

Create tables in Hive and write queries to access the data in the table

AIM:

To create tables in Hive and write queries to access the data in the table.

PROCEDURE:

Step 1: Download and Install Hive

1. Download Hive:

Download Hive from the official website:

```
wget https://downloads.apache.org/hive/hive-3.1.2/apache-hive-3.1.2-bin.tar.gz
```

2. Extract Hive:

```
tar -xvf apache-hive-3.1.2-bin.tar.gz
```

3. Move Hive Directory:

```
sudo mv apache-hive-3.1.2-bin /usr/local/hive
```

4. Set Hive Environment Variables:

Edit .bashrc to configure Hive:

```
nano ~/.bashrc
```

Add the following lines:

```
export HIVE_HOME=/usr/local/hive
```

```
export PATH=$PATH:$HIVE_HOME/bin
```

Apply the changes:

```
source ~/.bashrc
```

5. Configure Hive:

Configure Hive to use MySQL as its metastore by editing the Hive configuration file (hive-site.xml):

```
nano $HIVE_HOME/conf/hive-site.xml
```

Add the following configuration for MySQL connection:

```
<property>

  <name>javax.jdo.option.ConnectionURL</name>

  <value>jdbc:mysql://localhost/metastore</value>

</property>

<property>

  <name>javax.jdo.option.ConnectionDriverName</name>

  <value>com.mysql.jdbc.Driver</value>

</property>

<property>

  <name>javax.jdo.option.ConnectionUserName</name>

  <value>root</value>

</property>

<property>

  <name>javax.jdo.option.ConnectionPassword</name>

  <value>password</value>

</property>
```

6. Start Hive:

Once everything is configured, start Hive by simply typing:

```
hive
```

Step 2: Create a Database and Table in Hive**1. Create a Database:**

In the Hive terminal, create a new database:

```
CREATE DATABASE financials;
```

2. Use the Database:

```
USE financials;
```

3. Create a Table:

Create a table to store financial data:

```
CREATE TABLE finance_table (  
  
    id INT,  
  
    name STRING  
  
)
```

4. Insert Data into the Table:

Insert sample data into the finance_table:

```
INSERT INTO TABLE finance_table VALUES (1, 'Alice'), (2, 'Bob'), (3, 'Charlie');
```

Step 3: Store the Output in HDFS**1. Create a Partitioned Table:**

For optimized storage, create a partitioned table by year:

```
CREATE TABLE partitioned_finance_table (  
  
    id INT,  
  
    name STRING  
  
)  
  
PARTITIONED BY (year INT)
```

2. Insert Data into the Partitioned Table:

```
INSERT INTO partitioned_finance_table PARTITION (year=2023) VALUES (1, 'Alice'), (2,  
'Bob');
```

```
INSERT INTO partitioned_finance_table PARTITION (year=2024) VALUES (3, 'Charlie');
```

3. Create a Bucketed Table:

Create a bucketed table to improve query performance:

```
CREATE TABLE bucketed_finance_table (  
    id INT,  
    name STRING  
)  
  
CLUSTERED BY (id) INTO 4 BUCKETS
```

4. Insert Data into the Bucketed Table:

```
INSERT INTO TABLE bucketed_finance_table VALUES (1, 'Alice'), (2, 'Bob'), (3,  
'Charlie');
```

Step 4: View the Output in HDFS

1. Create an ORC Table:

Use ORC (Optimized Row Columnar) format for efficient storage:

```
CREATE TABLE orc_finance_table (  
    id INT,  
    name STRING  
)
```

2. Insert Data into the ORC Table:

```
INSERT INTO TABLE orc_finance_table SELECT * FROM finance_table;
```

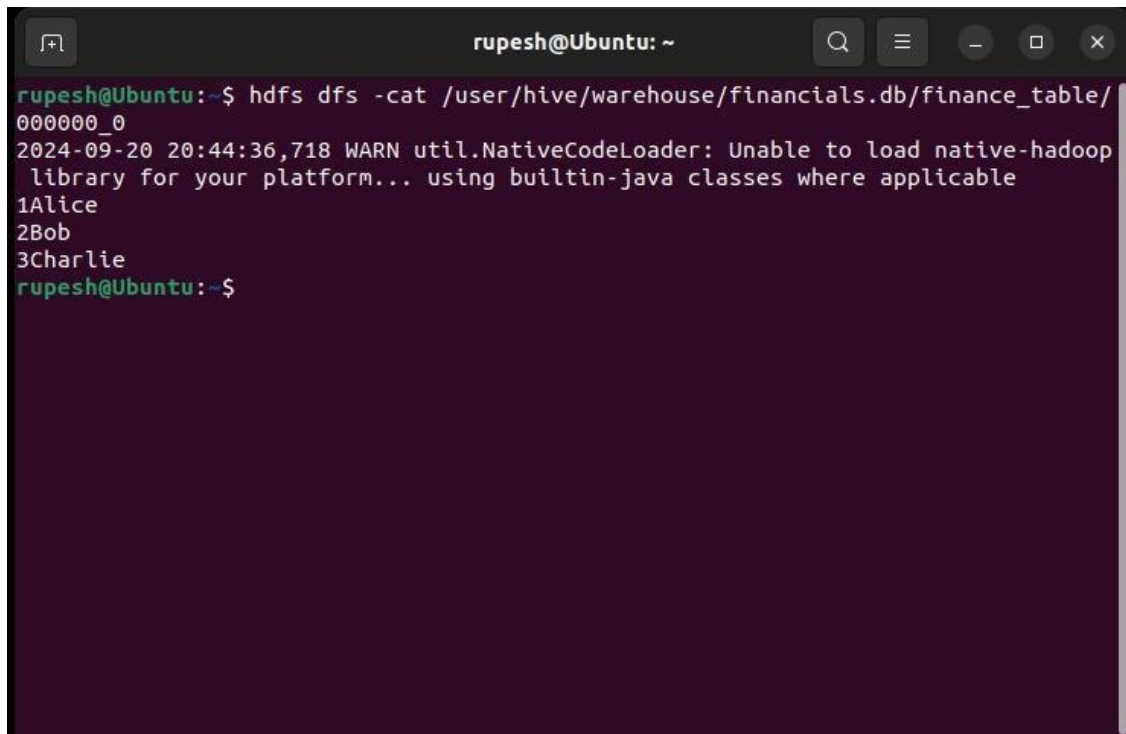
3. View the Output in HDFS:

**You can view the output by navigating to the HDFS directory where Hive stores the data.
Use the following command to view the stored data:**

```
hdfs dfs -ls /user/hive/warehouse/financials.db/finance_table
```

To view the contents of the ORC table:

```
hdfs dfs -cat /user/hive/warehouse/financials.db/orc_finance_table/000000_0
```

OUTPUT:A terminal window titled 'rupesh@Ubuntu: ~' with standard window controls. The command 'hdfs dfs -cat /user/hive/warehouse/financials.db/finance_table/000000_0' is entered. The output shows a timestamp and warning message, followed by three lines of data: '1Alice', '2Bob', and '3Charlie'. The prompt returns to 'rupesh@Ubuntu: ~\$'.

```
rupesh@Ubuntu:~$ hdfs dfs -cat /user/hive/warehouse/financials.db/finance_table/000000_0
2024-09-20 20:44:36,718 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
1Alice
2Bob
3Charlie
rupesh@Ubuntu:~$
```

RESULT:

Thus, to create tables in Hive and write queries to access the data in the table was completed successfully.