NAME:- DUBEY KARAN SANJEEV
CLASS:- B.E - 4
ROLL NO:- 04
BATCH:- A

EXPERIMENT NO: 7

Aim: To execute NoSql commands using Cassandra.

THEORY:

Cassandra is a distributed database management system designed for handling a high volume of structured data across commodity servers.

Cassandra Use Cases/Application : Cassandra is a non-relational database that can be used for different types of applications. Here are some use cases where Cassandra should be preferred.

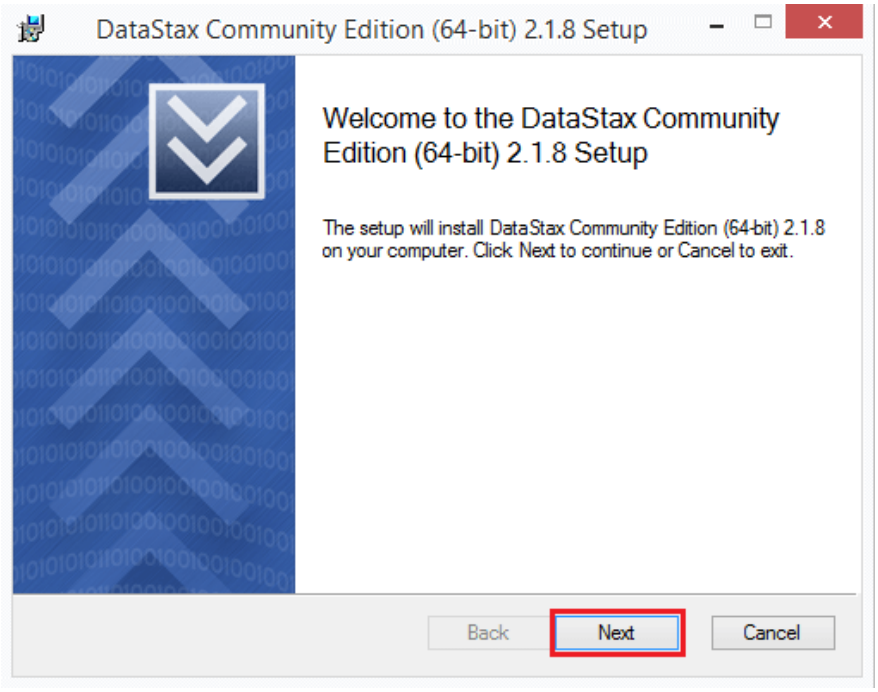
- **Messaging :** Cassandra is a great database for the companies that provides Mobile phones and messaging services. These companies have a huge amount of data, so Cassandra is best for them.
- **Internet of things Application :** Cassandra is a great database for the applications where data is coming at very high speed from different devices or sensors.
- **Product Catalogs and retail apps :** Cassandra is used by many retailers for durable shopping cart protection and fast product catalog input and output.
- **Social Media Analytics and recommendation engine :** Cassandra is a great database for many online companies and social media providers for analysis and recommendation to their customers.

How to download and install cassandra :

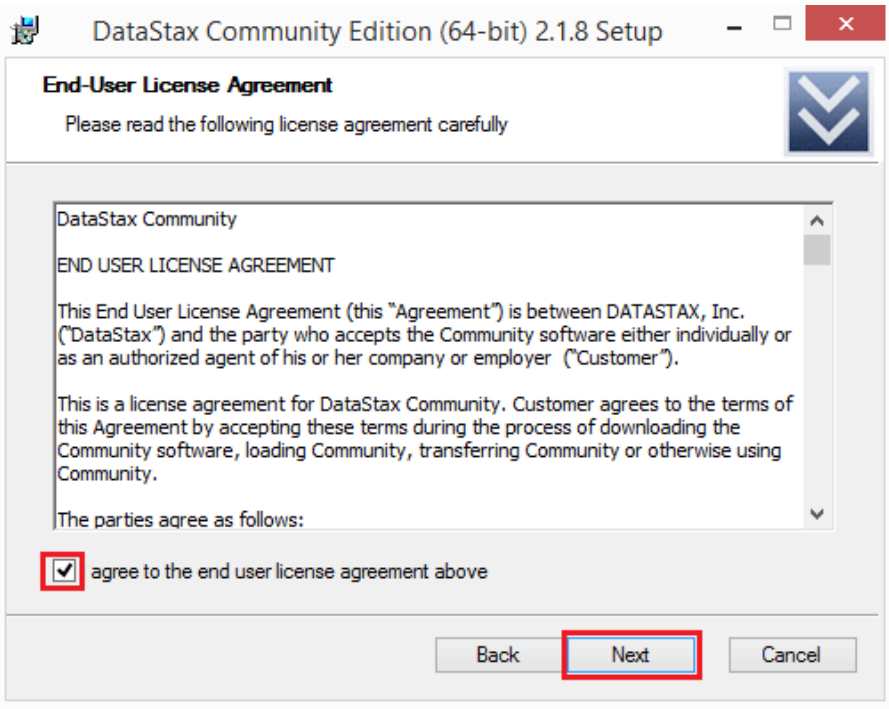
Prerequisite for Apache Cassandra Installation

- You must have Datastax community edition. You can download Cassandra from Apache website.
- JDK must be installed
- Windows platform is required

Step 1) Run the Datastax community edition setup. After running the Setup, following page will be displayed. Here in the screenshot 64 bit version is being installed. You can download 32 bit version as well according to your requirements. But I recommend 64 bit version to use.



Step 2) After pressing the 'next' button, following page will be displayed.

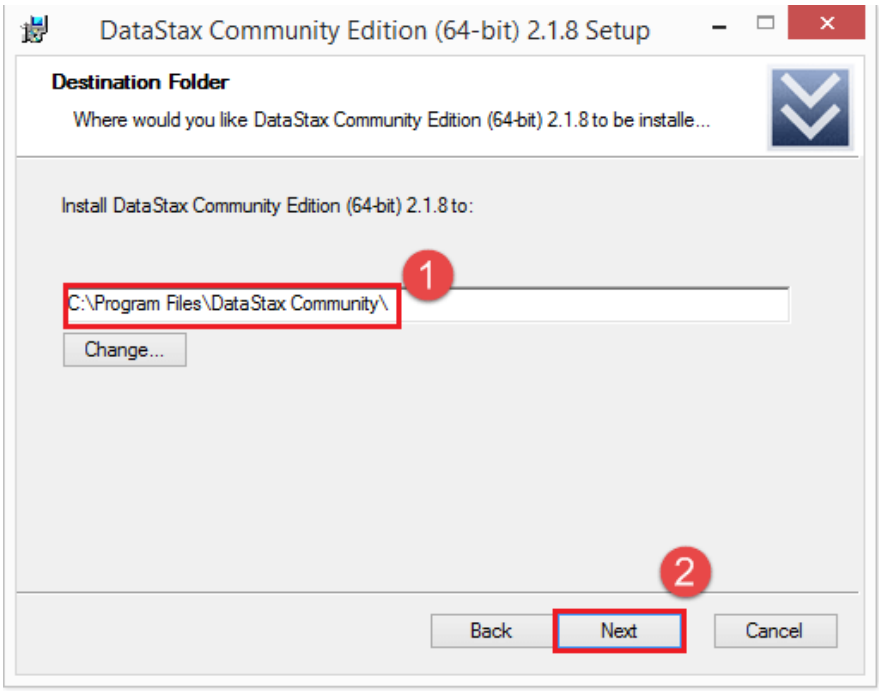


Step 3) After pressing the 'next' button, the following page will be displayed.

This page asks about the installation location.

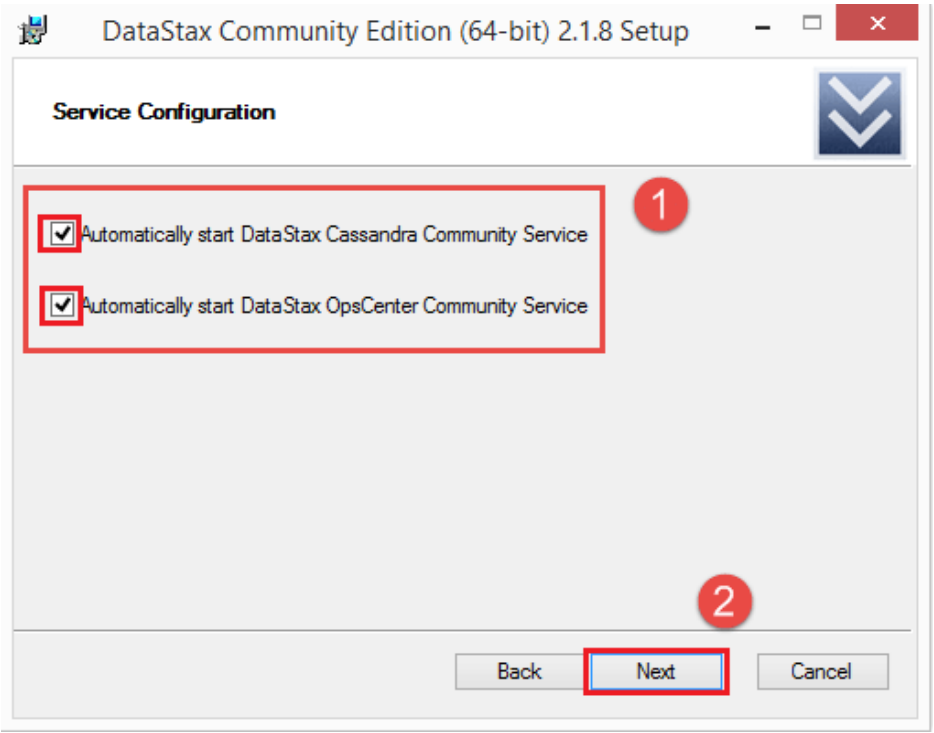
1. Default location is C:\Program Files. You can change installation location if you want to change. It is recommended not to change installation location.

2. After setting installation location, press the 'next' button

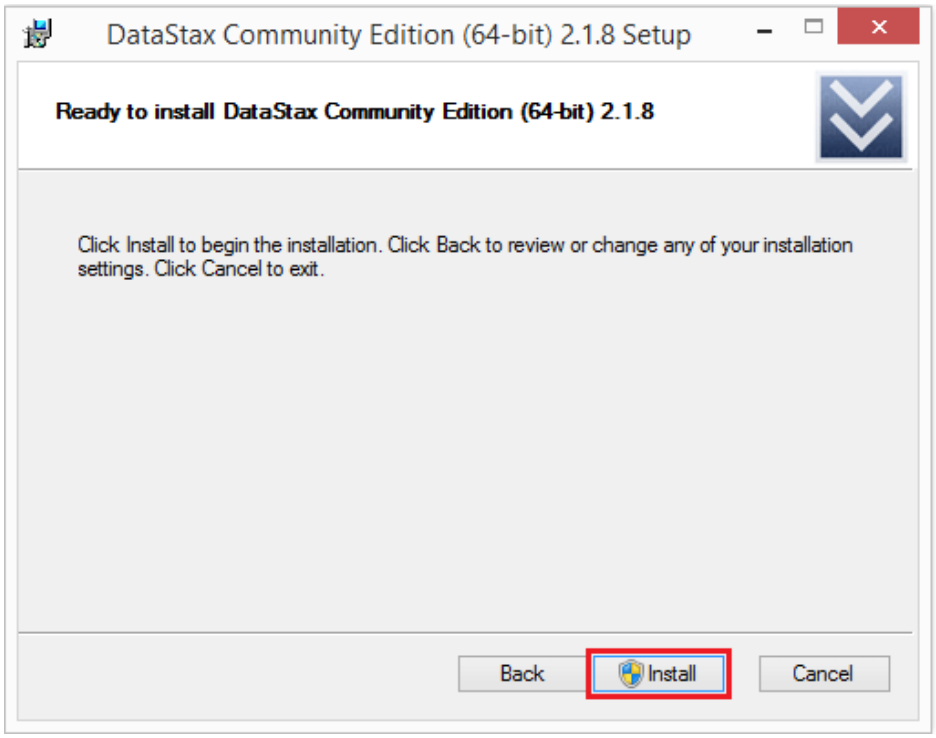


Step 4) After pressing 'next' button in above step, the following page will be displayed. This page asks about whether you want to automatically start Cassandra and OpsCenter.

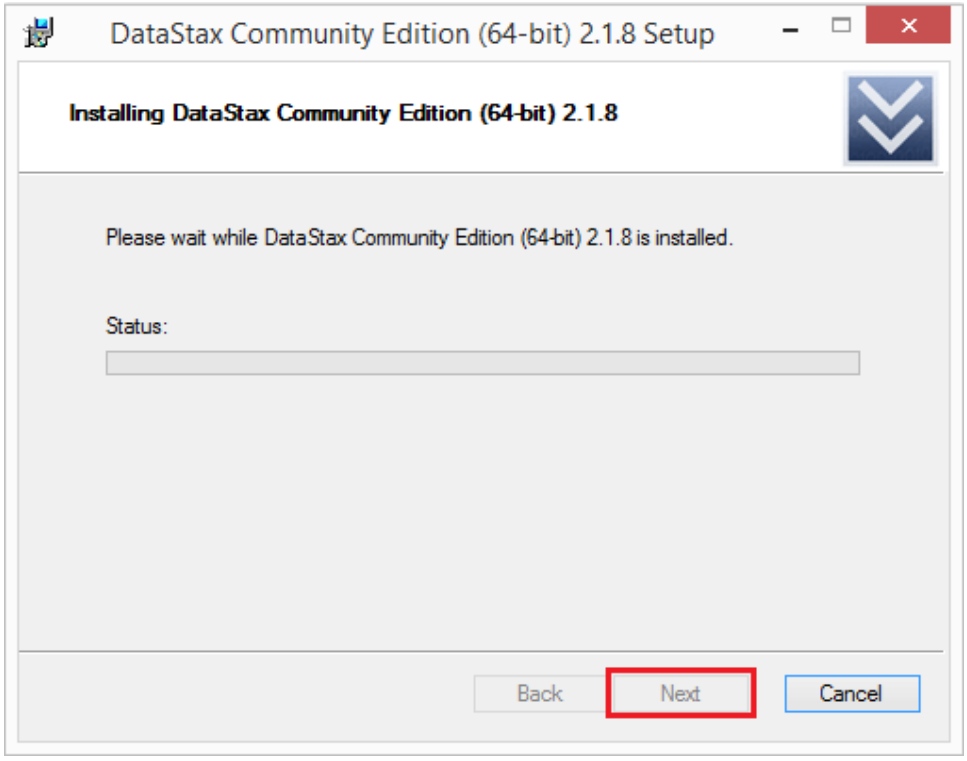
1. Mark the checkboxes if you to want to automatically start Cassandra and opsCenter.
2. After providing this information, press the 'next' button.



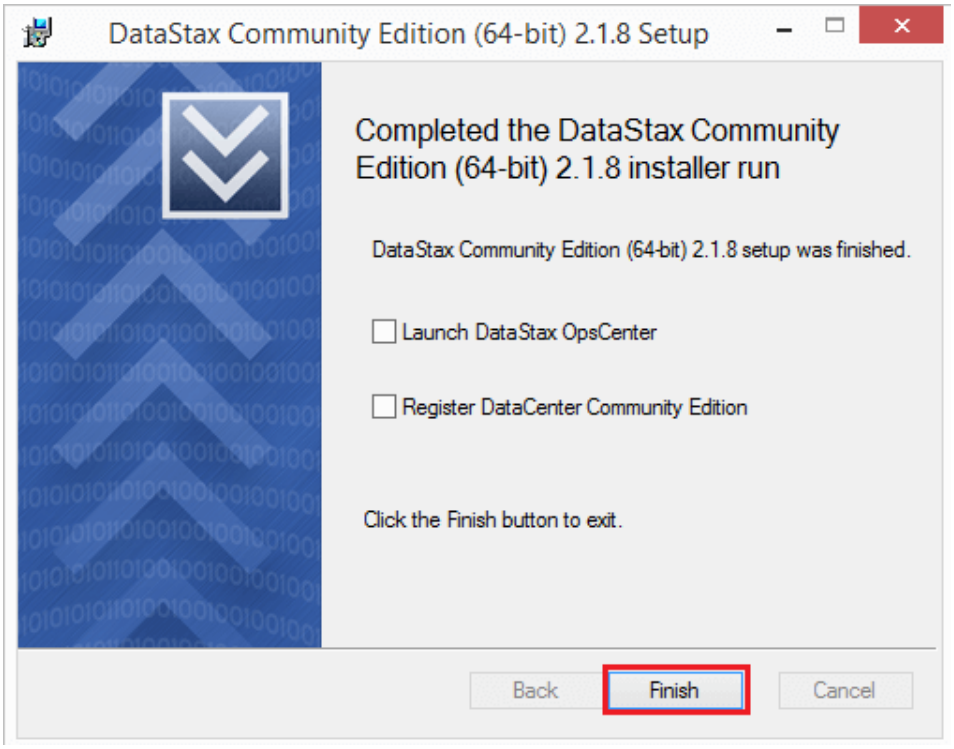
Step 5) After pressing the next button, following page will be displayed.



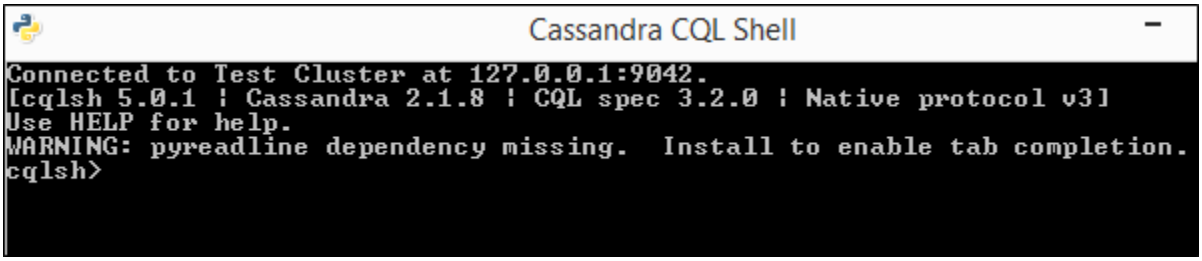
Step 6) After pressing 'install' button, following page will be displayed.



Datastax community edition is being installed. After installation is completed, click on next button. When setup is installed successfully, press the 'Finish' button.



Go to windows start programs, search Cassandra CQL Shell and run the Cassandra Shell. After running Cassandra shell, you will see the following command line



CONCLUSION:

Cassandra is an open-source document database that provides high availability, no single point of failure and automatic scaling without compromising performance.

Program formation/ Execution/ ethical practices (06)	Timely Submission and Documentation (02)	Viva Answer (02)	Experiment Marks (10)	Teacher Signature with date

Cassandra Keyspace :

- **Create keyspace**

```
cqlsh>Create keyspace University with
replication={'class':SimpleStrategy,'replication_factor': 3};
```

- **Alter keyspace**

```
cqlsh>Alter Keyspace University with
replication={'class':'NetworktopologyStrategy', 'DataCenter1':1};
```

- **Delete Keyspace**

```
cqlsh>Drop keyspace University;
```

- **Create table**

```
cqlsh>create table University.Student
     (roll_no int, name text, dept text, primary key(roll_no));
```

- **Alter table**

```
cqlsh>alter table University.Student
     add semester int;
```

- **Drop table**

```
cqlsh>drop University.Student;
```

```
cqlsh> desc university.Student;

'student' not found in keyspace 'university'
cqlsh>
```

- **Truncate table**

```
cqlsh>truncate University.Student;
```

- **Insert data**

```
 rollno | dept | name | semester
--------+------+------+----------

(0 rows)
```

```
cqlsh>insert into University.Student(RollNo,Name,dept,Semester) values(2,'Michael','CS', 2);
```

- **Update database**

```
cqlsh>update University.Student
```

Set name='Hayden'

Where rollno=1;

- **Delete data**

```
cqlsh>delete from University.Student where rollno=1;
```

- **Retrieve database**

```
cqlsh>select * from University.Student;
```

- **where Clause**

```
cqlsh>select * from University.Student where name='Ankit';
```

- **Create index**

```
cqlsh>Create index DeptIndex on University.Student(dept);
```

- **Drop Index**

```
cqlsh>drop index IF EXISTS University.DeptIndex;
```

- **Set collection**

cqlsh>Create table University.Teacher

(

id int,

Name text,

Email set<text>,

Primary key(id)

);

```
cqlsh>insert into University.Teacher(id,Name,Email)
values(1,'Ankit',{'abc@gmail.com','xyz@hotmail.com'});
```

- **List collection**

```
cqlsh>alter table University.Teacher add coursename list<text>;

cqlsh>insert into University.Teacher(id,Name,Email) values(2,'Hamilton',
     {'hamilton@hotmail.com'},[Data Science']);
```

- **Map collection**

```
cqlsh>create table University.Course (id int, prereq map<text,text>,
     primary key(id));
cqlsh>insert into University.Course(id,prereq) values(1,
     {'DataScience':'Database', 'Neural Network':'Artificial
     Intelligence'});
```

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