music,,,School/college)
(R750,Outside Delhi-NCR,22,0.0,NA,NA,0.0,1.0,5.0,4.0,Instagram,0.0,2,Decreased,NO,Watching web series,,,Travelling)
(R751,Outside Delhi-NCR,20,5.0,Good,Laptop/Desktop,4.0,1.0,7.0,3.0,Youtube,1.0,3,Increased,NO,Reading,,,Travelling)
(R752,Outside Delhi-NCR,23,3.0,Good,Laptop/Desktop,2.0,1.0,6.0,1.0,Whatsapp,0.0,2,Remain Constant,NO,Reading,,,Eating outside)
(R753,Outside Delhi-NCR,21,2.0,Very poor,Smartphone,2.0,1.0,8.0,4.0,Whatsapp,1.0,4,Increased,NO,Scrolling through social media,,,Travelling)
(R754,Delhi-NCR,19,3.0,Very poor,Smartphone,2.0,1.0,9.0,5.0,Instagram,1.0,3,Remain Constant,NO,Listening to music,,,"Friends )
(R755,Outside Delhi-NCR,23,3.0,Good,Laptop/Desktop,5.0,0.0,6.0,1.0,Youtube,0.0,2,Remain Constant,NO,Web Series,,,School/college)
(R756,Outside Delhi-NCR,20,4.0,Average,Smartphone,2.0,0.0,8.0,2.0,Whatsapp,4.0,3,Remain Constant,NO,Sleeping,,,"Friends )
(R757,Outside Delhi-NCR,22,2.0,Good,Laptop/Desktop,2.0,1.0,8.0,2.0,Whatsapp,0.0,4,Increased,NO,Web Series,,,Travelling)
(R758,Delhi-NCR,19,2.0,Poor,Smartphone,2.0,2.0,8.0,3.0,Youtube,0.0,4,Decreased,YES,Gym,,,Roaming around freely)
(R759,Outside Delhi-NCR,21,5.0,Very poor,Smartphone,4.0,1.0,7.0,1.0,Youtube,0.0,3,Remain Constant,NO,Meditation,,,"Friends )
(R760,Outside Delhi-NCR,20,0.0,Very poor,Smartphone,5.0,0.0,8.0,1.0,Youtube,,3,Decreased,YES,I have no problem of stress ,,,I have missed nothing )
(R761,Outside Delhi-NCR,21,1.0,Very poor,Laptop/Desktop,5.0,1.0,11.0,2.0,Instagram,0.0,3,Increased,NO,workout,,,Eating outside)
(R762,Delhi-NCR,22,5.0,Good,Laptop/Desktop,3.0,0.0,7.0,2.0,Whatsapp,0.0,3,Remain Constant,NO,Sleeping,,,Travelling)
(R763,Delhi-NCR,18,4.0,Good,Smartphone,2.0,0.5,6.0,2.0,Whatsapp,0.0,4,Remain Constant,NO,Online gaming,,,School/college)
(R764,Delhi-NCR,21,1.0,Good,Laptop/Desktop,1.0,2.0,7.0,2.0,Youtube,0.0,3,Remain Constant,NO,Listening to music,,,Colleagues)
(R765,Outside Delhi-NCR,22,2.0,Average,Laptop/Desktop,5.0,0.3,8.0,1.0,Linkedin,1.0,3,Increased,YES,Listening to music,,,Roaming around freely)
(R766,Out Browsing HDFS - Mozilla Firefox ,Laptop/Desktop,3.0,1.0,9.0,3.0,Instagram,1.0,2,Increased,NO,Meditation,,,"Friends )
```

PIG QUERY:

1. Filter data for subjects who spent more than 3 hours on online class.

```
grunt> filtered_data= FILTER Survey BY time_spent_on_online_class > 3.0;
2023-04-12 03:06:27,275 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 2 time(s).
grunt> dump filtered_data;
```

Answer:

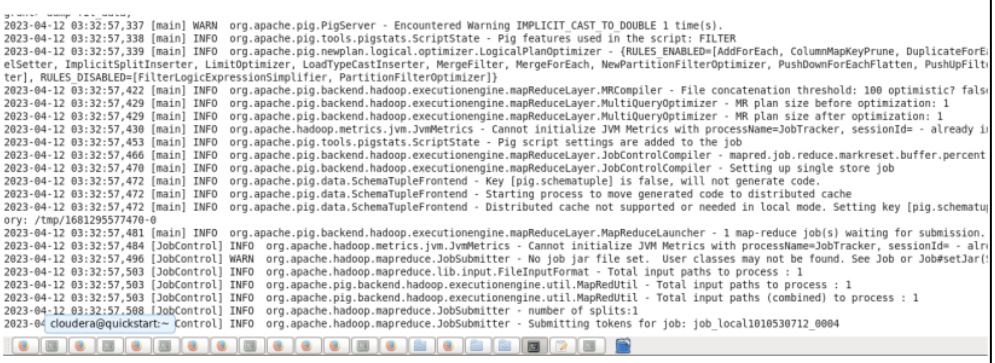
```
(R50,Delhi-NCR,18,4.0,Good,Laptop/Desktop,2.0,0.0,8.0,4.0,Instagram,0.0,3,Remain Constant,NO,Social Media,,,Colleagues)
(R52,Delhi-NCR,20,5.0,Average,Laptop/Desktop,6.0,1.0,7.0,2.0,Whatsapp,0.0,3,Remain Constant,NO,Reading books,,,Roaming around freely)
(R55,Delhi-NCR,21,4.0,Average,Smartphone,4.0,1.0,8.0,2.0,Youtube,2.0,4,Remain Constant,NO,Sleep,,,Gym)
(R56,Delhi-NCR,19,4.0,Very poor,Smartphone,2.0,0.0,7.0,1.0,Whatsapp,0.0,3,Increased,YES,Watching web series,,,Roaming around freely)
(R59,Delhi-NCR,20,5.0,Average,Laptop/Desktop,1.0,1.0,7.0,1.0,Whatsapp,0.0,3,Increased,YES,Listening to music,,,School/college)
(R61,Delhi-NCR,22,6.0,Very poor,Laptop/Desktop,6.0,0.0,6.0,1.0,Instagram,0.0,2,Increased,NO,Watching web series,,,"Friends )
(R66,Delhi-NCR,20,4.0,Average,Smartphone,4.0,2.0,7.0,2.0,Instagram,1.0,3,Increased,NO,Listening to music,,,Eating outside)
(R72,Delhi-NCR,22,6.0,Very poor,Smartphone,4.0,0.0,7.0,2.0,Whatsapp,0.0,1,Increased,NO,Online gaming,,,Eating outside)
(R81,Delhi-NCR,21,5.0,Average,Laptop/Desktop,5.0,0.0,8.0,7.0,Instagram,1.0,2,Increased,YES,Scrolling through social media,,,"Friends )
(R87,Delhi-NCR,20,5.0,Average,Smartphone,3.0,1.0,7.0,1.5,Instagram,0.0,3,Increased,YES,drawing ,,,School/college)
(R88,Outside Delhi-NCR,21,4.0,Very poor,Smartphone,3.0,1.0,8.0,1.0,Linkedin,0.0,3,Decreased,NO,Meditation,,,All of them)
(R90,Outside Delhi-NCR,19,4.0,Average,Smartphone,3.0,1.0,7.0,3.0,Instagram,2.0,3,Increased,NO,Listening to music,,,School/college)
(R91,Outside Delhi-NCR,25,4.0,Very poor,Smartphone,3.0,1.0,7.0,1.0,Instagram,0.0,3,Remain Constant,YES,Cricket,,,Eating outside)
(R93,Delhi-NCR,19,4.0,Very poor,Laptop/Desktop,0.0,0.0,8.0,2.0,Instagram,1.5,3,Increased,YES,Anime Manga,,,School/college)
(R94,Delhi-NCR,20,4.0,Good,Smartphone,2.0,2.0,8.0,6.0,Instagram,0.0,3,Decreased,NO,Sleeping,,,School/college)
(R96,Delhi-NCR,19,5.0,Good,Tablet,3.0,1.0,8.0,2.0,Snapchat,0.0,2,Remain Constant,NO,Reading,,,Travelling)
(R101,Outside Delhi-NCR,16,6.0,Poor,Smartphone,2.0,2.0,7.0,2.0,Youtube,1.0,3,Remain Constant,NO,Scrolling through social media,,,Travelling)
(R103,Outside Delhi-NCR,21,4.0,Very poor,Smartphone,4.0,1.0,7.0,1.0,Whatsapp,0.0,4,Decreased,YES,Listening to music,,,Travelling)
(R106,Outside Delhi-NCR,23,4.0,Excellent,Laptop/Desktop,6.0,1.0,8.0,0.3,Whatsapp,0.0,3,Increased,NO,Talking to your relatives,,,Travelling)
(R114,Outside Delhi-NCR,14,5.0,Average,Laptop/Desktop,4.0,1.0,7.0,4.0,Instagram,1.0,5,Increased,NO,Scrolling through social media,,,"Friends)
(R117,Outside Delhi-NCR,24,4.0,Excellent,Laptop/Desktop,8.0,1.0,8.0,2.0,Youtube,2.0,3,Increased,NO,Online surfing,,,"Friends )
(R119,Outside Delhi-NCR,21,4.0,Good,Laptop/Desktop,2.0,2.0,7.0,2.0,Instagram,1.0,3,Increased,NO,Dancing,,,Travelling)
(R122,Outside Delhi-NCR,23,6.0,Average,Laptop/Desktop,5.0,1.0,6.0,1.0,Linkedin,0.0,3,Remain Constant,NO,Meditation,,,School/college)
(R123,Outside Delhi-NCR,21,4.0,Average,Smartphone,4.0,1.0,8.0,1.0,Youtube,0.0,3,Remain Constant,NO,Meditation,,,"Friends )
(R124,Delhi-NCR,18,5.0,Very poor,Smartphone,3.0,0.0,9.0,7.0,Whatsapp,0.0,3,Increased,NO,Watching web series,,,Roaming around freely)
(R126,Outside Delhi-NCR,20,5.0,Average,Smartphone,4.0,1.0,7.0,2.0,Whatsapp,1.0,3,Increased,NO,Meditation,,,School/college)
(R132,Delhi-NCR,17,6.0,Average,Laptop/Desktop,4.0,1.0,8.0,1.0,Youtube,1.0,2,Remain Constant,NO,Listening to music,,,School/college)
(R135,Delhi-NCR,18,5.0,Average,Smartphone,1.0,1.0,8.0,1.0,Youtube,0.0,4,Increased,NO,Sleep,,,Roaming around freely)
(R138,Delhi-NCR,15,4.0,Average,Smartphone,2.0,0.5,6.0,1.0,Whatsapp,1.0,3,Remain Constant,NO,Dancing,,,Eating outside)
(R146,Outside Delhi-NCR,14,4.0,Average,Smartphone,2.0,1.0,8.0,2.0,Whatsapp,1.0,3,Remain Constant,NO,Listening to music,,,"Friends )
(R147,Delhi-NCR,20,6.0,Average,Laptop/Desktop,1.0,1.0,6.0,1.0,Linkedin,0.0,3,Increased,YES,Talking to your relatives,,,School/college)
(R149,Delhi-NCR,19,6.0,Very poor,Smartphone,3.0,0.0,7.0,2.0,Whatsapp,0.5,2,Increased,YES,Online gaming,,,"Friends )
(R152,Outside Delhi-NCR,21,4.0,Very poor,Smartphone,4.0,1.0,8.0,2.0,Instagram,0.0,3,Increased,NO,Sleep,,,Roaming around freely)
(R153,Outside Delhi-NCR,15,4.0,Average,Smartphone,7.0,2.0,6.0,1.0,Instagram,1.0,4,Remain Constant,NO,Listening to music,,,"Friends )
(R154,Delhi-NCR,20,5.0,Very poor,Tablet,3.0,1.0,8.0,2.0,Whatsapp,3.0,4,Increased,NO,Listening to music,,,Roaming around freely)
(R158,Delhi-NCR,21,5.0,Average,Smartphone,1.0,0.0,5.0,1.0,Whatsapp,0.0,2,Decreased,NO,Online gaming,,,Travelling)
(R159,Delhi-NCR,21,4.0,Excellent,Laptop/Desktop,6.0,2.0,6.0,1.0,Youtube,1.0,3,Remain Constant,NO,Cooking,,,Eating outside)
(R161,Delhi-NCR,20,4.0,Average,Laptop/Desktop,2.0,0.0,7.0,2.0,Snapchat,4.0,3,Increased,NO,Online gaming,,,"Friends )
(R162,Outside Delhi-NCR,20,6.0,Very poor,Smartphone,3.0,0.0,8.0,4.0,Linkedin,2.0,3,Increased,YES,Sleep,,,School/college)
(R164,Outside Delhi-NCR,21,4.0,Very poor,Smartphone,3.0,1.0,8.0,1.0,Youtube,1.0,3,Remain Constant,YES,Online surfing,,,"Friends )

(R1151,Delhi-NCR,14,5.0,Average,Smartphone or Laptop/Desktop,2.0,0.0,9.0,0.5,Whatsapp,0.5,4,Increased,YES,Listening to music,,,Travelling)
(R1153,Delhi-NCR,13,4.0,Average,Smartphone,1.0,0.0,10.0,1.0,None,1.0,2,Remain Constant,NO,Online gaming,,,"Friends )
(R1154,Delhi-NCR,15,4.0,Very poor,Smartphone,2.0,1.0,9.0,0.5,Instagram,2.0,4,Remain Constant,NO,Online gaming,,,"Friends )
(R1155,Outside Delhi-NCR,17,6.0,Very poor,Smartphone,3.0,1.0,7.0,1.0,Instagram,1.0,2,Decreased,NO,Gym,,,School and friends.)
(R1156,Outside Delhi-NCR,22,5.0,Average,Laptop/Desktop,4.0,0.0,8.0,3.0,Linkedin,0.0,2,Increased,NO,Talking to your relatives,,,School/college)
(R1157,Outside Delhi-NCR,13,6.0,Good,Smartphone,2.0,0.0,11.0,1.0,Whatsapp,0.5,3,Remain Constant,NO,Online gaming,,,Colleagues)
(R1158,Outside Delhi-NCR,11,5.0,Average,Smartphone,2.0,1.0,8.0,1.0,Whatsapp,0.5,1,Decreased,NO,Watching web series,,,School/college)
(R1159,Delhi-NCR,13,4.0,Good,Smartphone,1.0,0.5,7.0,1.0,Instagram,2.0,4,Increased,NO,Listening to music,,,School/college)
(R1160,Outside Delhi-NCR,14,5.0,Excellent,Smartphone,2.0,0.0,12.0,2.0,Youtube,1.0,3,Remain Constant,NO,Listening to music,,,"Friends )
(R1161,Delhi-NCR,12,6.0,Good,Laptop/Desktop,2.0,2.0,8.0,7.0,Snapchat,2.0,3,Remain Constant,NO,Social Media,,,Eating outside)
(R1162,Delhi-NCR,13,4.0,Excellent,Laptop/Desktop,4.0,1.0,8.0,0.0,Whatsapp,1.0,2,Remain Constant,NO,Listening to music and reading books both . ,,,ALL)
(R1164,Delhi-NCR,12,4.0,Good,Smartphone,2.0,1.0,8.0,0.0,Whatsapp,3.0,4,Remain Constant,NO,Meditation,,,Colleagues)
(R1165,Delhi-NCR,12,5.0,Excellent,Laptop/Desktop,3.0,1.0,7.0,0.0,None,2.0,2,Remain Constant,NO,Listening to music,,,Eating outside)
(R1166,Delhi-NCR,13,6.0,Excellent,Smartphone,7.0,0.0,5.0,0.0,Youtube,0.0,3,Remain Constant,NO,"Poetry,,,YES)
(R1167,Outside Delhi-NCR,14,6.0,Excellent,Laptop/Desktop,1.0,2.0,7.0,1.0,Whatsapp,1.0,4,Increased,NO,Sleeping,,,Roaming around freely)
(R1168,Delhi-NCR,14,6.0,Good,Smartphone,2.0,1.0,8.0,1.0,Whatsapp,1.0,1,Decreased,NO,Social Media,,,Colleagues)
(R1169,Delhi-NCR,12,6.0,Excellent,Smartphone,5.0,1.0,8.0,2.0,Youtube,1.0,2,Remain Constant,NO,Listening to music,,,School/college)
(R1171,Delhi-NCR,14,6.0,Average,Smartphone,2.0,0.5,10.0,1.0,Whatsapp,1.0,3,Remain Constant,NO,Sleeping,,,School and my school friends)
(R1173,Delhi-NCR,12,4.0,Excellent,Smartphone,3.0,2.0,10.0,1.0,WhatsApp,1.0,4,Increased,NO,Sleeping,,,"Friends )
(R1174,Delhi-NCR,14,4.0,Excellent,Smartphone,2.0,1.0,6.0,1.0,Whatsapp,1.0,2,Remain Constant,NO,Listening to music,,,School/college)
(R1175,Delhi-NCR,13,6.0,Very poor,Laptop/Desktop,3.0,1.0,8.0,2.0,Whatsapp,2.0,3,Decreased,NO,Listening to music,,,"Friends )
(R1176,Delhi-NCR,12,5.0,Excellent,Smartphone,2.0,1.0,12.0,0.0,Youtube,1.0,3,Remain Constant,NO,Dancing,,,"Friends )
(R1177,Delhi-NCR,13,5.0,Excellent,Laptop/Desktop,4.0,1.0,8.0,1.0,Whatsapp,1.5,3,Decreased,NO,Listening to music,,,School/college)
(R1178,Delhi-NCR,12,4.0,Very poor,Smartphone,1.5,0.0,9.0,5.0,Youtube,1.0,4,Increased,NO,Painting,,,"Friends )
(R1179,Delhi-NCR,13,6.0,Excellent,Laptop/Desktop,2.0,0.5,9.0,1.0,Whatsapp,3.0,4,Remain Constant,NO,Online gaming,,,"Friends )
(R1180,Delhi-NCR,12,6.0,Average,Smartphone,3.0,1.0,9.0,1.0,Whatsapp,1.0,4,Remain Constant,NO,Listening to music,,,Roaming around freely)
(R1181,Delhi-NCR,12,5.0,Good,Laptop/Desktop,2.0,0.0,8.0,2.0,Youtube,1.0,3,Remain Constant,NO,Listening to music,,,Colleagues)
(R1182,Delhi-NCR,13,6.0,Good,Tablet,2.0,1.0,6.0,1.0,Youtube,2.0,3,Decreased,NO,Dancing,,,Colleagues)
(R1183,Delhi-NCR,16,7.5,Good,Laptop/Desktop,4.5,0.0,6.0,0.5,Whatsapp,2.0,4,Remain Constant,NO,Listening to music,,,Colleagues)
(R1184,Outside Delhi-NCR,13,5.0,Excellent,Laptop/Desktop,6.0,1.0,6.0,0.0,Youtube,0.0,4,Remain Constant,NO,Listening to music,,,School/college)
(R1185,Delhi-NCR,13,4.0,Good,Smartphone,4.0,1.0,8.0,1.0,Whatsapp,2.0,3,Decreased,NO,Reading,,,School/college)
(R1186,Delhi-NCR,15,5.0,Average,Smartphone,2.0,1.0,13.0,1.0,Youtube,1.0,2,Remain Constant,NO,Online surfing,,,School/college)
(R1187,Delhi-NCR,12,6.0,Excellent,Laptop/Desktop,3.0,1.0,9.0,4.0,Youtube,3.0,4,Remain Constant,NO,Talking to your relatives,,,School/college)
(R1188,Delhi-NCR,13,8.0,Average,Laptop/Desktop,2.0,1.0,7.0,1.0,Whatsapp,1.0,3,Decreased,NO,Cooking,,,Travelling)
(R1189,Delhi-NCR,15,5.0,Good,Tablet,4.0,1.0,7.0,2.0,Whatsapp,0.0,4,Increased,NO,Social Media,,,Travelling)
(R1192,Delhi-NCR,14,6.0,Average,Smartphone,4.0,1.0,9.0,1.0,Whatsapp,1.0,4,Remain Constant,NO,Listening to music,,,"Friends )
(R1193,Delhi-NCR,13,4.0,Average,Smartphone,0.0,0.5,8.0,3.0,Youtube,2.0,4,Decreased,NO,Online gaming,,,School/college)
(R1194,Delhi-NCR,14,5.0,Excellent,Laptop/Desktop,3.5,1.0,8.0,0.5,Youtube,1.0,4,Remain Constant,NO,Reading books,,,School/college)
(R1195,Delhi-NCR,13,5.0,Good,Tablet,2.0,0.5,7.0,1.0,Whatsapp,1.0,3,Remain Constant,NO,Talking,,,School/college)
grunt>
```

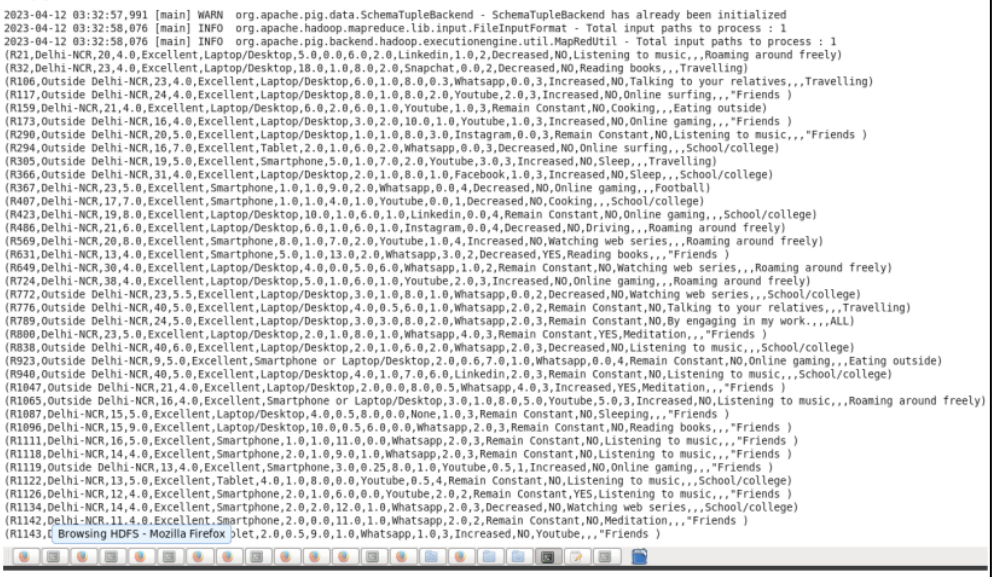
2. Filter data for subjects who spent more than 3 hours on online class and have a rating of "Excellent":

```
grunt> fil_data = FILTER Survey BY time_spent_on_online_class > 3.0 AND rating_of_online_class_experience == 'Excellent';
2023-04-12 03:32:50,053 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> dump fil data;
```

MAPREDUCE:



RESULT:



3. Calculate the average age and total time spent on self-study for each region of residence:

```
Details at logfile: /home/cloudera/pig_1681292185445.log
grunt> group_data= GROUP Survey BY region_of_residence;
2023-04-12 03:36:42,597 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> result = FOREACH group_data GENERATE group AS region, AVG(Survey.age_of_subject) AS avg_age, SUM(Survey.time_spent_on_self_study) AS ty;
2023-04-12 03:40:00,721 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> dump result;
```

MapReduce:

```
2023-04-12 03:40:08,449 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features used in the script: GROUP_BY
2023-04-12 03:40:08,450 [main] INFO  org.apache.pig.newplan.logical.optimizer.LogicalPlanOptimizer - {RULES_ENABLED=[AddForEach, ColumnMapKeyPrune, DuplicateForEachColumnRewrite, GroupByConstParall
elSetter, ImplicitSplitInserter, LimitOptimizer, LoadTypeCastInserter, MergeFilter, MergeForEach, NewPartitionFilterOptimizer, PushDownForEachFlatten, PushUpFilter, SplitFilter, StreamTypeCastInser
ter], RULES_DISABLED=[FilterLogicExpressionSimplifier, PartitionFilterOptimizer]}
2023-04-12 03:40:08,475 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MRCompiler - File concatenation threshold: 100 optimistic? false
2023-04-12 03:40:08,477 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.CombinerOptimizer - Choosing to move algebraic foreach to combiner
2023-04-12 03:40:08,507 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size before optimization: 1
2023-04-12 03:40:08,507 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size after optimization: 1
2023-04-12 03:40:08,509 [main] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 03:40:08,512 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig script settings are added to the job
2023-04-12 03:40:08,561 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - mapred.job.reduce.markreset.buffer.percent is not set, set to default 0.3
2023-04-12 03:40:08,562 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Reduce phase detected, estimating # of required reducers.
2023-04-12 03:40:08,601 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Using reducer estimator: org.apache.pig.backend.hadoop.executionengine.mapRedu
ceLayer.InputSizeReducerEstimator
2023-04-12 03:40:08,604 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.InputSizeReducerEstimator - BytesPerReducer=1000000000 maxReducers=999 totalInputFileSize=144782
2023-04-12 03:40:08,604 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Setting Parallelism to 1
2023-04-12 03:40:08,608 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Setting up single store job
2023-04-12 03:40:08,611 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Key [pig.schematuple] is false, will not generate code.
2023-04-12 03:40:08,611 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Starting process to move generated code to distributed cache
2023-04-12 03:40:08,611 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Distributed cache not supported or needed in local mode. Setting key [pig.schematuple.local.dir] with code temp direct
ory: /tmp/1681296008609-0
2023-04-12 03:40:08,910 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 1 map-reduce job(s) waiting for submission.
2023-04-12 03:40:08,922 [JobControl] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 03:40:08,971 [JobControl] WARN  org.apache.hadoop.mapreduce.JobSubmitter - No job jar file set.  User classes may not be found. See Job or Job#setJar(String).
2023-04-12 03:40:08,977 [JobControl] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 03:40:08,977 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
2023-04-12 03:40:08,977 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths (combined) to process : 1
2023-04-12 03:40:08,980 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - number of splits:1
2023-04-12 03:40:09,018 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - Submitting tokens for job: job_local154093582_0005
2023-04-12 03:40:09,211 [JobControl] INFO  org.apache.hadoop.mapreduce.Job - The url to track the job: http://localhost:8080/
```

```
2023-04-12 03:40:18,790 [pool-11-thread-1] INFO  org.apache.hadoop.mapreduce.lib.output.FileOutputCommitter - Saved output of task 'attempt_local154093582_0005_r_000000_0' to file:/tmp/temp95219748
6/tmp69333657/_temporary/0/task_local154093582_0005_r_000000
2023-04-12 03:40:18,791 [pool-11-thread-1] INFO  org.apache.hadoop.mapred.LocalJobRunner - reduce > reduce
2023-04-12 03:40:18,791 [pool-11-thread-1] INFO  org.apache.hadoop.mapred.Task - Task 'attempt_local154093582_0005_r_000000_0' done.
2023-04-12 03:40:18,791 [pool-11-thread-1] INFO  org.apache.hadoop.mapred.LocalJobRunner - Finishing task: attempt_local154093582_0005_r_000000_0
2023-04-12 03:40:18,791 [Thread-23] INFO  org.apache.hadoop.mapred.LocalJobRunner - reduce task executor complete.
2023-04-12 03:40:19,101 [main] WARN  org.apache.pig.tools.pigstats.PigStatsUtil - Failed to get RunningJob for job job_local154093582_0005
2023-04-12 03:40:19,101 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 100% complete
2023-04-12 03:40:19,101 [main] INFO  org.apache.pig.tools.pigstats.SimplePigStats - Detected Local mode. Stats reported below may be incomplete
2023-04-12 03:40:19,102 [main] INFO  org.apache.pig.tools.pigstats.SimplePigStats - Script Statistics:

HadoopVersion   PigVersion      UserId  StartedAt       FinishedAt      Features
2.6.0-cdh5.4.2  0.12.0-cdh5.4.2 cloudera        2023-04-12 03:40:08     2023-04-12 03:40:19     GROUP_BY

Success!

Job Stats (time in seconds):
JobId   Alias   Feature Outputs
job_local154093582_0005 Survey,group_data,result        GROUP_BY,COMBINER       file:/tmp/temp952197486/tmp69333657,

Input(s):
Successfully read records from: "file:///home/cloudera/Desktop/Survey.csv"

Output(s):
Successfully stored records in: "file:/tmp/temp952197486/tmp69333657"

Job DAG:
job_local154093582_0005


2023-04-12 03:40:19,103 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2023-04-12 03:40:19,104 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 03:40:19,106 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 03:40:19,107 [main] WARN  org.apache.pig.data.SchemaTupleBackend - SchemaTupleBackend has already been initialized
2023-04-12 03:40:19,134 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 03:40:19,134 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
```

RESULT:

```
(Delhi-NCR,19.832177531206657,2113.0)
(Outside Delhi-NCR,20.68763557483731,1328.5)
(Region of residence,,)
grunt>
```

4. Filter data for subjects who reported a health issue and spent more than 2 hours on fitness:

```
grunt> fd= FILTER Survey BY health_issue_during_lockdown == 'YES' AND time_spent_on_fitness > 2;
2023-04-12 03:53:44,694 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_FLOAT 1 time(s).
2023-04-12 03:53:44,694 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> dump fd;
```

MAPREDUCE:

```
2023-04-12 03:53:58,275 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_FLOAT 1 time(s).
2023-04-12 03:53:58,275 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features used in the script: FILTER
2023-04-12 03:53:58,276 [main] INFO  org.apache.pig.newplan.logical.optimizer.LogicalPlanOptimizer - {RULES_ENABLED=[AddForEach, ColumnMapKeyPrune, DuplicateForEachColumnRewrite, GroupByConstParall
elSetter, ImplicitSplitInserter, LimitOptimizer, LoadTypeCastInserter, MergeFilter, MergeForEach, NewPartitionFilterOptimizer, PushDownForEachFlatten, PushUpFilter, SplitFilter, StreamTypeCastInser
ter], RULES_DISABLED=[FilterLogicExpressionSimplifier, PartitionFilterOptimizer]}
2023-04-12 03:53:58,288 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MRCompiler - File concatenation threshold: 100 optimistic? false
2023-04-12 03:53:58,290 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size before optimization: 1
2023-04-12 03:53:58,290 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size after optimization: 1
2023-04-12 03:53:58,290 [main] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 03:53:58,291 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig script settings are added to the job
2023-04-12 03:53:58,300 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - mapred.job.reduce.markreset.buffer.percent is not set, set to default 0.3
2023-04-12 03:53:58,312 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Setting up single store job
2023-04-12 03:53:58,317 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Key [pig.schematuple] is false, will not generate code.
2023-04-12 03:53:58,317 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Starting process to move generated code to distributed cache
2023-04-12 03:53:58,317 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Distributed cache not supported or needed in local mode. Setting key [pig.schematuple.local.dir] with code temp direct
ory: /tmp/1681296830314-0
2023-04-12 03:53:58,326 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 1 map-reduce job(s) waiting for submission.
2023-04-12 03:53:58,327 [JobControl] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 03:53:58,346 [JobControl] WARN  org.apache.hadoop.mapreduce.JobSubmitter - No job jar file set.  User classes may not be found. See Job or Job#setJar(String).
2023-04-12 03:53:58,349 [JobControl] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 03:53:58,350 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
2023-04-12 03:53:58,350 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths (combined) to process : 1
2023-04-12 03:53:58,351 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - number of splits:1
2023-04-12 03:53:58,356 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - Submitting tokens for job: job_local845654830_0006
2023-04-12 03:53:58,429 [JobControl] INFO  org.apache.hadoop.mapreduce.Job - The url to track the job: http://localhost:8080/
2023-04-12 03:53:58,430 [Thread-33] INFO  org.apache.hadoop.mapred.LocalJobRunner - OutputCommitter set in config null
2023-04-12 03:53:58,434 [Thread-33] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 03:53:58,434 [Thread-33] INFO  org.apache.hadoop.conf.Configuration.deprecation - mapred.job.reduce.markreset.buffer.percent is deprecated. Instead, use mapreduce.reduce.markreset.buffer
.percent
2023-04-12 03:53:58,434 [Thread-33] INFO  org.apache.hadoop.conf.Configuration.deprecation - mapred.job.tracker is deprecated. Instead, use mapreduce.jobtracker.address
2023-04-12 03:53:58,435 [Thread-33] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
```

```
2023-04-12 03:53:58,554 [LocalJobRunner Map Task Executor #0] INFO  org.apache.hadoop.mapred.Task - Task 'attempt_local845654830_0006_m_000000_0' done.
2023-04-12 03:53:58,555 [LocalJobRunner Map Task Executor #0] INFO  org.apache.hadoop.mapred.LocalJobRunner - Finishing task: attempt_local845654830_0006_m_000000_0
2023-04-12 03:53:58,555 [Thread-33] INFO  org.apache.hadoop.mapred.LocalJobRunner - map task executor complete.
2023-04-12 03:53:58,827 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - HadoopJobId: job_local845654830_0006
2023-04-12 03:53:58,827 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Processing aliases Survey,fd
2023-04-12 03:53:58,827 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - detailed locations: M: Survey[1,8],Survey[-1,-1],fd[8,4] C:  R:
2023-04-12 03:53:58,835 [main] WARN  org.apache.pig.tools.pigstats.PigStatsUtil - Failed to get RunningJob for job job_local845654830_0006
2023-04-12 03:53:58,835 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 100% complete
2023-04-12 03:53:58,835 [main] INFO  org.apache.pig.tools.pigstats.SimplePigStats - Detected Local mode. Stats reported below may be incomplete
2023-04-12 03:53:58,835 [main] INFO  org.apache.pig.tools.pigstats.SimplePigStats - Script Statistics:

HadoopVersion   PigVersion      UserId  StartedAt       FinishedAt      Features
2.6.0-cdh5.4.2  0.12.0-cdh5.4.2 cloudera        2023-04-12 03:53:58     2023-04-12 03:53:58     FILTER

Success!

Job Stats (time in seconds):
JobId   Alias   Feature Outputs
job_local845654830_0006 Survey,fd       MAP_ONLY        file:/tmp/temp952197486/tmp2049490870,

Input(s):
Successfully read records from: "file:///home/cloudera/Desktop/Survey.csv"

Output(s):
Successfully stored records in: "file:/tmp/temp952197486/tmp2049490870"

Job DAG:
job_local845654830_0006


2023-04-12 03:53:58,836 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2023-04-12 03:53:58,836 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 03:53:58,836 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 03:53:58,836 [main] WARN  org.apache.pig.data.SchemaTupleBackend - SchemaTupleBackend has already been initialized
2023-04-12 03:53:58,860 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 03:53:58,861 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
```

RESULT:

```
(R193,Delhi-NCR,21,3.0,Very poor,Smartphone,8.0,3.0,7.0,3.0,Youtube,0.0,3,Decreased,YES,Talking to your relatives,,,School/college)
(R728,Delhi-NCR,20,5.0,Very poor,Laptop/Desktop,2.0,3.0,10.0,1.0,Youtube,0.5,2,Decreased,YES,Writing my own Comics & novels,,,Playing)
(R826,Outside Delhi-NCR,21,0.0,Very poor,Smartphone,2.0,3.0,9.0,1.0,Whatsapp,1.0,1,Decreased,YES,Online surfing,,,Roaming around freely)
grunt>
```

5. Calculate the total number of subjects who prefer each social media platform:

```
grunt> gd= GROUP Survey by prefered_social_media_platform;
2023-04-12 04:02:20,225 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_FLOAT 1 time(s).
2023-04-12 04:02:20,225 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> rse= FOREACH gd GENERATE group AS sc, COUNT(Survey) AS tt;
2023-04-12 04:03:23,500 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_FLOAT 1 time(s).
2023-04-12 04:03:23,500 [main] WARN  org.apache.pig.PigServer - Encountered Warning IMPLICIT_CAST_TO_DOUBLE 3 time(s).
grunt> dump rse;
```

MAPREDUCE:

```
2023-04-12 04:03:36,859 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig features used in the script: GROUP_BY
2023-04-12 04:03:36,859 [main] INFO  org.apache.pig.newplan.logical.optimizer.LogicalPlanOptimizer - {RULES_ENABLED=[AddForEach, ColumnMapKeyPrune, DuplicateForEachColumnRewrite, GroupByConstParall
elSetter, ImplicitSplitInserter, LimitOptimizer, LoadTypeCastInserter, MergeFilter, MergeForEach, NewPartitionFilterOptimizer, PushDownForEachFlatten, PushUpFilter, SplitFilter, StreamTypeCastInser
ter], RULES_DISABLED=[FilterLogicExpressionSimplifier, PartitionFilterOptimizer]}
2023-04-12 04:03:36,899 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MRCompiler - File concatenation threshold: 100 optimistic? false
2023-04-12 04:03:36,900 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.CombinerOptimizer - Choosing to move algebraic foreach to combiner
2023-04-12 04:03:36,903 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size before optimization: 1
2023-04-12 04:03:36,903 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MultiQueryOptimizer - MR plan size after optimization: 1
2023-04-12 04:03:36,909 [main] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 04:03:36,911 [main] INFO  org.apache.pig.tools.pigstats.ScriptState - Pig script settings are added to the job
2023-04-12 04:03:36,920 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - mapred.job.reduce.markreset.buffer.percent is not set, set to default 0.3
2023-04-12 04:03:36,921 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Reduce phase detected, estimating # of required reducers.
2023-04-12 04:03:36,921 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Using reducer estimator: org.apache.pig.backend.hadoop.executionengine.mapRedu
ceLayer.InputSizeReducerEstimator
2023-04-12 04:03:36,921 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.InputSizeReducerEstimator - BytesPerReducer=1000000000 maxReducers=999 totalInputFileSize=144782
2023-04-12 04:03:36,921 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Setting Parallelism to 1
2023-04-12 04:03:36,934 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.JobControlCompiler - Setting up single store job
2023-04-12 04:03:36,937 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Key [pig.schematuple] is false, will not generate code.
2023-04-12 04:03:36,937 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Starting process to move generated code to distributed cache
2023-04-12 04:03:36,937 [main] INFO  org.apache.pig.data.SchemaTupleFrontend - Distributed cache not supported or needed in local mode. Setting key [pig.schematuple.local.dir] with code temp direct
ory: /tmp/1681297410935-0
2023-04-12 04:03:36,950 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - 1 map-reduce job(s) waiting for submission.
2023-04-12 04:03:36,961 [JobControl] INFO  org.apache.hadoop.metrics.jvm.JvmMetrics - Cannot initialize JVM Metrics with processName=JobTracker, sessionId= - already initialized
2023-04-12 04:03:36,973 [JobControl] WARN  org.apache.hadoop.mapreduce.JobSubmitter - No job jar file set.  User classes may not be found. See Job or Job#setJar(String).
2023-04-12 04:03:36,978 [JobControl] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 04:03:36,978 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
2023-04-12 04:03:36,979 [JobControl] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths (combined) to process : 1
2023-04-12 04:03:36,979 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - number of splits:1
2023-04-12 04:03:36,985 [JobControl] INFO  org.apache.hadoop.mapreduce.JobSubmitter - Submitting tokens for job: job_local512296766_0007
2023-04-12 04:03:40,000 [JobControl] INFO  org.apache.hadoop.mapreduce.Job - The url to track the job: http://localhost:8080/
2023-04-12 04:03:40,000 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - HadoopJobId: job_local512296766_0007
2023-04-12 04:03:40,000 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Processing aliases Survey,gd,rse
```

```
Success!

Job Stats (time in seconds):
JobId   Alias   Feature Outputs
job_local512296766_0007 Survey,gd,rse   GROUP_BY,COMBINER       file:/tmp/temp952197486/tmp1385900907,

Input(s):
Successfully read records from: "file:///home/cloudera/Desktop/Survey.csv"

Output(s):
Successfully stored records in: "file:/tmp/temp952197486/tmp1385900907"

Job DAG:
job_local512296766_0007


2023-04-12 04:03:41,683 [main] INFO  org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!
2023-04-12 04:03:41,683 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2023-04-12 04:03:41,683 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation - fs.default.name is deprecated. Instead, use fs.defaultFS
2023-04-12 04:03:41,683 [main] WARN  org.apache.pig.data.SchemaTupleBackend - SchemaTupleBackend has already been initialized
2023-04-12 04:03:41,771 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat - Total input paths to process : 1
2023-04-12 04:03:41,771 [main] INFO  org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process : 1
(None,17)
```

RESULT:

```
(None,17)
(None ,1)
(Quora,1)
(Omegle,1)
(Reddit,5)
(Elyment,1)
(Twitter,28)
(Youtube,314)
(Facebook,52)
(Linkedin,61)
(Snapchat,8)
(Talklife,1)
(Telegram,3)
(WhatsApp,1)
(Whatsapp,336)
(Instagram,352)
(Prefered social media platform,1)
grunt>
```

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