

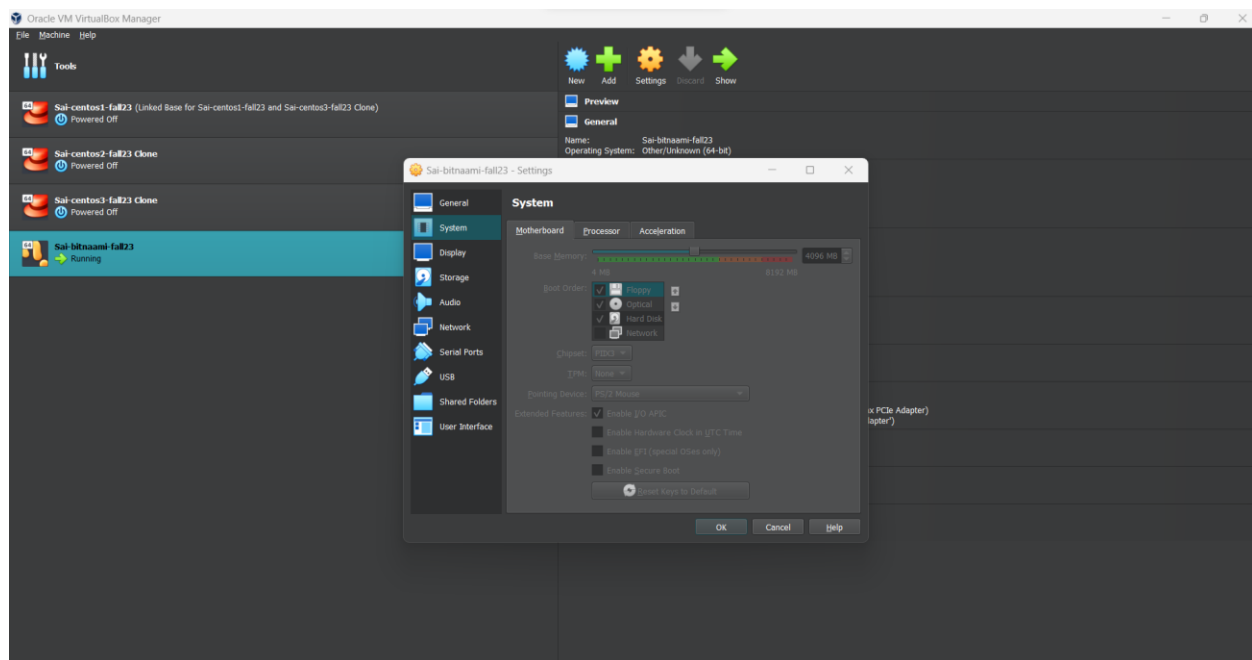
Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

1. downloading the bitnami renames with my name **Sai-bitnami-fall23**



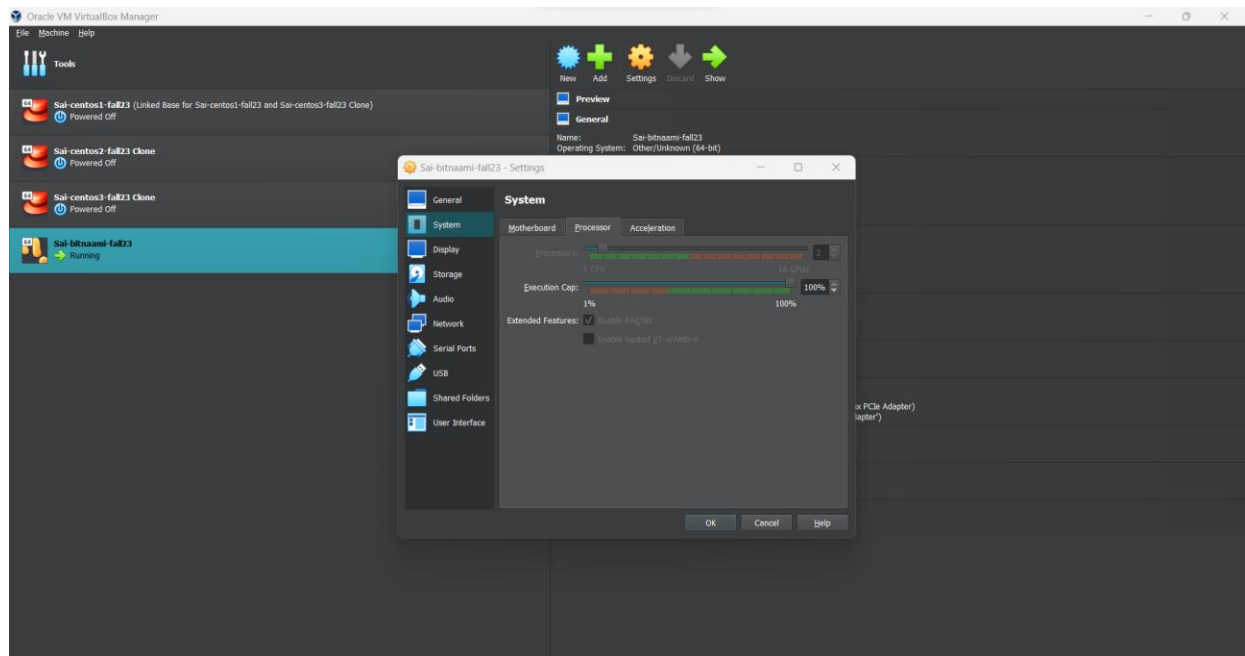
2. Allocation of memory in bitnami (4GB)



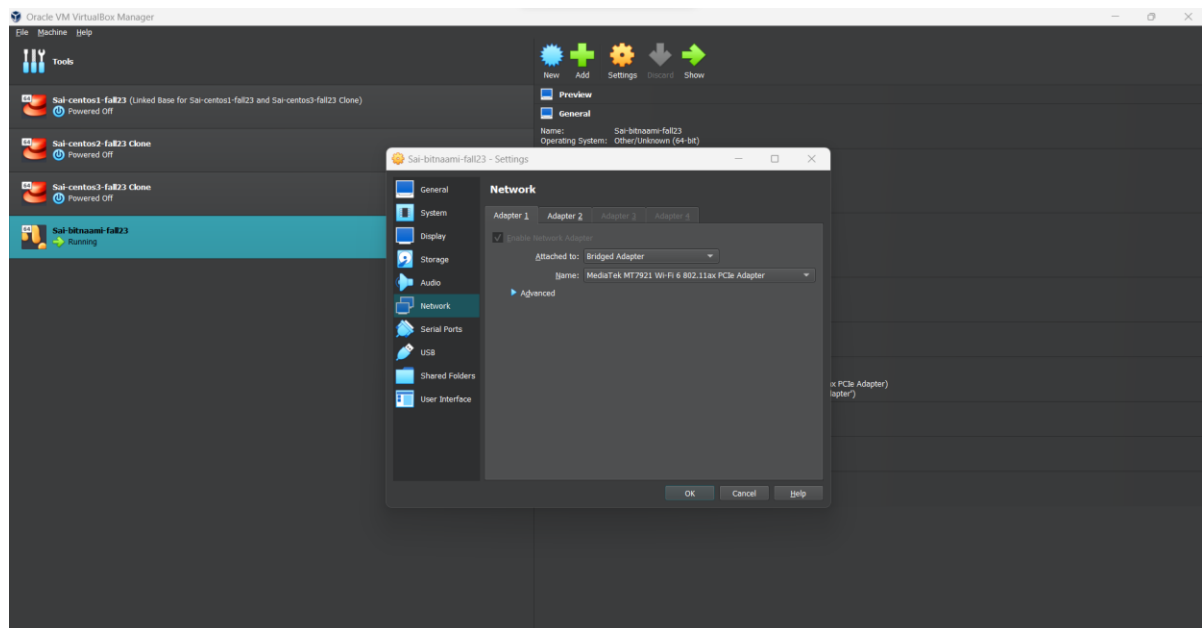
Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

3. Allocated CPU in bitnami(2CPU)

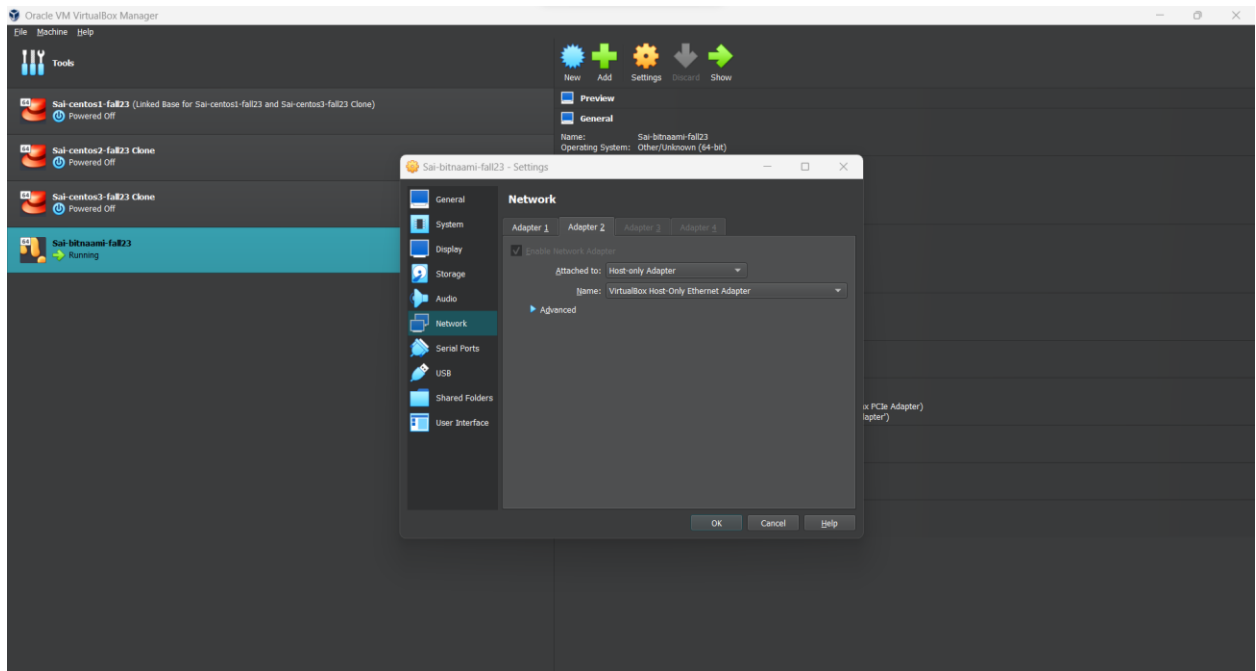


4. Two adapter added in bitnami

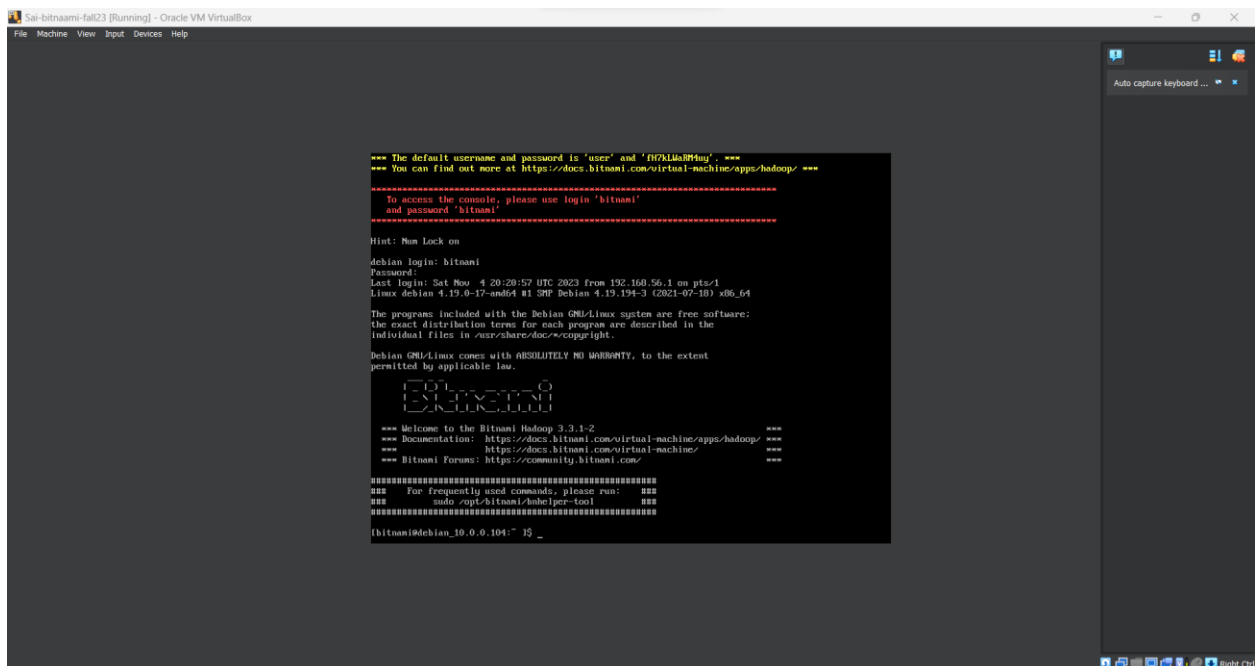


Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224



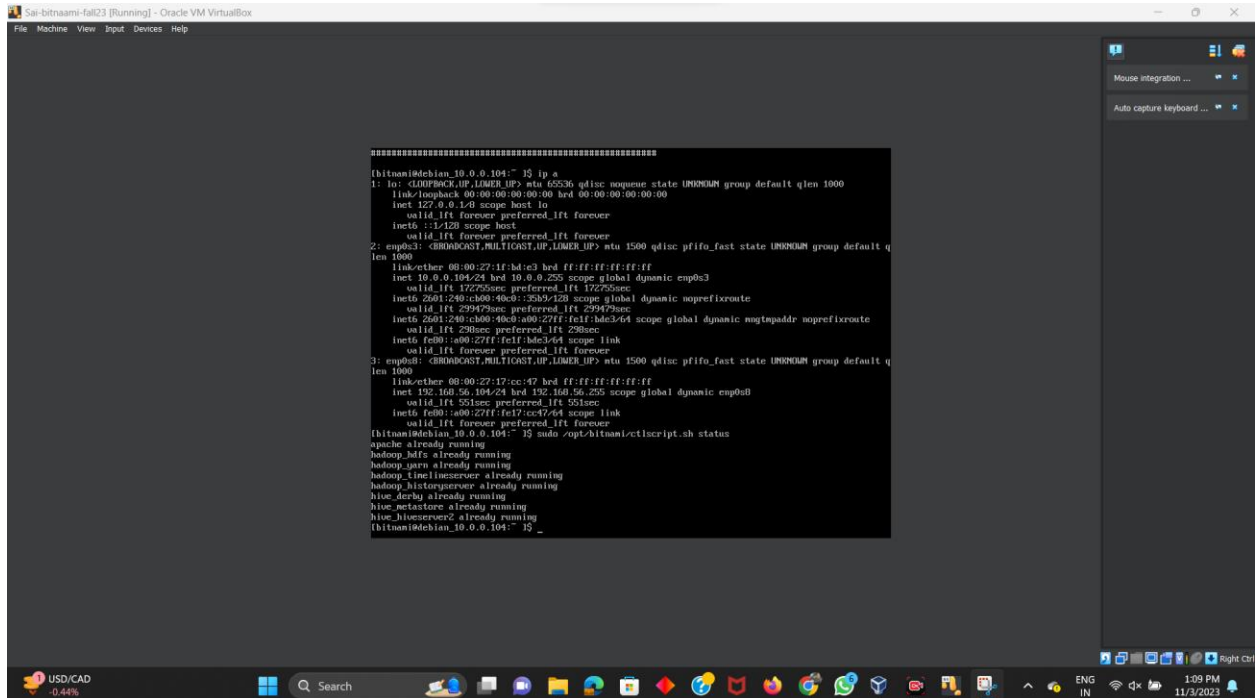
5. Starting of the VM



Week 2

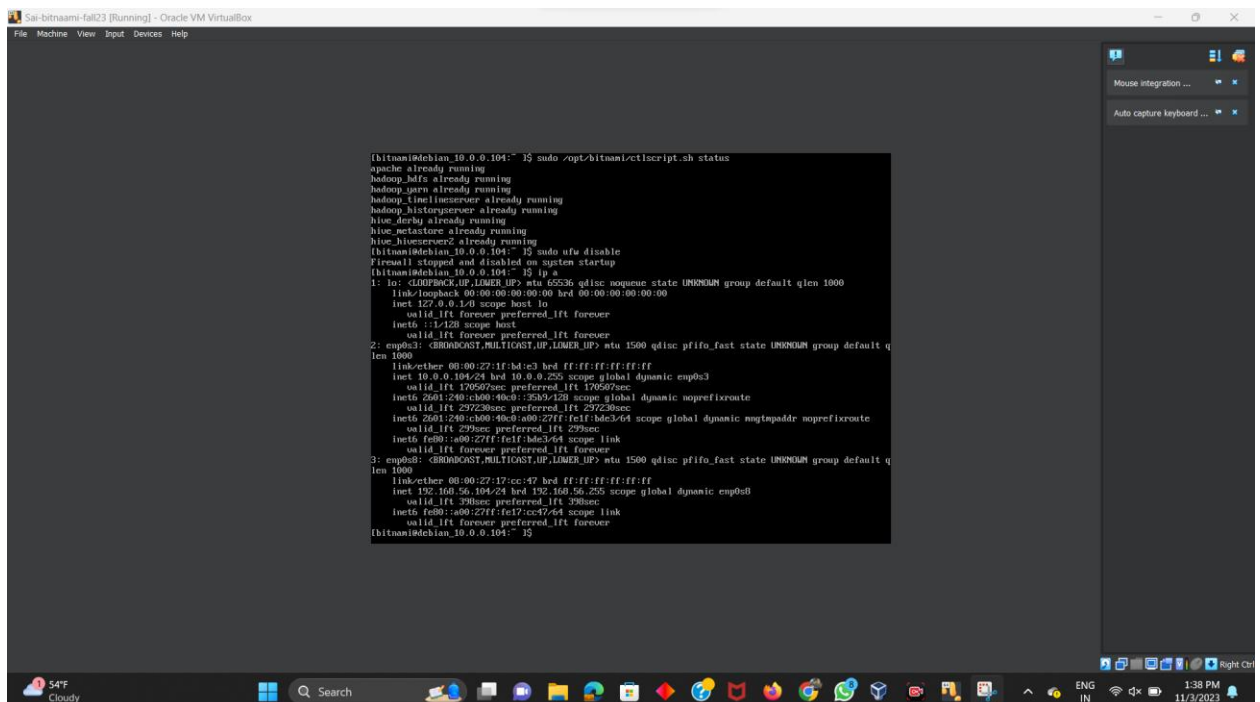
Sai Kumar Murarishetti
Lewis ID: 30079224

6. Running ip a in VM



```
[bitnami@debian-10 0.0.104:~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: empo3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:1f:bdc3 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.104/24 brd 10.0.0.255 scope global dynamic empo3
        valid_lft 172750sec preferred_lft 172750sec
    inet6 2601:280:c800:40c0:a00:27ff:fe1f:bdc3/64 scope global dynamic noprefixroute
        valid_lft 239473sec preferred_lft 239473sec
    inet6 2601:280:c800:40c0:a00:27ff:fe1f:bdc3/64 scope global dynamic mngtnpaddr noprefixroute
        valid_lft 2308sec preferred_lft 2308sec
    inet6 fe80::a00:27ff:fe1f:bdc3/64 scope link
        valid_lft forever preferred_lft forever
3: empo8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:17:cc47 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.104/24 brd 192.168.56.255 scope global dynamic empo8
        valid_lft 5515sec preferred_lft 5515sec
    inet6 fe80::a00:27ff:fe17:cc47/64 scope link
        valid_lft forever preferred_lft forever
[bitnami@debian-10 0.0.104:~]$ sudo /opt/bitnami/citscript.sh status
apache already running
hadoop_hdfs already running
hadoop_gcore already running
hadoop_lineinservice already running
hadoop_historyserver already running
hive_dorby already running
hive_metastore already running
hive_hiveserver2 already running
[bitnami@debian-10 0.0.104:~]$ _
```

7. Checking hadoop services are running or not

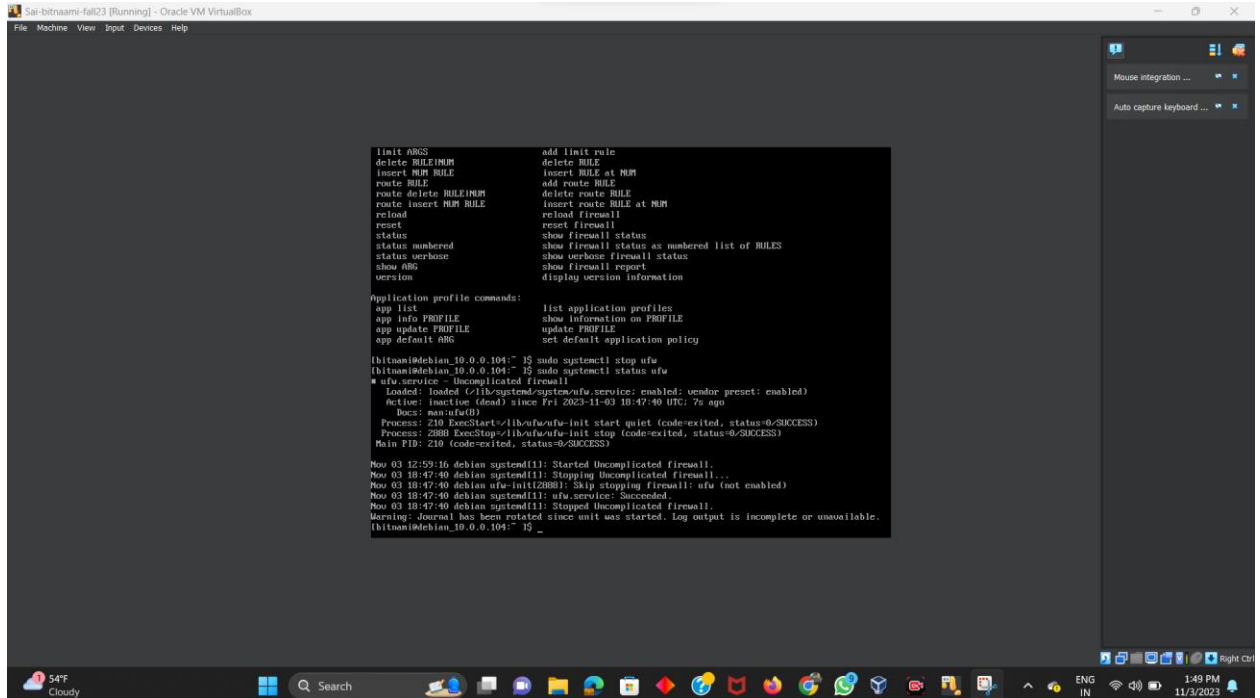


```
[bitnami@debian-10 0.0.104:~]$ sudo /opt/bitnami/citscript.sh status
apache already running
hadoop_hdfs already running
hadoop_gcore already running
hadoop_lineinservice already running
hadoop_historyserver already running
hive_dorby already running
hive_metastore already running
hive_hiveserver2 already running
[bitnami@debian-10 0.0.104:~]$ sudo ufw disable
Firewall stopped and disabled on system startup
[bitnami@debian-10 0.0.104:~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: empo3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:1f:bdc3 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.104/24 brd 10.0.0.255 scope global dynamic empo3
        valid_lft 176567sec preferred_lft 176567sec
    inet6 2601:280:c800:40c0:a00:27ff:fe1f:bdc3/64 scope global dynamic noprefixroute
        valid_lft 237230sec preferred_lft 237230sec
    inet6 2601:280:c800:40c0:a00:27ff:fe1f:bdc3/64 scope global dynamic mngtnpaddr noprefixroute
        valid_lft 2398sec preferred_lft 2398sec
    inet6 fe80::a00:27ff:fe1f:bdc3/64 scope link
        valid_lft forever preferred_lft forever
3: empo8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:17:cc47 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.104/24 brd 192.168.56.255 scope global dynamic empo8
        valid_lft 3988sec preferred_lft 3988sec
    inet6 fe80::a00:27ff:fe17:cc47/64 scope link
        valid_lft forever preferred_lft forever
[bitnami@debian-10 0.0.104:~]$
```

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

8. Here we have disabling the firewall



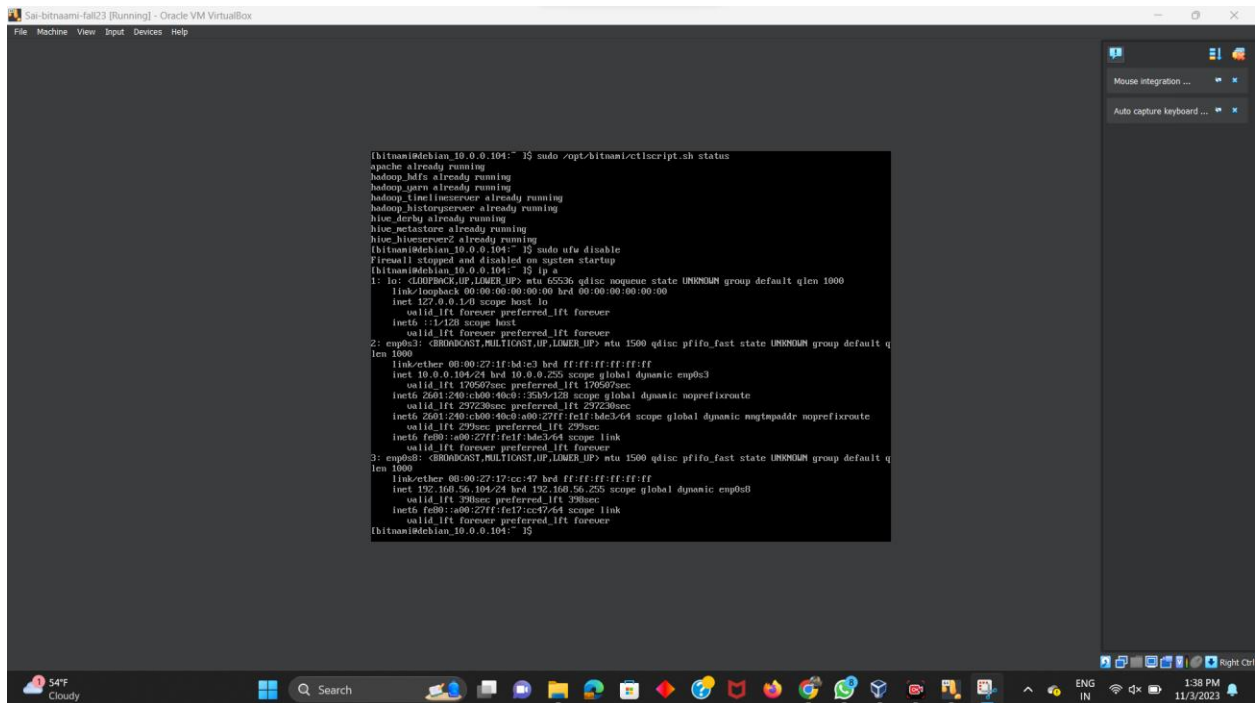
```
limit ABOS          add limit rule
delete RULE[NAME]  delete RULE
insert NAME RULE   insert RULE at NAME
route RULE         add route RULE
route delete RULE[NAME] delete route RULE
route insert NAME RULE insert route RULE at NAME
reload            reload firewall
reset            reset firewall
status          show firewall status
status numbered  show firewall status as numbered list of RULES
status verbose    show verbose firewall status
show ABG         show firewall report
version          display version information

Application profile commands:
app list          list application profiles
app info PROFILE show information on PROFILE
app update PROFILE update PROFILE
app default ABOS set default application policy

[bitnami@debian_10 0.0.104:~]$ sudo systemctl stop ufw
[bitnami@debian_10 0.0.104:~]$ sudo systemctl status ufw
ufw.service - Uncomplicated firewall
Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
Active: inactive (dead) since Fri 2023-11-03 18:47:40 UTC; 7s ago
Docs: man:ufw(8)
Process: 210 ExecStart=/lib/ufw/ufw-init start quiet (code=exited, status=0/SUCCESS)
Process: 2080 ExecStop=/lib/ufw/ufw-init stop (code=exited, status=0/SUCCESS)
Main PID: 210 (code=exited, status=0/SUCCESS)

Nov 03 12:59:16 debian systemd[1]: Started Uncomplicated firewall.
Nov 03 18:47:40 debian systemd[1]: Stopping Uncomplicated firewall...
Nov 03 18:47:40 debian ufw-init[2080]: Ship Stopping firewall: ufw (not enabled)
Nov 03 18:47:40 debian systemd[1]: ufw.service: Succeeded.
Nov 03 18:47:40 debian systemd[1]: Stopped Uncomplicated firewall.
Warning: Journal has been rotated since unit was started. Log output is incomplete or unavailable.
[bitnami@debian_10 0.0.104:~]$ _
```

9. The firewall is disabled

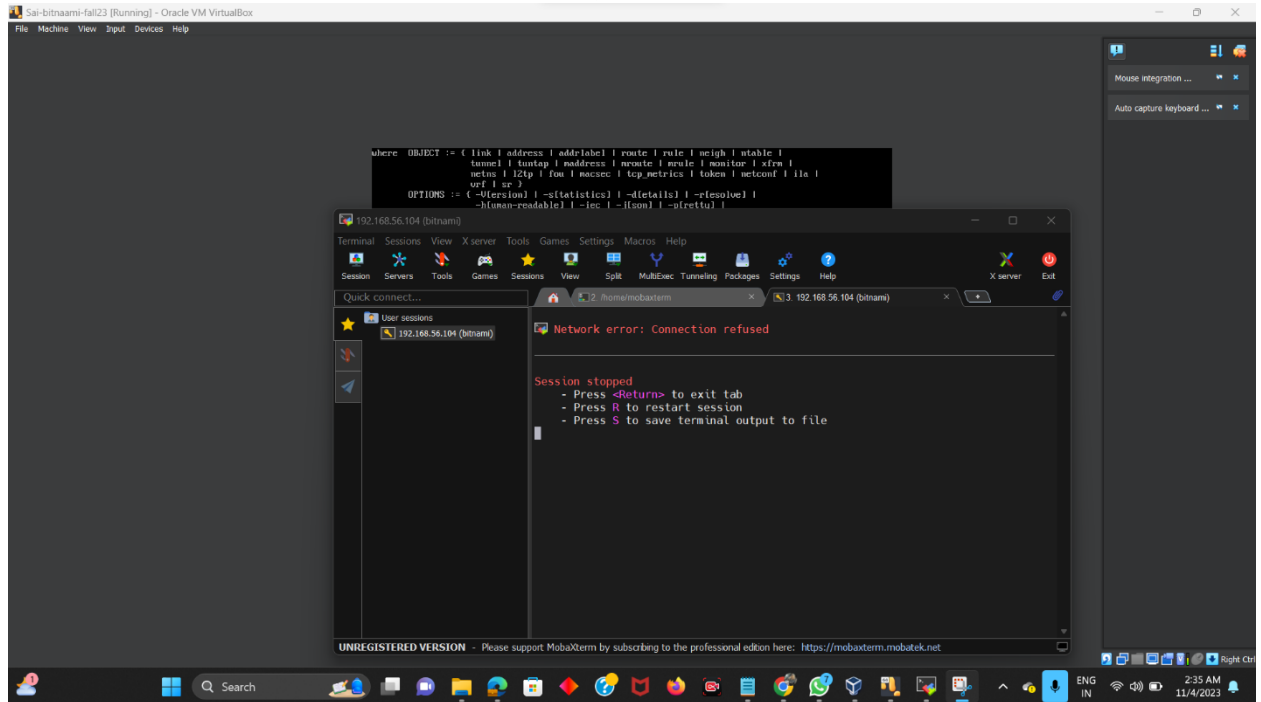


```
[bitnami@debian_10 0.0.104:~]$ sudo /opt/bitnami/scripts/status
apache already running
hadoop_hdfs already running
hadoop_map already running
hadoop_timeline already running
hadoop_historyserver already running
hive_dorby already running
hive_metastore already running
hive_hiveserver2 already running
[bitnami@debian_10 0.0.104:~]$ sudo ufw disable
Firewall stopped and disabled on system startup
[bitnami@debian_10 0.0.104:~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BRIDGE,UP,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:1f:bde3 bnd ff:ff:ff:ff:ff:ff
    inet 10.0.0.104/24 brd 10.0.0.255 scope global dynamic enp0s3
        valid_lft 170507sec preferred_lft 170507sec
    inet6 2601:280:c300:40c3::239:120 scope global dynamic noprefixroute
        valid_lft 297230sec preferred_lft 297230sec
    inet6 2601:280:c300:40c3:a00:27ff:fe1f:bde3/64 scope global dynamic mngtppaddr noprefixroute
        valid_lft 299sec preferred_lft 299sec
    inet6 fe80::a00:27ff:fe1f:bde3/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BRIDGE,UP,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UNKNOWN group default qlen 1000
    link/ether 00:00:27:1f:cc:47 bnd ff:ff:ff:ff:ff:ff
    inet 192.168.56.104/24 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 3980sec preferred_lft 3980sec
    inet6 fe80::a00:27ff:fe1f:cc:47/64 scope link
        valid_lft forever preferred_lft forever
[bitnami@debian_10 0.0.104:~]$
```

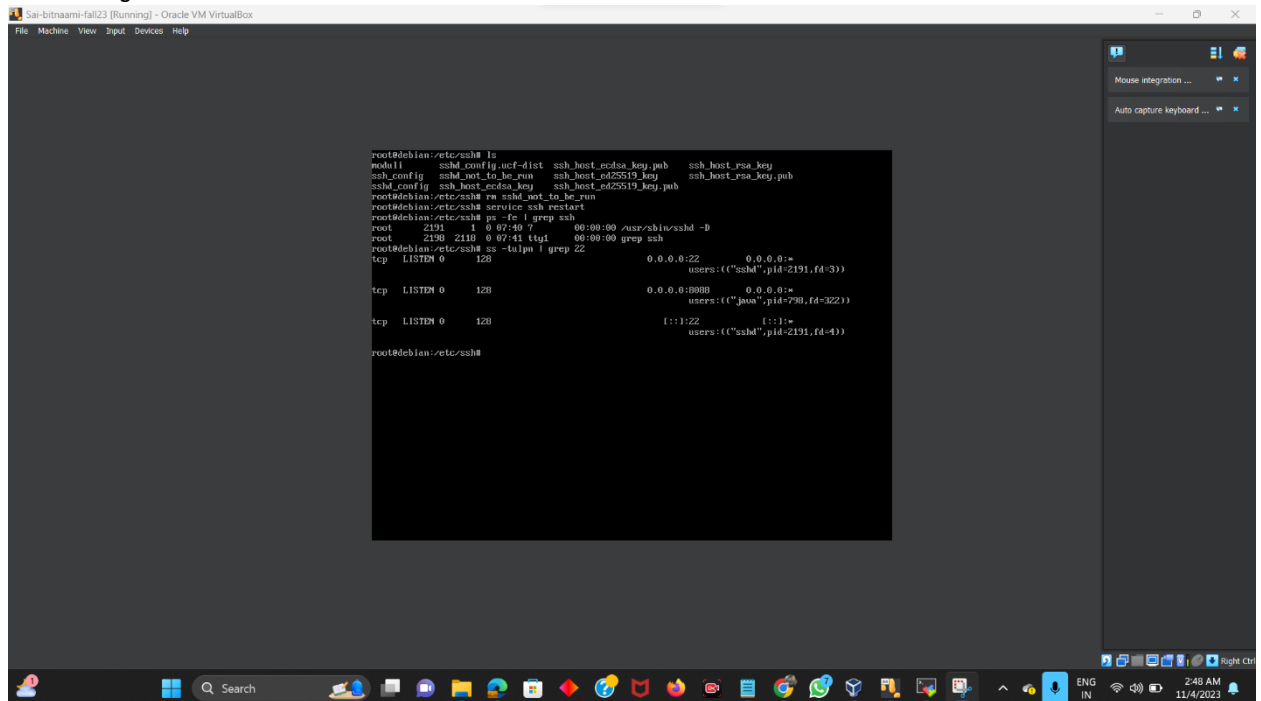
Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

10. Before enabling the ssh we will check the MobaXterm it is showing us error



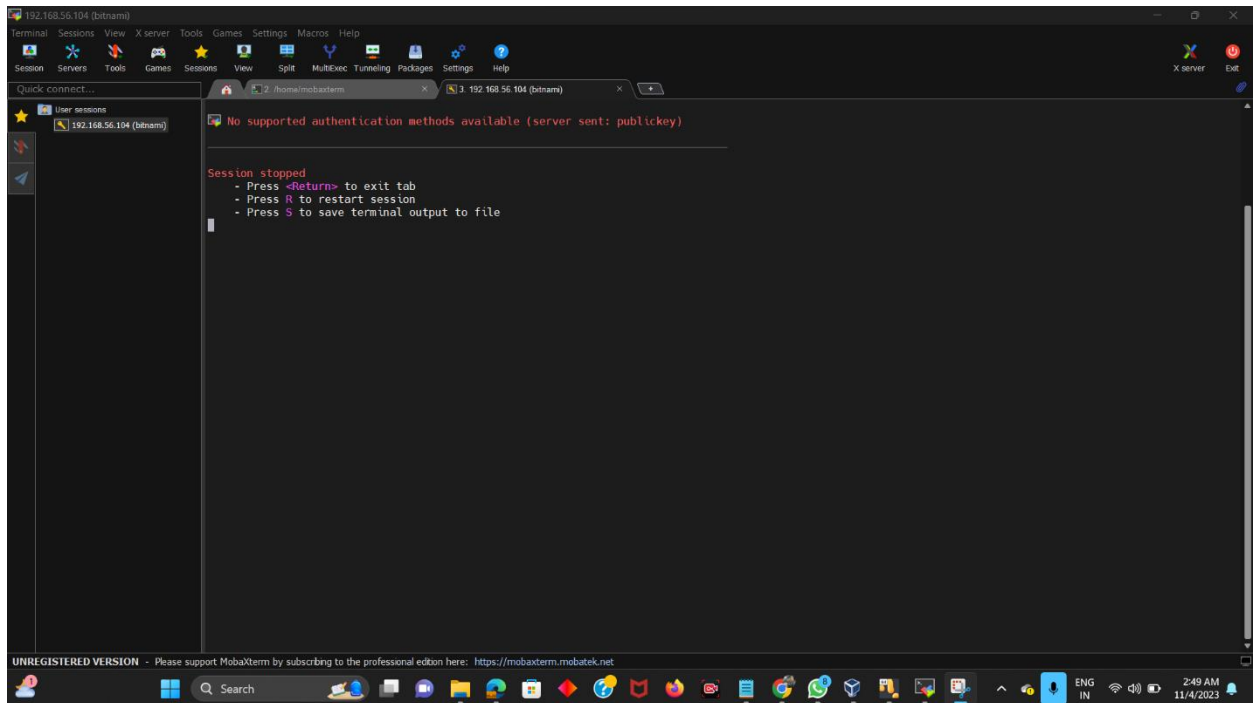
11. Now enabling the ssh



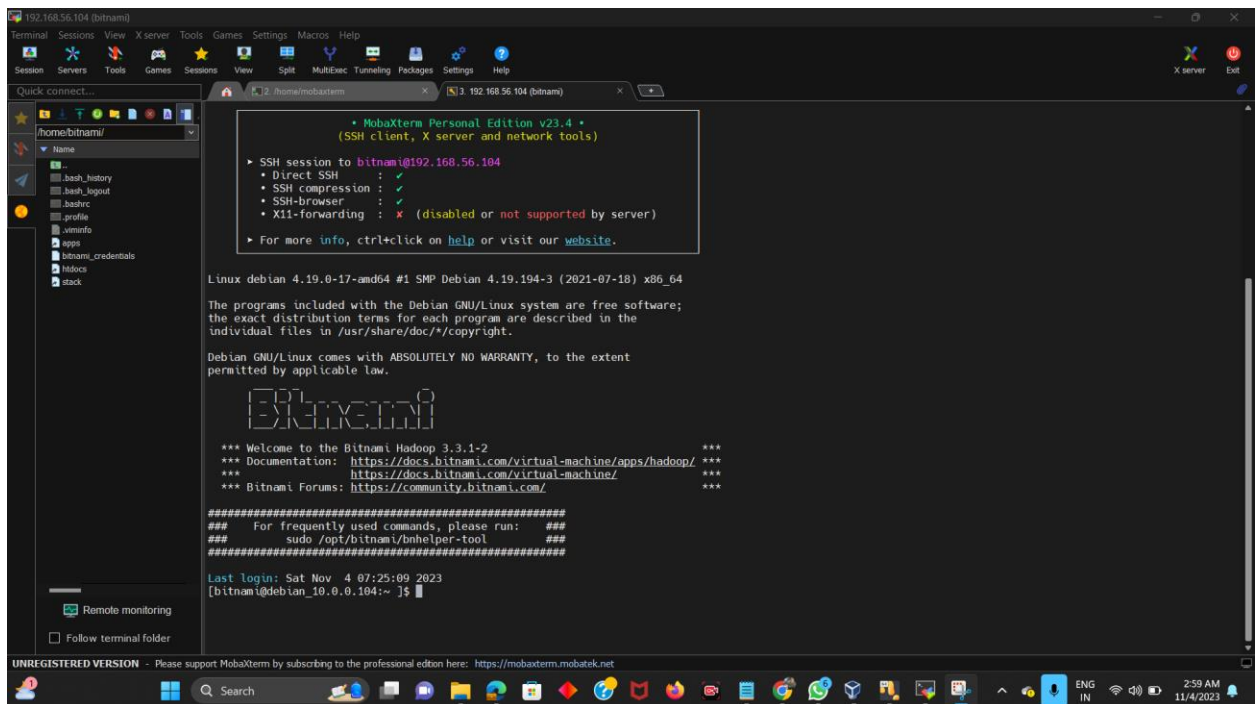
Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

12. After enabling the ssh we can check the MobaXterm the error is change to authentication



13. Now the ssh is enabled and MobaXterm is connected to the server

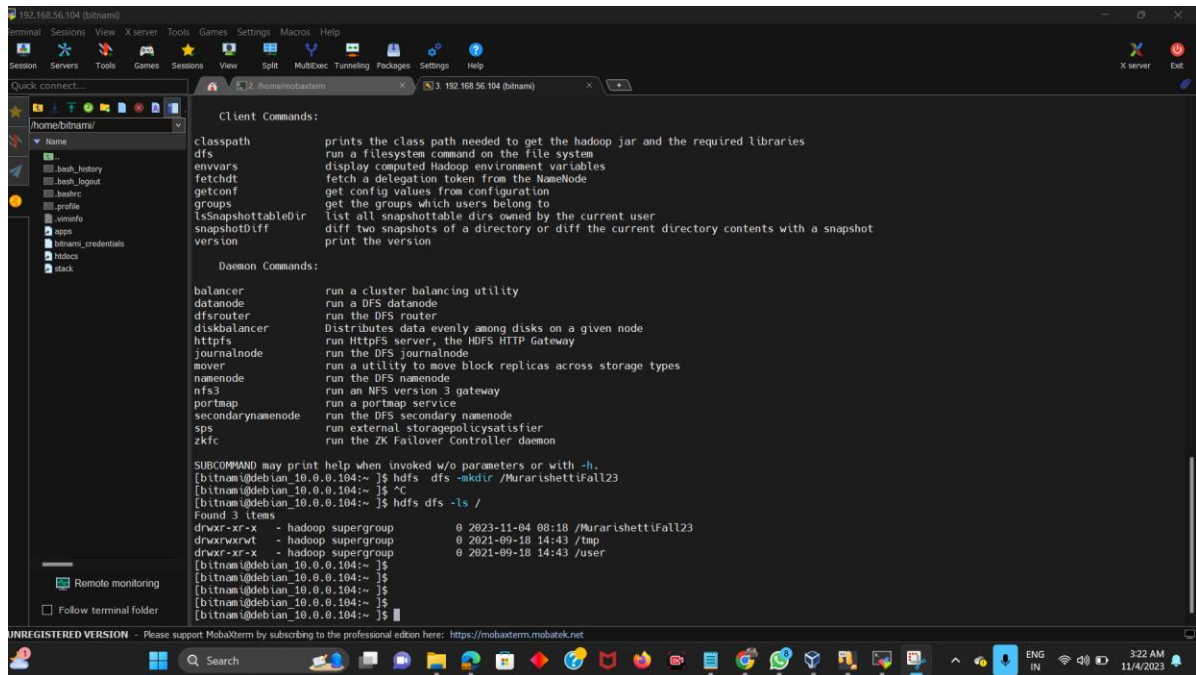


Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

PART 2

1. Creating a HDFS folder



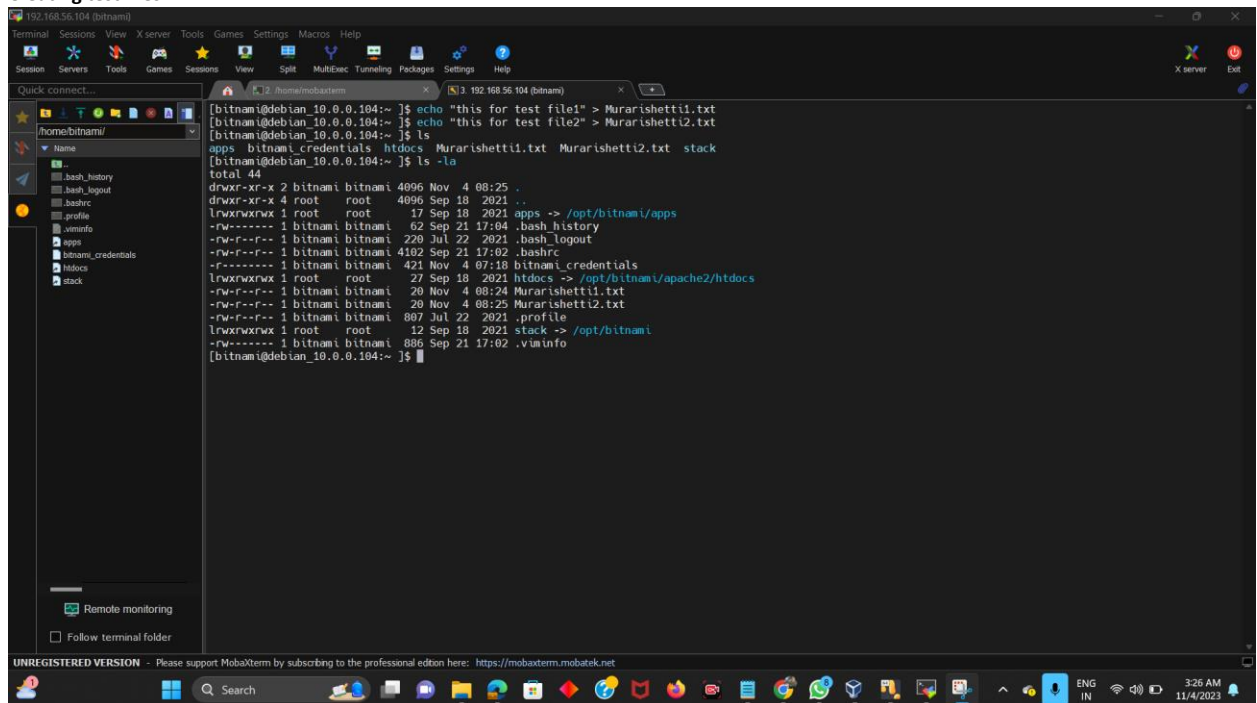
The screenshot shows a MobaXterm terminal window with a file explorer on the left. The terminal displays the following commands and output:

```
Client Commands:
classpath      prints the class path needed to get the hadoop jar and the required libraries
dfs            run a filesystem command on the file system
envvars        display computed Hadoop environment variables
fetchdt        fetch a delegation token from the NameNode
getconf        get config values from configuration
groups         get the groups which users belong to
lsSnapshotDir  list all snapshotable dirs owned by the current user
snapshotDiff   diff two snapshots of a directory or diff the current directory contents with a snapshot
version        print the version

Daemon Commands:
balancer       run a cluster balancing utility
datanode       run a DFS datanode
dfsrouter      run the DFS router
diskbalancer   Distributes data evenly among disks on a given node
httpfs         run HttpFS server, the HDFS HTTP Gateway
journalnode    run the DFS journalnode
mover          run a utility to move block replicas across storage types
namenode       run the DFS namenode
nfs3           run an NFS version 3 gateway
portmap        run a portmap service
secondarynamenode run the DFS secondary namenode
sps            run external storagepolicysatisfier
zkfc           run the ZK Failover Controller daemon

SUBCOMMAND may print help when invoked w/o parameters or with -h.
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -mkdir /MurarishettiFall23
[bitnami@debian_10.0.0.104:~] $ ~C
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /
Found 3 items
drwxr-xr-x 2 hadoop supergroup          0 2023-11-04 08:18 /MurarishettiFall23
drwxr-xr-x 2 hadoop supergroup          0 2021-09-18 14:43 /tmp
[bitnami@debian_10.0.0.104:~] $
```

2. Creating test files



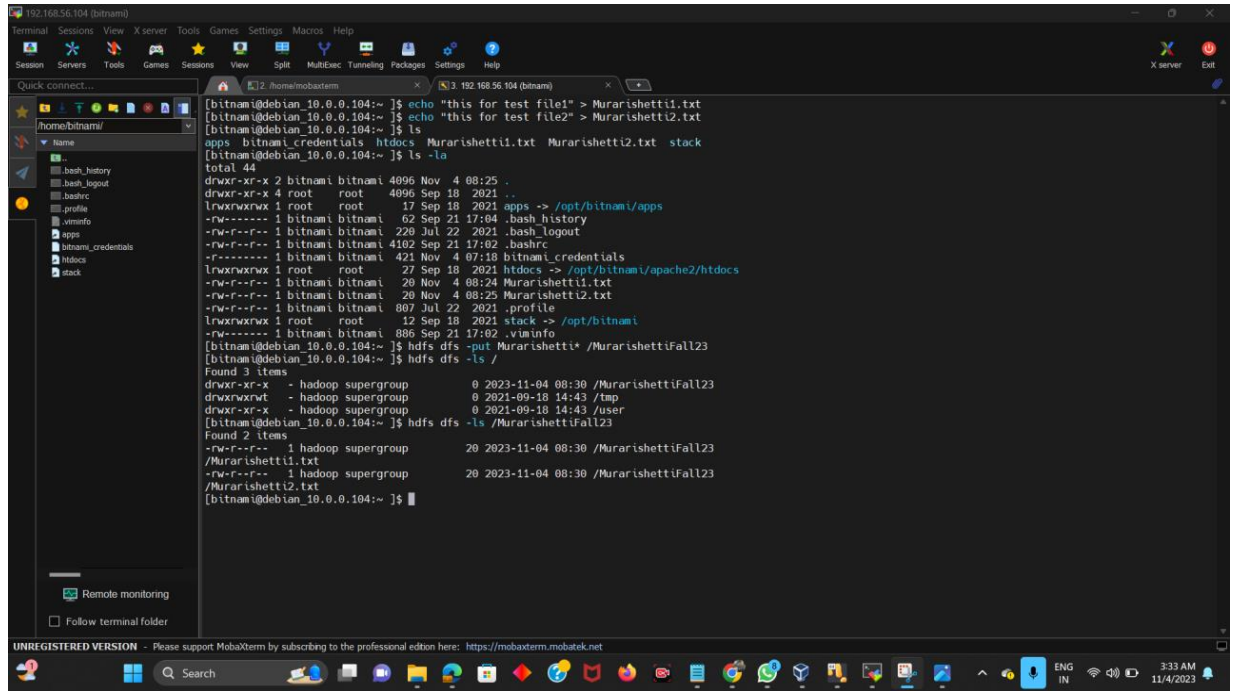
The screenshot shows a MobaXterm terminal window with a file explorer on the left. The terminal displays the following commands and output:

```
[bitnami@debian_10.0.0.104:~] $ echo "this for test file1" > Murarishetti1.txt
[bitnami@debian_10.0.0.104:~] $ echo "this for test file2" > Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $ ls
apps  bitnami_credentials  htdocs  Murarishetti1.txt  Murarishetti2.txt  stack
[bitnami@debian_10.0.0.104:~] $ ls -la
total 44
drwxr-xr-x 2 bitnami bitnami 4096 Nov  4 08:25 .
drwxr-xr-x 4 root    root    4096 Sep 18 2021 ..
lrwxrwxrwx 1 root    root    17 Sep 18 2021 apps -> /opt/bitnami/apps
-rw-r--r-- 1 bitnami bitnami 62 Sep 21 17:04 .bash_history
-rw-r--r-- 1 bitnami bitnami 220 Jul 22 2021 .bash_logout
-rw-r--r-- 1 bitnami bitnami 4102 Sep 21 17:02 .bashrc
-rw-r--r-- 1 bitnami bitnami 421 Nov  4 07:18 bitnami_credentials
lrwxrwxrwx 1 root    root    27 Sep 18 2021 htdocs -> /opt/bitnami/apache2/htdocs
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:24 Murarishetti1.txt
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:25 Murarishetti2.txt
-rw-r--r-- 1 bitnami bitnami 807 Jul 22 2021 .profile
lrwxrwxrwx 1 root    root    12 Sep 18 2021 stack -> /opt/bitnami
-rw-r--r-- 1 bitnami bitnami 886 Sep 21 17:02 .viminfo
[bitnami@debian_10.0.0.104:~] $
```


Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

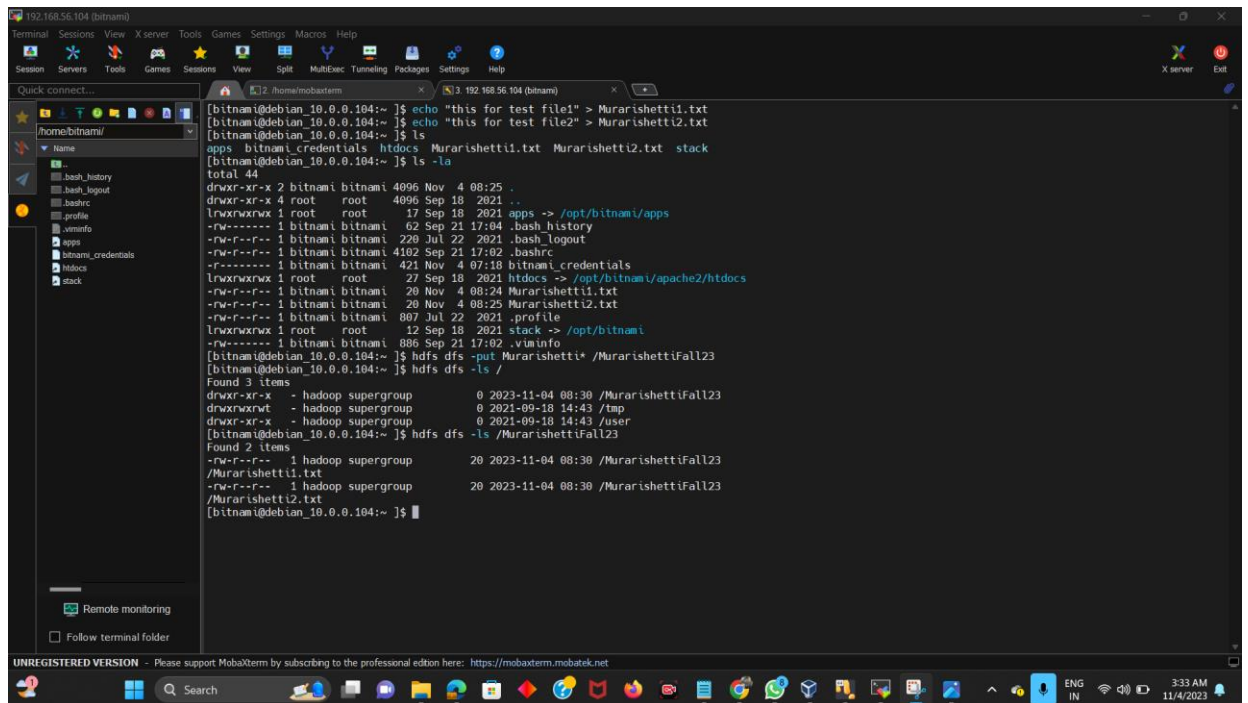
3. Running ls command for displaying the folders



The screenshot shows a MobaXterm terminal window with a session titled '192.168.56.104 (bitnami)'. The left sidebar displays a file explorer for the 'home/bitnami/' directory, listing files like .bash_history, .bash_logout, .bashrc, .profile, .viminfo, apps, bitnami_credentials, htdocs, and stack. The terminal window shows the following commands and output:

```
[bitnami@debian_10.0.0.104:~] $ echo "this for test file1" > Murarishetti1.txt
[bitnami@debian_10.0.0.104:~] $ echo "this for test file2" > Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $ ls
apps  bitnami_credentials  htdocs  Murarishetti1.txt  Murarishetti2.txt  stack
[bitnami@debian_10.0.0.104:~] $ ls -la
total 44
drwxr-xr-x 2 bitnami bitnami 4096 Nov  4 08:25 .
drwxr-xr-x 4 root    root    4096 Sep 18 2021 ..
lrwxrwxrwx 1 root    root    17 Sep 18 2021 apps -> /opt/bitnami/apps
-rw-r--r-- 1 bitnami bitnami 62 Sep 21 17:04 .bash_history
-rw-r--r-- 1 bitnami bitnami 220 Jul 22 2021 .bash_logout
-rw-r--r-- 1 bitnami bitnami 4102 Sep 21 17:02 .bashrc
-rw-r--r-- 1 bitnami bitnami 421 Nov  4 07:18 bitnami_credentials
lrwxrwxrwx 1 root    root    27 Sep 18 2021 htdocs -> /opt/bitnami/apache2/htdocs
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:24 Murarishetti1.txt
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:25 Murarishetti2.txt
-rw-r--r-- 1 bitnami bitnami 807 Jul 22 2021 .profile
lrwxrwxrwx 1 root    root    12 Sep 18 2021 stack -> /opt/bitnami
-rw-r--r-- 1 bitnami bitnami 886 Sep 21 17:02 .viminfo
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -put Murarishetti* /MurarishettiFall23
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /
Found 3 items
drwxr-xr-x - hadoop supergroup 0 2023-11-04 08:30 /MurarishettiFall23
drwxrwxrwt - hadoop supergroup 0 2021-09-18 14:43 /tmp
drwxr-xr-x - hadoop supergroup 0 2021-09-18 14:43 /user
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /MurarishettiFall23
Found 2 items
-rw-r--r-- 1 hadoop supergroup 20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti1.txt
-rw-r--r-- 1 hadoop supergroup 20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $
```

4. Moving the all file to MurarishettiFall23 folder



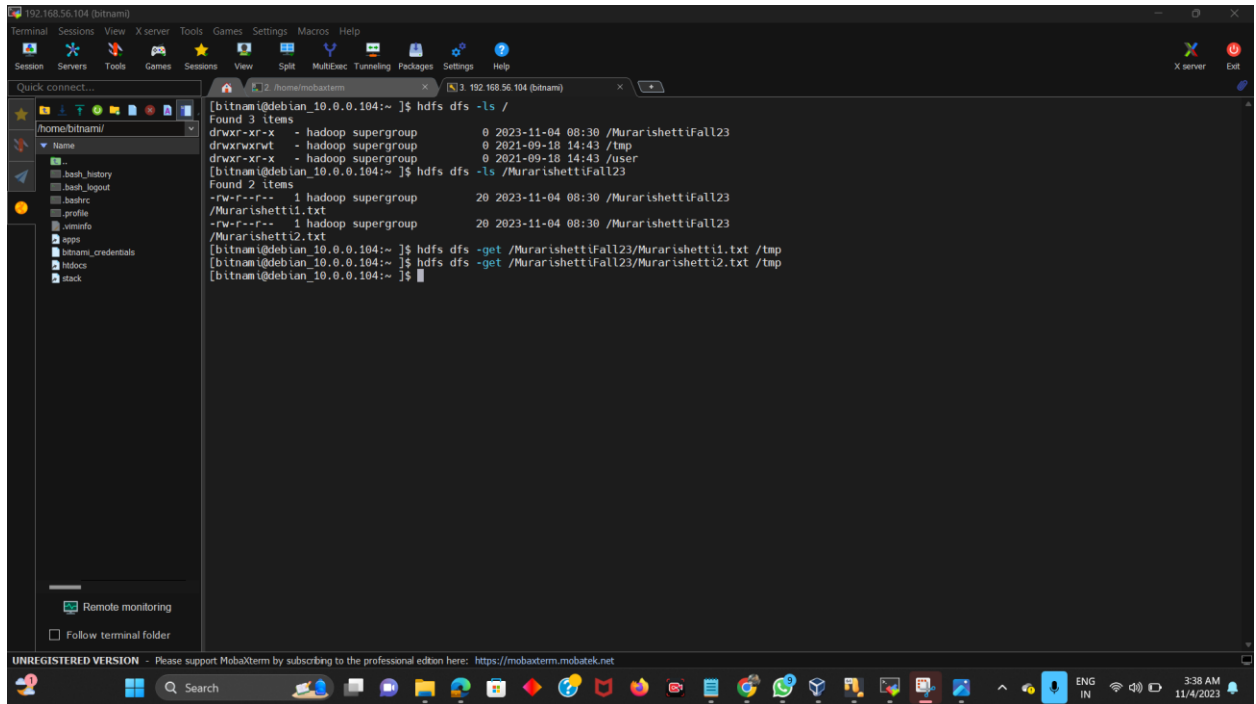
The screenshot shows the same MobaXterm terminal window as above, but with additional commands and output. The user has moved the files from the local environment to the HDFS folder /MurarishettiFall23:

```
[bitnami@debian_10.0.0.104:~] $ echo "this for test file1" > Murarishetti1.txt
[bitnami@debian_10.0.0.104:~] $ echo "this for test file2" > Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $ ls
apps  bitnami_credentials  htdocs  Murarishetti1.txt  Murarishetti2.txt  stack
[bitnami@debian_10.0.0.104:~] $ ls -la
total 44
drwxr-xr-x 2 bitnami bitnami 4096 Nov  4 08:25 .
drwxr-xr-x 4 root    root    4096 Sep 18 2021 ..
lrwxrwxrwx 1 root    root    17 Sep 18 2021 apps -> /opt/bitnami/apps
-rw-r--r-- 1 bitnami bitnami 62 Sep 21 17:04 .bash_history
-rw-r--r-- 1 bitnami bitnami 220 Jul 22 2021 .bash_logout
-rw-r--r-- 1 bitnami bitnami 4102 Sep 21 17:02 .bashrc
-rw-r--r-- 1 bitnami bitnami 421 Nov  4 07:18 bitnami_credentials
lrwxrwxrwx 1 root    root    27 Sep 18 2021 htdocs -> /opt/bitnami/apache2/htdocs
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:24 Murarishetti1.txt
-rw-r--r-- 1 bitnami bitnami 20 Nov  4 08:25 Murarishetti2.txt
-rw-r--r-- 1 bitnami bitnami 807 Jul 22 2021 .profile
lrwxrwxrwx 1 root    root    12 Sep 18 2021 stack -> /opt/bitnami
-rw-r--r-- 1 bitnami bitnami 886 Sep 21 17:02 .viminfo
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -put Murarishetti* /MurarishettiFall23
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /
Found 3 items
drwxr-xr-x - hadoop supergroup 0 2023-11-04 08:30 /MurarishettiFall23
drwxrwxrwt - hadoop supergroup 0 2021-09-18 14:43 /tmp
drwxr-xr-x - hadoop supergroup 0 2021-09-18 14:43 /user
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /MurarishettiFall23
Found 2 items
-rw-r--r-- 1 hadoop supergroup 20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti1.txt
-rw-r--r-- 1 hadoop supergroup 20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $
```

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

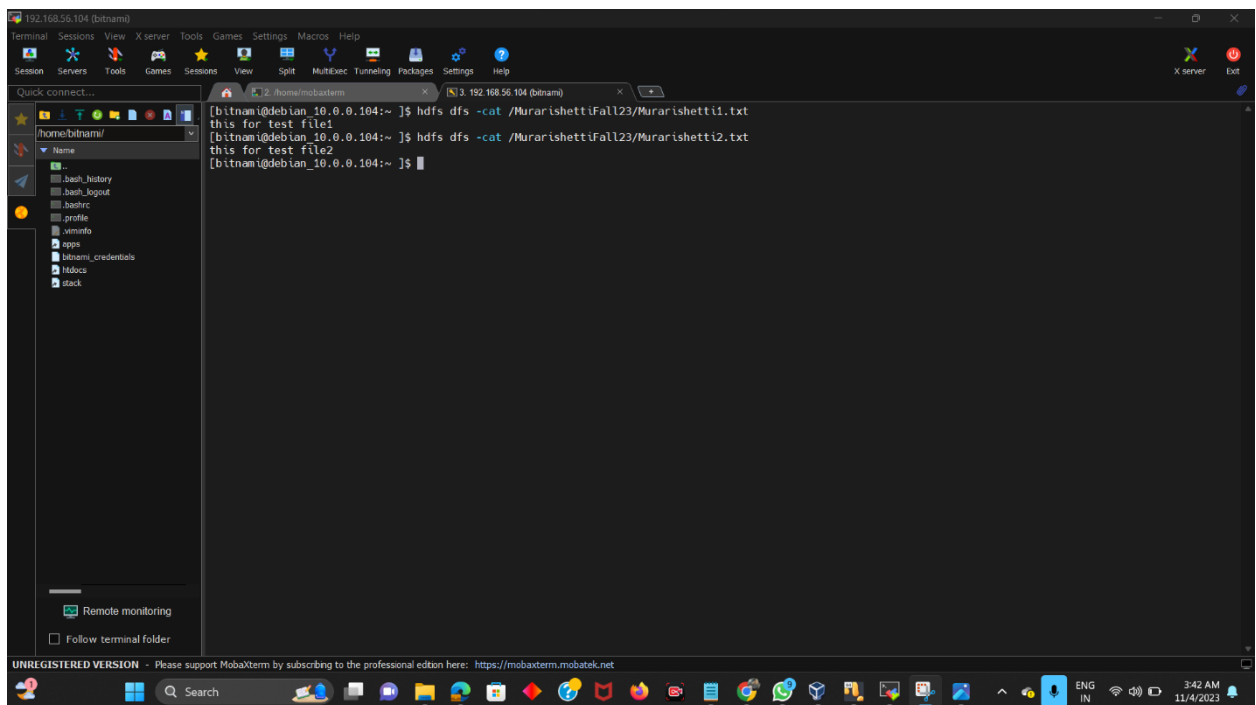
5. Copying file to tmp folder



The screenshot shows a MobaXterm terminal window with a file explorer on the left. The terminal output shows the following commands and results:

```
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /
Found 3 items
drwxr-xr-x - hadoop supergroup          0 2023-11-04 08:30 /MurarishettiFall23
drwxr-xr-x - hadoop supergroup          0 2021-09-18 14:43 /tmp
drwxr-xr-x - hadoop supergroup          0 2021-09-18 14:43 /user
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /MurarishettiFall23
Found 2 items
-rw-r--r-- 1 hadoop supergroup          20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti1.txt
-rw-r--r-- 1 hadoop supergroup          20 2023-11-04 08:30 /MurarishettiFall23
/Murarishetti2.txt
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -get /MurarishettiFall23/Murarishetti1.txt /tmp
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -get /MurarishettiFall23/Murarishetti2.txt /tmp
[bitnami@debian_10.0.0.104:~] $
```

6. Viewing content using cat command



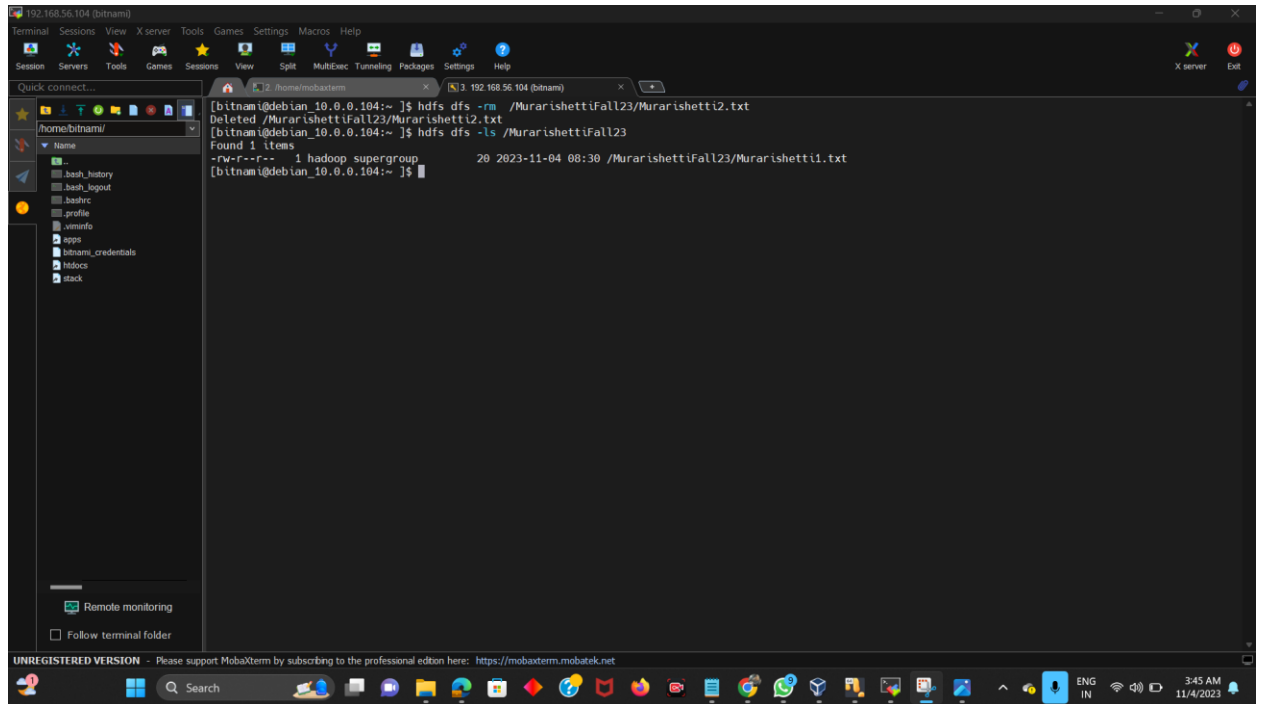
The screenshot shows a MobaXterm terminal window with a file explorer on the left. The terminal output shows the following commands and results:

```
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -cat /MurarishettiFall23/Murarishetti1.txt
this for test file1
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -cat /MurarishettiFall23/Murarishetti2.txt
this for test file2
[bitnami@debian_10.0.0.104:~] $
```

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

7. Removing a file from HDFS



The screenshot shows a MobaXterm terminal window with the following commands and output:

```
[bitnami@debian_10.0.0.104:~]$ hdfs dfs -rm /MurarishettiFall23/Murarishetti2.txt
Deleted /MurarishettiFall23/Murarishetti2.txt
[bitnami@debian_10.0.0.104:~]$ hdfs dfs -ls /MurarishettiFall23
Found 1 items
-rw-r--r-- 1 hadoop supergroup 20 2023-11-04 08:30 /MurarishettiFall23/Murarishetti1.txt
[bitnami@debian_10.0.0.104:~]$
```

The terminal window also displays a file explorer on the left side with the following files:

- name
- .bash_history
- .bash_logout
- .bashrc
- .profile
- .viminfo
- eggs
- bitnami_credentials
- htdocs
- stack

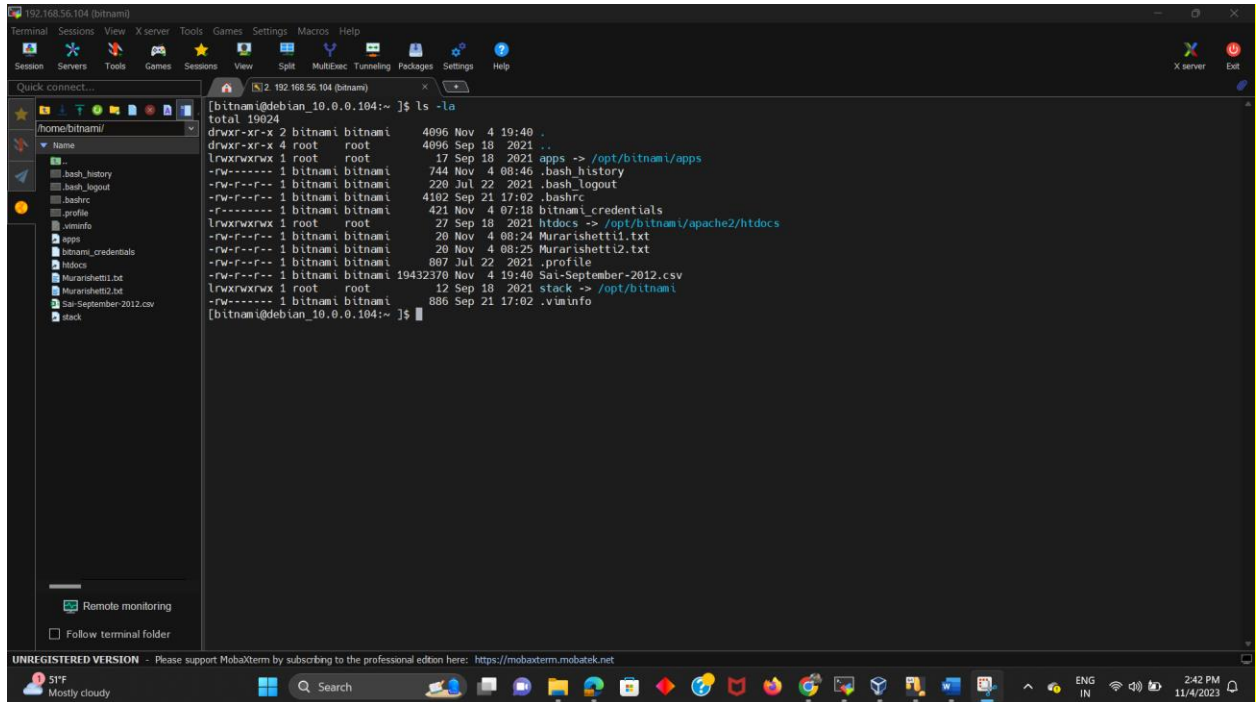
The bottom of the window shows the MobaXterm interface with the text: "UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>"

Week 2

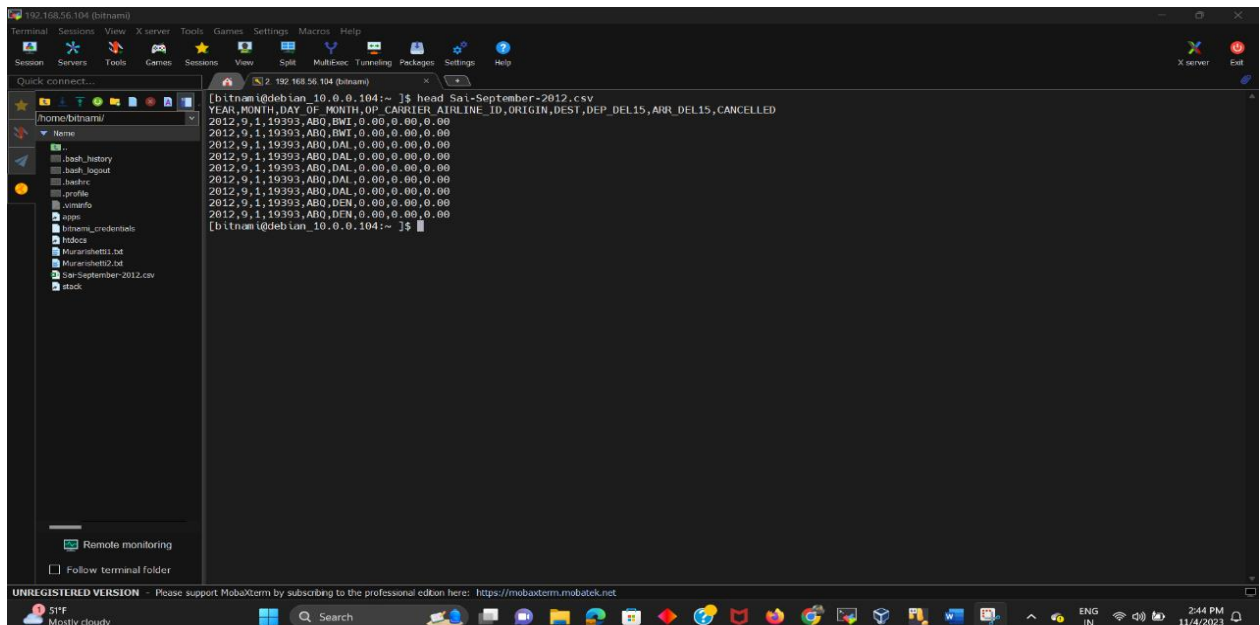
Sai Kumar Murarishetti
Lewis ID: 30079224

Part 3

1. **Downlaoding the file for September 2012 Airline, rename the file and uploaded to the server**



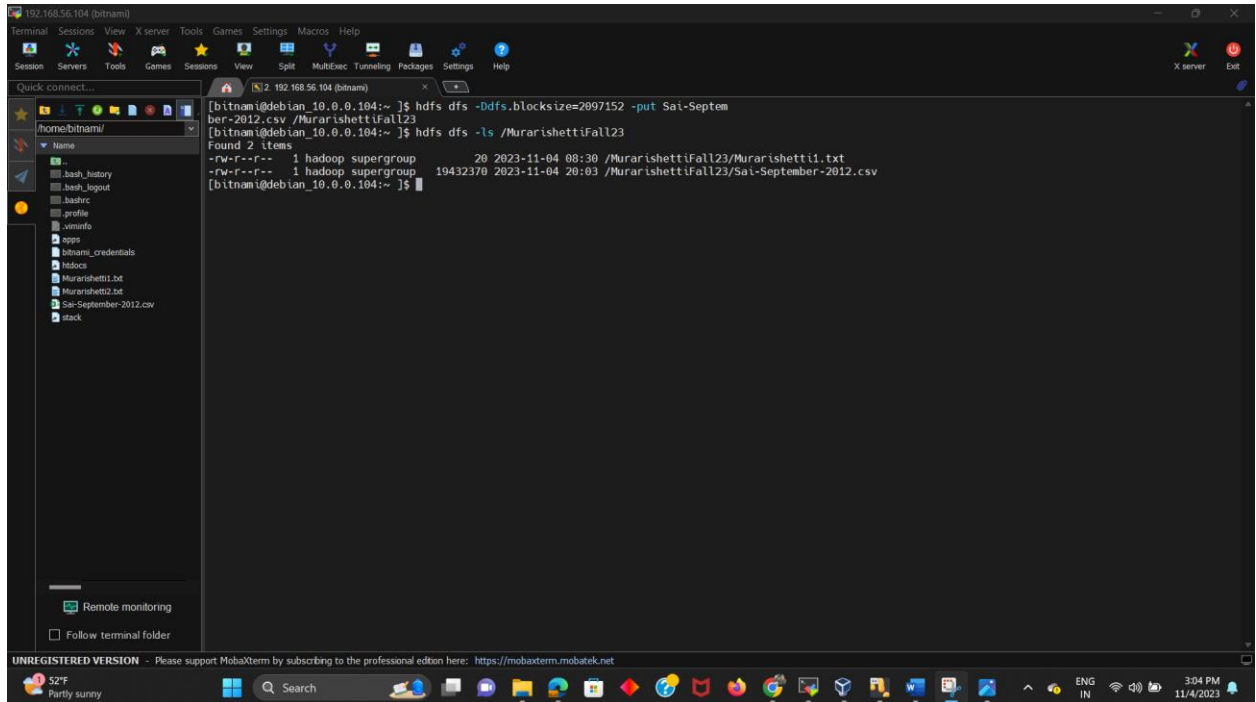
- ## 2. Running the head command



Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

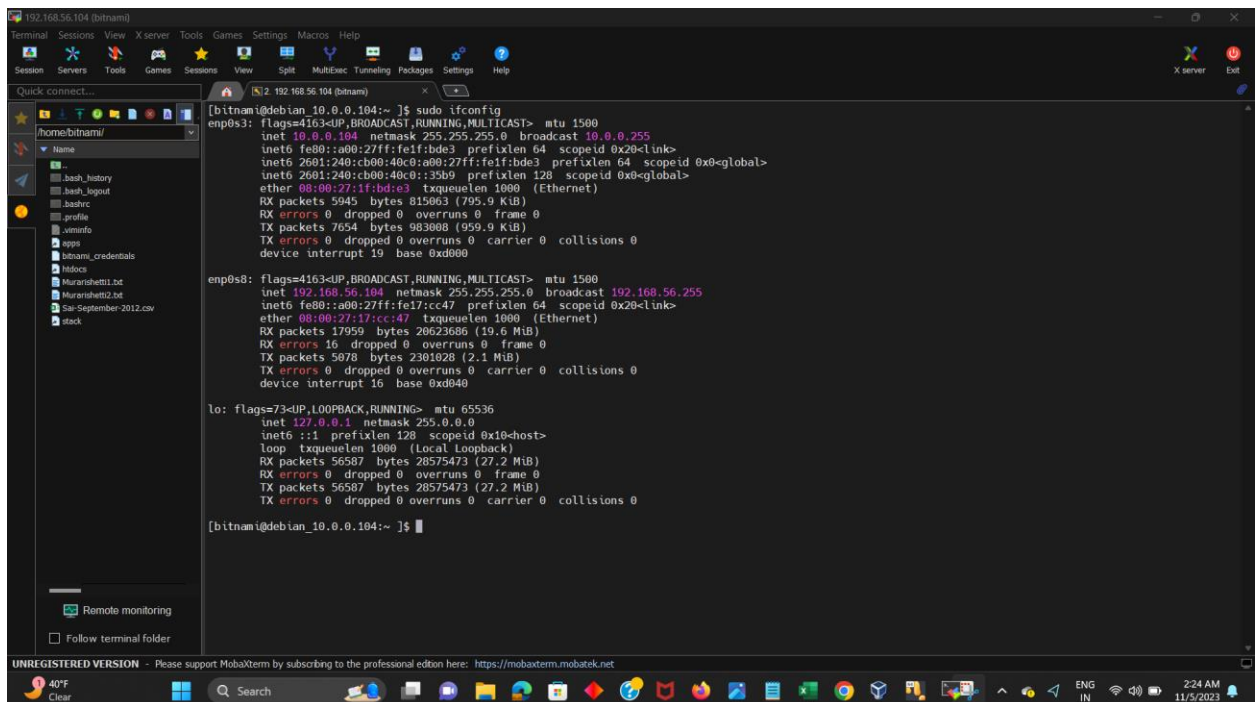
3. Providing the block size



The screenshot shows a MobaXterm terminal window with the following commands and output:

```
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -Ddfs.blocksize=2097152 -put Sai-September-2012.csv /MurarishettiFall23
[bitnami@debian_10.0.0.104:~] $ hdfs dfs -ls /MurarishettiFall23
Found 2 items
-rw-r--r-- 1 hadoop supergroup          20 2023-11-04 08:30 /MurarishettiFall23/Murarishetti.txt
-rw-r--r-- 1 hadoop supergroup 19432370 2023-11-04 20:03 /MurarishettiFall23/Sai-September-2012.csv
[bitnami@debian_10.0.0.104:~] $
```

3. Running command to find the Ip address



The screenshot shows a MobaXterm terminal window with the following command and output:

```
[bitnami@debian_10.0.0.104:~] $ sudo ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.0.104 netmask 255.255.255.0 broadcast 10.0.0.255
    inet6 fe80::a00:27ff:fe1f:bde3 prefixlen 64 scopeid 0x20<link>
    inet6 2601:240:cb00:40c0:a00:27ff:fe1f:bde3 prefixlen 64 scopeid 0x0<global>
    ether 00:00:27:1f:bd:e3 txqueuelen 1000 (Ethernet)
    RX packets 5945 bytes 815063 (795.9 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 7654 bytes 983008 (959.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 19 base 0xd000

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.104 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::a00:27ff:fe17:cc47 prefixlen 64 scopeid 0x20<link>
    ether 00:00:27:17:cc:47 txqueuelen 1000 (Ethernet)
    RX packets 17959 bytes 20623686 (19.6 MiB)
    RX errors 16 dropped 0 overruns 0 frame 0
    TX packets 5870 bytes 2301628 (2.1 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 16 base 0xd040

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 56587 bytes 28575473 (27.2 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 56587 bytes 28575473 (27.2 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[bitnami@debian_10.0.0.104:~] $
```

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

4. Browsing to the website

The screenshot shows the Hadoop Overview page in a web browser. The browser's address bar displays the URL `192.168.56.104:9870/dfshealth.html#tab-overview`. The page has a green navigation bar with tabs: Hadoop, Overview, Datanodes, Datanode Volume Failures, Snapshot, Startup Progress, and Utilities. The main content area is titled "Overview 'localhost:8020' (✓active)". Below the title is a table with the following information:

Started:	Fri Nov 03 21:17:15 -0500 2023
Version:	3.3.1, ra3b9c37a397ad4188041dd80621bdeefc46885f2
Compiled:	Tue Jun 15 00:13:00 -0500 2021 by ubuntu from (HEAD detached at release-3.3.1-RC3)
Cluster ID:	CID-02543b34-1171-41a4-a919-2f86298ec46
Block Pool ID:	BP-1858343801-127.0.0.2-1631976173577

Below the table is a "Summary" section. It contains the following text:

Security is off.
Safemode is off.
53 files and directories, 11 blocks (11 replicated blocks, 0 erasure coded block groups) = 64 total filesystem object(s).
Heap Memory used 176.35 MB of 245.5 MB Heap Memory. Max Heap Memory is 878.5 MB.
Non Heap Memory used 72.64 MB of 74.67 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.

Below the summary is a table with the following information:

Configured Capacity:	14.6 GB
Configured Remote Capacity:	0 B

5. Screen shot of the large Airline datafile

The screenshot shows the Hadoop Browse Directory page in a web browser. The browser's address bar displays the URL `192.168.56.104:9870/explorer.html#/MurarishettiFal23`. The page has a green navigation bar with tabs: Hadoop, Overview, Datanodes, Datanode Volume Failures, Snapshot, Startup Progress, and Utilities. The main content area is titled "Browse Directory". Below the title is a search bar with the text `/MurarishettiFal23` and a "Go!" button. Below the search bar is a table with the following information:

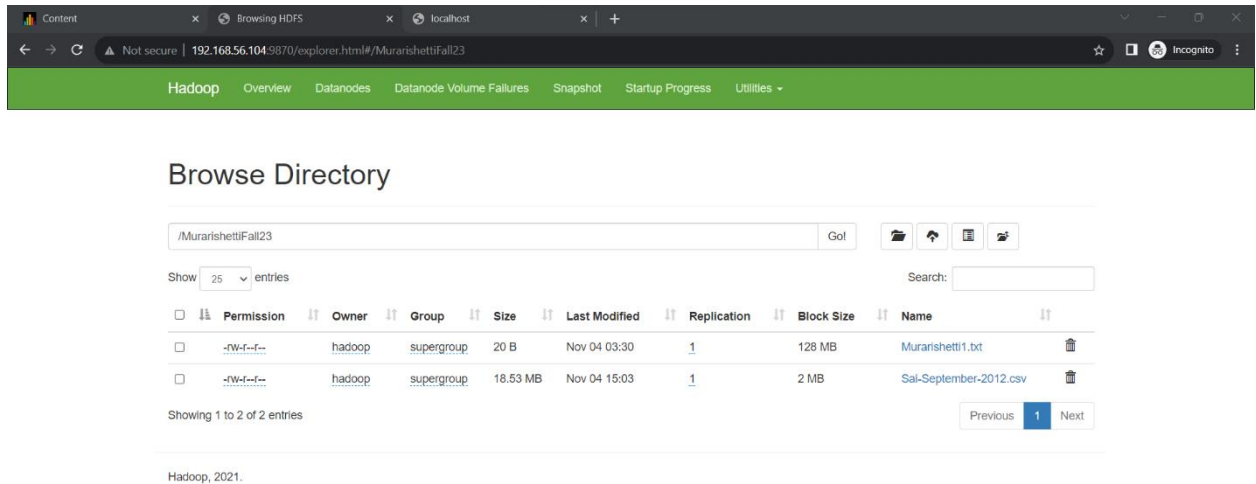
Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name
-rw-r--r--	hadoop	supergroup	20 B	Nov 04 03:30	1	128 MB	Murarishetti1.txt
-rw-r--r--	hadoop	supergroup	18.53 MB	Nov 04 15:03	1	2 MB	Sai-September-2012.csv

Below the table is a "Showing 1 to 2 of 2 entries" message. Below the message is a "Previous 1 Next" button. Below the button is a "Hadoop, 2021." message.

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

6. Replication factor and the blocksize



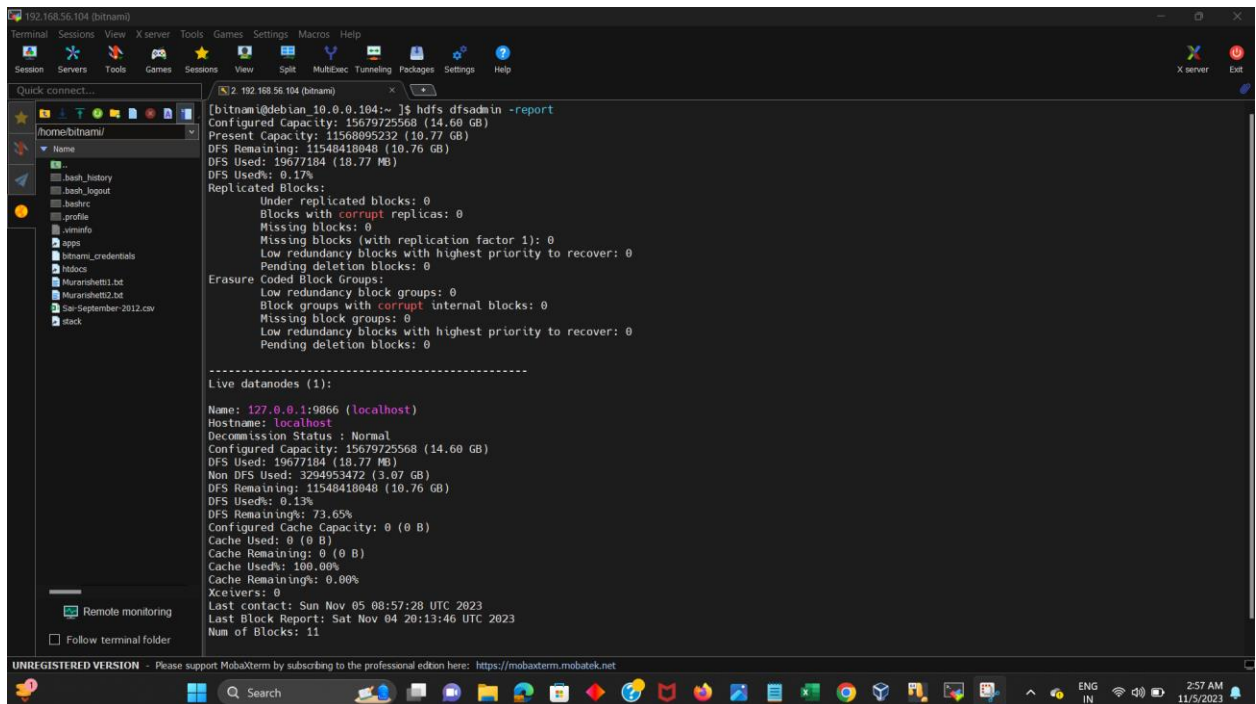
The screenshot shows the Hadoop web interface for browsing the HDFS directory. The address bar indicates the URL is `192.168.56.104:9870/explorer.html#/MurarishettiFall23`. The interface displays a table of files and directories in the specified path.

Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name
-rw-r--r--	hadoop	supergroup	20 B	Nov 04 03:30	1	128 MB	Murarishetti1.txt
-rw-r--r--	hadoop	supergroup	18.53 MB	Nov 04 15:03	1	2 MB	Sai-September-2012.csv

Showing 1 to 2 of 2 entries

Hadoop, 2021.

7. Apache command to change the replication factor of files in HDFS



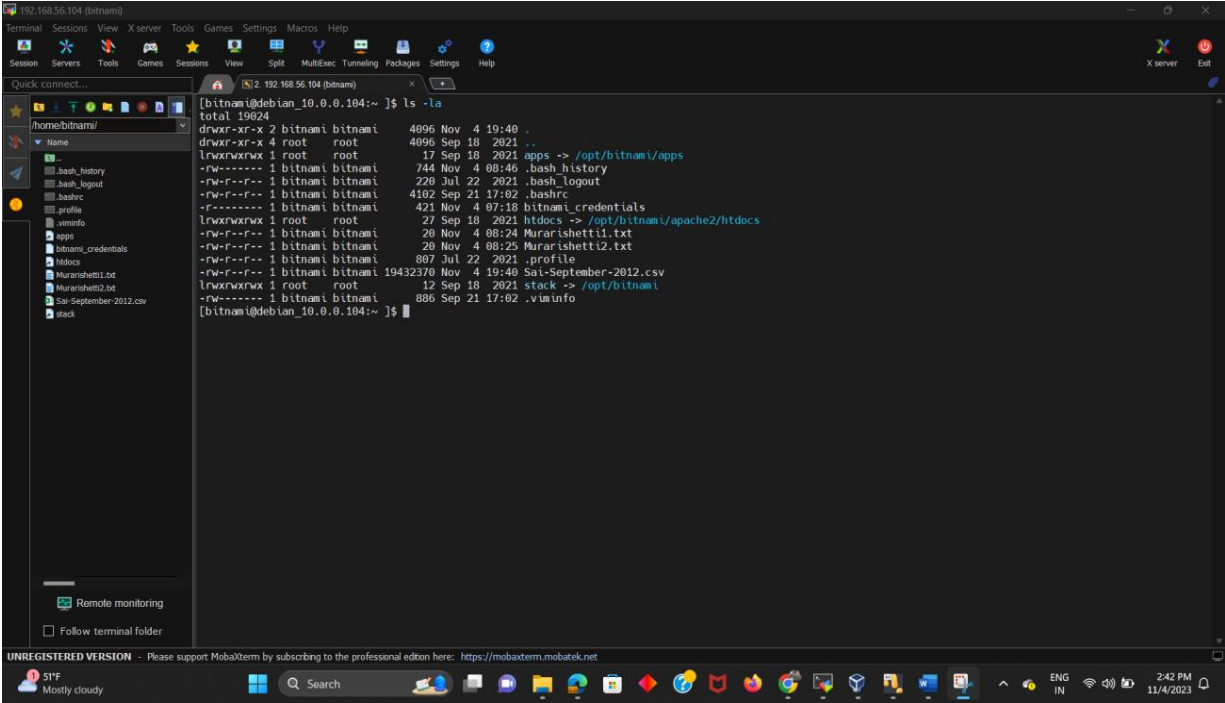
The screenshot shows a terminal window with the output of the `hdfs dfsadmin -report` command. The output provides a detailed status report of the HDFS cluster, including configuration, usage, and replication information.

```
[bitnami@debian_10.0.0.104:~]$ hdfs dfsadmin -report
Configured Capacity: 15679725568 (14.60 GB)
Present Capacity: 11568099232 (10.77 GB)
DFS Remaining: 11548418048 (10.76 GB)
DFS Used: 19677184 (18.77 MB)
DFS Used%: 0.17%
Replicated Blocks:
  Under replicated blocks: 0
  Blocks with corrupt replicas: 0
  Missing blocks: 0
  Missing blocks (with replication factor 1): 0
  Low redundancy blocks with highest priority to recover: 0
  Pending deletion blocks: 0
Erasure Coded Block Groups:
  Low redundancy block groups: 0
  Block groups with corrupt internal blocks: 0
  Missing block groups: 0
  Low redundancy blocks with highest priority to recover: 0
  Pending deletion blocks: 0
-----
Live datanodes (1):
Name: 127.0.0.1:9866 (localhost)
Hostname: localhost
Decommission Status : Normal
Configured Capacity: 15679725568 (14.60 GB)
DFS Used: 19677184 (18.77 MB)
Non DFS Used: 3294953472 (3.07 GB)
DFS Remaining: 11548418048 (10.76 GB)
DFS Used%: 0.13%
DFS Remaining%: 73.65%
Configured Cache Capacity: 0 (0 B)
Cache Used: 0 (0 B)
Cache Remaining: 0 (0 B)
Cache Used%: 100.00%
Cache Remaining%: 0.00%
Xcetiwers: 0
Last contact: Sun Nov 05 08:57:28 UTC 2023
Last Block Report: Sat Nov 04 20:13:46 UTC 2023
Num of Blocks: 11
```

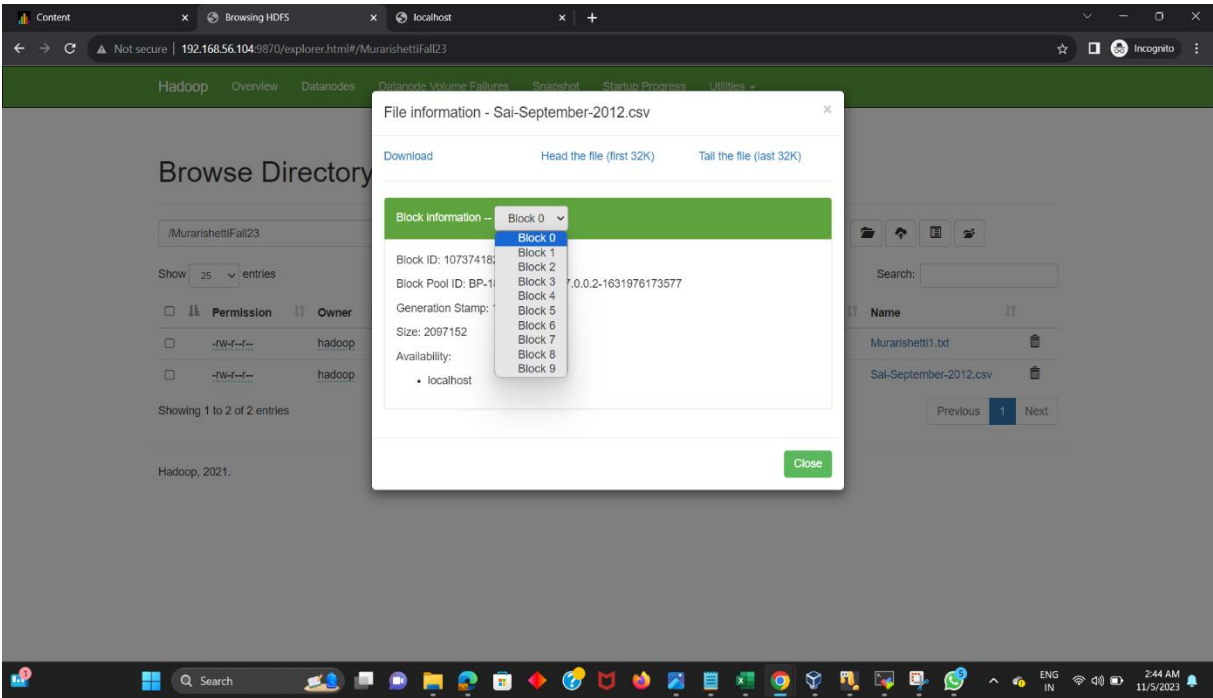
Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

8. Large size uploaded



9. Screen of blocks and other information



Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

10. Running the HDFS fsck command

```
[bitnami@debian_10.0.0.104:~]$ hdfs fsck /MurarishettiFall23/Sai-September-2012.csv -files -blocks -locations
Connecting to namenode via http://localhost:9870/fsc?ugi=hadoop&files=16&blocks=16&locations=16&path=/2FMurarishettiFall23%2FSai-September-2012.csv
FSCK started by hadoop (auth:SIMPLE) from /127.0.0.1 for path /MurarishettiFall23/Sai-September-2012.csv at Sun Nov 05 08:49:46 UTC 2023

/MurarishettiFall23/Sai-September-2012.csv 19432370 bytes, replicated: replication=1, 10 block(s): OK
0. BP-1858343801-127.0.0.2-1631976173577:blk_1073741827_1003 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
1. BP-1858343801-127.0.0.2-1631976173577:blk_1073741828_1004 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
2. BP-1858343801-127.0.0.2-1631976173577:blk_1073741829_1005 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
3. BP-1858343801-127.0.0.2-1631976173577:blk_1073741830_1006 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
4. BP-1858343801-127.0.0.2-1631976173577:blk_1073741831_1007 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
5. BP-1858343801-127.0.0.2-1631976173577:blk_1073741832_1008 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
6. BP-1858343801-127.0.0.2-1631976173577:blk_1073741833_1009 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
7. BP-1858343801-127.0.0.2-1631976173577:blk_1073741834_1010 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
8. BP-1858343801-127.0.0.2-1631976173577:blk_1073741835_1011 len=2097152 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]
9. BP-1858343801-127.0.0.2-1631976173577:blk_1073741836_1012 len=558002 Live_repl=1 [DatanodeInfoWithStorage[127.0.0.1:9866,DS-e6e82b6b-0559-4a7a-a957-6b710
1ee106c,DISK]]

Status: HEALTHY
Number of data-nodes: 1
Number of racks: 1
Total dirs: 0
Total symlinks: 0

Replicated Blocks:
Total size: 19432370 B
Total files: 1
Total blocks (validated): 10 (avg. block size 1943237 B)
Minimally replicated blocks: 10 (100.0 %)
Over-replicated blocks: 0 (0.0 %)
Under-replicated blocks: 0 (0.0 %)
Mis-replicated blocks: 0 (0.0 %)

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
```

```
ee106c,DISK]]

Status: HEALTHY
Number of data-nodes: 1
Number of racks: 1
Total dirs: 0
Total symlinks: 0

Replicated Blocks:
Total size: 19432370 B
Total files: 1
Total blocks (validated): 10 (avg. block size 1943237 B)
Minimally replicated blocks: 10 (100.0 %)
Over-replicated blocks: 0 (0.0 %)
Under-replicated blocks: 0 (0.0 %)
Mis-replicated blocks: 0 (0.0 %)
Default replication factor: 1
Average block replication: 1.0
Missing blocks: 0
Corrupt blocks: 0
Missing replicas: 0 (0.0 %)
Blocks queued for replication: 0

Erasure Coded Block Groups:
Total size: 0 B
Total files: 0
Total block groups (validated): 0
Minimally erasure-coded block groups: 0
Over-erasure-coded block groups: 0
Under-erasure-coded block groups: 0
Unsatisfactory placement block groups: 0
Average block group size: 0.0
Missing block groups: 0
Corrupt block groups: 0
Missing internal blocks: 0
Blocks queued for replication: 0
FSCK ended at Sun Nov 05 08:49:46 UTC 2023 in 3 milliseconds

The filesystem under path '/MurarishettiFall23/Sai-September-2012.csv' is HEALTHY
[bitnami@debian_10.0.0.104:~]$
```

Week 2

Sai Kumar Murarishetti
Lewis ID: 30079224

- a. What is the replication factor of the large data file stored in HDFS?

Ans: 1 is replication factor for the large data file stored in HDFS which is Sai-September-2012.csv

- b. What is the # of blocks needed to store the file?

Ans: 10 blocks needed to store the file since we have set the block to 2MB. Our original file size is around 18 MB.