

Solution of 3 rd test

1. What is the Namenode's URI and which file is it configured in?

Ans. Namenode's URI is hdfs://localhost:9870, it's configured with fs.default.name property that's specified in /home/poonam/hadoop/hadoop-3.3.0/etc/hadoop/core-site.xml

```
<property>
<name>fs.default.name</name>
<value>hdfs://localhost:9000</value>
</property>
```

2. Where on a local file system will Namenode store its image and which file is it configured in?

Ans. Namenode will store its image under /home/poonam/hadoop_store/hdfs/namenode, it's configured with dfs.namenode.name.dir property that's specified in /home/poonam/hadoop/hadoop-3.3.0/etc/hadoop/hdfs-site.xml

```
<property>
<name>dfs.namenode.name.dir</name>
<value>file:/home/prave/hadoop_store/hdfs/namenode</value>
</property>
```

3. Where on a local file system will Datanode store its blocks and which file is it configured in?

Ans. Datanode will store its image under /home/poonam/hadoop_store/hdfs/datanode, it's configured with dfs.datanode.data.dir property that's specified in /home/poonam/hadoop/hadoop-3.3.0/etc/hadoop/hdfs-site.xml

```
<property>
<name>dfs.datanode.data.dir</name>
<value>file:/home/prave/hadoop_store/hdfs/datanode</value>
</property>
```

4. What is the block replication and which file is it configured in?

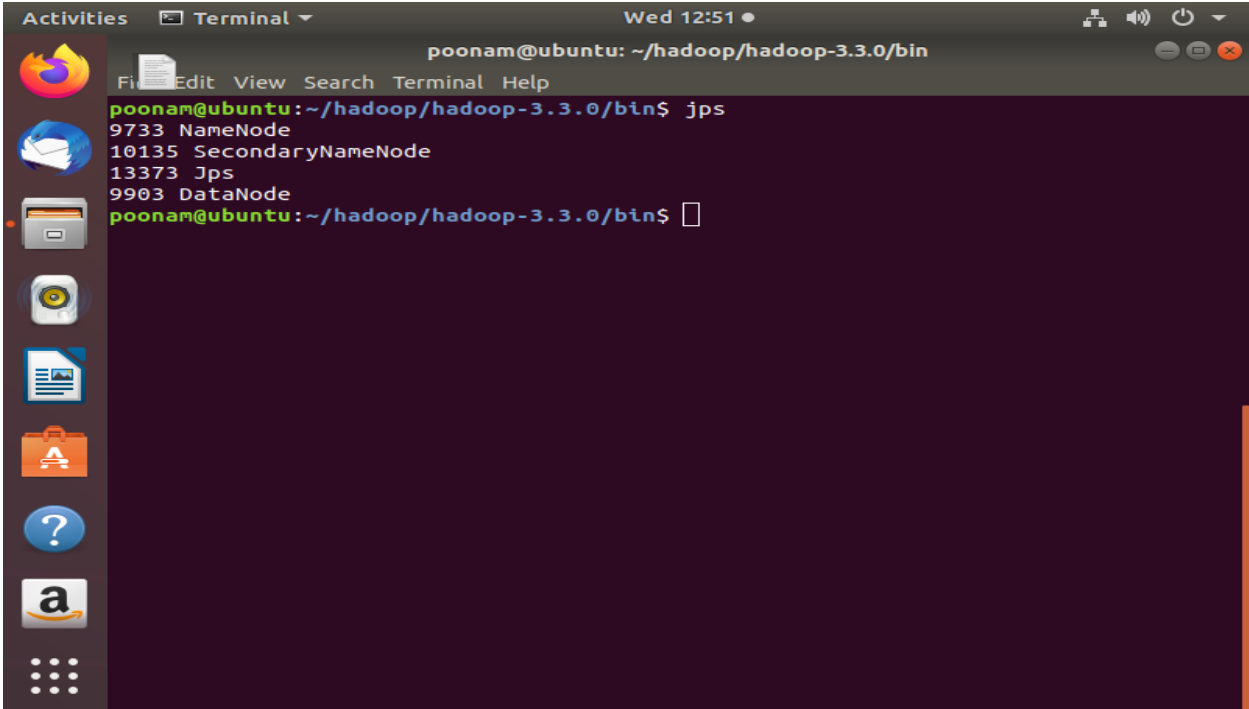
Ans. Replication is set to 1, it's configured with dfs.replication property that's specified in /home/poonam/hadoop/hadoop-3.3.0/etc/hdfs-site.xml

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

****Perform**

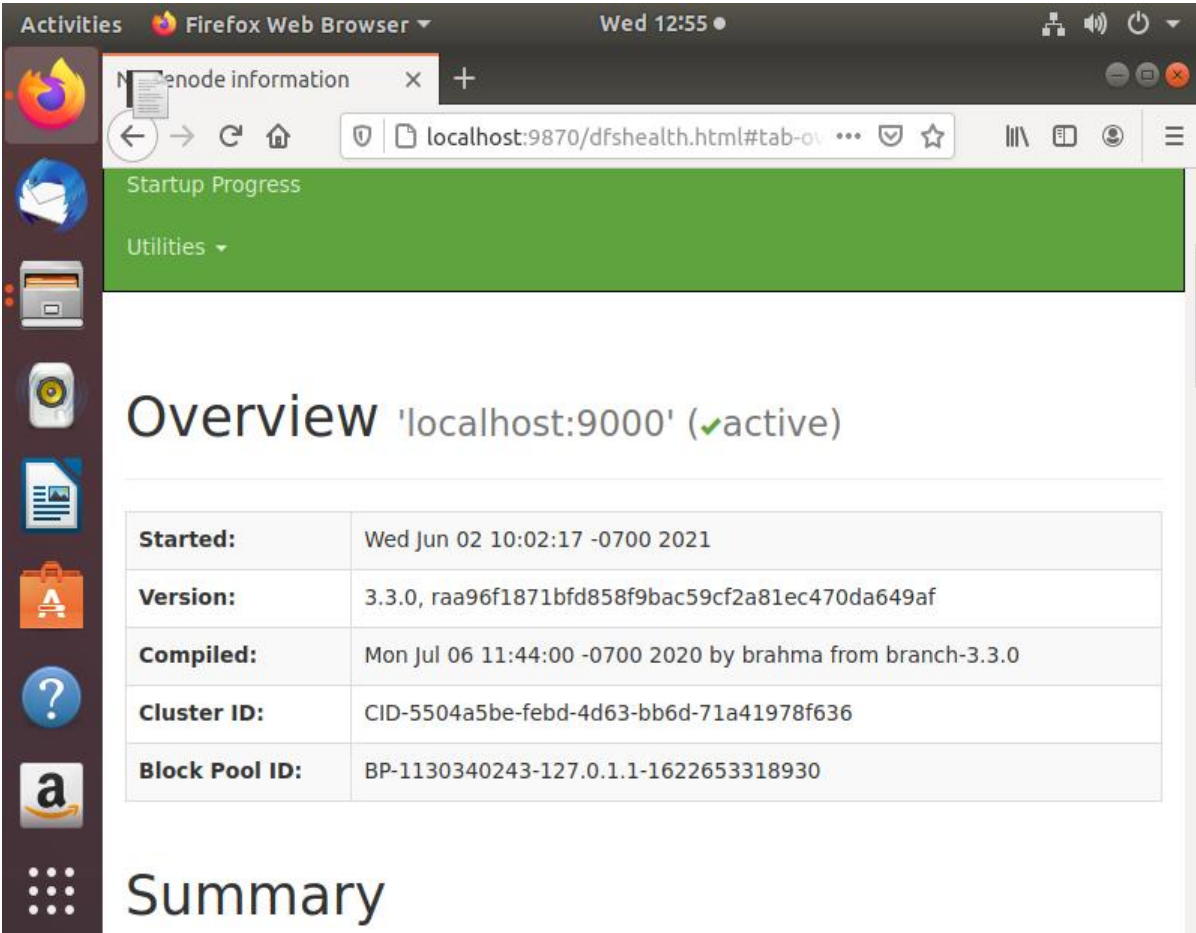
1. **Start HDFS and verify that it's running**

Code: jps



A terminal window titled 'Terminal' with the prompt 'poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin'. The command 'jps' has been executed, and the output is as follows:

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ jps
9733 NameNode
10135 SecondaryNameNode
13373 Jps
9903 DataNode
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```



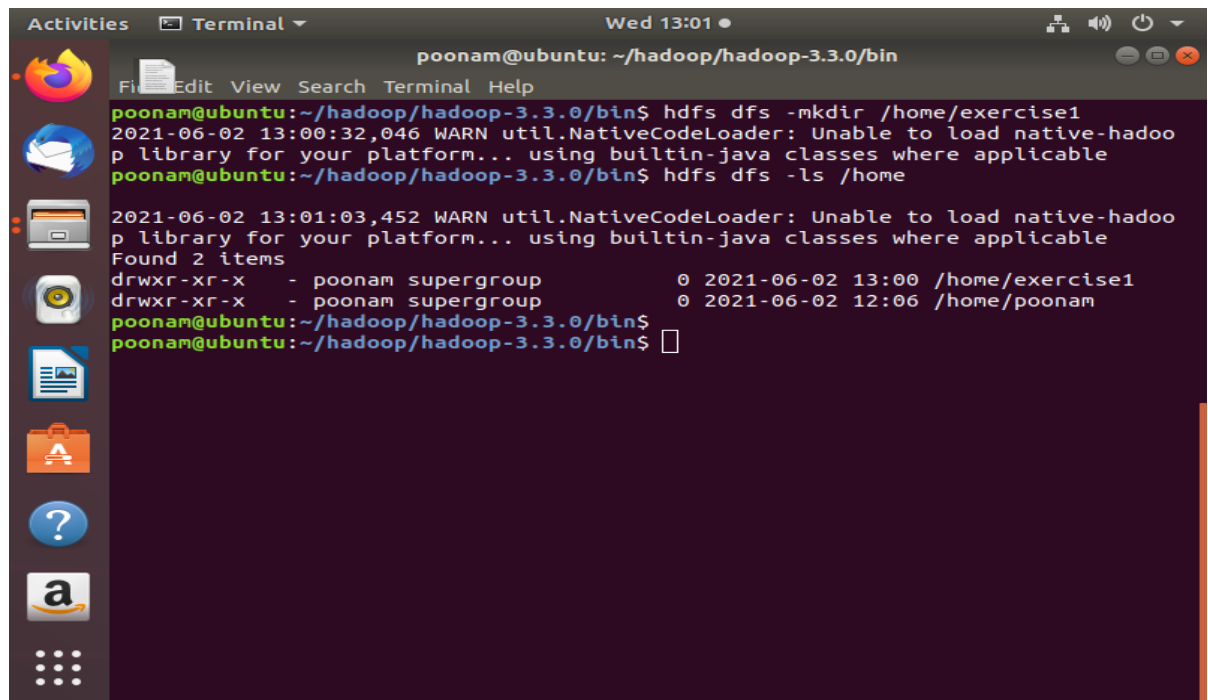
A Firefox Web Browser window titled 'Firefox Web Browser' with the address bar showing 'localhost:9870/dfshealth.html#tab-overview'. The page displays the 'Startup Progress' and 'Utilities' sections. The main content is the 'Overview' for 'localhost:9000' (✓active).

| Overview 'localhost:9000' (✓active) | |
|-------------------------------------|--|
| Started: | Wed Jun 02 10:02:17 -0700 2021 |
| Version: | 3.3.0, raa96f1871bfd858f9bac59cf2a81ec470da649af |
| Compiled: | Mon Jul 06 11:44:00 -0700 2020 by brahma from branch-3.3.0 |
| Cluster ID: | CID-5504a5be-febd-4d63-bb6d-71a41978f636 |
| Block Pool ID: | BP-1130340243-127.0.1.1-1622653318930 |

Below the table, the 'Summary' section is partially visible.

2. Create a new directory /exercise1 on HDFS

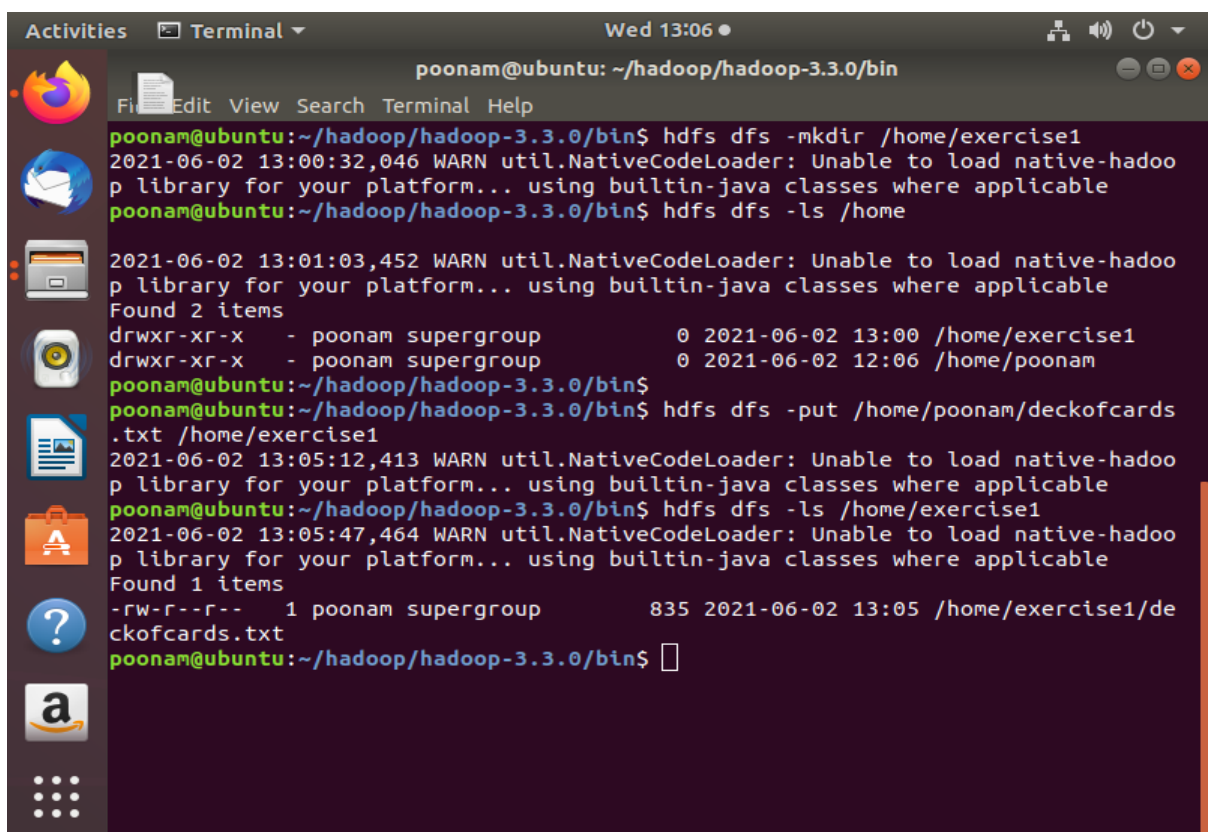
Code: `hdfs dfs -mkdir /home/exercise1`

A terminal window titled 'Terminal' with the user 'poonam@ubuntu' and the path '~/hadoop/hadoop-3.3.0/bin'. The terminal shows the execution of 'hdfs dfs -mkdir /home/exercise1' and 'hdfs dfs -ls /home'. The output of 'ls' shows two directories: '/home/exercise1' and '/home/poonam'.

```
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
hdfs dfs -mkdir /home/exercise1
2021-06-02 13:00:32,046 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
hdfs dfs -ls /home
2021-06-02 13:01:03,452 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
Found 2 items
drwxr-xr-x - poonam supergroup          0 2021-06-02 13:00 /home/exercise1
drwxr-xr-x - poonam supergroup          0 2021-06-02 12:06 /home/poonam
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

3. Upload GitHub repo sample_data/deckofcards.txt to HDFS under /exercise1 directory

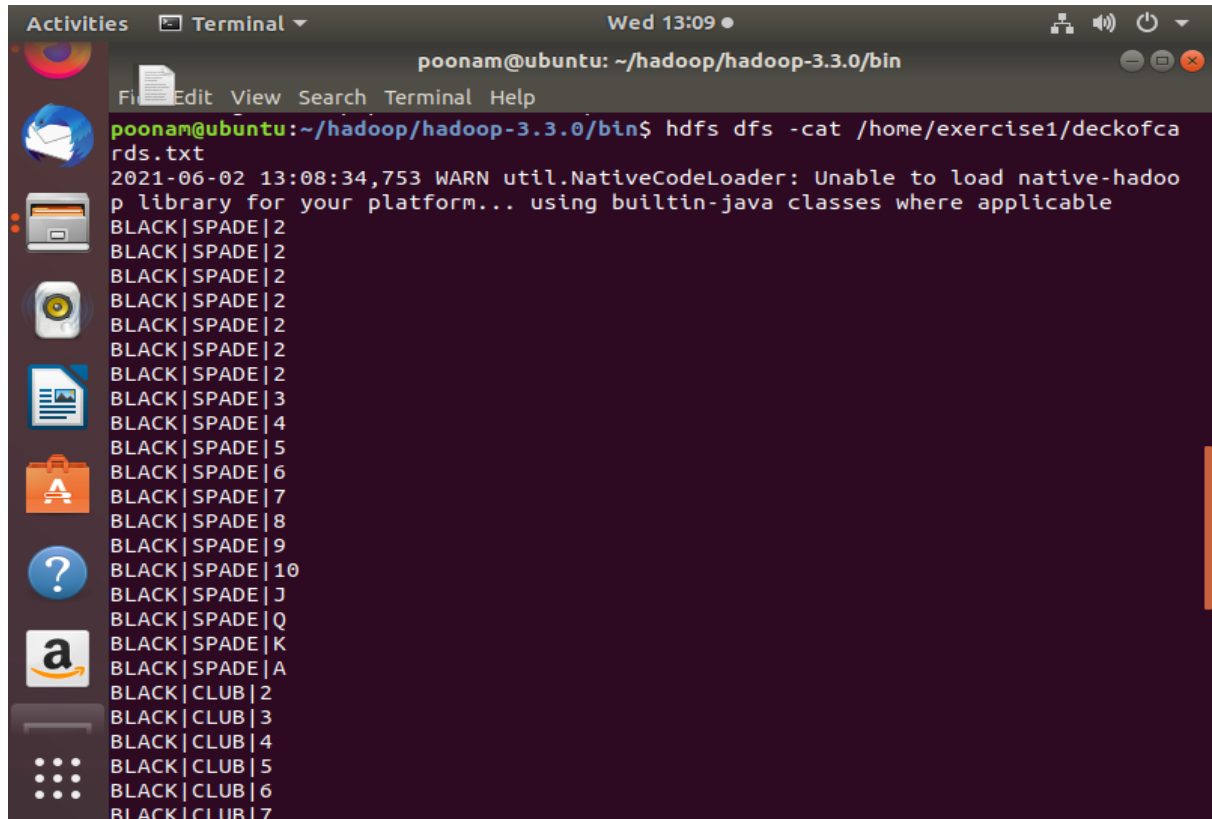
Code: `hdfs dfs -put /home/poonam/deckofcards.txt /home/exercise1`

A terminal window showing the upload of a file to HDFS. It repeats the previous commands and adds 'hdfs dfs -put /home/poonam/deckofcards.txt /home/exercise1'. The output of 'ls' now shows a file 'deckofcards.txt' in the '/home/exercise1' directory.

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -mkdir /home/exercise1
2021-06-02 13:00:32,046 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -ls /home
2021-06-02 13:01:03,452 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
Found 2 items
drwxr-xr-x - poonam supergroup          0 2021-06-02 13:00 /home/exercise1
drwxr-xr-x - poonam supergroup          0 2021-06-02 12:06 /home/poonam
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -put /home/poonam/deckofcards
.txt /home/exercise1
2021-06-02 13:05:12,413 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -ls /home/exercise1
2021-06-02 13:05:47,464 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r-- 1 poonam supergroup          835 2021-06-02 13:05 /home/exercise1/de
ckofcards.txt
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

4. View the content of the /exercise1 directory

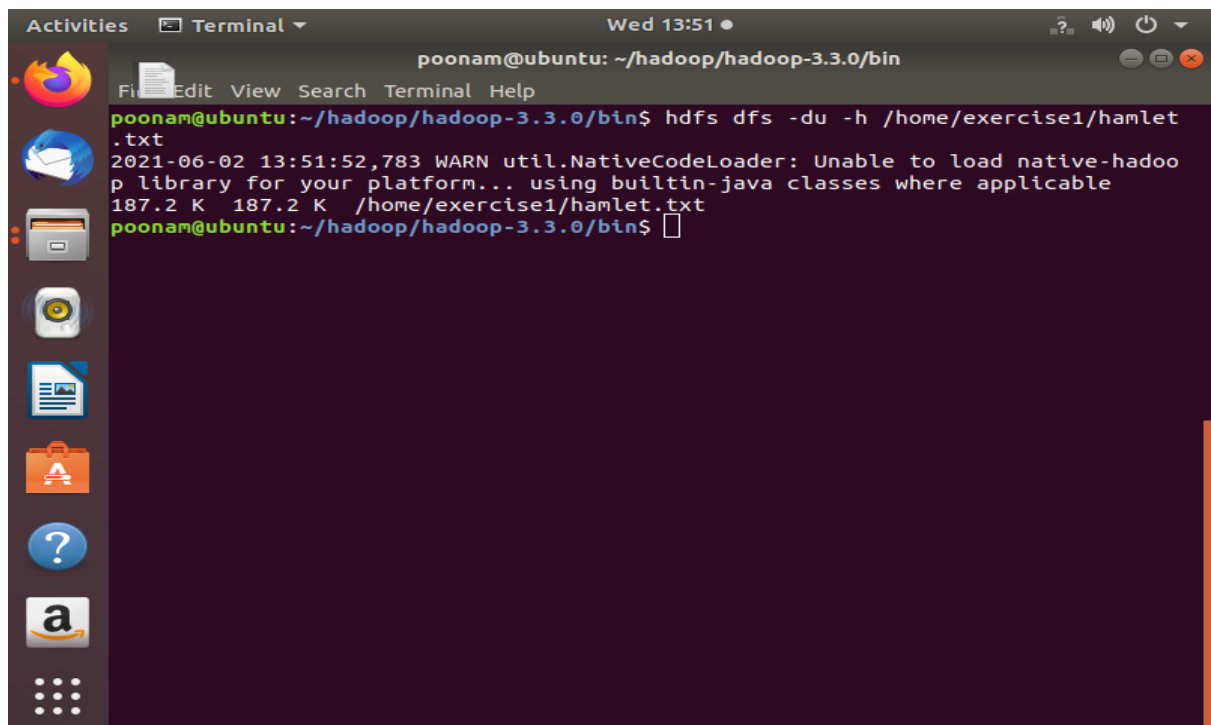
Code: `hdfs dfs -cat /home/poonam/deckofcards.txt`

A terminal window titled 'Terminal' with the prompt 'poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin'. The command 'hdfs dfs -cat /home/exercise1/deckofcards.txt' has been executed. The output shows a warning message: '2021-06-02 13:08:34,753 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable'. This is followed by a list of cards: 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|2', 'BLACK|SPADE|3', 'BLACK|SPADE|4', 'BLACK|SPADE|5', 'BLACK|SPADE|6', 'BLACK|SPADE|7', 'BLACK|SPADE|8', 'BLACK|SPADE|9', 'BLACK|SPADE|10', 'BLACK|SPADE|J', 'BLACK|SPADE|Q', 'BLACK|SPADE|K', 'BLACK|SPADE|A', 'BLACK|CLUB|2', 'BLACK|CLUB|3', 'BLACK|CLUB|4', 'BLACK|CLUB|5', 'BLACK|CLUB|6', and 'BLACK|CLUB|7'.

```
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
hdfs dfs -cat /home/exercise1/deckofcards.txt
2021-06-02 13:08:34,753 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|3
BLACK|SPADE|4
BLACK|SPADE|5
BLACK|SPADE|6
BLACK|SPADE|7
BLACK|SPADE|8
BLACK|SPADE|9
BLACK|SPADE|10
BLACK|SPADE|J
BLACK|SPADE|Q
BLACK|SPADE|K
BLACK|SPADE|A
BLACK|CLUB|2
BLACK|CLUB|3
BLACK|CLUB|4
BLACK|CLUB|5
BLACK|CLUB|6
BLACK|CLUB|7
```

5. Determine the size of the hamlet.txt file in KB that resides on HDFS (not local directory)

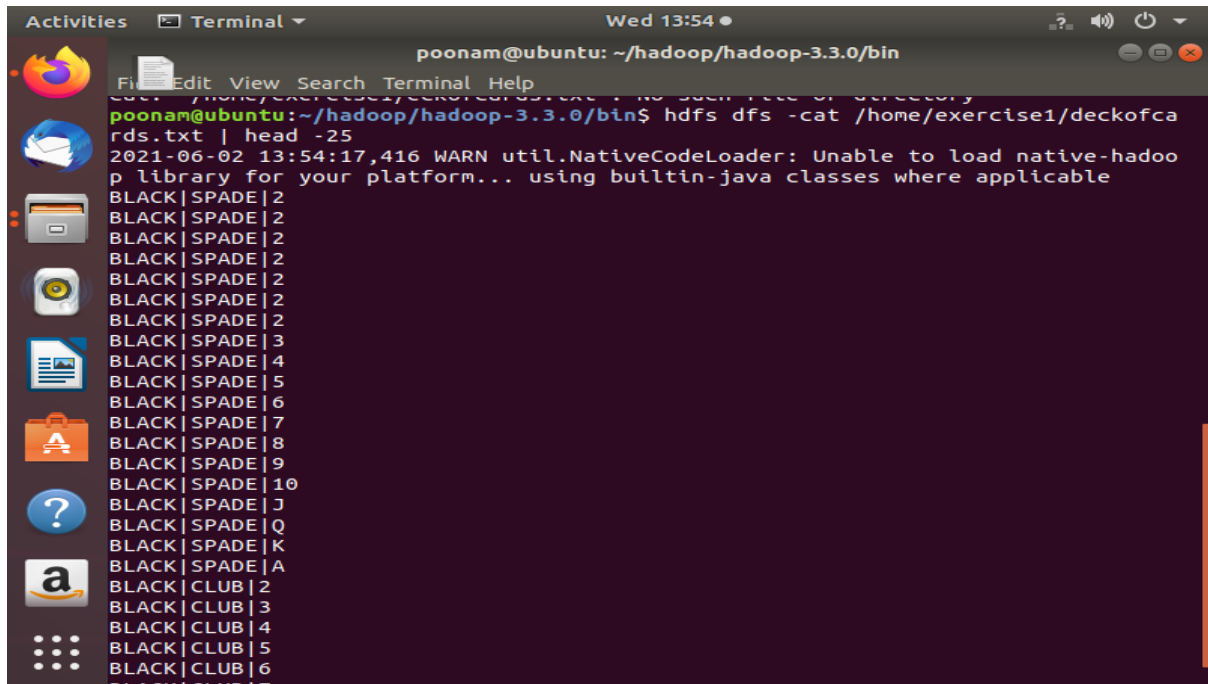
Code: `hdfs dfs -du -h /home/exercise1/hamlet.txt`

A terminal window titled 'Terminal' with the prompt 'poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin'. The command 'hdfs dfs -du -h /home/exercise1/hamlet.txt' has been executed. The output shows a warning message: '2021-06-02 13:51:52,783 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable'. This is followed by the file size information: '187.2 K 187.2 K /home/exercise1/hamlet.txt'.

```
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
hdfs dfs -du -h /home/exercise1/hamlet.txt
2021-06-02 13:51:52,783 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
187.2 K 187.2 K /home/exercise1/hamlet.txt
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
```

6. Print the first 25 lines to the screen from deckofcards.txt on HDFS

Code: `hdfs dfs -cat /home/exercise1/deckofcards.txt | head -25`

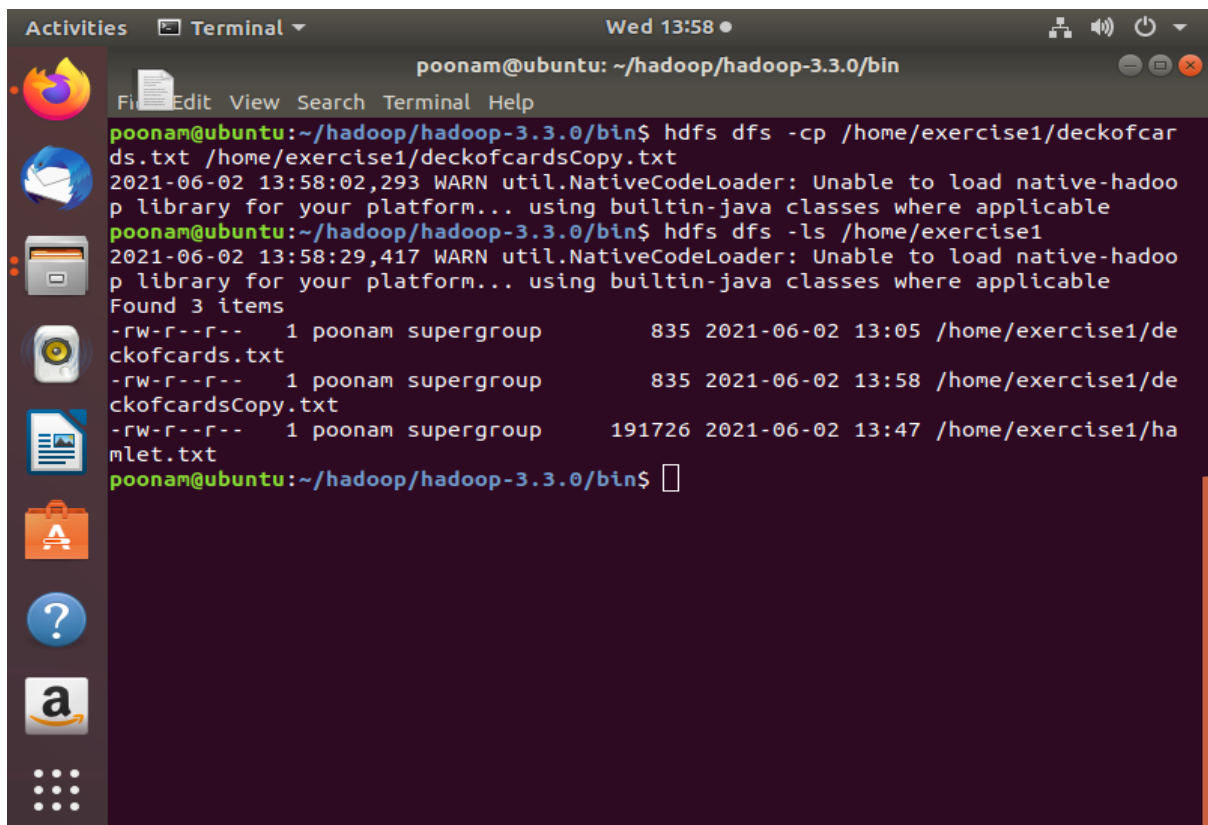


A terminal window titled "Terminal" with the prompt "poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin". The command `hdfs dfs -cat /home/exercise1/deckofcards.txt | head -25` has been executed. The output shows a warning message from the Hadoop utility and then 25 lines of card data from the file `deckofcards.txt`. The cards are listed in order, starting with "BLACK|SPADE|2" and ending with "BLACK|CLUB|7".

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -cat /home/exercise1/deckofcards.txt | head -25
2021-06-02 13:54:17,416 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|2
BLACK|SPADE|3
BLACK|SPADE|4
BLACK|SPADE|5
BLACK|SPADE|6
BLACK|SPADE|7
BLACK|SPADE|8
BLACK|SPADE|9
BLACK|SPADE|10
BLACK|SPADE|J
BLACK|SPADE|Q
BLACK|SPADE|K
BLACK|SPADE|A
BLACK|CLUB|2
BLACK|CLUB|3
BLACK|CLUB|4
BLACK|CLUB|5
BLACK|CLUB|6
BLACK|CLUB|7
```

7. Copy deckofcards.txt to deckofcardsCopy.txt

Code: `hdfs dfs -cp /home/exercise1/deckofcards.txt /home/exercise1/deckofcardsCopy.txt`



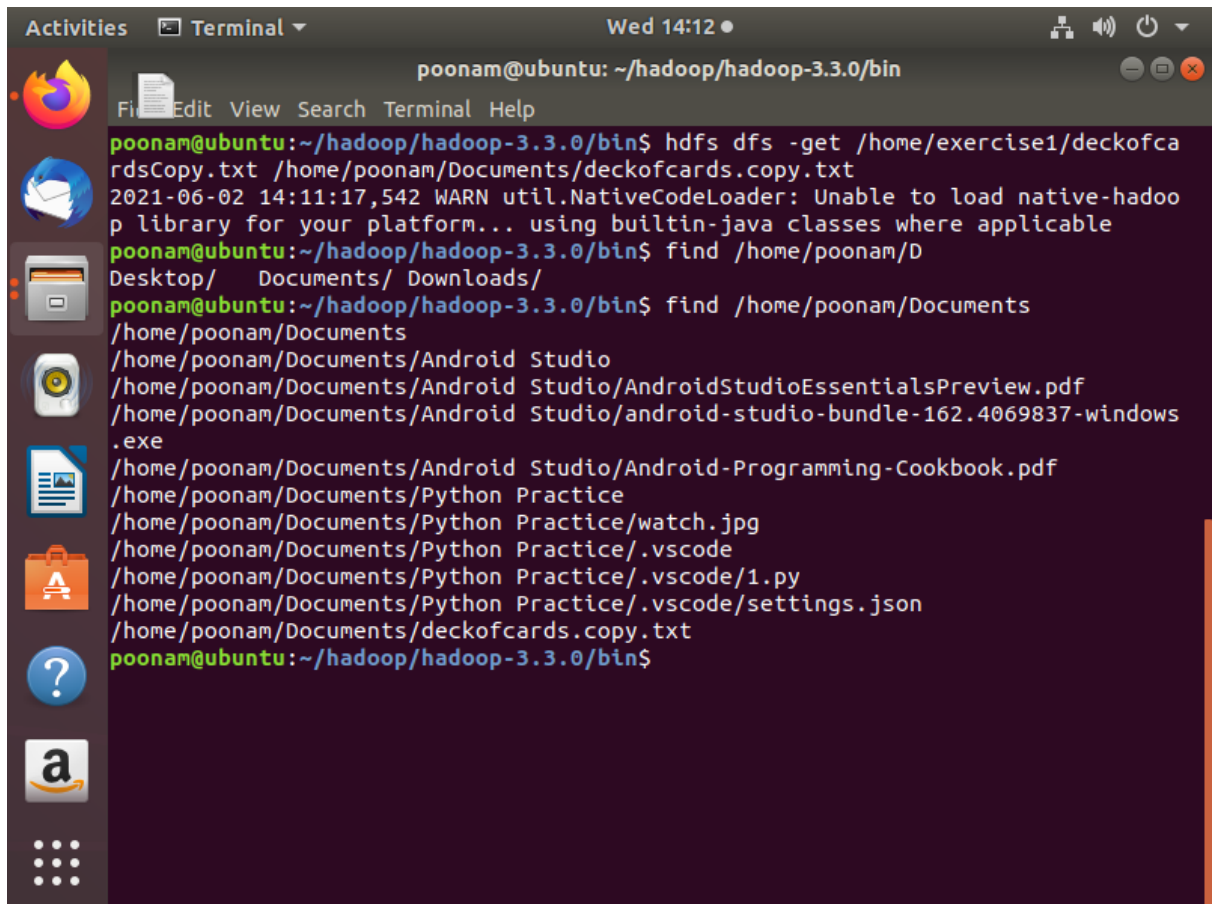
A terminal window titled "Terminal" with the prompt "poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin". The command `hdfs dfs -cp /home/exercise1/deckofcards.txt /home/exercise1/deckofcardsCopy.txt` has been executed. The output shows a warning message from the Hadoop utility. Then, the command `hdfs dfs -ls /home/exercise1` is executed, showing the contents of the directory. The output lists three files: `deckofcards.txt`, `deckofcardsCopy.txt`, and `halet.txt`. The file `deckofcardsCopy.txt` has been successfully copied.

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -cp /home/exercise1/deckofcar
ds.txt /home/exercise1/deckofcardsCopy.txt
2021-06-02 13:58:02,293 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -ls /home/exercise1
2021-06-02 13:58:29,417 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
Found 3 items
-rw-r--r--  1 poonam supergroup      835 2021-06-02 13:05 /home/exercise1/de
ckofcards.txt
-rw-r--r--  1 poonam supergroup      835 2021-06-02 13:58 /home/exercise1/de
ckofcardsCopy.txt
-rw-r--r--  1 poonam supergroup    191726 2021-06-02 13:47 /home/exercise1/ha
let.txt
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

8. Copy deckofcards.txt back to local file system and name it deckofcards.copy.txt

Code: `hdfs dfs -get /home/exercise1/deckofcardsCopy.txt`

`/home/poonam/Documents/deckofcards.copy.txt`

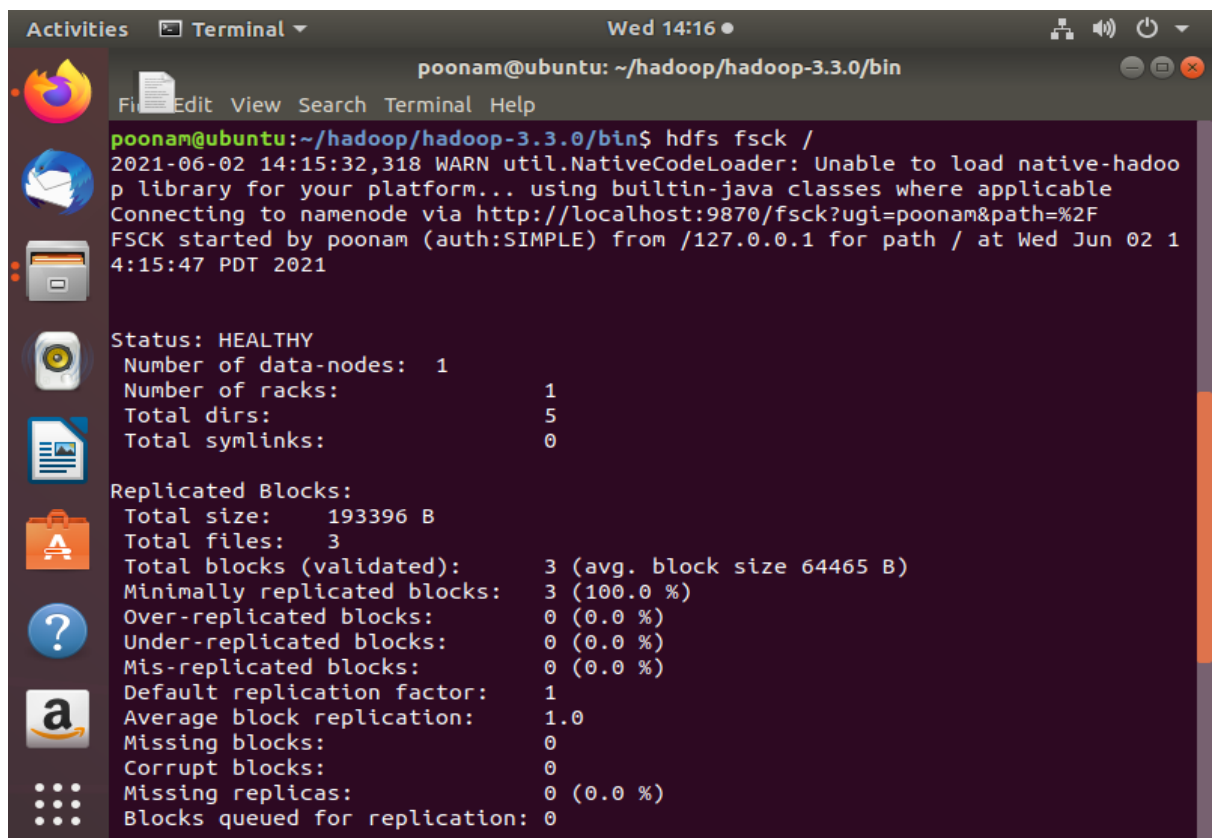


A terminal window titled 'poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin' showing the execution of HDFS commands. The first command is `hdfs dfs -get /home/exercise1/deckofcardsCopy.txt /home/poonam/Documents/deckofcards.copy.txt`, which returns a warning about the native-hadoop library. The second command is `find /home/poonam/D`, which lists files in the Desktop, Documents, and Downloads directories. The third command is `find /home/poonam/Documents`, which lists files in the Documents directory, including Android Studio files, PDFs, and Python practice files.

```
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -get /home/exercise1/deckofcardsCopy.txt /home/poonam/Documents/deckofcards.copy.txt
2021-06-02 14:11:17,542 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ find /home/poonam/D
Desktop/  Documents/  Downloads/
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ find /home/poonam/Documents
/home/poonam/Documents
/home/poonam/Documents/Android Studio
/home/poonam/Documents/Android Studio/AndroidStudioEssentialsPreview.pdf
/home/poonam/Documents/Android Studio/android-studio-bundle-162.4069837-windows.exe
/home/poonam/Documents/Android Studio/Android-Programming-Cookbook.pdf
/home/poonam/Documents/Python Practice
/home/poonam/Documents/Python Practice/watch.jpg
/home/poonam/Documents/Python Practice/.vscode
/home/poonam/Documents/Python Practice/.vscode/1.py
/home/poonam/Documents/Python Practice/.vscode/settings.json
/home/poonam/Documents/deckofcards.copy.txt
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

9. Check the entire filesystem for inconsistencies/problems

Code: `hdfs fsck /`



A terminal window titled 'poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin' showing the execution of the `hdfs fsck /` command. The output shows a warning about the native-hadoop library, followed by connection details to the namenode. The status is reported as 'HEALTHY'. The output also shows the number of data-nodes, racks, dirs, and symlinks. It then displays replicated blocks information, including total size, total files, total blocks (validated), minimally replicated blocks, over-replicated blocks, under-replicated blocks, mis-replicated blocks, default replication factor, average block replication, missing blocks, corrupt blocks, missing replicas, and blocks queued for replication.

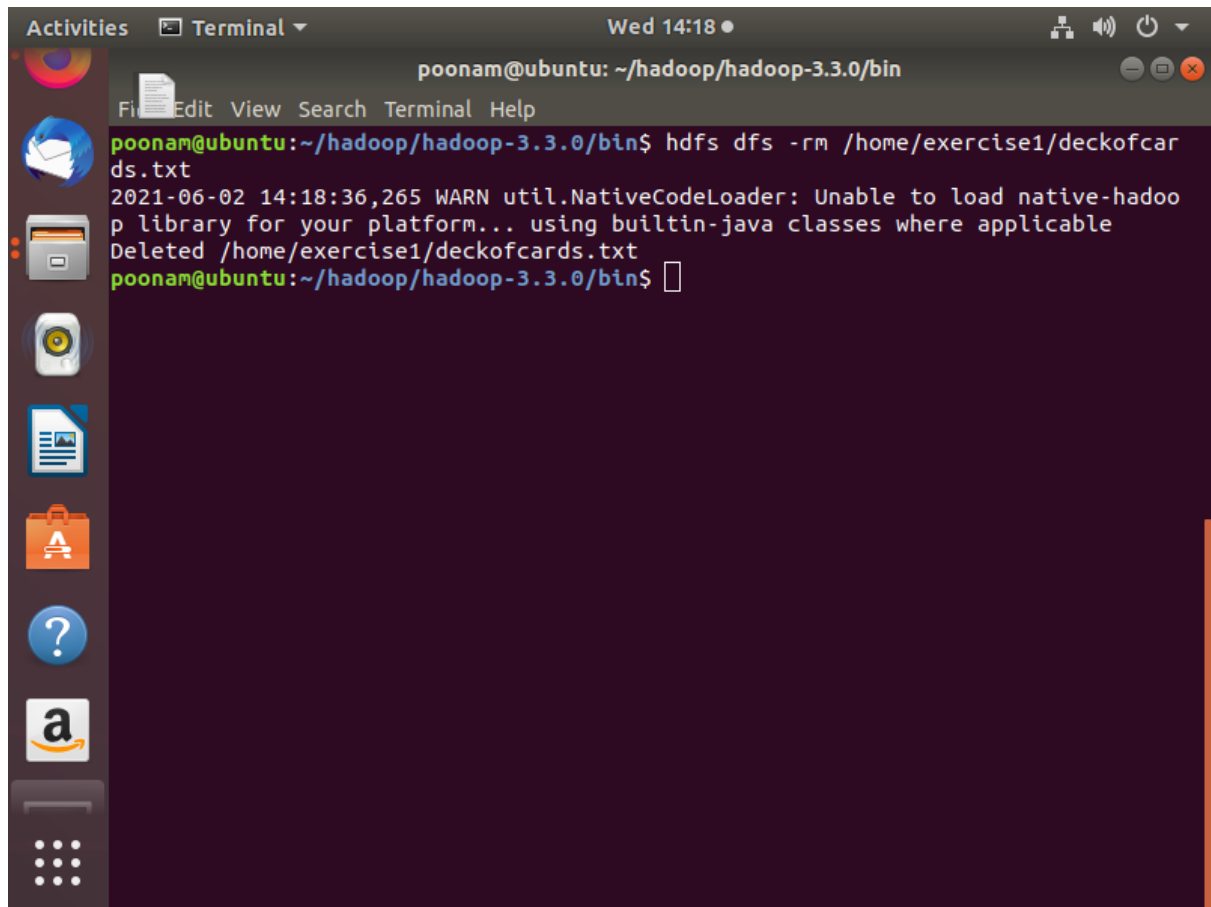
```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs fsck /
2021-06-02 14:15:32,318 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Connecting to namenode via http://localhost:9870/fsck?ugi=poonam&path=%2F
FSCK started by poonam (auth:SIMPLE) from /127.0.0.1 for path / at Wed Jun 02 14:15:47 PDT 2021

Status: HEALTHY
Number of data-nodes: 1
Number of racks: 1
Total dirs: 5
Total symlinks: 0

Replicated Blocks:
Total size: 193396 B
Total files: 3
Total blocks (validated): 3 (avg. block size 64465 B)
Minimally replicated blocks: 3 (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
```


10. Delete deckofcards.txt from HDFS

Code: `hdfs dfs -rm /home/exercise1/deckofcards.txt`

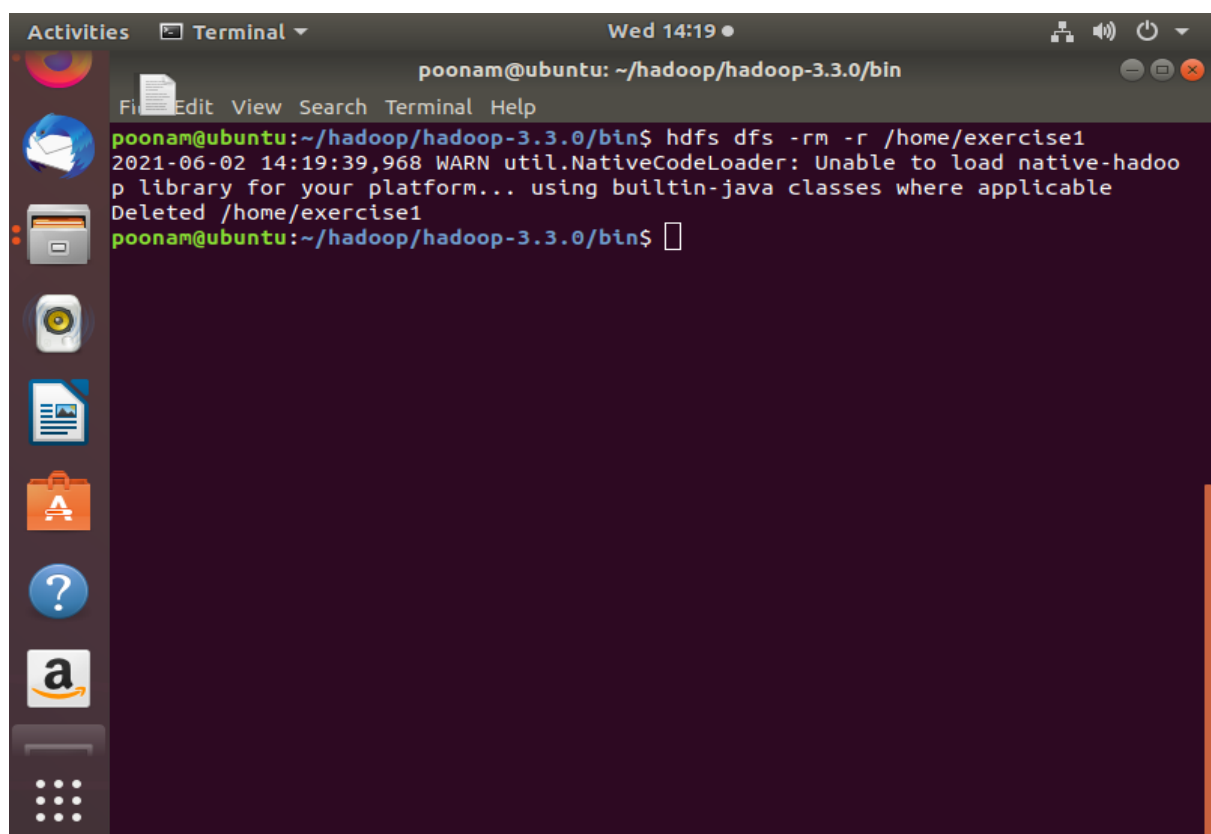


A terminal window titled "Terminal" with a dark background. The prompt is `poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin`. The command `hdfs dfs -rm /home/exercise1/deckofcards.txt` has been executed. The output shows a warning message: `2021-06-02 14:18:36,265 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable`, followed by `Deleted /home/exercise1/deckofcards.txt`. The prompt is now `poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$`. On the left side of the terminal window, there is a vertical dock with various application icons including a file manager, a web browser, and a terminal icon.

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -rm /home/exercise1/deckofcards.txt
2021-06-02 14:18:36,265 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Deleted /home/exercise1/deckofcards.txt
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

11. Delete the /exercise1 directory from HDFS

Code: `hdfs dfs -rm -r /home/exercise1`

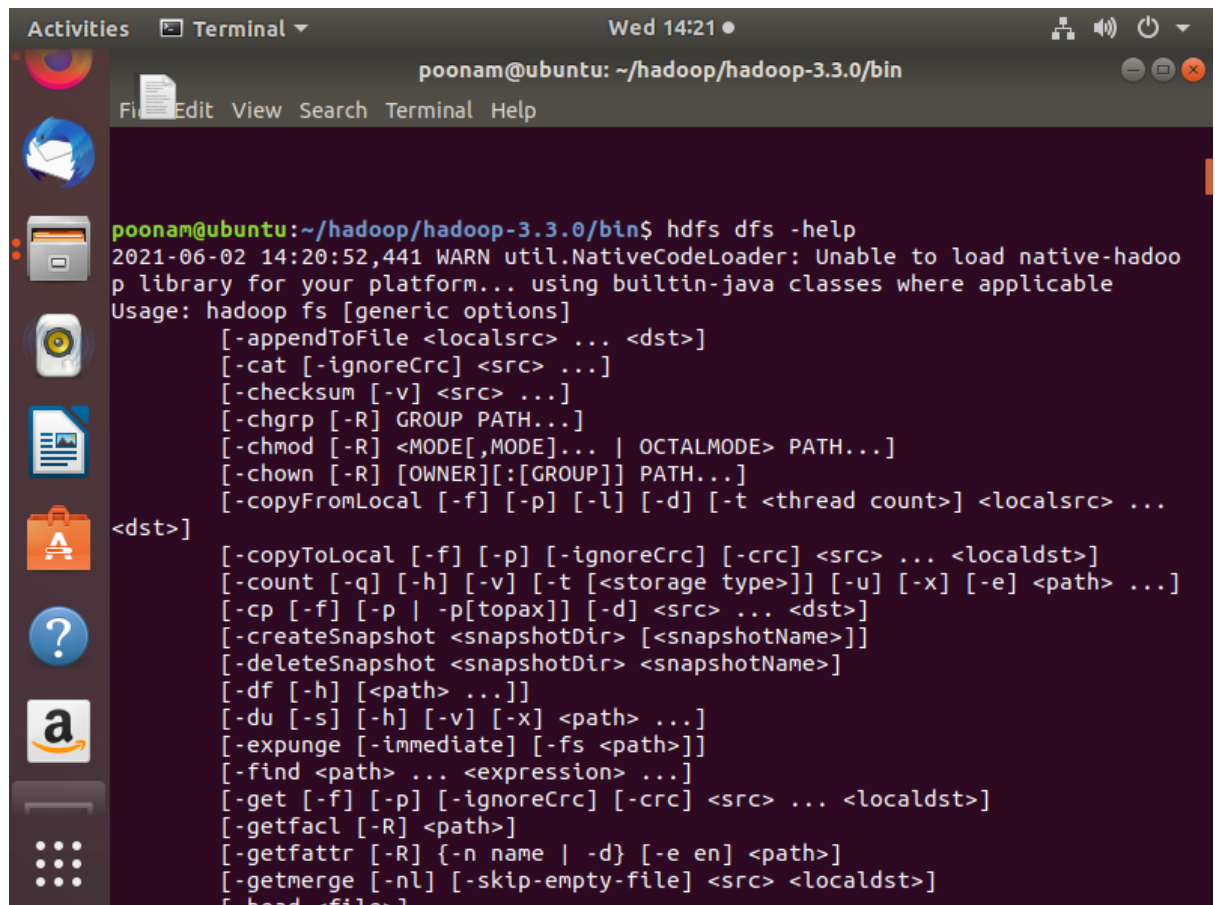


A terminal window titled "Terminal" with a dark background. The prompt is `poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin`. The command `hdfs dfs -rm -r /home/exercise1` has been executed. The output shows a warning message: `2021-06-02 14:19:39,968 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable`, followed by `Deleted /home/exercise1`. The prompt is now `poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$`. On the left side of the terminal window, there is a vertical dock with various application icons including a file manager, a web browser, and a terminal icon.

```
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$ hdfs dfs -rm -r /home/exercise1
2021-06-02 14:19:39,968 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Deleted /home/exercise1
poonam@ubuntu:~/hadoop/hadoop-3.3.0/bin$
```

12. Take a second to look at other available shell options.

Code: `hdfs dfs -help`



```
poonam@ubuntu: ~/hadoop/hadoop-3.3.0/bin
2021-06-02 14:20:52,441 WARN util.NativeCodeLoader: Unable to load native-hadoop
p library for your platform... using builtin-java classes where applicable
Usage: hadoop fs [generic options]
[-appendToFile <localsrc> ... <dst>]
[-cat [-ignoreCrc] <src> ...]
[-checksum [-v] <src> ...]
[-chgrp [-R] GROUP PATH...]
[-chmod [-R] <MODE[,MODE]... | OCTALMODE> PATH...]
[-chown [-R] [OWNER][:[GROUP]] PATH...]
[-copyFromLocal [-f] [-p] [-l] [-d] [-t <thread count>] <localsrc> ...
<dst>]
[-copyToLocal [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
[-count [-q] [-h] [-v] [-t [<storage type>]] [-u] [-x] [-e] <path> ...]
[-cp [-f] [-p | -p[topax]] [-d] <src> ... <dst>]
[-createSnapshot <snapshotDir> [<snapshotName>]]
[-deleteSnapshot <snapshotDir> <snapshotName>]
[-df [-h] [<path> ...]]
[-du [-s] [-h] [-v] [-x] <path> ...]
[-expunge [-immediate] [-fs <path>]]
[-find <path> ... <expression> ...]
[-get [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
[-getfacl [-R] <path>]
[-getfattr [-R] {-n name | -d} [-e en] <path>]
[-getmerge [-nl] [-skip-empty-file] <src> <localdst>]
[-head <file>]
```