#### **OUTPUTS:**

```
hdp123@stud-OptiPlex-3060: /home/stud/Desktop
    stud@stud-OptiPlex-3060:~$ sudo apt-get update
[sudo] password for stud:
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security/main amdo4 DEP-11 Metadata [41.5 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/universe amdo4 DEP-11 Metadata [18.5 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amdo4 DEP-11 Metadata [101 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amdo4 DEP-11 Metadata [268 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/multiverse amdo4 DEP-11 Metadata [268 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-backports/main amdo4 DEP-11 Metadata [7,976 B]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy-backports/main amdo4 DEP-11 Metadata [7,976 B]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy-backports/universe amdo4 DEP-11 Metadata [12.9 kB]
Fetched 789 kB in 4s (200 kB/s)
Reading package lists.. Done
stud@stud-OptiPlex-3060:-$ sudo apt-get install default-jdk
java -version
  [sudo] password for stud:
   java -version
  Reading package lists... Done
 Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
default-jdk is already the newest version (2:1.11-72build2).
The following packages were automatically installed and are no longer required:
linux-headers-5.15.0-53 inux-headers-5.15.0-53-generic
linux-image-5.15.0-53-generic linux-modules-5.15.0-53-generic
linux-modules-extra-5.15.0-53-generic
Use 'sudo apt autoremove' to remove them.

0 upgraded, 0 newly installed, 0 to remove and 269 not upgraded.

openjdk version "11.0.18" 2023-01-17

OpenJDk Runtime Environment (build 11.0.18+10-post-Ubuntu-0ubuntu122.04)

OpenJDk 64-Bit Server VM (build 11.0.18+10-post-Ubuntu-0ubuntu122.04, mixed mode, sharing)

stud@stud-OptiPlex-3060:-$ sudo addgroup hadoop
addgroup: The group 'hadoop' already exists.
  stud@stud-OpttPlex-3060:-$ sudo adduser --ingroup hadoop hdp123
adduser: The user `hdp123' already exists.
stud@stud-OpttPlex-3060:-$ sudo adduser hdp123 sudo
The user `hdp123' is already a member of `sudo'.
stud@stud-OpttPlex-3060:-$ sudo apt-get - install openssh-server
   Reading package lists... Done
                                                                                                                                                              hdp123@stud-OptiPlex-3060: /home/stud/Desktop
                                                                                                                                                                                                                                                                                                                                                                                 Q ≡
    stud@stud-OptiPlex-3060:~$ sudo apt-get - install openssh-server
  Reading package lists... Done
 Building dependency tree.. Done
Reading state information... Done
openssh-server is already the newest version (1:8.9p1-3ubuntu0.1).
The following packages were automatically installed and are no longer required:
linux-headers-5.15.0-53 linux-headers-5.15.0-53-generic
 linux-image-5.15.0-53-generic linux-modules-5.15.0-53-generic linux-modules-5.15.0-53-generic linux-modules-5.15.0-53-generic linux-modules-extra-5.15.0-53-generic Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 269 not upgraded.
stud@stud-OptiPlex-3060:-$ su - hdp123
    hdp123@stud-OptiPlex-3060:~$ ssh-keygen -t rsa -P ""
  Generating public/private rsa key pair.
Enter file in which to save the key (/home/hdp123/.ssh/id_rsa):
/home/hdp123/.ssh/id_rsa already exists.
  Your identification has been saved in /home/hdp123/.ssh/id_rsa
Your public key has been saved in /home/hdp123/.ssh/id_rsa.pub
    The key fingerprint is:
  SHA256:cd5mebfQsvg7Uy9i3gfVKDDbtfQdclxdM2vTuDs1veU hdp123@stud-OptiPlex-3060
   The key's randomart image is:
+---[RSA 3072]----+
                                  .0*|
                              . .= o+B=
                                +..o.=.B
                              S . =+0+=
                                      0..=*=
                                      . .++E
                                         ++..0
                                      0.+=0
  hdp123@stud-OptiPlex-3060:-$ cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys
hdp123@stud-OptiPlex-3060:-$ ssh localhost
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.19.0-40-generic x86_64)
```

# Download Hadoop: http://www-eu.apache.org/dist/hadoop/common/ Cut paste the hadoop tar file on Desktop

```
hdp123@stud-OptiPlex-3060: /home/stud/Desktop
 Your identification has been saved in /home/hdp123/.ssh/id_rsa
Your public key has been saved in /home/hdp123/.ssh/id_rsa.pub
The key fingerprint is:
 SHA256:cd5mebfQsvg7Uy9i3gfVKDDbtfQdclxdM2vTuDs1veU hdp123@stud-OptiPlex-3060
The key's randomart image is:
+---[RSA 3072]----+
                   .0*|
|*=0.0
                    +..o.=.B
hdp1230stud-optiPlex-3060:-$ cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys
hdp1230stud-optiPlex-3060:-$ ssh localhost
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.19.0-40-generic x86_64)
  * Documentation: https://help.ubuntu.com

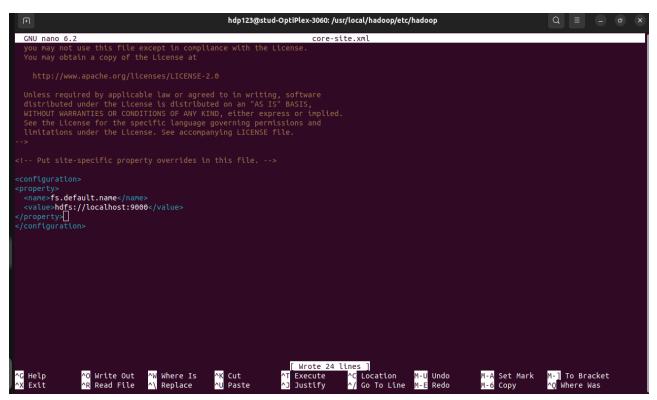
* Management: https://landscape.canonical.com

* Support: https://ubuntu.com/advantage
 269 updates can be applied immediately.
3 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Last login: Fri Apr 21 14:39:49 2023 from 127.0.0.1 hdp123@stud-OptiPlex-3060:-$ exit
Connection to localhost closed.
    dp123@stud-OptiPlex-3060:~$ pwd
 /home/hdp123
  ndp123@stud-OptiPlex-3060:~$ cd /home/stud/Desktop
 hdp123@stud-OptiPlex-3060:/home/stud/D
 hdp123@stud-OptiPlex-3060:/home/stud/Desktop$
                                                                                             hdp123@stud-OptiPlex-3060: /usr/local/hadoop/etc/hadoop
hadoop-2.10.1/share/hadoop/tools/sls/sample-conf/sls-runner.xml
hadoop-2.10.1/share/hadoop/tools/sls/sample-conf/yarn-site.xml
hadoop-2.10.1/share/hadoop/tools/sls/sample-data/
hadoop-2.10.1/share/hadoop/tools/sls/sample-data/2jobs2min-rumen-jh.json
hadoop-2.10.1/include/
hadoop-2.10.1/include/Pipes.hh
hadoop-2.10.1/include/TemplateFactory.hh
hadoop-2.10.1/include/StringUtils.hh
hadoop-2.10.1/include/SerialUtils.hh
hadoop-2.10.1/include/SerialUtils.hh
hadoop-2.10.1/INCENSE.txt
hadoop-2.10.1/INCTICE.txt
hadoop-2.10.1/README.txt
 hadoop-2.10.1/README.txt
  hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ ls
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ sudo mv hadoop-2.10.1 /usr/local/hadoop
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ ls
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ sudo chown -R hadoop /usr/local chown: invalid user: 'hadoop'
  hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ sudo chown -R hdp123 /usr/local
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ sudo nano ~/.bashrc
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ source ~/.bashrc
hdp123@stud-OptiPlex-3060:/home/stud/Desktop$ sudo nano /usr/local/hadoop/etc/hadoop/hadoop-env.sh
 hdp123@stud-OptiPlex-3060:/home/stud
 hdp123@stud-OptiPlex-3060:~$ su hdp123
 hdp123@stud-OptiPlex-3060:~$ cd /usr/local/hadoop/etc/hadoop
 hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ nano core-site.xml
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ nano yarn-site.xml
 hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop/s sudo cp /usr/local/hadoop/etc/hadoop/mapred-site.xml.template /usr/local/hadoop/etc/ha
 doop/mapred-site.xml
       123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo nano mapred-site.xml
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo halo hapired-ster.hmt
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo mkdir -p /usr/local/hadoop_tmp
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo mkdir -p /usr/local/hadoop_tmp/hdfs/datanode
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo mkdir -p /usr/local/hadoop_tmp/hdfs/datanode
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ sudo chown -R hdp123 /usr/local/hadoop_tmp
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ hdfs namenode -format
```

## Configuration of .bashrc file:

```
hdp123@stud-OptiPlex-3060: /home/stud/Desktop
  GNU nano 6.2
                                                                                                                         /home/hdp123/.bashrc
# Add an "alert" alias for long running commands. Use like so:
# sleep 10; alert
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/>
# Alias definitions
# You may want to put all your additions into a separate file like # -/.bash_aliases, instead of adding them here directly. # See /usr/share/doc/bash-doc/examples in the bash-doc package.
if [ -f ~/.bash_aliases ]; then
      . ~/.bash_aliases
# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
   f ! shopt -oq posix; then
if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
export JAVA_HOME=/usr/lib/jvm/java-11-openjdk-amd64
export HADOOP_HOME=/usr/local/hadoop
                                                         /bin
/sbin
export PATH=
export HADOOP_MAPRED_HOME=
export HADOOP_COMMON_HOME=
export HADOOP_HDFS_HOME=$1
export HADOOP_COMMON_LIB_NATIVE_DIR=$HADOOP_HOME/lib/native
export HADOOP_OPTS="-Djava.library.path=$HADOOP_HOME/lib"
                                                                                                                                                                                                                                     M-] To Bracket
                                                        ^W Where Is
^\ Replace
                             ^O Write Out
^R Read File
                                                                                                                                                                                                         M-A Set Mark
M-6 Copy
                                                                                      ^K Cut
^U Paste
                                                                                                                   ^T Execute
^J Justify
                                                                                                                                               ^C Location
^/ Go To Line
```

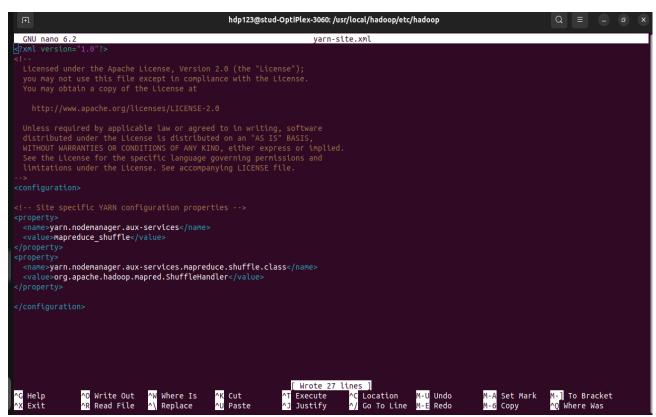
# Configuration of core-site.xml:



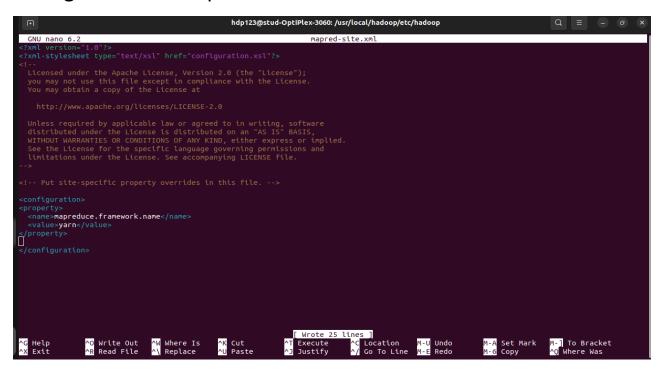
## Configuration of hdfs-site.xml:

```
| Moderation | Mod
```

# Configuration of yarn-site.xml:



#### Configuration of mapred-site.xml:

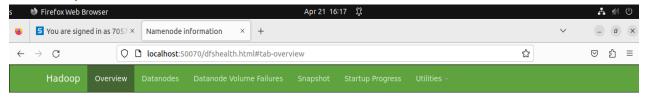


#### Starting the services of Hadoop:

```
hdp123@stud-OptIPlex-3060:/usr/local/hadoop/stc/hadoop/s start-dfs.sh
MARNING: An illegal reflective access operation has occurred
MARNING: An illegal reflective access operation has occurred
MARNING: An illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/ltb/hadoop-auth-2.10.1.jar) to method sum.security.krbs.comfig getInstance()
MARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
MARNING: Like --illegal-accessswarn to enable warnings of further illegal reflective access operations
MARNING: All illegal access operations will be denied in a future release
23/d4/21 is22:27 MARNI Unil.MativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
cables
10calhost: starting namenodes on [localhost]
10calhost: starting namenode, logging to /usr/local/hadoop/logs/hadoop-hdp123-namenode-stud-OptiPlex-3060.out
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
10calhost: MARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
10calhost: MARNING: All illegal access operations will be denied in a future release
10calhost: MARNING: All illegal access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All illegal reflective access operation has occurred
10calhost: MARNING: All il
```

```
hdp123@stud-OptiPlex-3060: /usr/local/hadoop/etc/hadoop
  0.0.0.0: WARNING: An illegal reflective access operation has occurred
0.0.0.0: WARNING: An illegal reflective access operation has occurred
0.0.0.0: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/hadoo
p/common/lib/hadoop-auth-2.10.1.jar) to method sun.security.krb5.Config.getInstance()
0.0.0.0: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
0.0.0.0: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
0.0.0.0: WARNING: All illegal access operations will be denied in a future release
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-2.10.1.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
23/04/21 15:22:45 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
   cable
    hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ start-yarn.sh
   starting yarn daemons
   starting resourcemanager, logging to /usr/local/hadoop/logs/yarn-hdp123-resourcemanager-stud-OptiPlex-3060.out
  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-2.10.1.jar) to method sun.security.krb5.Config.getInstance()
lib/hadoop-auth-2.10.1.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
localhost: starting nodemanager, logging to /usr/local/hadoop/logs/yarn-hdp123-nodemanager-stud-OptiPlex-3060.out
localhost: WARNING: An illegal reflective access operation has occurred
localhost: WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.KerberosUtil (file:/usr/local/hadoop/share/had
oop/common/lib/hadoop-auth-2.10.1.jar) to method sun.security.krb5.Config.getInstance()
localhost: WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.security.authentication.util.KerberosUtil
localhost: WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
localhost: WARNING: All illegal access operations will be denied in a future release
hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop/s jps
     hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$ jps
   9104 DataNode
   8883 NameNode
   9300 SecondaryNameNode
  9559 ResourceManager
  10012 Jps
9695 NodeManager
     hdp123@stud-OptiPlex-3060:/usr/local/hadoop/etc/hadoop$
```

#### Hadoop GUI:



#### Overview 'localhost:9000' (active)

Started:	Fri Apr 21 16:16:27 +0530 2023		
Version:	2.10.1, r1827467c9a56f133025f28557bfc2c562d78e816		
Compiled:	Mon Sep 14 18:47:00 +0530 2020 by centos from branch-2.10.1		
Cluster ID:	CID-00010b53-0fd6-43ab-8648-08a28682d163		
Block Pool ID:	BP-1300972339-127.0.1.1-1682073977023		

#### Summary

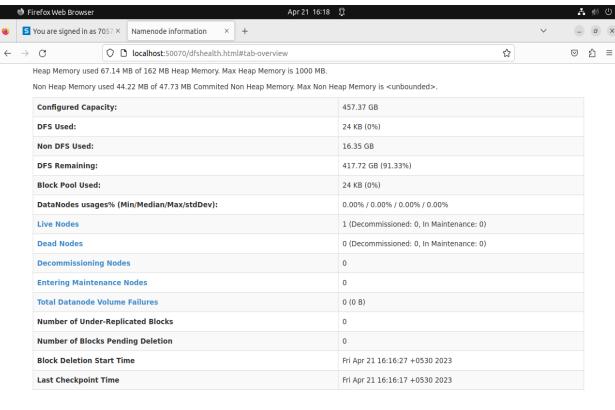
Security is off.

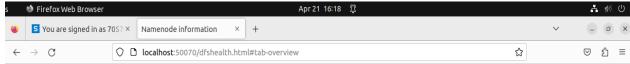
Safemode is off.

1 files and directories, 0 blocks = 1 total filesystem object(s).

Heap Memory used 67.14 MB of 162 MB Heap Memory. Max Heap Memory is 1000 MB.

Non Heap Memory used 44.22 MB of 47.73 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.





#### NameNode Journal Status

Current transaction ID: 3					
Journal Manager	State				
FileJournalManager(root=/usr/local/hadoop_tmp /hdfs/namenode)	EditLogFileOutputStream(/usr/local/hadoop_tmp/hdfs/namenode/current /edits_inprogress_000000000000000000)				

## NameNode Storage

Storage Directory	Туре	State
/usr/local/hadoop_tmp/hdfs/namenode	IMAGE_AND_EDITS	Active

## **DFS Storage Types**

Storage Type	Configured Capacity	Capacity Used	Capacity Remaining	Block Pool Used	Nodes In Service
DISK	457.37 GB	24 KB (0%)	417.72 GB (91.33%)	24 KB	1