VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI 590018

BIG DATA ANALYTICS LAB RECORD

By

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Date: 24-09-2020

1. MongoDB: Student Database

Perform the following DB operations using MongoDB

1. **Create a database "Student" with the following attributes Rollno, Age, ContactNo, Email Id.**
2. **Insert appropriate values**
3. **Write query to update Email-Id of a student with rollno 10.**
4. **Replace the student name from "ABC" to "FEM" of rollno 11.**
5. **Export the created table into local file system.**
6. **Export the created table into local file system**
7. **Drop the table**
8. **Import a given csv dataset from local file system into mongodb collection.**

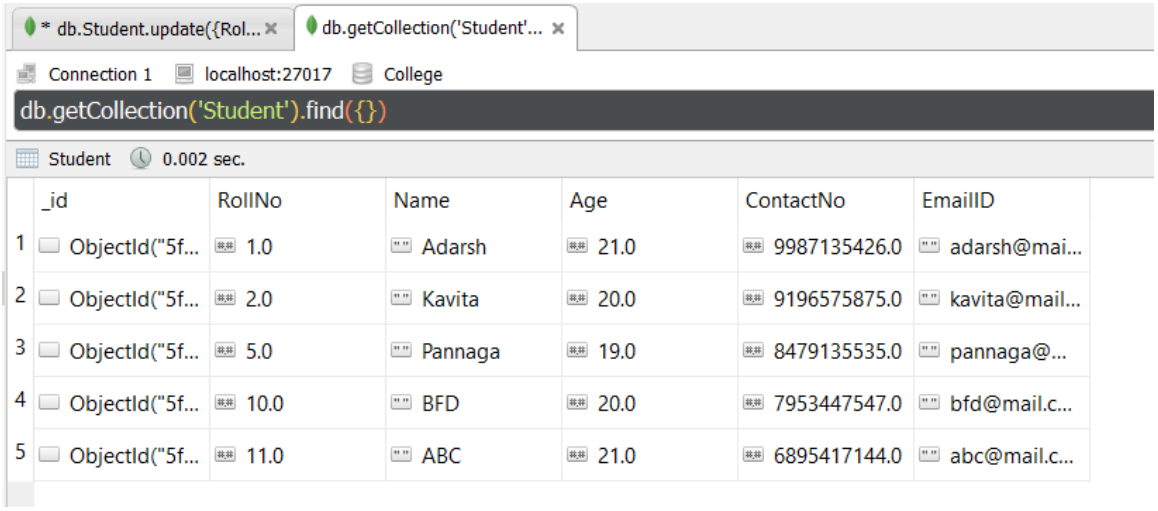
```
use StudentDB
```

1. Create a database "Student" with the following attributes Rollno, Age, ContactNo, Email-Id

```
db.createCollection("Student")
```

2. Insert appropriate values

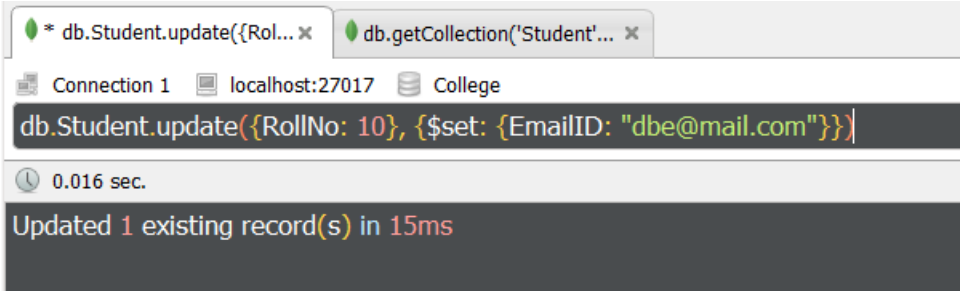
```
db.Student.insertMany([{RollNo: 1, Name: "Adarsh", Age: 21, ContactNo:
9987135426, EmailID: "adarsh@mail.com"},
{RollNo: 2, Name: "Kavita", Age: 20, ContactNo: 9196575875, EmailID:
"kavita@mail.com"},
{RollNo: 5, Name: "Pannaga", Age: 19, ContactNo: 8479135535, EmailID:
"pannaga@mail.com"},
{RollNo: 10, Name: "BFD", Age: 20, ContactNo: 7953447547, EmailID:
"bfd@mail.com"},
{RollNo: 11, Name: "ABC", Age: 21, ContactNo: 6895417144, EmailID:
"abc@mail.com"}])
db.Student.find()
```



	_id	RollNo	Name	Age	ContactNo	EmailID
1	ObjectId("5f...	1.0	Adarsh	21.0	9987135426.0	adarsh@mai...
2	ObjectId("5f...	2.0	Kavita	20.0	9196575875.0	kavita@mail...
3	ObjectId("5f...	5.0	Pannaga	19.0	8479135535.0	pannaga@...
4	ObjectId("5f...	10.0	BFD	20.0	7953447547.0	bfd@mail.c...
5	ObjectId("5f...	11.0	ABC	21.0	6895417144.0	abc@mail.c...

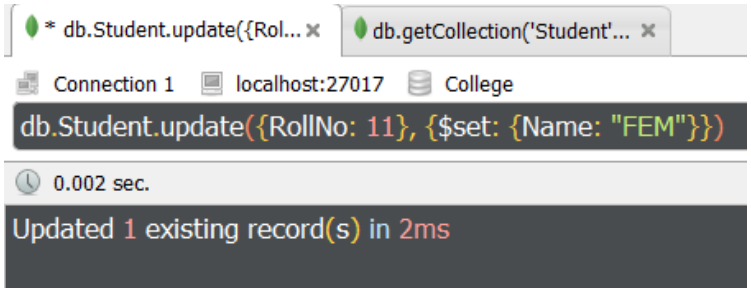
3. Write query to update Email-Id of a student with rollno 10

```
db.Student.update({RollNo:10}, {$set:{EmailID:“dbe@gmail.com”}})
db.Student.find({RollNo:10})
```



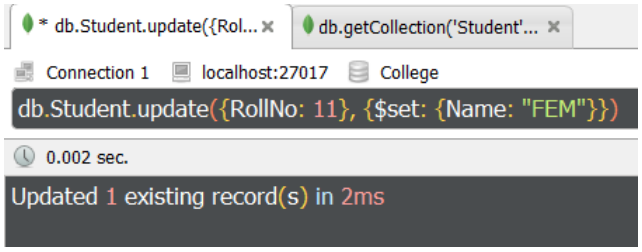
4. Replace the student name from “ABC” to “FEM” of rollno 11.

```
db.Student.update({RollNo:11},{$set:{Name:"FEM"}});
db.Student.find({RollNo:11})
```



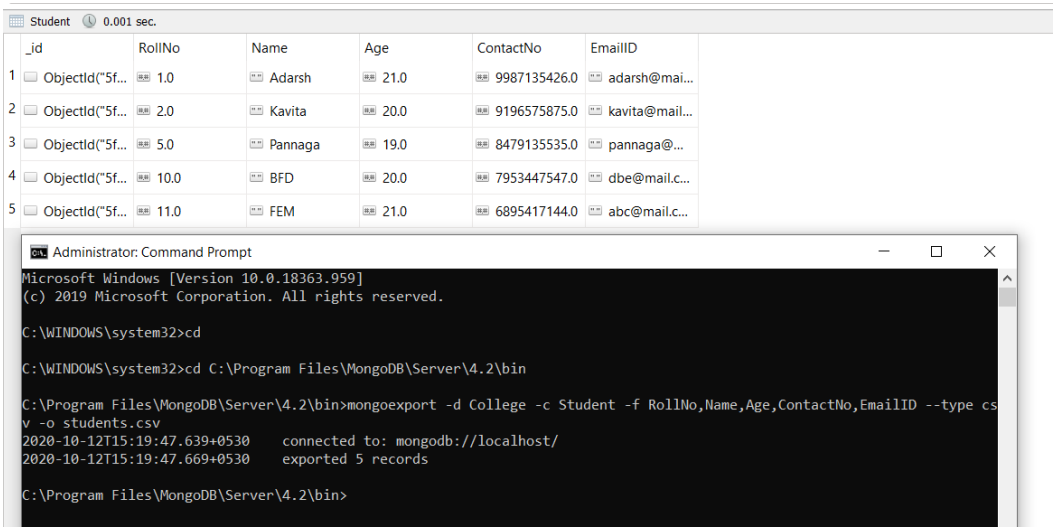
5. Replace the student name from “ABC” to “FEM” of rollno 11.

```
db.Student.update({RollNo:11},{$set:{Name:"FEM"}});
db.Student.find({RollNo:11})
```



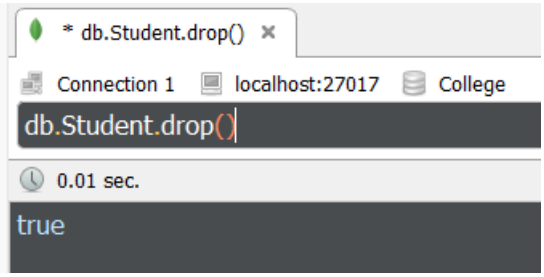
6. Export the created table into local file system

```
mongoexport - d College - c Student - f RollNo, Name, Age, ContactNo,
EmailID--type csv - o students.csv
```



7. Drop the table

```
db.Student.drop()
```



8. Import a given csv dataset from local file system into mongodb collection

```
mongoimport - d College - c Student--type csv--file students.csv--
headerline
```

Connection 1 localhost:27017 College

```
db.getCollection('Student').find({})
```

Student 0.002 sec.

	_id	RollNo	Name	Age	ContactNo	EmailID
1	ObjectId("5f...	2	Kavita	20	9196575875.0	kavita@mail...
2	ObjectId("5f...	5	Pannaga	19	8479135535.0	pannaga@...
3	ObjectId("5f...	10	BFD	20	7953447547.0	dbe@mail.c...
4	ObjectId("5f...	11	FEM	21	6895417144.0	abc@mail.c...
5	ObjectId("5f...	1	Adarsh	21	9987135426.0	adarsh@mai...

Administrator: Command Prompt

```
Microsoft Windows [Version 10.0.18363.959]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>cd

C:\WINDOWS\system32>cd C:\Program Files\MongoDB\Server\4.2\bin

C:\Program Files\MongoDB\Server\4.2\bin>mongoexport -d College -c Student -f RollNo,Name,Age,ContactNo,EmailID --type cs
v -o students.csv
2020-10-12T15:19:47.639+0530    connected to: mongodb://localhost/
2020-10-12T15:19:47.669+0530    exported 5 records

C:\Program Files\MongoDB\Server\4.2\bin>mongoimport -d College -c Student --type csv --file students.csv --headerline
2020-10-12T15:24:24.478+0530    connected to: mongodb://localhost/
2020-10-12T15:24:24.522+0530    5 document(s) imported successfully. 0 document(s) failed to import.

C:\Program Files\MongoDB\Server\4.2\bin>
```

Date: 05-10-2020

2. MongoDB: Customer Database

Perform the following DB operations using MongoDB.

1. **Create a collection by name Customers with the following attributes. Cust_id, Acc_Bal, Acc_Type**
2. **Insert at least 5 values into the table**
3. **Write a query to display those records whose total account balance is greater than 1200 of account type 'Z' for each customer_id.**
4. **Determine Minimum and Maximum account balance for each customer_id.**
5. **Export the created collection into local file system**
6. **Drop the table**
7. **Import a given csv dataset from local file system into mongodb collection.**

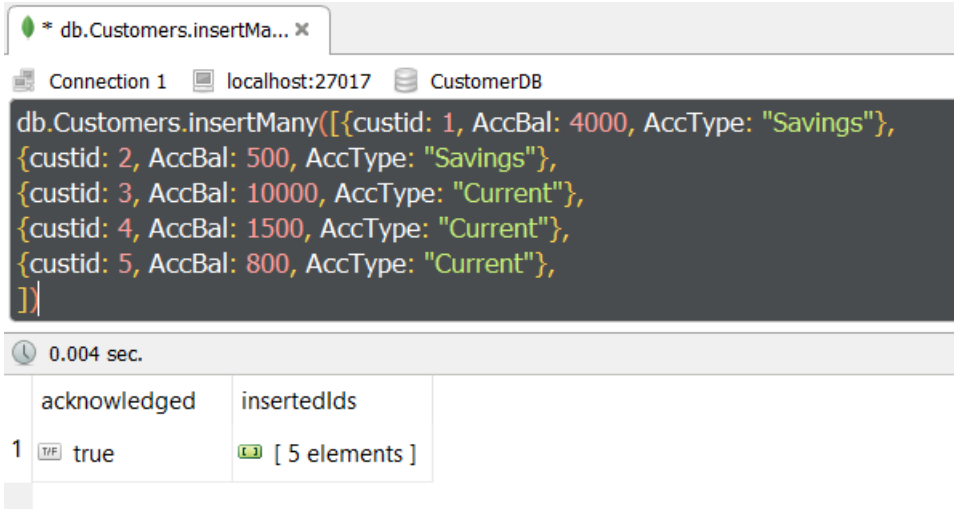
```
use CustomerDB
```

1. Create a collection by name Customers with the following attributes.Cust_id, Acc_Bal, Acc_Type

```
db.createCollection("Customers")
```

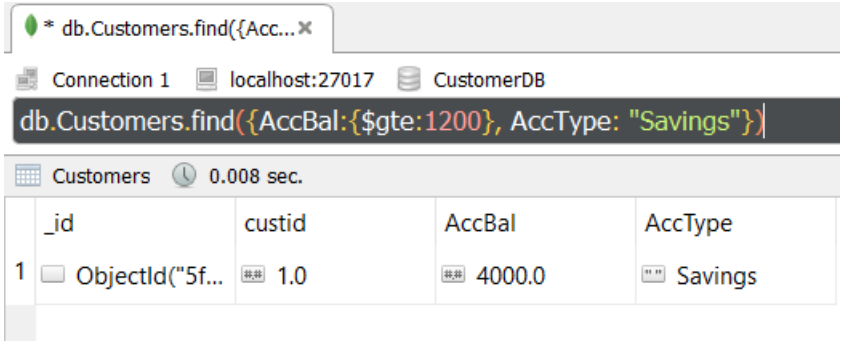
2. Insert at least 5 values into the table

```
db.Customers.insertMany([{custid: 1, AccBal: 4000, AccType: "Savings"},
{custid: 2, AccBal: 500, AccType: "Savings"},
{custid: 3, AccBal: 10000, AccType: "Current"},
{custid: 4, AccBal: 1500, AccType: "Current"},
{custid: 5, AccBal: 800, AccType: "Current"}])
db.Customers.find()
```



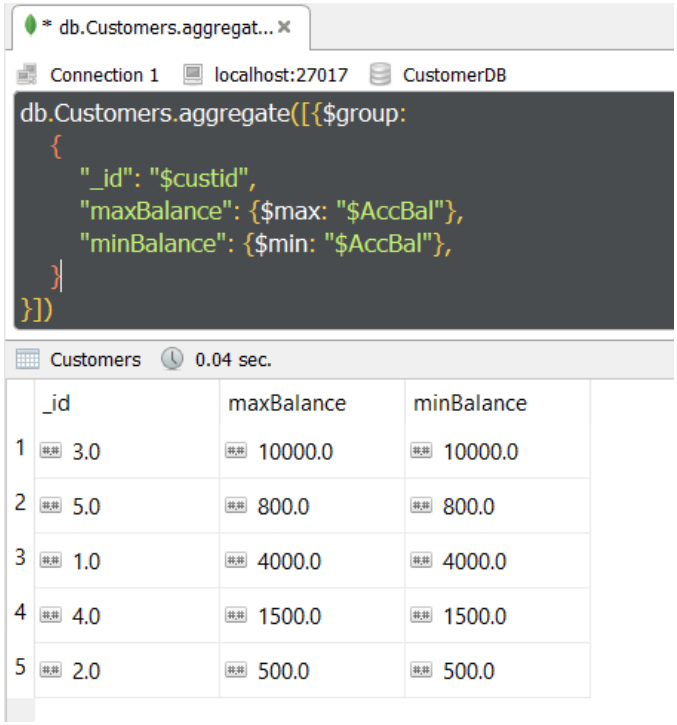
3. Write a query to display those records whose total account balance is greater than 1200 of account type ‘Z’ for each customer_id.

```
db.Customers.find({AccBal:{$gte:1200}, AccType:"Savings"})
```



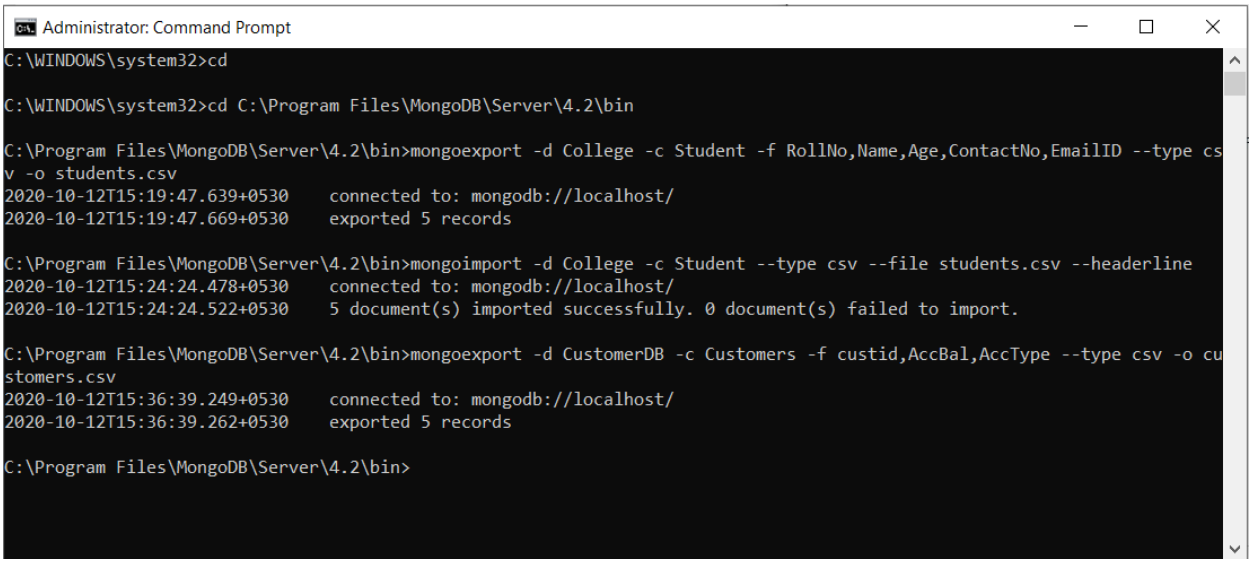
4. Determine Minimum and Maximum account balance for each customer_id.

```
db.Customers.aggregate([{
    $group:
        {_id: "$custid",
        maxBalance: {$max: "$AccBal"},
        minBalance: {$min: "$AccBal"}}
    }]);
```



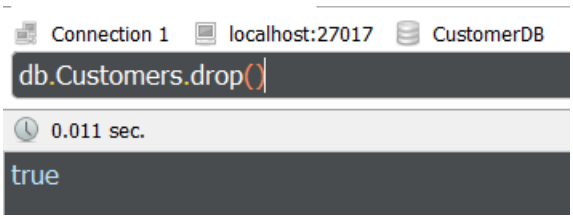
5. Export the created collection into local file system

```
mongoexport -d CustomerDB -c Customers -f custid,AccBal,AccType --type
csv -o customers.csv
```



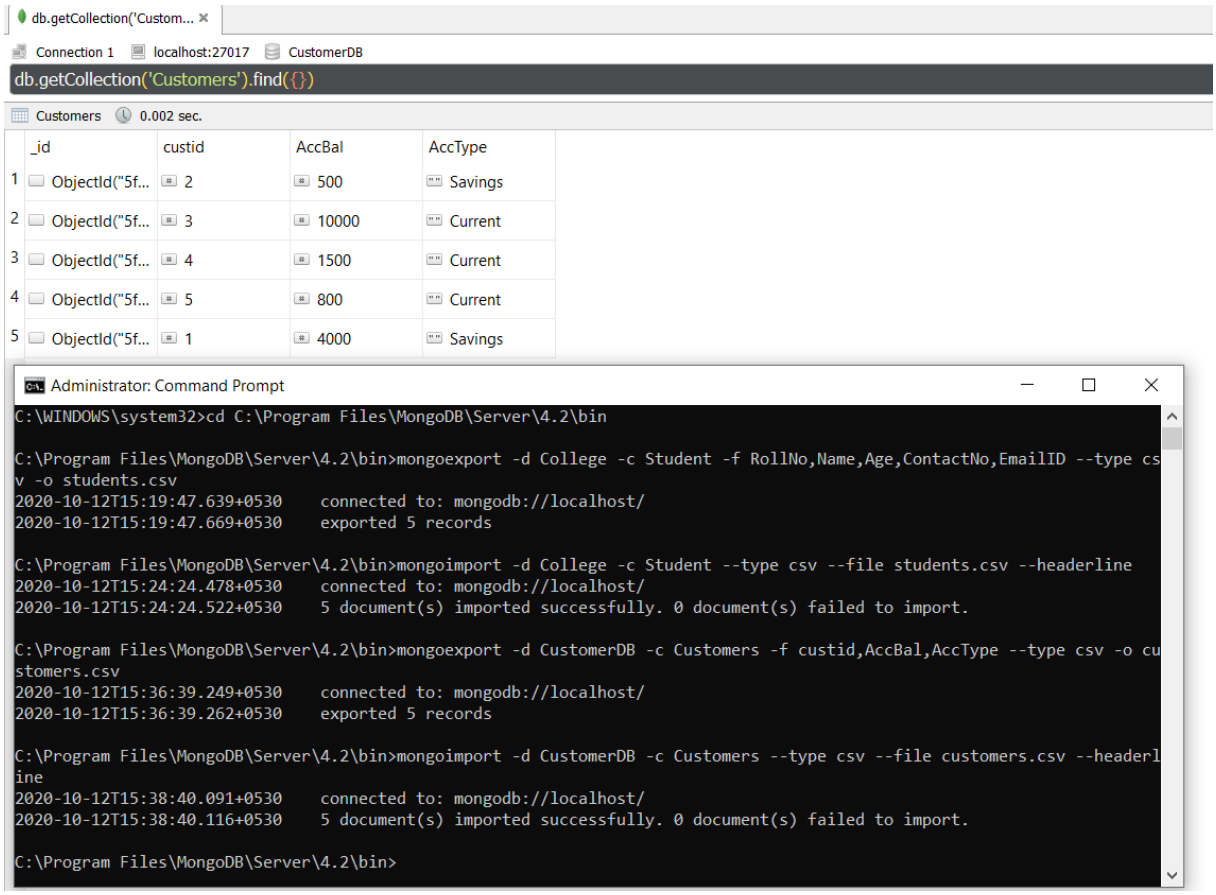
6. Drop the table

```
db.Customers.drop()
```



7. Import a given csv dataset from local file system into mongodb collection

```
mongoimport -d CustomerDB -c Customers --type csv --file customers.csv --
headerline
```



Date: 12-10-2020

3. Cassandra: Employee Keyspace

Perform the following DB operations using Cassandra.

1. **Create a keyspace by name Employee**
2. **Create a column family by name Employee-Info with attributes Emp_Id Primary Key, Emp_Name, Designation, Date_of_Joining, Salary, Dept_Name**
3. **Insert the values into the table in batch 3. Update Employee name and Department of Emp-Id 121**
4. **Sort the details of Employee records based on salary**
5. **. Alter the schema of the table Employee_Info to add a column Projects which stores a set of Projects done by the corresponding Employee.**
6. **Update the altered table to add project names.**
7. **Create a TTL of 15 seconds to display the values of Employees.**

1. Create a keyspace by name Employee

```
Administrator: Command Prompt - cqlsh
Microsoft Windows [Version 10.0.18363.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>cd C:\apache-cassandra-3.11.4\bin

C:\apache-cassandra-3.11.4\bin>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.4 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
cqlsh> CREATE KEYSPACE Employees WITH replication ={'class':'SimpleStrategy','replication_factor':3};
cqlsh> use Employees;
```

2. Create a column family by name Employee-Info with attributes Emp_Id Primary Key, Emp_Name, Designation, Date_of_Joining, Salary, Dept_Name

```
cqlsh:employee> CREATE TABLE Employee_Info (Emp_Id int PRIMARY KEY, Emp_Name text,Designation text, DateOfJoining timest
amp, Salary double,Dept_Name text);
cqlsh:employee> DESCRIBE TABLES;

employee_info
```

3. Insert the values into the table in batch

4. Update Employee name and Department of Emp-Id 121

5. Alter the schema of the table Employee_Info to add a column Projects which stores a set of Projects done by the corresponding Employee.

```
Command Prompt - cqlsh
cqlsh:employee> select * from employee_info;

 emp_id | dept_name | designation | doj | emp_name | salary
--------+-----------+-------------+-----+----------+--------

(0 rows)
cqlsh:employee> BEGIN BATCH
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(120,'Development','CTO','10/09/2015','Piyush',2000000);
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(121,'HR','Employee','15/09/2012','Akash',1500000);
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(122,'Maintainance staff','03/08/2016','Chinmayi',53000);
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(123,'IT','Assistant','24/09/2019','Trisha',100000);
            ... APPLY BATCH;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Unmatched column names/values"
cqlsh:employee> BEGIN BATCH
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(120,'Development','CTO','10/09/2015','Piyush',2000000);
            ... APPLY BATCH;
cqlsh:employee> BEGIN BATCH
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(121,'HR','Employee','15/09/2012','Akash',1500000);
            ... INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(123,'IT','Assistant','24/09/2019','Trisha',100000);
            ... APPLY BATCH;
cqlsh:employee> INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(122,'Maintainance staff','03/08/2016','Chinmayi',53000);
InvalidRequest: Error from server: code=2200 [Invalid query] message="Unmatched column names/values"
cqlsh:employee> INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(122,'MaintainanceStaff','03/08/2016','Chinmayi',53000);
InvalidRequest: Error from server: code=2200 [Invalid query] message="Unmatched column names/values"
cqlsh:employee> INSERT INTO employee_info(emp_id,dept_name,designation,doj,emp_name,salary)values(122,'Maintainance', 'Staff','03/08/2016','Chinmayi',53000);
cqlsh:employee> select * from employee_info;

 emp_id | dept_name    | designation | doj        | emp_name | salary
--------+--------------+-------------+------------+----------+--------
    120 |  Development |         CTO | 10/09/2015 |   Piyush | 2000000
    123 |           IT |   Assistant | 24/09/2019 |   Trisha |  100000
    122 | Maintainance |       Staff | 03/08/2016 | Chinmayi |   53000
    121 |           HR |    Employee | 15/09/2012 |    Akash | 1500000

(4 rows)
cqlsh:employee> UPDATE employee_info SET emp_name = 'Aakash',dept_name = 'IT' WHERE emp_id = 121;
cqlsh:employee> select * from employee_info;

 emp_id | dept_name    | designation | doj        | emp_name | salary
--------+--------------+-------------+------------+----------+--------
    120 |  Development |         CTO | 10/09/2015 |   Piyush | 2000000
    123 |           IT |   Assistant | 24/09/2019 |   Trisha |  100000
    122 | Maintainance |       Staff | 03/08/2016 | Chinmayi |   53000
    121 |           IT |    Employee | 15/09/2012 |   Aakash | 1500000

(4 rows)
cqlsh:employee> ALTER TABLE employee_info ADD Project VARCHAR;
```

6. Update the altered table to add project names.

7. Create a TTL of 15 seconds to display the values of Employees.

```
Command Prompt - cqlsh
cqlsh:employee> UPDATE employee_info SET project='Facial recognition' WHERE emp_id=123;
cqlsh:employee> UPDATE employee_info SET project='Blockchain' WHERE emp_id=122;
cqlsh:employee> select * from employee_info;

 emp_id | dept_name    | designation | doj        | emp_name | project            | salary
--------+--------------+-------------+------------+----------+--------------------+--------
    120 |  Development |         CTO | 10/09/2015 |   Piyush |                TIP | 2000000
    123 |           IT |   Assistant | 24/09/2019 |   Trisha | Facial recognition |  100000
    122 | Maintainance |       Staff | 03/08/2016 | Chinmayi |         Blockchain |   53000
    121 |           IT |    Employee | 15/09/2012 |   Aakash | Sentiment Analysis | 1500000

(4 rows)
cqlsh:employee> INSERT INTO employee_info(emp_id, dept_name, designation, doj, emp_name, project,salary)values(124, 'PR','Senior Manager','01/05/2010','Load Balancing Server','Pranav',500000) USING TTL 60;
cqlsh:employee> SELECT TTL(desgination) FROM employee_info where emp_id=124;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Undefined column name desgination"
cqlsh:employee> SELECT TTL(designation) FROM employee_info where emp_id=124;

 ttl(designation)
------------------
               37

(1 rows)
cqlsh:employee> SELECT TTL(designation) FROM employee_info where emp_id=124;

 ttl(designation)
------------------
               29

(1 rows)
cqlsh:employee> select * from employee_info;

 emp_id | dept_name    | designation    | doj        | emp_name              | project            | salary
--------+--------------+----------------+------------+-----------------------+--------------------+--------
    120 |  Development |            CTO | 10/09/2015 |                Piyush |                TIP | 2000000
    123 |           IT |      Assistant | 24/09/2019 |                Trisha | Facial recognition |  100000
    122 | Maintainance |          Staff | 03/08/2016 |               Chinmayi |         Blockchain |   53000
    121 |           IT |       Employee | 15/09/2012 |                Aakash | Sentiment Analysis | 1500000
    124 |           PR | Senior Manager | 01/05/2010 | Load Balancing Server |             Pranav |  500000

(5 rows)
cqlsh:employee> select * from employee_info;

 emp_id | dept_name    | designation | doj        | emp_name | project            | salary
--------+--------------+-------------+------------+----------+--------------------+--------
    120 |  Development |         CTO | 10/09/2015 |   Piyush |                TIP | 2000000
    123 |           IT |   Assistant | 24/09/2019 |   Trisha | Facial recognition |  100000
    122 | Maintainance |       Staff | 03/08/2016 | Chinmayi |         Blockchain |   53000
    121 |           IT |    Employee | 15/09/2012 |   Aakash | Sentiment Analysis | 1500000

(4 rows)
```

Date: 02-11-2020

4. Cassandra: Library Keyspace

Perform the following DB operations using Cassandra.

1. **Create a keyspace by name Library**
2. **Create a column family by name Library-Info with attributes Stud_Id Primary Key, Counter_value of type Counter, Stud_Name, Book-Name, Book-Id, Date_of_issue**
3. **Insert the values into the table in batch**
4. **Display the details of the table created and increase the value of the counter**
5. **Write a query to show that a student with id 112 has taken a book "BDA" 2 times.**
6. **Export the created column to a csv file**
7. **Import a given csv dataset from local file system into Cassandra column family**

Command Prompt - cqlsh

```
Connected to Test Cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.8 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing.  Install to enable tab completion.
cqlsh> CREATE KEYSPACE Library WITH replication = {'class':'SimpleStrategy','replication_factor':3};
cqlsh> CREATE COLUMNFAMILY libraryinfo(stud_id uuid, counter_value counter, stud_name VARCHAR, book_name VARCHAR, book_id INT, doi VARCHAR, PRIMARY KEY(stud_id,stud_name,book_name,book_id,doi));
InvalidRequest: Error from server: code=2200 [Invalid query] message="No keyspace has been specified. USE a keyspace, or explicitly specify keyspace.tablename"
cqlsh> USE Library;
cqlsh:library> CREATE COLUMNFAMILY libraryinfo(stud_id uuid, counter_value counter, stud_name VARCHAR, book_name VARCHAR, book_id INT, doi VARCHAR, PRIMARY KEY(stud_id,stud_name,book_name,book_id,doi));
cqlsh:library>
Traceback (most recent call last):
  File "C:\Program Files\apache-cassandra-3.11.8\bin\\cqlsh.py", line 2458, in <module>
    main(*read_options(sys.argv[1:], os.environ))
  File "C:\Program Files\apache-cassandra-3.11.8\bin\\cqlsh.py", line 2446, in main
    shell.cmdloop()
  File "C:\Program Files\apache-cassandra-3.11.8\bin\\cqlsh.py", line 893, in cmdloop
    self.handle_eof()
  File "C:\Program Files\apache-cassandra-3.11.8\bin\\cqlsh.py", line 939, in handle_eof
    statement = self.statement.getvalue()
  File "C:\Python27\lib\StringIO.py", line 269, in getvalue
    _complain_ifclosed(self.closed)
  File "C:\Python27\lib\StringIO.py", line 38, in _complain_ifclosed
    def _complain_ifclosed(closed):
KeyboardInterrupt
Terminate batch job (Y/N)? n
C:\Program Files\apache-cassandra-3.11.8\bin>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.8 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing.  Install to enable tab completion.
cqlsh> USE Library;
cqlsh:library> UPDATE library_info set counter_value=counter_value+1 where stud_id=uuid() and stud_name='Anjali' and book_name='Inferno' and book_id=1 and doi='20/09/2020';
InvalidRequest: Error from server: code=2200 [Invalid query] message="unconfigured table library_info"
cqlsh:library> CREATE COLUMNFAMILY libraryinfo(stud_id uuid, counter_value counter, stud_name VARCHAR, book_name VARCHAR, book_id INT, doi VARCHAR, PRIMARY KEY(stud_id,stud_name,book_name,book_id,doi));
AlreadyExists: Table 'library.libraryinfo' already exists
cqlsh:library> UPDATE library_info set counter_value=counter_value+1 where stud_id=uuid() and stud_name='Anjali' and book_name='Inferno' and book_id=1 and doi='20/09/2020';
InvalidRequest: Error from server: code=2200 [Invalid query] message="unconfigured table library_info"
cqlsh:library> UPDATE libraryinfo set counter_value=counter_value+1 where stud_id=uuid() and stud_name='Anjali' and book_name='Inferno' and book_id=1 and doi='20/09/2020';
cqlsh:library> UPDATE libraryinfo set counter_value=counter_value+1 where stud_id=uuid() and stud_name='Ashwini' and book_name='BDA' and book_id=2 and doi='25/09/2020';
cqlsh:library> UPDATE libraryinfo set counter_value=counter_value+1 where stud_id=uuid() and stud_name='Atharv' and book_name='The Alchemist' and book_id=3 and doi='28/09/2020';
cqlsh:library> select * from libraryinfo;
```

Command Prompt - cqlsh

```
 stud_id                              | stud_name | book_name     | book_id | doi        | counter_value
--------------------------------------+-----------+---------------+---------+------------+---------------
 03408842-8701-4e1f-ac4e-81071d962393 |    Anjali |       Inferno |       1 | 20/09/2020 |             1
 f588032e-98da-45c8-95c1-6e30ccd3c2bb |    Atharv | The Alchemist |       3 | 28/09/2020 |             1
 515130bd-6a01-4d3c-824f-e671f6d4c553 |   Ashwini |           BDA |       2 | 25/09/2020 |             1

(3 rows)
cqlsh:library> UPDATE libraryinfo set counter_value=counter_value+1 where stud_id=515130bd-6a01-4d3c-824f-e671f6d4c553 and stud_name='Ashwini' and book_name='BDA' and book_id=2 and doi='25/09/2020';
cqlsh:library> select * from libraryinfo where counter_value = 2 ALLOW FILTERING;

 stud_id                              | stud_name | book_name | book_id | doi        | counter_value
--------------------------------------+-----------+-----------+---------+------------+---------------
 515130bd-6a01-4d3c-824f-e671f6d4c553 |   Ashwini |       BDA |       2 | 25/09/2020 |             2

(1 rows)
cqlsh:library> COPY libraryinfo(stud_id,counter_value,stud_name,book_name,book_id,doi) TO 'C:\Users\arund\Documents\res.csv' WITH HEADER =TRUE;
Using 3 child processes

Starting copy of library.libraryinfo with columns [stud_id, counter_value, stud_name, book_name, book_id, doi].
Processed: 3 rows; Rate:       6 rows/s; Avg. rate:       3 rows/s
3 rows exported to 1 files in 0.998 seconds.
```

Command Prompt - cqlsh

```
cqlsh:library> COPY libraryinfo(stud_id,counter_value,stud_name,book_name,book_id,doi) FROM 'C:\Users\arund\Documents\res.csv' WITH HEADER =TRUE;
Using 3 child processes

Starting copy of library.libraryinfo with columns [stud_id, counter_value, stud_name, book_name, book_id, doi].
Process ImportProcess-6:       4 rows/s; Avg. rate:       4 rows/s
PProcess ImportProcess-5:
Trocess ImportProcess-4:
Traceback (most recent call last):
T raceback (most recent call last):
raceback (most recent call last):
 File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
   File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
 File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
      self.run()
   self.run()
   self.run()
   File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
   File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
   self.close()
      self.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
   self.close()
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
   self._session.cluster.shutdown()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
   self._session.cluster.shutdown()
   self._session.cluster.shutdown()
      self.control_connection.shutdown()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
   self.control_connection.shutdown()
      self._connection.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
   self.control_connection.shutdown()
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
   self._connection.close()
     self._connection.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
   cls._loop.add_timer(timer)
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
 A File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
```

Command Prompt - cqlsh

```
raceback (most recent call last):
 File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
   File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
 File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
      self.run()
   self.run()
   self.run()
   File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
   File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2328, in run
   self.close()
      self.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
   self.close()
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
   self._session.cluster.shutdown()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\pylib\cqlshlib\copyutil.py", line 2332, in close
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
   self._session.cluster.shutdown()
   self._session.cluster.shutdown()
      self.control_connection.shutdown()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 1259, in shutdown
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
   self.control_connection.shutdown()
      self._connection.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
   self.control_connection.shutdown()
    File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\cluster.py", line 2850, in shutdown
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
   self._connection.close()
     self._connection.close()
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
  File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 373, in close
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
     AsyncoreConnection.create_timer(0, partial(asyncore.dispatcher.close, self))
   cls._loop.add_timer(timer)
 File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
 A File "C:\Program Files\apache-cassandra-3.11.8\bin\..\lib\cassandra-driver-internal-only-3.11.0-bb96859b.zip\cassandra-driver-3.11.0-bb96859b\cassandra\io\asyncorereactor.py", line 335, in create_timer
 ttributeError: 'NoneType' object has no attribute 'add_timer'
    cls._loop.add_timer(timer)
   cls._loop.add_timer(timer)
AAttributeError: 'NoneType' object has no attribute 'add_timer'
ttributeError: 'NoneType' object has no attribute 'add_timer'
Processed: 3 rows; Rate:       2 rows/s; Avg. rate:       3 rows/s
3 rows imported from 1 files in 1.058 seconds (0 skipped).
cqlsh:library>
```

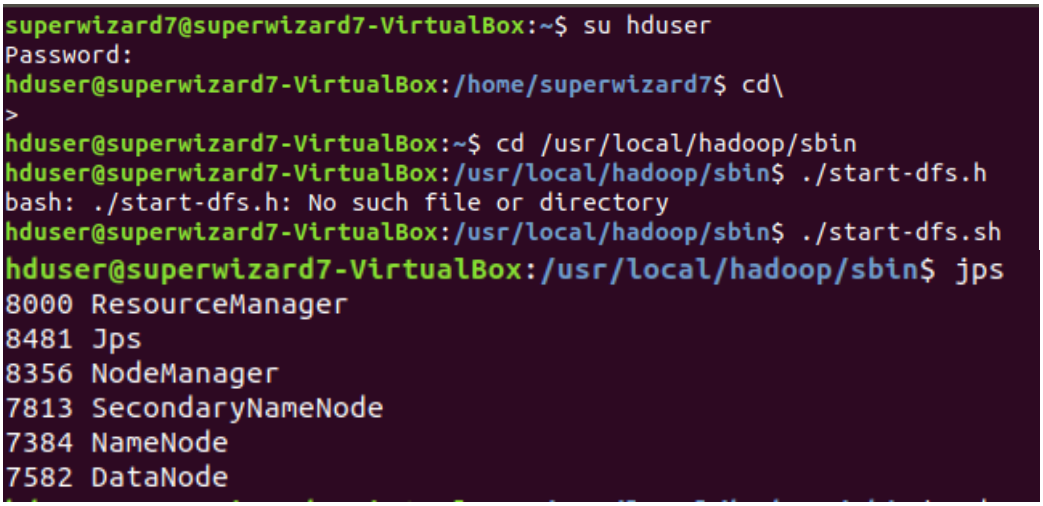
Date: 09-11-2020

5. Hadoop: Word Count

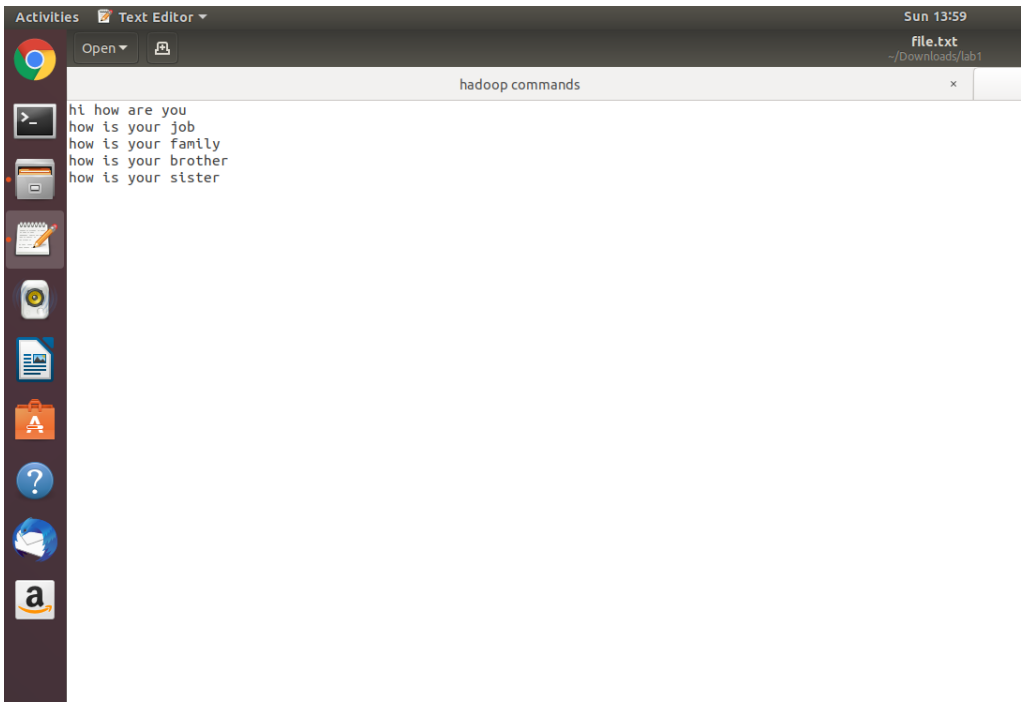
Hadoop program to find the word count

1. Starting Hadoop Cluster

```
$ su hduser
$ cd\
$ start-all.sh
```



2. Creating a file to count words



3. Moving file to Hadoop system

```
$ hadoop fs –mkdir /lab1
$ hadoop fs –ls /
$ hadoop fs -copyFromLocal /home/superwizard7/Downloads/lab1/file.txt
/lab1/input.txt
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -mkdir /lab1
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:33:41 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -copyFromLocal /home/superwizard7/Downloads/lab1/file.txt /lab1/input.txt
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:36:39 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -ls /lab1/
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:40:48 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 2 items
-rw-r--r--   1 hduser supergroup         89 2020-12-14 15:36 /lab1/input.txt
drwxr-xr-x   - hduser supergroup          0 2020-12-14 15:36 /lab1/output
```

4. Running the JAR file

```
$ hadoop jar /home/superwizard7/Downloads/lab1/wordcount.jar
WordCount /lab1/input.txt /lab1/output/
```

```
hduser@superwizard7-VirtualBox:~$ hadoop jar /home/superwizard7/Downloads/lab1/wordcount.jar WordCount /lab1/input.txt /lab1/output
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:36:49 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
20/12/14 15:36:49 INFO Configuration.deprecation: session.id is deprecated. Instead, use dfs.metrics.session-id
20/12/14 15:36:49 INFO jvm.JvmMetrics: Initializing JVM Metrics with processName=JobTracker, sessionId=
20/12/14 15:36:50 INFO input.FileInputFormat: Total input paths to process : 1
20/12/14 15:36:50 INFO mapreduce.JobSubmitter: number of splits:1
20/12/14 15:36:50 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_local685343677_0001
20/12/14 15:36:51 INFO mapreduce.Job: The url to track the job: http://localhost:8080/
20/12/14 15:36:51 INFO mapreduce.Job: Running job: job_local685343677_0001
20/12/14 15:36:51 INFO mapred.LocalJobRunner: OutputCommitter set in config null
20/12/14 15:36:51 INFO mapred.LocalJobRunner: OutputCommitter is org.apache.hadoop.mapreduce.lib.output.FileOutputCommitter
20/12/14 15:36:51 INFO mapred.LocalJobRunner: Waiting for map tasks
20/12/14 15:36:51 INFO mapred.LocalJobRunner: Starting task: attempt_local685343677_0001_m_000000_0
20/12/14 15:36:51 INFO mapred.Task:  Using ResourceCalculatorProcessTree : [ ]
20/12/14 15:36:51 INFO mapred.MapTask: Processing split: hdfs://localhost:54310/lab1/input.txt:0+89
20/12/14 15:36:51 INFO mapred.MapTask: (EQUATOR) 0 kvi 26214396(104857584)
20/12/14 15:36:51 INFO mapred.MapTask: mapreduce.task.io.sort.mb: 100
20/12/14 15:36:51 INFO mapred.MapTask: soft limit at 83886080
20/12/14 15:36:51 INFO mapred.MapTask: bufstart = 0; bufvoid = 104857600
20/12/14 15:36:51 INFO mapred.MapTask: kvstart = 26214396; length = 6553600
20/12/14 15:36:51 INFO mapred.MapTask: Map output collector class = org.apache.hadoop.mapred.MapTask$MapOutputBuffer
20/12/14 15:36:51 INFO mapred.LocalJobRunner:
20/12/14 15:36:51 INFO mapred.MapTask: Starting flush of map output
20/12/14 15:36:51 INFO mapred.MapTask: Spilling map output
20/12/14 15:36:51 INFO mapred.MapTask: bufstart = 0; bufend = 169; bufvoid = 104857600
20/12/14 15:36:51 INFO mapred.MapTask: kvstart = 26214396(104857584); kvend = 26214320(104857280); length = 77/6553600
20/12/14 15:36:51 INFO mapred.MapTask: Finished spill 0
20/12/14 15:36:51 INFO mapred.Task: Task:attempt_local685343677_0001_m_000000_0 is done. And is in the process of committing
20/12/14 15:36:51 INFO mapred.LocalJobRunner: map
20/12/14 15:36:51 INFO mapred.Task: Task 'attempt_local685343677_0001_m_000000_0' done.
20/12/14 15:36:51 INFO mapred.LocalJobRunner: Finishing task: attempt_local685343677_0001_m_000000_0
20/12/14 15:36:51 INFO mapred.LocalJobRunner: map task executor complete.
20/12/14 15:36:51 INFO mapred.LocalJobRunner: Waiting for reduce tasks
20/12/14 15:36:51 INFO mapred.LocalJobRunner: Starting task: attempt_local685343677_0001_r_000000_0
20/12/14 15:36:51 INFO mapred.Task:  Using ResourceCalculatorProcessTree : [ ]
20/12/14 15:36:51 INFO mapred.ReduceTask: Using ShuffleConsumerPlugin: org.apache.hadoop.mapreduce.task.reduce.Shuffle@35b5247d
20/12/14 15:36:51 INFO reduce.MergeManagerImpl: MergerManager: memoryLimit=375809632, maxSingleShuffleLimit=93952408, mergeThreshold=248034368, ioSortFactor=10, memToMemMergeOutputsThreshold=10
20/12/14 15:36:51 INFO reduce.EventFetcher: attempt_local685343677_0001_r_000000_0 Thread started: EventFetcher for fetching Map Completion Events
20/12/14 15:36:51 INFO reduce.LocalFetcher: localfetcher#1 about to shuffle output of map attempt_local685343677_0001_m_000000_0 decomp: 111 len: 115 to MEMORY
20/12/14 15:36:51 INFO reduce.InMemoryMapOutput: Read 111 bytes from map-output for attempt_local685343677_0001_m_000000_0
20/12/14 15:36:51 INFO reduce.MergeManagerImpl: closeInMemoryFile -> map-output of size: 111, inMemoryMapOutputs.size() -> 1, commitMemory -> 0, usedMemory ->111
20/12/14 15:36:51 INFO reduce.EventFetcher: EventFetcher is interrupted.. Returning
```

5. Output

```
$ hadoop fs –cat /lab1/output/part-r-00000
$ hadoop fs –ls /lab1/output
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -cat /lab1/output/part-r-00000
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:37:08 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
are     1
brother 1
family  1
hi      1
how     5
is      4
job     1
sister  1
you     1
your    4
hduser@superwizard7-VirtualBox:~$ hdfs dfs -ls /lab1/output
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:37:42 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 2 items
-rw-r--r--   1 hduser supergroup          0 2020-12-14 15:36 /lab1/output/_SUCCESS
-rw-r--r--   1 hduser supergroup         69 2020-12-14 15:36 /lab1/output/part-r-00000
```

6. Stopping Hadoop

```
$ stop-all.sh
```

```
hduser@lenovo-ThinkPad-Edge-E431:~$ stop-all.sh
```

Date: 07-12-2020

6. Hadoop: Average Temperature

Hadoop program to find the Average Temperature

1. Starting Hadoop Cluster

```
$ su hduser
$ cd\
$ start-all.sh
$ jps
```

```
superwizard7@superwizard7-VirtualBox:~$ su hduser
Password:
hduser@superwizard7-VirtualBox:/home/superwizard7$ cd\
>
hduser@superwizard7-VirtualBox:~$ cd /usr/local/hadoop/sbin
hduser@superwizard7-VirtualBox:/usr/local/hadoop/sbin$ ./start-dfs.h
bash: ./start-dfs.h: No such file or directory
hduser@superwizard7-VirtualBox:/usr/local/hadoop/sbin$ ./start-dfs.sh
```

```
hduser@superwizard7-VirtualBox:/usr/local/hadoop/sbin$ jps
8000 ResourceManager
8481 Jps
8356 NodeManager
7813 SecondaryNameNode
7384 NameNode
7582 DataNode
```

2. Copying the binary file to the Hadoop file system as a text file

```
$ hadoop fs -copyFromLocal /home/superwizard7/Downloads/lab2/1901
/lab2/input.txt
$ hadoop –ls /lab2
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -copyFromLocal /home/superwizard7/Downloads/lab2/1901 /lab2/input.txt
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:17:23 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
hduser@superwizard7-VirtualBox:~$ hdfs dfs -ls /lab2/
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:17:31 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 2 items
-rw-r--r--   1 hduser supergroup     888190 2020-12-14 15:16 /lab2/input
-rw-r--r--   1 hduser supergroup     888190 2020-12-14 15:17 /lab2/input.txt
```

3. Running the JAR file

```
$ hadoop jar /home/superwizard7/Downloads/lab2/avgtemp.jar AverageDriver
/lab2/input.txt /lab2/output
```

```
hduser@superwizard7-VirtualBox:~$ hadoop jar /home/superwizard7/Downloads/lab2/avgtemp.jar AverageDriver /lab2/input.txt /lab2/output
```

4. Output

```
$ hadoop fs –cat /lab2/output/part-r-00000
$ hadoop fs –ls /lab2/ouput
```

```
hduser@superwizard7-VirtualBox:~$ hdfs dfs -cat /lab2/output/part-r-00000
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:20:19 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
1901    46
hduser@superwizard7-VirtualBox:~$ hdfs dfs -ls /lab2/output/
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.6.0.jar) to method sun.security.krb5.Config.
getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
20/12/14 15:20:42 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 2 items
-rw-r--r--   1 hduser supergroup          0 2020-12-14 15:19 /lab2/output/_SUCCESS
-rw-r--r--   1 hduser supergroup          8 2020-12-14 15:19 /lab2/output/part-r-00000
hduser@superwizard7-VirtualBox:~$
```

5. Stopping Hadoop

```
$ stop-all.sh
```

```
hduser@lenovo-ThinkPad-Edge-E431:/home/lenovo$ stop-all.sh
```

Date: 14-12-2020

7. Hive: Employee Table

Write Queries in Hive to do the following

1. **Create an external table named with the following attributes -> Empl_ID ->Emp_Name -> Designation -> Salary**
2. **Load data into table from a given file**
3. **Create a view to Generate a query to retrieve the employee details who earn a salary of more than Rs 30000.**
4. **Alter the table to add a column Dept_Id and Generate a query to retrieve the employee details in order by using Dept_Id**
5. **Generate a query to retrieve the number of employees in each department whose salary is greater than 30000**
6. **Create another table Department with attributes -> Dept_Id ->Dept_name ->Emp_Id**
7. **Display the cumulative details of each employee along with department details**

1. Create an external table named with the following attributes -> Empl_ID ->Emp_Name -> Designation -> Salary

```
>CREATE DATABASE IF NOT EXISTS EMPLOYEES COMMENT ‘EMPLOYEE
Details’ WITH DBPROPERTIES(‘creator’=’Arun’);
>SHOW DATABASES;
>DESCRIBE DATABASE EMPLOYEES;
>USE EMPLOYEES;
> CREATE EXTERNAL TABLE IF NOT EXISTS EMPLOYEES (EMP_ID INT,
EMP_NAME STRING, DESIGNATION STRING, SALARY FLOAT) ROW FORMAT
DELIMITED FIELDS TERMINATED BY '\T' LOCATION '/EMPLOYEE_INFO';
>DESCRIBE FORMATTED EMPLOYEES;
```

2. Load data into table from a given file

```
>INSERT INTO TABLE EMPLOYEES VALUES(1,’Arun’,’Manager’,1000000),
(2,’Ashish’,’Clerk’,50000), (3,’Arvindh’,’Intern’,20000),
(4,’Shruti’,’HR’,35000);
>SELECT * FROM EMPLOYEES;
```

3. Create a view to Generate a query to retrieve the employee details who earn a salary of more than Rs 30000.

```
>CREATE VIEW EMPLOYEE_VIEW AS SELECT * FROM EMPLOYEES WHERE
SALARY>30000;
```

```
>SELECT * FROM EMPLOYEE_VIEW;
```

4. Alter the table to add a column Dept_Id and Generate a query to retrieve the employee details in order by using Dept_Id

```
>ALTER TABLE EMPLOYEES ADD COLUMNS (DEPT_ID INT);
>DESCRIBE FROMATTED EMPLOYEES;
```

5. Generate a query to retrieve the number of employees in each department whose salary is greater than 30000

```
SELECT DEPT_ID, COUNT(DEPT_ID) FROM EMPLOYEES WHERE SALARY >
30000 GROUP BY DEPT_ID;
```

6. Create another table Department with attributes -> Dept_Id ->Dept_name ->Emp_Id

```
CREATE EXTERNAL TABLE IF NOT EXISTS DEPARTMENTS (DEPT_ID INT,
DEPT_NAME STRING, EMP_ID INT) ROW FORMAT DELIMITED FIELDS
TERMINATED BY '\T' LOCATION '/DEPARTMENT';
```

7. Display the cumulative details of each employee along with department details

```
SELECT * FROM EMPLOYEES JOIN DEPARTMENTS ON
EMPLOYEES.DEPT_ID = DEPARTMENTS.DEPT_ID;
```

```
hive> create database if not exists Employees comment 'Employee Details' with dbproperties ('creator'='Arun');
OK
Time taken: 0.179 seconds
hive> show databases;
OK
default
employees
Time taken: 0.022 seconds, Fetched: 2 row(s)
hive> DESCRIBE DATABASE EMPLOYEES
    > DESCRIBE DATABASE EMPLOYEES;
FAILED: ParseException line 2:0 missing EOF at 'DESCRIBE' near 'EMPLOYEES'
hive> DESCRIBE DATABASE EMPLOYEES;
OK
employees       Employee Details        hdfs://localhost:54310/user/hive/warehouse/employees.db hduser  USER
Time taken: 0.056 seconds, Fetched: 1 row(s)
hive> use employees;
OK
Time taken: 0.014 seconds
```

```
hive> CREATE EXTERNAL TABLE IF NOT EXISTS EMPLOYEES(EMP_ID INT,EMP_NAME STRING, DESIGNATION STRING, SALARY FLOAT) ROW FORMAT DELIMITED FIELDS TERMINATED BY '\T' LOCATION '/EMPLOYEE_INFO';
OK
Time taken: 0.385 seconds
hive> describe formatted employees;
OK
# col_name              data_type               comment

emp_id                  int
emp_name                string
designation             string
salary                  float

# Detailed Table Information
Database:               employees
Owner:                  hduser
CreateTime:             Sat Dec 26 21:00:46 IST 2020
LastAccessTime:         UNKNOWN
Retention:              0
Location:               hdfs://localhost:54310/EMPLOYEE_INFO
Table Type:             EXTERNAL_TABLE
Table Parameters:
        EXTERNAL                TRUE
        transient_lastDdlTime   1608996646

# Storage Information
SerDe Library:          org.apache.hadoop.hive.serde2.lazy.LazySimpleSerDe
InputFormat:            org.apache.hadoop.mapred.TextInputFormat
OutputFormat:           org.apache.hadoop.hive.ql.io.HiveIgnoreKeyTextOutputFormat
Compressed:             No
Num Buckets:            -1
Bucket Columns:         []
Sort Columns:           []
Storage Desc Params:
        field.delim             T
        serialization.format    T
Time taken: 0.347 seconds, Fetched: 30 row(s)
hive> insert into table employees values (1,'Arun','Manager',1000000),(2,'Ashish','Clerk',50000),(3,'Arvindh','Intern',20000),(4,'Shruti','HR',35000);
WARNING: 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, tez) or using Hive 1.X releases.
Query ID = hduser_20201226210346_a835ef8d-f924-4ae3-a668-53269f851079
Total jobs = 3
Launching Job 1 out of 3
Number of reduce tasks is set to 0 since there's no reduce operator
Job running in-process (local Hadoop)
2020-12-26 21:03:51,219 Stage-1 map = 100%,  reduce = 0%
Ended Job = job_local369431830_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://localhost:54310/EMPLOYEE_INFO/.hive-staging_hive_2020-12-26_21-03-46_880_273396099/414858450-1/-ext-10000
Loading data to table employees.employees
MapReduce Jobs Launched:
Stage-Stage-1:  HDFS Read: 85 HDFS Write: 253 SUCCESS
Total MapReduce CPU Time Spent: 0 msec
OK
Time taken: 5.2 seconds
hive> select * from employees;
OK
1       Arun    Manager 1000000.0
2       Ashish  Clerk   50000.0
3       Arvindh Intern  20000.0
4       Shruti  HR      35000.0
Time taken: 0.177 seconds, Fetched: 4 row(s)
hive> CREATE VIEW EMPLOYEE_VIEW AS SELECT * FROM EMPLOYEES WHERE SALARY>30000;
OK
Time taken: 0.48 seconds
hive> select * from employee_view;
OK
1       Arun    Manager 1000000.0
2       Ashish  Clerk   50000.0
4       Shruti  HR      35000.0
Time taken: 0.184 seconds, Fetched: 3 row(s)
hive> ALTER TABLE EMPLOYEES ADD COLUMNS (DEPT_ID INT);
OK
Time taken: 0.121 seconds
hive> describe formatted employees;
OK
# col_name              data_type               comment

emp_id                  int
emp_name                string
designation             string
salary                  float
dept_id                 int

# Detailed Table Information
Database:               employees
Owner:                  hduser
CreateTime:             Sat Dec 26 21:00:46 IST 2020
LastAccessTime:         UNKNOWN
Retention:              0
Location:               hdfs://localhost:54310/EMPLOYEE_INFO
Table Type:             EXTERNAL_TABLE
```

```
Table Parameters:
        EXTERNAL                TRUE
        last_modified_by        hduser
        last_modified_time      1608996930
        numFiles                1
        totalSize               93
        transient_lastDdlTime   1608996930

# Storage Information
SerDe Library:          org.apache.hadoop.hive.serde2.lazy.LazySimpleSerDe
InputFormat:            org.apache.hadoop.mapred.TextInputFormat
OutputFormat:           org.apache.hadoop.hive.ql.io.HiveIgnoreKeyTextOutputFormat
Compressed:             No
Num Buckets:            -1
Bucket Columns:         []
Sort Columns:           []
Storage Desc Params:
        field.delim             T
        serialization.format    T
Time taken: 0.05 seconds, Fetched: 35 row(s)
hive> SELECT DEPT_ID, COUNT(DEPT_ID) FROM EMPLOYEES WHERE SALARY>30000 GROUP BY DEPT_ID;
WARNING: 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, tez) or using Hive 1.X releases.
Query ID = hduser_20201226210620_28191f63-6e08-45d0-9dda-7ab0c5b48ade
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>
Job running in-process (local Hadoop)
2020-12-26 21:06:22,239 Stage-1 map = 100%,  reduce = 100%
Ended Job = job_local1509417087_0002
MapReduce Jobs Launched:
Stage-Stage-1:  HDFS Read: 878 HDFS Write: 506 SUCCESS
Total MapReduce CPU Time Spent: 0 msec
OK
NULL    0
Time taken: 1.536 seconds, Fetched: 1 row(s)
hive> CREATE EXTERNAL TABLE IF NOT EXISTS DEPARTMENTS(DEPT_ID INT,DEPT_NAME STRING, EMP_ID INT) ROW FORMAT DELIMITED FIELDS TERMINATED BY '\T' LOCATION '/DEPARTMENT';
OK
Time taken: 0.097 seconds
```

```
hive> SELECT * FROM EMPLOYEES JOIN DEPARTMENTS ON EMPLOYEES.DEPT_ID = DEPARTMENTS.DEPT_ID;
WARNING: 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, tez) or using Hive 1.X releases.
Query ID = hduser_20201226212212_6bc64807-5ad0-4e26-9ad7-6f610c2e11b6
Total jobs = 1
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/usr/local/apache-hive-2.3.7-bin/lib/log4j-slf4j-impl-2.6.2.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/usr/local/hadoop/share/hadoop/common/lib/slf4j-log4j12-1.7.5.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]
2020-12-26 21:22:17     Starting to launch local task to process map join;      maximum memory = 477626368
2020-12-26 21:22:18     Dump the side-table for tag: 1 with group count: 0 into file: file:/tmp/mydir/503f8a1f-da20-4799-8320-5a20e503d551/hive_2020-12-26_21-22-12_048_5154997920250648288-1/-local-10004/H
ashTable-Stage-3/MapJoin-mapfile11--.hashtable
2020-12-26 21:22:18     Uploaded 1 File to: file:/tmp/mydir/503f8a1f-da20-4799-8320-5a20e503d551/hive_2020-12-26_21-22-12_048_5154997920250648288-1/-local-10004/HashTable-Stage-3/MapJoin-mapfile11--.hasht
able (260 bytes)
2020-12-26 21:22:18     End of local task; Time Taken: 1.186 sec.
Execution completed successfully
MapredLocal task succeeded
Launching Job 1 out of 1
Number of reduce tasks is set to 0 since there's no reduce operator
Job running in-process (local Hadoop)
2020-12-26 21:22:20,730 Stage-3 map = 100%,  reduce = 0%
Ended Job = job_local374276665_0004
MapReduce Jobs Launched:
Stage-Stage-3:  HDFS Read: 625 HDFS Write: 253 SUCCESS
Total MapReduce CPU Time Spent: 0 msec
OK
Time taken: 8.686 seconds
hive>
```