BIG DATA

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5.TH PROGRAM (HIVE)
Exercise-5: Extract facts using Hive :
1)Create and Drop Databases
2)Create, Alter , Drop Table
3)Built-in Operators
4)Built-in function
5)Views and Index
6)HIVEQL(select where , Select Order by, Select group by , Select Joins)

> cd $HADOOP_HOME/sbin
> ./start-all.sh
> jps

```
hdoop@admin1-HP-280-G4-MT-Business-PC:~$ cd $HADOOP_HOME
hdoop@admin1-HP-280-G4-MT-Business-PC:~/hadoop-3.2.1$ cd sbin/
hdoop@admin1-HP-280-G4-MT-Business-PC:~/hadoop-3.2.1/sbin$ ./start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
localhost: namenode is running as process 4196.  Stop it first.
Starting datanodes
localhost: datanode is running as process 4339.  Stop it first.
Starting secondary namenodes [admin1-HP-280-G4-MT-Business-PC]
admin1-HP-280-G4-MT-Business-PC: secondarynamenode is running as process 4584.  Stop it first.
Starting resourcemanager
resourcemanager is running as process 4772.  Stop it first.
Starting nodemanagers
localhost: nodemanager is running as process 4924.  Stop it first.
hdoop@admin1-HP-280-G4-MT-Business-PC:~/hadoop-3.2.1/sbin$ jps
4339 DataNode
4196 NameNode
4772 ResourceManager
4584 SecondaryNameNode
4924 NodeManager
8190 Jps
```

>cd $HIVE_HOME
> ./conf
> cd conf

```
hdoop@admin1-HP-280-G4-MT-Business-PC:~/hadoop-3.2.1/sbin$ cd $HIVE_HOME
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin$ ./conf
bash: ./conf: Is a directory
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin$ cd conf
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin/conf$ ls
beeline-log4j2.properties.template  hive-env.sh.template               ivysettings.xml                          metastore_db
derby.log                           hive-exec-log4j2.properties.template  llap-cli-log4j2.properties.template     parquet-logging.properties
hive-default.xml.template           hive-log4j2.properties.template       llap-daemon-log4j2.properties.template
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin/conf$ rm -rf metastore_db
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin/conf$ schematool -initSchema -dbType derby
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/hdoop/apache-hive-3.1.2-bin/lib/log4j-slf4j-impl-2.10.0.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/hdoop/hadoop-3.2.1/share/hadoop/common/lib/slf4j-log4j12-1.7.25.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]
Metastore connection URL:        jdbc:derby:;databaseName=metastore_db;create=true
Metastore Connection Driver :    org.apache.derby.jdbc.EmbeddedDriver
Metastore connection User:       APP
Starting metastore schema initialization to 3.1.0
Initialization script hive-schema-3.1.0.derby.sql
```

To drop a database

>rm -rf metastore_db

```
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin/conf$ rm -rf metastore_db
```

>hive
To view databases
>show databases;

```
Initialization script completed
schemaTool completed
hdoop@admin1-HP-280-G4-MT-Business-PC:~/apache-hive-3.1.2-bin/conf$ hive
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/hdoop/apache-hive-3.1.2-bin/lib/log4j-slf4j-impl-2.10.0.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/hdoop/hadoop-3.2.1/share/hadoop/common/lib/slf4j-log4j12-1.7.25.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]
Hive Session ID = a838db3a-474a-4630-89f9-cf3ae89ee5eb

Logging initialized using configuration in jar:file:/home/hdoop/apache-hive-3.1.2-bin/lib/hive-common-3.1.2.jar!/hive-log4j2.properties Async:
true
Hive Session ID = d7c0a382-654d-40de-98ad-58fd8bf4de36
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, te
z) or using Hive 1.X releases.
hive> show databases
    > ;
OK
default
Time taken: 0.459 seconds, Fetched: 1 row(s)
```

To create database

>create database if not exists salesdb;
>use salesdb;

To create table

>create table sales(product string,price int,payment_type string,name string,city string,state string,country string);
>desc sales;

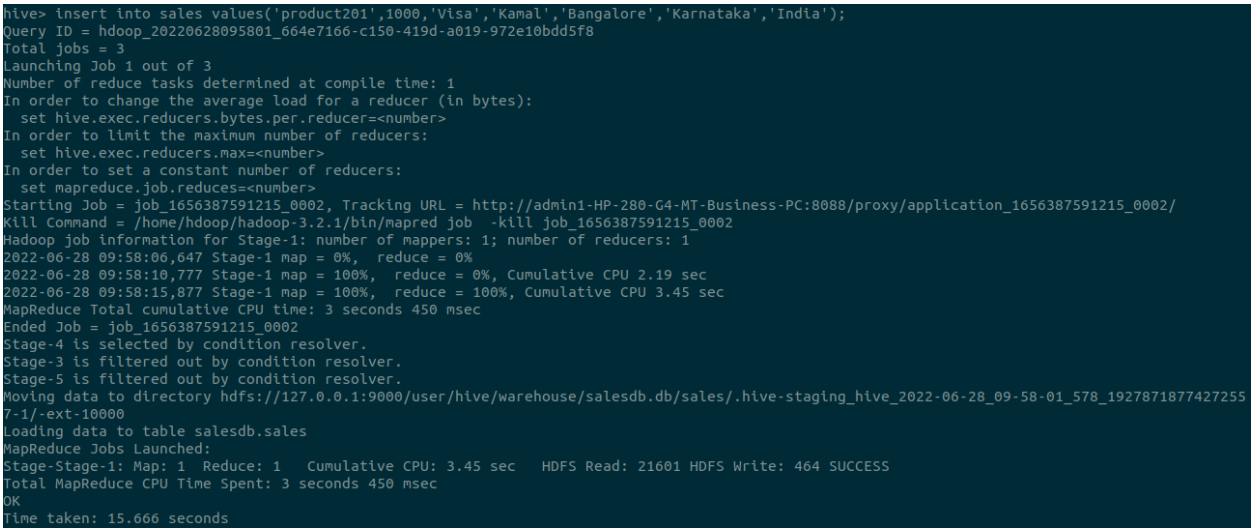
```
hive> create database if not exists salesdb;
OK
Time taken: 0.109 seconds
hive> use salesdb;
OK
Time taken: 0.045 seconds
hive> create table sales(product string,price int,payment_type string,name string,city string,state string,country string);
OK
Time taken: 0.478 seconds
hive> desc sales;
OK
product                 string
price                   int
payment_type            string
name                    string
city                    string
state                   string
country                 string
Time taken: 0.105 seconds, Fetched: 7 row(s)
```

Inserting values:

hive> insert into sales values('product200',5000,'Mastercard','Kumar','Astoria','California','USA');

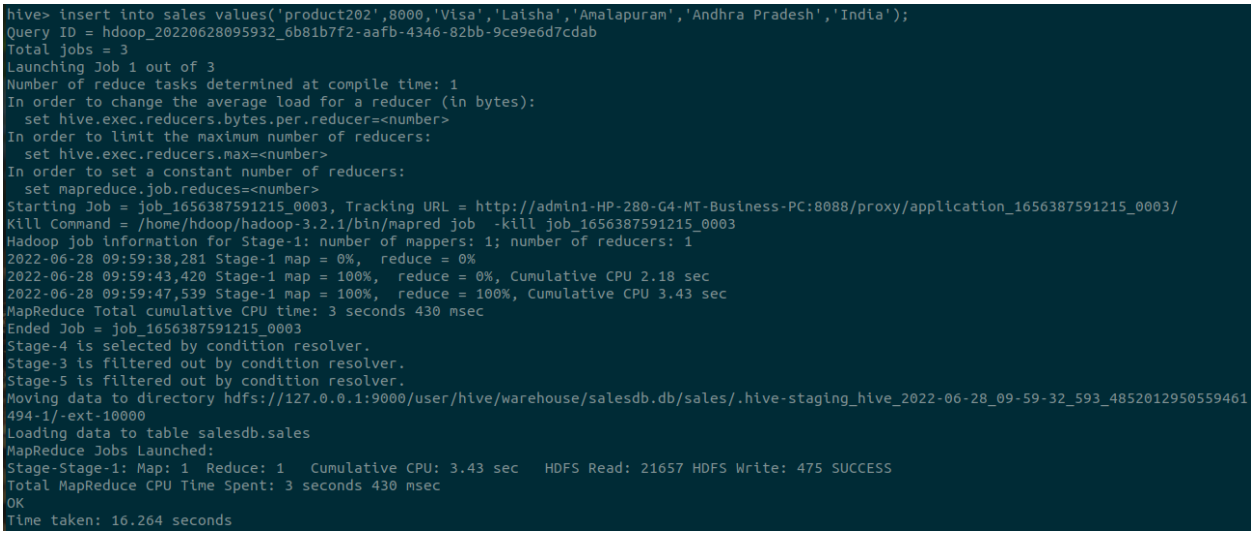
```
hive> insert into sales values('product200',5000,'Mastercard','Kumar','Astoria','California','USA');
Query ID = hdoop_20220628095447_3037cba2-9b59-4517-bfed-46563f38453d
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0001, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0001/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0001
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 09:54:58,024 Stage-1 map = 0%,  reduce = 0%
2022-06-28 09:55:02,249 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.18 sec
2022-06-28 09:55:06,364 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.44 sec
MapReduce Total cumulative CPU time: 3 seconds 440 msec
Ended Job = job_1656387591215_0001
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://127.0.0.1:9000/user/hive/warehouse/salesdb.db/sales/.hive-staging_hive_2022-06-28_09-54-47_267_4881384872739497
258-1/-ext-10000
Loading data to table salesdb.sales
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.44 sec   HDFS Read: 21609 HDFS Write: 471 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 440 msec
OK
Time taken: 21.685 seconds
```

hive> insert into sales values('product201',1000,'Visa','Kamal','Bangalore','Karnataka','India');



```
hive> insert into sales values('product201',1000,'Visa','Kamal','Bangalore','Karnataka','India');
Query ID = hdoop_20220628095801_664e7166-c150-419d-a019-972e10bdd5f8
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0002, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0002/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0002
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 09:58:06,647 Stage-1 map = 0%,  reduce = 0%
2022-06-28 09:58:10,777 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.19 sec
2022-06-28 09:58:15,877 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.45 sec
MapReduce Total cumulative CPU time: 3 seconds 450 msec
Ended Job = job_1656387591215_0002
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://127.0.0.1:9000/user/hive/warehouse/salesdb.db/sales/.hive-staging_hive_2022-06-28_09-58-01_578_1927871877427255
7-1/-ext-10000
Loading data to table salesdb.sales
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.45 sec   HDFS Read: 21601 HDFS Write: 464 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 450 msec
OK
Time taken: 15.666 seconds
```

hive> insert into sales values('product202',8000,'Visa','Laisha','Amalapuram','Andhra Pradesh','India');



```
hive> insert into sales values('product202',8000,'Visa','Laisha','Amalapuram','Andhra Pradesh','India');
Query ID = hdoop_20220628095932_6b81b7f2-aafb-4346-82bb-9ce9e6d7cdab
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0003, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0003/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0003
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 09:59:38,281 Stage-1 map = 0%,  reduce = 0%
2022-06-28 09:59:43,420 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.18 sec
2022-06-28 09:59:47,539 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.43 sec
MapReduce Total cumulative CPU time: 3 seconds 430 msec
Ended Job = job_1656387591215_0003
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://127.0.0.1:9000/user/hive/warehouse/salesdb.db/sales/.hive-staging_hive_2022-06-28_09-59-32_593_4852012950559461
494-1/-ext-10000
Loading data to table salesdb.sales
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.43 sec   HDFS Read: 21657 HDFS Write: 475 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 430 msec
OK
Time taken: 16.264 seconds
```

hive> insert into sales values('product203',2000,'Diners','Madeeha','Raichur','Andhra Pradesh','India');

```
hive> insert into sales values('product203',2000,'Diners','Madeeha','Raichur','Andhra Pradesh','India');
Query ID = hdoop_20220628100102_1d975ed4-a23c-4c71-83bc-b3abbf0eea69
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0004, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0004/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0004
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:01:09,905 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:01:13,989 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.24 sec
2022-06-28 10:01:18,064 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.49 sec
MapReduce Total cumulative CPU time: 3 seconds 490 msec
Ended Job = job_1656387591215_0004
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://127.0.0.1:9000/user/hive/warehouse/salesdb.db/sales/.hive-staging_hive_2022-06-28_10-01-02_496_4982050211073839
506-1/-ext-10000
Loading data to table salesdb.sales
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.49 sec   HDFS Read: 21658 HDFS Write: 473 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 490 msec
OK
Time taken: 17.88 seconds
```

hive> insert into sales values('product204',2000, 'Mastercard','Isha', 'Mangalore', 'Karnataka', 'India');

```
hive> insert into sales values('product204',2000,'Mastercard','Isha','Mangalore','Karnataka','India');
Query ID = hdoop_20220628100211_2a939bb0-8440-4988-9983-b96a4ddcc68f
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0005, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0005/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0005
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:02:17,901 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:02:22,996 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.17 sec
2022-06-28 10:02:27,083 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.39 sec
MapReduce Total cumulative CPU time: 3 seconds 390 msec
Ended Job = job_1656387591215_0005
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://127.0.0.1:9000/user/hive/warehouse/salesdb.db/sales/.hive-staging_hive_2022-06-28_10-02-11_431_7082488325094925
367-1/-ext-10000
Loading data to table salesdb.sales
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.39 sec   HDFS Read: 21650 HDFS Write: 471 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 390 msec
OK
Time taken: 16.959 seconds
```

Queries:

hive> select * from sales;

```
hive> select * from sales;
OK
product200      5000    Mastercard      Kumar   Astoria California      USA
product201      1000    Visa    Kamal   Bangalore       Karnataka       India
product202      8000    Visa    Laisha  Amalapuram      Andhra Pradesh  India
product203      2000    Diners  Madeeha Raichur Andhra Pradesh  India
product204      2000    Mastercard      Isha    Mangalore       Karnataka       India
Time taken: 0.16 seconds, Fetched: 5 row(s)
```

hive> select count(*) as count,Country from sales group by Country;

```
hive> select count(*) as count,Country from sales group by Country;
Query ID = hdoop_20220628101202_febc048d-11e5-4820-8659-23a9dab1a3f2
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0006, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0006/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0006
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:12:08,597 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:12:11,721 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.27 sec
2022-06-28 10:12:15,786 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.43 sec
MapReduce Total cumulative CPU time: 2 seconds 430 msec
Ended Job = job_1656387591215_0006
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.43 sec   HDFS Read: 14571 HDFS Write: 125 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 430 msec
OK
4       India
1       USA
Time taken: 14.008 seconds, Fetched: 2 row(s)
```

hive> select count(*) as count,State from sales group by State;

```
hive> select count(*) as count,State from sales group by State;
Query ID = hdoop_20220628101252_a9535ed5-d111-4630-9852-7767c0934498
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0007, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0007/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0007
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:12:58,452 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:13:02,557 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.28 sec
2022-06-28 10:13:06,628 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.68 sec
MapReduce Total cumulative CPU time: 2 seconds 680 msec
Ended Job = job_1656387591215_0007
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.68 sec   HDFS Read: 14670 HDFS Write: 165 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 680 msec
OK
2       Andhra Pradesh
1       California
2       Karnataka
Time taken: 15.36 seconds, Fetched: 3 row(s)
```

hive> select Product,Name from sales group by Product,Name;

```
hive> select Product,Name from sales group by Product,Name;
Query ID = hdoop_20220628101515_faa2dad2-8ca6-4f73-9dfd-5f6735b42983
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0008, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0008/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0008
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:15:20,327 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:15:24,425 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.2 sec
2022-06-28 10:15:28,495 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 2.52 sec
MapReduce Total cumulative CPU time: 2 seconds 520 msec
Ended Job = job_1656387591215_0008
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 2.52 sec   HDFS Read: 13479 HDFS Write: 234 SUCCESS
Total MapReduce CPU Time Spent: 2 seconds 520 msec
OK
product200      Kumar
product201      Kamal
product202      Laisha
product203      Madeeha
product204      Isha
Time taken: 13.99 seconds, Fetched: 5 row(s)
```

views

hive> create view visa as select * from sales where Payment_Type='Visa';

```
hive> create view visa as select * from sales where Payment_type='Visa';
OK
Time taken: 0.133 seconds
hive> select * from visa;
OK
product201      1000    Visa    Kamal   Bangalore       Karnataka       India
product202      8000    Visa    Laisha  Amalapuram      Andhra Pradesh  India
Time taken: 0.137 seconds, Fetched: 2 row(s)
```

hive> select price from sales where city='Bangalore';

```
hive> select price from sales where city='Bangalore';
OK
1000
```

```
hive> select * from sales where Country='India' and Payment_Type='Mastercard';
OK
product204      2000    Mastercard      Isha    Mangalore       Karnataka       India
Time taken: 0.094 seconds, Fetched: 1 row(s)
```

alter table

hive> alter table sales rename to 1NT19IS147sales;

```
hive> alter table sales rename to 1NT19IS147sales;
OK
Time taken: 0.122 seconds
hive> show tables;
OK
1nt19is147sales
visa
Time taken: 0.017 seconds, Fetched: 2 row(s)
```

Drop a table:

```
hive> create table salest(Product string,Price int,Payment_type string,Name string,City string,State string,Country string)
    > row format delimited
    > fields terminated by ","
    > stored as textfile;
OK
Time taken: 0.063 seconds
```

```
hive> drop table salest;
OK
Time taken: 0.806 seconds
```

Built-in operators:

Arithmetic operators - Addition

```
hive> select product,name,price+1200 from 1NT19IS147sales;
OK
product200      Kumar   6200
product201      Kamal   2200
product202      Laisha  9200
product203      Madeeha 3200
product204      Isha    3200
Time taken: 0.078 seconds, Fetched: 5 row(s)
```

Relational operators(>)

```
hive> select * from 1NT19IS147sales where Price>4500;
OK
product200      5000    Mastercard      Kumar   Astoria California      USA
product202      8000    Visa    Laisha  Amalapuram      Andhra Pradesh  India
Time taken: 0.07 seconds, Fetched: 2 row(s)
```

(between)

```
hive> select count(*) from sales where Price between 1000 and 5000;
Query ID = hdoop_20220628103859_ac9b7ea0-8e65-4dac-8f07-a9fbfcdd2502
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0010, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0010/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0010
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:39:04,625 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:39:08,765 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.28 sec
2022-06-28 10:39:13,881 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 4.03 sec
MapReduce Total cumulative CPU time: 4 seconds 30 msec
Ended Job = job_1656387591215_0010
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 4.03 sec   HDFS Read: 15680 HDFS Write: 101 SUCCESS
Total MapReduce CPU Time Spent: 4 seconds 30 msec
OK
4
```

built-in functions

Mathematical functions

avg
hive> select avg(Price) from sales;

```
hive> select avg(Price) from sales;
Query ID = hdoop_20220628111757_3c6f88fe-48a4-46e4-afcf-522efc3d0462
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0011, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0011/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0011
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 11:18:03,942 Stage-1 map = 0%,  reduce = 0%
2022-06-28 11:18:08,023 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 1.23 sec
2022-06-28 11:18:12,112 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.31 sec
MapReduce Total cumulative CPU time: 3 seconds 310 msec
Ended Job = job_1656387591215_0011
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.31 sec   HDFS Read: 15971 HDFS Write: 106 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 310 msec
OK
3600.0
Time taken: 15.385 seconds, Fetched: 1 row(s)
```

Aggregate functions:
Max

```
hive> select max(Price) from sales where state='Karnataka' group by city;
Query ID = hdoop_20220628103434_2088c8c8-6f47-4356-b578-e69555f8e2a0
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1656387591215_0009, Tracking URL = http://admin1-HP-280-G4-MT-Business-PC:8088/proxy/application_1656387591215_0009/
Kill Command = /home/hdoop/hadoop-3.2.1/bin/mapred job  -kill job_1656387591215_0009
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2022-06-28 10:34:40,395 Stage-1 map = 0%,  reduce = 0%
2022-06-28 10:34:44,509 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.25 sec
2022-06-28 10:34:49,611 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 3.9 sec
MapReduce Total cumulative CPU time: 3 seconds 900 msec
Ended Job = job_1656387591215_0009
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.9 sec   HDFS Read: 15847 HDFS Write: 121 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 900 msec
OK
1000
2000
```

Other built-in functions

hive> select product, upper(Name) from 1NT19IS147sales;

```
hive> select product, upper(Name) from 1NT19IS147sales;
OK
product200      KUMAR
product201      KAMAL
product202      LAISHA
product203      MADEEHA
product204      ISHA
Time taken: 0.097 seconds, Fetched: 5 row(s)
```

hive> select concat(Name,Country) from 1NT19IS147sales;

```
hive> select concat(Name,Country) from 1NT19IS147sales;
OK
KumarUSA
KamalIndia
LaishaIndia
MadeehaIndia
IshaIndia
Time taken: 0.062 seconds, Fetched: 5 row(s)
```