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

Download and install Apache Derby version 10.14.2.0:

https://db.apache.org/derby/derby downloads.html#For+Java+8+and+Higher

For Java 8 and Higher (releases which support lambda expressions)

- <u>10.14.2.0</u> (May 3, 2018 / SVN 1828579)
- <u>10.13.1.1</u> (October 25, 2016 / SVN 1766613)

Download and install Apache Hive version 3.1.3:

https://downloads.apache.org/hive/hive-3.1.3/

<u>Vame</u>	Last modified	<u>Size</u>	Description
Parent Directory		-	
apache-hive-3.1.3-bin.tar.gz	2022-04-08 17:42	312M	
apache-hive-3.1.3-bin.tar.gz.asc	2022-04-08 17:42	488	
apache-hive-3.1.3-bin.tar.gz.sha	256 2022-04-08 17:42	95	
apache-hive-3.1.3-src.tar.gz	2022-04-08 17:42	25M	
apache-hive-3.1.3-src.tar.gz.asc	2022-04-08 17:42	488	
apache-hive-3.1.3-src.tar.gz.sha	256 2022-04-08 17:42	95	

Add environment variables for Derby and Hive

System variables	
Variable	Value
PSLockDownPolicy	0
ComSpec	C:\WINDOWS\system32\cmd.exe
DERBY_HOME	C:\db-derby-10.14.2.0-bin
DriverData	C:\Windows\System32\Drivers\DriverData
HIVE_BIN	C:\apache-hive-3.1.3-bin\bin
HIVE_HOME	C:\apache-hive-3.1.3-bin
HIVE_LIB	C:\apache-hive-3.1.3-bin\lib
IGCCSVC DB	AOAAANCMnd8BFdFRiHoAwF/Cl+sBAAAANnif4fsnRFvva0soi3K

Save these paths under 'path' variable

```
%DERBY_HOME%\bin
%HIVE_BIN%
```

Go to the Derby libraries directory (db-derby-10.14.2.0\lib) and copy all *.jar files. Then, paste them within the Hive libraries directory.

Download the files from this link. Put hive-site.xml file to hive's conf location and replace hive's current guava file with this one in lib location. Also download the bin folder from link and replace the existing hive's bin folder.

https://ldrv.ms/f/s!ArSg3Xpur4Grmw0SDqW0g44T7HYU?e=wDsoBn

Open PowerShell as administrator and go to Hadoop sbin directory and start hadoop services using the following commands:

- start-dfs.cmd
- start-yarn.cmd

```
PS C:\WINDOWS\system32> start-dfs.cmd
PS C:\WINDOWS\system32> start-yarn.cmd
starting yarn daemons
PS C:\WINDOWS\system32> jps
19344 ResourceManager
36800 DataNode
35268 Jps
35240 NodeManager
35864 NameNode
```

Open another PowerShell window and run the following command to open Derby:

StartNetworkServer -h 0.0.0.0

```
PS C:\WINDOWS\system32> StartNetworkServer -h 0.0.0.0
Wed Sep 11 19:34:46 IST 2024 : Security manager installed using the Basic server security policy.
Wed Sep 11 19:34:46 IST 2024 : Apache Derby Network Server - 10.14.2.0 - (1828579) started and ready to accept connectio
ns on port 1527
```

Type jps in the first Powershell window and check whether NetworkServerControl is running.

```
PS C:\WINDOWS\system32> jps
14144 Jps
19344 ResourceManager
36800 DataNode
35348 NetworkServerControl
35240 NodeManager
35864 NameNode
```

Go to Apache Hive's bin location with cd command and run the following command:

hive --service schematool -dbType derby -initSchema

```
PS C:\apache-hive-3.1.3-bin\bin> hive --service schematool -dbType derby -initSchema

SLF4J: Class path contains multiple SLF4J bindings.

SLF4J: Found binding in [jar:file:/C:/hadoop-3.3.6/share/hadoop/common/lib/slf4j-reload4j-1.7.36.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: Found binding in [jar:file:/C:/apache-hive-3.1.3-bin/lib/log4j-slf4j-impl-2.17.1.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.slf4j.impl.Reload4jloggerFactory]

2024-09-11 19:47:10,283 INFO conf.HiveConf: Found configuration file null

2024-09-11 19:47:10,502 INFO tools.HiveSchemaHelper: Metastore connection URL: jdbc:derby:;databaseName=metastore_db;create=true

Metastore connection URL: jdbc:derby:;databaseName=metastore_db;create=true

2024-09-11 19:47:10,502 INFO tools.HiveSchemaHelper: Metastore Connection Driver:

org.apache.derby.jdbc.EmbeddedDriver
```

Initialization script completed schemaTool completed

Open Hive shell by typing:

hive

```
PS C:\apache-hive-3.1.3-bin\bin> hive

SLF4J: Class path contains multiple SLF4J bindings.

SLF4J: Found binding in [jar:file:/C:/hadoop-3.3.6/share/hadoop/common/lib/slf4j-reload4j-1.7.36.jar!/org/slf4j/impl/StaticLoggerBinder.class]

SLF4J: Found binding in [jar:file:/C:/apache-hive-3.1.3-bin/lib/log4j-slf4j-impl-2.17.1.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.slf4j.impl.Reload4jLoggerFactory]

2024-09-11 19:57:04,346 INFO conf.HiveConf: Found configuration file null

2024-09-11 19:57:05,066 WARN common.LogUtils: hive-site.xml not found on CLASSPATH

Hive Session ID = bbc4bf36-07aa-4f43-8c81-4b2891151533

2024-09-11 19:57:05,097 INFO SessionState: Hive Session ID = bbc4bf36-07aa-4f43-8c81-4b2891151533
```

This will open the hive CLI.

Create a database using the query:

CREATE DATABASE mydata;

```
hive> CREATE DATABASE mydata;

2024-09-11 20:02:41,458 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-11 20:02:41,520 INFO ql.Driver: Compiling command(queryId=prath_20240911200241_a722e849-32e1-42d8-afbe-de2b5a0cba80): CREATE DATABASE mydata

2024-09-11 20:02:41,770 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager

2024-09-11 20:02:41,770 INFO ql.Driver: Semantic Analysis Completed (retrial = false)

2024-09-11 20:02:41,786 INFO ql.Driver: Returning Hive schema: Schema(fieldSchemas:null, properties:null)

2024-09-11 20:02:41,786 INFO ql.Driver: Completed compiling command(queryId=prath_20240911200241_a722e849-32e1-42d8-afbe-de2b5a0cba80); Time taken: 0.282 seconds

2024-09-11 20:02:41,786 INFO reexec.ReExecDriver: Execution #1 of query
```

SHOW DATABASES;

```
hive show databases;

2024-89-11 20:04:26,698 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-89-11 20:04:26,698 INFO gl.Driver: Compiling command(queryId=prath_20240911200426_120872cb-510b-4285-bd67-dd4fd49ebf01): show databases

2024-89-11 20:04:26,698 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager

2024-89-11 20:04:26,713 INFO ql.Driver: Semantic Analysis Completed (retrial = false)

2024-89-11 20:04:26,760 INFO ql.Driver: Returning Hive schema: Schema(fieldSchemas:[FieldSchema(name:database_name, type:string, comment:from deserializer)], properties:nu

1)

2024-89-11 20:04:26,823 INFO ql.Driver: Returning Hive schema: Schema(fieldSchemas:[FieldSchema(name:database_name, type:string, comment:from deserializer)], properties:nu

1)

2024-89-11 20:04:26,823 INFO exec.ListSinkOperator: Initializing operator LIST_SINK[0]

2024-89-11 20:04:26,823 INFO exec.ListSinkOperator: Initializing operator LIST_SINK[0]

2024-89-11 20:04:26,823 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager

2024-89-11 20:04:26,823 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager

2024-89-11 20:04:26,823 INFO ql.Driver: Starting task [Stage-8:DDL] in serial mode

2024-89-11 20:04:26,823 INFO ql.Driver: Starting task [Stage-8:DDL] in serial mode

2024-89-11 20:04:26,823 INFO metastore.HiveMetastore: 8: get_databases: (ehive#

2024-89-11 20:04:26,823 INFO metastore.HiveMetastore: 8: get_databases: (ehive#

2024-89-11 20:04:26,823 INFO metastore.HiveMetastore: 8: get_databases: (ehive#

2024-89-11 20:04:26,823 INFO gl.Driver: Completed executing command(queryId=prath_20240911200426_120872cb-510b-4285-bd67-dd4fd49ebf01); Time taken: 8.047 seconds

OK

2024-89-11 20:04:26,830 INFO gl.Driver: OK

2024-89-11 20:04:26,870 INFO gl.Driver: OK

2024-89-11 20:04:26,870 INFO gl.Driver: OK

2024-89-11 20:04:26,870 INFO gl.Driver: Completed executing mapred.input.dir is deprecated. Instead, use mapreduce.input.fileinput
```

Switch to the new database using the following query:

USE mydata;

```
hive> use mydata;
2024-09-11 20:06:01,673 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2024-09-11 20:06:01,673 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2024-09-11 20:06:01,673 INFO ql.Driver: Compiling command(queryId=prath_20240911200601_ac86e218-dbe4-4751-82b7-f0174b52a7a5): use mydata
2024-09-11 20:06:01,677 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2024-09-11 20:06:01,677 INFO metastore.HiveMetaStore: e. get_database: @hiveHmydata
2024-09-11 20:06:01,677 INFO mitver: Semantic Analysis Completed (retrial = false)
2024-09-11 20:06:01,677 INFO ql.Driver: Semantic Analysis Completed (retrial = false)
2024-09-11 20:06:01,677 INFO ql.Driver: Semantic Analysis Completed (retrial = false)
2024-09-11 20:06:01,677 INFO ql.Driver: Completed compiling command(queryId=prath_202409911200601_ac86e218-dbe4-4751-82b7-f0174b52a7a5); Time taken: 0.002 seconds
2024-09-11 20:06:01,677 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2024-09-11 20:06:01,677 INFO ql.Driver: Executing command(queryId=prath_202409911200601_ac86e218-dbe4-4751-82b7-f0174b52a7a5): use mydata
2024-09-11 20:06:01,677 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2024-09-11 20:06:01,672 INFO ql.Driver: Oxpleted executing command(queryId=prath_20240911200601_ac86e218-dbe4-4751-82b7-f0174b52a7a5); Time taken: 0.015 seconds
2024-09-11 20:06:01,672 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2024-09-11 20:06:01,672 INFO q
```

Create a table using the following command:

CREATE TABLE students(name STRING, roll INT, dept STRING);

```
Delayers to table students(name STRING, roll INT, dept STRING);

2824-09-11 20:08:36,995 INFO cession. Sessionstate: Updating thread name to darkabes-7448-4103-bc7d-134cdeSec8802

2824-09-11 20:08:36,955 INFO cession. Sessionstate: Updating thread name to darkabes-7448-4103-bc7d-134cdeSec8802

2824-09-11 20:08:36,955 INFO cession. Sessionstate: Updating thread name to darkabes-7448-4103-bc7d-134cdeSec8802

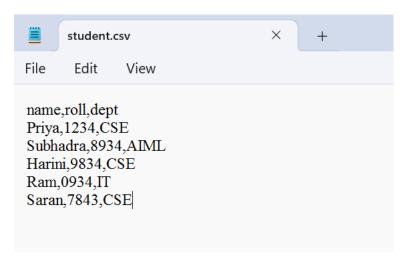
2824-09-11 20:08:36,958 INFO gl.Driver: Concurrency mode is disabled, not creating a lock manager

2824-09-11 20:08:36,958 INFO gl.Driver: Concurrency mode is disabled, not creating a lock manager

2824-09-11 20:08:36,958 INFO gl.Driver: Concurrency mode is disabled, not creating a lock manager

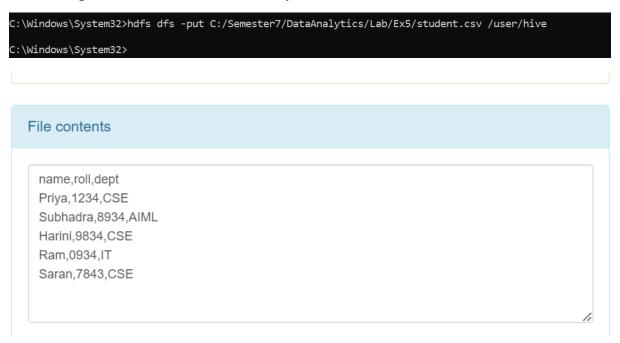
2824-09-11 20:08:36,958 INFO gl.Driver: Starting Semantic Analysis controlled to the controlled t
```

Create a csv file



Add the file to HDFS using the command:

hdfs dfs -put C:/Semester7/DataAnalytics/Lab/Ex5/student.csv/user/hive



Add this data to the table using the command:

LOAD DATA INPATH '/user/hive/student_data.csv' INTO TABLE students;

```
hive> LOAD DATA INPATH '/user/hive/student.csv' INTO TABLE students;
2024-09-11 20:28:18,593 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2024-09-11 20:28:18,594 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802 main
2024-09-11 20:28:18,597 INFO ql.Driver: Compiling command(queryId=prath_20240911202818_c4fa0a8a-374b-4060-b98d-4a29919bb65e): LOAD DATA INPATH '/user/hive/student.csv' INTABLE students
2024-09-11 20:28:18,640 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2024-09-11 20:28:18,620 INFO metastore.HiveMetaStore: 0: get_table : tbl=hive.mydata.students
2024-09-11 20:28:18,620 INFO HiveMetastore.audit: ugi=prath ip=unknown-ip-add concurrency mode is disabled. Provided the concurrency mode
```

SHOW TABLES:

```
Nive) show tables;
2024-09-11 20:29:52,246 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2024-09-11 20:29:52,246 INFO session.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main
2024-09-11 20:29:52,246 INFO session.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main
2024-09-11 20:29:52,260 INFO gl.Driver: Concurrency mode is disabled, not creating a load manager
2024-09-11 20:29:52,262 INFO metastore.HiveMetastore: 0: get_database: @hiveMmydata
2024-09-11 20:29:52,262 INFO metastore.HiveMetastore: 0: get_database: @hiveMmydata
2024-09-11 20:29:52,262 INFO gl.Driver: Semantic Analysis Completed (retrial = false)
2024-09-11 20:29:52,261 INFO gl.Driver: Semantic Analysis Completed (retrial = false)
2024-09-11 20:29:52,265 INFO gl.Driver: Completed compiling command(queryIdeprath_2024091120:952_4ff4a7f6-94f0-4c59-85db-16b2dc73fd05); Time taken: 0.017 seconds
2024-09-11 20:29:52,265 INFO gl.Driver: Completed compiling command(queryIdeprath_2024091120:952_4ff4a7f6-94f0-4c59-85db-16b2dc73fd05); Time taken: 0.017 seconds
2024-09-11 20:29:52,265 INFO gl.Driver: Completed compiling command(queryIdeprath_2024091120:952_4ff4a7f6-94f0-4c59-85db-16b2dc73fd05); Time taken: 0.017 seconds
2024-09-11 20:29:52,265 INFO gl.Driver: Completed compiling command(queryIdeprath_2024091120:952_4ff4a7f6-94f0-4c59-85db-16b2dc73fd05); show tables
2024-09-11 20:29:52,265 INFO gl.Driver: Executing command(queryIdeprath_2024091120:952_4ff4a7f6-94f0-4c59-85db-16b2dc73fd05); show tables
2024-09-11 20:29:52,265 INFO gl.Driver: Completed executing the part of the part of
```

DESC students;

```
hive> desc students;

2024-09-11 20:30:26,611 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,611 INFO session.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main

2024-09-12 20:30:26,621 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main

2024-09-12 20:30:26,625 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main

2024-09-12 20:30:26,625 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-41033-bc7d-134cde5ec802 main

2024-09-12 20:30:26,625 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main

2024-09-12 20:30:26,626 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,630 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,630 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,630 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,630 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,630 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,640 INFO gession.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802

2024-09-12 20:30:26,641 INFO gl.Driver: Concurrency mode is disabled, not creating a lock manager

2024-09-12 20:30:26,641 INFO gl.Driver: Starting task [Stage-0fbol] in serial mode

2024-09-12 20:30:26,643 INFO gession.SessionState: Stage-0fbol] in serial mode

2024-09-12 20:30:26,643 INFO gession.SessionState: Stage-0fbol] in serial mode

2024-09-12 20:30:26,643 INFO gession.SessionState: Stage-0fbol] in serial mode

2024-09-12 20:30:26,655 INFO gl.Driver: Concurrency mode is disabled, not creating a lock m
```

Display the contents of the table using the following command:

SELECT * FROM students;

```
Nive> SELECT * FROM STUDENTS;
2824-89-11 20:31:51,244 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2824-89-11 20:31:51,244 INFO session.SessionState: Updating thread name to 4afabe9c-7448-4103-bc7d-134cde5ec802 main
2824-89-12 20:31:51,247 INFO gl.Driver: Compiling command(queryId=prath_20240911203151_118ca9a0-bcca-4768-8919-3962fd53b82c): SELECT * FROM STUDENTS
2824-89-13 20:31:51,258 INFO gl.Driver: Concurrency mode is disabled, not creating a lock manager
2824-89-11 20:31:51,258 INFO parse.CalcitePlanner: Starting Semantic Analysis
2824-89-11 20:31:51,261 INFO parse.CalcitePlanner: Completed phase 1 of Semantic Analysis
2824-89-11 20:31:51,261 INFO parse.CalcitePlanner: Get metadata for source tables
2824-89-11 20:31:51,261 INFO metastore.HiveMetaStore: 0: get_table : tbl=hive.myddta.students
2824-89-11 20:31:51,261 INFO metastore.HiveMetaStore: 0: get_table : tbl=hive.myddta.students
2824-89-11 20:31:51,261 INFO parse.CalcitePlanner: Get metadata for subqueries
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for subqueries
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for subqueries
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for destination tables
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for destination tables
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for destination tables
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for destination tables
2824-89-11 20:31:51,201 INFO parse.CalcitePlanner: Get metadata for subqueries
2824-89-11 20:31:51,201 INFO
```

```
name,roll,dept NULL NULL
Priya,1234,CSE NULL NULL
Subhadra,8934,AIML NULL NULL
Harini,9834,CSE NULL NULL
Ram,0934,IT NULL NULL
Ram,0934,IT NULL NULL
Saran,7843,CSE NULL NULL
Saran,7843,CSE NULL NULL
Time taken: 1.245 seconds, Fetched: 6 row(s)
2024-09-11 20:31:52,530 INFO clibriver: Time taken: 1.245 seconds, Fetched: 6 row(s)
2024-09-11 20:31:52,530 INFO conf.HiveConf: Using the default value passed in for log id: 4afabe9c-7448-4103-bc7d-134cde5ec802
2024-09-11 20:31:52,537 INFO session.SessionState: Resetting thread name to main
hive>
```