

SESSION 2: HDFS – INTRODUCTION

Assignment 2

The screenshot shows a web browser window titled "NameNode information - Mozilla Firefox" with the URL `127.0.0.1:50070/dfshealth.html#tab-overview`. The browser displays the "Overview" tab of the Hadoop cluster's health page. On the left, there is a sidebar with "Hadoop" and "Overview" tabs. The main content area shows the "Overview" section with a table of cluster metrics:

Property	Value
Started:	18/06/26 16:04:44 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Version:	0.0.0.0: secondarynamenode running as process 3480. Stop it first.
Compiled:	18/06/26 16:05:55 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Cluster ID:	starting yarn daemons
Block Pool ID:	starting resource manager, logging to /home/acadgild/install/hadoop/hadoop-2.6.5/logs/yarn-acadgild-resourcemanager-localhost.localdomain.out

Below the table, the "Summary" section shows:

- Security is off.
- Safe mode is ON. The reported blocks 3 has reached the threshold 0.9990 of total blocks 3. The number of live datanodes 1 has reached the minimum number 0. In safe mode extension. Safe mode will be turned off automatically in 12 seconds.
- 26 files and directories, 3 blocks = 29 total filesystem object(s).
- Heap Memory used 31.86 MB of 85 MB Heap Memory. Max Heap Memory is 889 MB.

Overlaid on the browser window is a terminal window titled `acadgild@localhost:~`. It shows the execution of `start-all.sh` and the subsequent output from the Hadoop daemons, including warnings about the native library and the start-up of the NameNode, DataNode, and Yarn daemons.

Starting a Hadoop Cluster

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Metric	Value
Started:	18/06/26 16:06:49
Version:	18/06/26 16:07:17
Compiled:	18/06/26 16:07:22
Cluster ID:	18/06/26 16:07:22
Block Pool ID:	18/06/26 16:07:22

Below the table, the text "Security is off." is displayed. Further down, it states: "Safe mode is ON. The reported blocks 3 has reached the threshold 0.9990 of total blocks 3. The number of live datanodes 1 has reached the minimum number 0. In safe mode extension. Safe mode will be turned off automatically in 12 seconds." At the bottom, it shows "26 files and directories, 3 blocks = 29 total filesystem object(s)." and "Heap Memory used 31.86 MB of 85 MB Heap Memory. Max Heap Memory is 889 MB."

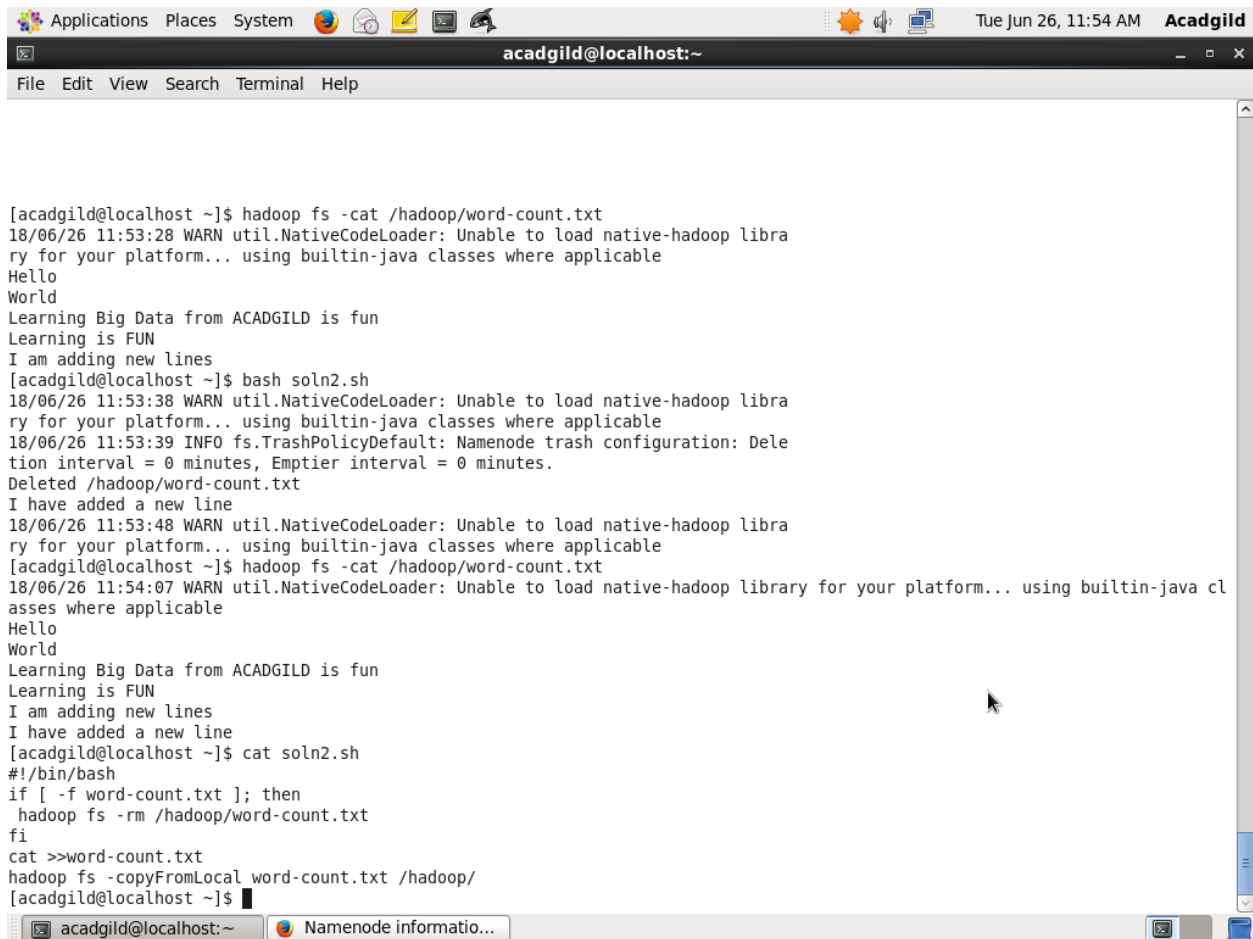
Overlaid on the browser window is a terminal window titled "acadgild@localhost:~". The terminal shows the following commands and output:

```
[acadgild@localhost ~]$ hadoop fs -ls /
18/06/26 16:06:49 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 3 items
drwxr-xr-x - acadgild supergroup          0 2018-02-02 12:49 /sqoopout111
drwxrwx--- - acadgild supergroup          0 2018-02-09 11:35 /tmp
drwxr-xr-x - acadgild supergroup          0 2018-02-09 14:50 /user
[acadgild@localhost ~]$ hadoop fs -mkdir /hadoop/
18/06/26 16:07:17 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost ~]$ hadoop fs -ls /
18/06/26 16:07:22 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Found 4 items
drwxr-xr-x - acadgild supergroup          0 2018-06-26 16:07 /hadoop
drwxr-xr-x - acadgild supergroup          0 2018-02-02 12:49 /sqoopout111
drwxrwx--- - acadgild supergroup          0 2018-02-09 11:35 /tmp
drwxr-xr-x - acadgild supergroup          0 2018-02-09 14:50 /user
[acadgild@localhost ~]$
```

Displaying contents of HDFS and creating a directory hadoop

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The screenshot shows a Linux terminal window with the title bar 'acadgild@localhost:~'. The terminal displays the following commands and output:

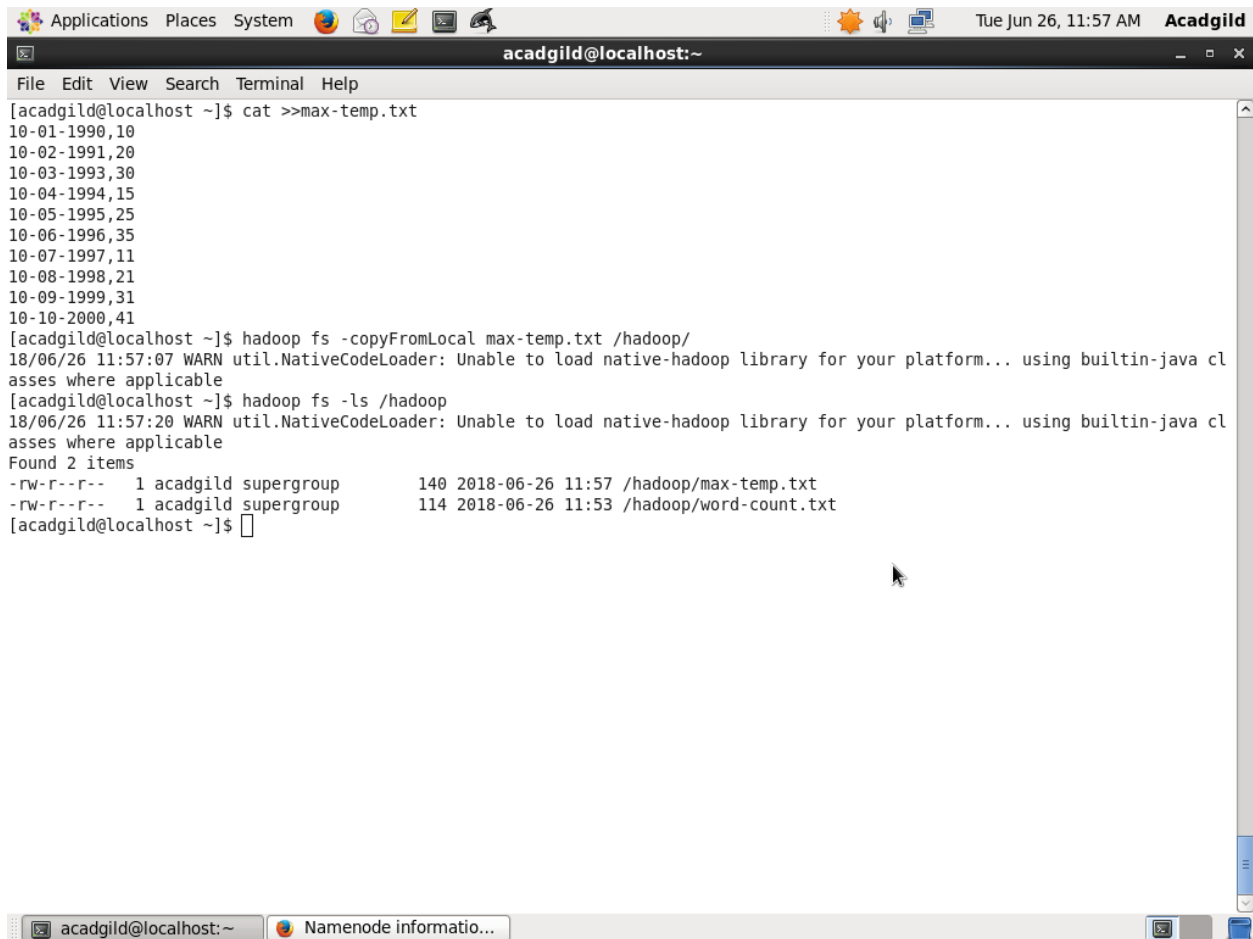
```
[acadgild@localhost ~]$ hadoop fs -cat /hadoop/word-count.txt
18/06/26 11:53:28 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Hello
World
Learning Big Data from ACADGILD is fun
Learning is FUN
I am adding new lines
[acadgild@localhost ~]$ bash soln2.sh
18/06/26 11:53:38 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
18/06/26 11:53:39 INFO fs.TrashPolicyDefault: Namenode trash configuration: Deletion interval = 0 minutes, Empty interval = 0 minutes.
Deleted /hadoop/word-count.txt
I have added a new line
18/06/26 11:53:48 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
[acadgild@localhost ~]$ hadoop fs -cat /hadoop/word-count.txt
18/06/26 11:54:07 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Hello
World
Learning Big Data from ACADGILD is fun
Learning is FUN
I am adding new lines
I have added a new line
[acadgild@localhost ~]$ cat soln2.sh
#!/bin/bash
if [ -f word-count.txt ]; then
  hadoop fs -rm /hadoop/word-count.txt
fi
cat >>word-count.txt
hadoop fs -copyFromLocal word-count.txt /hadoop/
[acadgild@localhost ~]$
```

The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The system tray at the bottom shows the time 'Tue Jun 26, 11:54 AM' and the username 'Acadgild'. There is also a taskbar at the bottom with icons for the terminal and a window titled 'Namenode informatio...'.

Writing a shell script to create a file word-count.txt and copying it to Hadoop FS

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The screenshot shows a Linux terminal window titled 'acadgild@localhost:~'. The terminal displays the following commands and output:

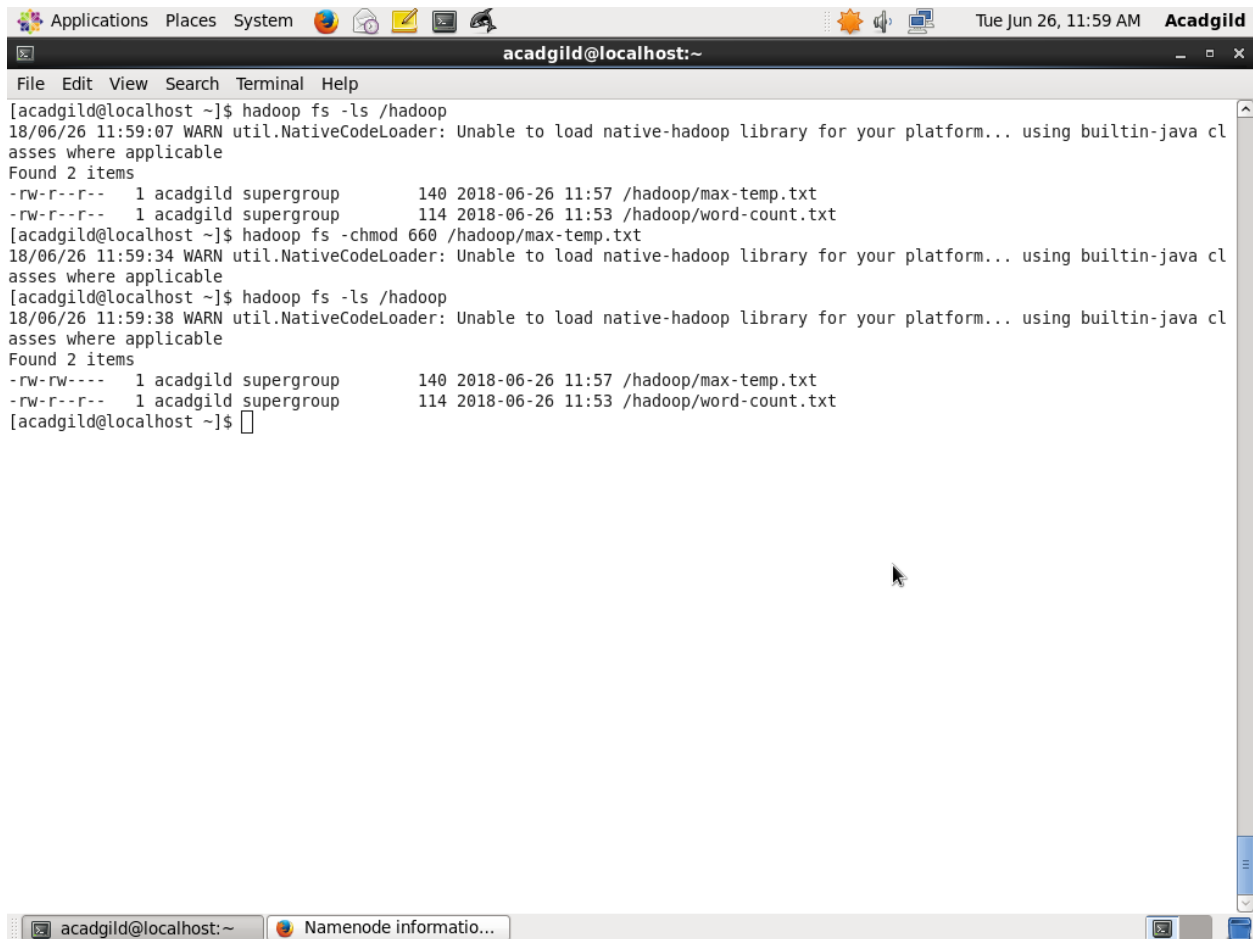
```
[acadgild@localhost ~]$ cat >>max-temp.txt
10-01-1990,10
10-02-1991,20
10-03-1993,30
10-04-1994,15
10-05-1995,25
10-06-1996,35
10-07-1997,11
10-08-1998,21
10-09-1999,31
10-10-2000,41
[acadgild@localhost ~]$ hadoop fs -copyFromLocal max-temp.txt /hadoop/
18/06/26 11:57:07 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
[acadgild@localhost ~]$ hadoop fs -ls /hadoop
18/06/26 11:57:20 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Found 2 items
-rw-r--r--  1 acadgild supergroup      140 2018-06-26 11:57 /hadoop/max-temp.txt
-rw-r--r--  1 acadgild supergroup      114 2018-06-26 11:53 /hadoop/word-count.txt
[acadgild@localhost ~]$
```

The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The system tray at the bottom shows the user 'acadgild@localhost:~' and a window titled 'Namenode informatio...'. The system clock indicates 'Tue Jun 26, 11:57 AM'.

Creating a file max-temp.txt and copying it from local FS to Hadoop FS

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The screenshot shows a Linux terminal window titled 'acadgild@localhost:~'. The terminal displays the following commands and output:

```
[acadgild@localhost ~]$ hadoop fs -ls /hadoop
18/06/26 11:59:07 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Found 2 items
-rw-r--r--  1 acadgild supergroup      140 2018-06-26 11:57 /hadoop/max-temp.txt
-rw-r--r--  1 acadgild supergroup      114 2018-06-26 11:53 /hadoop/word-count.txt
[acadgild@localhost ~]$ hadoop fs -chmod 660 /hadoop/max-temp.txt
18/06/26 11:59:34 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
[acadgild@localhost ~]$ hadoop fs -ls /hadoop
18/06/26 11:59:38 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
Found 2 items
-rw-rw----  1 acadgild supergroup      140 2018-06-26 11:57 /hadoop/max-temp.txt
-rw-r--r--  1 acadgild supergroup      114 2018-06-26 11:53 /hadoop/word-count.txt
[acadgild@localhost ~]$
```

The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The system tray at the bottom shows the date and time as 'Tue Jun 26, 11:59 AM' and the username 'Acadgild'. A taskbar at the bottom shows the terminal window and a window titled 'Namenode informatio...'.

Changing file permission on Hadoop FS using chmod

660 means – Owner and Group members can read/write whereas others cannot access it