#### → Put 'custs.txt', 'custs add' and 'txns1.txt' files to ftp

## → C2. Create customer table hive (surya training) > CREATE TABLE customer(custno INT, firstname STRING, lastname STRING, age INT, profession STRING) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE; Time taken: 0.175 seconds, Fetched: 2 row(s) hive (surya\_training)> CREATE TABLE customer(custno INT, firstname STRING, lastname STRING, age INT, profession STRING) > ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE; Time taken: 0.398 seconds hive (surya\_training)> hive (surya training) > show tables ; hive (surya\_training)> show tables ; OK customer nvse stkvol Time taken: 0.197 seconds, Fetched: 3 row(s) hive (surya\_training)> → D1. Load the data into the table (from local file system) hive (surya training) > LOAD DATA LOCAL INPATH 'custs.txt' OVERWRITE INTO TABLE customer; hive (surya\_training)> LOAD DATA LOCAL INPATH 'custs.txt' OVERWRITE INTO TABLE customer; Loading data to table surya\_training.customer Time taken: 1.138 seconds hive (surya\_training)> hive (surya\_training)> SELECT COUNT(\*) FROM customer ; hive (surya\_training)> SELECT COUNT(\*) FROM customer; Query ID = bigdatalab456422\_20230529091615\_3c7baf5a-6920-4c6b-ad33-42c515699c40 hive (surya\_training)> SELECT COUNT(\*) FROM customer; Query ID = bigdatalab456422\_2823852991615\_3c7baf5a-6920-4c6b-ad33-42c515699c40 Total jobs = 1 Launching Job 1 out of 1 Number of reduce tasks determined at compile time: 1 In order to change the average load for a reducer (in bytes): set hive.exec.reducers.bytes.per.reducer=<number> In order to limit the maximum number of reducers: set hive.exec.reducers.max=cnumber> In order to set a constant number of reducers: set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reduces=<number> 1. Torder to set a constant number of reducers: set may reduce.job.reducers=<number of reducers.person reducers=<number of reducers=</number of reducers=</num Time taken: 28.442 seconds, Fetched: 1 row(s) hive (surya\_training)> → D1. Load the data into the table (from local file system)

hive (surya training) > LOAD DATA LOCAL INPATH 'custs add' INTO TABLE customer:

```
hive (surya_training)> LOAD DATA LOCAL INPATH 'custs_add' INTO TABLE customer; Loading data to table surya_training.customer
OK
Time taken: 0.684 seconds
hive (surya_training)>
```

```
hive (surya training) > SELECT COUNT(*) FROM customer;
```

```
hive (surya_training)> SELECT COUNT(*) FROM customer;
Query ID = bigdatalab456422_20236529091941_08db940c-7987-48ec-bee8-da40b6b991d5
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
    set hive exec. reducers. bytes. per. reducer=xnumber>
In order to limit the maximum number of reducers:
    set hive exec. reducers.maxx-number of reducers:
    set hive exec. reducers.maxx-number of reducers:
    set hive exec. reducers.maxx-number of reducers:
    set mapreduce.job. reduces-xnumber>
In order to set a constant number of reducers:
    set supereduce.job. reduces-xnumber>
Starting job. reduces-xnumber>
Starting job. reduces-xnumber>
Starting job. reduces-xnumber
Starting job. scunrcher
Starting job. reduces-xnumber
Starting job. reduces-xnumber
Starting job. scunrcher
Starting job. scunrcher
Starting job. reduces-xnumber
Starting job. scunrcher
Starting j
```

#### → C1. Create transaction table

[bigdatalab456422@ip-10-1-1-204  $\sim$ ]\$ hadoop fs -mkdir sales [bigdatalab456422@ip-10-1-1-204  $\sim$ ]\$ hadoop fs -put txns1.txt sales [bigdatalab456422@ip-10-1-1-204  $\sim$ ]\$ hadoop fs -ls sales

[bigdatalab456422@ip-10-1-1-204 ~]5 hadoop fs -ls sales Found 1 items -ww-r-r- 3 bigdatalab456422 bigdatalab456422 4418144 2023-05-29 09:22 sales/txns1.txt [bigdatalab456422@ip-10-1-1-204 ~]5



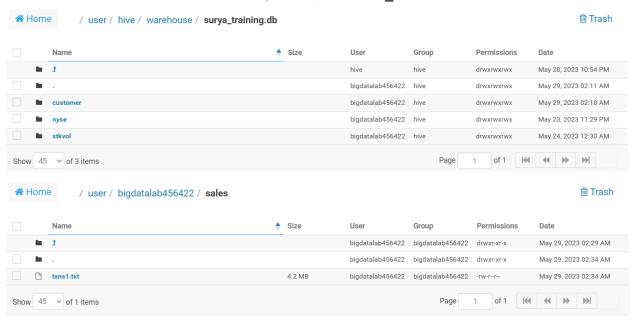
#### -- creating and adding data to sales table in hadoop fs

hive (surya\_training) > CREATE TABLE txnrecords(txnno INT, txndate STRING, custno INT, amount DOUBLE, category STRING, product STRING, city STRING, state STRING, spendby STRING) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS textfile LOCATION '/user/bigdatalab456422/sales';

-- textfile data is directly accessible in table, but it is not mapped to the /user/hive.warehouse dir but it is in hadoop fs dir sales

```
hive (surya training) > SELECT * FROM txnrecords LIMIT 10;
```

## This table is not in /user/hive/warehouse, but in \$HADOOP\_PATH/sales



## → Hive optimization

1TB x time 10TB 10x

- a. Creating ORC and Parquet files
- b. Columnar tables
- c. Inbuilt indexes

# ORC Optimized Row Columnar : improves performance when hive R/W and processes data Advantages :

- a. Compressed data, reduces data storage by over 90%
- b. Inbuilt indexes
- c. Columnar tables
- d. Hive data is processed faster as compared processing of text files
- e. Efficient execution
- f. Data is encrypted, so data is more secure
- g. ORC supports ACID properties, but Parquet does not support ACID proprties

### → create table using ORC file

#### → C1. Create transaction table

hive (surya\_training) > CREATE TABLE txn\_orc(txnno INT, txndate STRING, custno INT, amount DOUBLE, category STRING, product STRING, city STRING, state STRING, spendby STRING) STORED AS ORC;

```
hive (surya_training)> CREATE TABLE txn_orc(txnno INT, txndate STRING, custno INT, amount DOUBLE,

> category STRING, product STRING, city STRING, state STRING, spendby STRING)

> STORED AS ORC;

OK
Time taken: 0.092 seconds
hive (surya_training)> ||
```

hive (surya\_training)> INSERT OVERWRITE TABLE txn\_orc SELECT \* FROM txnrecords; Query ID = bigdatalab456422\_20230529102351\_b59557b8-e280-45ec-9e95-b9d1f99e8fa3 Total jobs = 1

hive (surya\_training) > INSERT OVERWRITE TABLE txn\_orc SELECT \* FROM txnrecords;

```
Query ID = Digotalab494242_2023959102351_05955708-e289-45ec-9995-p9911996813
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks is set to 0 since there's no reduce operator
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:23:52 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.11.204:8032
23/05/29 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/20 10:24:05/2
     MapReduce Jobs Launched:
Stage-Stage-1: Map: 1 Cumulative CPU: 6.01 sec HDFS Read: 4423450 HDFS Write: 506063 HDFS EC Read: 0 SUCCESS
Total MapReduce CPU Time Spent: 6 seconds 10 msec
    Time taken: 24.043 seconds hive (surya_training)>
  hive (surya training) > SELECT * FROM txn orc LIMIT 10;
OK

0 06-26-2011 4007024 40.33 Exercise & Fitness Cardio Machine Accessories Clarksville Tennessee
1 05-26-2011 4006742 198.44 Exercise & Fitness Weightlifting Gloves Long Beach California cree
2 06-61-2011 4000715 5.58 Exercise & Fitness Weightlifting Machine Accessories Anaheim California
3 06-05-2011 4002199 198.19 Gymnastics Gymnastics Rings Milwaukee Wisconsin credit
4 12-17-2011 4002139 88.81 Team Sports Field Hockey Nashville Tennessee credit
5 02-14-2011 4007591 193.63 Outdoor Recreation Camping & Backpacking & Hiking Chicago Illinois cred
6 10-28-2011 4002199 27.89 Puzzles Jigsaw Puzzles Charleston South Carolina credit
7 07-14-2011 4002534 96.01 Outdoor Play Cujupment Sandboxes Columbus Ohio credit
8 01-17-2011 4007361 10.44 Winter Sports Snowmobiling Des Moines Iowa credit
9 05-17-2011 4004798 152.46 Jumping Bungee Jumping St. Petersburg Florida credit
Time taken: 0.15 seconds, Fetched: 10 row(s)
                                                                                                                                                                                                                                                                                                                                                                                                                   credit
     [bigdatalab456422@ip-10-1-1-204 ~]$ hadoop fs -cat
    /user/hive/warehouse/surya training.db/txn orc/*;
    \\r
•¶N◆"N⊡→ù≥L
     \begin{array}{c} \text{t(De°52'$$^{$/\%2$$}_{7}$2500'$PPF3X"$$^{$}\dot{u}$} \\ \text{222}^{J} + \text{M2Q02°3}^{J} + \text{502 PBFBR'$$}^{$\%2$} \end{array} 
                                                                                                                                         `"
LfL@□F K} Su}a-□ i.)@ſ□#A3∠>Kiu⊏fk8
    r@'/6sïw\r@'/6w$cp#'9sm;k_=x+7<xb-;@8r3@qi;>=m@@4 Vs}uZej}iB$*P$Q@T"
                                                                                                                                                                                                                                                       Y*k@@"!\%~9羯w~>9ehu<*DEQr-j@WU/ы· 6)Z@WNG-≥T>@&@Mn_4σ↓GD=@- 4FO|<sub>Γ</sub><ε°D@-P@U@乎|G@@@)-裸3@KF@E\
     ŸVGD<sub>T</sub>G-20UG/65,→H®^Z000E6UV]#3F}D-j∰E|U<9'?
K®≠6)000F}ING£Y®90M00%Ü(FUTS(%No8T!n©r*bU+:=ectQé:f{T<ZkifrT~>1EDx,5HÜQUUTit.000]zβD</380qA|®-| «@LK=>"6Q8OT000:" 【Z0]KD3NEπ[ 4↓100N↓FR |\@F | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | ~8 _ | 
     5Ÿ-/@\X$;Qg@MMt&k@QYq_)#(=Z@V SH: 6HQaf$Z@C0KVMBw@;BVn\Bc@W}}_wFTn8^cd73R
fH5vj0X.@G<EDKDgOWXWBTc*zGE4I}WzEgNFOW[58@BDD^#_J/|V<:@Upl0WCQ#@omT4oq?6EbW|/z+|@BSJ}bns:/@61
```

hive (surya training) > DESC FORMATTED txn orc ;

```
hive (surya_training)> DESC FORMATTED txn_orc ;
OK
# col_name
                                      data_type
                                      int
string
txnno
txndate
custno
custno
amount
category
product
city
state
spendby
                                       double
string
string
string
string
string
string
# Detailed Table Information
                                      surya_training
USER
Database:
OwnerType:
Owner:
                                      bigdatalab456422
Mon May 29 10:22:23 UTC 2023
UNKNOWN
Owner:
CreateTime:
ndfs://nameservice1/user/hive/warehouse/surya_training.db/txn_orc
MANAGED_TABLE
# Storage Information
                                      org.apache.hadoop.hive.ql.io.ord<mark>.OrcSerd</mark>e
org.apache.hadoop.hive.ql.io.orc.OrcInputFormat
org.apache.hadoop.hive.ql.io.orc.OrcOutputFormat
No
-1
SerDe Library:
InputFormat:
OutputFormat:
Compressed:
Num Buckets:
```

## → create table using parquet file

#### → C1. Create transaction table

hive (surya\_training) > CREATE TABLE txn\_parquet(txnno INT, txndate STRING, custno INT, amount DOUBLE, category STRING, product STRING, city STRING, state STRING, spendby STRING) STORED AS PARQUET;

## hive (surya training) > INSERT OVERWRITE TABLE txn parquet SELECT \* FROM txnrecords;

```
hive (surya_training)> SELECT * FROM txn_parquet LIMIT 10;
OK
Time taken: 0.079 seconds
hive (surya_training)> INSERT OVERWRITE TABLE txn_parquet SELECT * FROM txnrecords;
Query ID = bigdatalab456422_20230529173433_36a43519-1d81-43fa-9ad9-3391d469204f
Total jobs = 3
MapReduce Total cumulative CPU time: 5 seconds 420 msec
Ended Job = job_1684686872278_3739
Stage-4 is selected by condition resolver.
Stage-3 is filtered out by condition resolver.
Stage-5 is filtered out by condition resolver.
Moving data to directory hdfs://nameservice1/user/hive/warehouse/surya_training.db/txn_parquet/.hive-staging_hive_2023-05-29_17-34-33_259_598362340879233563-1/-ext-1000
U
Loading data to table surya_training.txn_parquet
MapReduce Jobs Launched:
Stage-Stage-1: Map: I Cumulative CPU: 5.42 sec HDFS Read: 4423501 HDFS Write: 787857 HDFS EC Read: 0 SUCCESS
Total MapReduce CPU Time Spent: 5 seconds 420 msec
Time taken: 21.123 seconds hive (surya_training)>
hive (surya training)> SELECT * FROM txn_parquet LIMIT 10;
 hive (surya_training)> SELECT * FROM txn_parquet LIMIT 10;
OK
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/opt/cloudera/parcels/CDH-6.2.1-1.cdh6.2.1.p0.1425774/jars/hive-exec-2.1.1-cdh6.2.1.jar!/shaded/parquet/org/slf4j/impl/StaticLoggerBin
ies Clarksville Tennessee
Long Beach California cre
Accessories Anaheim California
Credit
                                          is of type [shaded.parquet.org.slfdj.helpers.NOPloggerFactory]
4007024 40:33 Exercise & Fitness Cardio Machine Accessories Clarksville T
4006742 198.44 Exercise & Fitness Weightlifting Gloves Long Beach Californi
4000775 5.58 Exercise & Fitness Weightlifting Machine Accessories Anaheim C
40002199 198.19 Gymnastics Gymnastics Rings Milwauke Wisconsin c
40002613 98.81 Team Sports Field Mockey Nashville Tennessee credit
4007591 193.63 Outdoor Recreation Camping & Backpacking & Hiking Chicago Illinois
4002190 27.89 Puzzles Jigsaw Puzzles Charleston South Carolina credit
4002364 96.01 Outdoor Play Equipment Sandoxes Columbus Ohio credit
4007361 19.44 Winter Sports Snowmobiling Des Moines Iowa credit
4007481 352.46 Jumping Bungee Jumping St. Petersburg Florida credit
4007481 19.246 Jumping Bungee Jumping St. Petersburg Florida credit
               06-01-2011
06-05-2011
               12-17-2011
02-14-2011
                                                                                                                                                                                                                      credit
               02-14-2011
10-28-2011
07-14-2011
01-17-2011
05-17-2011
```

## [bigdatalab456422@ip-10-1-1-204 ~]\$ hadoop fs -cat /user/hive/warehouse/surya training.db/txn\_parquet/\*;

@@@@@@@@@@ !"#\$%&'()\*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^\_`abcdefghijklmnopqrstuvwxyz{|}~@@@@@@@@@@@ 

PRESENTATION OF THE CONTROL OF THE C 2e0f8g2h2i2j2k212m2n2o2p2q2r2s2t2u2v2w2x2y2z2{2|2}2~22

Time taken: 0.09 seconds, Fetched: 10 row(s) hive (surya\_training)>

```
hive (surya training) > DESC FORMATTED txn parquet ;
   hive (surya_training)> DESC FORMATTED txn_parquet;
  # col_name
                                                                                                          data_type
 txnno
txndate
custno
amount
category
product
city
state
                                                                                                             int
string
int
double
string
string
   spendby
                                                                                                             string
   # Detailed Table Information
Database: surya
                                                                                                             surya_training
USER
   OwnerType:
Owner:
                                                                                                           bigdatalab456422
Mon May 29 17:25:50 UTC 2023
UNKNOWN
   CreateTime
  of the following of the
                                                                                                                                               50000
450000
                                      numRows
rawDataSize
                                       totalSize
                                      transient_lastDdlTime 1685381694
   # Storage Information
                                                                                                           org.apache.hadoop.hive.ql.io.parquet_serde.ParquetHiveSerDe
org.apache.hadoop.hive.ql.io.parquet.MapredParquetInputFormat
org_apache.hadoop.hive.ql.io.parquet_MapredParquetInputFormat
  SerDe Library:
InputFormat:
```

## → creating partition table

```
creating a partition table
   00000000,06-26-2011,4007024,040.33,Exercise & Fitness,Cardio Machine Accessories,Clarksville,Tennessee,credit
  0000001, 05\text{-}26\text{-}2011, 4006742, 198\text{.}44, Exercise \& Fitness, Weight lifting Gloves, Long Beach, California, creditation of the control of the contro
   00000002,06-01-2011,4009775,005.58,Exercise & Fitness,Weightlifting Machine Accessories,Anaheim,California,credit
  00000003, 06\text{-}05\text{-}2011, 4002199, 198.19, Gymnastics, Gymnastics} \ Rings, \\ Milwaukee, \\ Wisconsin, creditation of the control of the c
00000004,12-17-2011,400213,098.81,Team Sports,Field Hockey,Nashville ,Tennessee,credit 00000005,02-14-2011,4002513,098.81,Team Sports,Field Hockey,Nashville ,Tennessee,credit 00000005,02-14-2011,4007591,193.63,Outdoor Recreation,Camping & Backpacking & Hiking,Chicago,Illinois,credit 0000006,10-28-2011,4002190,027.89,Puzzles,Jigsaw Puzzles,Charleston,South Carolina,credit 0000007,07-14-2011,4002964,096.01,Outdoor Play Equipment,Sandboxes,Columbus,Ohio,credit
   data = 1 TB
  blocks = 8192
   select sum(amount) from txnrecords where category = 'Exercise & Fitness';
   8000 mappers, containers, RAM
   actual data = 10%
   select sum(amount) from txnrecords where category = 'Team Sports';
   8000 mappers
   actual data = 5%
                                                                                                                                                                                                                                                                                                                                                                                           24000
   select sum(amount) from txnrecords where category = 'Gym';
```

```
| Temporary Vergental Verg
```

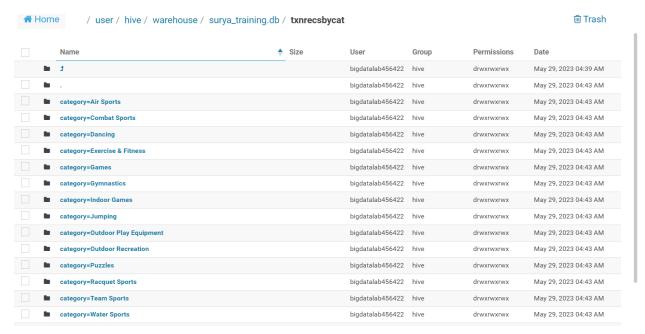
#### → H1. Create partitioned table

hive (surya\_training) > CREATE TABLE txnrecsByCat(txnno INT, txndate STRING, custno INT, amount DOUBLE, product STRING, city STRING, state STRING, spendby STRING) PARTITIONED BY (category STRING) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE;

hive (surya\_training)> DESC txnrecsByCat;

```
hive (surya_training)> DESC txnrecsByCat;
 txnno
                                         int
string
 txndate
 custno
                                         double
 product
 product
city
state
spendby
category
                                        data type
                                                                                comment
Time taken: 0.113 seconds, Fetched: 14 row(s) hive (surya_training)>
hive (surya training) > set
hive.exec.dynamic.partition.mode=nonstrict;
hive (surya training) > set hive.exec.dynamic.partition=true;
→ I1. Load data into partition table (single bucket)
hive (surya training) > INSERT OVERWRITE TABLE txnrecsByCat
PARTITION(category) SELECT txn.txnno, txn.txndate,txn.custno,
txn.amount,txn.product,txn.city,txn.state, txn.spendby, txn.category
FROM txnrecords txn DISTRIBUTE BY category;
 hive (surya_training)> INSERT OVERWRITE TABLE txnrecsByCat PARTITION(category)
                                    > SELECT txn.txnno, txn.txndate.txn.custno, txn.amount.txn.product.txn.citv.txn.state, txn.spendbv, txn.category FROM txnrecords txn DISTRIBUTE BY
> SELECT txn.txnno, txn.txndate,txn.custno, txn.amount,txn.
category;
Query ID = bigdatalab456422_20230529114258_e47ccbe0-cc5e-4634-a79b-8b6851f076bc
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
set hive.exec.reducers.bytes.per.reducer=cnumber>
In order to limit the maximum number of reducers:
set hive.exec.reducers.max=cnumber>
In order to set a constant number of reducers:
set mapreduce.job.reduces=cnumber>
23/05/29 11:42:59 NTPO cilent.NRProxy: Connecting to ResourceManager at ip-10-1-
set mapreduce.job.reduces=cnumber>
23/08/29 11:42:59 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.1.1.204:8032
23/08/29 11:42:59 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.1.1.204:8032
23/08/29 11:42:59 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal:0606/proxy/application_1604806872278_3571, Tracking URL = http://ip-10-1-1-204.ap-south-1.compute.internal:0606/proxy/application_1604866872278_3571/
Kill Command = /opt/cloudera/parcels/CDH-6.2.1-1.cdh6.2.1.po.1425774/lib/hadoop/bin/hadoop/bin/hadoop job -kill job_1684866872278_3571
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2023-05-29 11:43:31,564 Stage-1 map = 0%, reduce = 0%, Cumulative CPU 4.19 sec
2023-05-29 11:43:31,564 Stage-1 map = 100%, reduce = 0%, Cumulative CPU 9.57 sec
MapReduce Total cumulative CPU time: 9 seconds 570 msec
Ended Job = job_168486872278_3571
Loading data to table surya_training.txnrecsbycat partition (category=null)
Time taken to load dynamic partitions: 0.41 seconds
Time taken for adding to write entity : 0.004 seconds
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1 Reduce: 1 Cumulative CPU: 9.57 sec HDFS Read: 4428810 HDFS Write: 3500532 HDFS EC Read: 0 SUCCESS
Total MapReduce CPU Time Spent: 9 seconds 570 msec
OK
Time taken: 44.713 seconds
hive (surya_training)> ■
```

/user/hive/warehouse/surya training.db/txnrecsbycat



/user/hive/warehouse/surya\_training.db/txnrecsbycat/category=Air%20Sp orts



#### → H3. Create partitioned table (single bucket) on a derived column

hive (surya\_training) > CREATE TABLE txnrecsByCat3(txnno INT, txndate STRING, custno INT, amount DOUBLE, product STRING, city STRING, state STRING) PARTITIONED BY (category STRING, spendby STRING) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE;

```
hive (surya_training)> CREATE TABLE txnrecsByCat3(txnno INT, txndate STRING, custno INT, amount DOUBLE,

> product STRING, city STRING, state STRING)
> PARTITIONED BY (category STRING,spendby STRING)
> PARTITIONED BY (category STRING,spendby STRING)
> ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE;

OK
Time taken: 0.881 seconds
hive (surva training)>
```

```
hive (surya training) > DESC txnrecsByCat3;
```

```
hive (surya_training)> DESC txnrecsByCat3;
OK
txnno int
txndate string
custno int
amount double
product string
city string
state string
category string
spendby string
# Partition Information
# col_name data_type comment

category string
spendby string
Tame taken: 0.108 seconds | Fetched: 15 row(s)
hive (surya_training)>
```

#### → I3. Load data into partition table (single bucket)

hive (surya\_training) > FROM txnrecords txn INSERT OVERWRITE TABLE txnrecsByCat3 PARTITION(category, spendby) SELECT txn.txnno, txn.txndate, txn.custno, txn.amount, txn.product, txn.city, txn.state, txn.category, txn.spendby DISTRIBUTE BY category, spendby;

```
hive (surya_training)> FROM txnrecords txn INSERT OVERWRITE TABLE txnrecsByCat3 PARTITION(category, spendby)

SELECT twn.txnno, twn.txndate.tvn.custon, txn.amount.txn.product,txn.city,txn.state, txn.category, txn.spendby DISTRIBUTE BY category, spendby;

Query ID = bigdatalab456422_2023852912018_ae6668ab-39b2-1cbd-9248-c67fe1888a73
Total jobs = 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

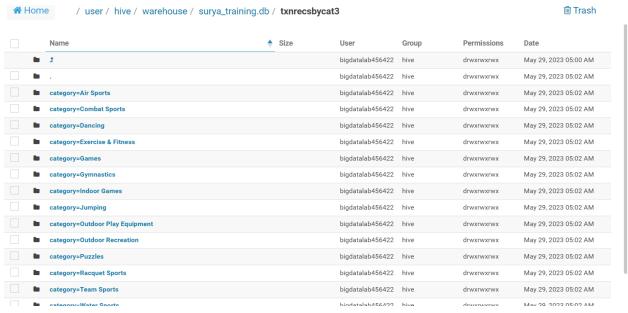
Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduce tasks not specified. Estimated from input data size: 1

Number of reduces. Part of the specified of the specified
```

/user/hive/warehouse/surya training.db/txnrecsbycat3



/user/hive/warehouse/surya\_training.db/txnrecsbycat3/category=Air%20S ports



#### → H3. Create partitioned table (single bucket) on a derived column

hive (surya\_training) > CREATE TABLE txnrecsByCat4(txnno INT, txndate STRING, custno INT, amount DOUBLE, category String, product STRING, city STRING, state STRING, spendby STRING) PARTITIONED BY (month STRING) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE;

```
hive (surya_training)> CREATE TABLE txnrecsByCat4(txnno INT, txndate STRING, custno INT, amount DOUBLE,

> category String, product STRING, city STRING, state STRING, spendby STRING)
> PARTITIONED BY (month STRING)
> NOW FORMAT DELIMITED FIELDS TERMINATED BY ',' STORED AS TEXTFILE;
OK
Time taken: 0.083 seconds
hive (surya_training)> |
```

```
hive (surya training) > DESC txnrecsByCat4;
  hive (surya_training)> DESC txnrecsByCat4;
  txnno
txndate
                                                string
int
double
string
string
string
  custno
  spendby
                                                string
                                               data_type
                                                                                               comment
  month string
Time taken: 0.102 seconds, Fetched: 15 row(s)
→I3. Load data into partition table (single bucket)
hive (surya training) > FROM txnrecords txn INSERT OVERWRITE TABLE
txnrecsByCat4 PARTITION(month) SELECT txn.txnno,
txn.txndate, txn.custno,
txn.amount, txn.category, txn.product, txn.city, txn.state,
txn.spendby,substring(txn.txndate,1,2) DISTRIBUTE BY
 substring(txn.txndate, 1, 2);
 hive (surya_training)> FROM txnrecords txn INSERT OVERWRITE TABLE txnrecsByCat4 PARTITION(month)
hive (surya_training)> FROM txnrecords txn INSERT OVERWRITE TABLE txnrecsByCat4 PARTITION(month)

> SELECT txn.txnno, txn.txndate,txn.custno, txn.amount,txn.category,txn.product,txn.city,txn.state, txn.spendby,substring(txn.txndate,1,2);

Query ID = bigdatalabs4642_20230529120834_9198f7d3-58e8-4b16-9558-c7f41086f459

Total jobs = 1

Launching Job 1 out of 1

Number of reduce tasks not specified. Estimated from input data size: 1

In order to change the average load for a reducer (in bytes):
    set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
    set hive.exec.reducers.max=<number)

In order to set a constant number of reducers:
    set a constant number of reducers:
    set mayeduce.job.reduces=<number>
23/065/29 12:083:43 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-204.ap-south-1.compute.internal/10.1.1.204:8032

23/055/29 12:083:43 INFO client.RMProxy: Connecting to ResourceManager at ip-10-1-1-204.ap-south-1.compute.internal/10.1.1.204:8032

Starting Job = job_1684866872278_3639, Tracking URL = http://jp-10-1-1-204.ap-south-1.compute.internal/10.1.1.204:8032

Starting Job = job_1684866872278_3639, Cumulative CPU 11.2 sec

MapReduce Total cumulative CPU time: 11 seconds 200 msec

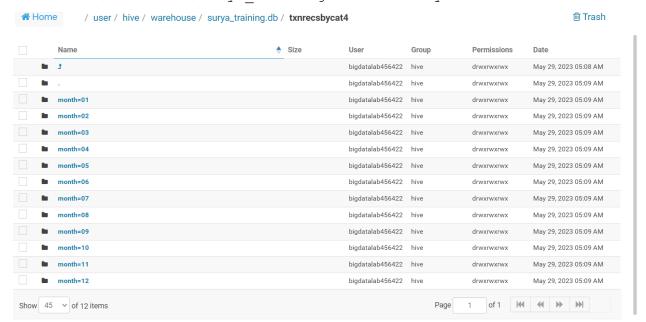
MapReduce Total cumulative CPU time: 11 seconds 200 msec

Ended Job = job_1684866872278_3639

Loading data to table surya_training.txnrecsbycat4 partition (month=null)
 Time taken to load dynamic partitions: 0.299 seconds
Time taken for adding to write entity : 0.001 seconds
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1 Reduce: 1 Cumulative CPU: 11.2 sec HDFS Read: 4429675 HDFS Write: 4226779 HDFS EC Read: 0 SUCCESS
Total MapReduce CPU Time Spent: 11 seconds 200 msec
```

Time taken: 36.021 seconds hive (surya\_training)>

#### /user/hive/warehouse/surya training.db/txnrecsbycat4



#### /user/hive/warehouse/surya training.db/txnrecsbycat4/month=01

