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BU –AIA-BIG DATA

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Topic-Assignments of Big-data

1)Depatment wise total salary in hadoop (mapreduce)

2)Top 10 Customers by total sales. (using txns1.txt) (pig)

3)Top 10 designation with people count (hive)

4)Create a login table and put data into it and show the output (hbase)

5)Sqoop Program

i)using one mapper

ii)using two mapper

iii)using incremental append

iv)printing data into hive from sqoop

v)printing data into hbase from sqoop

6) Scala programming

i)Create one empty ArrayBuffer

ii)Add 10 into ArrayBuffer

iii)Add 20,30,40 into ArrayBuffer

iv)Defing arr={1,2,3,4,5}

v)Append array into arrayBuffer

vi)Remove 30

vii)Add 35 in between 20 and 40

viii)Check 35 is there in ArrayBuffer or not

ix)Check ArrayBuffer is empty or not

x)Remove last 3 elements

xi)Add 10 to each element

xii)Get element of ArrayBuffer where element>10

7)Scala Programming

i)to get keys of the map

ii)to get values of the map

iii)To check whether key is present or not.

iv)To get the value of given key.

v)If value is not there return 0.0

vi)If the value is not there,then add 0.0 to c3.

and wordcount program in scala

8)Read data from custs.txt and then sort the

data by age(in acending order)

using scala

9)Spark
Sub topic:-> using spark doing joining,getting top result

ASSIGNMENT NO 1.

PROBLEM STATEMENT->Depatment wise total salary in hadoop

SUB TOPIC-USING MAPREDUCE

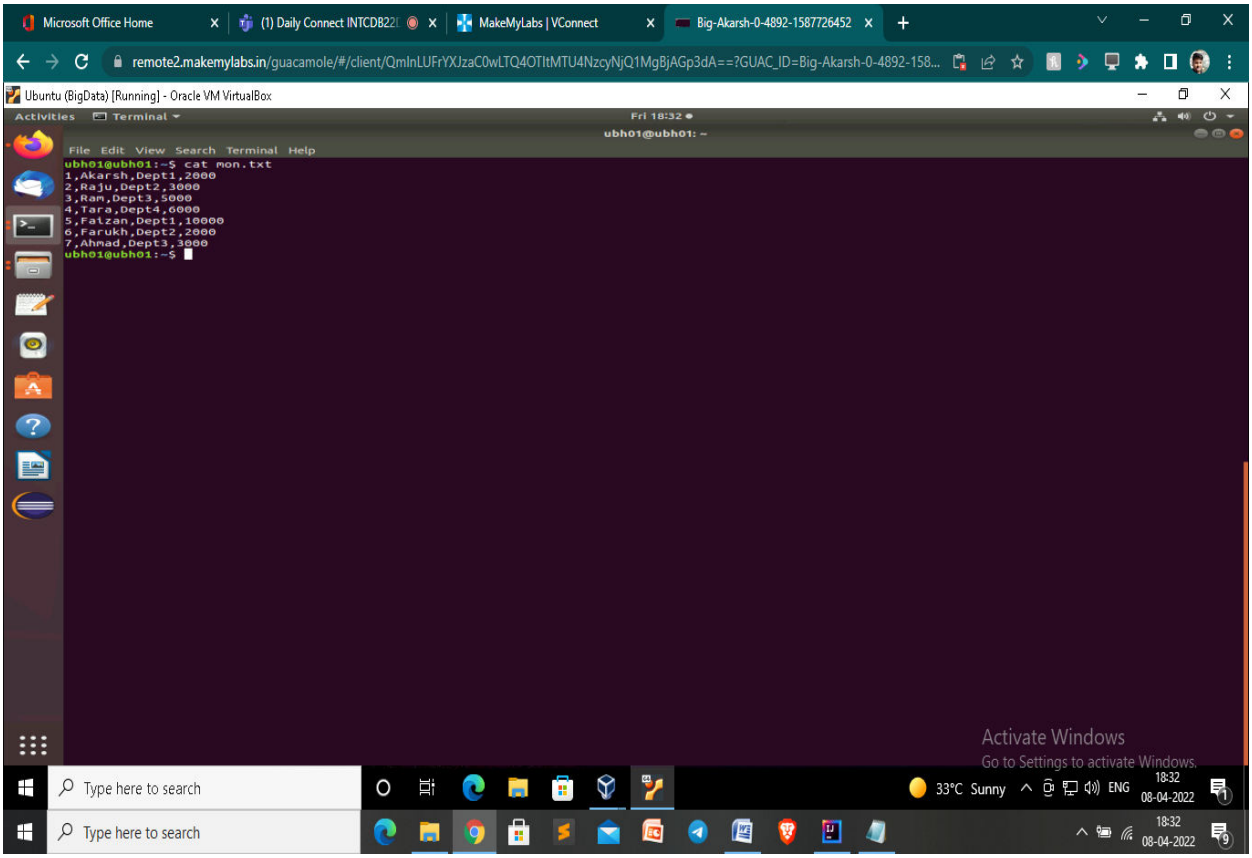
DATA SCHEMA-

*EID

*ENAME

*DEPARTMENT

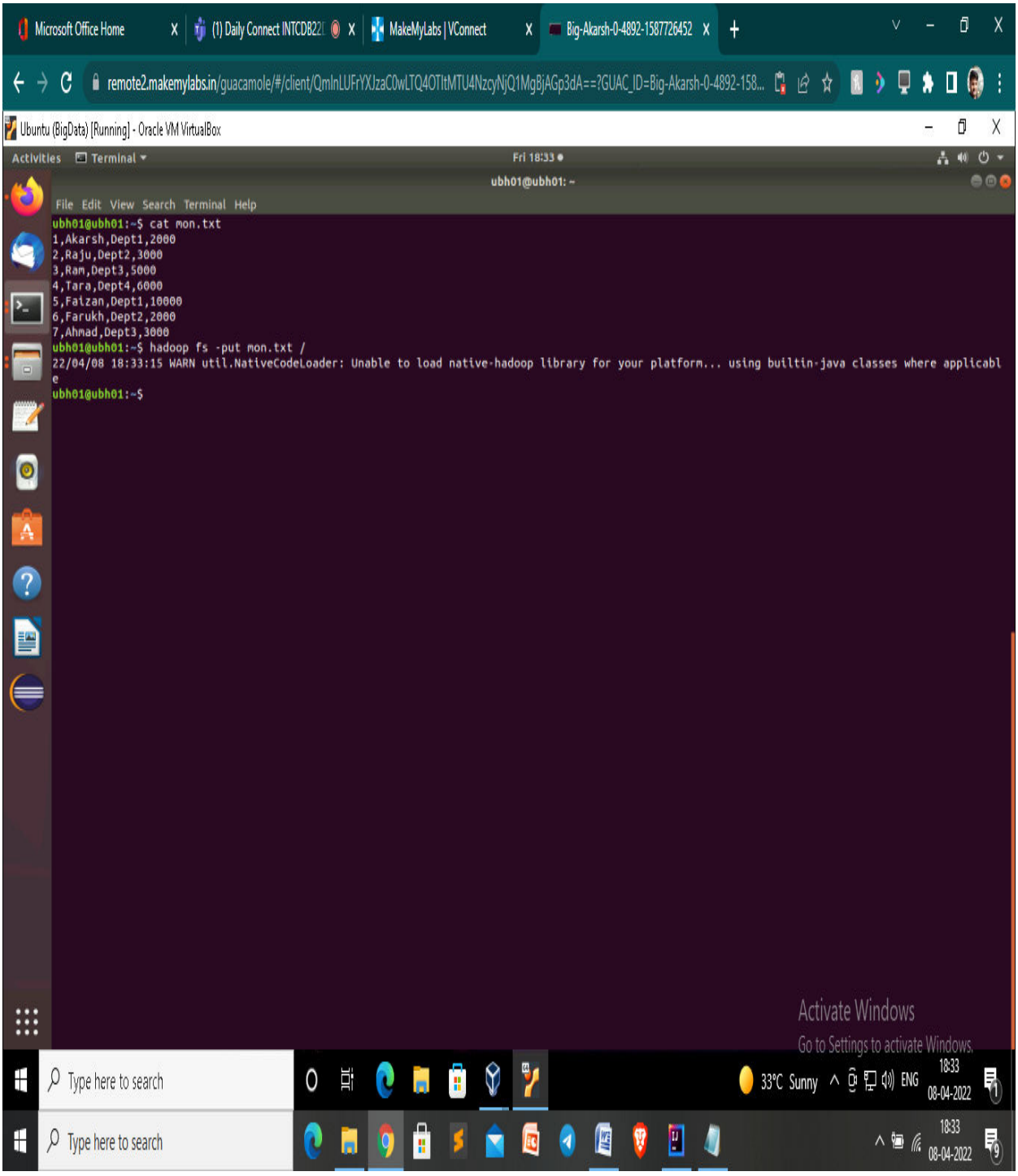
*SALARY



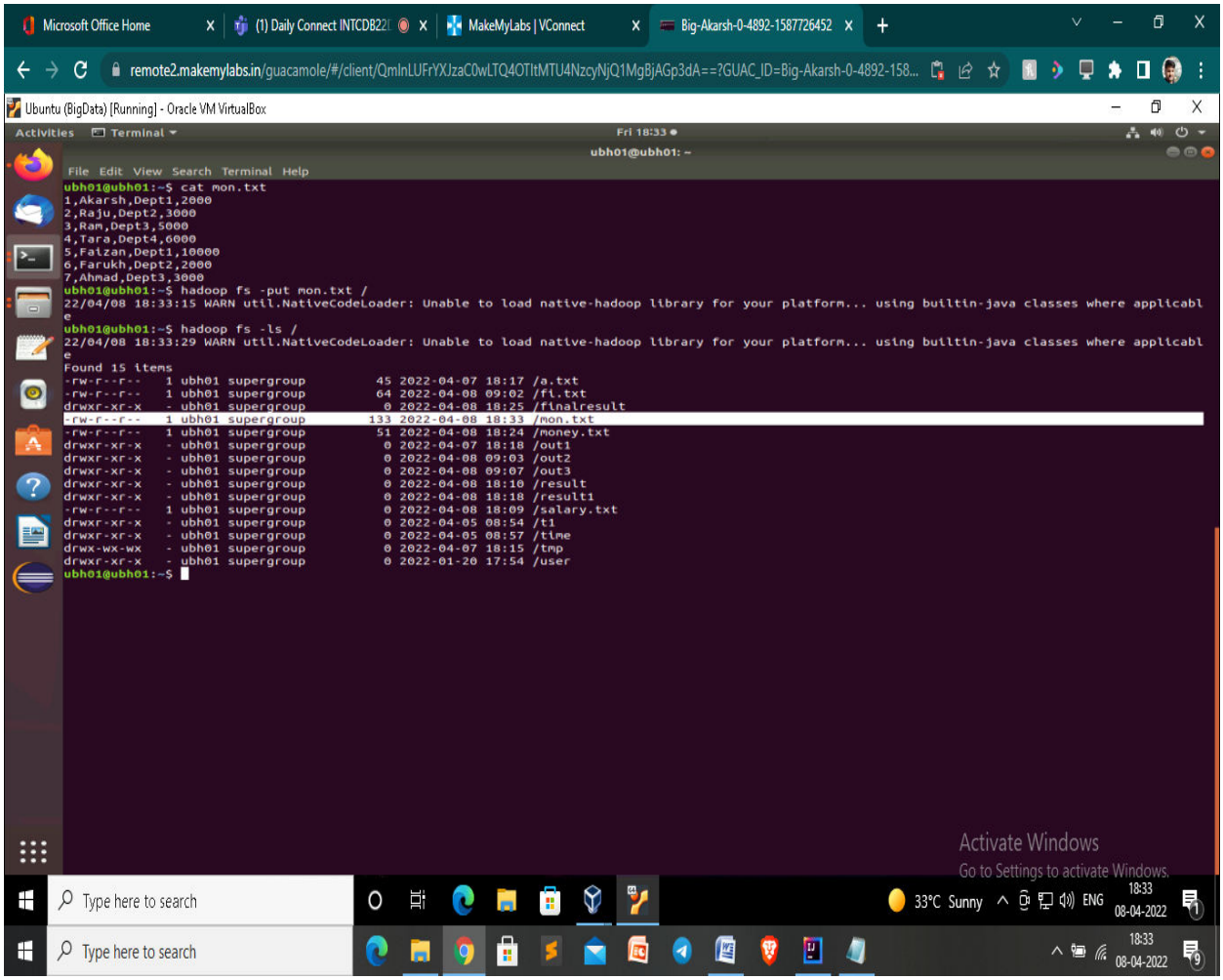
Step 1-> create one file name ‘mon.txt’

Step 2->Add some data into it

Step 3->cat mon.txt (command to see the file content)

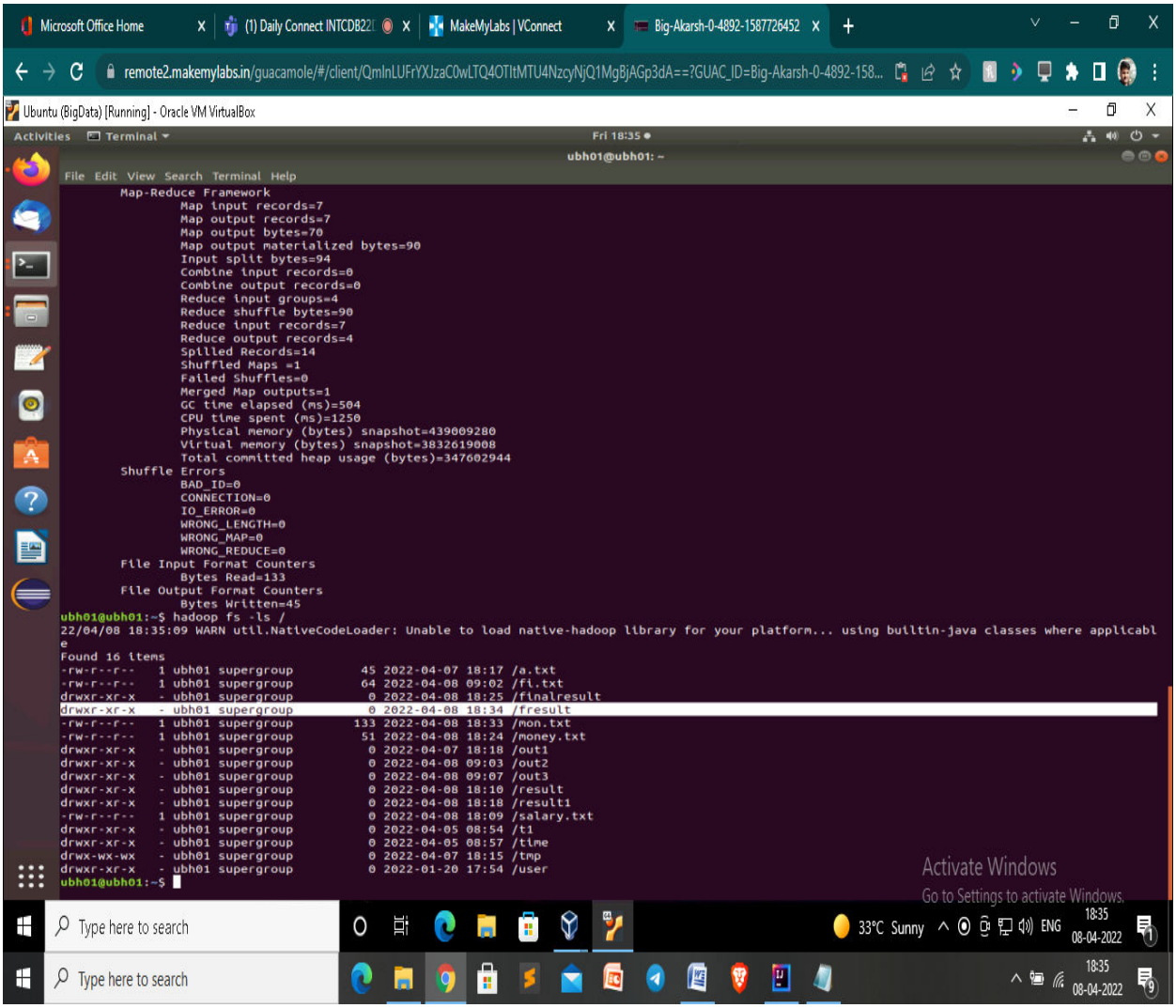


Step 4-> we have to put the mon.txt data into hdfs. by using (hadoop fs –put mon.txt /)



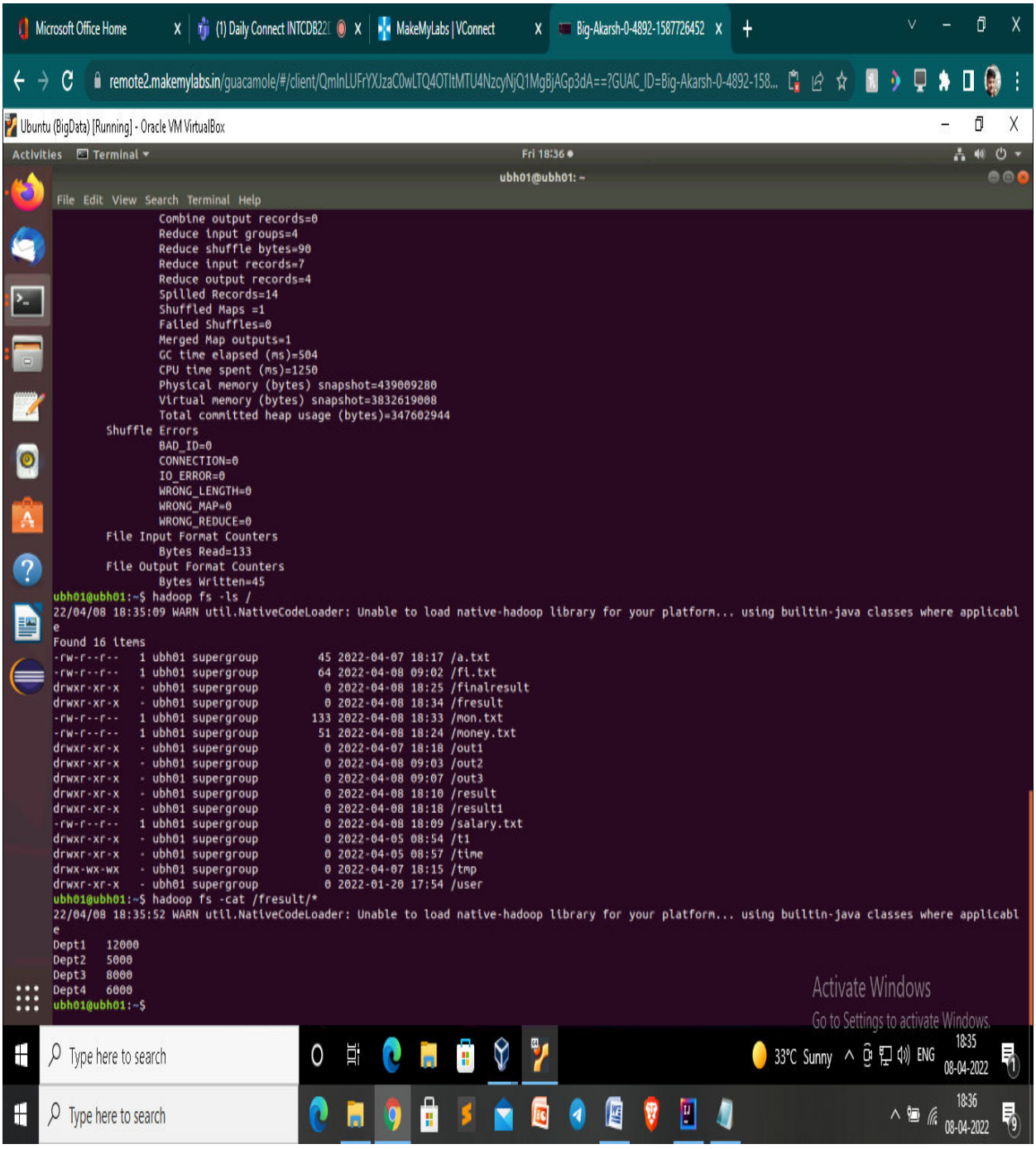
Step 5-> we are able to see that file in hadoop by

(hadoop fs –ls /)



Step 6->

we can put our java code into /fresult



Step 7-> we are able to see our output by using

(hadoop fs –cat /fresult/*)

Input->

```
ubh01@ubh01:~$ cat mon.txt
1,Akarsh,Dept1,2000
2,Raju,Dept2,3000
3,Ram,Dept3,5000
4,Tara,Dept4,6000
5,Faizan,Dept1,10000
6,Farukh,Dept2,2000
7,Ahmad,Dept3,3000
```

Output->

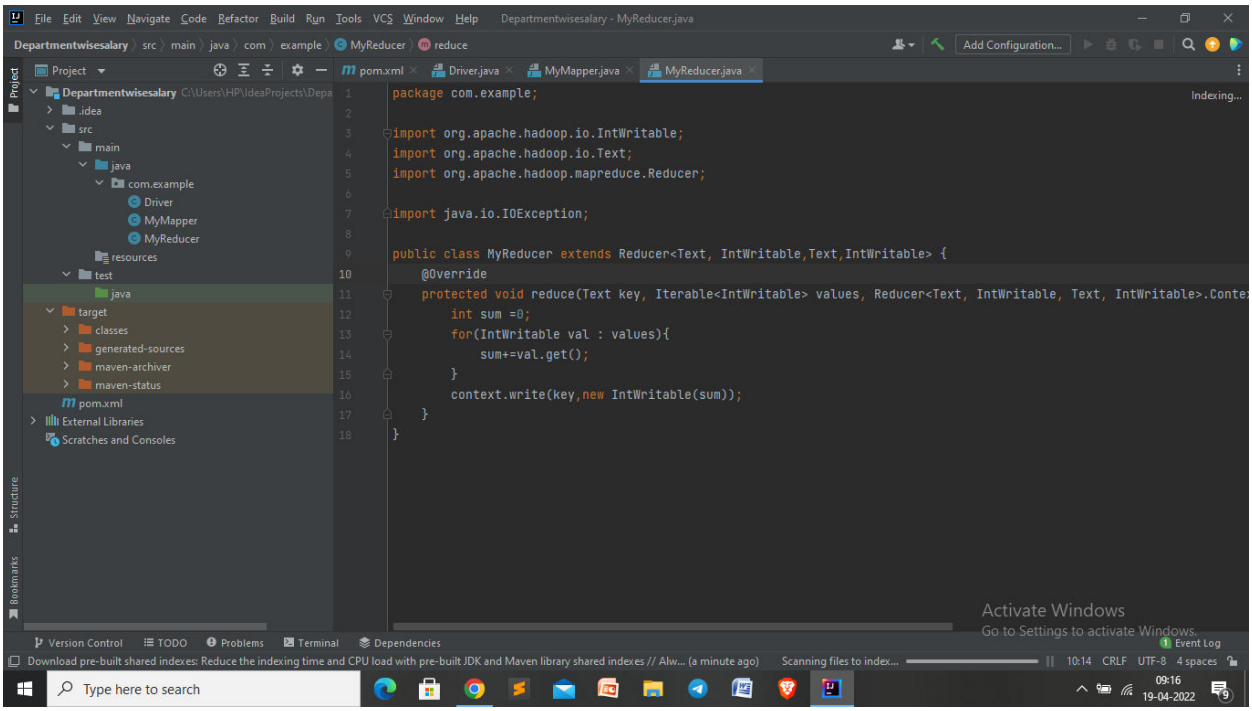
```
ubh01@ubh01:~$ hadoop fs -cat /fresult/*
22/04/08 18:35:52 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Dept1    12000
Dept2    5000
Dept3    8000
Dept4    6000
```

Codes->

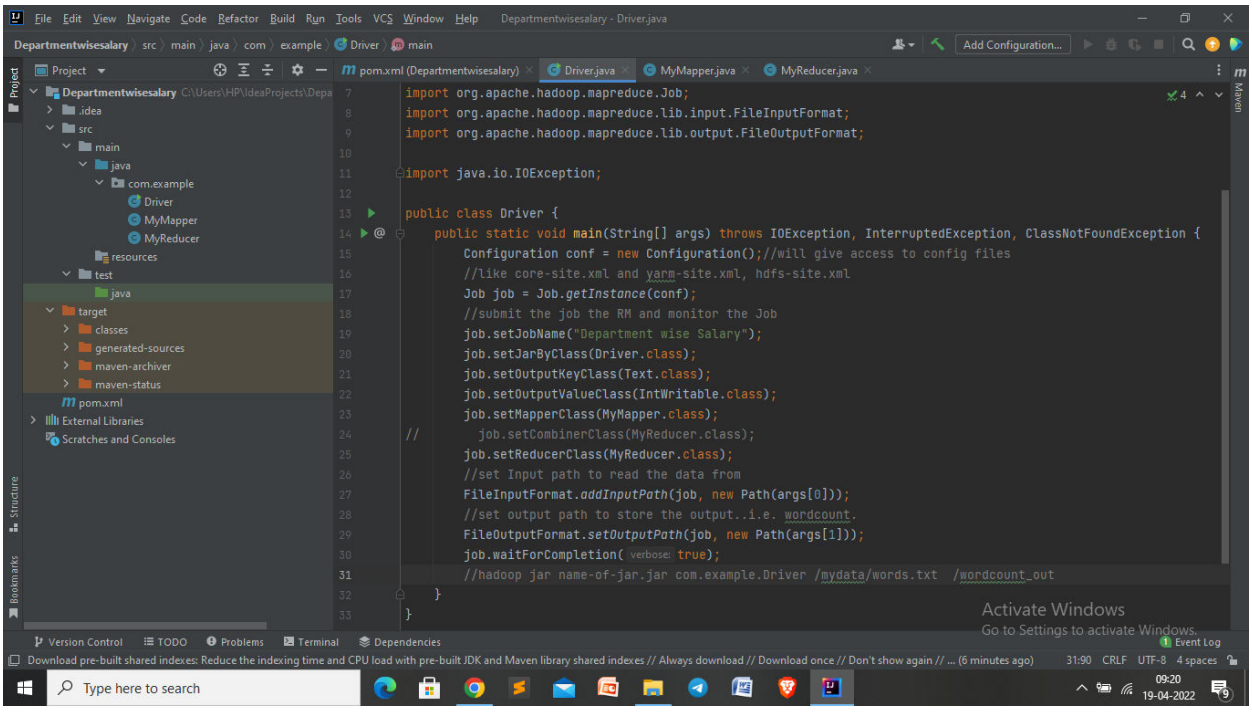
MyReducer.java

```
package com.example;


import org.apache.hadoop.io.IntWritable;

import org.apache.hadoop.io.Text;

import org.apache.hadoop.mapreduce.Reducer;
```

```
import java.io.IOException;

public class MyReducer extends Reducer<Text,
IntWritable,Text,IntWritable> { @Override

    protected void reduce(Text key,
Iterable<IntWritable> values, Reducer<Text,
IntWritable, Text, IntWritable>.Context context)
throws IOException, InterruptedException {

        int sum =0;for(IntWritable val :
values){sum+=val.get();}       context.write(key,new
IntWritable(sum));}}
```



Driver.java



package com.example;

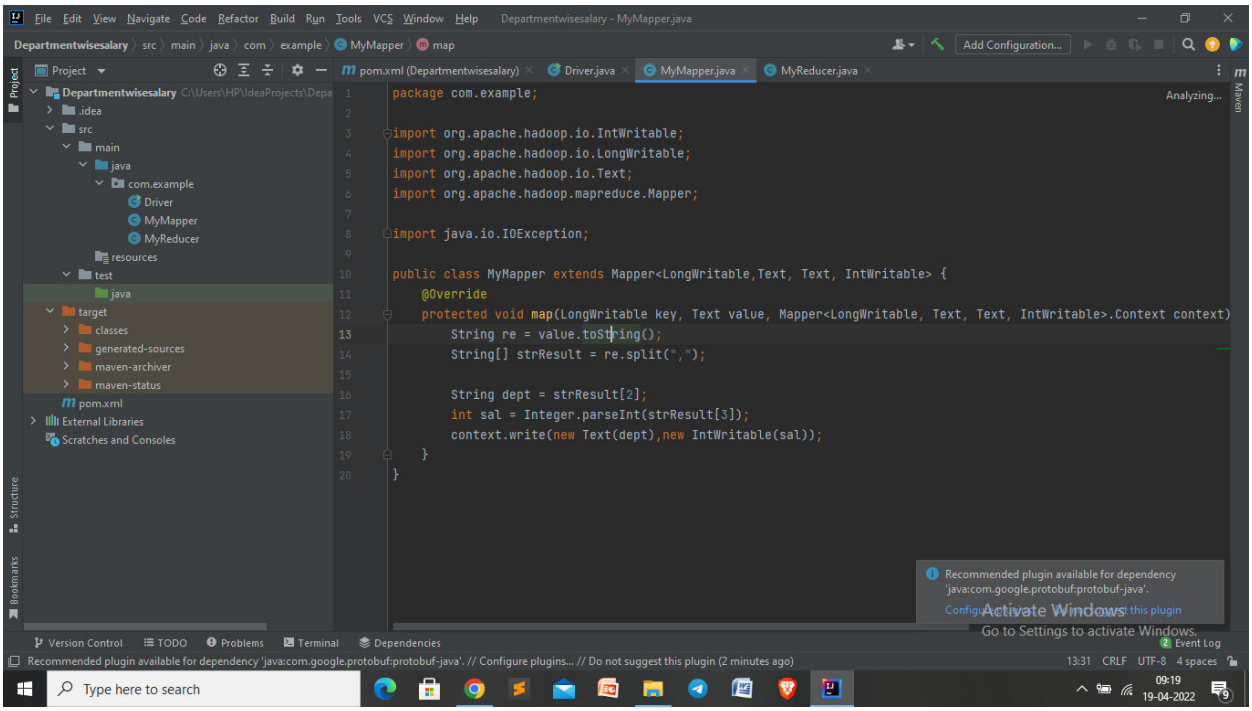
```
import org.apache.hadoop.conf.Configuration;

import org.apache.hadoop.fs.Path;

import org.apache.hadoop.io.IntWritable;

import org.apache.hadoop.io.Text;

import org.apache.hadoop.mapreduce.Job;

import
org.apache.hadoop.mapreduce.lib.input.FileInputFo
rmat;

import
org.apache.hadoop.mapreduce.lib.output.FileOutpu
tFormat;


import java.io.IOException;


public class Driver {
```

```
    public static void main(String[] args) throws
IOException, InterruptedException,
ClassNotFoundException {

        Configuration conf = new Configuration();//will
give access to config files

        //like core-site.xml and yarm-site.xml, hdfs-
site.xml



        Job job = Job.getInstance(conf);

        //submit the job the RM and monitor the Job



        job.setJobName("Department wise Salary");

        job.setJarByClass(Driver.class);

        job.setOutputKeyClass(Text.class);

        job.setOutputValueClass(IntWritable.class);
```

```
        job.setMapperClass(MyMapper.class);
//        job.setCombinerClass(MyReducer.class);
        job.setReducerClass(MyReducer.class);


        //set Input path to read the data from
        FileInputFormat.addInputPath(job, new
Path(args[0]));


        //set output path to store the output..i.e.
wordcount.
        FileOutputFormat.setOutputPath(job, new
Path(args[1]));
```

```
        job.waitForCompletion(true);

        //hadoop jar name-of-jar.jar
com.example.Driver /mydata/words.txt
/wordcount_out


    }

}
```

MyMapper.java




```
package com.example;
```

```
import org.apache.hadoop.io.IntWritable;

import org.apache.hadoop.io.LongWritable;

import org.apache.hadoop.io.Text;

import org.apache.hadoop.mapreduce.Mapper;


import java.io.IOException;


public class MyMapper extends
Mapper<LongWritable,Text, Text, IntWritable> {

   @Override

   protected void map(LongWritable key, Text value,
Mapper<LongWritable, Text, Text,
IntWritable>.Context context) throws IOException,
InterruptedException {

       String re = value.toString();

       String[] strResult = re.split(",");
```

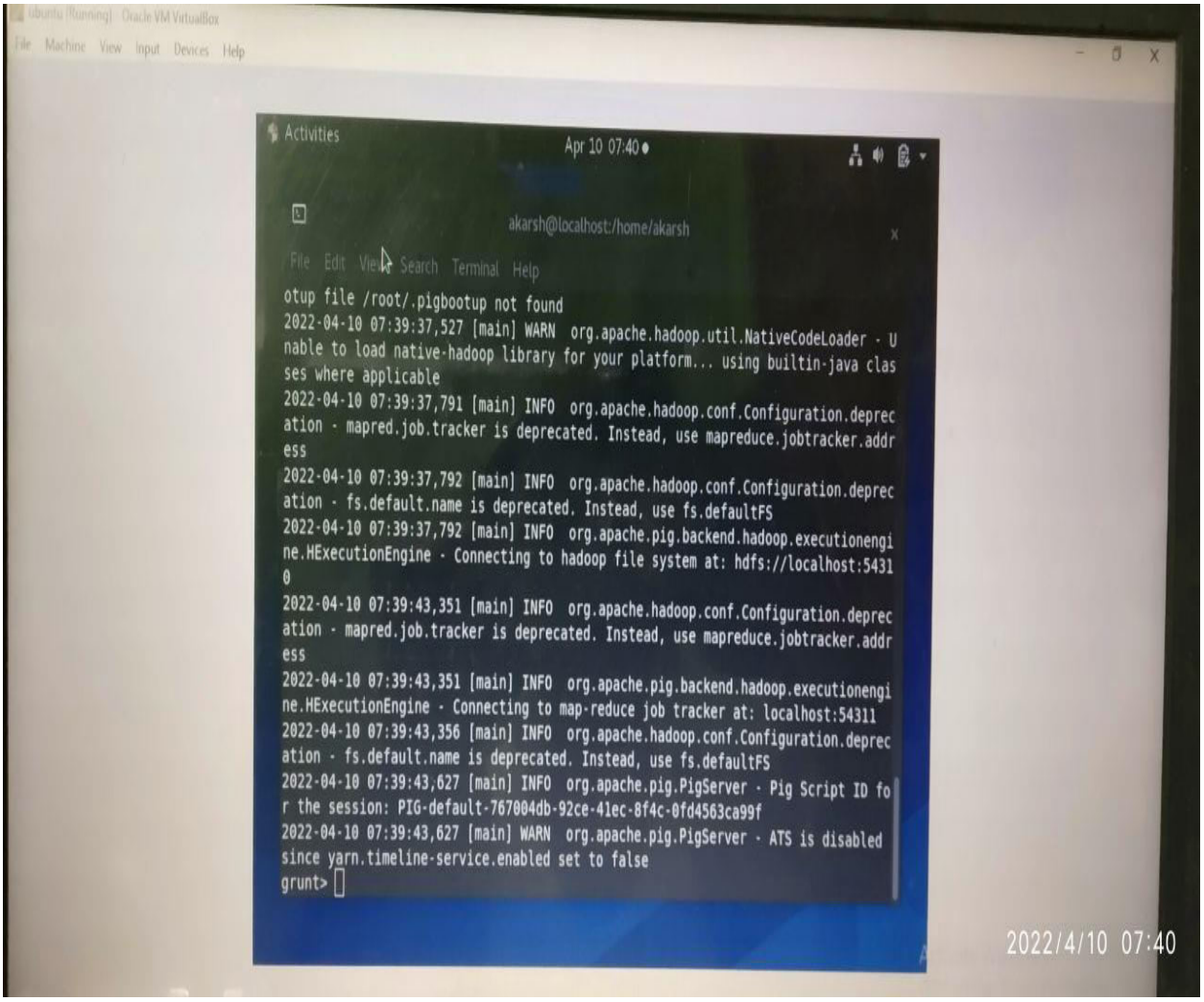
```
        String dept = strResult[2];
        int sal = Integer.parseInt(strResult[3]);
        context.write(new Text(dept),new
IntWritable(sal));
    }
}
```

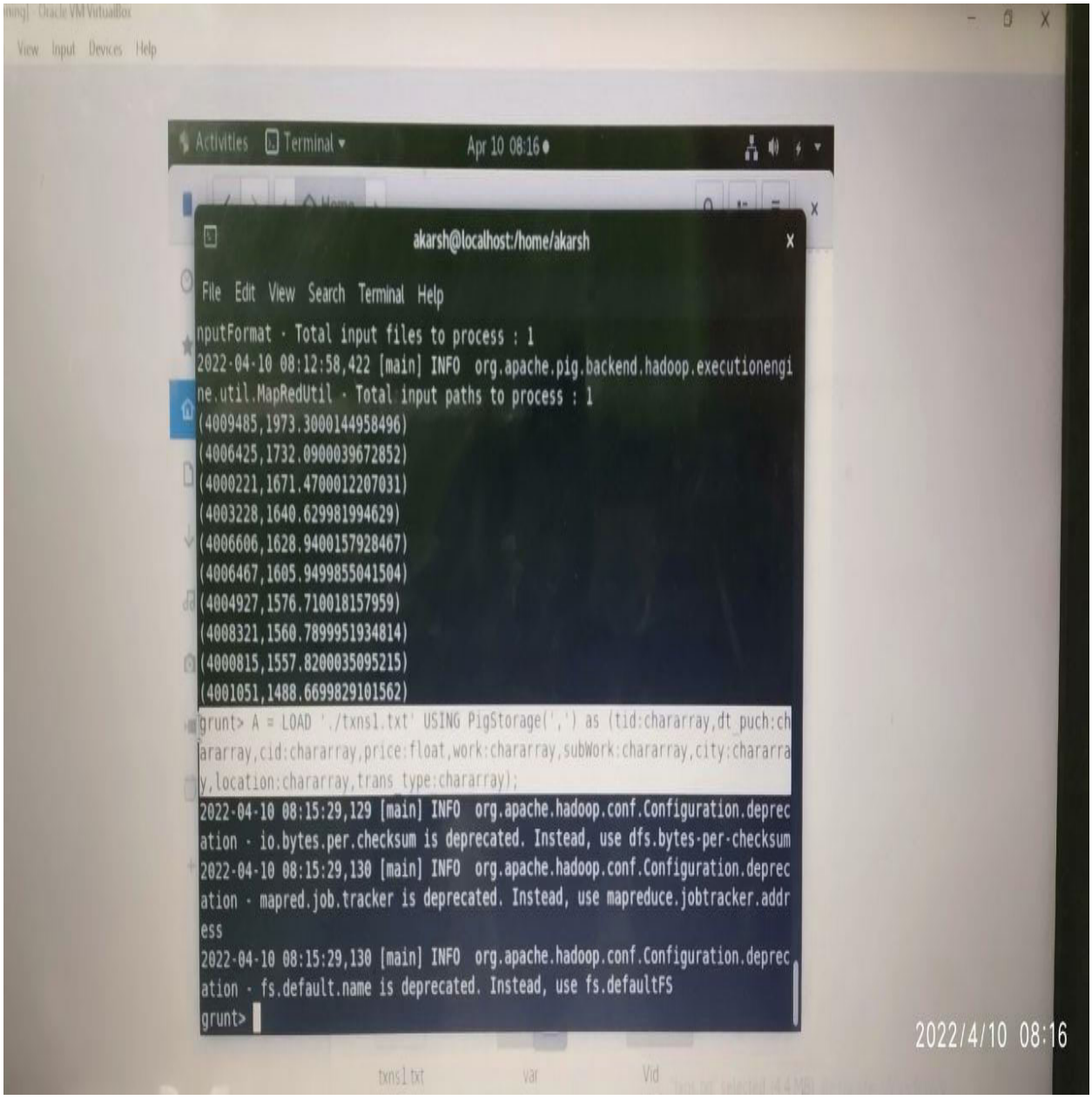
ASSIGNMENT NO. 2

PROBLEM STATEMENT ->Top 10 Customers by total sales.

SUB TOPIC -> USING PIG

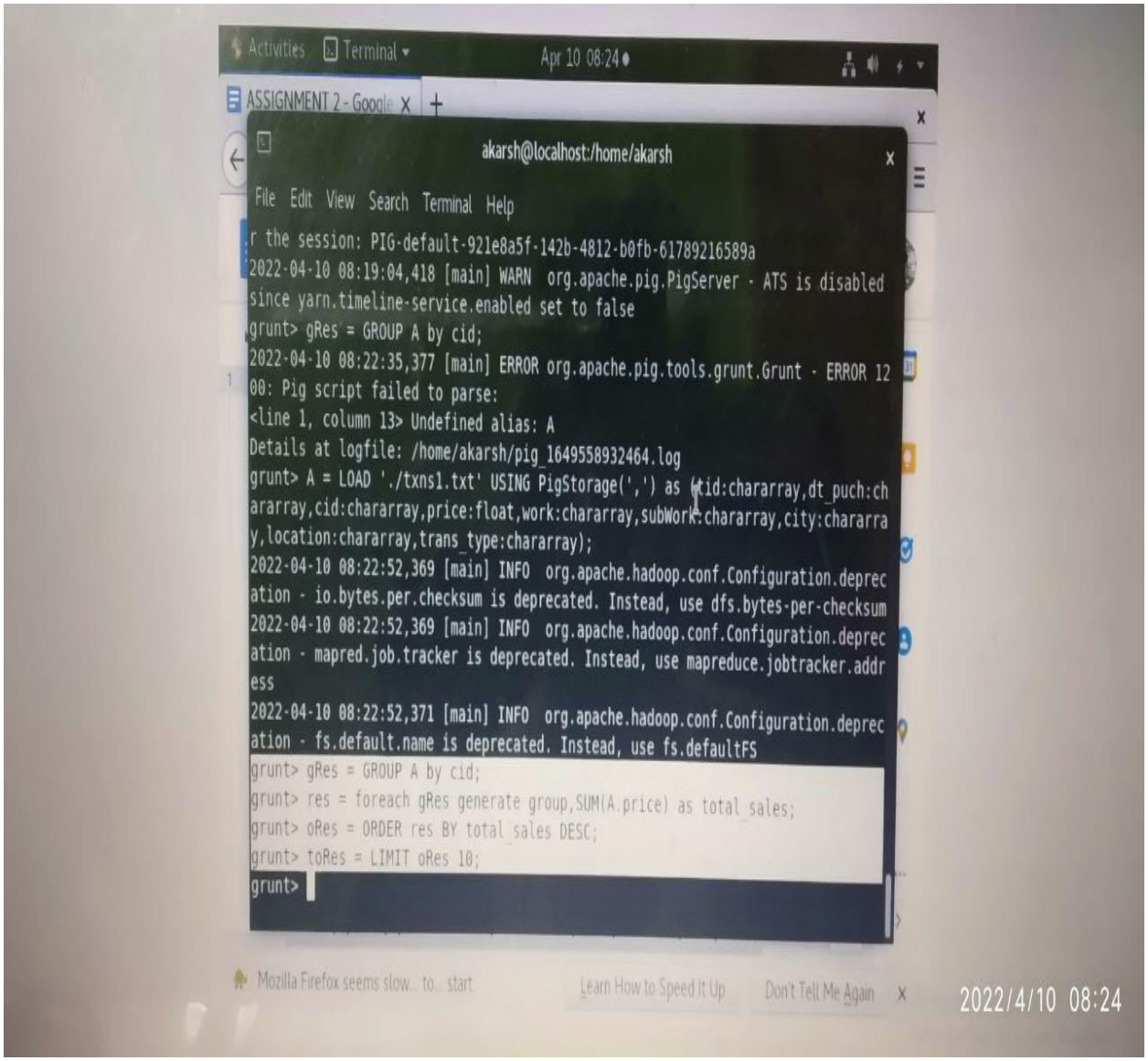
Data – ‘txns1.txt’




Activities
Terminal
Apr 10 08:16
akarsh@localhost:/home/akarsh
File Edit View Search Terminal Help
nputFormat - Total input files to process : 1
2022-04-10 08:12:58,422 [main] INFO org.apache.pig.backend.hadoop.executionengi
ne.util.MapRedUtil - Total input paths to process : 1
(4009485,1973.3000144958496)
(4006425,1732.0900039672852)
(4000221,1671.4700012207031)
(4003228,1640.629981994629)
(4006606,1628.9400157928467)
(4006467,1605.9499855041504)
(4004927,1576.710018157959)
(4008321,1560.7899951934814)
(4000815,1557.8200035095215)
(4001051,1488.6699829101562)
grunt> A = LOAD './txns1.txt' USING PigStorage(',') as (tid:chararray,dt_puch:ch
ararray,cid:chararray,price:float,work:chararray,subWork:chararray,city:chararra
y,location:chararray,trans type:chararray);
2022-04-10 08:15:29,129 [main] INFO org.apache.hadoop.conf.Configuration.deprec
ation - io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2022-04-10 08:15:29,130 [main] INFO org.apache.hadoop.conf.Configuration.deprec
ation - mapred.job.tracker is deprecated. Instead, use mapreduce.jobtracker.addr
ess
2022-04-10 08:15:29,130 [main] INFO org.apache.hadoop.conf.Configuration.deprec
ation - fs.default.name is deprecated. Instead, use fs.defaultFS
grunt>
2022/4/10 08:16

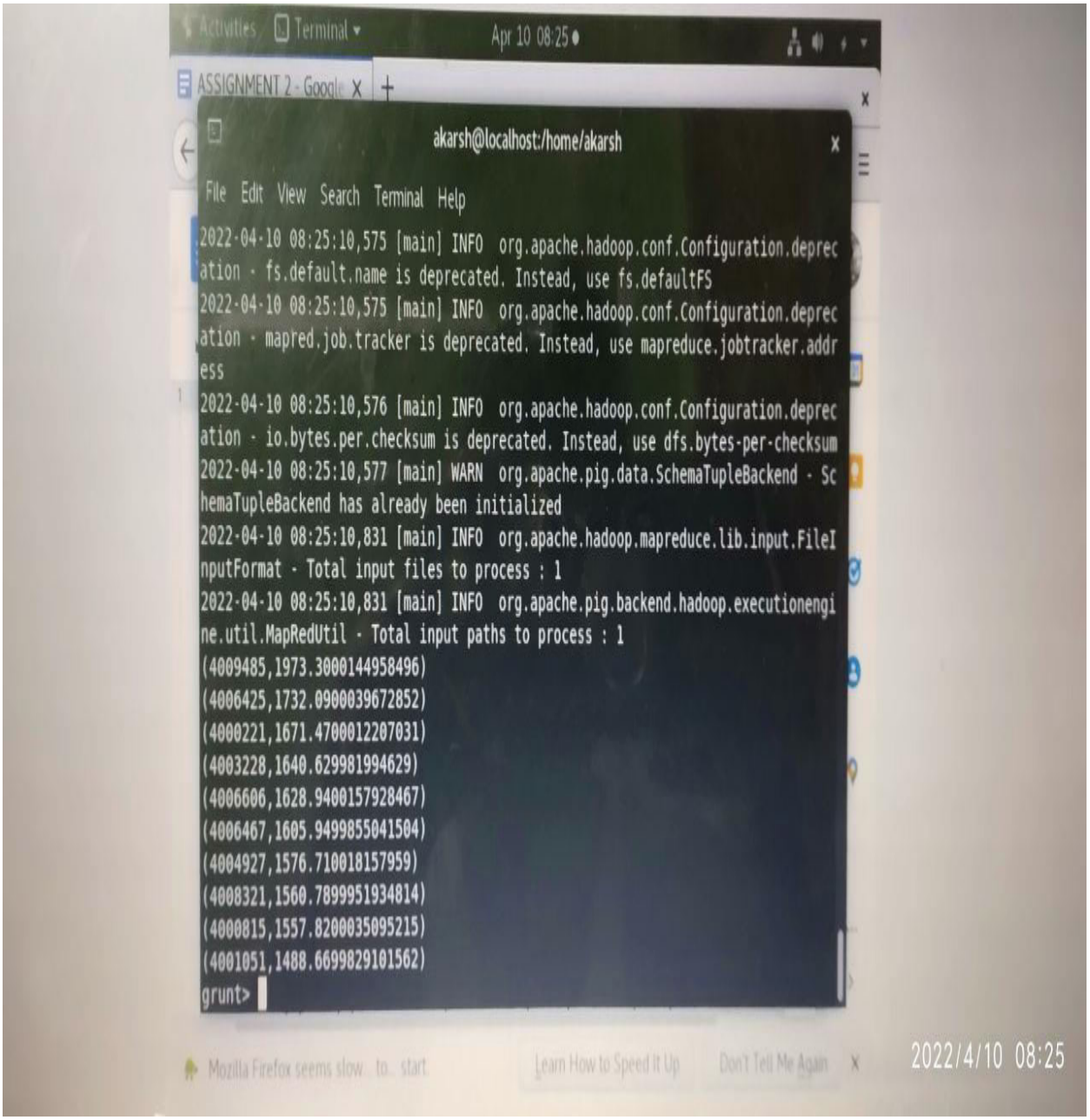
Loading the data :-

grunt> A = LOAD './txns1.txt' USING PigStorage(',') as (tid:chararray,dt_puch:chararray,cid:chararray,price:float,work:chararray,subWork:chararray,city:chararray,location:chararray,trans_type:chararray);



Doing some operation:-

```
grunt> gRes = GROUP A by cid;
grunt> res = foreach gRes generate group,SUM(A.price) as total_sales;
grunt> oRes = ORDER res BY total_sales DESC;
grunt> toRes = LIMIT oRes 10;
grunt> dump toRes
```



Output:-

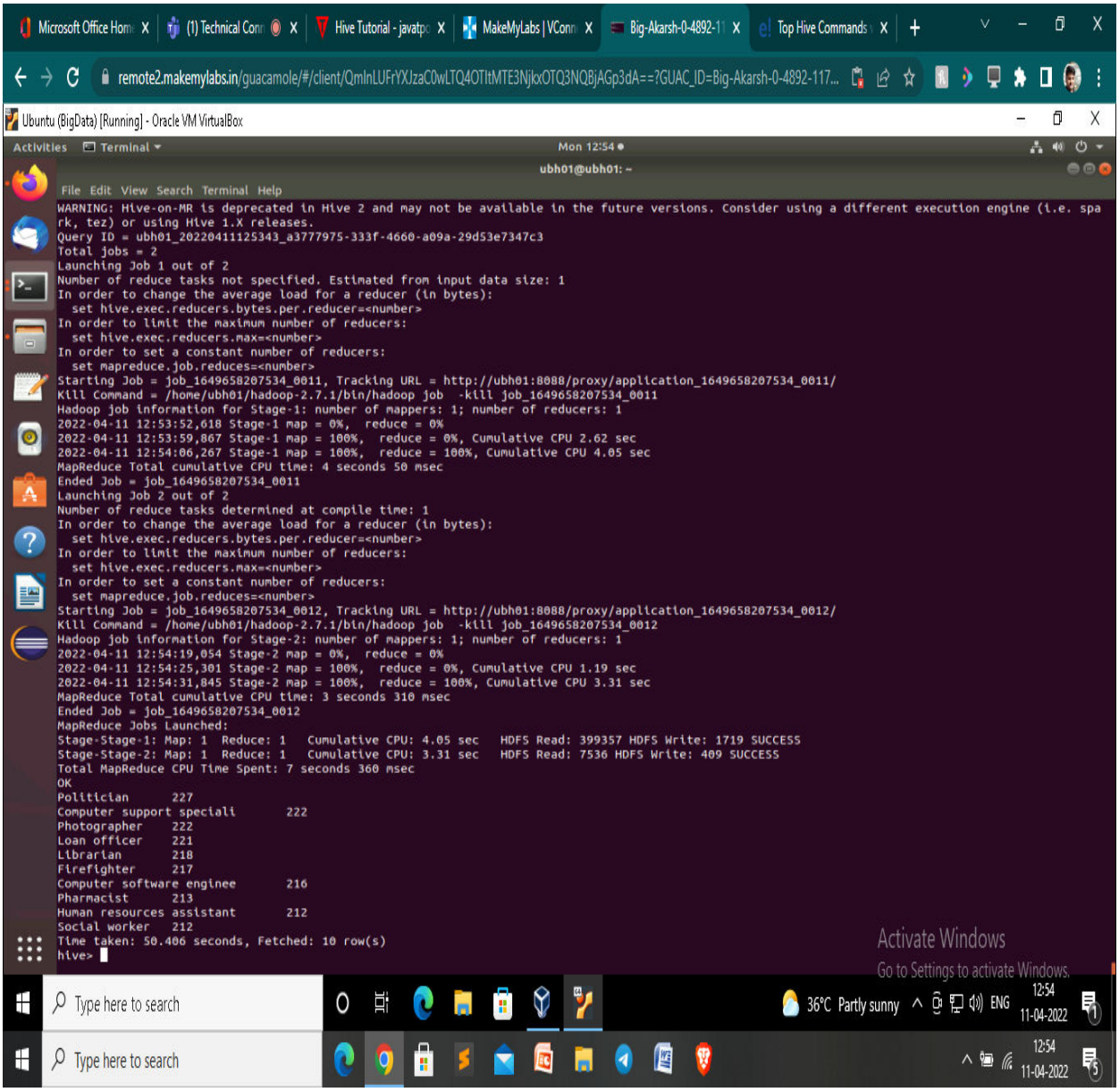
```
2022-04-10 08:12:58,257 [main] WARN
org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher -
Encountered Warning ACCESSING_NON_EXISTENT_FIELD 8 time(s).
2022-04-10 08:12:58,257 [main] INFO
org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher -
Success!
2022-04-10 08:12:58,296 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation -
fs.default.name is deprecated. Instead, use fs.defaultFS
2022-04-10 08:12:58,296 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation -
mapred.job.tracker is deprecated. Instead, use mapreduce.jobtracker.address
2022-04-10 08:12:58,297 [main] INFO  org.apache.hadoop.conf.Configuration.deprecation -
io.bytes.per.checksum is deprecated. Instead, use dfs.bytes-per-checksum
2022-04-10 08:12:58,298 [main] WARN  org.apache.pig.data.SchemaTupleBackend -
SchemaTupleBackend has already been initialized
2022-04-10 08:12:58,421 [main] INFO  org.apache.hadoop.mapreduce.lib.input.FileInputFormat
- Total input files to process : 1
2022-04-10 08:12:58,422 [main] INFO
org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil - Total input paths to process
: 1
(4009485,1973.3000144958496)
(4006425,1732.0900039672852)
(4000221,1671.4700012207031)
(4003228,1640.629981994629)
(4006606,1628.9400157928467)
(4006467,1605.9499855041504)
(4004927,1576.710018157959)
(4008321,1560.7899951934814)
(4000815,1557.8200035095215)
(4001051,1488.6699829101562)
```

ASSIGNMENT NO.3

PROBLEM STATEMENT->Top 10 designation with people count

SUB TOPIC->USING HIVE

Data -> ‘custs.txt’



```
hive> load data local inpath '/home/ubh01/custs.txt' into table db.cu;


hive> create table cu(cid integer,fname varchar(15),lname varchar(15),age integer,designation
varchar(25))
        > row format delimited
        > fields terminated by ','
        > stored as textfile;
```

*) Without handling null designation

```
hive> select designation, count(designation) as total  from db.cu group by designation order by
total  desc limit 10;
```

*) BY handling null designation ->

```
hive> SELECT case WHEN designation='' THEN 'Unknown' ELSE designation END as
designations,COUNT(*) total FROM db.cu GROUP BY designation ORDER BY total DESC
LIMIT 10;

Kill Command = /home/ubh01/hadoop-2.7.1/bin/hadoop job  -kill job_1649658207534_0010
Hadoop job information for Stage-2: number of mappers: 1; number of reducers: 1
2022-04-11 12:46:25,743 Stage-2 map = 0%,  reduce = 0%
2022-04-11 12:46:31,122 Stage-2 map = 100%,  reduce = 0%, Cumulative CPU 1.41 sec
2022-04-11 12:46:39,662 Stage-2 map = 100%,  reduce = 100%, Cumulative CPU 5.92 sec
MapReduce Total cumulative CPU time: 5 seconds 920 msec
Ended Job = job_1649658207534_0010
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 9.01 sec   HDFS Read: 399357 HDFS
Write: 1719 SUCCESS
Stage-Stage-2: Map: 1  Reduce: 1   Cumulative CPU: 5.92 sec   HDFS Read: 7536 HDFS
Write: 409 SUCCESS
Total MapReduce CPU Time Spent: 14 seconds 930 msec
OK
Politician    227
Computer support speciali    222
Photographer    222
Loan officer    221
Librarian    218
Firefighter    217
Computer software enginee    216
Pharmacist    213
Human resources assistant    212
```

Social worker 212
Time taken: 52.651 seconds, Fetched: 10 row(s)

ASSIGNMENT NO.4

PROBLEM STATEMENT->Create a login table and put data into it and show the output

SUB TOPIC-> USING hbase

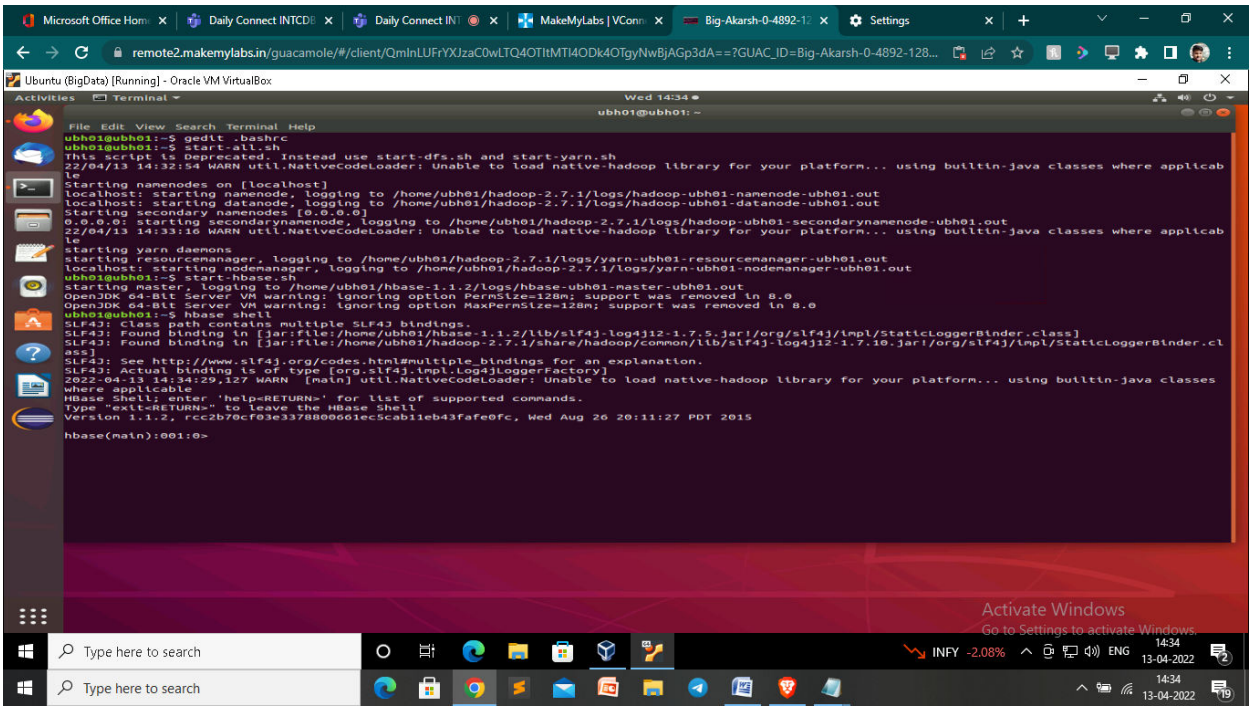
Ans4->

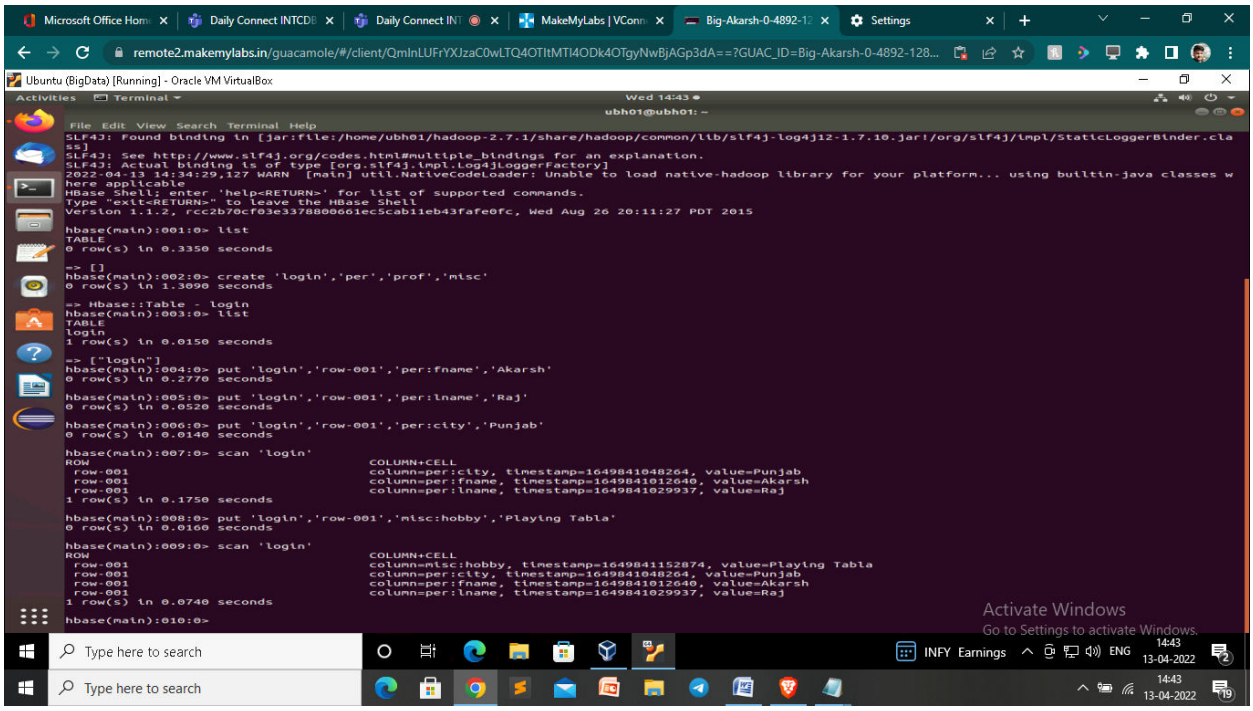
to start the hdfs and hbase shell

ubh01@ubh01:~$ start-all.sh
This script is Deprecated. Instead use start-dfs.sh and start-yarn.sh
22/04/13 14:32:54 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Starting namenodes on [localhost]
localhost: starting namenode, logging to /home/ubh01/hadoop-2.7.1/logs/hadoop-ubh01-namenode-ubh01.out
localhost: starting datanode, logging to /home/ubh01/hadoop-2.7.1/logs/hadoop-ubh01-datanode-ubh01.out
Starting secondary namenodes [0.0.0.0]
0.0.0.0: starting secondarynamenode, logging to /home/ubh01/hadoop-2.7.1/logs/hadoop-ubh01-secondarynamenode-ubh01.out
22/04/13 14:33:16 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
starting yarn daemons
starting resourcemanager, logging to /home/ubh01/hadoop-2.7.1/logs/yarn-ubh01-resourcemanager-ubh01.out
localhost: starting nodemanager, logging to /home/ubh01/hadoop-2.7.1/logs/yarn-ubh01-nodemanager-ubh01.out
ubh01@ubh01:~$ start-hbase.sh
starting master, logging to /home/ubh01/hbase-1.1.2/logs/hbase-ubh01-master-ubh01.out

OpenJDK 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
OpenJDK 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
ubh01@ubh01:~$ hbase shell
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/hbase-1.1.2/lib/slf4j-log4j12-1.7.5.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
2022-04-13 14:34:29,127 WARN [main] util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.1.2, rcc2b70cf03e3378800661ec5cab11eb43fafe0fc, Wed Aug 26 20:11:27 PDT 2015

hbase(main):001:0>





After creation of login table and by putting some values

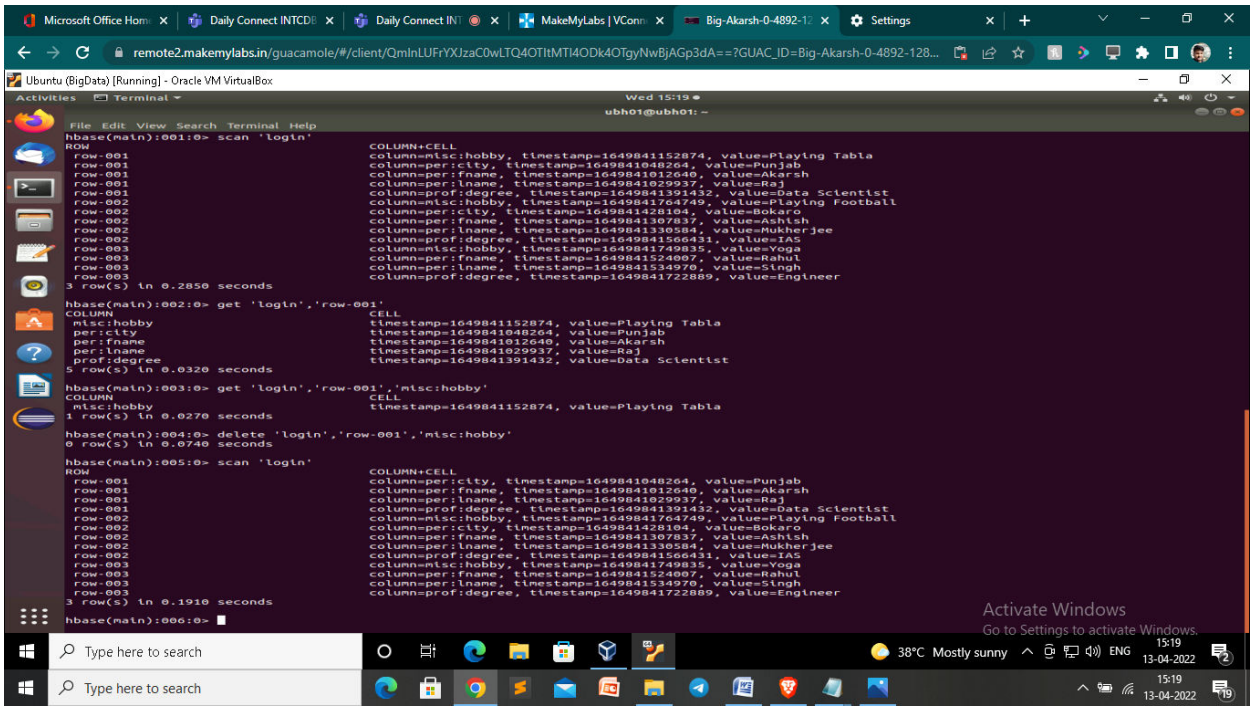
hbase(main):028:0> scan 'login'

ROW	COLUMN+CELL
row-001	column=misc:hobby, timestamp=1649841152874, value=Playing Tabla
row-001	column=per:city, timestamp=1649841048264, value=Punjab
row-001	column=per:fname, timestamp=1649841012640, value=Akarsh
row-001	column=per:lname, timestamp=1649841029937, value=Raj
row-001	column=prof:degree, timestamp=1649841391432, value=Data Scientist
row-002	column=misc:hobby, timestamp=1649841764749, value=Playing Football
row-002	column=per:city, timestamp=1649841428104, value=Bokaro
row-002	column=per:fname, timestamp=1649841307837, value=Ashish
row-002	column=per:lname, timestamp=1649841330584, value=Mukherjee
row-002	column=prof:degree, timestamp=1649841566431, value=IAS
row-003	column=misc:hobby, timestamp=1649841749835, value=Yoga

```
 row-003                column=per:fname, timestamp=1649841524007, value=Rahul

 row-003                column=per:lname, timestamp=1649841534970, value=Singh

 row-003                column=prof:degree, timestamp=1649841722889,
value=Engineer
3 row(s) in 0.0640 seconds
```

If we want to delete some data

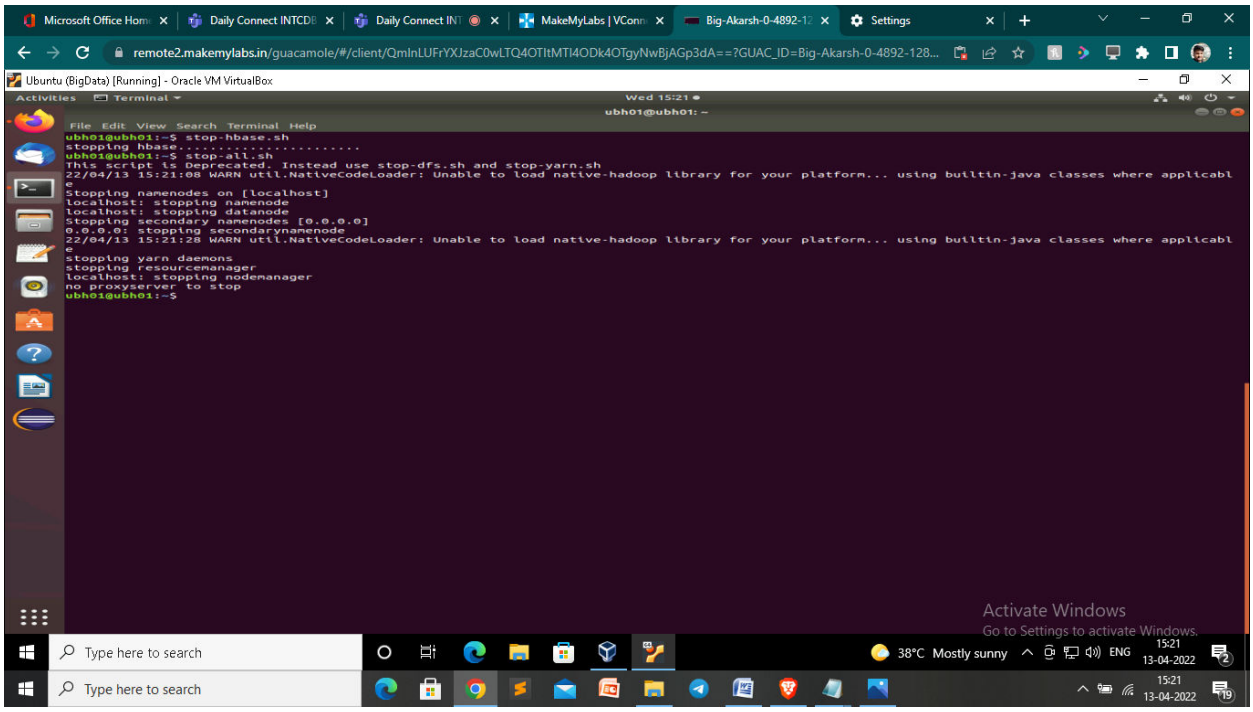
```
hbase(main):004:0> delete 'login','row-001','misc:hobby'
0 row(s) in 0.0740 seconds

hbase(main):005:0> scan 'login'
ROW                    COLUMN+CELL

 row-001               column=per:city, timestamp=1649841048264, value=Punjab

 row-001               column=per:fname, timestamp=1649841012640, value=Akarsh

 row-001               column=per:lname, timestamp=1649841029937, value=Raj

 row-001               column=prof:degree, timestamp=1649841391432, value=Data
Scientist
 row-002               column=misc:hobby, timestamp=1649841764749, value=Playing
Football
 row-002               column=per:city, timestamp=1649841428104, value=Bokaro

 row-002               column=per:fname, timestamp=1649841307837, value=Ashish

 row-002               column=per:lname, timestamp=1649841330584, value=Mukherjee

 row-002               column=prof:degree, timestamp=1649841566431, value=IAS

 row-003               column=misc:hobby, timestamp=1649841749835, value=Yoga

 row-003               column=per:fname, timestamp=1649841524007, value=Rahul

 row-003               column=per:lname, timestamp=1649841534970, value=Singh

 row-003               column=prof:degree, timestamp=1649841722889,
value=Engineer
3 row(s) in 0.1910 seconds
```



To stop hbase

ubh01@ubh01:~$ stop-hbase.sh
stopping hbase.....
ubh01@ubh01:~$ stop-all.sh
This script is Deprecated. Instead use stop-dfs.sh and stop-yarn.sh
22/04/13 15:21:08 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Stopping namenodes on [localhost]
localhost: stopping namenode
localhost: stopping datanode
Stopping secondary namenodes [0.0.0.0]
0.0.0.0: stopping secondarynamenode

22/04/13 15:21:28 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
stopping yarn daemons
stopping resourcemanager
localhost: stopping nodemanager
no proxyserver to stop



ASSIGNMENT NO.5

TOPIC->Sqoop Program

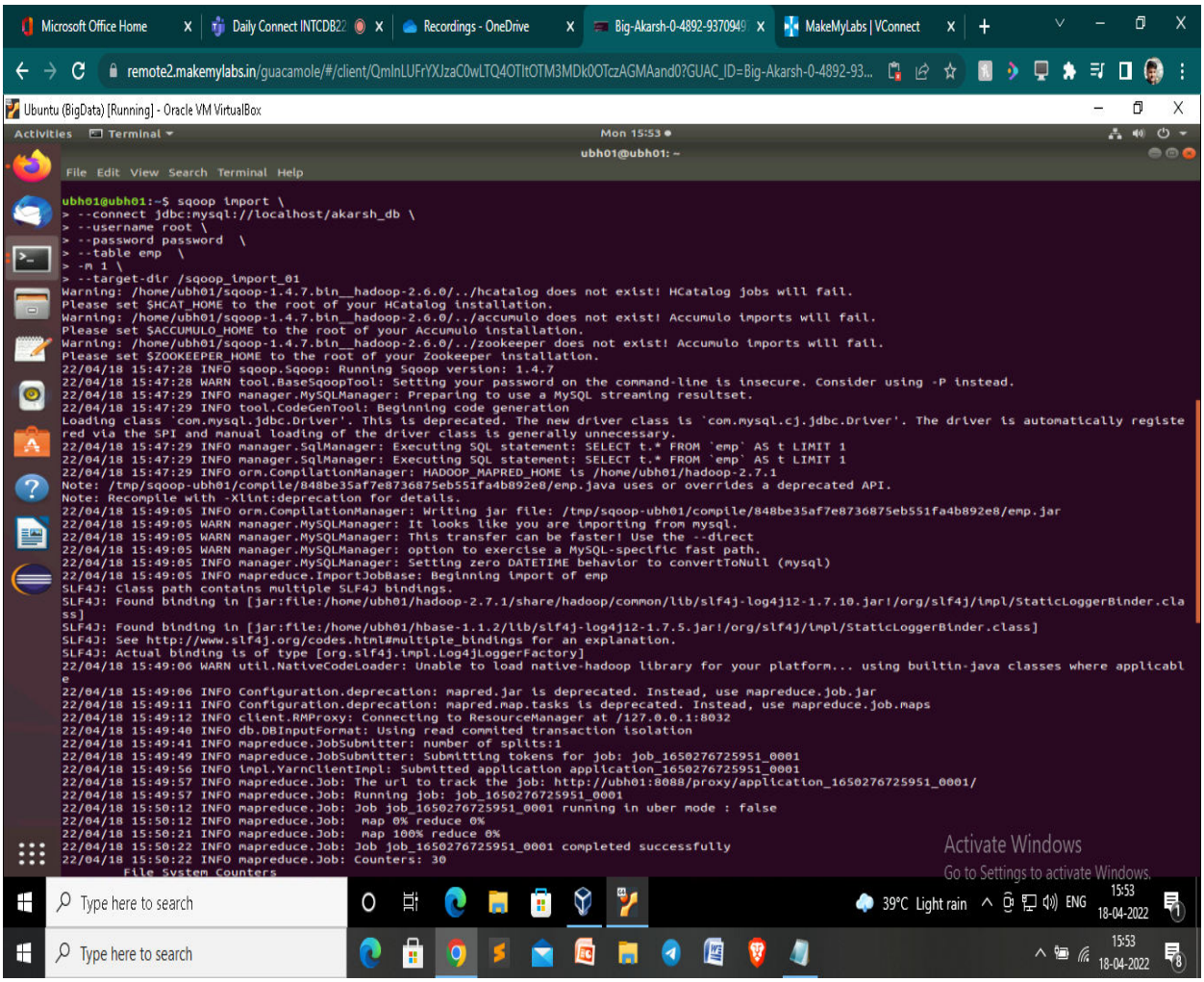
SUB TOPIC -> USING SQOOP

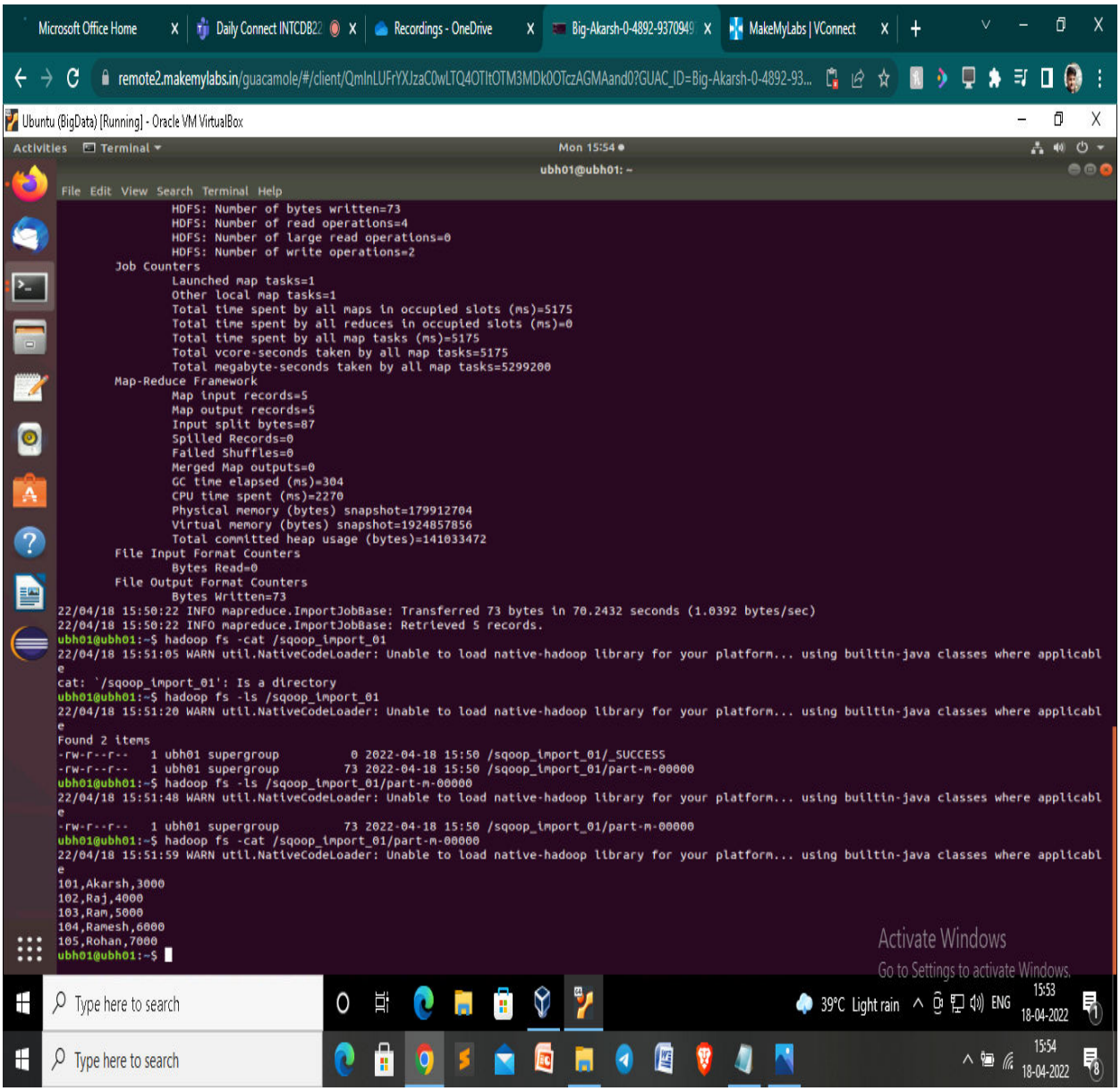
i) Use one mapper

```
mysql> use akarsh_db;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from emp;
+-------+--------+--------+
| empid | ename  | salary |
+-------+--------+--------+
|   101 | Akarsh |   3000 |
|   102 | Raj    |   4000 |
|   103 | Ram    |   5000 |
|   104 | Ramesh |   6000 |
|   105 | Rohan  |   7000 |
+-------+--------+--------+
5 rows in set (0.00 sec)
```

```
ubh01@ubh01:~$ sqoop import \
> --connect jdbc:mysql://localhost/akarsh_db \
> --username root \
> --password password  \
> --table emp  \
> -m 1 \
> --target-dir /sqoop_import_01
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../hcatalog does not exist! HCatalog jobs
will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../accumulo does not exist! Accumulo
imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../zookeeper does not exist! Accumulo
imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
22/04/18 15:47:28 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
```

ubh01@ubh01:~$ hadoop fs -cat /sqoop_import_01/part-m-00000
22/04/18 15:51:59 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
101,Akarsh,3000
102,Raj,4000
103,Ram,5000
104,Ramesh,6000
105,Rohan,7000



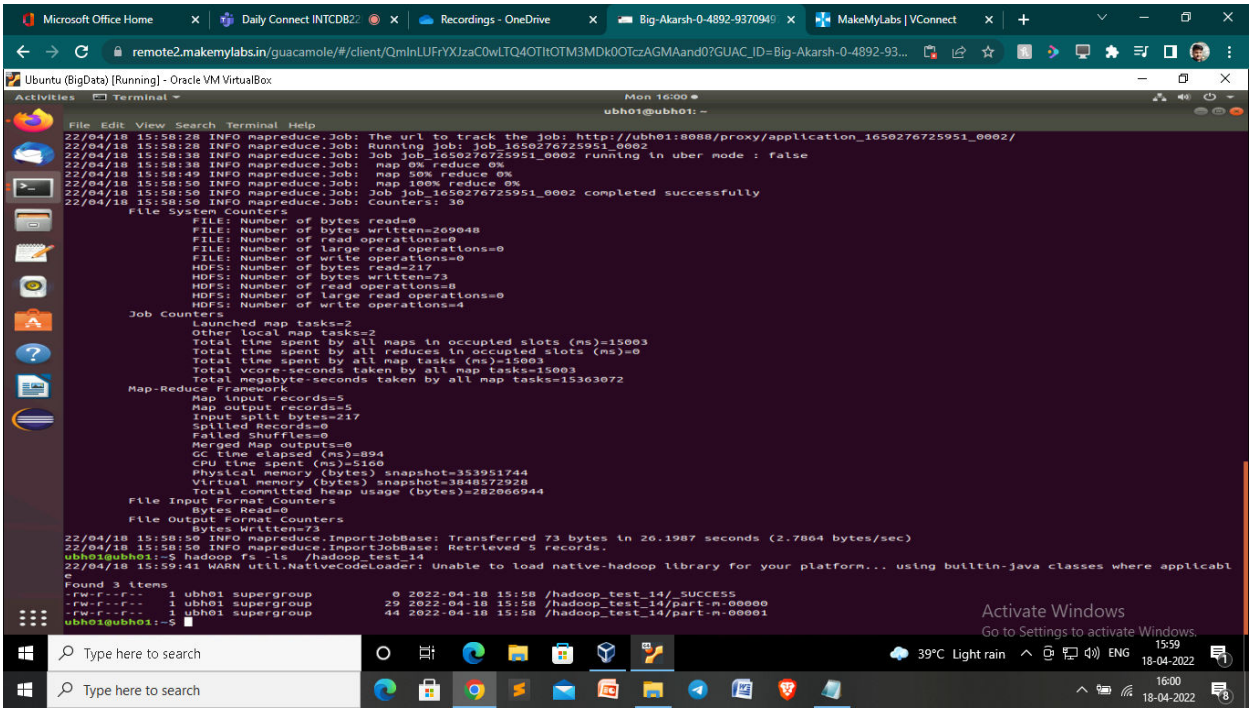

Microsoft Office Home
Daily Connect INTCDB22
Recordings - OneDrive
Big-Akarsh-0-4892-9370949
MakeMyLabs | VConnect
remote2.makemylabs.in/guacamole/#/client/QmInLUFrYXJzaC0wLTQ4OTItOTM3MDk0OTczAGMAand0?GUAC_ID=Big-Akarsh-0-4892-93...
Ubuntu (BigData) [Running] - Oracle VM VirtualBox
Activities
Terminal
Mon 15:54
ubh01@ubh01: ~
File Edit View Search Terminal Help
HDFS: Number of bytes written=73
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)=5175
Total time spent by all reduces in occupied slots (ms)=0
Total time spent by all map tasks (ms)=5175
Total vcore-seconds taken by all map tasks=5175
Total megabyte-seconds taken by all map tasks=5299200
Map-Reduce Framework
Map input records=5
Map output records=5
Input split bytes=87
Spilled Records=0
Failed Shuffles=0
Merged Map outputs=0
GC time elapsed (ms)=304
CPU time spent (ms)=2270
Physical memory (bytes) snapshot=179912704
Virtual memory (bytes) snapshot=1924857856
Total committed heap usage (bytes)=141033472
File Input Format Counters
Bytes Read=0
File Output Format Counters
Bytes Written=73
22/04/18 15:50:22 INFO mapreduce.ImportJobBase: Transferred 73 bytes in 70.2432 seconds (1.0392 bytes/sec)
22/04/18 15:50:22 INFO mapreduce.ImportJobBase: Retrieved 5 records.
ubh01@ubh01:~$ hadoop fs -cat /sqoop_import_01
22/04/18 15:51:05 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
cat: `/sqoop_import_01': Is a directory
ubh01@ubh01:~$ hadoop fs -ls /sqoop_import_01
22/04/18 15:51:20 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 2 items
-rw-r--r-- 1 ubh01 supergroup 0 2022-04-18 15:50 /sqoop_import_01/_SUCCESS
-rw-r--r-- 1 ubh01 supergroup 73 2022-04-18 15:50 /sqoop_import_01/part-m-00000
ubh01@ubh01:~$ hadoop fs -ls /sqoop_import_01/part-m-00000
22/04/18 15:51:48 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
-rw-r--r-- 1 ubh01 supergroup 73 2022-04-18 15:50 /sqoop_import_01/part-m-00000
ubh01@ubh01:~$ hadoop fs -cat /sqoop_import_01/part-m-00000
22/04/18 15:51:59 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
101,Akarsh,3000
102,Raj,4000
103,Ram,5000
104,Ramesh,6000
105,Rohan,7000
ubh01@ubh01:~$
Activate Windows
Go to Settings to activate Windows.
Type here to search
39°C Light rain
ENG
15:53
18-04-2022
Type here to search
15:54
18-04-2022

ii) Use two Mappers

```
ubh01@ubh01:~$ sqoop import \
> --connect jdbc:mysql://localhost/akarsh_db \
> --username root \
> --password password \
> --table emp \
> --split-by empid \
> -m 2 \
> --target-dir /hadoop_test_14
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation
```

```
ubh01@ubh01:~$ hadoop fs -ls  /hadoop_test_14
22/04/18 15:59:41 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 3 items
-rw-r--r--   1 ubh01 supergroup          0 2022-04-18 15:58 /hadoop_test_14/_SUCCESS
-rw-r--r--   1 ubh01 supergroup         29 2022-04-18 15:58 /hadoop_test_14/part-m-00000
-rw-r--r--   1 ubh01 supergroup         44 2022-04-18 15:58 /hadoop_test_14/part-m-00001
```

```
ubh01@ubh01:~$ hadoop fs -cat  /hadoop_test_14/part-m-00000
22/04/18 16:00:39 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
101,Akarsh,3000
102,Raj,4000
ubh01@ubh01:~$ hadoop fs -cat  /hadoop_test_14/part-m-00001
22/04/18 16:00:46 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
103,Ram,5000
104,Ramesh,6000
105,Rohan,7000
```

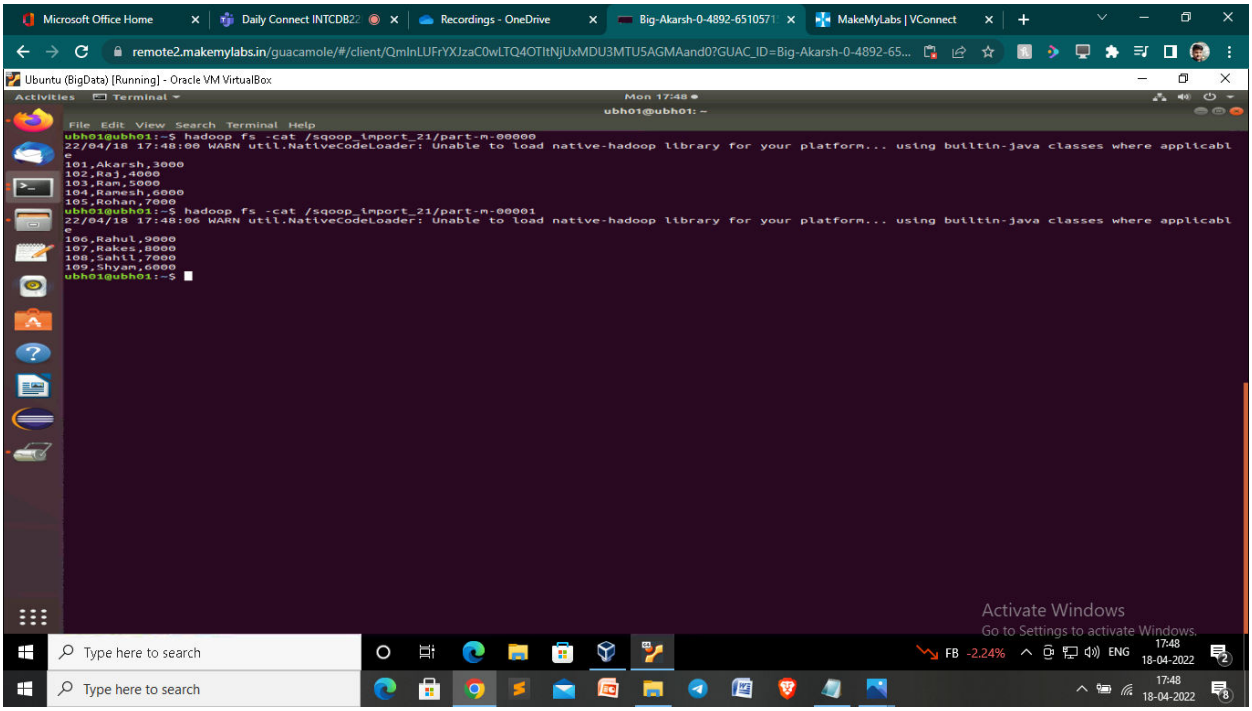

Microsoft Office Home
Daily Connect INTCDB22
Recordings - OneDrive
Big-Akarsh-0-4892-9370949
MakeMyLabs | VConnect
remote2.makemylabs.in/guacamole/#/client/QmlnLUFrYXJzaC0wLTQ4OTItOTM3MDk0OTczAGMAand0?GUAC_ID=Big-Akarsh-0-4892-93...
Ubuntu (BigData) [Running] - Oracle VM VirtualBox
Activities
Terminal
Mon 16:00
ubh01@ubh01: ~
File Edit View Search Terminal Help
22/04/18 15:58:28 INFO mapreduce.Job: The url to track the job: http://ubh01:8088/proxy/application_1650276725951_0002/
22/04/18 15:58:28 INFO mapreduce.Job: Running job: job_1650276725951_0002
22/04/18 15:58:38 INFO mapreduce.Job: Job job_1650276725951_0002 running in uber mode : false
22/04/18 15:58:38 INFO mapreduce.Job: map 0% reduce 0%
22/04/18 15:58:49 INFO mapreduce.Job: map 50% reduce 0%
22/04/18 15:58:50 INFO mapreduce.Job: map 100% reduce 0%
22/04/18 15:58:50 INFO mapreduce.Job: Job job_1650276725951_0002 completed successfully
22/04/18 15:58:50 INFO mapreduce.Job: Counters: 30
File System Counters
FILE: Number of bytes read=0
FILE: Number of bytes written=269048
FILE: Number of read operations=0
FILE: Number of large read operations=0
FILE: Number of write operations=0
HDFS: Number of bytes read=217
HDFS: Number of bytes written=73
HDFS: Number of read operations=8
HDFS: Number of large read operations=0
HDFS: Number of write operations=4
Job Counters
Launched map tasks=2
Other local map tasks=2
Total time spent by all maps in occupied slots (ms)=15003
Total time spent by all reduces in occupied slots (ms)=0
Total time spent by all map tasks (ms)=15003
Total vcore-seconds taken by all map tasks=15003
Total megabyte-seconds taken by all map tasks=15363072
Map-Reduce Framework
Map input records=5
Map output records=5
Input split bytes=217
Spilled Records=0
Failed Shuffles=0
Merged Map outputs=0
GC time elapsed (ms)=894
CPU time spent (ms)=5160
Physical memory (bytes) snapshot=353951744
Virtual memory (bytes) snapshot=3848572928
Total committed heap usage (bytes)=282066944
File Input Format Counters
Bytes Read=0
File Output Format Counters
Bytes Written=73
22/04/18 15:58:50 INFO mapreduce.ImportJobBase: Transferred 73 bytes in 26.1987 seconds (2.7864 bytes/sec)
22/04/18 15:58:50 INFO mapreduce.ImportJobBase: Retrieved 5 records.
ubh01@ubh01:~$ hadoop fs -ls /hadoop_test_14
22/04/18 15:59:41 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 3 items
-rw-r--r-- 1 ubh01 supergroup 0 2022-04-18 15:58 /hadoop_test_14/_SUCCESS
-rw-r--r-- 1 ubh01 supergroup 29 2022-04-18 15:58 /hadoop_test_14/part-m-00000
-rw-r--r-- 1 ubh01 supergroup 44 2022-04-18 15:58 /hadoop_test_14/part-m-00001
ubh01@ubh01:~$
Activate Windows
Go to Settings to activate Windows.
Type here to search
39°C Light rain
ENG
15:59
18-04-2022
Type here to search
16:00
18-04-2022

iii) Use incremental-append

```
ubh01@ubh01:~$ sqoop import \
> --connect jdbc:mysql://localhost/akarsh_db \
> --username root \
> --password password  \
> --table emp  \
> --incremental append \
> --check-column empid \
> -m 1 \
> --target-dir /sqoop_import_21
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
22/04/18 16:45:43 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
22/04/18 16:45:43 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
22/04/18 16:45:43 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
22/04/18 16:45:43 INFO tool.CodeGenTool: Beginning code generation
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
22/04/18 16:45:44 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `emp` AS t LIMIT 1
22/04/18 16:45:44 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `emp` AS t LIMIT 1
22/04/18 16:45:44 INFO orm.CompilationManager: HADOOP_MAPRED_HOME is /home/ubh01/hadoop-2.7.1
```

We have to add some more records

```
mysql> use akarsh_db;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from emp;
+-------+--------+--------+
| empid | ename  | salary |
+-------+--------+--------+
|   101 | Akarsh |   3000 |
|   102 | Raj    |   4000 |
|   103 | Ram    |   5000 |
|   104 | Ramesh |   6000 |
|   105 | Rohan  |   7000 |
|   106 | Rahul  |   9000 |
|   107 | Rakes  |   8000 |
|   108 | Sahil  |   7000 |
|   109 | Shyam  |   6000 |
+-------+--------+--------+
9 rows in set (0.00 sec)
```

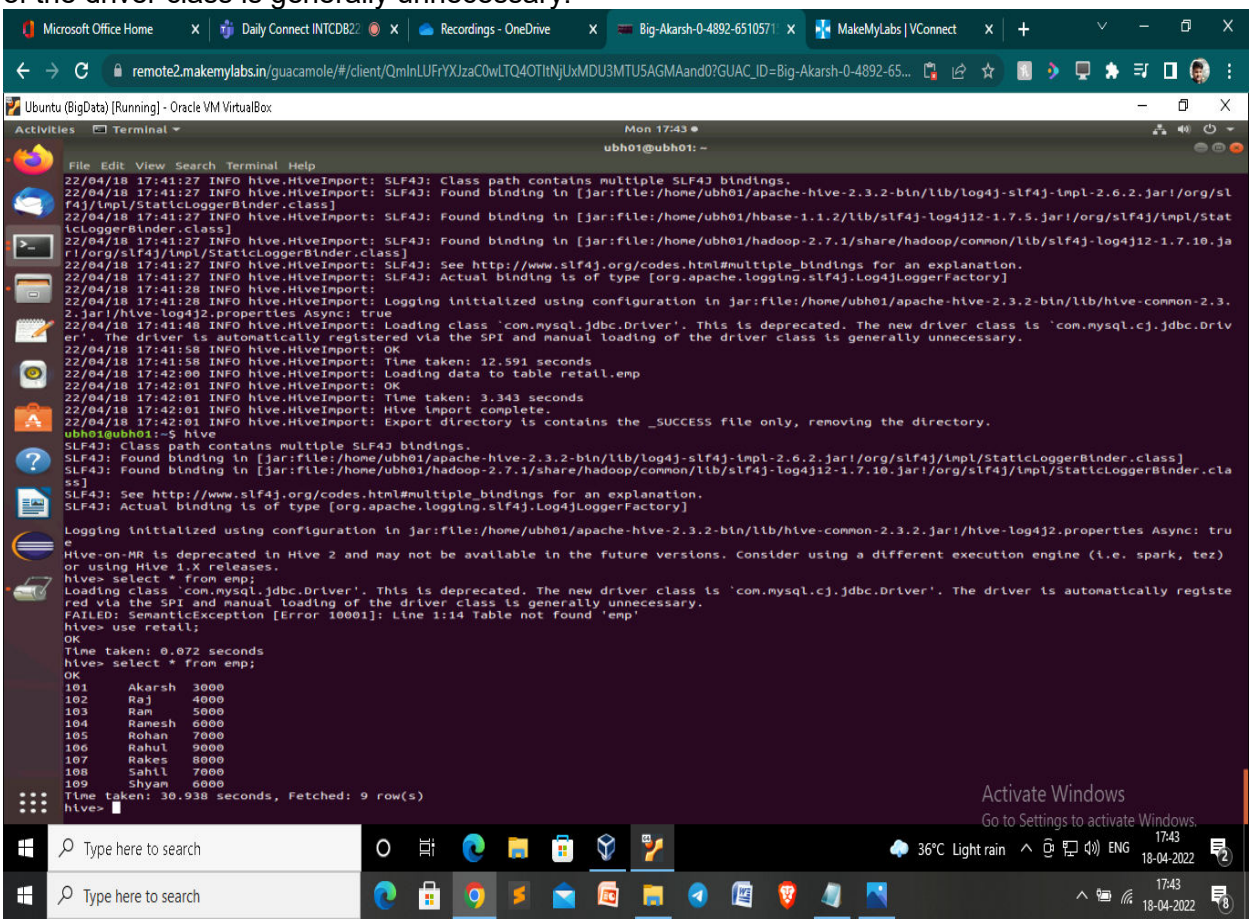


iv) Transfer data to hive from sqoop.

```
ubh01@ubh01:~$ hive
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/apache-hive-2.3.2-bin/lib/log4j-slf4j-impl-2.6.2.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.apache.logging.slf4j.Log4jLoggerFactory]

Logging initialized using configuration in jar:file:/home/ubh01/apache-hive-2.3.2-bin/lib/hive-common-2.3.2.jar!/hive-log4j2.properties Async: true
Hive-on-MR is deprecated in Hive 2 and may not be available in the future versions. Consider using a different execution engine (i.e. spark, tez) or using Hive 1.X releases.
hive> show databases;
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
OK
db
default
pr
sumitdb
Time taken: 30.997 seconds, Fetched: 4 row(s)
hive> create database retail;
OK
Time taken: 0.641 seconds
hive> exit;
```

```
ubh01@ubh01:~$ sqoop import --connect jdbc:mysql://localhost/akarsh_db --username root --password password  --hive-database retail --table emp  --hive-import -m 1
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
```

22/04/18 17:40:56 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
22/04/18 17:40:56 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
22/04/18 17:40:56 INFO tool.BaseSqoopTool: Using Hive-specific delimiters for output. You can override
22/04/18 17:40:56 INFO tool.BaseSqoopTool: delimiters with --fields-terminated-by, etc.
22/04/18 17:40:56 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
22/04/18 17:40:56 INFO tool.CodeGenTool: Beginning code generation
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.



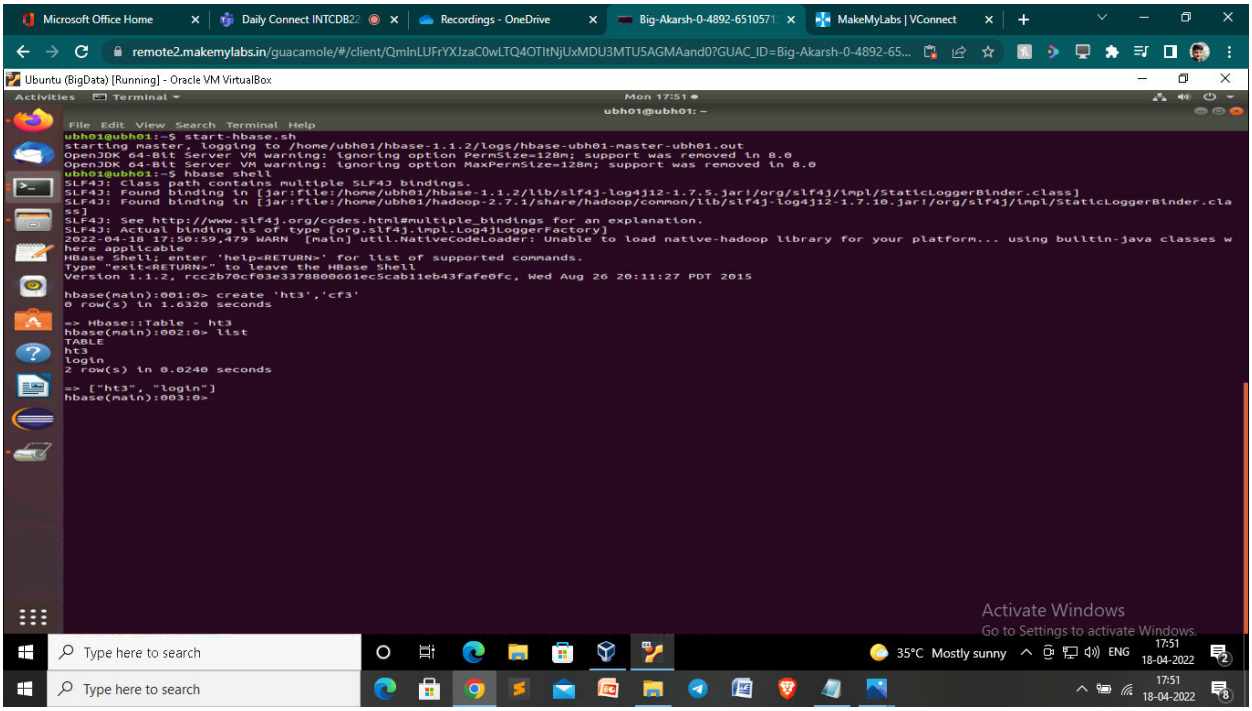
ubh01@ubh01:~$ hive
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/apache-hive-2.3.2-bin/lib/log4j-slf4j-impl-2.6.2.jar!/org/slf4j/impl/StaticLoggerBinder.class]

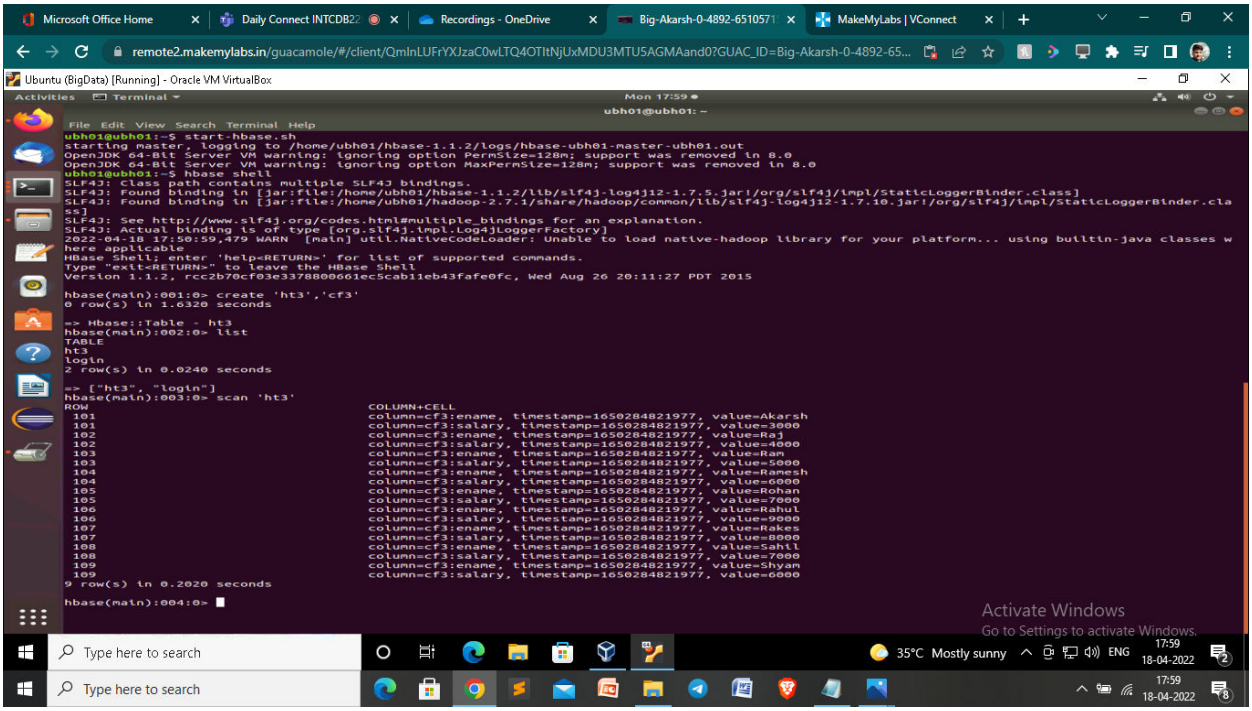
```
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.apache.logging.slf4j.Log4jLoggerFactory]

Logging initialized using configuration in jar:file:/home/ubh01/apache-hive-2.3.2-bin/lib/hive-common-2.3.2.jar!/hive-log4j2.properties Async: true
Hive-on-MR is deprecated in Hive 2 and may not be available in the future versions. Consider using a different execution engine (i.e. spark, tez) or using Hive 1.X releases.
hive> select * from emp;
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
FAILED: SemanticException [Error 10001]: Line 1:14 Table not found 'emp'
hive> use retail;
OK
Time taken: 0.072 seconds
hive> select * from emp;
OK
101    Akarsh    3000
102    Raj    4000
103    Ram    5000
104    Ramesh    6000
105    Rohan    7000
106    Rahul    9000
107    Rakes    8000
108    Sahil    7000
109    Shyam    6000
Time taken: 30.938 seconds, Fetched: 9 row(s)
```

V) Transfer data to hbase from sqoop.

```
ubh01@ubh01:~$ start-hbase.sh
starting master, logging to /home/ubh01/hbase-1.1.2/logs/hbase-ubh01-master-ubh01.out
OpenJDK 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in
8.0
OpenJDK 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was
removed in 8.0
ubh01@ubh01:~$ hbase shell
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/hbase-1.1.2/lib/slf4j-log4j12-
1.7.5.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-
log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
2022-04-18 17:50:59,479 WARN  [main] util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.1.2, rcc2b70cf03e3378800661ec5cab11eb43fafe0fc, Wed Aug 26 20:11:27 PDT
2015

hbase(main):001:0> create 'ht3','cf3'
0 row(s) in 1.6320 seconds

=> Hbase::Table - ht3
hbase(main):002:0> list
TABLE

ht3

login

2 row(s) in 0.0240 seconds

=> ["ht3", "login"]
```

```
ubh01@ubh01:~$ sqoop import --connect jdbc:mysql://localhost/akarsh_db \
> --username root \
> --password password \
> --table emp \
> --hbase-table ht3 \
> --column-family cf3 \
> --hbase-row-key empid \
> --hbase-create-table -m 1
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /home/ubh01/sqoop-1.4.7.bin__hadoop-2.6.0/../zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
22/04/18 17:56:29 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
22/04/18 17:56:29 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
22/04/18 17:56:30 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
22/04/18 17:56:30 INFO tool.CodeGenTool: Beginning code generation
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The driver is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
22/04/18 17:56:30 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `emp` AS t LIMIT 1
22/04/18 17:56:30 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `emp` AS t LIMIT 1
22/04/18 17:56:30 INFO orm.CompilationManager: HADOOP_MAPRED_HOME is /home/ubh01/hadoop-2.7.1
Note: /tmp/sqoop-ubh01/compile/c18be4c0c713dd7bae16652a036e304a/emp.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
22/04/18 17:56:32 INFO orm.CompilationManager: Writing jar file: /tmp/sqoop-ubh01/compile/c18be4c0c713dd7bae16652a036e304a/emp.jar
22/04/18 17:56:32 WARN manager.MySQLManager: It looks like you are importing from mysql.
22/04/18 17:56:32 WARN manager.MySQLManager: This transfer can be faster! Use the --direct
22/04/18 17:56:32 WARN manager.MySQLManager: option to exercise a MySQL-specific fast path.
22/04/18 17:56:32 INFO manager.MySQLManager: Setting zero DATETIME behavior to convertToNull (mysql)
```


Microsoft Office Home
Daily Connect INTCDB22
Recordings - OneDrive
Big-Akarsh-0-4892-6510571
MakeMyLabs | VConnect
remote2.makemylabs.in/guacamole/#/client/QmlnLUFrYXJzaC0wLTQ4OTItNjUxMDU3MTU5AGMAand0?GUAC_ID=Big-Akarsh-0-4892-65...
Ubuntu (BigData) [Running] - Oracle VM VirtualBox
Activities
Terminal
Mon 17:51
ubh01@ubh01: ~
File Edit View Search Terminal Help
ubh01@ubh01:~$ start-hbase.sh
starting master, logging to /home/ubh01/hbase-1.1.2/logs/hbase-ubh01-master-ubh01.out
OpenJDK 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
OpenJDK 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
ubh01@ubh01:~$ hbase shell
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/hbase-1.1.2/lib/slf4j-log4j12-1.7.5.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
2022-04-18 17:50:59,479 WARN [main] util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.1.2, rcc2b70cf03e3378800661ec5cab11eb43fafe0fc, Wed Aug 26 20:11:27 PDT 2015
hbase(main):001:0> create 'ht3','cf3'
0 row(s) in 1.6320 seconds
=> Hbase::Table - ht3
hbase(main):002:0> list
TABLE
ht3
login
2 row(s) in 0.0240 seconds
=> ["ht3", "login"]
hbase(main):003:0>
Activate Windows
Go to Settings to activate Windows.
Type here to search
35°C Mostly sunny
ENG
17:51
18-04-2022


Microsoft Office Home
Daily Connect INTCDB22
Recordings - OneDrive
Big-Akarsh-0-4892-6510571
MakeMyLabs | VConnect
remote2.makemylabs.in/guacamole/#/client/QmlnLUFrYXJzaC0wLTQ4OTItNjUxMDU3MTU5AGMAand0?GUAC_ID=Big-Akarsh-0-4892-65...
Ubuntu (BigData) [Running] - Oracle VM VirtualBox
Activities
Terminal
Mon 17:59
ubh01@ubh01: ~
File Edit View Search Terminal Help
ubh01@ubh01:~$ start-hbase.sh
starting master, logging to /home/ubh01/hbase-1.1.2/logs/hbase-ubh01-master-ubh01.out
OpenJDK 64-Bit Server VM warning: ignoring option PermSize=128m; support was removed in 8.0
OpenJDK 64-Bit Server VM warning: ignoring option MaxPermSize=128m; support was removed in 8.0
ubh01@ubh01:~$ hbase shell
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/ubh01/hbase-1.1.2/lib/slf4j-log4j12-1.7.5.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/ubh01/hadoop-2.7.1/share/hadoop/common/lib/slf4j-log4j12-1.7.10.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
2022-04-18 17:50:59,479 WARN [main] util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
HBase Shell; enter 'help<RETURN>' for list of supported commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.1.2, rcc2b70cf03e3378800661ec5cab11eb43fafe0fc, Wed Aug 26 20:11:27 PDT 2015
hbase(main):001:0> create 'ht3','cf3'
0 row(s) in 1.6320 seconds
=> Hbase::Table - ht3
hbase(main):002:0> list
TABLE
ht3
login
2 row(s) in 0.0240 seconds
=> ["ht3", "login"]
hbase(main):003:0> scan 'ht3'
ROW COLUMN+CELL
101 column=cf3:ename, timestamp=1650284821977, value=Akarsh
101 column=cf3:salary, timestamp=1650284821977, value=3000
102 column=cf3:ename, timestamp=1650284821977, value=Raj
102 column=cf3:salary, timestamp=1650284821977, value=4000
103 column=cf3:ename, timestamp=1650284821977, value=Ram
103 column=cf3:salary, timestamp=1650284821977, value=5000
104 column=cf3:ename, timestamp=1650284821977, value=Ramesh
104 column=cf3:salary, timestamp=1650284821977, value=6000
105 column=cf3:ename, timestamp=1650284821977, value=Rohan
105 column=cf3:salary, timestamp=1650284821977, value=7000
106 column=cf3:ename, timestamp=1650284821977, value=Rahul
106 column=cf3:salary, timestamp=1650284821977, value=9000
107 column=cf3:ename, timestamp=1650284821977, value=Rakes
107 column=cf3:salary, timestamp=1650284821977, value=8000
108 column=cf3:ename, timestamp=1650284821977, value=Sahil
108 column=cf3:salary, timestamp=1650284821977, value=7000
109 column=cf3:ename, timestamp=1650284821977, value=Shyam
109 column=cf3:salary, timestamp=1650284821977, value=6000
9 row(s) in 0.2020 seconds
hbase(main):004:0>
Activate Windows
Go to Settings to activate Windows.
Type here to search
35°C Mostly sunny
ENG
17:59
18-04-2022

ASSIGNMENT NO.6

TOPIC ->Scala Program

SUB TOPIC -> USING SCALA

1)Define one empty ArrayBuffer

```
scala> var a6=ArrayBuffer[Int]()
a6: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer()
```

2)Add 10 into ArrayBuffer

```
scala> a6+=10
res27: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10)
```

3)Add 20,30,40 into ArrayBuffer

```
scala> a6+=(20,30,40)
res28: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10, 20, 30, 40)
```

4)Define arr={1,2,3,4,5}

```
scala> var array=Array(1,2,3,4,5)
array: Array[Int] = Array(1, 2, 3, 4, 5)
```

5)Append array into arrayBuffer

```
scala> a6.appendAll(array)

scala> a6
res32: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10, 20, 30, 40, 1, 2, 3, 4, 5)
```

6)Remove 30

```
scala> a6.remove(2)
res35: Int = 30

scala> a6
res36: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10, 20, 40, 1, 2, 3, 4, 5)
```

7)Add 35 in between 20 and 40.

```
scala> a6.insert(2,35)

scala> a6
res38: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10, 20, 35, 40, 1, 2, 3, 4, 5)
```

8)Check 35 is there in ArrayBuffer

```
scala> a6.contains(35)
res40: Boolean = true
```

9)Check ArrayBuffer is empty or not.

```
scala> a6.isEmpty
res39: Boolean = false
```

10)Remove last 3 elements

```
scala> a6.trimEnd(3)

scala> a6
res42: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(10, 20, 35, 40, 1, 2)
```

11)Add 10 in each element

```
scala> a6.map(a6=>(a6+10))
res43: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(20, 30, 45, 50, 11, 12)
```

12)Get element of ArrayBuffer where element >10.

```
scala> a6.filter(a6=>(a6>10))
res44: scala.collection.mutable.ArrayBuffer[Int] = ArrayBuffer(20, 35, 40)
```

ASSIGNMENT NO.7

TOPIC -> SCALA PROGRAM AND WORD COUNT PROGRAM

SUB TOPIC ->USING SCALA

1)CREATED ONE EMPTY MAP AND ADDED ONE KEY-VALUE IN IT.

```
scala> import scala.collection.mutable.Map
import scala.collection.mutable.Map

scala> val mp=Map[String,Float]()
mp: scala.collection.mutable.Map[String,Float] = Map()

scala> mp+=("c1"->121.1f)
res11: mp.type = Map(c1 -> 121.1)

scala> mp
res12: scala.collection.mutable.Map[String,Float] = Map(c1 -> 121.1)
```

i)To get key of the map

```
scala> mp.keys
res13: Iterable[String] = Set(c1)
```

ii)To get values of the map

```
scala> mp.values
res14: Iterable[Float] = HashMap(121.1)
```

iii)To check whether key is present or not.

```
scala> mp.contains("c1")
res15: Boolean = true
```

iv)To get the value of given key.

```
scala> mp("c1")
res16: Float = 121.1
```

v)If value is not there return 0.0

```
scala> mp.getOrElse("c3",0.0)
res17: AnyVal = 0.0
```

vi)If the value is not there,then add 0.0 to c3.

```
scala> mp.update("c3",0.0f)

scala> mp
res19: scala.collection.mutable.Map[String,Float] = Map(c1 -> 121.1, c3 -> 0.0)
```

2)Word Count Program in Scala

```
import scala.collection.mutable.Map
val str = "car car river car river"
var mp = Map[String,Integer]()
for(word<-str.split(" ")){
    if(!mp.contains(word))
        mp+=(word->1)
    else
        {
            mp.get(word)  match {
            case Some(mp_val) => mp+=(word->(mp_val+1))
            case None => print("Not valid")
        }
}
}
print(mp)
```

```
HashMap(car -> 3, river -> 2)
```

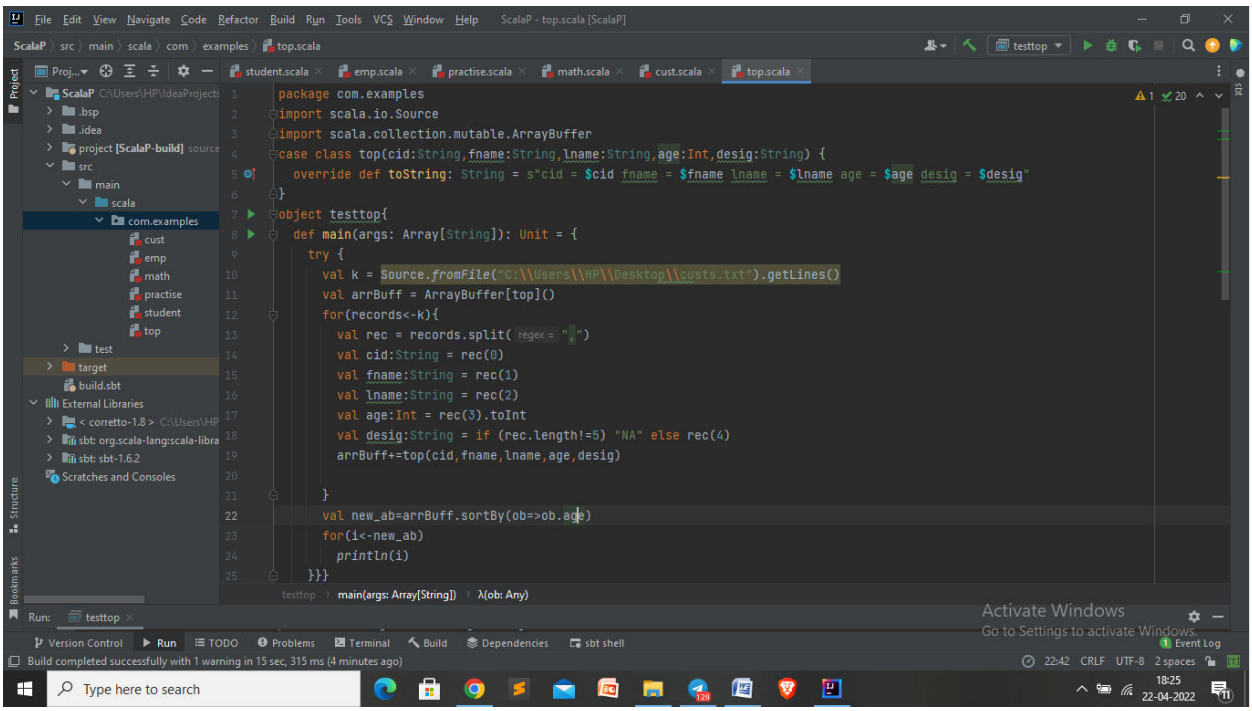
Assignment No. 8

Topic- Read data from custs.txt and then sort the data by age(in ascending order and descending order)

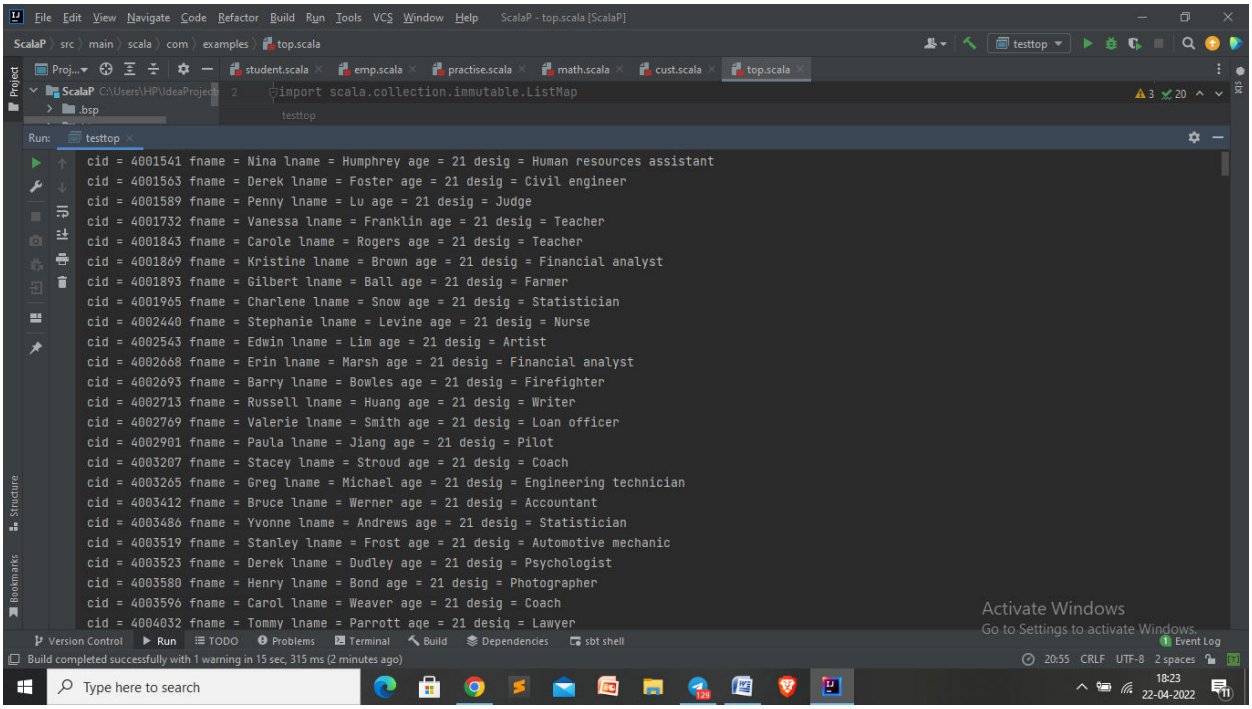
Sub Topic->Using Scala

Data -> ‘Custs.txt’

Code->



Output->(In ascending order)



cid = 4000052 fname = Shirley lname = Merritt age = 21 desig = Reporter

cid = 4000176 fname = Kristin lname = Alexander age = 21 desig = Coach

cid = 4000290 fname = Gail lname = Whitehead age = 21 desig = Nurse

cid = 4000292 fname = Donna lname = Rice age = 21 desig = Social worker

cid = 4000349 fname = Russell lname = Dalton age = 21 desig = Civil engineer

cid = 4000451 fname = Russell lname = Hess age = 21 desig = Architect

cid = 4000465 fname = Peter lname = Guthrie age = 21 desig = Nurse

cid = 4000765 fname = Janice lname = Bowden age = 21 desig = Politician

cid = 4000779 fname = Jason lname = Bowling age = 21 desig = Coach

cid = 4001043 fname = Ian lname = Hodges age = 21 desig = Coach

cid = 4001101 fname = Toni lname = Byers age = 21 desig = Economist

cid = 4001109 fname = Edwin lname = Ball age = 21 desig = Carpenter

cid = 4001213 fname = Brandon lname = Nance age = 21 desig = Reporter

cid = 4001430 fname = Lindsay lname = Reynolds age = 21 desig = Computer support specialist

cid = 4001453 fname = Paige lname = Wolfe age = 21 desig = Financial analyst

cid = 4001541 fname = Nina lname = Humphrey age = 21 desig = Human resources assistant

cid = 4001563 fname = Derek lname = Foster age = 21 desig = Civil engineer

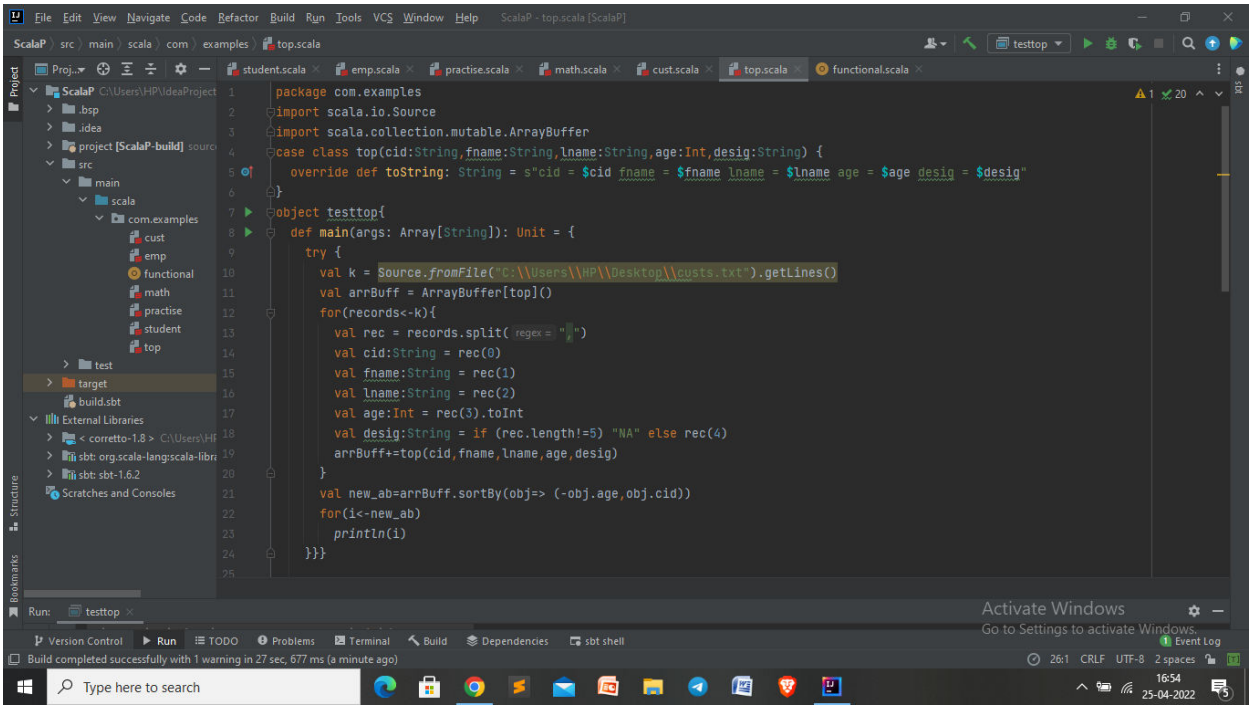
cid = 4001589 fname = Penny lname = Lu age = 21 desig = Judge

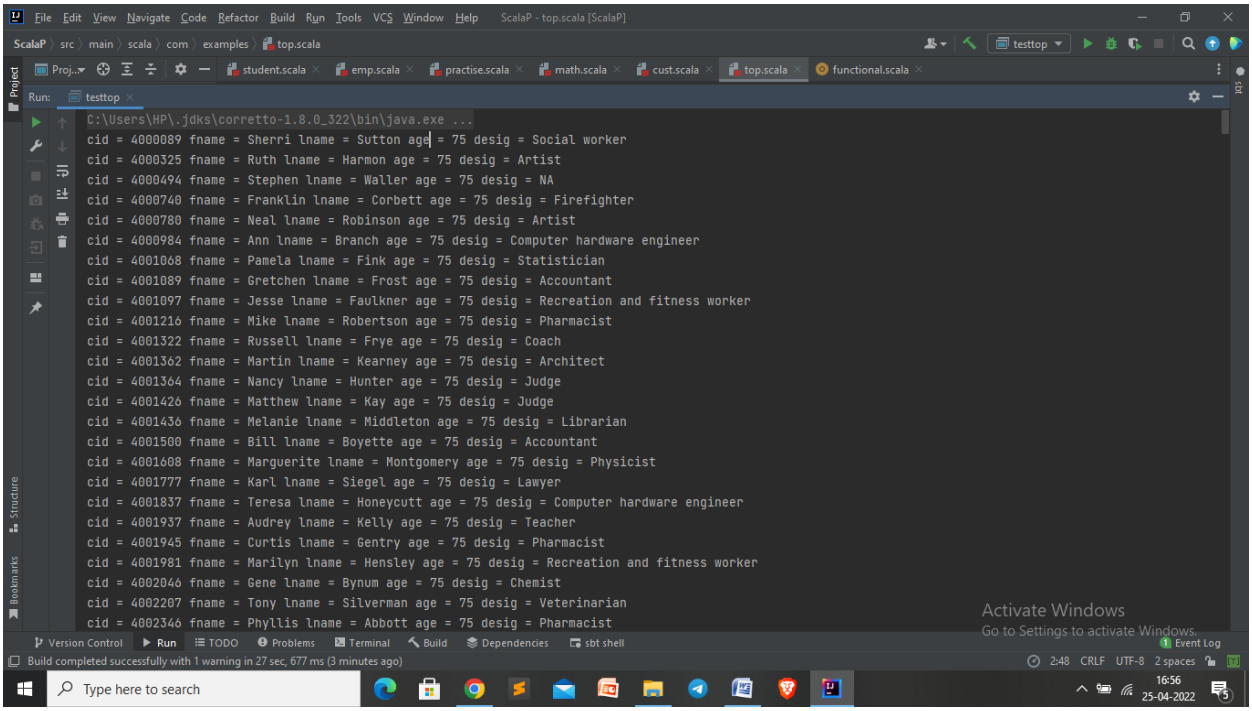
cid = 4001732 fname = Vanessa lname = Franklin age = 21 desig = Teacher

cid = 4001843 fname = Carole lname = Rogers age = 21 desig = Teacher

……10000 records

In descending order





cid = 4000089 fname = Sherri lname = Sutton age = 75 desig = Social worker

cid = 4000325 fname = Ruth lname = Harmon age = 75 desig = Artist

cid = 4000494 fname = Stephen lname = Waller age = 75 desig = NA

cid = 4000740 fname = Franklin lname = Corbett age = 75 desig = Firefighter

cid = 4000780 fname = Neal lname = Robinson age = 75 desig = Artist

cid = 4000984 fname = Ann lname = Branch age = 75 desig = Computer hardware engineer

cid = 4001068 fname = Pamela lname = Fink age = 75 desig = Statistician

cid = 4001089 fname = Gretchen lname = Frost age = 75 desig = Accountant

cid = 4001097 fname = Jesse lname = Faulkner age = 75 desig = Recreation and fitness worker

cid = 4001216 fname = Mike lname = Robertson age = 75 desig = Pharmacist

cid = 4001322 fname = Russell lname = Frye age = 75 desig = Coach

cid = 4001362 fname = Martin lname = Kearney age = 75 desig = Architect

cid = 4001364 fname = Nancy lname = Hunter age = 75 desig = Judge

cid = 4001426 fname = Matthew lname = Kay age = 75 desig = Judge

cid = 4001436 fname = Melanie lname = Middleton age = 75 desig = Librarian

cid = 4001500 fname = Bill lname = Boyette age = 75 desig = Accountant

cid = 4001608 fname = Marguerite lname = Montgomery age = 75 desig = Physicist

cid = 4001777 fname = Karl lname = Siegel age = 75 desig = Lawyer

……..10000 records

Assignment No. 9

Topic:->Spark

Sub topic:-> using spark doing joining,getting top result

i) read data from txns1.txt and show the first data

```
scala> val trans=sc.textFile("C:\\Users\\HP\\Desktop\\txns1.txt").map(_.split(","))
trans: org.apache.spark.rdd.RDD[Array[String]] = MapPartitionsRDD[29] at map at <console>:24

scala> trans.first
res10: Array[String] = Array(00000000, 06-26-2011, 4007024, 040.33, Exercise & Fitness, Cardio Machine, Long Beach, California, credit)
```

ii)Take only id and amount and change the amount into float

```
scala> val trans=sc.textFile("C:\\Users\\HP\\Desktop\\txns1.txt").map(_.split(",")).map(arr=>(arr(2),arr(3).toFloat))
trans: org.apache.spark.rdd.RDD[(String, Float)] = MapPartitionsRDD[33] at map at <console>:24

scala> trans.first
res11: (String, Float) = (4007024,40.33)
```

iii)Customer wise sum of sale from California and amt > 100 and apply reducebyKey at last

```
scala> val cust=sc.textFile("C:\\Users\\HP\\Desktop\\txns1.txt").map(_.split(",")).filter(arr=>(arr(7)=="California")&&(arr(3).toFloat>100)).map(arr=>(arr(2),arr(3).toF
loat)).reduceByKey(_+_)
cust: org.apache.spark.rdd.RDD[(String, Float)] = ShuffledRDD[18] at reduceByKey at <console>:24

scala> cust.first
res3: (String, Float) = (4001485,195.35)
```

iv)Top 10 customer in California

```
scala> val sort_out=cust.sortBy(tu=> (-tu._2))
```

```
scala> val top10desig=sc.parallelize(sort_out.take(10))
top10desig: org.apache.spark.rdd.RDD[(String, Float)] = ParallelCollectionRDD[25] at parallelize at <console>:26

scala> top10desig.collect.foreach(println)
(4001779,669.99)
(4000749,628.33)
(4009406,579.24)
(4006874,559.27)
(4003228,549.6)
(4006616,532.74)
(4001691,531.32)
(4002619,531.03)
(4005483,529.43)
(4007989,521.62)
```

v)Get id,fn,ln,amt

```
scala> val txns=sc.parallelize(sc.textFile("C:\\Users\\HP\\Desktop\\txns1.txt").map(_.split(",")).filter(arr=>(arr(7)=="California")&&(arr(3).toFloat>100)).map(arr=>(ar
r(2),arr(3).toFloat)).reduceByKey(_+_).sortBy(arr=> -arr._2).take(10),1)
txns: org.apache.spark.rdd.RDD[(String, Float)] = ParallelCollectionRDD[297] at parallelize at <console>:24

scala> txns.first
res96: (String, Float) = (4001779,669.99)

scala> val custNamePair=sc.textFile("C:\\Users\\HP\\Desktop\\custs.txt").map(_.split(",")).map(arr=> (arr(0),(arr(1),arr(2))))
custNamePair: org.apache.spark.rdd.RDD[(String, (String, String))] = MapPartitionsRDD[301] at map at <console>:24

scala> custNamePair.first
res97: (String, (String, String)) = (4000001,(Kristina,Chung))

scala> val jo=txns.join(custNamePair).map(obj=>(obj._1,obj._2._2._1,obj._2._2._2,obj._2._1)).sortBy(obj=> -obj._4)
jo: org.apache.spark.rdd.RDD[(String, String, String, Float)] = MapPartitionsRDD[310] at sortBy at <console>:27

scala> jo.collect.foreach(println)
(4001779,William,Cross,669.99)
(4000749,Wesley,Buckley,628.33)
(4009406,Henry,Joyner,579.24)
(4006874,Teresa,Peters,559.27)
(4003228,Elsie,Newton,549.6)
(4006616,Regina,Jiang,532.74)
(4001691,Laura,Berger,531.32)
(4002619,James,Kang,531.03)
(4005483,Clyde,Michael,529.43)
(4007989,Earl,Osborne,521.62)
```