Experiment No. 2
Use of Sqoop tool
Date of Performance:
Date of Submission

AIM: To install SQOOP and execute basic commands of Hadoop eco system componentSqoop.

THEORY:

Installation and configuration of SQOOP

1) Download SQOOP from https://sqoop.apache.org
2) Unzip and Install SQOOP

   After Downloading the SQOOP, we need to Unzip the sqoop-1.4.7.bin_hadoop-2.6.0.tar.gz file.
3) Create a folder and move the final extracted file in it.
4) Set up the environment variables
   a. Set SQOOP_HOME
   b. Set up path variable
5) Configure SQOOP

Basic SQOOP commands:

1. List Table This command lists the particular table of the database in MYSQL server.

```
sqoop  list - tables --connect jdbc:mysql://localhost/payment --username gatner
```

2. Target directory

This command import table in a specific directory in HDFS. -m denotes mapper argument. They have an integer value.

```
$ sqoop import  --connect jdbc:mysql://localhost/inventory --username jony -table inventory --m 1 --target-dir/inv
```

3. sqoop-eval This command runs quickly SQL queries of the respective database.

```
$ sqoop eval --connect --query "SQLQuery"
```


4. sqoop – version This command displays version of the sqoop.

```
$ sqoop version    sqoop {revnumber}
```

5. sqoop-job

This command allows us to create a job, the parameters that are created can be invoked at any time. They take options like (–create,–delete,–show,–exit).

```
$ sqoop job --create --import --connect  --table
```

```
$ sqoop codegen --connect -table
```

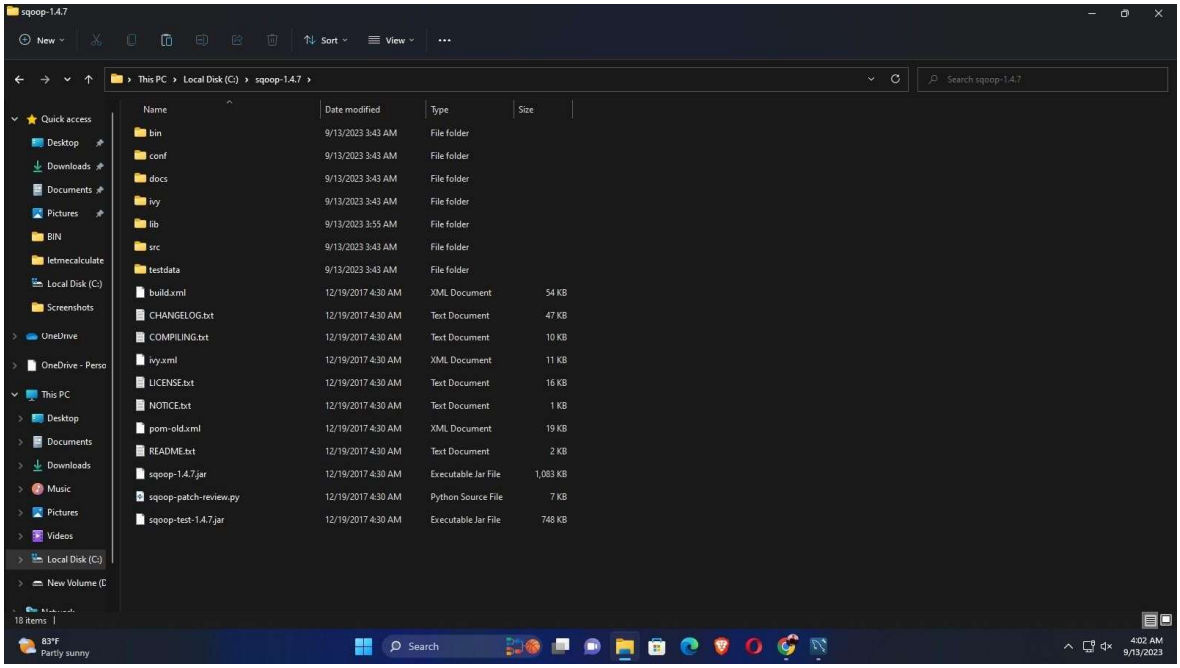
6. code gen

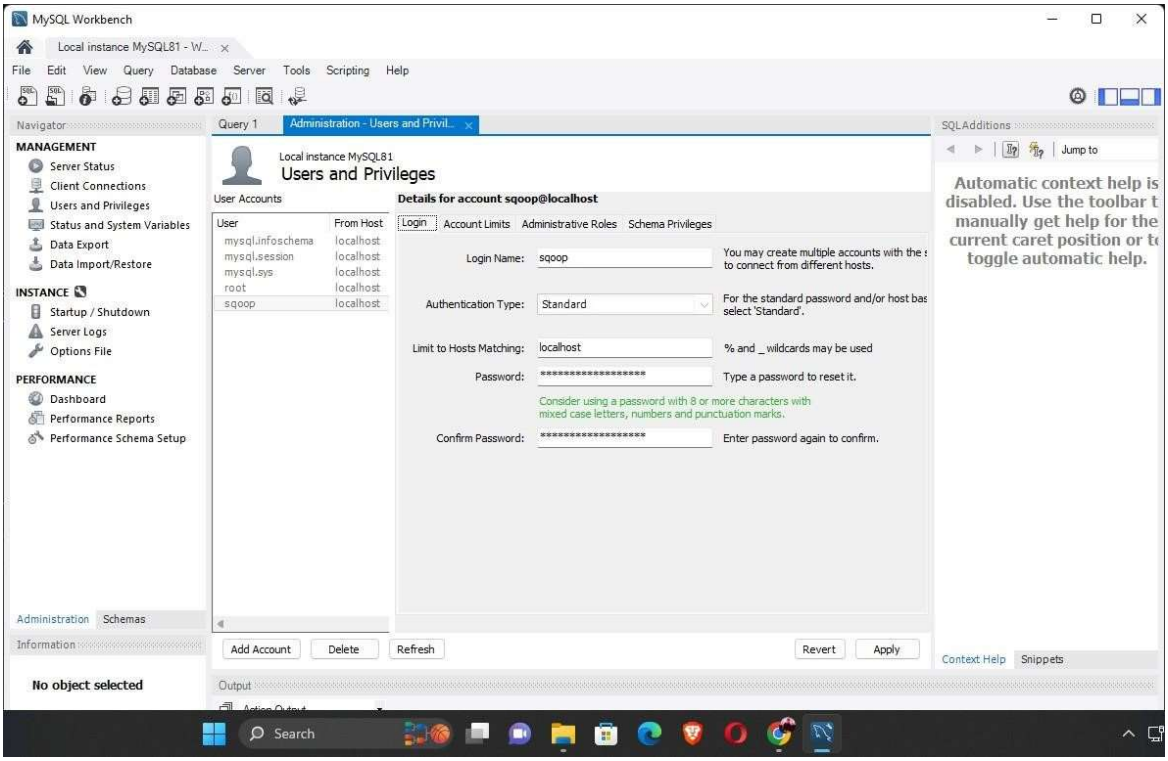
This Sqoop command creates java class files which encapsulate the imported records. All the java files are recreated, and new versions of a class are generated. They generate code to interact with database records. Retrieves a list of all the columns and their datatypes.

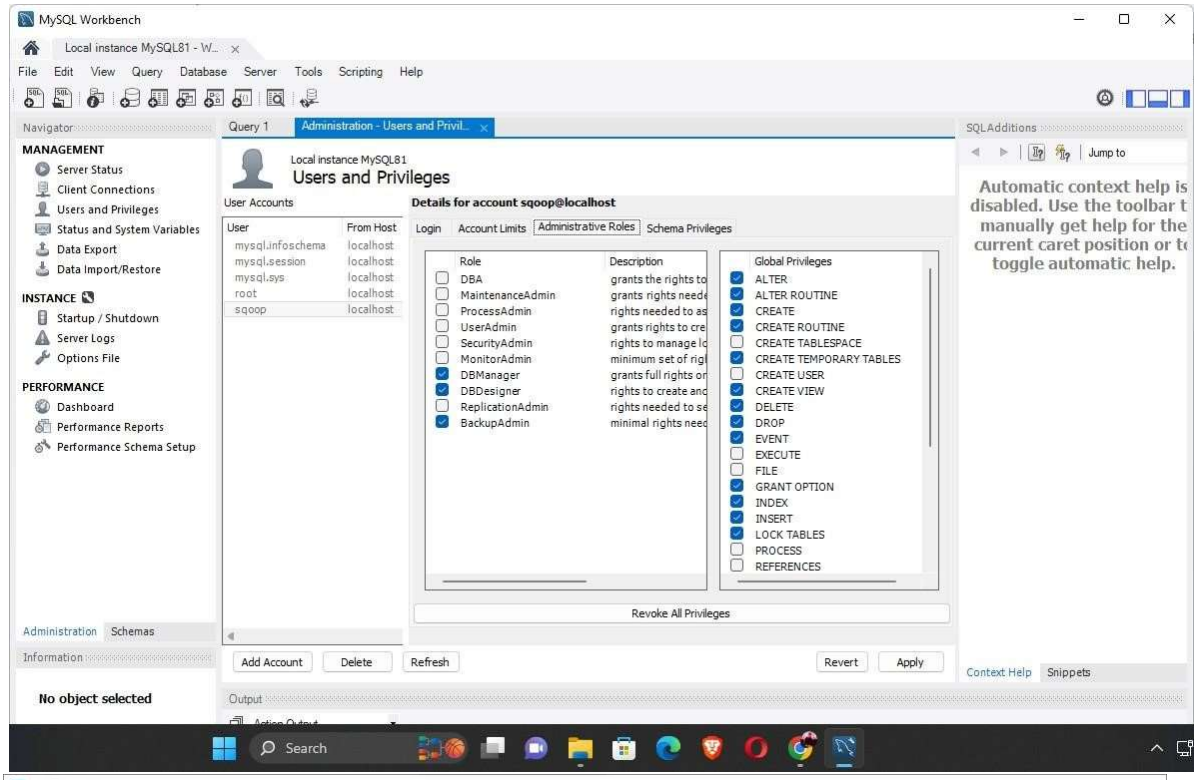
7. List Database This Sqoop command lists have all the available database in the RDBMS server.

```
>$ sqoop list - database -- connect
```

OUTPUT:


sqoop-1.4.7
This PC › Local Disk (C:) › sqoop-1.4.7
Name
Date modified
Type
Size
bin
conf
docs
ivy
lib
src
testdata
build.xml
CHANGELOG.txt
COMPILING.txt
ivy.xml
LICENSE.txt
NOTICE.txt
pom-old.xml
README.txt
sqoop-1.4.7.jar
sqoop-patch-review.py
sqoop-test-1.4.7.jar
18 items


MySQL Workbench
Local instance MySQL81 - W...
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
No object selected
Query 1
Administration - Users and Privil...
Local instance MySQL81
Users and Privileges
User Accounts
User
From Host
mysql.infoschema localhost
mysql.session localhost
mysql.sys localhost
root localhost
sqoop localhost
Details for account sqoop@localhost
Login
Account Limits
Administrative Roles
Schema Privileges
Login Name: sqoop
You may create multiple accounts with the s
to connect from different hosts.
Authentication Type: Standard
For the standard password and/or host bas
select 'Standard'.
Limit to Hosts Matching: localhost
% and _ wildcards may be used
Password:
Type a password to reset it.
Consider using a password with 8 or more characters with
mixed case letters, numbers and punctuation marks.
Confirm Password:
Enter password again to confirm.
Add Account
Delete
Refresh
Revert
Apply
SQLAdditions
Jump to
Automatic context help is
disabled. Use the toolbar t
manually get help for the
current caret position or t
toggle automatic help.
Context Help
Snippets
Output
Search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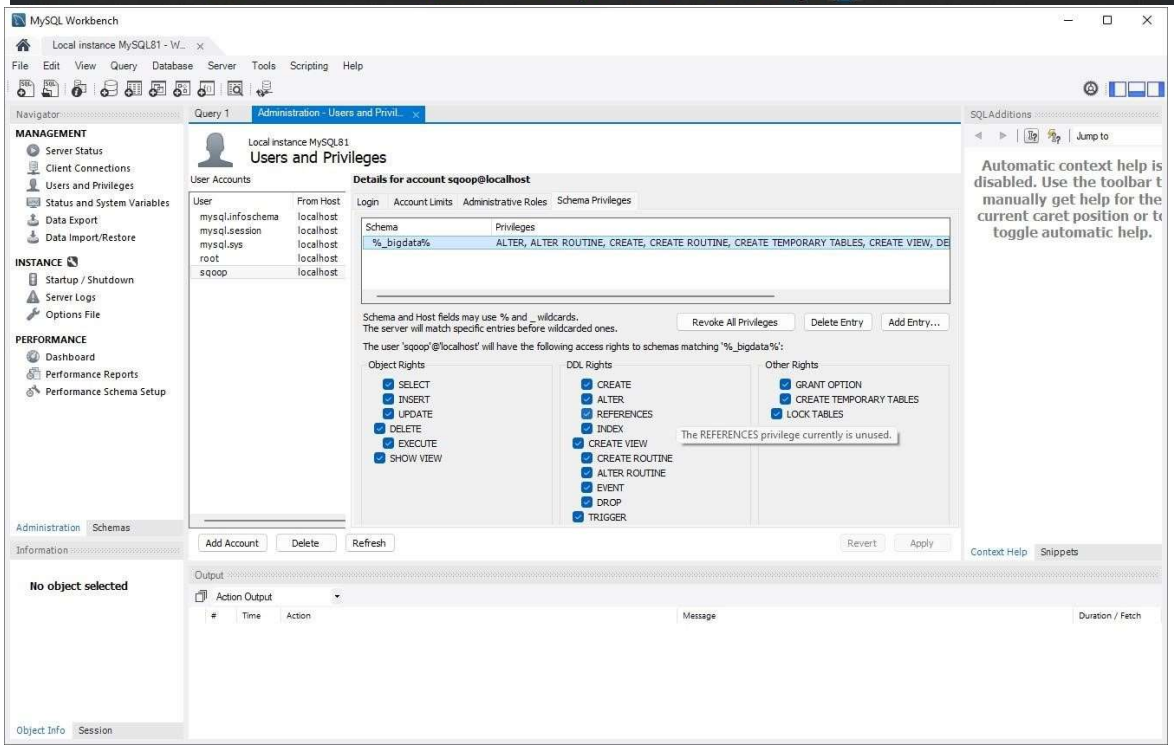
No object selected
Query 1
Administration - Users and Privil...
Local instance MySQL81
Users and Privileges
User Accounts
User From Host
mysql.infoschema localhost
mysql.session localhost
mysql.sys localhost
root localhost
sqoop localhost
Details for account sqoop@localhost
Login Account Limits Administrative Roles Schema Privileges
Role Description
DBA grants the rights to
MaintenanceAdmin grants rights neede
ProcessAdmin rights needed to as
UserAdmin grants rights to cre
SecurityAdmin rights to manage lo
MonitorAdmin minimum set of rigl
DBManager grants full rights or
DBDesigner rights to create and
ReplicationAdmin rights needed to se
BackupAdmin minimal rights nee
Global Privileges
ALTER
ALTER ROUTINE
CREATE
CREATE ROUTINE
CREATE TABLESPACE
CREATE TEMPORARY TABLES
CREATE USER
CREATE VIEW
DELETE
DROP
EVENT
EXECUTE
FILE
GRANT OPTION
INDEX
INSERT
LOCK TABLES
PROCESS
REFERENCES
Revoke All Privileges
Add Account Delete Refresh Revert Apply
Output
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.
Context Help Snippets
Search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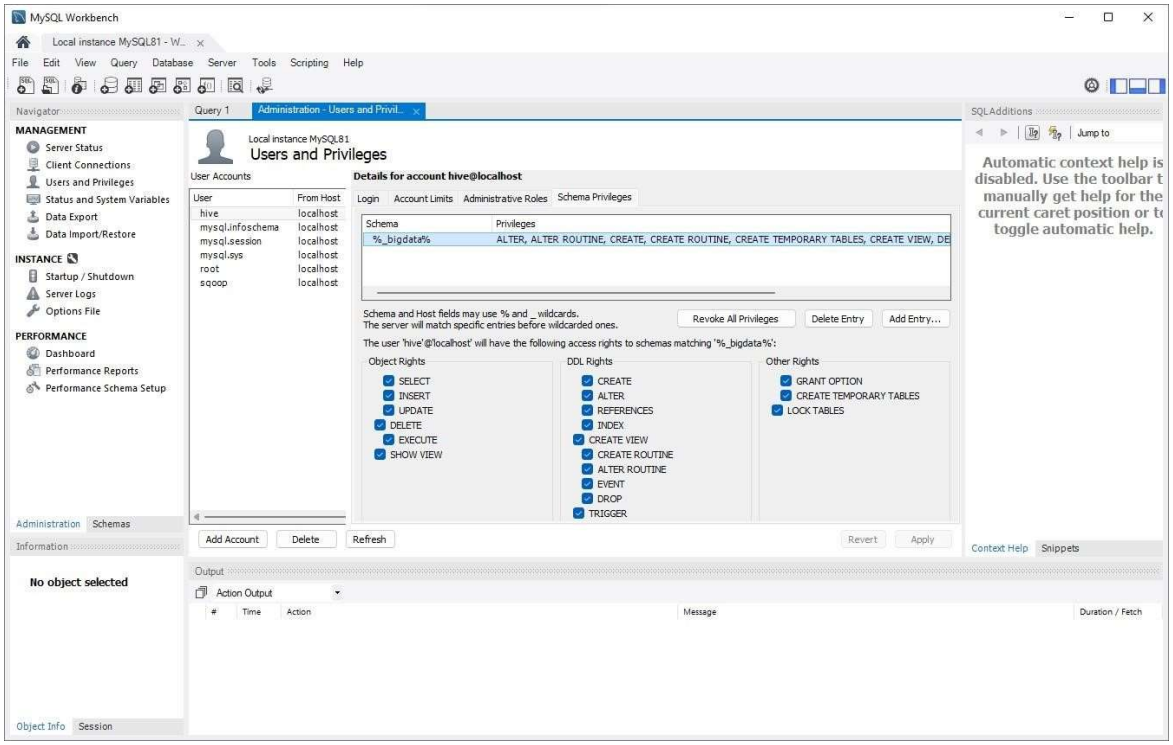
Performance Schema Setup
Administration Schemas
Information
No object selected
Object Info Session
Query 1
Administration - Users and Privil...
Local instance MySQL81
Users and Privileges
User Accounts
User From Host
mysql.infoschema localhost
mysql.session localhost
mysql.sys localhost
root localhost
sqoop localhost
Details for account sqoop@localhost
Login Account Limits Administrative Roles Schema Privileges
Schema Privileges
%_bigdata% ALTER, ALTER ROUTINE, CREATE, CREATE ROUTINE, CREATE TEMPORARY TABLES, CREATE VIEW, DE
Schema and Host fields may use % and _ wildcards.
The server will match specific entries before wildcarded ones.
Revoke All Privileges Delete Entry Add Entry...
The user 'sqoop'@'localhost' will have the following access rights to schemas matching '%_bigdata%':
Object Rights
SELECT
INSERT
UPDATE
DELETE
EXECUTE
SHOW VIEW
DDL Rights
CREATE
ALTER
REFERENCES
INDEX
CREATE VIEW
CREATE ROUTINE
ALTER ROUTINE
EVENT
DROP
TRIGGER
Other Rights
GRANT OPTION
CREATE TEMPORARY TABLES
LOCK TABLES
The REFERENCES privilege currently is unused.
Add Account Delete Refresh Revert Apply
Output
Action Output
Time Action Message Duration / Fetch
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.
Context Help Snippets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Information
No object selected
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Query 1
Administration - Users and Privil...
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Users and Privileges
User Accounts
User From Host
hive localhost
mysql.infoschema localhost
mysql.session localhost
mysql.sys localhost
root localhost
sqoop localhost
Details for account hive@localhost
Login Account Limits Administrative Roles Schema Privileges
Schema Privileges
%_bigdata% ALTER, ALTER ROUTINE, CREATE, CREATE ROUTINE, CREATE TEMPORARY TABLES, CREATE VIEW, DE
Schema and Host fields may use % and _ wildcards.
The server will match specific entries before wildcarded ones.
Revoke All Privileges
Delete Entry
Add Entry...
The user 'hive'@'localhost' will have the following access rights to schemas matching '%_bigdata%':
Object Rights
SELECT
INSERT
UPDATE
DELETE
EXECUTE
SHOW VIEW
DDL Rights
CREATE
ALTER
REFERENCES
INDEX
CREATE VIEW
CREATE ROUTINE
ALTER ROUTINE
EVENT
DROP
TRIGGER
Other Rights
GRANT OPTION
CREATE TEMPORARY TABLES
LOCK TABLES
Add Account
Delete
Refresh
Revert
Apply
SQL Additions
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Output
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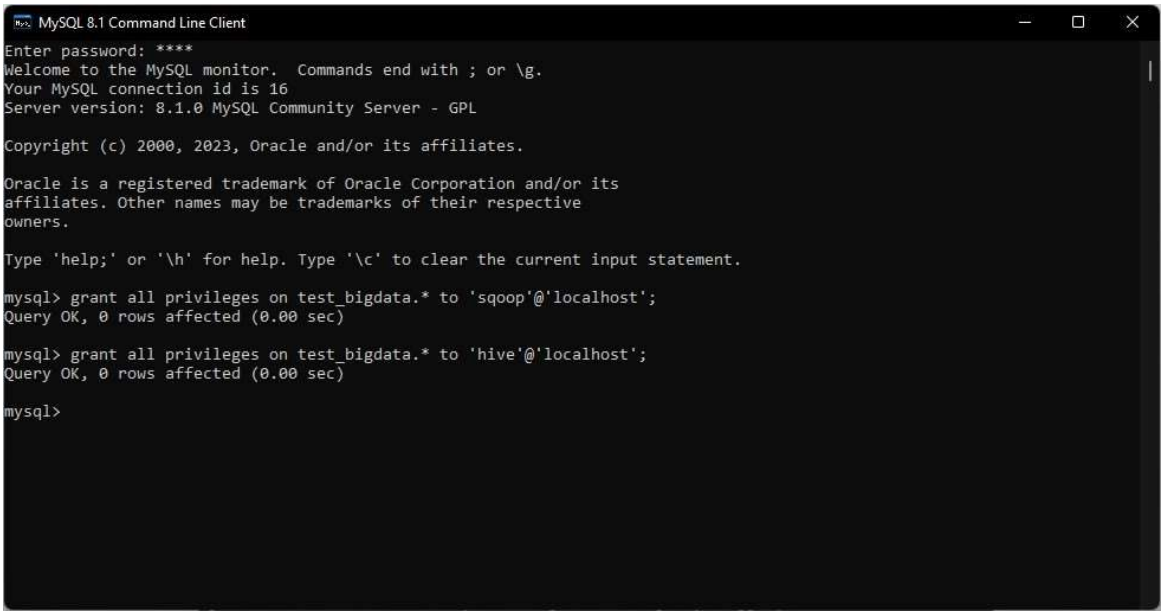
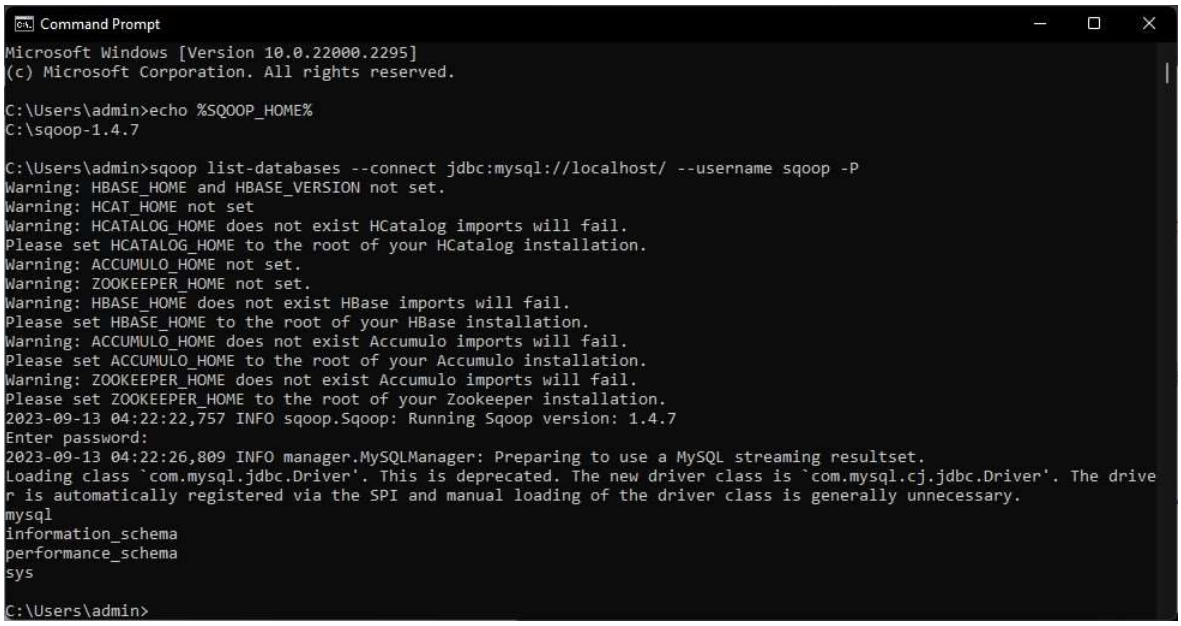
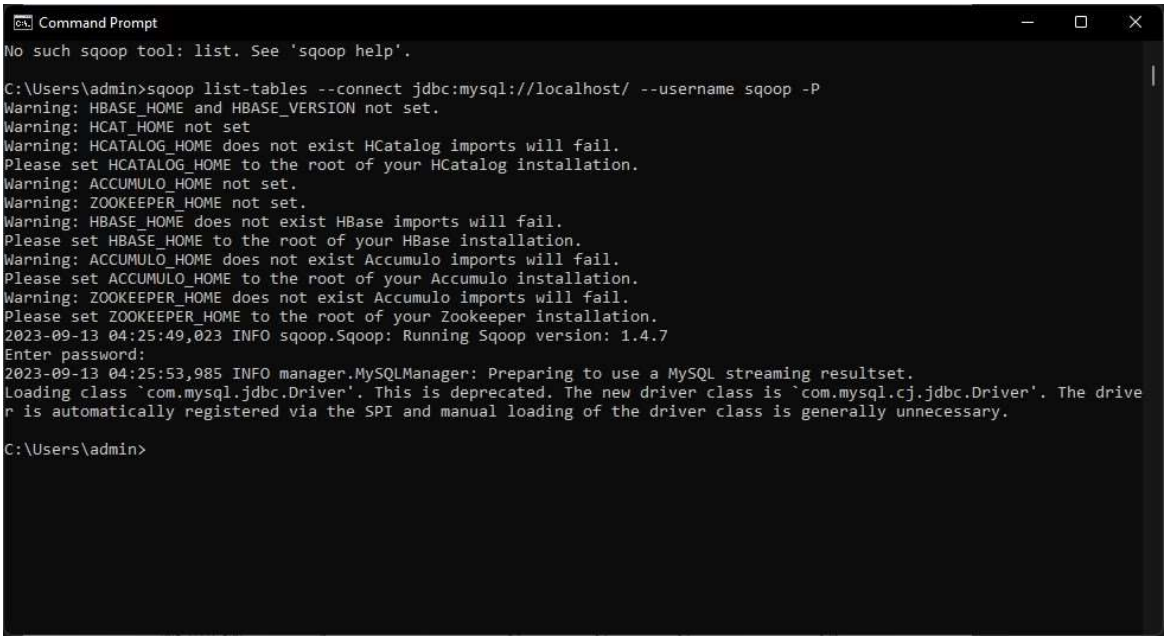
Time Action Message Duration / Fetch


MySQL 8.1 Command Line Client
Enter password: ****
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 16
Server version: 8.1.0 MySQL Community Server - GPL
Copyright (c) 2000, 2023, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
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> grant all privileges on test_bigdata.* to 'sqoop'@'localhost';
Query OK, 0 rows affected (0.00 sec)
mysql> grant all privileges on test_bigdata.* to 'hive'@'localhost';
Query OK, 0 rows affected (0.00 sec)
mysql>


Command Prompt
Microsoft Windows [Version 10.0.22000.2295]
(c) Microsoft Corporation. All rights reserved.
C:\Users\admin>echo %SQOOP_HOME%
C:\sqoop-1.4.7
C:\Users\admin>sqoop list-databases --connect jdbc:mysql://localhost/ --username sqoop -P
Warning: HBASE_HOME and HBASE_VERSION not set.
Warning: HCAT_HOME not set
Warning: HCATALOG_HOME does not exist HCatalog imports will fail.
Please set HCATALOG_HOME to the root of your HCatalog installation.
Warning: ACCUMULO_HOME not set.
Warning: ZOOKEEPER_HOME not set.
Warning: HBASE_HOME does not exist HBase imports will fail.
Please set HBASE_HOME to the root of your HBase installation.
Warning: ACCUMULO_HOME does not exist Accumulo imports will fail.
Please set ACCUMULO_HOME to the root of your Accumulo installation.
Warning: ZOOKEEPER_HOME does not exist Accumulo imports will fail.
Please set ZOOKEEPER_HOME to the root of your Zookeeper installation.
2023-09-13 04:22:22,757 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
Enter password:
2023-09-13 04:22:26,809 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The drive
r is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
mysql
information_schema
performance_schema
sys
C:\Users\admin>


Command Prompt
No such sqoop tool: list. See 'sqoop help'.
C:\Users\admin>sqoop list-tables --connect jdbc:mysql://localhost/ --username sqoop -P
Warning: HBASE_HOME and HBASE_VERSION not set.
Warning: HCAT_HOME not set
Warning: HCATALOG_HOME does not exist HCatalog imports will fail.
Please set HCATALOG_HOME to the root of your HCatalog installation.
Warning: ACCUMULO_HOME not set.
Warning: ZOOKEEPER_HOME not set.
Warning: HBASE_HOME does not exist HBase imports will fail.
Please set HBASE_HOME to the root of your HBase installation.
Warning: ACCUMULO_HOME does not exist Accumulo imports will fail.
Please set ACCUMULO_HOME to the root of your Accumulo installation.
Warning: ZOOKEEPER_HOME does not exist Accumulo imports will fail.
Please set ZOOKEEPER_HOME to the root of your Zookeeper installation.
2023-09-13 04:25:49,023 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
Enter password:
2023-09-13 04:25:53,985 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
Loading class `com.mysql.jdbc.Driver'. This is deprecated. The new driver class is `com.mysql.cj.jdbc.Driver'. The drive
r is automatically registered via the SPI and manual loading of the driver class is generally unnecessary.
C:\Users\admin>

CONCLUSION:

The focus of the experiment was on setting up and making effective use of Sqoop, a crucial element within the Hadoop ecosystem. It proficiently demonstrated the wide array of capabilities that Sqoop offers, which encompass establishing connections with diverse databases, facilitating the import and export of data between Hadoop and relational databases, and performing data transformations during the data transfer process. The experiment vividly illustrated Sqoop's capacity for parallel data transfer and its seamless integration with other Hadoop components. Overall, this experiment underscored the pivotal role played by Sqoop in bridging the gap between Hadoop's distributed storage and relational databases, positioning it as an indispensable tool for organizations dealing with diverse data sources. Mastery of Sqoop empowers data professionals with the necessary expertise to streamline data workflows and harness the full potential of big data projects.