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Title of Experiment: Use Sqoop to load data from RDBMS (weblog/ transactions data) and analyze it using HIVE/PIG.

Objective of Experiment:
The objective of this project is to use Sqoop, Hive, and Pig to efficiently extract, transform, and analyze data from a relational database management system (RDBMS), specifically weblog or transactional data

Outcome of Experiment:

Thus, we use Sqoop to load data from RDBMS (MySql) and analyzed it using HIVE/PIG

Problem Statement:
The challenge is to efficiently extract, transform, and analyze large volumes of weblog or transactional data from a relational database using Sqoop, Hive, and Pig within a scalable and performance-optimized Hadoop ecosystem, ensuring data quality and delivering valuable insights for informed decision-making

Description / Theory:

Hadoop Eco-System:
The Hadoop ecosystem is a collection of open-source software tools and frameworks designed to process, store, and analyze large volumes of data in a distributed computing environment. Here's a brief overview of some key components within the Hadoop ecosystem:

1. HDFS (Hadoop Distributed File System)
2. MapReduce
3. YARN (Yet Another Resource Negotiator)
4. Apache Spark
5. Hive
6. Pig
7. HBase
8. ZooKeeper
9. Sqoop
10. Flum

Output:

```
[cloudera@quickstart ~]$ mysql -u root -pcloudera
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 32
Server version: 5.1.73 Source distribution

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

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

```
mysql> CREATE DATABASE sales1;
ERROR 1007 (HY000): Can't create database 'sales1'; database exists
mysql> use sales1;
Database changed
mysql>  CREATE TABLE sales(month_number VARCHAR(5) not null primary key, facecre
am VARCHAR(20), facewash VARCHAR(20), toothpaste VARCHAR(20), bathingsoap VARCHA
R(20), shampoo VARCHAR(20), moisturizer VARCHAR(20), total_units VARCHAR(20), to
tal_profit VARCHAR(20));
Query OK, 0 rows affected (0.92 sec)
```

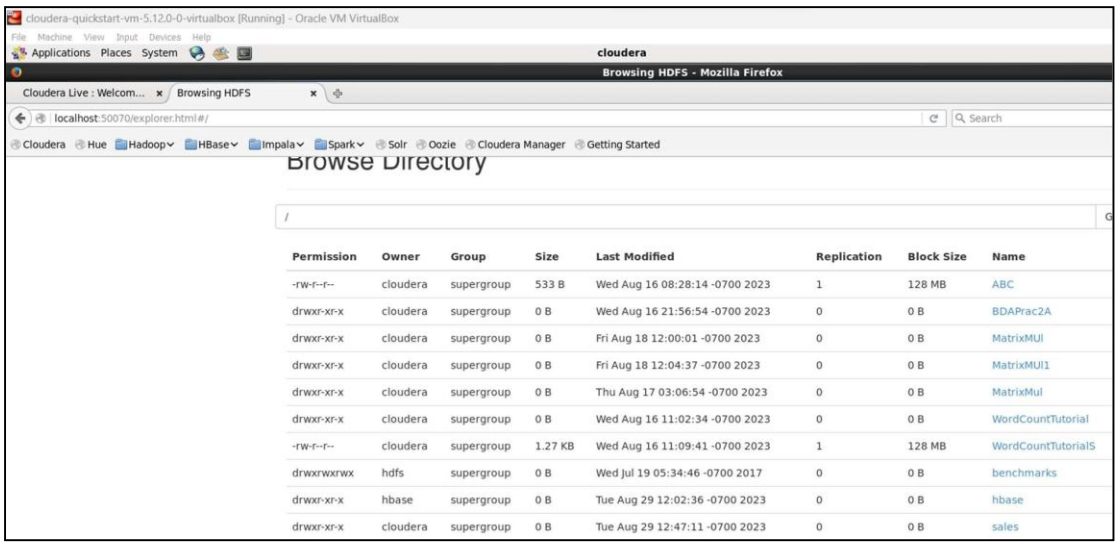
```
mysql> LOAD Data Local Infile '/home/cloudera/Desktop/sales.csv' into table sale
s Fields Terminated By ',' Lines Terminated By '\n';
Query OK, 13 rows affected, 1 warning (0.22 sec)
Records: 13  Deleted: 0  Skipped: 0  Warnings: 1

mysql> SELECT * FROM sales limit 5;
+--------------+-----------+----------+------------+-------------+---------+----
---------+-------------+--------------+
| month_number | facecream | facewash | toothpaste | bathingsoap | shampoo | moi
sturizer | total_units | total_profit |
+--------------+-----------+----------+------------+-------------+---------+----
---------+-------------+--------------+
| 1            | 2500      | 1500     | 5200       | 9200        | 1200    | 150
0        | 21100       | 211000       |
| 10           | 1990      | 1890     | 8300       | 10300       | 2300    | 189
0        | 26670       | 266700       |
| 11           | 2340      | 2100     | 7300       | 13300       | 2400    | 210
0        | 41280       | 412800       |
| 12           | 2900      | 1760     | 7400       | 14400       | 1800    | 176
0        | 30020       | 300200       |
| 2            | 2630      | 1200     | 5100       | 6100        | 2100    | 120
0        | 18330       | 183300       |
+--------------+-----------+----------+------------+-------------+---------+----
---------+-------------+--------------+
```

```
[cloudera@quickstart ~]$  sqoop list-tables --connect jdbc:mysql://localhost/sal
es --username root --password "cloudera"
Warning: /usr/lib/sqoop/../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
```

```
23/10/11 18:48:32 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6-cdh5.12.0
23/10/11 18:48:32 WARN tool.BaseSqoopTool: Setting your password on the command-
line is insecure. Consider using -P instead.
23/10/11 18:48:36 INFO manager.MySQLManager: Preparing to use a MySQL streaming
resultset.
sales
```

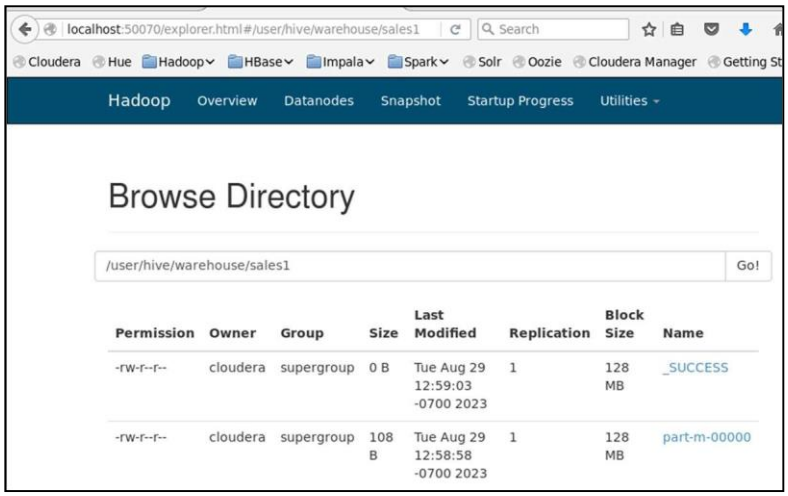
Importing tables from RDMS to HDFS using Sqoop:

```
[cloudera@quickstart ~]$ sqoop import --connect jdbc:mysql://localhost/sales --u
sername=root --password="cloudera" --table=sales --target-dir=/sales/sales -incr
emental append --check-column order_id --fields-terminated-by='\t';
```

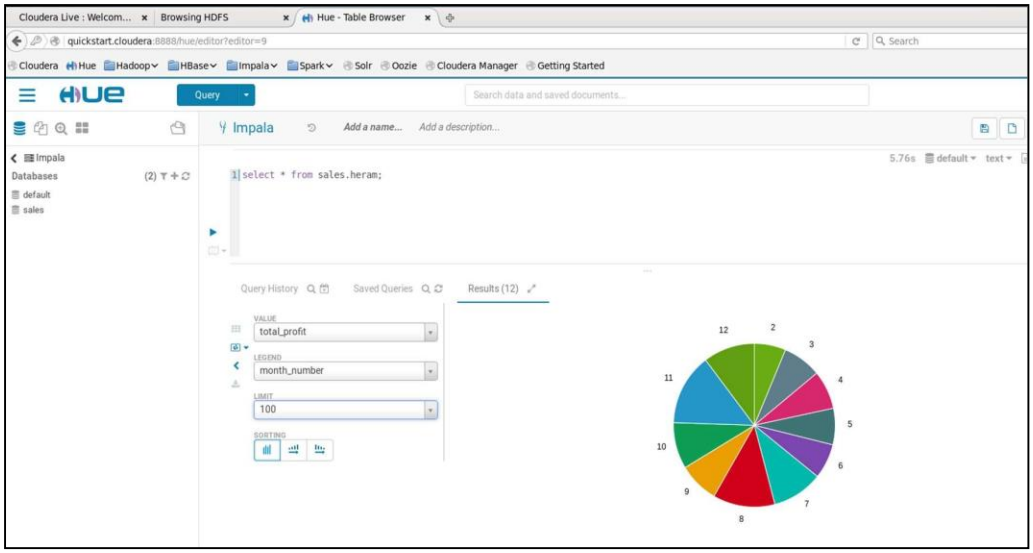


Importing Table From HDFS to HIVE:

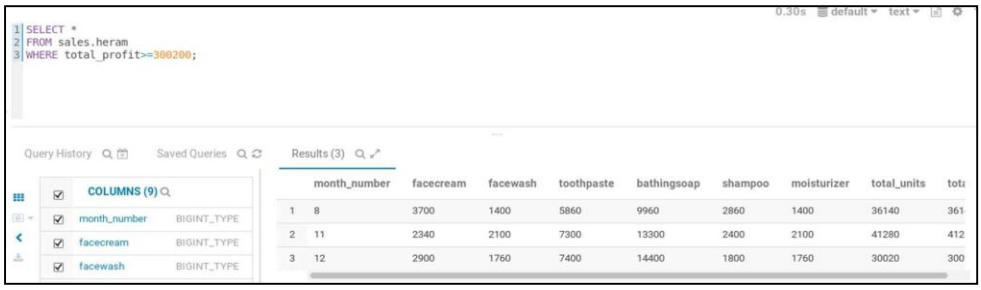
```
[cloudera@quickstart ~]$ sqoop import-all-tables --connect jdbc:mysql://localhost/sales --username
root --password "cloudera" --warehouse-dir /user/hive/warehouse
```



Going to Hue Editor, Importing table, Writing Query And Doing Visualization.



Running Some Queries:



Result and Discussion:

We started by creating a database and table in MySQL on Cloudera, imported the data into HDFS using Sqoop, and then used Hive for structured table creation. We analyzed the data using SQL queries and visualizations in Hue. This experiment highlighted Sqoop's data ingestion, Hive's analytical capabilities, and the power of Hadoop for large-scale data tasks, emphasizing the importance of data integration and analysis tools in the data-driven landscape.