Name :: ibrar Babar

Roll no. :: 19P-0104

PDC :: Assignment Hardoop

Section (B)

COMMANDS: Following these commands for Hadoop Installation.

```
hassanraza@ubuntu:/$ sudo apt update
[sudo] password for hassanraza:
```

Install the Java JDK 8. Required to Hadoop installation process.

```
hassanraza@ubuntu:/$ sudo apt install openjdk-8-jdk -y
```

Check the version of Java and Java Compiler.

```
hassanraza@ubuntu:/$ java -version; javac -version
openjdk version "1.8.0_312"
OpenJDK Runtime Environment (build 1.8.0_312-8u312-b07-0ubuntu1~20.04-b07)
OpenJDK 64-Bit Server VM (build 25.312-b07, mixed mode)
javac 1.8.0_312
```

```
hassanraza@ubuntu:/$ sudo apt install openssh-server openssh-client -y
```

```
hassanraza@ubuntu:/$ sudo adduser hdoop
Adding user `hdoop' ...
Adding new group `hdoop' (1001) ...
Adding new user `hdoop' (1001) with group `hdoop' ...
Creating home directory `/home/hdoop' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for hdoop
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] Y
```

```
hassanraza@ubuntu:/$ su - hdoop
Password:
hdoop@ubuntu:~$
```

.

```
hdoop@ubuntu:~$ ssh-keygen -t rsa -P '' -f ~/.ssh/id_rsa
Generating public/private rsa key pair.
Created directory '/home/hdoop/.ssh'.
Your identification has been saved in /home/hdoop/.ssh/id_rsa
Your public key has been saved in /home/hdoop/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:H/hPHZx9nFRcMF4wO1Ow5Pdzlo2CxlUdlpEjHPyUDWY hdoop@ubuntu
The key's randomart image is:
+---[RSA 3072]----+
|          o.E@&|
|           @.&=|
|          . @.o|
|        o o ..X=|
|       S = . =+O|
|        + . o o+|
|         o . .  |
|          o     |
|          .     |
+----[SHA256]-----+
```

```
hdoop@ubuntu:~$ cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
hdoop@ubuntu:~$ ls ~/.ssh/
authorized_keys  id_rsa  id_rsa.pub
hdoop@ubuntu:~$
```

```
hdoop@ubuntu:~$ chmod 0600 ~/.ssh/authorized_keys
hdoop@ubuntu:~$ ls -lrt ~/.ssh/
total 12
-rw-r--r-- 1 hdoop hdoop  566 Mar 23 21:56 id_rsa.pub
-rw------- 1 hdoop hdoop 2602 Mar 23 21:56 id_rsa
-rw------- 1 hdoop hdoop  566 Mar 23 21:58 authorized_keys
```

```
hdoop@ubuntu:~$ ssh localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:aJ6WnievAC1oTqoGc5QCR7ntW4pAtvODbrQBiEDNuso.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

246 updates can be applied immediately.
163 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

```
hassanraza@ubuntu:~/Desktop$ cd ..
hassanraza@ubuntu:~$ su hdoop
Password:
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hdoop@ubuntu:/home/hassanraza$ ls
Desktop      Downloads                 Music       Public      Videos
Documents    hadoop-Ok-3.3.1.tar.gz    Pictures    Templates
hdoop@ubuntu:/home/hassanraza$ su hassanraza
Password:
hassanraza@ubuntu:~$ sudo adduser hdoop sudo
[sudo] password for hassanraza:
The user `hdoop' is already a member of `sudo'.
hassanraza@ubuntu:~$ ls /home/hassanraza/
Desktop      Downloads                 Music       Public      Videos
hassanraza@ubuntu:~$ sudo mv /home/hassanraza/hadoop-Ok-3.3.1.tar.gz /home/hdoop/
hassanraza@ubuntu:~$ ls /home/hdoop
hadoop-3.3.1.tar.gz   hadoop-Ok-3.3.1.tar.gz
hassanraza@ubuntu:~$
```



```
hdoop@ubuntu:~$ wget https://downloads.apache.org/hadoop/common/hadoop-3.3.1/hadoop-3.3.1.tar.gz
--2022-03-23 22:22:19--  https://downloads.apache.org/hadoop/common/hadoop-3.3.1/hadoop-3.3.1.tar.
gz
Resolving downloads.apache.org (downloads.apache.org)... 135.181.214.104, 88.99.95.219, 2a01:4f9:3
a:2c57::2, ...
Connecting to downloads.apache.org (downloads.apache.org)|135.181.214.104|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 605187279 (577M) [application/x-gzip]
Saving to: 'hadoop-3.3.1.tar.gz'

hadoop-3.3.1.tar.gz       100%[===================================>] 577.15M  1.20MB/s    in 15m 23s

2022-03-23 22:37:43 (640 KB/s) - 'hadoop-3.3.1.tar.gz' saved [605187279/605187279]

hdoop@ubuntu:~$ ls
hadoop-3.3.1.tar.gz   hadoop-Ok-3.3.1.tar.gz
```



```
hdoop@ubuntu:~$ ls -lrt
total 1182020
drwxr-xr-x 10 hdoop        hdoop          4096 Jun 14  2021 hadoop-3.3.1
-rw-rw-r--  1 hdoop        hdoop     605187279 Jun 15  2021 hadoop-3.3.1.tar.gz
-rw-r--r--  1 hassanraza hassanraza 605187279 Sep 14  2021 hadoop-Ok-3.3.1.tar.gz
```

Allow the "sudo" permission to Hadoop Home Root (hdoop).


```
hassanraza@ubuntu:~/Desktop$ cd ..
hassanraza@ubuntu:~$ sudo adduser hdoop sudo
[sudo] password for hassanraza:
The user `hdoop' is already a member of `sudo'.
hassanraza@ubuntu:~$ su - hdoop
Password:
hdoop@ubuntu:~$ sudo nano .bashrc
[sudo] password for hdoop:
```

```
# Hdoop Related Options
export HADOOP_HOME=/home/hdoop/hadoop-3.3.1
export HADOOP_INSTALL=$HADOOP_HOME
export HADOOP_MAPRED_HOME=$HADOOP_HOME
export HADOOP_COMMON_HOME=$HADOOP_HOME
export HADOOP_HDFS_HOME=$HADOOP_HOME
export YARN_HOME=$HADOOP_HOME
export HADOOP_COMMON_LIB_NATIVE_DIR=$HADOOP_HOME/lib/native
export PATH=$PATH:$HADOOP_HOME/sbin:$HADOOP_HOME/bin
export HADOOP_OPTS"-Djava.library.path=$HADOOP_HOME/lib/nativ"
```

```
hdoop@ubuntu:~$ source ~/.bashrc
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nati
v': not a valid identifier
```

Add the path of Java JDK (JAVA_HOME) into Hadoop Environment shell file.

```
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/hadoop-env.sh
```



```
  GNU nano 4.8      /home/hdoop/hadoop-3.3.1/etc/hadoop/hadoop-env.sh
# It uses the format of (command)_(subcommand)_USER.
#
# For example, to limit who can execute the namenode command,
# export HDFS_NAMENODE_USER=hdfs


###
# Registry DNS specific parameters
###
# For privileged registry DNS, user to run as after dropping privileges
# This will replace the hadoop.id.str Java property in secure mode.
# export HADOOP_REGISTRYDNS_SECURE_USER=yarn

# Supplemental options for privileged registry DNS
# By default, Hadoop uses jsvc which needs to know to launch a
# server jvm.
# export HADOOP_REGISTRYDNS_SECURE_EXTRA_OPTS="-jvm server"

export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
```

1: Core-Site.xml

```
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/core-site.xml
```

```
  GNU nano 4.8           /home/hdoop/hadoop-3.3.1/etc/hadoop/core-site.xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
        <property>
                <name>hadoop.tmp.dir</name>
                <value>/home/hdoop/tmpdata</value>
                <description>A base for other temporary directories.</description>
        </property>
        <property>
                <name>fs.default.name</name>
                <value>hdfs://localhost:9000</value>
                <description>The name of the default file system. A URI who is</description>
        </property>
</configuration>
```

2: hdfs-site.xml

```
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/hdfs-site.xml
```

```
  GNU nano 4.8            /home/hdoop/hadoop-3.3.1/etc/hadoop/hdfs-site.xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
        <property>
                <name>dfs.data.dir</name>
                <value>/home/hdoop/dfsdata/namenode</value>
        </property>

        <property>
                <name>dfs.data.dir</name>
                <value>/home/hdoop/dfsdata/datanode</value>
        </property>

        <property>
                <name>dfs.replication</name>
                <value>1</value>
        </property>
</configuration>

^G Get Help   ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Paste Text ^T To Spell   ^  Go To Line
```

3: mapred-site.xml

```
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/mapred-site.xml
```

```
  GNU nano 4.8            /home/hdoop/hadoop-3.3.1/etc/hadoop/mapred-site.xml
<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
        <property>
                <name>mapreduce.framework.name</name>
                <value>yarn</value>
        </property>
</configuration>

^G Get Help   ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Paste Text ^T To Spell   ^  Go To Line
```

4: yarn-site.xml

```
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/yarn-site.xml
```

```
                                    hdoop@ubuntu: ~

  GNU nano 4.8              /home/hdoop/hadoop-3.3.1/etc/hadoop/yarn-site.xml
<?xml version="1.0"?>
<!--
  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

     http://www.apache.org/licenses/LICENSE-2.0
-->
<configuration>
        <property>
                <name>yarn.nodemanager.aux-services</name>
                <value>mapreduce_shuffle</value>
        </property>
        <property>
                <name>yarn.nodemanager.aux-services.mapreduce.shuffle.class</name>
                <value>org.apache.hadoop.mapred.ShuffleHandler</value>
        </property>
        <property>
                <name>yarn.resourcemanager.hostname</name>
                <value>127.0.0.1</value>
        </property>
        <property>
                <name>yarn.acl.enable</name>
                <value>0</value>
        </property>
        <property>
                <name>yarn.nodemanager.env-whitelist</name>
                <value>JAVA_HOME,HADOOP_COMMON_HOME,HADOOP_HDFS_HOME,HADOOP_CONF_DIR,CLASSPATH_>
        </property>

        <!-- <value>JAVA_HOME,HADOOP_COMMON_HOME,HADOOP_HDFS_HOME,HADOOP_CONF_DIR,
             CLASSPATH_PERPEND_DISTCACHE,HADOOP_YARN_HOME,HADOOP_MAPRED_HOME</value>
        -->
</configuration>

^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify     ^C Cur Pos
^X Exit        ^R Read File   ^\ Replace     ^U Paste Text  ^T To Spell    ^  Go To Line
```

Open the SSH Local-Host. Make the format of Hadoop (XML) files. That you have modified change according to yourself.

```
                                    hdoop@ubuntu: ~

hdoop@ubuntu:~$ ssh localhost
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

246 updates can be applied immediately.
163 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Thu Mar 24 00:00:24 2022 from 127.0.0.1
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nativ': not a valid identifier
hdoop@ubuntu:~$ hdfs namenode -format
2022-03-24 00:04:54,667 INFO namenode.NameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = ubuntu/127.0.1.1
STARTUP_MSG:   args = [-format]
STARTUP_MSG:   version = 3.3.1
STARTUP_MSG:   classpath = /home/hdoop/hadoop-3.3.1/etc/hadoop:/home/hdoop/hadoop-3.3.1/share/hadoop/common/lib/jetty-webap
```

```
.
2022-03-24 00:05:02,106 INFO namenode.FSImageFormatProtobuf: Saving image file /home/hdoop/tmpdata/dfs/name/current/fsimage
.ckpt_0000000000000000000 using no compression
2022-03-24 00:05:02,917 INFO namenode.FSImageFormatProtobuf: Image file /home/hdoop/tmpdata/dfs/name/current/fsimage.ckpt_0
000000000000000000 of size 400 bytes saved in 0 seconds .
2022-03-24 00:05:03,028 INFO namenode.NNStorageRetentionManager: Going to retain 1 images with txid >= 0
2022-03-24 00:05:03,131 INFO namenode.FSNamesystem: Stopping services started for active state
2022-03-24 00:05:03,131 INFO namenode.FSNamesystem: Stopping services started for standby state
2022-03-24 00:05:03,195 INFO namenode.FSImage: FSImageSaver clean checkpoint: txid=0 when meet shutdown.
2022-03-24 00:05:03,201 INFO namenode.NameNode: SHUTDOWN_MSG:
/************************************************************
SHUTDOWN_MSG: Shutting down NameNode at ubuntu/127.0.1.1
```

Change the root of Hadoop "hadoop-3.3.1/sbin". Start/Stop the services of Hadoop Distributed Files and Yarn.


```
hdoop@ubuntu:~$ ls -lrt
total 1182024
-rw-rw-r-- 1 hdoop      hdoop      605187279 Jun 15 2021 hadoop-3.3.1.tar.gz
-rw-r--r-- 1 hassanraza hassanraza 605187279 Sep 14 2021 hadoop-0k-3.3.1.tar.gz
drwxr-xr-x 11 hdoop      hdoop           4096 Mar 23 23:59 hadoop-3.3.1
drwxrwxr-x  3 hdoop      hdoop           4096 Mar 24 00:05 tmpdata
hdoop@ubuntu:~$ ls /home/hdoop/hadoop-3.3.1/sbin/
distribute-exclude.sh  kms.sh                      start-balancer.sh  start-yarn.sh   stop-dfs.sh        yarn-daemon.sh
FederationStateStore   mr-jobhistory-daemon.sh     start-dfs.cmd      stop-all.cmd    stop-secure-dns.sh yarn-daemons.sh
hadoop-daemon.sh       refresh-namenodes.sh        start-dfs.sh       stop-all.sh     stop-yarn.cmd
hadoop-daemons.sh      start-all.cmd               start-secure-dns.sh stop-balancer.sh stop-yarn.sh
httpfs.sh              start-all.sh                start-yarn.cmd     stop-dfs.cmd    workers.sh
hdoop@ubuntu:~$ cd /home/hdoop/hadoop-3.3.1/sbin/
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ ./start-dfs.sh
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
ubuntu: Warning: Permanently added 'ubuntu' (ECDSA) to the list of known hosts.
2022-03-24 00:15:20,330 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin
-java classes where applicable
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ ./start-yarn.sh
Starting resourcemanager
Starting nodemanagers
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ ./stop-dfs.sh
Stopping namenodes on [localhost]
Stopping datanodes
Stopping secondary namenodes [ubuntu]
2022-03-24 00:21:31,192 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin
-java classes where applicable
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ ./stop-yarn.sh
Stopping nodemanagers
Stopping resourcemanager
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ jps
13585 Jps
hdoop@ubuntu:~/hadoop-3.3.1/sbin$
```



```
hdoop@ubuntu:~$ ssh localhost
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

246 updates can be applied immediately.
163 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Thu Mar 24 09:35:54 2022 from 127.0.0.1
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nati
v': not a valid identifier
hdoop@ubuntu:~$ sudo nano $HADOOP_HOME/etc/hadoop/mapred-site.xml
[sudo] password for hdoop:
hdoop@ubuntu:~$ hdfs namenode -format
```

Just add the new "Property" in "mapred-site.xml" file.

```
  GNU nano 4.8   /home/hdoop/hadoop-3.3.1/etc/hadoop/mapred-site.xml
<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
        <property>
                <name>mapreduce.framework.name</name>
                <value>yarn</value>
        </property>
        <property>
                <name>mapred.job.tracker</name>
                <description>The host and port that the MapReduce job tracker r>
        </property>

</configuration>
```

```
hdoop@ubuntu:~$ ls
dfsdata  hadoop-3.3.1  hadoop-3.3.1.tar.gz  hadoop-Ok-3.3.1.tar.gz  tmpdata
hdoop@ubuntu:~$ ls hadoop-3.3.1/sbin/
distribute-exclude.sh     start-all.sh          stop-balancer.sh
FederationStateStore      start-balancer.sh     stop-dfs.cmd
hadoop-daemon.sh          start-dfs.cmd         stop-dfs.sh
hadoop-daemons.sh         start-dfs.sh          stop-secure-dns.sh
httpfs.sh                 start-secure-dns.sh   stop-yarn.cmd
kms.sh                    start-yarn.cmd        stop-yarn.sh
mr-jobhistory-daemon.sh   start-yarn.sh         workers.sh
refresh-namenodes.sh      stop-all.cmd          yarn-daemon.sh
start-all.cmd             stop-all.sh           yarn-daemons.sh
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin/
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ ./start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
2022-03-24 09:53:43,460 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Starting resourcemanager
Starting nodemanagers
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ jps
3089 SecondaryNameNode
2786 NameNode
3778 Jps
3465 NodeManager
3339 ResourceManager
hdoop@ubuntu:~/hadoop-3.3.1/sbin$
```

Namenode information

localhost:9870/dfshealth.html#tab-overview

Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities ▾

Overview 'localhost:9000' (✔active)

Started:	Thu Mar 24 09:53:29 -0700 2022
Version:	3.3.1, ra3b9c37a397ad4188041dd80621bdeefc46885f2
Compiled:	Mon Jun 14 22:13:00 -0700 2021 by ubuntu from (HEAD detached at release-3.3.1-RC3)
Cluster ID:	CID-46018362-c532-46cc-9ab8-657309e6aa17
Block Pool ID:	BP-878120081-127.0.1.1-1648140375419

older.


```
bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nativ
': not a valid identifier
hassanraza@ubuntu:~/Desktop$ cd
hassanraza@ubuntu:~$ su - hdoop
Password:
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nati
v': not a valid identifier
hdoop@ubuntu:~$ ssh localhost
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

166 updates can be applied immediately.
83 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.
*** System restart required ***
Last login: Thu Mar 24 10:12:40 2022 from 127.0.0.1
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nati
v': not a valid identifier
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
2022-03-24 10:17:23,356 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Starting resourcemanager
Starting nodemanagers
hdoop@ubuntu:~/hadoop-3.3.1/sbin$
```

```
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ cd ..
hdoop@ubuntu:~/hadoop-3.3.1$ cd ..
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-24 10:22:07,338 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -mkdir /AllahRakha
2022-03-24 10:23:10,639 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-24 10:24:40,089 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
Found 1 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-24 10:24 /AllahRakha
hdoop@ubuntu:~$ hdfs dfs -chmod 777 /AllahRakha
2022-03-24 10:25:50,978 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-24 10:26:35,284 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
Found 1 items
drwxrwxrwx   - hdoop supergroup          0 2022-03-24 10:24 /AllahRakha
hdoop@ubuntu:~$ hdfs dfs -touch /AllahRakha/rakha.txt
2022-03-24 10:28:38,136 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /AllahRakha
2022-03-24 10:29:21,053 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--   1 hdoop supergroup          0 2022-03-24 10:28 /AllahRakha/rakha.txt
hdoop@ubuntu:~$
```

```
hdoop@ubuntu:~$ hdfs dfs -get /AllahRakha/rakha.txt /home/hdoop/
2022-03-24 10:40:49,953 WARN util.NativeCodeLoader: Unable to load native-hadoop libra
ry for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ ls -lrt
total 1182028
-rw-rw-r--  1 hdoop      hdoop        605187279 Jun 15  2021 hadoop-3.3.1.tar.gz
-rw-r--r--  1 hassanraza hassanraza 605187279 Sep 14  2021 hadoop-Ok-3.3.1.tar.gz
drwxr-xr-x 11 hdoop      hdoop             4096 Mar 23 23:59 hadoop-3.3.1
drwxrwxr-x  3 hdoop      hdoop             4096 Mar 24 00:14 dfsdata
drwxrwxr-x  4 hdoop      hdoop             4096 Mar 24 00:19 tmpdata
-rw-r--r--  1 hdoop      hdoop                0 Mar 24 10:40 rakha.txt
hdoop@ubuntu:~$ sudo gedit allah.txt
[sudo] password for hdoop:
Unable to init server: Could not connect: Connection refused

(gedit:62980): Gtk-WARNING **: 10:41:22.990: cannot open display:
hdoop@ubuntu:~$ sudo nano allah.txt
hdoop@ubuntu:~$ cat allah.txt
Allah is the great.......
```

```
hdoop@ubuntu:~$ ls
allah.txt   hadoop-3.3.1       hadoop-Ok-3.3.1.tar.gz   tmpdata
dfsdata     hadoop-3.3.1.tar.gz   rakha.txt
hdoop@ubuntu:~$ hdfs dfs -put rakha.txt /AllahRakh
2022-03-24 11:58:56,884 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /AllahRakh
2022-03-24 11:59:12,128 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--   1 hdoop supergroup          0 2022-03-24 11:58 /AllahRakh/rakha.txt
```

Browse Directory

| / | | | | | | | | Go! |

Show 25 entries   Search:

		Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
☐		drwxr-xr-x	hdoop	supergroup	0 B	Mar 24 11:58	0	0 B	AllahRakh	🗑

Showing 1 to 1 of 1 entries   Previous 1 Next

Browse Directory

| /AllahRakh | | | | | | | | Go! |

Show 25 entries   Search:

		Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
☐		-rw-r--r--	hdoop	supergroup	0 B	Mar 24 11:58	1	128 MB	rakha.txt	🗑

Showing 1 to 1 of 1 entries   Previous 1 Next

```
hdoop@ubuntu:~$ ls
allah.txt   hadoop-3.3.1       hadoop-Ok-3.3.1.tar.gz   tmpdata
dfsdata     hadoop-3.3.1.tar.gz   rakha.txt
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ stop-all.sh
WARNING: Stopping all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: Use CTRL-C to abort.
Stopping namenodes on [localhost]
Stopping datanodes
Stopping secondary namenodes [ubuntu]
2022-03-24 12:07:59,235 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Stopping nodemanagers
Stopping resourcemanager
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ cd
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-24 12:08:23,263 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
ls: Call From ubuntu/127.0.1.1 to localhost:9000 failed on connection exception:
 java.net.ConnectException: Connection refused; For more details see:  http://wi
ki.apache.org/hadoop/ConnectionRefused
hdoop@ubuntu:~$
```

ands to resolve error.

Here we create "namenode" directory in "dfsdata" folder.

Main

Point: The "namenode" & "datanode" format is most import after remove some directory. Because, previous "cache" record delete and then create new empty record.

```
hdoop@ubuntu:~$ hdfs namenode -format
2022-03-25 04:13:49,903 INFO namenode.NameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = ubuntu/127.0.1.1
STARTUP_MSG:   args = [-format]
STARTUP_MSG:   version = 3.3.1
STARTUP_MSG:   classpath = /home/hdoop/hadoop-3.3.1/etc/hadoop:/home/hdoop/hadoo
p-3.3.1/share/hadoop/common/lib/jetty-webapp-9.4.40.v20210413.jar:/home/hdoop/ha
```

```
hdoop@ubuntu:~$ hdfs datanode -format
2022-03-25 04:14:27,434 INFO datanode.DataNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting DataNode
STARTUP_MSG:   host = ubuntu/127.0.1.1
STARTUP_MSG:   args = [-format]
STARTUP_MSG:   version = 3.3.1
STARTUP_MSG:   classpath = /home/hdoop/hadoop-3.3.1/etc/hadoop:/home/hdoop/hadoo
```

```
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
2022-03-25 04:15:49,972 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Starting resourcemanager
Starting nodemanagers
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ cd
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-25 04:16:17,229 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$
```

Remember: Here, we create a new file "allah.txt" in Hadoop Home Root Directory. Then put into Hadoop Server on Root Directory. Then create folder "/AllahRakhaRaza" and in which put "allah.txt" file.

```
hdoop@ubuntu:~$ ls -lrt
total 1182028
-rw-rw-r--  1 hdoop      hdoop      605187279 Jun 15  2021 hadoop-3.3.1.tar.gz
-rw-r--r--  1 hassanraza hassanraza 605187279 Sep 14  2021 hadoop-0k-3.3.1.tar.gz
drwxrwxrwx 11 hdoop      hdoop           4096 Mar 23 23:59 hadoop-3.3.1
drwxrwxr-x  4 hdoop      hdoop           4096 Mar 25 04:13 dfsdata
drwxrwxr-x  4 hdoop      hdoop           4096 Mar 25 04:15 tmpdata
-rw-r--r--  1 root       root               0 Mar 25 04:17 allah.txt
hdoop@ubuntu:~$ hdfs dfs -put allah.txt /
2022-03-25 04:18:52,396 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-25 04:19:05,075 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--   1 hdoop supergroup          0 2022-03-25 04:18 /allah.txt
hdoop@ubuntu:~$ hdfs dfs -mkdir /AllahRakhaRaza
2022-03-25 04:19:31,649 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -put allah.txt /AllahRakhaRaza/
2022-03-25 04:19:54,606 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-25 04:20:05,278 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 2 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-25 04:19 /AllahRakhaRaza
-rw-r--r--   1 hdoop supergroup          0 2022-03-25 04:18 /allah.txt
hdoop@ubuntu:~$ hdfs dfs -ls /AllahRakhaRaza
2022-03-25 04:20:25,419 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--   1 hdoop supergroup          0 2022-03-25 04:19 /AllahRakhaRaza/allah.txt
hdoop@ubuntu:~$
```
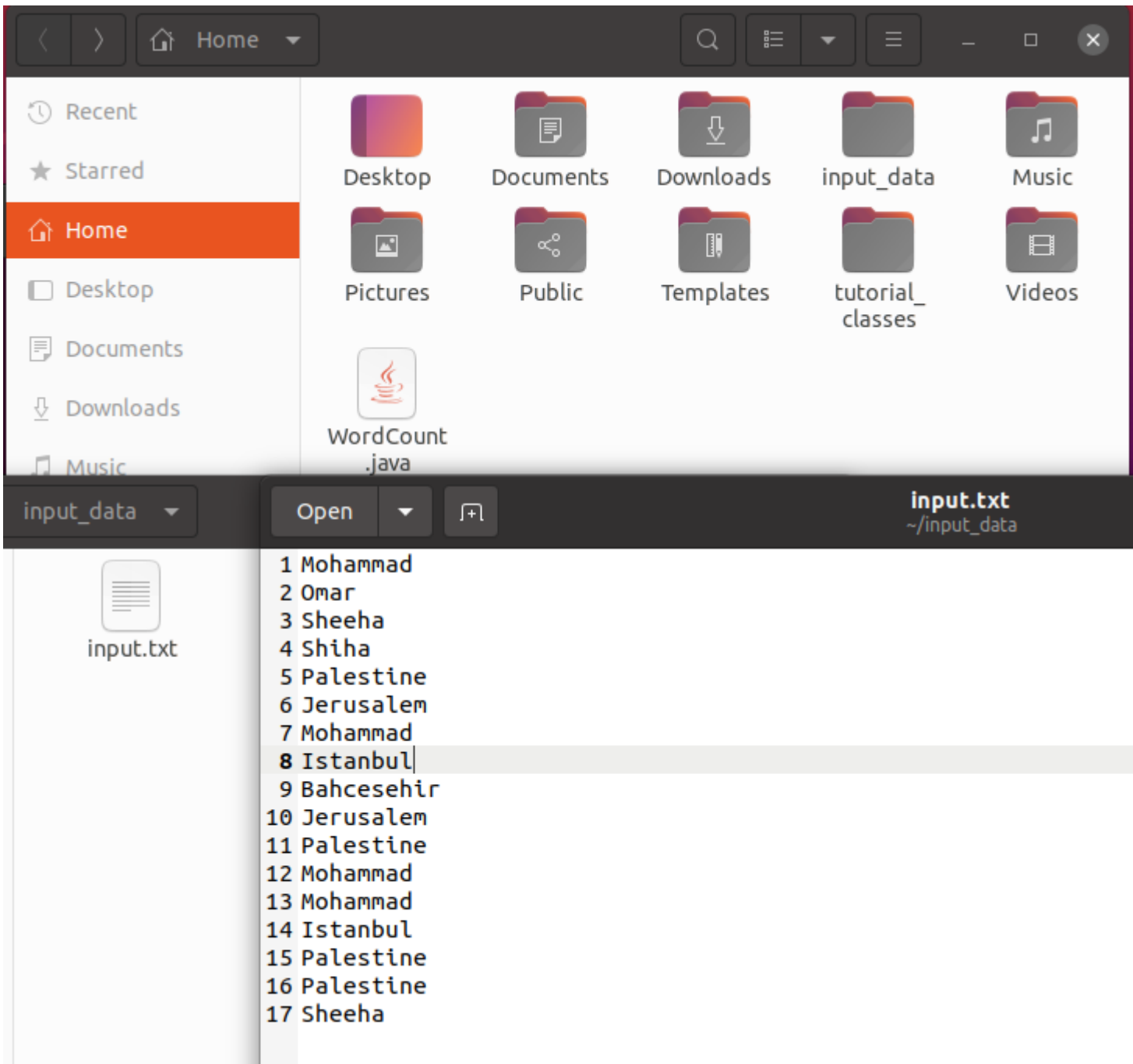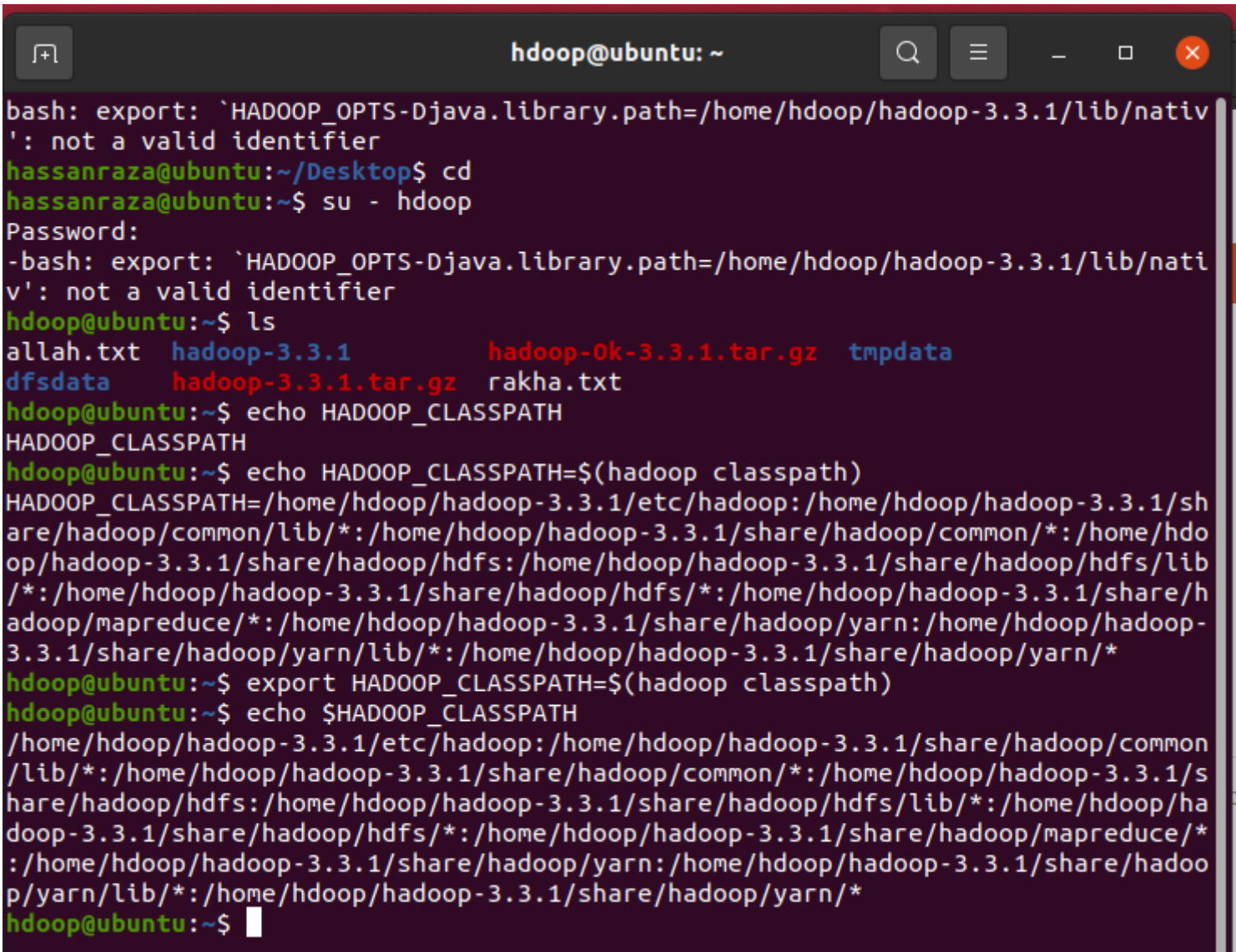
WORD COUNTS EXAMPLE

Create the two folder "input_data" & "tutorial_classes". Then paste "WordCount.java" file in "/home/hassanraza" directory. File create "Input.txt" in which folder of "input_data".

Add "export" the hadoop classpath to global/local variable of HADOOP_CLASSPATH and then echo or cat for testing.

```
hdoop@ubuntu:~$ ssh localhost
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

83 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Thu Mar 24 11:48:46 2022 from 127.0.0.1
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nati
v': not a valid identifier
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
2022-03-24 15:36:04,281 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Starting resourcemanager
Starting nodemanagers
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ cd
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-24 15:36:42,645 WARN util.NativeCodeLoader: Unable to load native-hadoop
 library for your platform... using builtin-java classes where applicable
Found 1 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-24 11:58 /AllahRakh
```

Create "WordCounts/Input" directory in Hadoop. Then put file of "input.txt".


```
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-25 11:36:36,074 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 2 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-25 04:19 /AllahRakhaRaza
-rw-r--r--   1 hdoop supergroup          0 2022-03-25 04:18 /allah.txt
hdoop@ubuntu:~$ hdfs dfs -mkdir /WordCounts
2022-03-25 11:37:04,699 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -mkdir /WordCounts/Input
2022-03-25 11:37:23,482 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /WordCounts
2022-03-25 11:37:34,538 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 1 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-25 11:37 /WordCounts/Input
hdoop@ubuntu:~$ hdfs dfs -put '/home/hassanraza/input_data/input.txt' /WordCounts/Input
2022-03-25 11:38:48,566 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
hdoop@ubuntu:~$ hdfs dfs -ls /WordCounts/Input/
2022-03-25 11:39:03,347 WARN util.NativeCodeLoader: Unable to load native-hadoop library
for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--   1 hdoop supergroup        150 2022-03-25 11:38 /WordCounts/Input/input.txt
hdoop@ubuntu:~$
```

Change the Mode of file and folder (WordCount.java, tutorial_classes) with read_write_execute permission.


```
hdoop@ubuntu:~$ export HADOOP_CLASSPATH=$(hadoop classpath)
hdoop@ubuntu:~$ echo $HADOOP_CLASSPATH
/home/hdoop/hadoop-3.3.1/etc/hadoop:/home/hdoop/hadoop-3.3.1/share/hadoop/common/lib/*
:/home/hdoop/hadoop-3.3.1/share/hadoop/common/*:/home/hdoop/hadoop-3.3.1/share/hadoop/
hdfs:/home/hdoop/hadoop-3.3.1/share/hadoop/hdfs/lib/*:/home/hdoop/hadoop-3.3.1/share/h
adoop/hdfs/*:/home/hdoop/hadoop-3.3.1/share/hadoop/mapreduce/*:/home/hdoop/hadoop-3.3.
1/share/hadoop/yarn:/home/hdoop/hadoop-3.3.1/share/hadoop/yarn/lib/*:/home/hdoop/hadoo
p-3.3.1/share/hadoop/yarn/*
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/WordCount.java'
-rw-r--r-- 1 hassanraza hassanraza 2148 Mar 24 19:48 /home/hassanraza/WordCount.java
hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/WordCount.java'
[sudo] password for hdoop:
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/WordCount.java'
-rwxrwxrwx 1 hassanraza hassanraza 2148 Mar 24 19:48 /home/hassanraza/WordCount.java
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/tutorial_classes'
total 0
hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/tutorial_classes'
```

Add all privilege user specification permission to "hdoop" user.

Create "Word Counts" some files to counting a words in "tutorial_classes" folder. Here, HADOOP_CLASSPATH used for API access to create these files. First path use for Output files (tutorial_classes) and Second path use for Input file (WordCount.java). "-d" here directory path show. Here, "-classpath" to assign "HADOOP_CLASSPAHT" all list of paths that help out for "javac" execution.

Then change permission of all files "tutorial_classes" folder. Assign read_write_execute permission to files.

Command: jar -cvf firstWordCount.jar -C "/home/hassanraza/tutorial_classes/" .

- Jar –cvf : used for compressed all files into single file. Location current directory root "/home/hdoop".
- -C : use to access all files for compressing.
- "/home/hassanraza/tutorial_classpath/" : Path (provide all files to compressing into single file).

Then copy file "/home/hdoop/" to "/home/hassanraza/" directory root.

Then change permission of "firstWordCount.jar" file. Assign read_write_execute permission.

Then open "ssh localhost" and start all services of Hadoop.

```
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/tutorial_classes/'
total 12
-rw-rw-r-- 1 hdoop hdoop 1736 Mar 25 12:13 'WordCount$TokenizerMapper.class'
-rw-rw-r-- 1 hdoop hdoop 1739 Mar 25 12:13 'WordCount$IntSumReducer.class'
hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/tutorial_classes/WordCount$TokenizerMapper.class'
hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/tutorial_classes/WordCount$IntSumReducer.class'
hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/tutorial_classes/WordCount.class'
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/tutorial_classes/'
total 12
-rwxrwxrwx 1 hdoop hdoop 1736 Mar 25 12:13 'WordCount$TokenizerMapper.class'
-rwxrwxrwx 1 hdoop hdoop 1739 Mar 25 12:13 'WordCount$IntSumReducer.class'
-rwxrwxrwx 1 hdoop hdoop 1491 Mar 25 12:13  WordCount.class
hdoop@ubuntu:~$ jar -cvf /home/hassanraza/firstWordCount.jar -C '/home/hassanraza/tutorial_classes/' .
java.io.FileNotFoundException: /home/hassanraza/firstWordCount.jar (Permission denied)
        at java.io.FileOutputStream.open0(Native Method)
        at java.io.FileOutputStream.open(FileOutputStream.java:270)
        at java.io.FileOutputStream.<init>(FileOutputStream.java:213)
        at java.io.FileOutputStream.<init>(FileOutputStream.java:101)
        at sun.tools.jar.Main.run(Main.java:195)
        at sun.tools.jar.Main.main(Main.java:1288)
hdoop@ubuntu:~$ jar -cvf firstWordCount.jar -C '/home/hassanraza/tutorial_classes/' .
added manifest
adding: WordCount.class(in = 1491) (out= 814)(deflated 45%)
adding: WordCount$TokenizerMapper.class(in = 1736) (out= 754)(deflated 56%)
adding: WordCount$IntSumReducer.class(in = 1739) (out= 739)(deflated 57%)
hdoop@ubuntu:~$ ls -lrt
total 1182040
-rw-rw-r--  1 hdoop      hdoop      605187279 Jun 15  2021 hadoop-3.3.1.tar.gz
-rw-r--r--  1 hassanraza hassanraza 605187279 Sep 14  2021 hadoop-0k-3.3.1.tar.gz
drwxrwxrwx 11 hdoop      hdoop           4096 Mar 23 23:59 hadoop-3.3.1
drwxrwxr-x  4 hdoop      hdoop           4096 Mar 25 04:13 dfsdata
drwxrwxr-x  4 hdoop      hdoop           4096 Mar 25 04:15 tmpdata
-rw-r--r--  1 root       root               0 Mar 25 04:17 allah.txt
-rwxrwxrwx  1 root       root            2148 Mar 25 11:57 WordCount.java
drwxrwxrwx  2 root       root            4096 Mar 25 12:01 tutorial_classes
-rw-rw-r--  1 hdoop      hdoop           3069 Mar 25 12:23 firstWordCount.jar
hdoop@ubuntu:~$ sudo cp firstWordCount.jar /home/hassanraza/
hdoop@ubuntu:~$ ls /home/hassanraza/
Desktop    Downloads           input_data  Pictures  Templates         Videos
Documents  firstWordCount.jar  Music       Public    tutorial_classes  WordCount.java
hdoop@ubuntu:~$

hdoop@ubuntu:~$ sudo chmod 777 '/home/hassanraza/firstWordCount.jar'
hdoop@ubuntu:~$ ls -lrt '/home/hassanraza/firstWordCount.jar'
-rwxrwxrwx 1 root root 3069 Mar 25 12:25 /home/hassanraza/firstWordCount.jar
hdoop@ubuntu:~$ ssh localhost
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.13.0-37-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

83 updates can be applied immediately.
To see these additional updates run: apt list --upgradable


Your Hardware Enablement Stack (HWE) is supported until April 2025.
Last login: Fri Mar 25 11:33:58 2022 from 127.0.0.1
-bash: export: `HADOOP_OPTS-Djava.library.path=/home/hdoop/hadoop-3.3.1/lib/nativ': not a valid identi
fier
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
localhost: namenode is running as process 2570.  Stop it first and ensure /tmp/hadoop-hdoop-namenode.p
id file is empty before retry.
Starting datanodes
localhost: datanode is running as process 2697.  Stop it first and ensure /tmp/hadoop-hdoop-datanode.p
id file is empty before retry.
Starting secondary namenodes [ubuntu]
ubuntu: secondarynamenode is running as process 2863.  Stop it first and ensure /tmp/hadoop-hdoop-seco
ndarynamenode.pid file is empty before retry.
2022-03-25 12:29:51,267 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your plat
form... using builtin-java classes where applicable
Starting resourcemanager
resourcemanager is running as process 3076.  Stop it first and ensure /tmp/hadoop-hdoop-resourcemanage
r.pid file is empty before retry.
Starting nodemanagers
localhost: nodemanager is running as process 3203.  Stop it first and ensure /tmp/hadoop-hdoop-nodeman
ager.pid file is empty before retry.
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ cd
hdoop@ubuntu:~$ hdfs dfs -ls /
2022-03-25 12:30:15,701 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your plat
form... using builtin-java classes where applicable
Found 3 items
drwxr-xr-x   - hdoop supergroup          0 2022-03-25 04:19 /AllahRakhaRaza
```

Command: hadoop jar '/home/hassanraza/firstWordCount.jar' WordCount /WordCounts/Input /WordCounts/Output1

- hadoop jar : used for upload "firstWordCount.jar" into Hadoop Server and counting all words from file.
- '/home/hassanraza/firstWordCount.jar' : used path of file that upload into Hadoop server.
- WordCount : class name of file original "WordCount.java".
- /WordCounts/Input : path used to access "input.txt" file.
- /WordCounts/Output1 : path used to store all output record of relative counts word.

```
hdoop@ubuntu:~$ hadoop jar '/home/hassanraza/firstWordCount.jar' WordCount /WordCounts/Input /WordCounts/Output1
2022-03-25 13:11:42,427 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using
builtin-java classes where applicable
2022-03-25 13:11:43,571 INFO client.DefaultNoHARMFailoverProxyProvider: Connecting to ResourceManager at /127.0.0.1:
8032
2022-03-25 13:11:44,665 WARN mapreduce.JobResourceUploader: Hadoop command-line option parsing not performed. Implem
ent the Tool interface and execute your application with ToolRunner to remedy this.
2022-03-25 13:11:44,723 INFO mapreduce.JobResourceUploader: Disabling Erasure Coding for path: /tmp/hadoop-yarn/stag
ing/hdoop/.staging/job_1648238963605_0001
2022-03-25 13:11:47,131 INFO input.FileInputFormat: Total input files to process : 1
2022-03-25 13:11:47,328 INFO mapreduce.JobSubmitter: number of splits:1
2022-03-25 13:11:51,635 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1648238963605_0001
2022-03-25 13:11:51,636 INFO mapreduce.JobSubmitter: Executing with tokens: []
2022-03-25 13:11:53,882 INFO conf.Configuration: resource-types.xml not found
2022-03-25 13:11:53,885 INFO resource.ResourceUtils: Unable to find 'resource-types.xml'.
2022-03-25 13:11:54,827 INFO impl.YarnClientImpl: Submitted application application_1648238963605_0001
2022-03-25 13:11:55,181 INFO mapreduce.Job: The url to track the job: http://ubuntu:8088/proxy/application_164823896
3605_0001/
2022-03-25 13:11:55,185 INFO mapreduce.Job: Running job: job_1648238963605_0001
2022-03-25 13:12:23,834 INFO mapreduce.Job: Job job_1648238963605_0001 running in uber mode : false
2022-03-25 13:12:23,835 INFO mapreduce.Job:   map 0% reduce 0%
2022-03-25 13:12:39,367 INFO mapreduce.Job:   map 100% reduce 0%
2022-03-25 13:12:49,571 INFO mapreduce.Job:   map 100% reduce 100%
2022-03-25 13:12:49,588 INFO mapreduce.Job: Job job_1648238963605_0001 completed successfully
2022-03-25 13:12:49,785 INFO mapreduce.Job: Counters: 54
        File System Counters
                FILE: Number of bytes read=121
                FILE: Number of bytes written=544669
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=263
                HDFS: Number of bytes written=83
                HDFS: Number of read operations=8
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
                HDFS: Number of bytes read erasure-coded=0
        Job Counters
                Launched map tasks=1
                Launched reduce tasks=1
```

```
                Total vcore-milliseconds taken by all map tasks=12064
                Total vcore-milliseconds taken by all reduce tasks=7085
                Total megabyte-milliseconds taken by all map tasks=12353536
                Total megabyte-milliseconds taken by all reduce tasks=7255040
        Map-Reduce Framework
                Map input records=17
                Map output records=17
                Map output bytes=218
                Map output materialized bytes=121
                Input split bytes=113
                Combine input records=17
                Combine output records=8
                Reduce input groups=8
                Reduce shuffle bytes=121
                Reduce input records=8
                Reduce output records=8
                Spilled Records=16
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=3045
                CPU time spent (ms)=9080
                Physical memory (bytes) snapshot=665219072
                Virtual memory (bytes) snapshot=5083590656
                Total committed heap usage (bytes)=560988160
                Peak Map Physical memory (bytes)=464707584
                Peak Map Virtual memory (bytes)=2538524672
                Peak Reduce Physical memory (bytes)=200511488
                Peak Reduce Virtual memory (bytes)=2545065984
        Shuffle Errors
                BAD_ID=0
                CONNECTION=0
                IO_ERROR=0
                WRONG_LENGTH=0
                WRONG_MAP=0
                WRONG_REDUCE=0
        File Input Format Counters
                Bytes Read=150
        File Output Format Counters
                Bytes Written=83
```

Show the output of record from "/WordCounts/Output1/*" folder.

```
hdoop@ubuntu:~$ hadoop dfs -cat /WordCounts/Output1/*

WARNING: Use of this script to execute dfs is deprecated.
WARNING: Attempting to execute replacement "hdfs dfs" instead.

2022-03-25 13:25:24,820 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using
builtin-java classes where applicable
Bahcesehir     1
Istanbul       2
Jerusalem      2
Mohammad       4
Omar   1
Palestine      4
Sheeha  2
Shiha   1
hdoop@ubuntu:~$
```

Shut down all services of Hadoop.

```
hdoop@ubuntu:~$ cd hadoop-3.3.1/sbin
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ stop-all.sh
WARNING: Stopping all Apache Hadoop daemons as hdoop in 10 seconds.
WARNING: Use CTRL-C to abort.
Stopping namenodes on [localhost]
Stopping datanodes
Stopping secondary namenodes [ubuntu]
2022-03-25 13:28:52,403 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using
builtin-java classes where applicable
Stopping nodemanagers
localhost: WARNING: nodemanager did not stop gracefully after 5 seconds: Trying to kill with kill -9
Stopping resourcemanager
hdoop@ubuntu:~/hadoop-3.3.1/sbin$ 
```