

Lab Assignment Big Data | 04 March 2022

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Question 1: Practice the Hadoop commands and elicit the output.

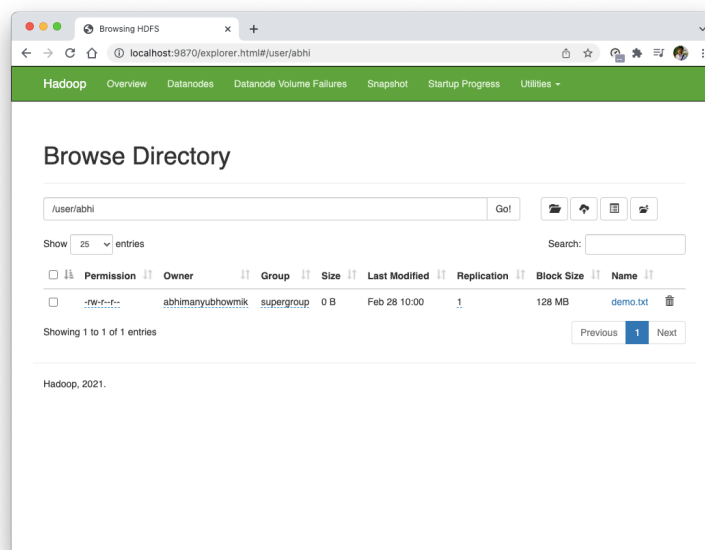
1. Make Directory: mkdir

```
ABHIMANYUs-MacBook-Air:sbin abhimanyubhowmik$ hadoop fs -mkdir /user
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 20:20:18,814 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:sbin abhimanyubhowmik$ hadoop fs -mkdir /user/abhi
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
```

2. Make File: touch

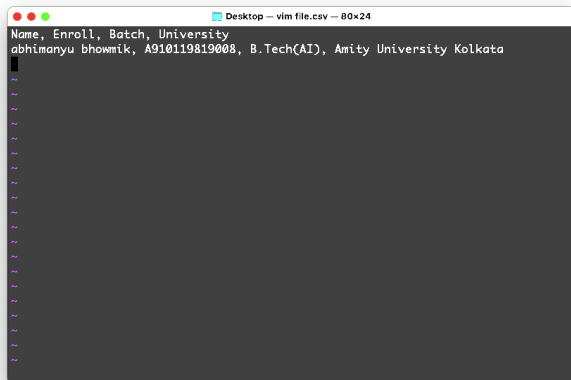
```
ABHIMANYUs-MacBook-Air:sbin abhimanyubhowmik$ hadoop fs -touch /user/abhi/demo.t
xt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 20:21:48,142 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:sbin abhimanyubhowmik$
```

Command

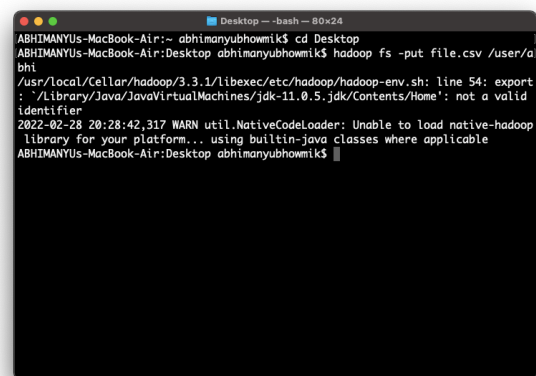


Output

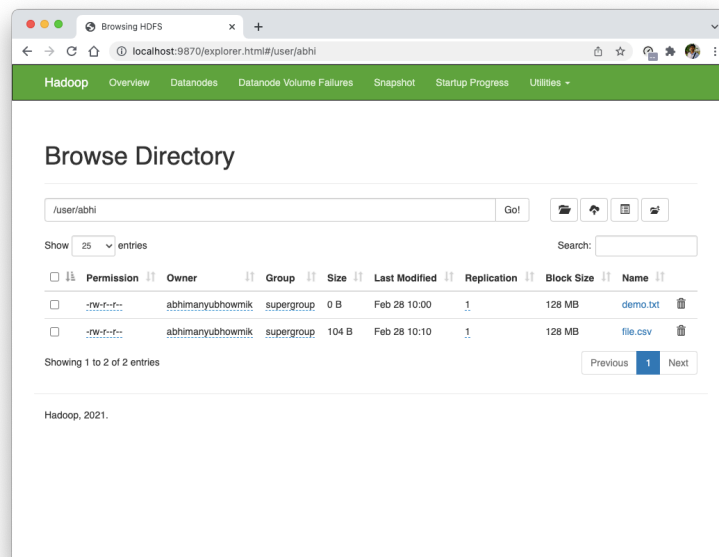
3. Put file from Local system: put



File Creation

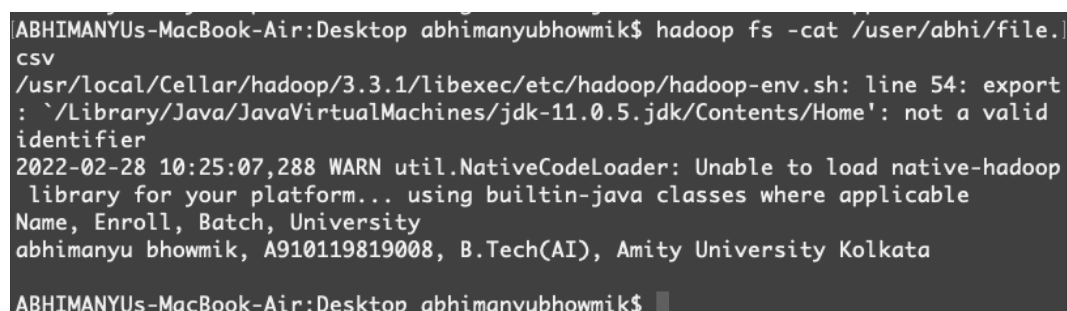


HDFS Command



Output

4. Showing the output of a file: cat



Command and output

5. Concatenate: appendToFile

```
Desktop -- -bash -- 80x24
be unarchived on the compute machines

The general command line syntax is:
command [genericOptions] [commandOptions]

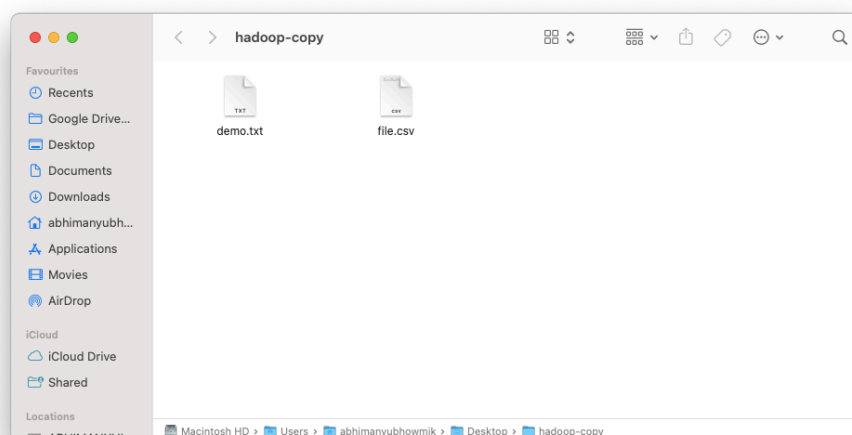
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ touch new-file.txt
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ vim new-file.txt
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -appendToFile new-file.txt user/abhi/demo.txt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-02-28 11:00:59,041 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -cat user/abhi/demo.txt
xt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-02-28 11:01:57,255 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Abhimanyu Bhowmik
Amity University Kolkata
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command and Output

6. Fetch all files/directories: get

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -get /user/abhi /Users/abhimanyubhowmik/Desktop/hadoop-copy
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-02-28 10:23:53,320 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command



Output

7. Display the last part of a file (1KB): tail

```
ABHIMANYUs-MacBook-Air:~ abhimanyubhowmik$ hadoop fs -tail user/abhi/demo.txt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 11:42:55,426 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Abhimanyu Bhowmik
Amity University Kolkata
ABHIMANYUs-MacBook-Air:~ abhimanyubhowmik$
```

Command and Output

8. Ownership of the file: chown

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -chown rw-rw-rw- /user/
r/abhi/demo.txt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:21:53,850 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -ls /user/abhi/demo.t
xt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:22:19,304 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
-rw-r--r--  1 rw-rw-rw-  supergroup          0 2022-02-28 20:21 /user/abhi/demo.
txt
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command and Output

9. Count number of files and directories: count

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -count /user
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:42:49,854 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
      3          2          104 /user
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command and Output

10. Statistical information on path: stat

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -stat /user
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:46:55,694 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
2022-02-28 15:57:54
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command and Output

11. Checksum information (value that represents the number of bits in a transmission message): checksum

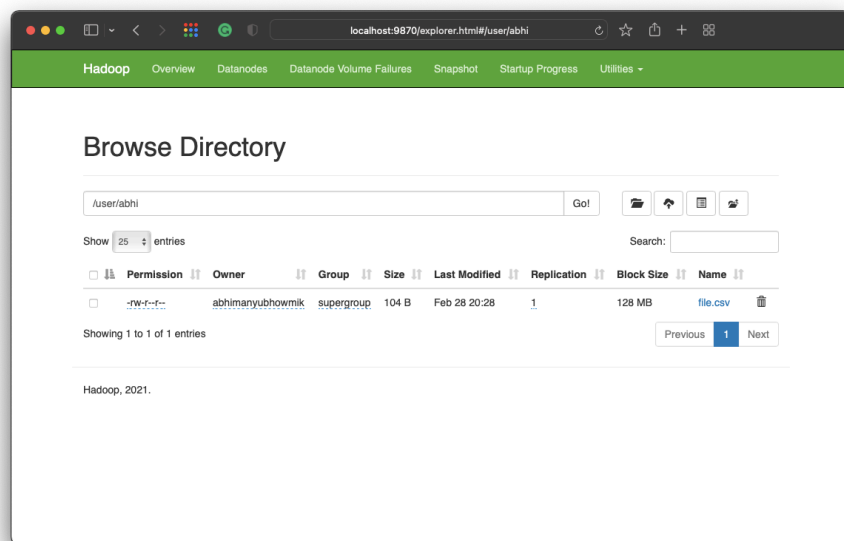
```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -checksum /user/abhi/
file.csv
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:48:38,149 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
/user/abhi/file.csv      MD5-of-0MD5-of-512CRC32C      00000200000000000000000000000000
f655b4a3b0f4e362920df0c0f3350ae3
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command and Output

12. Remove file: rm

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -rm /user/abhi/demo.t
xt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:51:20,213 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Deleted /user/abhi/demo.txt
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command



Output

13. Empty Trash: expunge

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -expunge
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:54:37,530 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$
```

Command

14. Disk Usage: du

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -du /user
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:56:19,248 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
104 104 /user/abhi
```

Command and Output

15. Display the free space: df

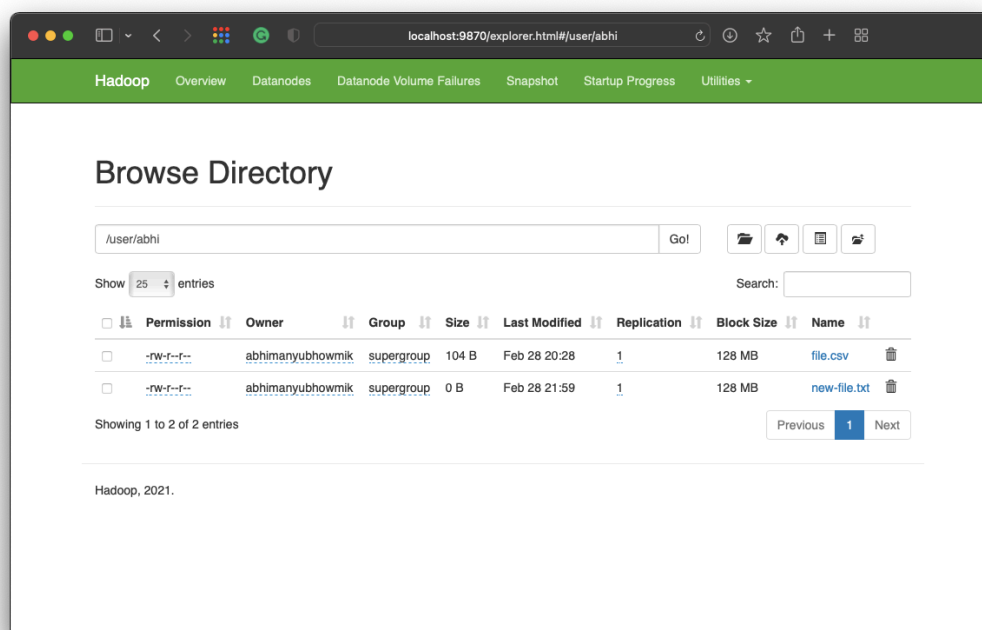
```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -df
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:57:33,687 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Filesystem              Size      Used    Available  Use%
hdfs://localhost:9000 121123069952 16384 17219846144    0%
```

Command and Output

16. Creat file with current time as the timestamp of that path: touchz

```
ABHIMANYUs-MacBook-Air:Desktop abhimanyubhowmik$ hadoop fs -touchz /user/abhi/ne
w-file.txt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-02-28 21:59:58,393 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
```

Command

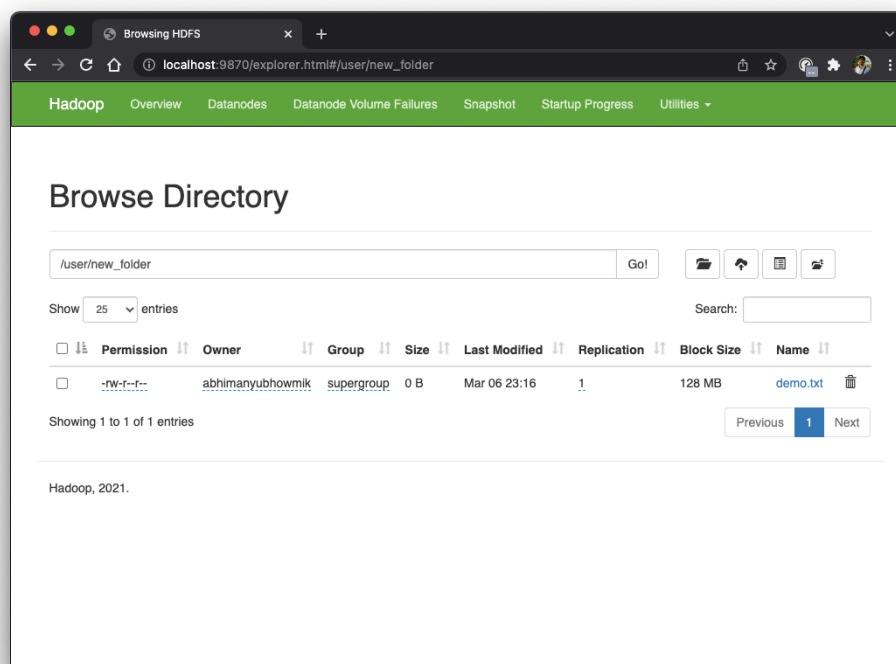


Output

17. Move File: mv

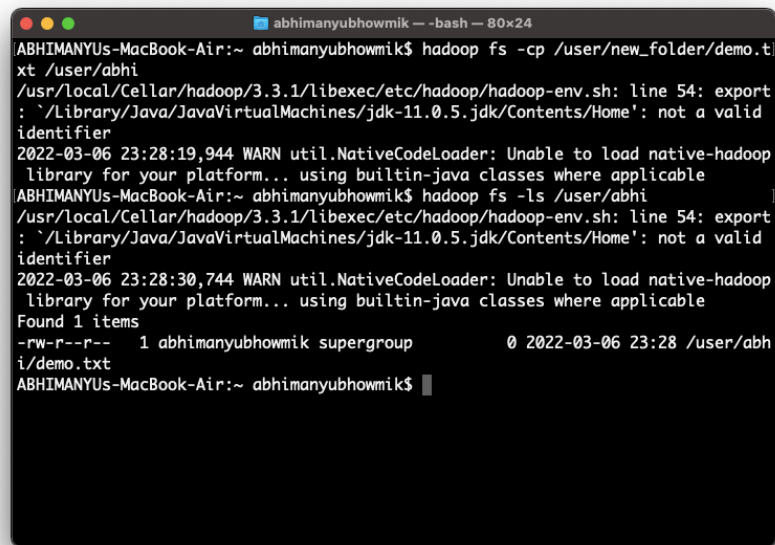
```
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$ hadoop fs -ls /user/abhi
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-03-06 23:18:37,041 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Found 1 items
-rw-r--r--  1 abhimanyubhowmik supergroup          0 2022-03-06 23:16 /user/abh
i/demo.txt
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$ hadoop fs -mv /user/abhi/demo.txt /us
er/new_folder
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-03-06 23:19:40,205 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$
```

Command



Output

18. Copy File: cp



```
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$ hadoop fs -cp /user/new_folder/demo.txt /user/abhi
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-03-06 23:28:19,944 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$ hadoop fs -ls /user/abhi
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-03-06 23:28:30,744 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 abhimanyubhowmik supergroup          0 2022-03-06 23:28 /user/abhi/demo.txt
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$
```

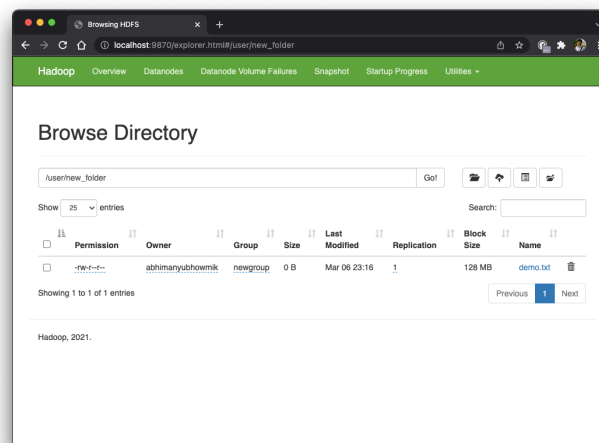
Command and Output

19. Changing the group: chgrp



```
ABHIMANYUS-MacBook-Air:Downloads abhimanyubhowmik$ hadoop fs -chgrp newgroup /user/new_folder/demo.txt
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export : `/Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid identifier
2022-03-07 00:13:02,902 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
ABHIMANYUS-MacBook-Air:Downloads abhimanyubhowmik$
```

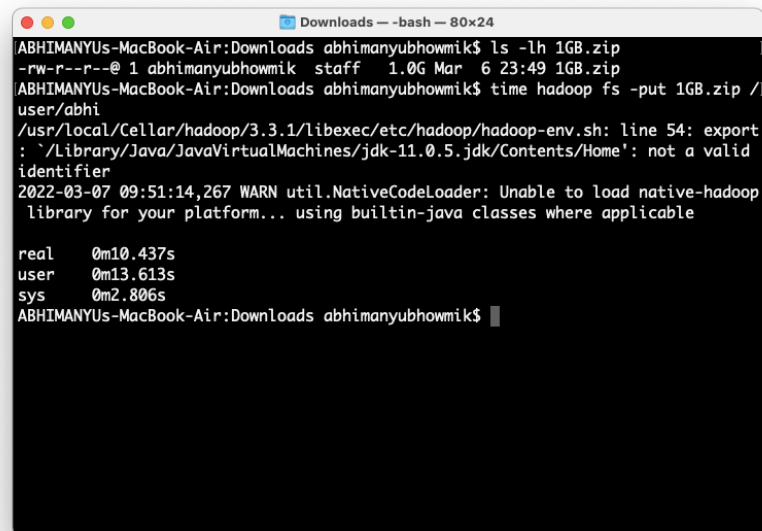
Command



Output

Question 2: Determine a file with 1 GB of size. Upload the file in the hadoop and record the elapsed time of loading. Mention computer configuration in the output.

File size checking and uploading to Hadoop :

A terminal window titled 'Downloads - -bash - 80x24' showing the execution of commands to check file size and upload to Hadoop. The user is 'abhimanyubhowmik' on a 'MacBook-Air'. The file '1GB.zip' is 1.0G in size. The upload command is 'time hadoop fs -put 1GB.zip /user/abhi'. The output shows a warning about a native library and timing results: real 0m10.437s, user 0m13.613s, sys 0m2.806s.

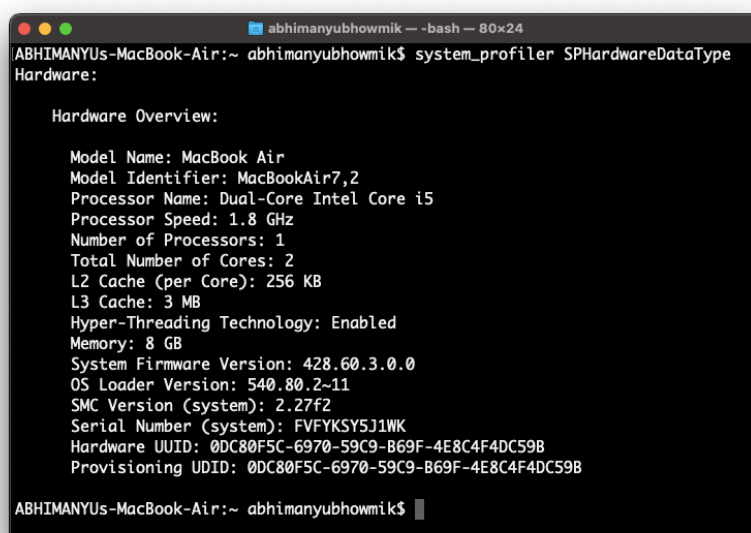
```
ABHIMANYUS-MacBook-Air:Downloads abhimanyubhowmik$ ls -lh 1GB.zip
-rw-r--r--@ 1 abhimanyubhowmik  staff  1.0G Mar  6 23:49 1GB.zip
ABHIMANYUS-MacBook-Air:Downloads abhimanyubhowmik$ time hadoop fs -put 1GB.zip /
user/abhi
/usr/local/Cellar/hadoop/3.3.1/libexec/etc/hadoop/hadoop-env.sh: line 54: export
: `Library/Java/JavaVirtualMachines/jdk-11.0.5.jdk/Contents/Home': not a valid
identifier
2022-03-07 09:51:14,267 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable

real    0m10.437s
user    0m13.613s
sys     0m2.806s
ABHIMANYUS-MacBook-Air:Downloads abhimanyubhowmik$
```

Command and Output

Required time to upload: 0min 10.437 sec

System Information:

A terminal window titled 'abhimanyubhowmik - -bash - 80x24' showing the output of the 'system_profiler SPHardwareDataType' command. It displays detailed hardware information for a MacBook Air, including model name, processor, memory, and various system identifiers.

```
ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$ system_profiler SPHardwareDataType
Hardware:

  Hardware Overview:

    Model Name: MacBook Air
    Model Identifier: MacBookAir7,2
    Processor Name: Dual-Core Intel Core i5
    Processor Speed: 1.8 GHz
    Number of Processors: 1
    Total Number of Cores: 2
    L2 Cache (per Core): 256 KB
    L3 Cache: 3 MB
    Hyper-Threading Technology: Enabled
    Memory: 8 GB
    System Firmware Version: 428.60.3.0.0
    OS Loader Version: 540.80.2~11
    SMC Version (system): 2.27f2
    Serial Number (system): FVFKSY5J1WK
    Hardware UUID: 0DC80F5C-6970-59C9-B69F-4E8C4F4DC59B
    Provisioning UDID: 0DC80F5C-6970-59C9-B69F-4E8C4F4DC59B

ABHIMANYUS-MacBook-Air:~ abhimanyubhowmik$
```

Command and Output