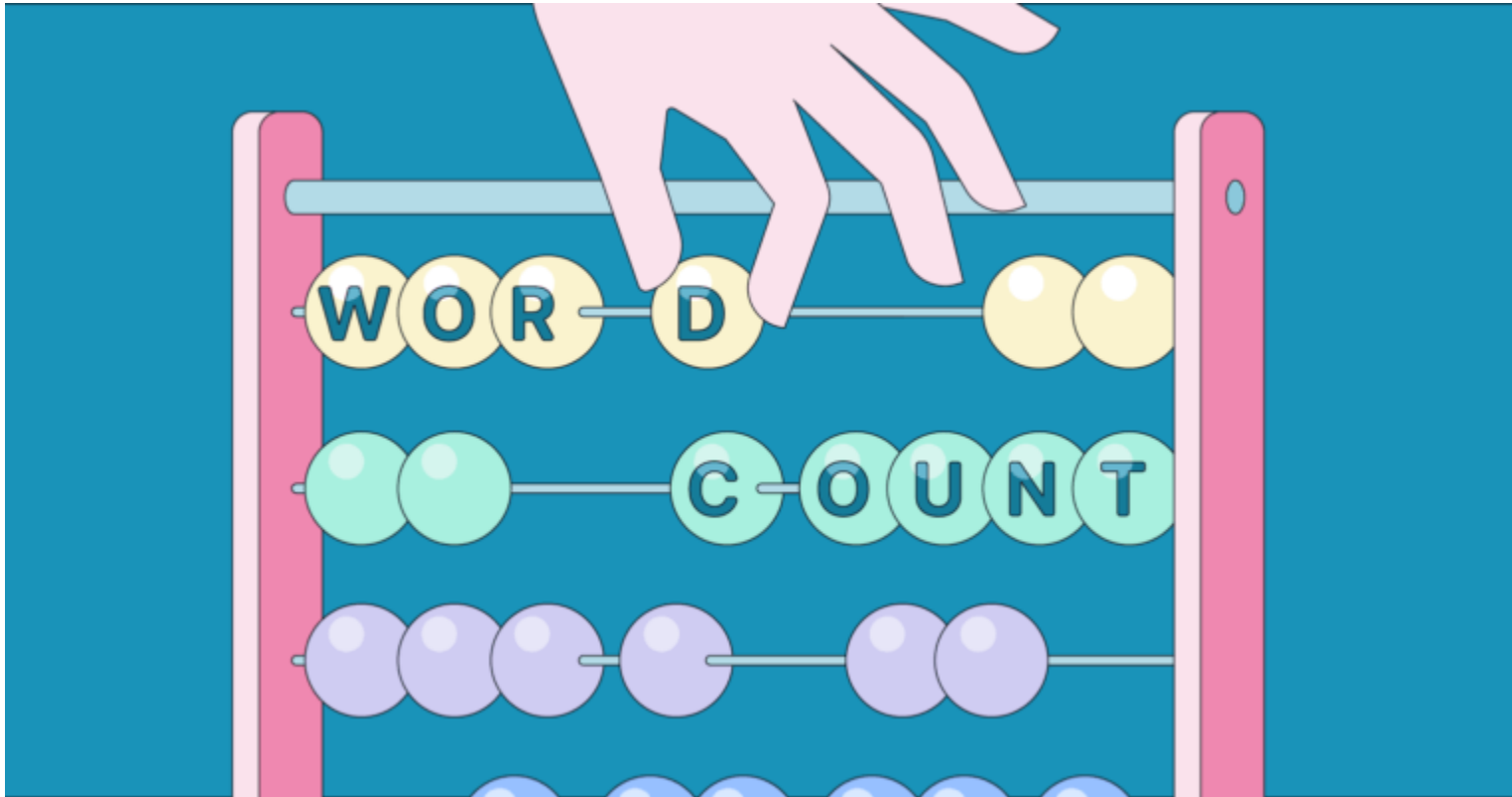# Term Work 1
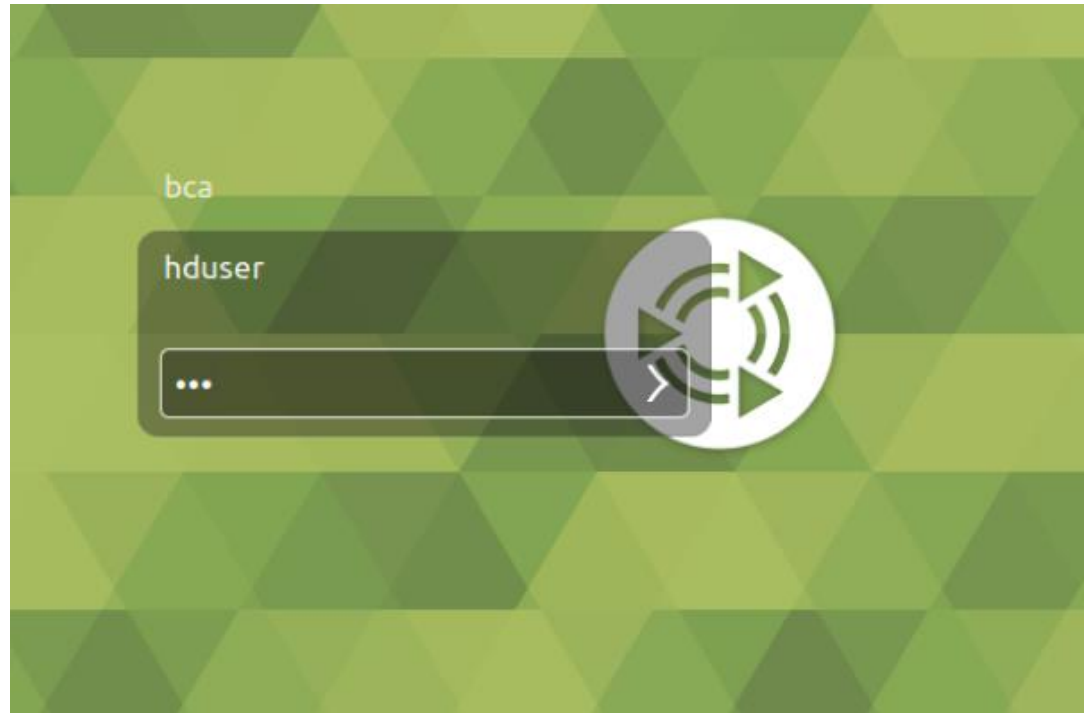
Select hduser & type
Password

dv
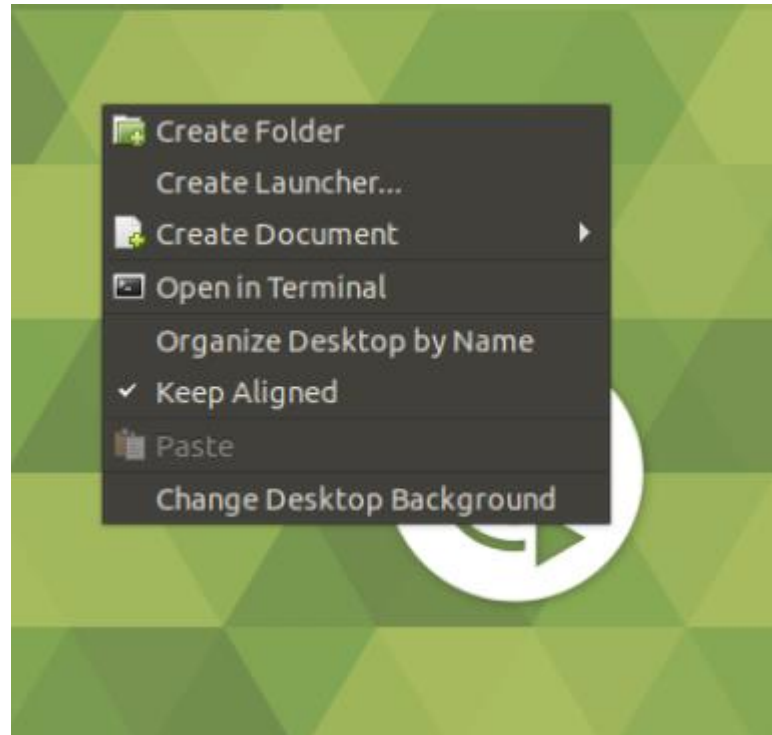
or

bca

Right Click & select
Open in Terminal

Type jps & press


```
hduser@ubuntu:~

File  Edit  View  Search  Terminal  Help
hduser@ubuntu:~$ jps
2472 Jps
hduser@ubuntu:~$ █
```

Type cd Documents/
sudo mkdir termwork1
& press

Provide password dv or bca

Blue Colour - Directory


```
hduser@ubuntu: ~/Documents

File  Edit  View  Search  Terminal  Help

hduser@ubuntu:~$ cd Documents/
hduser@ubuntu:~/Documents$ sudo mkdir termwork1
[sudo] password for hduser:
hduser@ubuntu:~/Documents$ ls
bgm20      mapper45.py  -output    reducer45.py  word13.txt  word.txt
bgm27      mapper.py    red.py     reducer.py    word23.txt
-mapper    map.py       -reducer   termwork1     words.txt
hduser@ubuntu:~/Documents$
```

Type cd termwork1/

& press

File   Edit   View   Search   Terminal   Help

hduser@ubuntu:~/Documents$ cd termwork1/
hduser@ubuntu:~/Documents/termwork1$ ▯

Type sudo nano word.txt

& press

File Edit View Search Terminal Help
hduser@ubuntu:~/Documents/termwork1$ sudo nano word.txt

Type the text

& press Ctrl x y & then press


```
File  Edit  View  Search  Terminal  Help
  GNU  nano 2.9.3                              word.txt

Deer Bear River
car car River
Deer car Bear
```

Type cat word.txt

& press

This shows your typed text


```
hduser@ubuntu:~/Documents/termwork1$ cat word.txt
Deer Bear River
car car River
Deer car Bear
hduser@ubuntu:~/Documents/termwork1$ 
```

Type ls
& press

This shows your file

File Edit View Search Terminal Help

hduser@ubuntu:~/Documents/termwork1$ ls
word.txt
hduser@ubuntu:~/Documents/termwork1$

Type sudo nano mapper.py

& press

Type the code

& press Ctrl x y & then press


```
GNU nano 2.9.3                                    mapper.py

#!/usr/bin/env python
import sys
for line in sys.stdin:
    line = line.strip()
    words = line.split()

    for word in words:
        print '%s\t%s' % (word, 1)
```

Type cat mapper.py
& press

This shows your typed code


```
hduser@ubuntu: ~/Documents/termwork1

File  Edit  View  Search  Terminal  Help

hduser@ubuntu:~/Documents/termwork1$ cat mapper.py
#!/usr/bin/env python
import sys
for line in sys.stdin:
    line = line.strip()
    words = line.split()

    for word in words:
        print '%s\t%s' % (word, 1)
hduser@ubuntu:~/Documents/termwork1$
```

Type ls

& press

This shows your files

Type cat word.txt | python mapper.py
& press

This shows the word seperately

Type sudo nano reducer.py

& press

Type the code

& press Ctrl x y & then press


```python
#!/usr/bin/env python
from operator import itemgetter
import sys
current_word = None
current_count = 0
word = None
for line in sys.stdin:
        line = line.strip()
        word, count = line.split('\t', 1)
        try:
                count = int(count)
        except ValueError:
                continue
        if current_word == word:
                current_count += count
        else:
                if current_word:
                        # write result to STDOUT
                        print '%s\t%s' % (current_word, current_count)
                current_count = count
                current_word = word
if current_word == word:
        print '%s\t%s' % (current_word, current_count)
```

Type cat reducer.py
& press

This shows your typed code

```
File Edit View Search Terminal Help
hduser@ubuntu:~/Documents/termwork1$ cat reducer.py
#!/usr/bin/env python
from operator import itemgetter
import sys
current_word = None
current_count = 0
word = None
for line in sys.stdin:
        line = line.strip()
        word, count = line.split('\t', 1)
        try:
                count = int(count)
        except ValueError:
                continue
        if current_word == word:
                current_count += count
        else:
                if current_word:
                        # write result to STDOUT
                        print '%s\t%s' % (current_word, current_count)
                current_count = count
                current_word = word
if current_word == word:
        print '%s\t%s' % (current_word, current_count)

hduser@ubuntu:~/Documents/termwork1$ █
```

Type ls
& press

This shows your files

Type cat word.txt | python mapper.py | sort –k1,1 | python reducer.py

& press

This shows the word's count

```
hduser@ubuntu:~/Documents/termwork1$ cat word.txt | python mapper.py | sort -k1,1 | python reducer.py
Bear    2
car     3
Deer    2
River   2
hduser@ubuntu:~/Documents/termwork1$ ▌
```

Type jps
& press

File Edit View Search Terminal Help
hduser@ubuntu:~/Documents/termwork1$ jps
2790 Jps
hduser@ubuntu:~/Documents/termwork1$ ▮

Type start-all.sh
& press

Provide password 4 times (it will ask)
Password dv or bca


```
hduser@ubuntu:~/Documents/termwork1$ start-all.sh
This script is Deprecated. Instead use start-dfs.sh and start-yarn.sh
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authent
```

Type jps
& press

If NameNode is not activated then type
ps aux | grep –i namenode
start
start-all.sh
jps

hduser@ubuntu: ~/Documents/termwork1

File Edit View Search Terminal Help

```
hduser@ubuntu:~/Documents/termwork1$ jps
3028 NameNode
3853 NodeManager
3678 ResourceManager
3486 SecondaryNameNode
3231 DataNode
6415 Jps
hduser@ubuntu:~/Documents/termwork1$
```

Type hdfs dfs -mkdir /tw1

& press

If it goes into safe mode then type
hdfs dfsadmin –safemode leave
hdfs dfs –mkdir /tw1

This creates a directory in cluster

```
hduser@ubuntu:~/Documents/termwork1$ hdfs dfs -mkdir /tw1
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.Ke
rberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.7.1.jar) to me
thod sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.securit
y.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective acc
ess operations
WARNING: All illegal access operations will be denied in a future release
24/06/28 00:05:30 WARN util.NativeCodeLoader: Unable to load native-hadoop library for
your platform... using builtin-java classes where applicable
hduser@ubuntu:~/Documents/termwork1$
```

Type hdfs dfs -ls /

& press


```
hduser@ubuntu:~/Documents/termwork1$ hdfs dfs -ls /
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.u
rberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.7.1.jar)
thod sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.s
y.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflecti
ess operations
WARNING: All illegal access operations will be denied in a future release
24/06/28 00:08:38 WARN util.NativeCodeLoader: Unable to load native-hadoop librar
your platform... using builtin-java classes where applicable
Found 14 items
drwxr-xr-x   - hduser supergroup          0 2024-06-25 03:02 /TERM2
drwxr-xr-x   - hduser supergroup          0 2024-06-18 03:16 /TW1
drwxr-xr-x   - hduser supergroup          0 2024-06-24 03:16 /TW2
drwxr-xr-x   - hduser supergroup          0 2024-06-06 03:38 /bcom
drwxr-xr-x   - hduser supergroup          0 2024-06-13 04:01 /bgm
drwxr-xr-x   - hduser supergroup          0 2024-06-19 03:14 /bgm196
drwxr-xr-x   - hduser supergroup          0 2024-06-20 03:34 /bgm206
drwxr-xr-x   - hduser supergroup          0 2024-06-08 04:30 /dv
drwxr-xr-x   - hduser supergroup          0 2024-06-08 04:44 /dv1
drwxr-xr-x   - hduser supergroup          0 2024-06-27 03:49 /first
drwx------   - hduser supergroup          0 2024-06-08 04:29 /tmp
drwxr-xr-x   - hduser supergroup          0 2024-06-28 00:05 /tw1
```

Type hdfs dfs –copyFromLocal
/home/hduser/Documents/termwork1/word.txt /tw1

& press


```
hduser@ubuntu:~/Documents/termwork1$ hdfs dfs -copyFromLocal /home/hduser/Documents/ter
mwork1/word.txt /tw1
```

Type hdfs dfs -ls /tw1

& press



```
hduser@ubuntu:~/Documents/termwork1$ hdfs dfs -ls /tw1
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.Ke
rberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.7.1.jar) to me
thod sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.securit
y.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective acc
ess operations
WARNING: All illegal access operations will be denied in a future release
24/06/28 00:20:46 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 hduser supergroup         44 2024-06-28 00:19 /tw1/word.txt
hduser@ubuntu:~/Documents/termwork1$
```

Type sudo chmod 777 mapper.py reducer.py
& press

Provide password dv or bca

Type ls -1

& press

This shows your files


```
File  Edit  View  Search  Terminal  Help
hduser@ubuntu:~/Documents/termwork1$ ls -1
mapper.py
reducer.py
word.txt
hduser@ubuntu:~/Documents/termwork1$
```

Type   hadoop jar /home/hduser/Downloads/hadoop-streaming-2.7.3.jar \

-input /tw1/word.txt \

-output /tw1/8899 \

-mapper /home/hduser/Documents/termwork1/mapper.py \

-reducer /home/hduser/Documents/termwork1/reducer.py

& press


```
hduser@ubuntu:~/Documents/termwork1$ hadoop jar /home/hduser/Downloads/hadoop-streaming
-2.7.3.jar \
> -input /tw1/word.txt \
> -output /tw1/8899 \
> -mapper /home/hduser/Documents/termwork1/mapper.py \
> -reducer /home/hduser/Documents/termwork1/reducer.py
```

Everything working fine, it will show the output directory
& press

Type hdfs dfs –cat /tw1/8899/part-00000
& press

This shows the final output

```
hduser@ubuntu:~/Documents/termwork1$ hdfs dfs -cat /tw1/8899/part-00000
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.util.Ke
rberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.7.1.jar) to me
thod sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.securit
y.authentication.util.KerberosUtil
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective acc
ess operations
WARNING: All illegal access operations will be denied in a future release
24/06/28 00:33:20 WARN util.NativeCodeLoader: Unable to load native-hadoop library for
your platform... using builtin-java classes where applicable
Bear    2
Deer    2
River   2
car     3
hduser@ubuntu:~/Documents/termwork1$
```
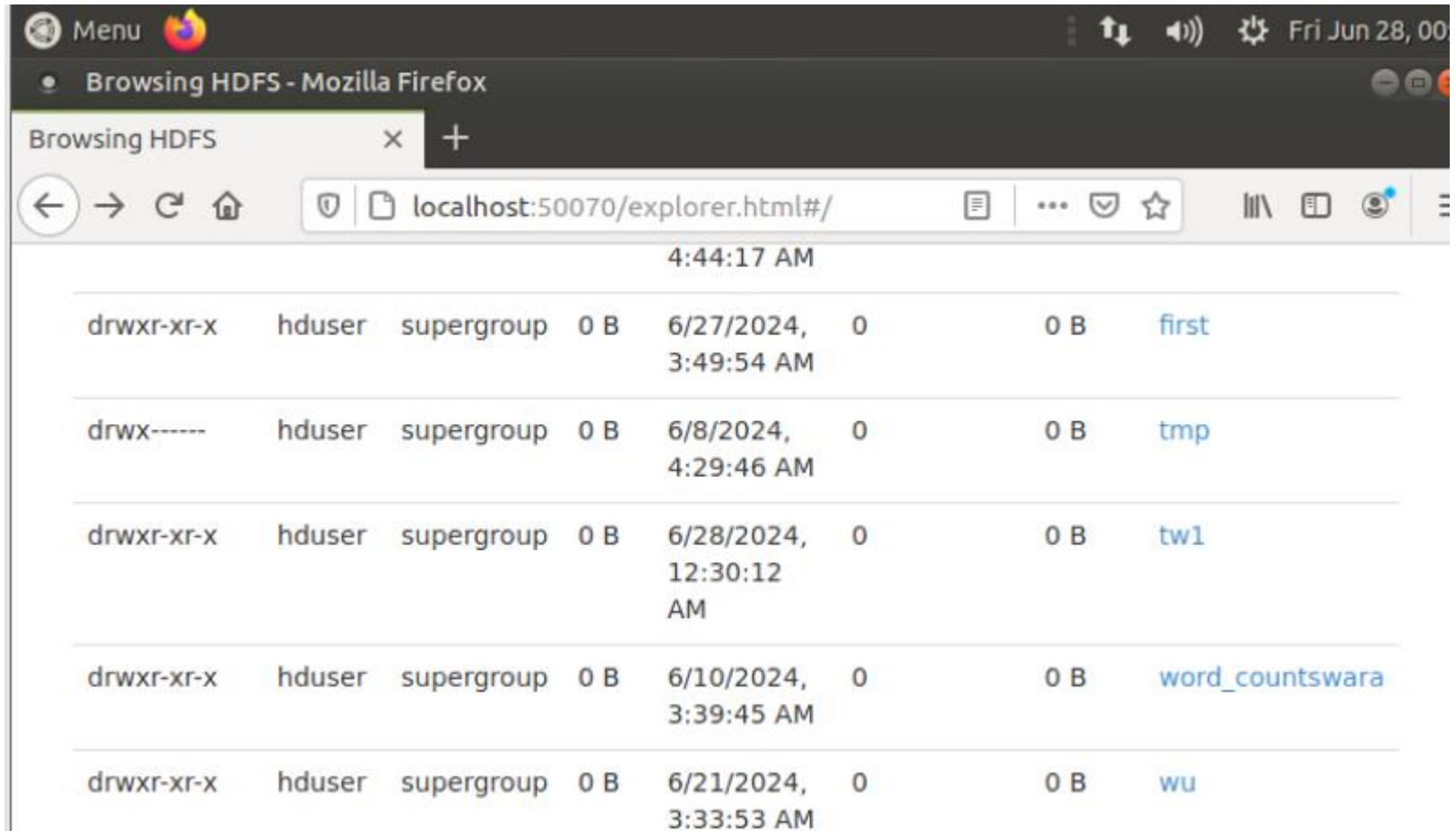
Now open firefox and type localhost:50070/

& press
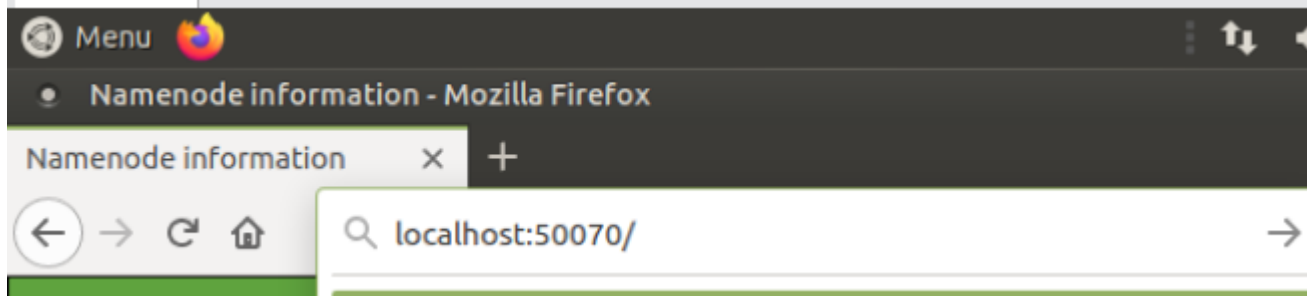
Click utilities & click Browse the file system
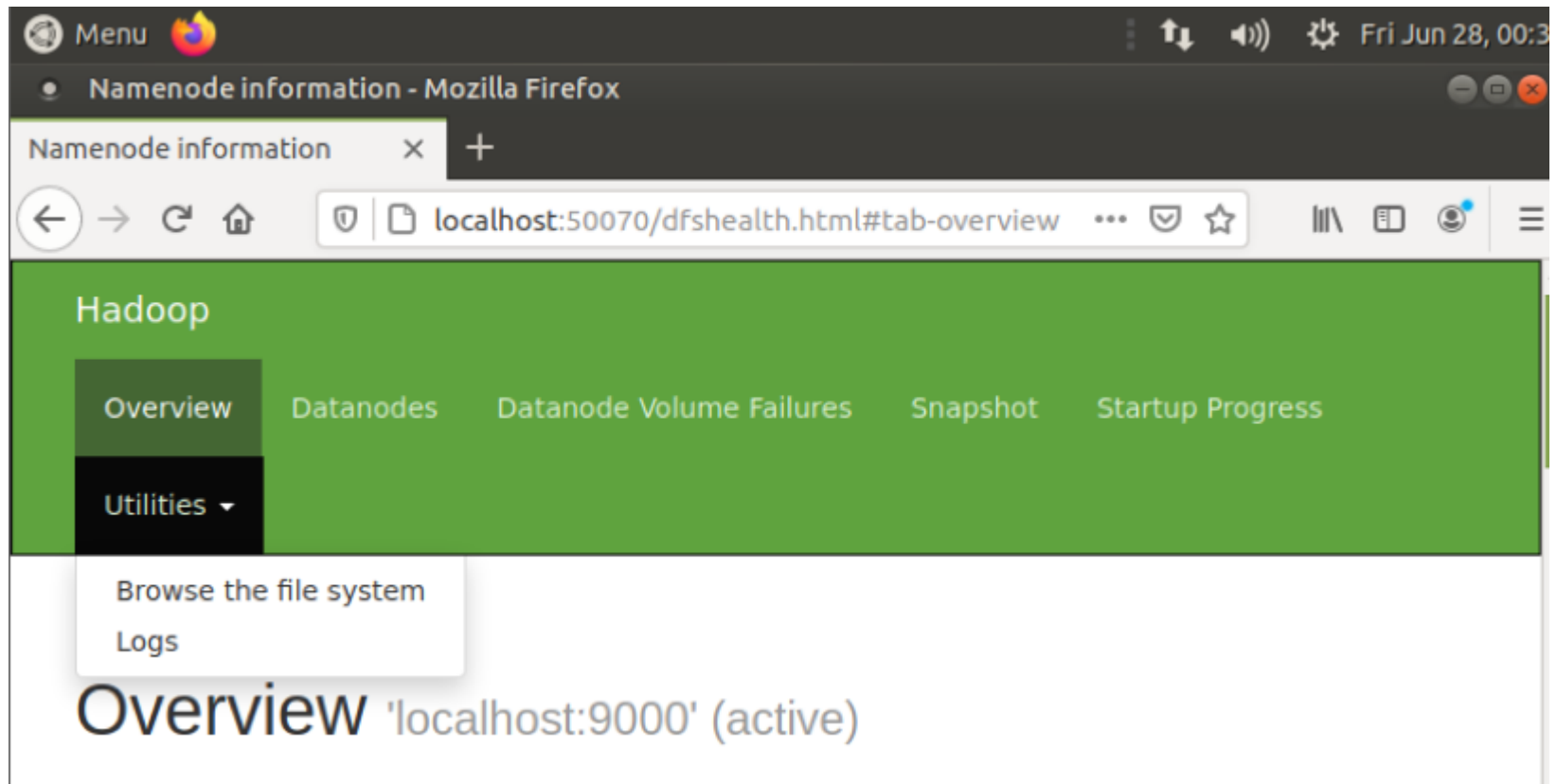
Click tw1

				4:44:17 AM			
drwxr-xr-x	hduser	supergroup	0 B	6/27/2024, 3:49:54 AM	0	0 B	first
drwx------	hduser	supergroup	0 B	6/8/2024, 4:29:46 AM	0	0 B	tmp
drwxr-xr-x	hduser	supergroup	0 B	6/28/2024, 12:30:12 AM	0	0 B	tw1
drwxr-xr-x	hduser	supergroup	0 B	6/10/2024, 3:39:45 AM	0	0 B	word_countswara
drwxr-xr-x	hduser	supergroup	0 B	6/21/2024, 3:33:53 AM	0	0 B	wu

Click 8899
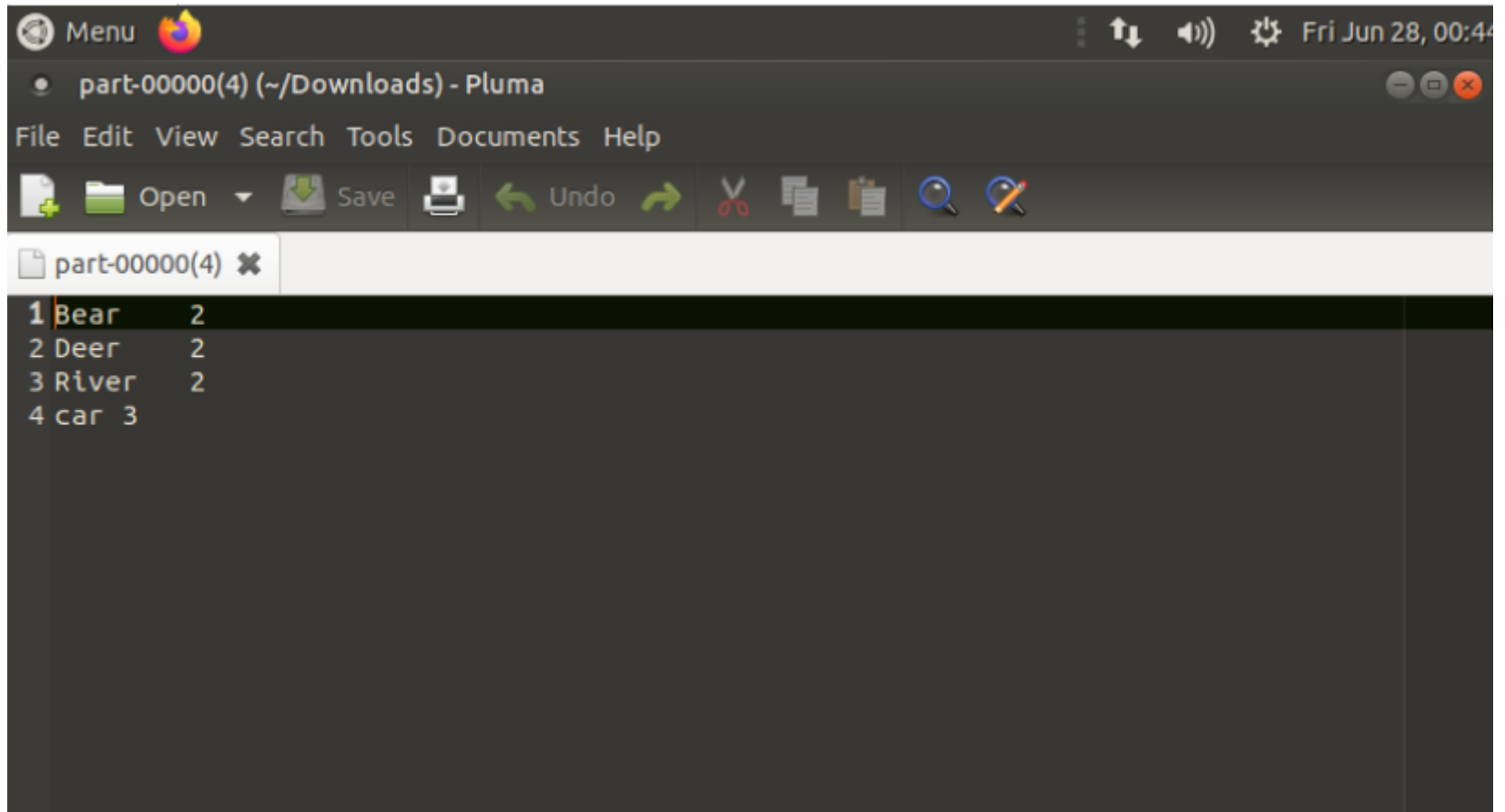
Click part-00000

Click Download
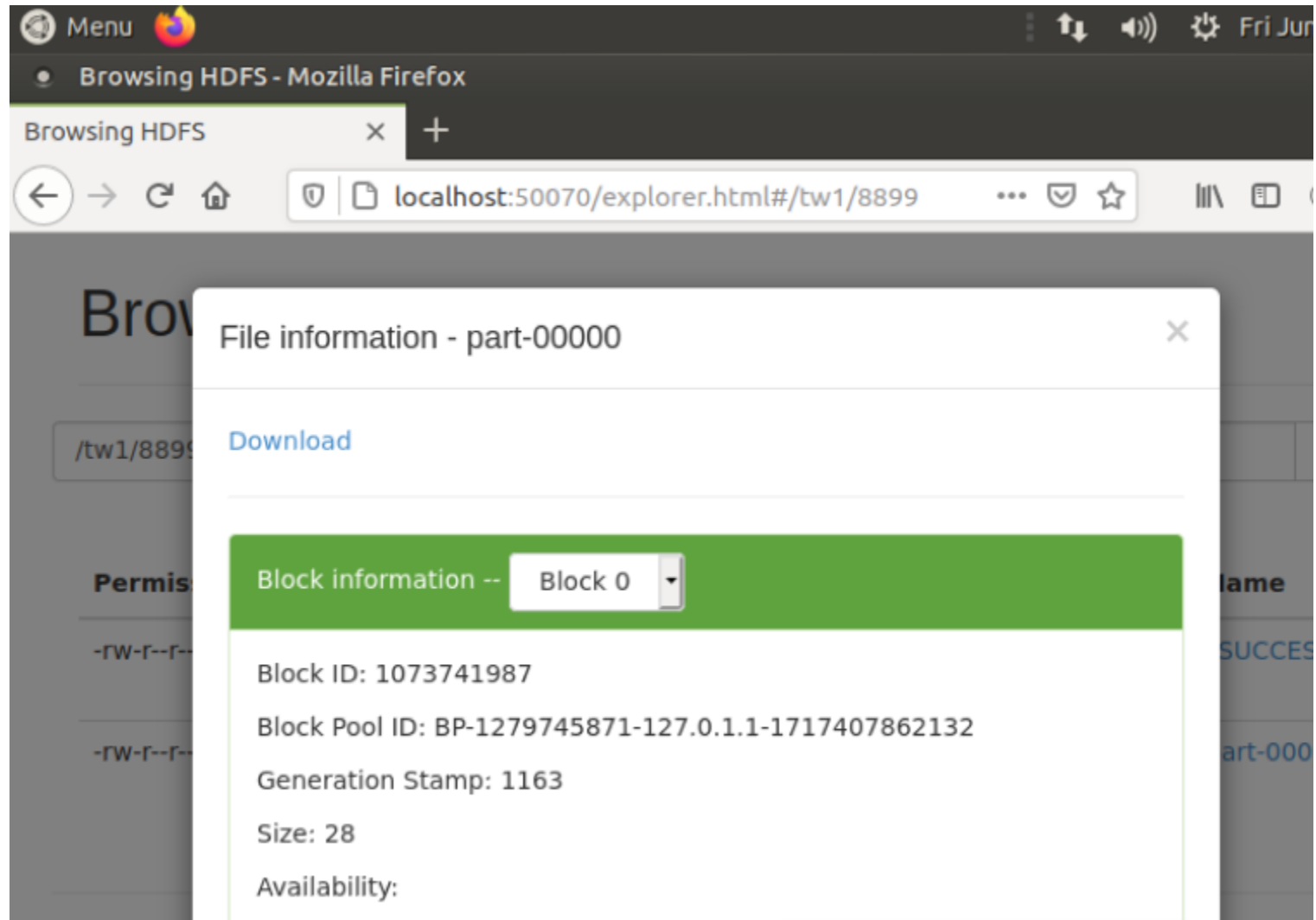
Click savefile
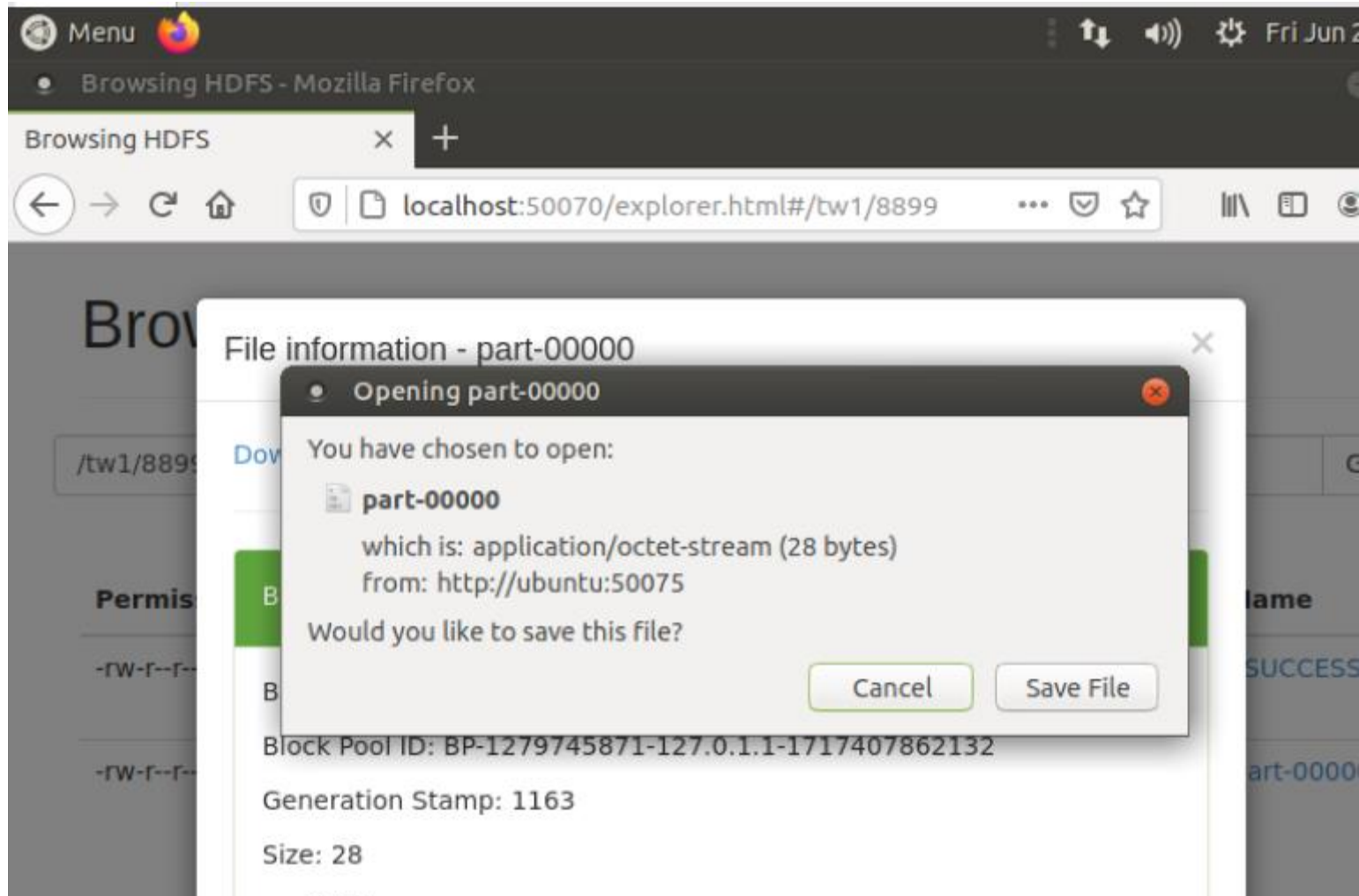
Go to download and open the file part-00000 to view the output