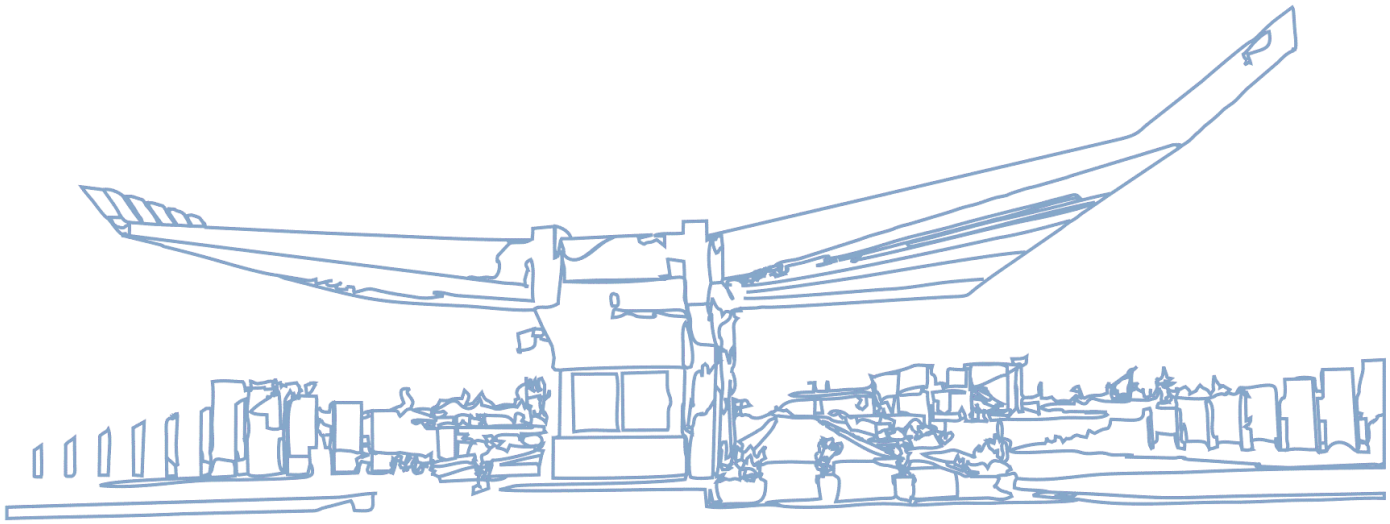
EPOKA UNIVERSITY | Computer Engineering Department

CEN 571 – Data Mining

Assignment 02 – Question 2



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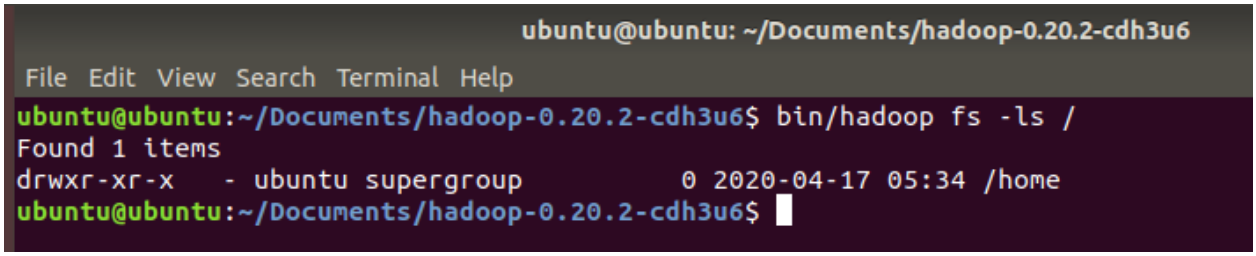
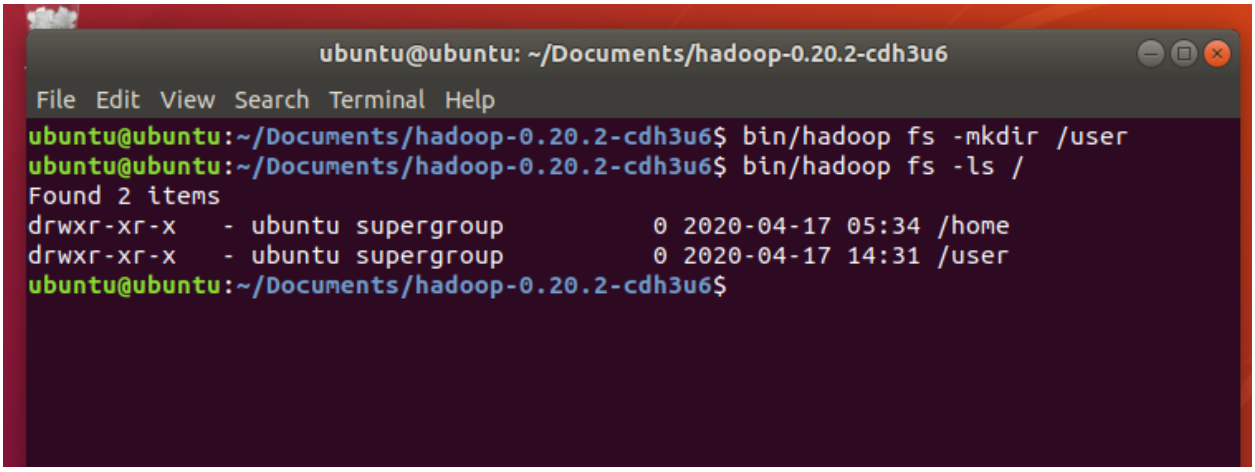
Question 2

1. Listing the directory contents.

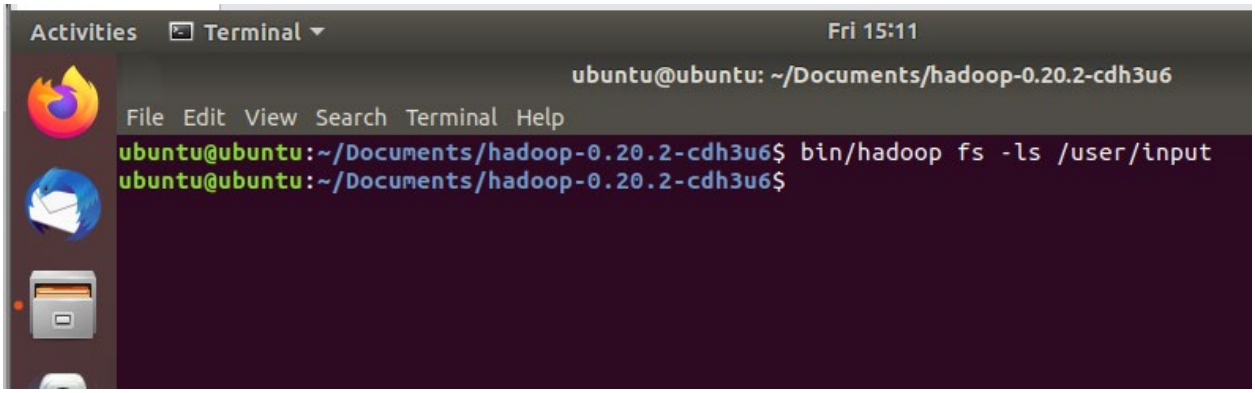
   By running the command ‘Hadoop fs -ls’ and all the files are displayed according to the respective directory as shown in the following screenshot.



2. Creating a Directory, in Hadoop as the screenshot shows first by running the command to create a user directory named ‘user’, as it is shown listed above.



3. Copying a file into the Hadoop directory it will happen only within the Hadoop directory, since there is no existing file to copy or edit, we create one.



Using the Hadoop commands using the ‘**touchz <path>’**.

For a file.txt created in the /user/input,

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -touchz /user/input/file.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /user/input
Found 1 items
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:16 /user/input/file.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

After crating the file.txt as shown in the below screenshot, now we copy it to the home directory (we could do it also in the /user directory but we want a different path).

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -touchz /user/input/file.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /user/input
Found 1 items
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:16 /user/input/file.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -cp /user/input/file.txt /home
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /home
Found 2 items
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:19 /home/file.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 05:34 /home/ubuntu
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

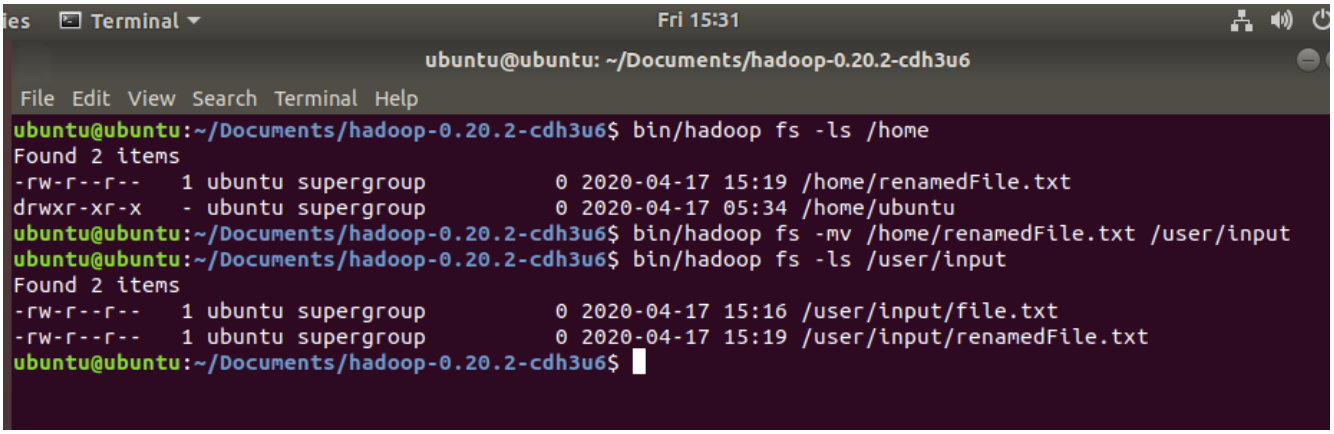
As it is shown with the respective date and all creation details after being copied from the /user/input to /home directory.

4. Renaming the file, according to the location using the Hadoop commands as the following screenshot shows.

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -mv /home/file.txt /home/renamedFile.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /home
Found 2 items
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:19 /home/renamedFile.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 05:34 /home/ubuntu
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

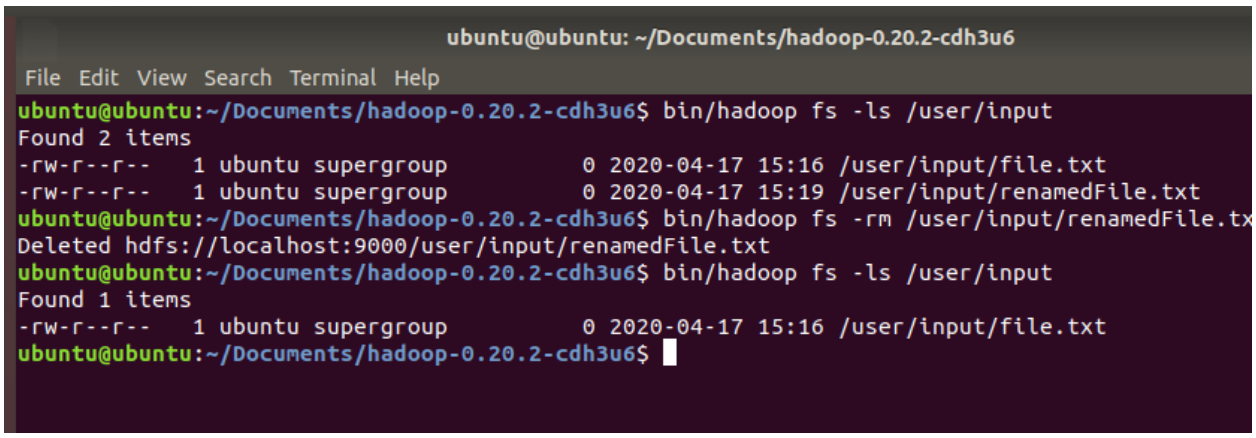
According to the Hadoop, I can say that is very sensitive, everything must be clear, even if an operation will be done within the same directory, everything should be clear and the paths should be specified as the upper screenshot shows the file when they're renamed with the respective names.

5. Moving the file from one directory to another, even if it is shown in the previous exercises, we will transfer the new renamed file of the exercise 4 from /home to /user/input directory as the following screenshot shows.



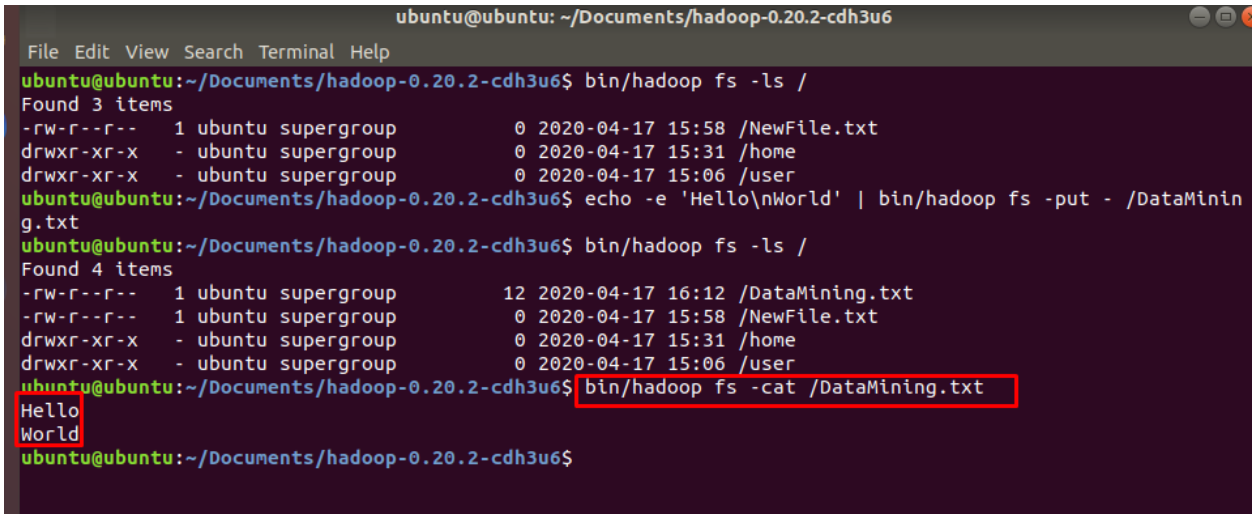
And as it is shown, from /home everything is listed, then we moved the file 'renamedFile.txt' from home to the '/user/input/ and it was clean safe operation.

6. About deleting a file or directory, in the Hadoop framework, as is shown in the following screenshot,

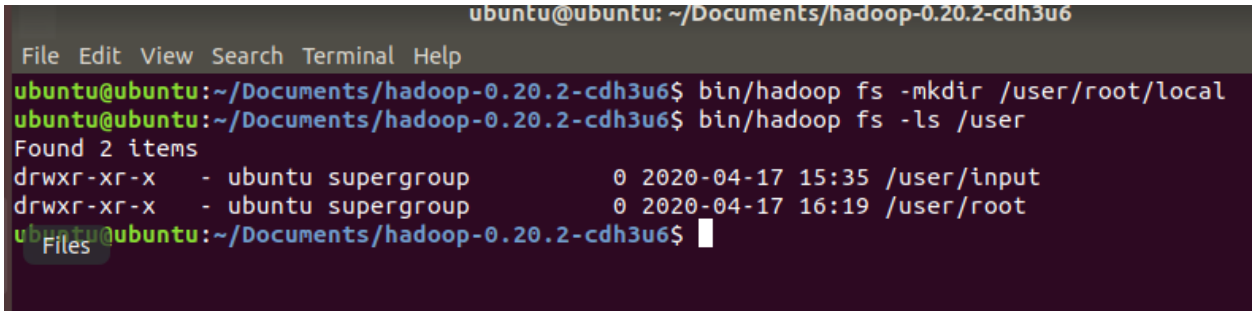


The file successfully deleted, and impressing is that everything is done through the localhost, even if the files are within the same computer.

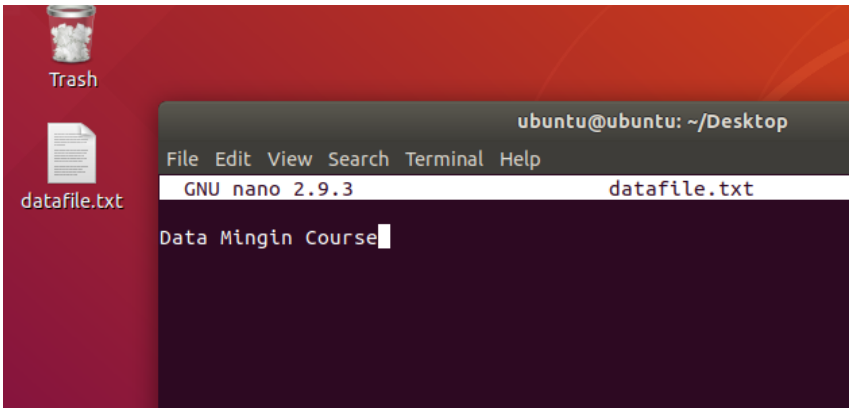
7. Viewing the files, in this case all the directory of Hadoop in general, as the following screenshot shows, before creating the file I set the content to a DataMining.txt file, writing some simple text ‘Hello World’



8. CopyFromLocal, the file is copied from the local file system into the specified HDFS file system, in our case the /user/input, as shown in the current screenshot above, but first we create a local path, according to Hadoop, then a simple file in the desktop, like data.txt, and proceeding as screenshots shows.



After creating the necessary directories, we proceed copying as shown in the following screenshot, making a simple ‘datafile.txt’ in the desktop.



Then we proceed copying from desktop to the Hadoop directory.

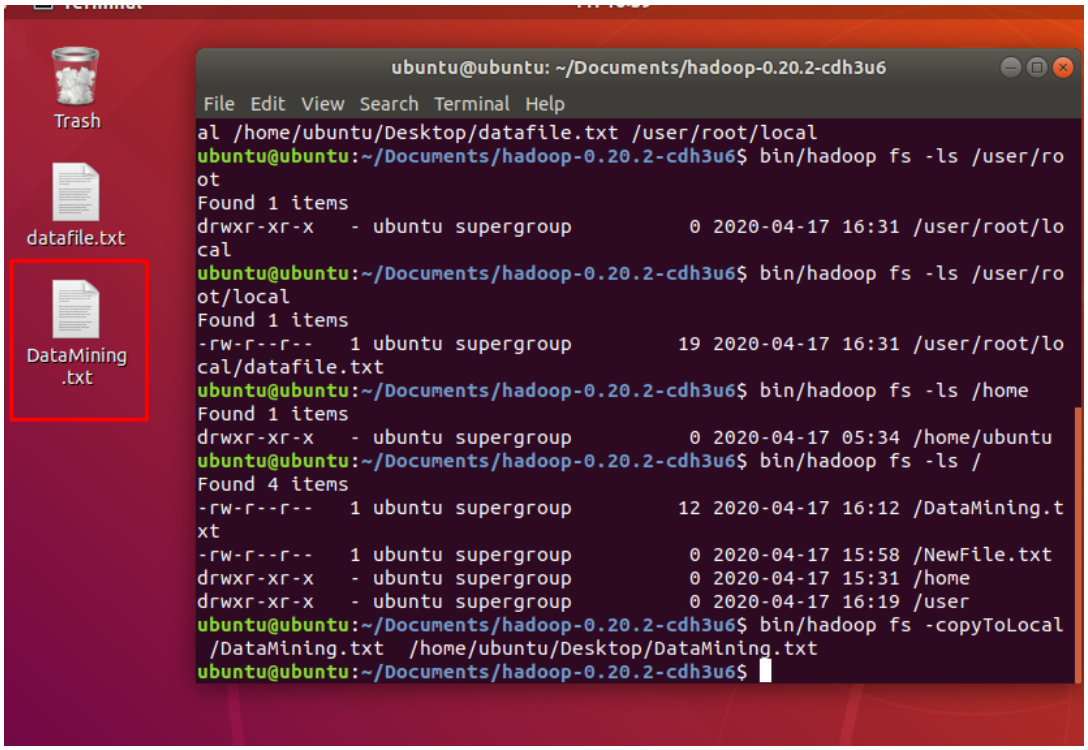
```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -copyFromLocal /home/ubuntu/Desktop/datafi
le.txt /user/root/local
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /user/root
Found 1 items
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 16:31 /user/root/local
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /user/root/local
Found 1 items
-rw-r--r--   1 ubuntu supergroup         19 2020-04-17 16:31 /user/root/local/datafile.txt
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

So, from Desktop to a specific Hadoop directory.

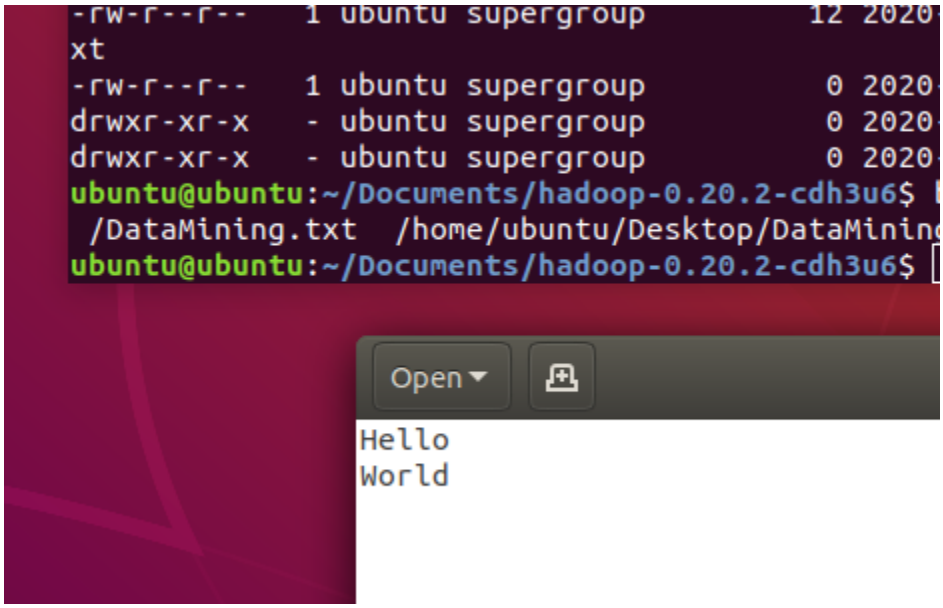
9. CopyToLocal in this case we will send some file.txt from Hadoop to the ubuntu /Dekstop or '/home/ubuntu/Desktop/' directory, as shown even in the screenshot above,

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /
Found 4 items
-rw-r--r--   1 ubuntu supergroup         12 2020-04-17 16:12 /DataMining.txt
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:58 /NewFile.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 15:31 /home
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 16:19 /user
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

So there is a simple file and we send it from Hadoop directory to the Desktop in the ubuntu,

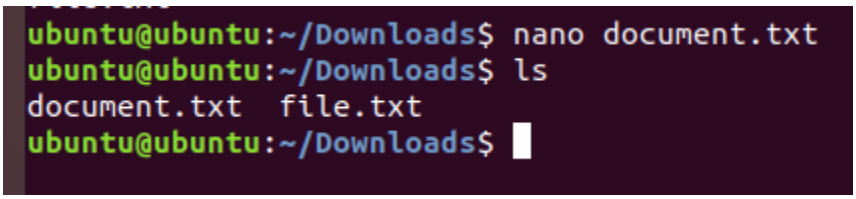


And even the content is the same as the Hadoop framework had it in his directory,

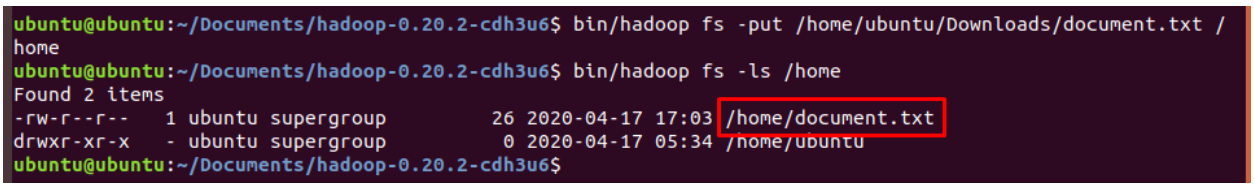


So, as it is shown the full text is shown, and the file is copied in the /Desktop.

10. Put, the put command is similar to *put* command, except that the source is **restricted to a local** file reference. This time a document.txt file will be created to the downloads in the ubuntu and it will be transferred using Hadoop to the Hadoop corresponding directories.



After creating the file where is written 'Data Mining is important'



It is taken from '/home/ubuntu/Downloads/' to the '/home' directory inside the Hadoop directories.

11. Get, the Get command is similar to the copyToLocal, this time we will copy from Hadoop directory to the uvuntu /Desktop some file as shown in the following screenshot,

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /home
Found 2 items
-rw-r--r--   1 ubuntu supergroup         26 2020-04-17 17:03 /home/document.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 05:34 /home/ubuntu
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

document.txt will be taken from Hadoop directory to the ubuntu /Dekstop

```
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /home
Found 2 items
-rw-r--r--   1 ubuntu supergroup         26 2020-04-17 17:03 /home/document.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 05:34 /home/ubuntu
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -get /home/document.txt /home/ubuntu/Deskt
op
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ cd
ubuntu@ubuntu:~$ cd Desktop
ubuntu@ubuntu:~/Desktop$ ls
datafile.txt  DataMining.txt  document.txt
ubuntu@ubuntu:~/Desktop$
```

And then its content

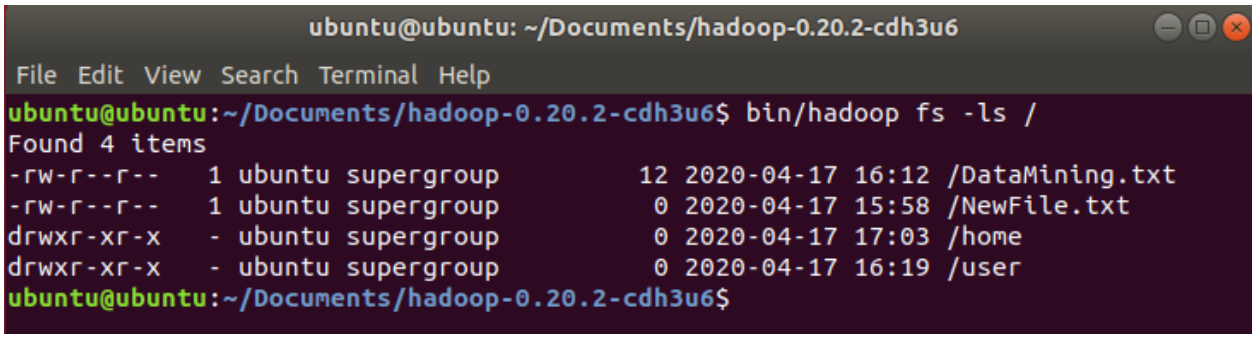
```
ubuntu@ubuntu:~/Desktop$ cat document.txt
Data Mining is important

ubuntu@ubuntu:~/Desktop$
```

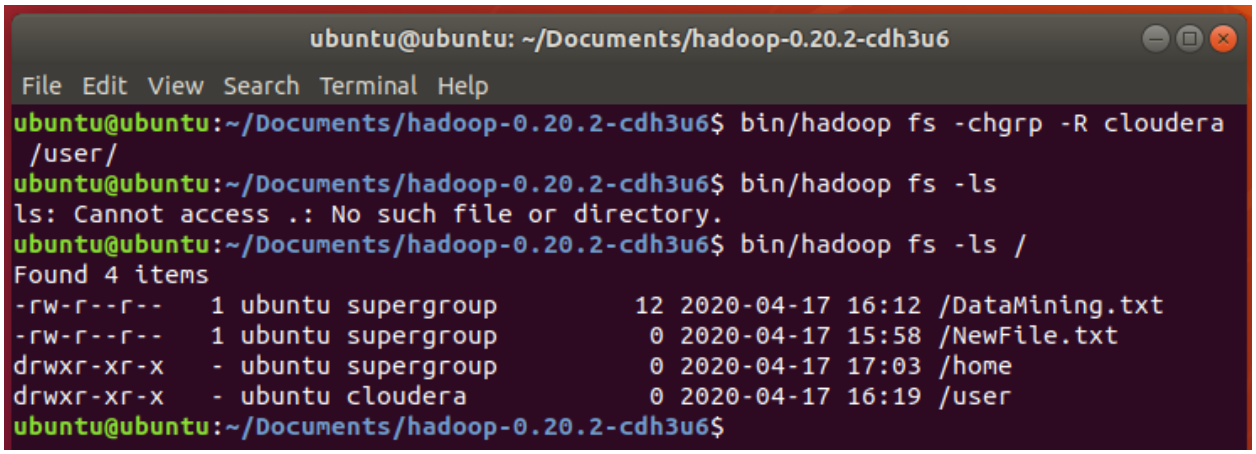
12. Displaying the size of the files, as shown in the screenshot above, all the file root is displayed with the respective size in the left part, in each respective directory.

```
ubuntu@ubuntu: ~/Documents/hadoop-0.20.2-cdh3u6
File  Edit  View  Search  Terminal  Help
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -ls /
Found 4 items
-rw-r--r--   1 ubuntu supergroup         12 2020-04-17 16:12 /DataMining.txt
-rw-r--r--   1 ubuntu supergroup          0 2020-04-17 15:58 /NewFile.txt
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 17:03 /home
drwxr-xr-x   - ubuntu supergroup          0 2020-04-17 16:19 /user
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$ bin/hadoop fs -du /
Found 4 items
12          hdfs://localhost:9000/DataMining.txt
0           hdfs://localhost:9000/NewFile.txt
30          hdfs://localhost:9000/home
19          hdfs://localhost:9000/user
ubuntu@ubuntu:~/Documents/hadoop-0.20.2-cdh3u6$
```

13. Change group of file/directory, first of all we will list all the directories in the Hadoop framework, as shown in the following framework.

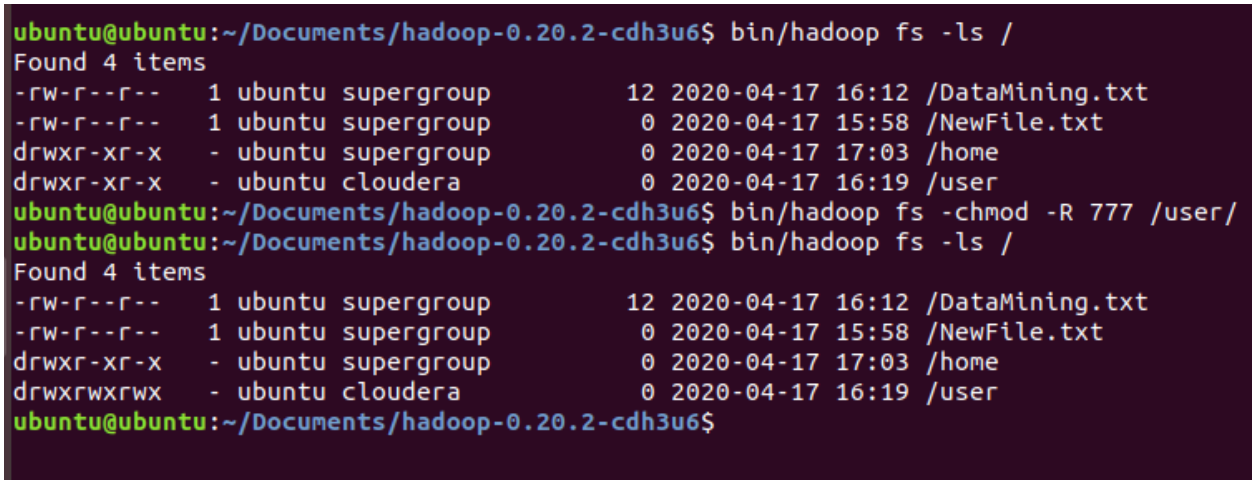


As shown from the listing part they are all listed as part of the supergroup,



Then the last directory the '/user' changed its group form superuser to '/user'.

14. Change permissions of file/directory, for the '/user' directory in this case, as shown in the following screenshot.



All the permissions are set successfully on Hadoop.