HIVE
CASE STUDY

SUBMITTED BY

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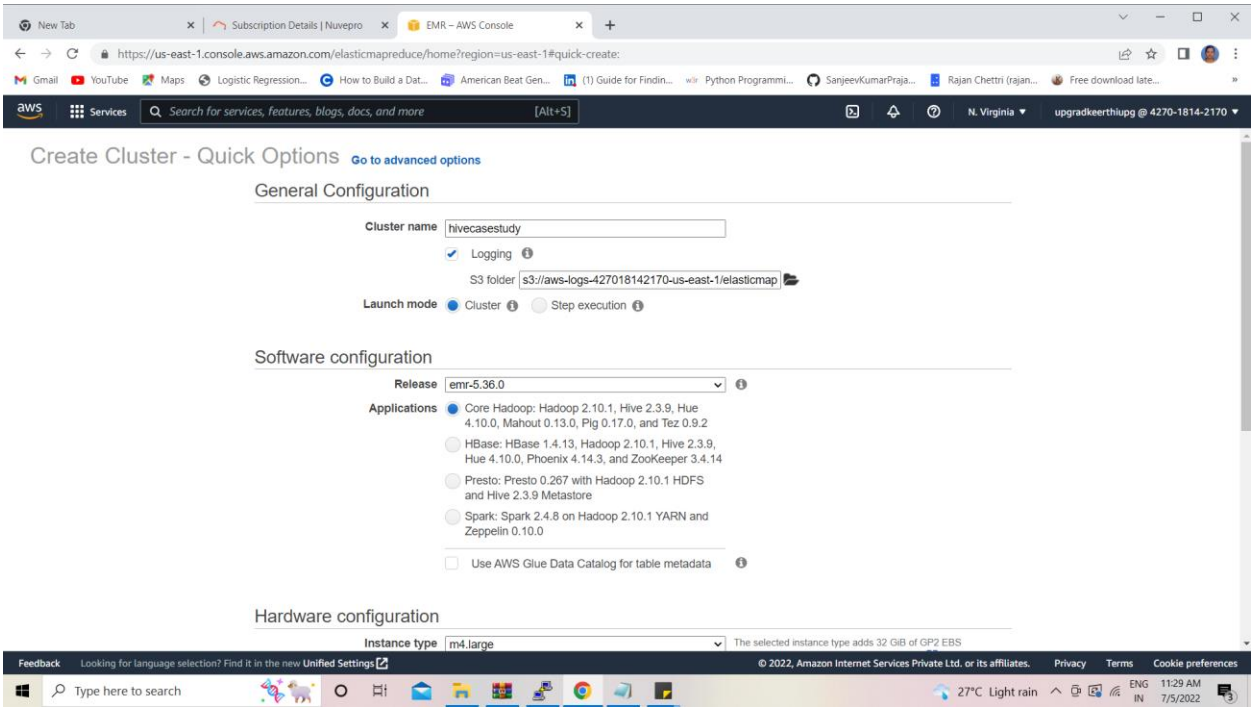
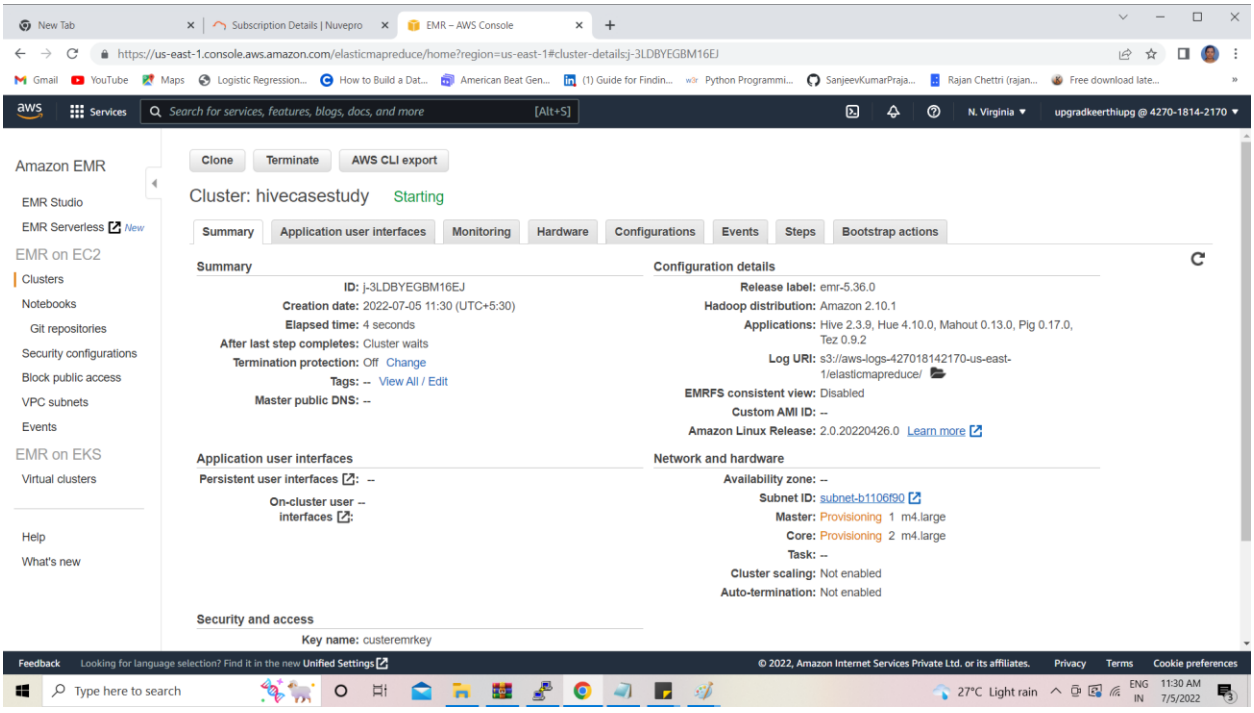
KEERTHI P

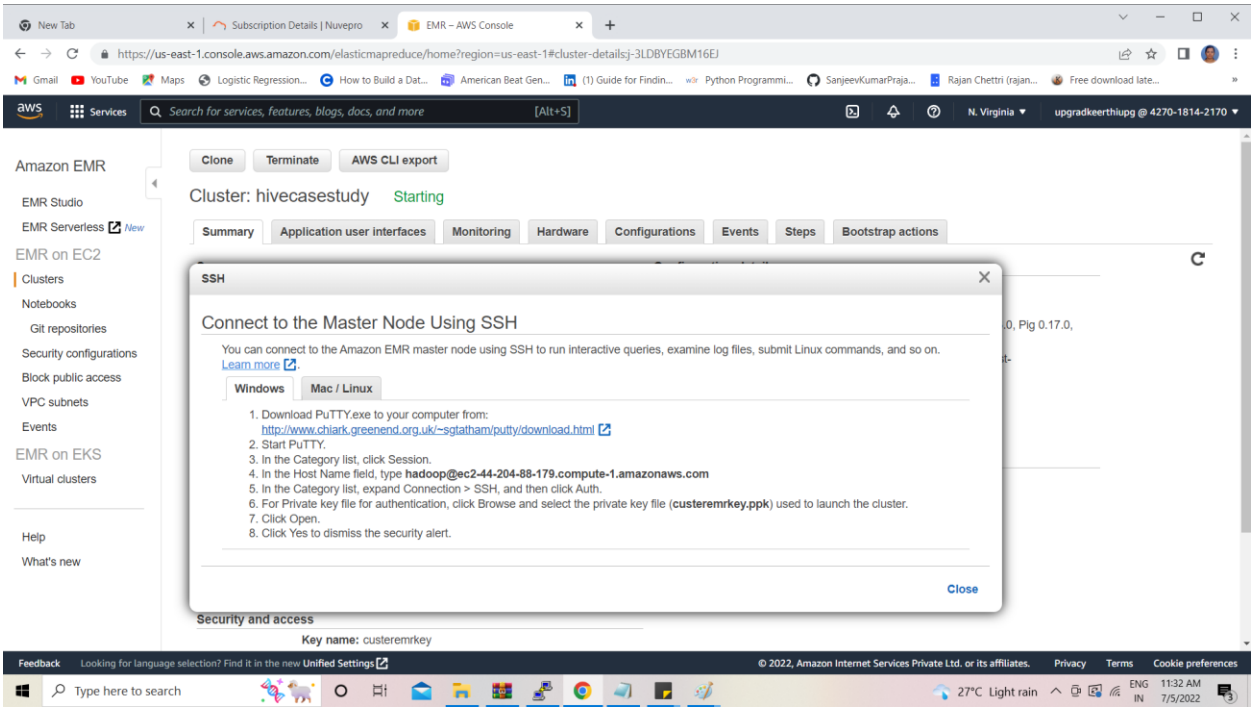
DS37

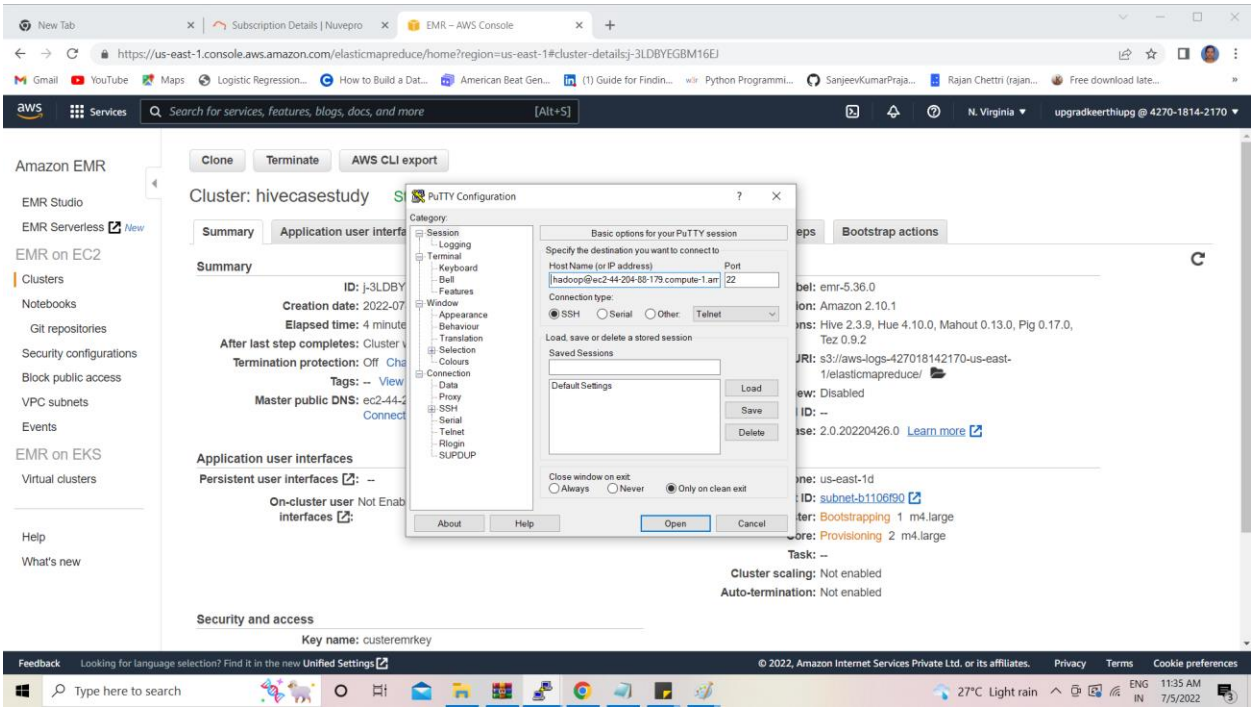
CREATING AN EMR CLUSTER

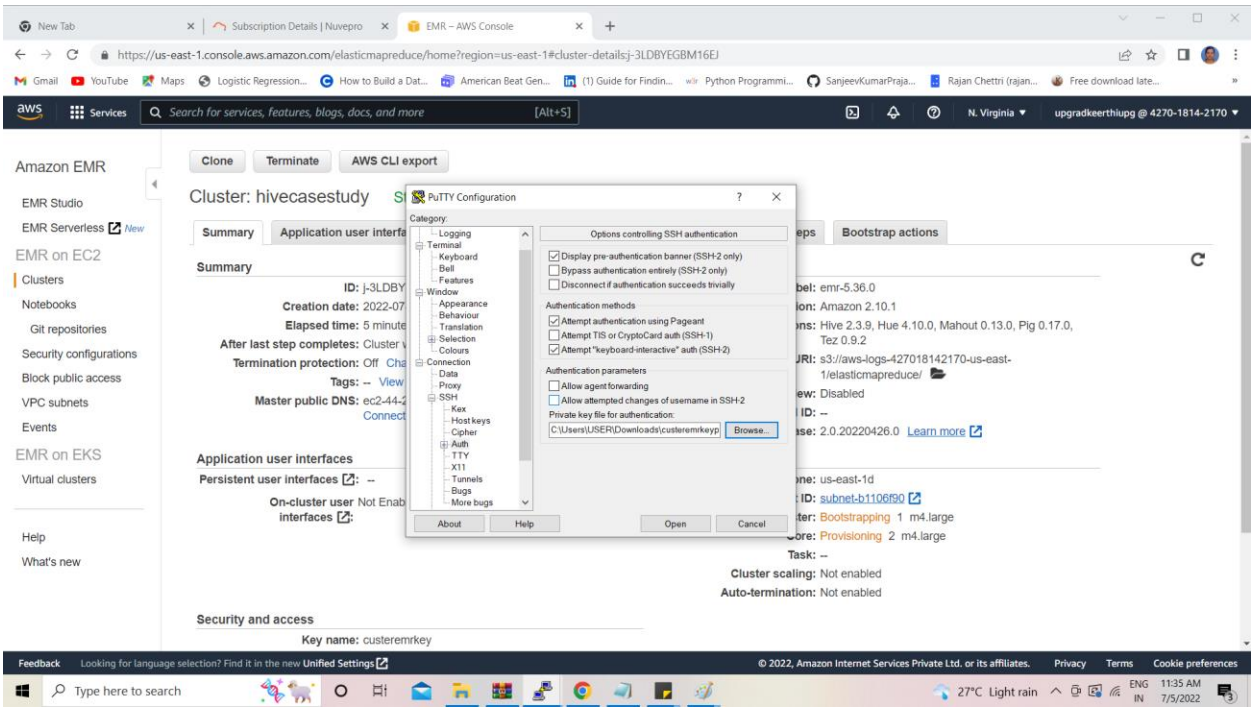




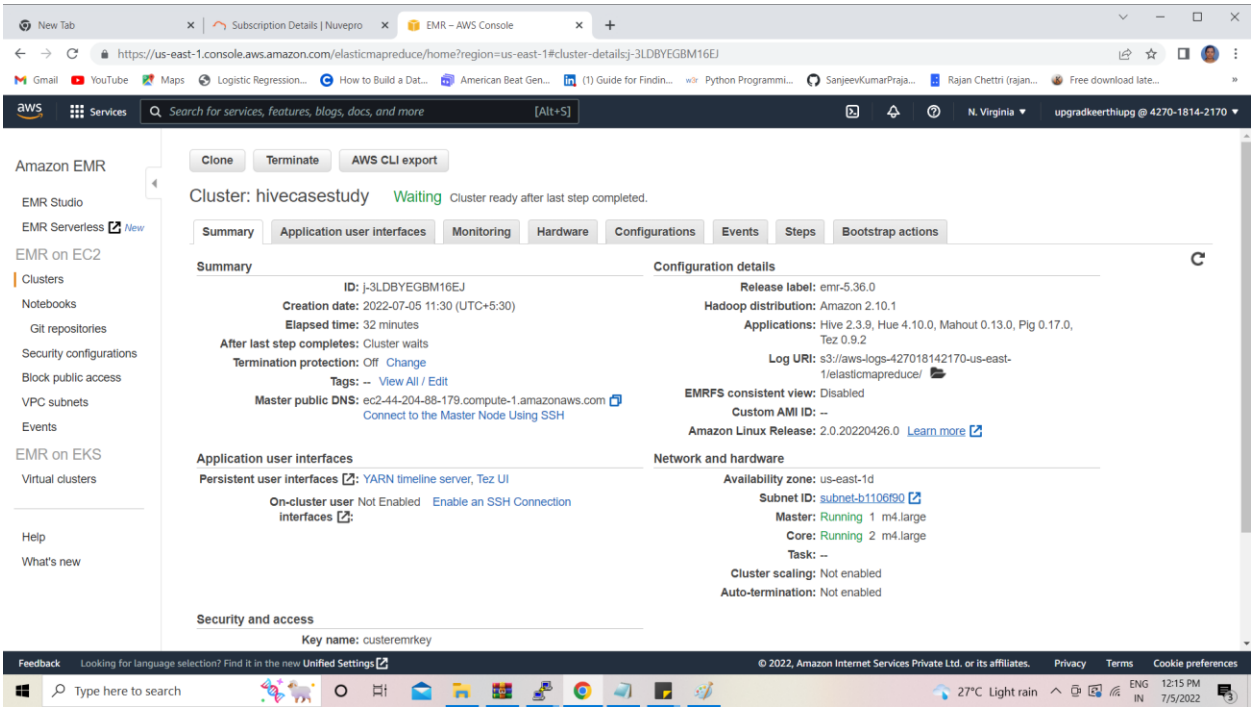
ESTABLISHING CONECTION USING PUTTY







CONNECTION ESTABLISHED SUCCESSFULLY AND RUNNING



EMR CLUSTER

```
Using username "hadoop".
Authenticating with public key "imported-openssh-key"

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/

EEEEEEEEEEEEEEEEEEE MMMMMMMM           MMMMMMMM RRRRRRRRRRRRRRR
E::::::::::::::::::E M:::::::M         M:::::::M R::::::::::::::R
EE:::::EEEEEEEEE:::E M::::::::M       M::::::::M R:::::RRRRRR:::::R
  E::::E       EEEEE M:::::::::M     M:::::::::M RR::::R      R::::R
  E::::E             M::::::M:::M   M:::M::::::M   R:::R      R::::R
  E:::::EEEEEEEEEE   M:::::M M:::M M:::M M:::::M   R:::RRRRRR:::::R
  E::::::::::::::E   M:::::M  M:::M:::M  M:::::M   R::::::::::::RR
  E:::::EEEEEEEEEE   M:::::M   M:::::M   M:::::M   R:::RRRRRR::::R
  E::::E             M:::::M    M:::M    M:::::M   R:::R      R::::R
  E::::E       EEEEE M:::::M     MMM     M:::::M   R:::R      R::::R
EE:::::EEEEEEEE::::E M:::::M             M:::::M   R:::R      R::::R
E::::::::::::::::::E M:::::M             M:::::M RR::::R      R::::R
EEEEEEEEEEEEEEEEEEE MMMMMMM             MMMMMMM RRRRRRR      RRRRRR
```

DOWNLOADING THE INPUT FILES FROM S3 TO THE LOCAL SYSTEM

wget https://e-commerce-events-ml.s3.amazonaws.com/2019-Oct.csv

wget https://e-commerce-events-ml.s3.amazonaws.com/2019-Nov.csv

```
[hadoop@ip-172-31-2-56 ~]$ wget https://e-commerce-events-ml.s3.amazonaws.com/2019-Oct.csv
--2022-07-04 10:46:09--  https://e-commerce-events-ml.s3.amazonaws.com/2019-Oct.csv
Resolving e-commerce-events-ml.s3.amazonaws.com (e-commerce-events-ml.s3.amazonaws.com)... 52.217.90.92
Connecting to e-commerce-events-ml.s3.amazonaws.com (e-commerce-events-ml.s3.amazonaws.com)|52.217.90.92|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 482542278 (460M) [text/csv]
Saving to: '2019-Oct.csv'

100%[==========================================================================================================================================>] 482,542,278 68.1MB/s   in 6.8s

2022-07-04 10:46:16 (67.3 MB/s) - '2019-Oct.csv' saved [482542278/482542278]

[hadoop@ip-172-31-2-56 ~]$ wget https://e-commerce-events-ml.s3.amazonaws.com/2019-Nov.csv
--2022-07-04 10:46:36--  https://e-commerce-events-ml.s3.amazonaws.com/2019-Nov.csv
Resolving e-commerce-events-ml.s3.amazonaws.com (e-commerce-events-ml.s3.amazonaws.com)... 54.231.194.57
Connecting to e-commerce-events-ml.s3.amazonaws.com (e-commerce-events-ml.s3.amazonaws.com)|54.231.194.57|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 545839412 (521M) [text/csv]
Saving to: '2019-Nov.csv'

100%[==========================================================================================================================================>] 545,839,412 68.0MB/s   in 7.6s

2022-07-04 10:46:44 (68.1 MB/s) - '2019-Nov.csv' saved [545839412/545839412]
```

CREATING A DIRECTORY

hadoop fs -mkdir /ecom/

CHECKING IF DIRECTORY IS CREATED

hadoop fs -ls /

INSERTING FILES FROM LOCAL SYSTEM TO HDFS

hadoop fs -put ./2019-Oct.csv /ecom/

hadoop fs -put ./2019-Nov.csv /ecom/

```
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -mkdir /ecom
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -ls /
Found 5 items
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /apps
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 10:49 /ecom
drwxrwxrwt   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /tmp
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /user
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /var
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -put ./2019-Oct.csv /ecom/
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -put ./2019-Nov.csv /ecom/
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -ls /
Found 5 items
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /apps
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 10:51 /ecom
drwxrwxrwt   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /tmp
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /user
drwxr-xr-x   - hdfs   hdfsadmingroup          0 2022-07-04 10:48 /var
```

CHECKING THE PATH IF FILES ARE LOADED CORRECTLY

hadoop fs -ls /ecom

LOGGING INTO HIVE

hive

```
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -ls /ecom
Found 2 items
-rw-r--r--   1 hadoop hdfsadmingroup  545839412 2022-07-04 10:51 /ecom/2019-Nov.
csv
-rw-r--r--   1 hadoop hdfsadmingroup  482542278 2022-07-04 10:50 /ecom/2019-Oct.
csv
[hadoop@ip-172-31-2-56 ~]$ hive
Hive Session ID = b6ef9fe4-89e7-435f-ac1a-2d54cf3c288b

Logging initialized using configuration in file:/etc/hive/conf.dist/hive-log4j2.properties Async: false
hive>
```

CREATING DATABASE IN HIVE

create database if not exists ecom;

use ecom;

```
Logging initialized using configuration in file:/etc/hive/conf.dist/hive-log4j2.properties Async: false
hive> create database if not exists ecom;
OK
Time taken: 1.494 seconds
hive> use ecom;
OK
Time taken: 0.097 seconds
```

CREATING A STATIC EXTERNAL TABLE

set hive.cli.print.header=true;

create External table if not exists ecom_tabl(event_time timestamp,event_type string,product_id string,

category_id string,category_code string,brand string,price float, user_id bigint,user_session string) ROW FORMAT SERDE 'org.apache.hadoop.hive.serde2.OpenCSVSerde'

WITH SERDEPROPERTIES ("separatorChar"=",","quoteChar"="\"","escapeChar"="\\")stored as textfile LOCATION '/ecom' TBLPROPERTIES("skip.header.line.count"="1");

```
hive>
    > use ecom;
OK
Time taken: 1.008 seconds
hive>
    > ;
hive> create External table if not exists ecom_tabl(event_time timestamp,event_t
ype string,product_id string,
    > category_id string,category_code string,brand string,price float, user_id
bigint,user_session string) ROW FORMAT SERDE 'org.apache.hadoop.hive.serde2.Open
CSVSerde'
    >  WITH SERDEPROPERTIES ("separatorChar"=",","quoteChar"="\"","escapeChar"="
\\")stored as textfile LOCATION '/ecom' TBLPROPERTIES("skip.header.line.count"="
1");
OK
Time taken: 0.206 seconds
```

CHECKING IF THE TABLE IS CREATED AND ITS PROPERTIES

desc ecom_tabl;

```
hive> desc ecom_tabl;
OK
event_time              string                  from deserializer
event_type              string                  from deserializer
product_id              string                  from deserializer
category_id             string                  from deserializer
category_code           string                  from deserializer
brand                   string                  from deserializer
price                   string                  from deserializer
user_id                 string                  from deserializer
user_session            string                  from deserializer
Time taken: 0.513 seconds, Fetched: 9 row(s)
```

CHECKING IF THE DATA IS LOADED FROM HDFS TO HIVE TABLE

SELECT * FROM ecom_tabl limit 5;

```
hive>
    > set hive.cli.print.header=true;
hive> select * from ecom_tabl limit 5;
OK
ecom_tabl.event_time    ecom_tabl.event_type    ecom_tabl.product_id    ecom_tab
l.category_id   ecom_tabl.category_code ecom_tabl.brand ecom_tabl.price ecom_tab
l.user_id       ecom_tabl.user_session
2019-11-01 00:00:02 UTC view    5802432 1487580009286598681                     0
.32     562076640       09fafd6c-6c99-46b1-834f-33527f4de241
2019-11-01 00:00:09 UTC cart    5844397 1487580006317032337                     2
.38     553329724       2067216c-31b5-455d-a1cc-af0575a34ffb
2019-11-01 00:00:10 UTC view    5837166 1783999064103190764             pnb     2
2.22    556138645       57ed222e-a54a-4907-9944-5a875c2d7f4f
2019-11-01 00:00:11 UTC cart    5876812 1487580010100293687             jessnail
3.16    564506666       186c1951-8052-4b37-adce-dd9644b1d5f7
2019-11-01 00:00:24 UTC remove_from_cart        5826182 1487580007483048900     3
.33     553329724       2067216c-31b5-455d-a1cc-af0575a34ffb
Time taken: 0.191 seconds, Fetched: 5 row(s)
```

DYNAMIC PARTITION AND BUCKETING

set hive.exec.dynamic.partition=true;

set hive.exec.dynamic.partition.mode=nonstrict;

set hive.enforce.bucketing=true;

CREATE EXTERNAL TABLE WITH DYNAMIC PARTITIONING ON EVENT_TYPE, BUCKET OF 8

create External table if not exists dyn_ecom_tab(event_time timestamp, product_id string, category_id string, category_code string, brand string, price float,

user_id bigint, user_session string) partitioned by (event_type string) clustered by (user_id) into 8 buckets ROW FORMAT SERDE 'org.apache.hadoop.hive.serde2.OpenCSVSerde'

stored as textfile;

```
hive> set hive.exec.dynamic.partition=true;
hive> set hive.exec.dynamic.partition.mode=nonstrict;
hive> set hive.enforce.bucketing=true;
hive> create External table if not exists dyn_ecom_tab(event_time timestamp, pro
duct_id string, category_id string, category_code string, brand string, price fl
oat,
    >  user_id bigint, user_session string) partitioned by (event_type string) c
lustered by (user_id) into 8 buckets ROW FORMAT SERDE 'org.apache.hadoop.hive.se
rde2.OpenCSVSerde'
    >  stored as textfile;
OK
Time taken: 0.084 seconds
```

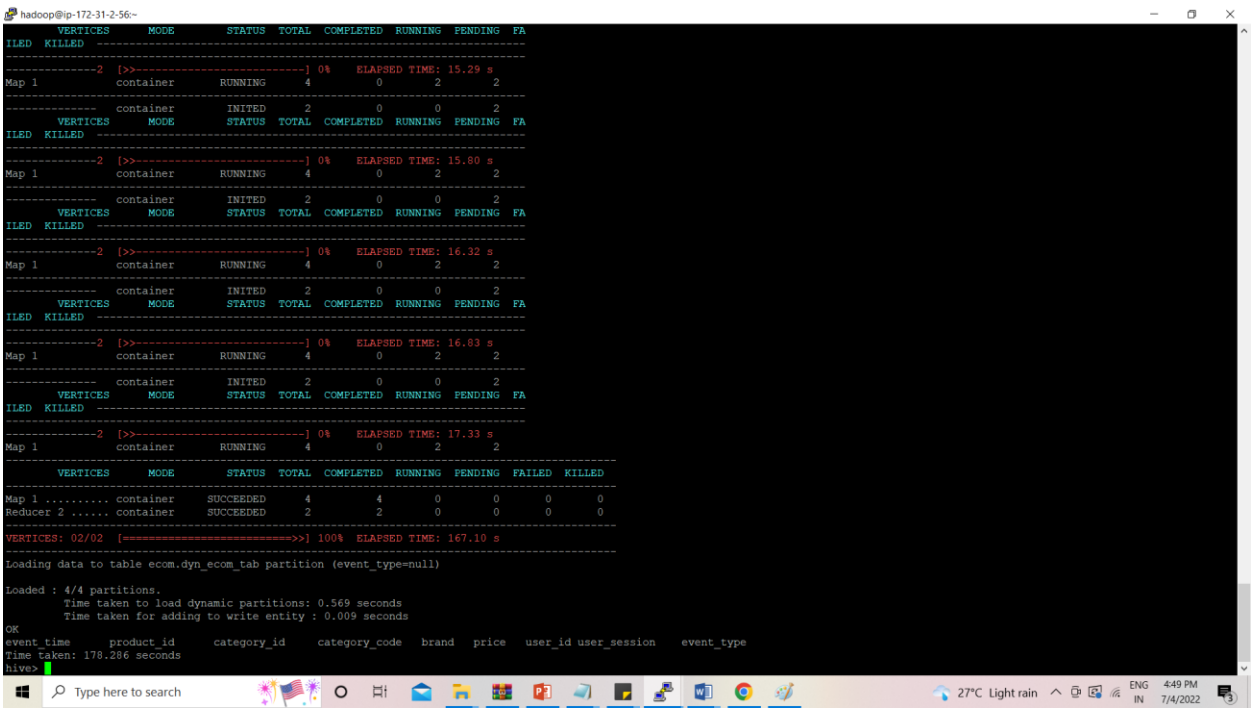
desc dyn_ecom_tab;

```
hive> desc dyn_ecom_tab;
OK
col_name        data_type       comment
event_time              string                  from deserializer
product_id              string                  from deserializer
category_id             string                  from deserializer
category_code           string                  from deserializer
brand                   string                  from deserializer
price                   string                  from deserializer
user_id                 string                  from deserializer
user_session            string                  from deserializer
event_type              string

# Partition Information
# col_name              data_type               comment
event_type              string
Time taken: 0.261 seconds, Fetched: 13 row(s)
```

LOADING DATA INTO DYNAMIC TABLE

insert into dyn_ecom_tab partition (event_type) select event_time, product_id, category_id, category_code, brand, price, user_id, user_session, event_type from ecom_tabl;

```
hive> insert into dyn_ecom_tab partition (event_type) select event_time, product
_id, category_id, category_code, brand, price, user_id, user_session, event_type
 from ecom_tabl
    >
    > ;
Query ID = hadoop_20220704111144_83c444a9-2787-4e52-90ca-3ac01c462ade
Total jobs = 1
Launching Job 1 out of 1
Tez session was closed. Reopening...
Session re-established.
Session re-established.
Status: Running (Executing on YARN cluster with App id application_1656931749140
_0003)

--------------------------------------------------------------------------------
--------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FA
ILED  KILLED
--------------------------------------------------------------------------------
--------------
Map 1            container        INITED      4          0        0        4
--------------------------------------------------------------------------------
--------------   container        INITED      2          0        0        2
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FA
ILED  KILLED  --------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------2  [>>---------------------------] 0%    ELAPSED TIME: 0.03 s
Map 1            container        INITED      4          0        0        4
--------------------------------------------------------------------------------
--------------   container        INITED      2          0        0        2
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FA
ILED  KILLED  --------------------------------------------------------------------
```



CHECKING IF DATA IS INSERTED

select * from dyn_ecom_tab limit 7;

```
hive>
    > select * from dyn_ecom_tab limit 7;
OK
dyn_ecom_tab.event_time dyn_ecom_tab.product_id dyn_ecom_tab.category_id       d
yn_ecom_tab.category_code       dyn_ecom_tab.brand      dyn_ecom_tab.price     d
yn_ecom_tab.user_id     dyn_ecom_tab.user_session       dyn_ecom_tab.event_type
2019-10-30 14:40:25 UTC 5847870 1487580006317032337                     1.90   4
23582414        bc8d2c60-cd55-4380-90f5-12ca42d952b0    cart
2019-10-28 16:09:54 UTC 5724608 1487580005427839846             irisk   2.48   5
47930959        1289a494-650f-46aa-8083-a2bb3cb25c09    cart
2019-10-27 16:27:36 UTC 5878151 1487580005268456287             cosmoprofi     7
.14     444041100       b1def3f7-ecdf-479e-b686-ca14ecee729e    cart
2019-10-31 12:30:18 UTC 5844309 1487580006317032337                     1.57   5
66113200        bb92950d-462d-473d-8ea3-989e84456003    cart
2019-10-31 08:16:19 UTC 5696152 1487580005134238553             runail  2.38   4
97964732        63600e1e-044e-4885-a517-87fa9b643316    cart
2019-10-27 16:27:33 UTC 6977    1487580006895846315             runail  5.13   4
44041100        b1def3f7-ecdf-479e-b686-ca14ecee729e    cart
2019-10-28 16:10:03 UTC 5892522 1487580006317032337                     4.76   4
76419375        56e86b11-c310-4fba-b300-852c88b253b0    cart
Time taken: 0.32 seconds, Fetched: 7 row(s)
```

CHECKING FOR PARTITIONS CREATED IN HIVE

show partitions dyn_ecom_tab;

```
hive> show partitions dyn_ecom_tab;
OK
partition
event_type=cart
event_type=purchase
event_type=remove_from_cart
event_type=view
Time taken: 0.084 seconds, Fetched: 4 row(s)
```

CHECKING PARTITIONS CREATED IN HADOOP

hadoop fs -ls /user/hive/warehouse/ecom.db/dyn_ecom_tab

```
[hadoop@ip-172-31-2-56 ~]$ hadoop fs -ls /user/hive/warehouse/ecom.db/dyn_ecom_tab
Found 4 items
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 11:14 /user/hive/warehouse/ecom.db/dyn_ecom_tab/event_type=cart
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 11:14 /user/hive/warehouse/ecom.db/dyn_ecom_tab/event_type=purchase
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 11:14 /user/hive/warehouse/ecom.db/dyn_ecom_tab/event_type=remove_from_cart
drwxr-xr-x   - hadoop hdfsadmingroup          0 2022-07-04 11:14 /user/hive/warehouse/ecom.db/dyn_ecom_tab/event_type=view
[hadoop@ip-172-31-2-56 ~]$
```

CHECKING TIME DIFFERENCE BETWEEN STATIC AND DYNAMIC TABLES

SELECT SUM(price) AS NOV_REVENUE FROM dyn_ecom_tab WHERE month(event_time) = 11 AND event_type = 'purchase';

```
hive>
    > SELECT SUM(price) AS NOV_REVENUE FROM dyn_ecom_tab WHERE month(event_time) = 11 AND event_type = 'purchase';
Query ID = hadoop_20220705063938_77aab1cc-6708-4fc7-8671-f6bd4c870156
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

----------------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
----------------------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 28.12 s
----------------------------------------------------------------------------------------------
OK
nov_revenue
1531016.900000001
Time taken: 28.752 seconds, Fetched: 1 row(s)
```

Time taken for dynamic table to execute the query and display the result is 28.752 seconds

SELECT SUM(price) AS NOV_REVENUE FROM ecom_tabl WHERE month(event_time) = 11 AND event_type = 'purchase';

```
hive> SELECT SUM(price) AS NOV_REVENUE FROM ecom_tabl WHERE month(event_time) = 11 AND event_type = 'purchase';
Query ID = hadoop_20220705064051_c5e99c8d-2395-4464-b776-a1358fbbb05f
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

----------------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      2          2        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
----------------------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 39.66 s
----------------------------------------------------------------------------------------------
OK
nov_revenue
1531016.900000122
Time taken: 40.23 seconds, Fetched: 1 row(s)
```

Time taken for static table to execute the query and display the result is 40.23 seconds.

QUERIES

1. SELECT SUM(price) AS OCT_REVENUE FROM dyn_ecom_tab WHERE month(event_time) = 10 AND event_type = 'purchase';

OCT_REVENUE

1211538.430000025

```
hive> SELECT SUM(price) AS OCT_REVENUE FROM dyn_ecom_tab WHERE month(event_time) = 10 AND event_type = 'purchase';
Query ID = hadoop_20220705063019_4031a1fe-26fc-4bf6-8fc8-606a7fb71a05
Total jobs = 1
Launching Job 1 out of 1
Tez session was closed. Reopening...
Session re-established.
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 29.05 s
--------------------------------------------------------------------------------
OK
oct_revenue
1211538.4300000053
Time taken: 37.531 seconds, Fetched: 1 row(s)
```

2. SELECT MONTH(event_time) AS MONTH, count(product_id) AS PURCHASE_PER_MONTH FROM dyn_ecom_tab WHERE event_type = 'purchase' GROUP BY MONTH(event_time);

MONTH PURCHASE_PER_MONTH

10 245624

11 322417

```
hive> SELECT MONTH(event_time) AS MONTH, count(product_id) AS PURCHASE_PER_MONTH FROM dyn_ecom_tab WHERE event_type = 'purchase' GROUP BY MONTH(event_time);
Query ID = hadoop_20220705063108_20bdaed6-cc5c-494f-ab63-995f18970442
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      2          2        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 29.06 s
--------------------------------------------------------------------------------
OK
month   purchase_per_month
10      245624
11      322417
Time taken: 29.794 seconds, Fetched: 2 row(s)
```

3. WITH MONTHLY_SALE AS (select round (sum (cASe when date_format (event_time, 'MM') = 10 then price else 0 end),2) AS Oct_Sales,

round (sum (cASe when date_format (event_time, 'MM') =11 then price else 0 end),2) AS Nov_Sales from dyn_ecom_tab WHERE event_type = 'purchase' AND date_format (event_time, 'MM')

in ('10', '11')) SELECT Oct_Sales, Nov_Sales, (Nov_Sales - Oct_Sales) AS DIFFERENCE from MONTHLY_SALE;

Oct_sales	Nov_sales	DIFFERENCE
1211538.43	1531016.9	319478.47

```
hive> WITH MONTHLY_SALE AS ( select round ( sum (cASe when date_format (event_time, 'MM') = 10 then price else 0 end),2) AS Oct_Sales,
    >  round (sum (cASe when date_format (event_time, 'MM') =11 then price else 0 end),2) AS Nov_Sales from dyn_ecom_tab WHERE event_type = 'purchase' AND date_format (event_time, 'MM')
    > in ('10', '11') ) SELECT Oct_Sales, Nov_Sales, (Nov_Sales - Oct_Sales) AS DIFFERENCE from MONTHLY_SALE;
Query ID = hadoop_20220705063149_efb76a90-7929-48bd-b3db-c14a60274227
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

----------------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
----------------------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 39.81 s
----------------------------------------------------------------------------------------------
OK
oct_sales       nov_sales       difference
1211538.43      1531016.9       319478.47
Time taken: 40.548 seconds, Fetched: 1 row(s)
```

4. SELECT DISTINCT SPLIT(category_code,'\\.')[0] AS Prdct_Category FROM dyn_ecom_tab WHERE SPLIT(category_code,'\\.')[0] IS NOT NULL;

Prdct_Category

accessories

apparel

appliances

furniture

sport

stationery

```
hive> SELECT DISTINCT SPLIT(category_code,'\\.')[0] AS Prdct_Category FROM dyn_ecom_tab WHERE SPLIT(category_code,'\\.')[0] IS NOT NULL;
Query ID = hadoop_20220705063238_4297819e-5612-4622-93a2-40678c4288c3
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED     16         16        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 59.47 s
--------------------------------------------------------------------------------
OK
prdct_category

accessories
apparel
appliances
furniture
sport
stationery
Time taken: 60.282 seconds, Fetched: 7 row(s)
```

5. SELECT SPLIT(category_code,'\\.')[0] AS Prdct_Category, COUNT(product_id) as Tot_Prdcts FROM dyn_ecom_tab GROUP BY SPLIT(category_code,'\\.')[0];

Prdct_Category	Tot_Prdcts
accessories	12929
apparel	18232
appliances	61736
furniture	23604
sport	2
stationery	26722

```
hive> SELECT SPLIT(category_code,'\\.')[0] AS Prdct_Category, COUNT(product_id) as Tot_Prdcts FROM dyn_ecom_tab GROUP BY SPLIT(category_code,'\\.')[0];
Query ID = hadoop_20220705063346_32f98394-2735-4018-89b2-be4499a07ff9
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED     16         16        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 02/02  [==========================>>] 100%  ELAPSED TIME: 57.52 s
--------------------------------------------------------------------------------
OK
prdct_category  tot_prdcts
        8594895
accessories     12929
apparel 18232
appliances      61736
furniture       23604
sport   2
stationery      26722
Time taken: 58.147 seconds, Fetched: 7 row(s)
```

6. SELECT brand, ROUND(price) AS MAX_SALES FROM dyn_ecom_tab WHERE brand IS NOT NULL AND event_type = 'purchase' GROUP BY brand ORDER BY MAX_SALES DESC LIMIT 3;

brand MAX_SALES

runail 148297.94

```
hive> SELECT brand, ROUND(SUM(price)) AS MAX_SALES FROM dyn_ecom_tab WHERE brand IS NOT NULL AND  event_type = 'purchase' GROUP BY brand ORDER  BY MAX_SALES DESC LIMIT 3;
Query ID = hadoop_20220705063606_52ee675e-ff27-45f1-b7f3-624d98e414f4
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 ..........   container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ......   container     SUCCEEDED      2          2        0        0       0       0
Reducer 3 ......   container     SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 27.75 s
--------------------------------------------------------------------------------
OK
brand   max_sales
        1094188.0
runail  148298.0
grattol 106918.0
```

7. WITH MONTHLY_SALES AS (SELECT brand, round (SUM (case when date_format (event_time, 'MM') = 10

then price else 0 end),2) AS Sales_Oct, round (SUM (case when date_format

(event_time, 'MM') =11 then price else 0 end),2) AS Sales_Nov FROM dyn_ecom_tab WHERE event_type = 'purchase' AND date_format (event_time, 'MM')

in ('10', '11') GROUP BY brand) SELECT brand, Sales_Oct, Sales_Nov, (Sales_Nov - Sales_Oct)

AS MONTHLY_SALESDIFF FROM MONTHLY_SALES WHERE (Sales_Nov-Sales_Oct) > 0 ORDER BY MONTHLY_SALESDIFF DESC;

A total of 161 brands have increased its sales from October to November.

```
hive> WITH MONTHLY_SALES AS ( SELECT brand, round ( SUM (case when date_format (event_time, 'MM') = 10
    >  then price else 0 end),2) AS Sales_Oct, round (SUM (case when date_format
    > (event_time, 'MM') =11 then price else 0 end),2) AS Sales_Nov FROM dyn_ecom_tab WHERE event_type = 'purchase' AND date_format (event_time, 'MM')
    > in ('10', '11') GROUP BY brand ) SELECT brand, Sales_Oct, Sales_Nov, (Sales_Nov - Sales_Oct)
    > AS MONTHLY_SALESDIFF FROM MONTHLY_SALES WHERE (Sales_Nov-Sales_Oct) > 0 ORDER  BY MONTHLY_SALESDIFF DESC;
Query ID = hadoop_20220705063642_f8f41f57-eb77-425f-b8d1-fbb51a186e0a
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

----------------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      2          2        0        0       0       0
Reducer 3 ...... container     SUCCEEDED      1          1        0        0       0       0
----------------------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 37.29 s
----------------------------------------------------------------------------------------------
OK
brand   sales_oct       sales_nov       monthly_salesdiff
        474679.06       619509.24       144830.18
grattol 35445.54        71472.71        36027.170000000006
uno     35302.03        51039.75        15737.720000000001
lianail 5892.84 16394.24        10501.400000000001
ingarden        23161.39        33566.21        10404.82
strong  29196.63        38671.27        9474.639999999996
jessnail        26287.84        33345.23        7057.390000000003
cosmoprofi      8322.81 14536.99        6214.18
polarus 6013.72 11371.93        5358.21
runail  71539.28        76758.66        5219.380000000005
freedecor       3421.78 7671.8  4250.02
staleks 8519.73 11875.61        3355.880000000001
bpw.style       11572.15        14837.44        3265.290000000001
lovely  8704.38 11939.06        3234.6800000000003
marathon        7280.75 10273.1 2992.3500000000004
haruyama        9390.69 12352.91        2962.2199999999993
yoko    8756.91 11707.88        2950.9699999999993
italwax 21940.24        24799.37        2859.1299999999974
benovy  409.62  3259.97 2850.35
kaypro  881.34  3268.7  2387.3599999999997
estel   21756.75        24142.67        2385.9199999999983
concept 11032.14        13380.4 2348.26
```

```
kares   0.0     59.45   59.45
profhenna       679.23  736.85  57.620000000000005
koelcia 55.5    112.75  57.25
balbcare        155.33  212.38  57.04999999999998
elskin  251.09  307.65  56.559999999999974
foamie  35.04   80.49   45.449999999999996
ladykin 125.65  170.57  44.91999999999999
likato  296.06  340.97  44.910000000000025
mavala  409.04  446.32  37.27999999999997
vilenta 197.6   231.21  33.610000000000014
beautyblender   78.74   109.41  30.67
biore   60.65   90.31   29.660000000000004
orly    902.38  931.09  28.710000000000036
estelare        444.81  471.87  27.060000000000002
profepil        93.36   118.02  24.659999999999997
blixz   38.95   63.4    24.449999999999996
binacil 0.0     24.26   24.26
godefroy        401.22  425.12  23.899999999999977
glysolid        69.73   91.59   21.86
veraclara       50.11   71.21   21.099999999999994
juno    0.0     21.08   21.08
kamill  63.01   81.49   18.479999999999997
treaclemoon     163.37  181.49  18.120000000000005
supertan        50.37   66.51   16.140000000000008
barbie  0.0     12.39   12.39
deoproce        316.84  329.17  12.330000000000041
rasyan  18.8    28.94   10.14
fly     17.14   27.17   10.030000000000001
tertio  236.16  245.8   9.640000000000015
jaguar  1102.11 1110.65 8.540000000000191
soleo   204.2   212.53  8.330000000000013
neoleor 43.41   51.7    8.290000000000006
moyou   5.71    10.28   4.569999999999999
bodyton 1376.34 1380.64 4.300000000000182
skinity 8.88    12.44   3.5599999999999987
helloganic      0.0     3.1     3.1
grace   100.92  102.61  1.6899999999999977
cosima  20.23   20.93   0.6999999999999993
ovale   2.54    3.1     0.56
Time taken: 37.865 seconds, Fetched: 161 row(s)
```

8. SELECT user_id, round(SUM(price),2) AS TOT_PURCHASE FROM dyn_ecom_tab WHERE event_type = 'purchase' GROUP BY user_id ORDER BY TOT_PURCHASE DESC LIMIT 10;

user_id	TOT_PURCHASE
557790271	2715.87
150318419	1645.97
562167663	1352.85
531900924	1329.45
557850743	1295.48
522130011	1185.39
561592095	1109.7
431950134	1097.59
566576008	1056.36
521347209	1040.91

```
hive> SELECT user_id, round(SUM(price),2) AS TOT_PURCHASE FROM dyn_ecom_tab WHERE event_type = 'purchase' GROUP BY user_id ORDER  BY TOT_PURCHASE DESC LIMIT 10;
Query ID = hadoop_20220705063739_a0c20df1-4287-405f-9d43-76323a1b14e2
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1657001276041_0002)

--------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------
Map 1 .......... container     SUCCEEDED      8          8        0        0       0       0
Reducer 2 ...... container     SUCCEEDED      2          2        0        0       0       0
Reducer 3 ...... container     SUCCEEDED      1          1        0        0       0       0
--------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 29.56 s
--------------------------------------------------------------------------------
OK
user_id tot_purchase
557790271       2715.87
150318419       1645.97
562167663       1352.85
531900924       1329.45
557850743       1295.48
522130011       1185.39
561592095       1109.7
431950134       1097.59
566576008       1056.36
521347209       1040.91
Time taken: 30.235 seconds, Fetched: 10 row(s)
```

DELETING THE TABLES AND DATABASE IN HIVE

DROP TABLE dyn_ecom_tab;

DROP TABLE ecom_tabl;

DROP DATBASE ecom;

```
hive> DROP TABLE dyn_ecom_tab;
OK
Time taken: 0.241 seconds
hive> DROP TABLE ecom_tabl;
OK
Time taken: 0.106 seconds
```

```
hive> DROP DATABASE ecom;
OK
Time taken: 0.111 seconds
hive>
```

TERMINATING THE CLUSTER