Vidyavardhini's College of Engineering & Technology
Department of Computer Engineering
Academic Year : 2023-24

Experiment No. 3
To install and configure Cassandra to execute NOSQL commands
Date of Performance:31/7/2023
Date of Submission:7/8/2023

Aim: To install and configure MongoDB/ Cassandra/ HBase/ Hypertable and to execute NoSQL commands.

Theory:

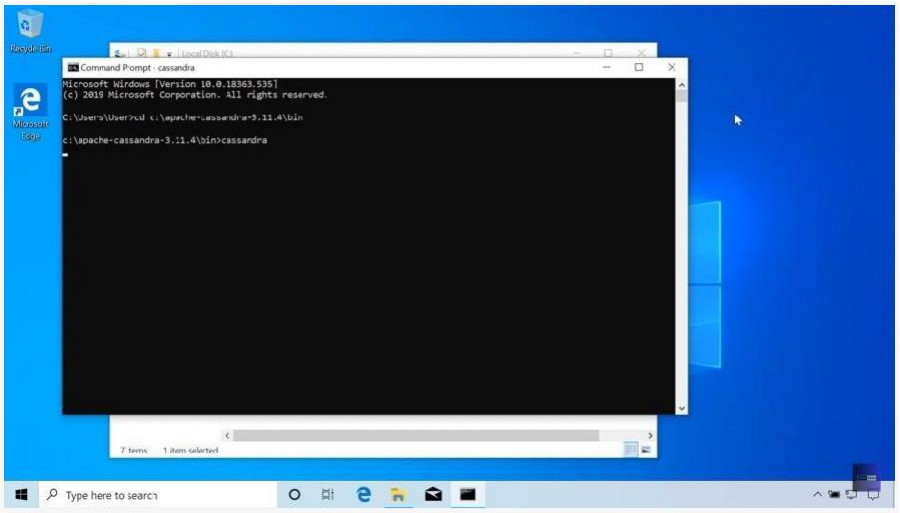
1. Visit the official Oracle download page and download the Oracle JDK 8 software package.

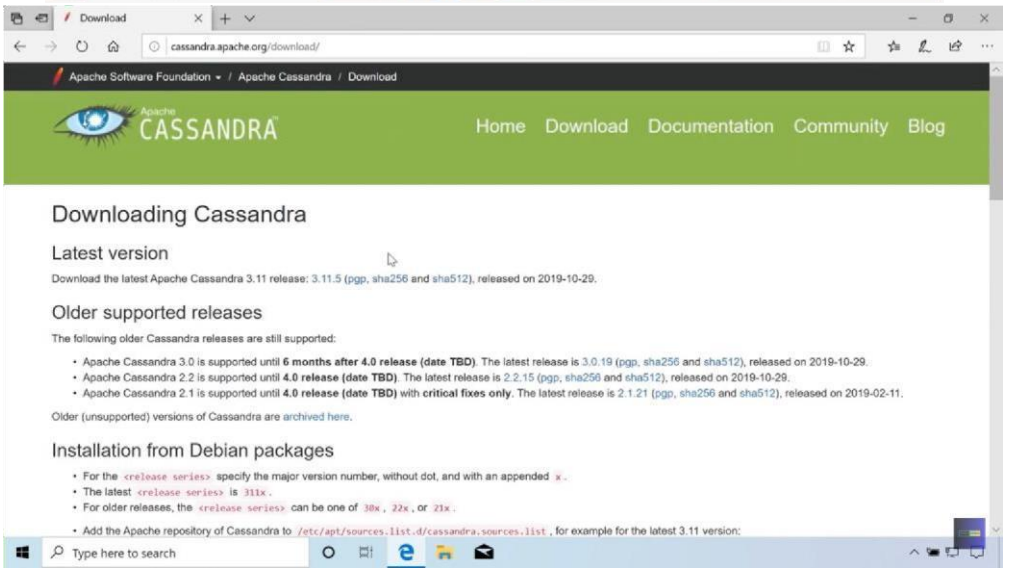
2. Configure Environment Variables for Java 8. It is vital to configure the environment variables in Windows and define the correct path to the Java 8 installation folder.

   -Enter JAVA_HOME for the new variable name. Select the Variable value field and then the Browse Directory option to navigate up to the jdk folder.

3. Install and Configure Python 2.7 on Windows.

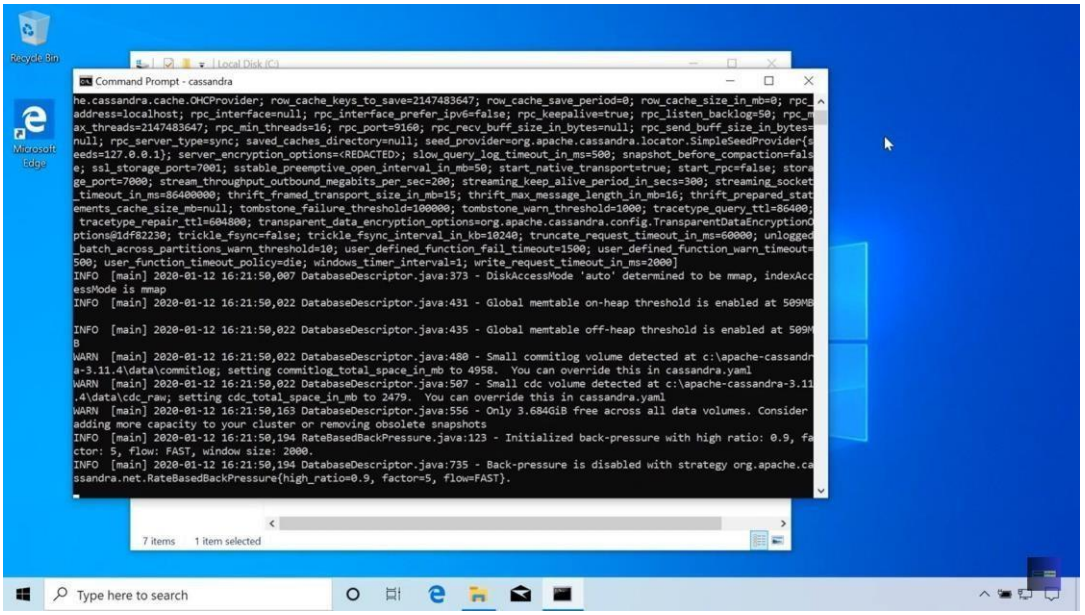
4. Configure Environment Variables for Python 2.7. Add the Python 2.7 path to the Path system variable.
5. Download and Set Up Apache Cassandra, Visit the official Apache Cassandra Download page and select the version you would prefer to download.



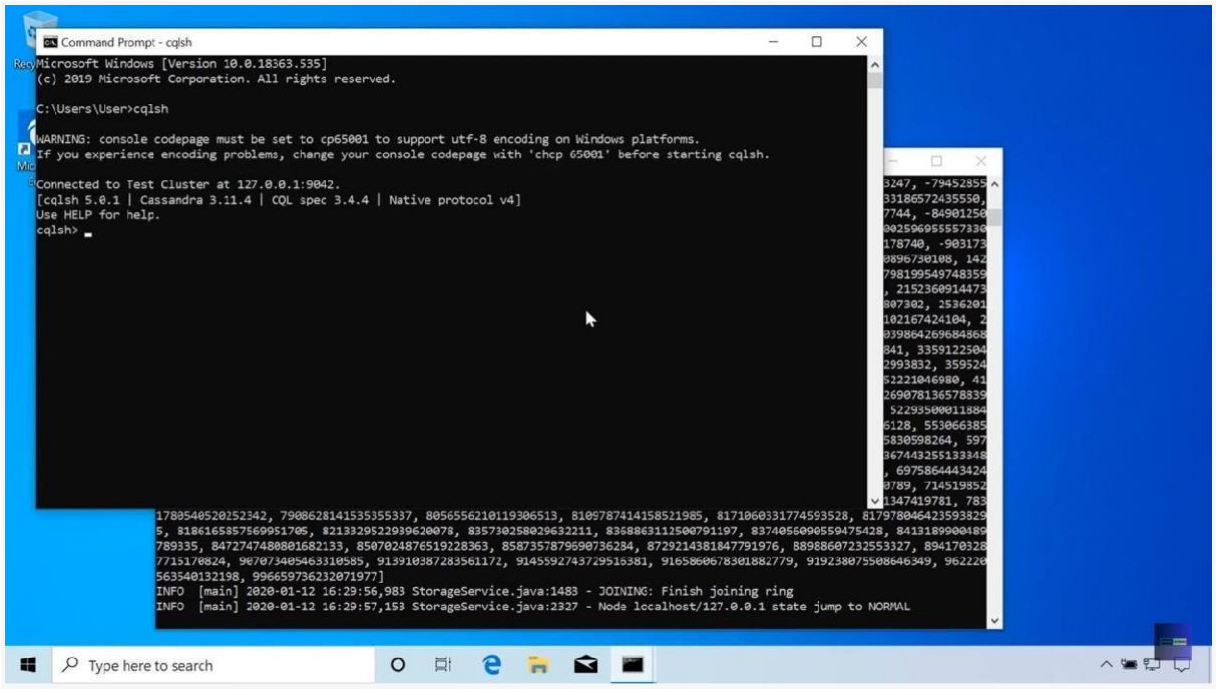


6. Unzip the compressed tar.gz folder using a compression tool like winzip/7zip.
7. Set up the environment variables for Cassandra to enable the database to interact with other applications and operate on Windows.
8. Type CASSANDRA_HOME for Variable name, then for the Variable value column select the location of the unzipped Apache Cassandra folder.
9. Start Cassandra from Windows CMD.
   Navigate to the Cassandra bin folder. Start the Windows Command Prompt directly from within the bin folder by typing *cmd* in the address bar and pressing Enter.

10. Type the following command to start the Cassandra server: **cassandra**



11. While the initial command prompt is still running open a new command line prompt from the same bin folder. Enter the following command to access the Cassandra cqlsh bash shell: **`cqlsh`**



Output:

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ echo $JAVA_HOME

ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ echo $JAVA_HOME

ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo apt install curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
curl is already the newest version (7.81.0-1ubuntu1.13).
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
  intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
  libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
  libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1
  libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libmfx1 libmysofa1
  libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4 librubberband2
  libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0
  libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0
  libva-drm2 libva-wayland2 libva-x11-2 libva2 libvdpau1 libvidstab1.1
  libx265-199 libxvidcore4 libzimg2 libzmq5 libzvbi-common libzvbi0
  mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb
```

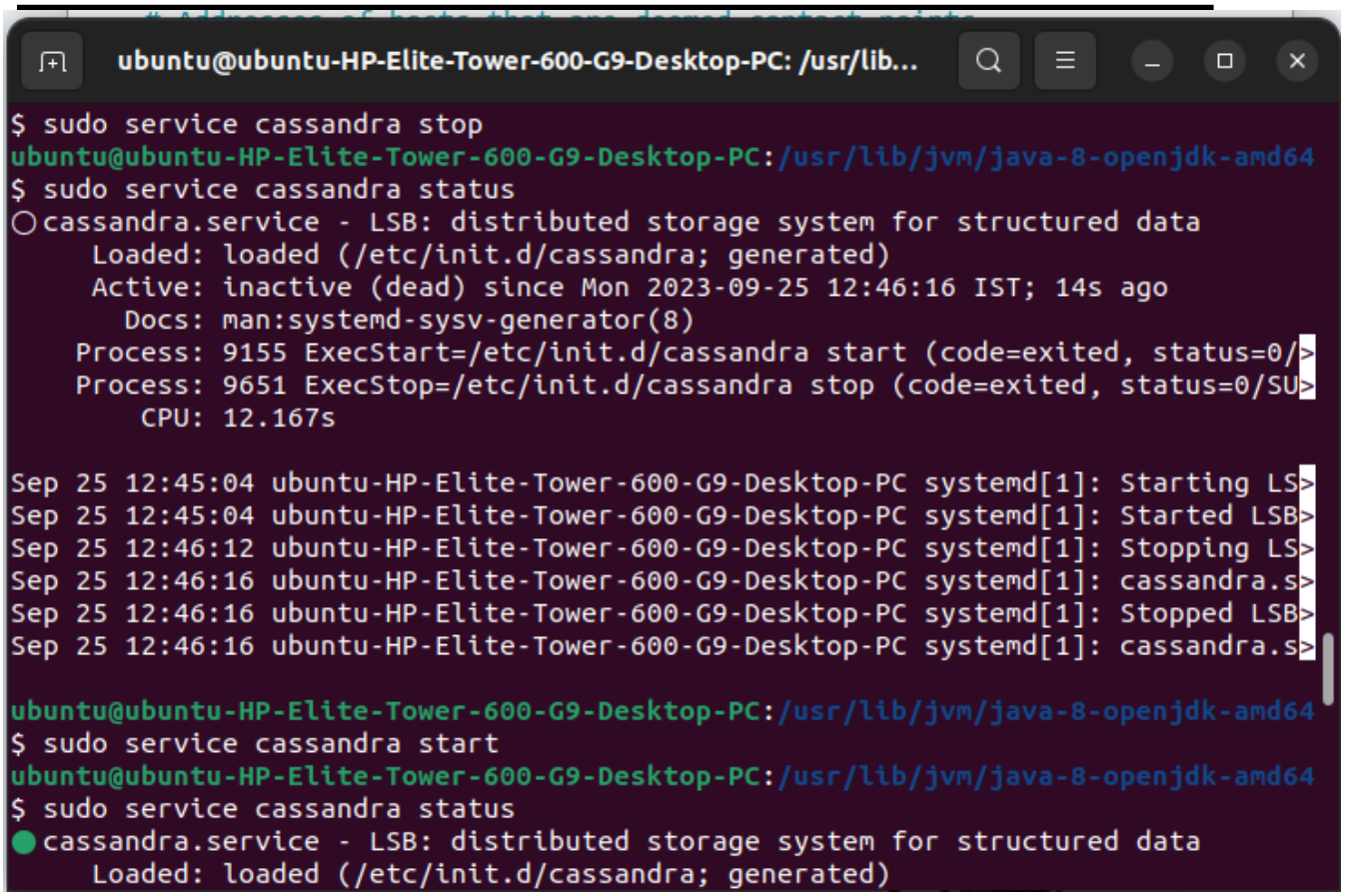
```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...
pt-key(8) for details.
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo apt-get install cassandra
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
  intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
  libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
  libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1
  libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libmfx1 libmysofa1
  libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4 librubberband2
  libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0
  libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0
  libva-drm2 libva-wayland2 libva-x11-2 libva2 libvdpau1 libvidstab1.1
  libx265-199 libxvidcore4 libzimg2 libzmq5 libzvbi-common libzvbi0
  mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb
  va-driver-all vdpau-driver-all
Use 'sudo apt autoremove' to remove them.
Suggested packages:
  cassandra-tools
The following NEW packages will be installed:
  cassandra
```

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:~$ sudo apt install openjdk-8-jre
-headless
[sudo] password for ubuntu:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
  intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
  libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
  libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1
  libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libmfx1 libmysofa1
  libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4 librubberband2
  libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0
  libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0
  libva-drm2 libva-wayland2 libva-x11-2 libva2 libvdpau1 libvidstab1.1
  libx265-199 libxvidcore4 libzimg2 libzmq5 libzvbi-common libzvbi0
  mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb
  va-driver-all vdpau-driver-all
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ca-certificates-java java-common
Suggested packages:
  default-jre fonts-dejavu-extra fonts-nanum fonts-ipafont-gothic
```

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...

Sep 25 12:46:57 ubuntu-HP-Elite-Tower-600-G9-Desktop-PC systemd[1]: Starting LS>
Sep 25 12:46:57 ubuntu-HP-Elite-Tower-600-G9-Desktop-PC systemd[1]: Started LSB>
lines 1-13/13 (END)
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ nodetool status
Datacenter: datacenter1
=======================
Status=Up/Down
|/ State=Normal/Leaving/Joining/Moving
--  Address    Load        Tokens  Owns (effective)  Host ID
          Rack
UN  127.0.0.1  125.39 KiB  16      100.0%            c5c52bbc-441e-419c-99ae-5f5
a156dd90e  rack1

ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ python --version
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo apt install python-2.7.15
Reading package lists... Done
Building dependency tree... Done
```

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...
update-rc.d: warning: start and stop actions are no longer supported; falling ba
ck to defaults
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo service cassandra start
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo service cassandra status
● cassandra.service - LSB: distributed storage system for structured data
     Loaded: loaded (/etc/init.d/cassandra; generated)
     Active: active (running) since Mon 2023-09-25 12:45:04 IST; 35s ago
       Docs: man:systemd-sysv-generator(8)
    Process: 9155 ExecStart=/etc/init.d/cassandra start (code=exited, status=0/>
      Tasks: 61 (limit: 9062)
     Memory: 2.2G
        CPU: 10.665s
     CGroup: /system.slice/cassandra.service
             └─9297 /usr/bin/java -ea -da:net.openhft... -XX:+UseThreadPrioriti>

Sep 25 12:45:04 ubuntu-HP-Elite-Tower-600-G9-Desktop-PC systemd[1]: Starting LS>
Sep 25 12:45:04 ubuntu-HP-Elite-Tower-600-G9-Desktop-PC systemd[1]: Started LSB>
lines 1-13/13 (END)
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo service cassandra stop
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ sudo service cassandra status
```

```
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC: /usr/lib...
Setting up python2.7-minimal (2.7.18-13ubuntu1.1) ...
Linking and byte-compiling packages for runtime python2.7...
Setting up python2-minimal (2.7.18-3) ...
Selecting previously unselected package python2.
(Reading database ... 210917 files and directories currently installed.)
Preparing to unpack .../python2_2.7.18-3_amd64.deb ...
Unpacking python2 (2.7.18-3) ...
Setting up libpython2.7-stdlib:amd64 (2.7.18-13ubuntu1.1) ...
Setting up python2.7 (2.7.18-13ubuntu1.1) ...
Setting up libpython2-stdlib:amd64 (2.7.18-3) ...
Setting up python2 (2.7.18-3) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ python2 -V
Python 2.7.18
ubuntu@ubuntu-HP-Elite-Tower-600-G9-Desktop-PC:/usr/lib/jvm/java-8-openjdk-amd64
$ cqlsh
Connected to Test Cluster at 127.0.0.1:9042
[cqlsh 6.1.0 | Cassandra 4.1.3 | CQL spec 3.4.6 | Native protocol v5]
Use HELP for help.
cqlsh>
```



Conclusion:

Installing and configuring Cassandra provides a powerful environment for executing NoSQL commands. With its distributed architecture and flexibility, Cassandra is well-suited for handling large volumes of data and is a valuable tool for various data storage and retrieval needs. Proper setup and configuration are essential to leverage its capabilities effectively.