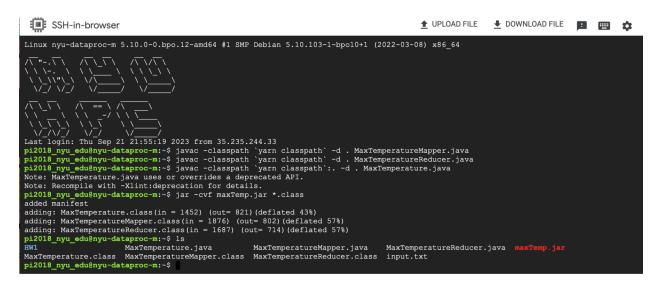
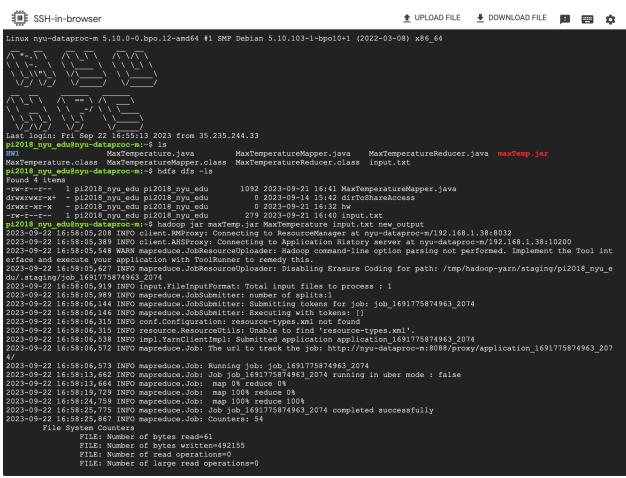
## 1. MapReduce MaxTemperature example







```
Total megabyte-milliseconds taken by all map tasks=14073856 Total megabyte-milliseconds taken by all reduce tasks=11464704
                     Map-Reduce Framework
Map input records=5
                                           Map output records=5
Map output bytes=45
Map output materialized bytes=61
Input split bytes=116
                                            Combine input records=0
                                           Combine output records=0
Reduce input groups=2
Reduce shuffle bytes=61
                                            Reduce input records=5
                                           Reduce output records=2
Spilled Records=10
Shuffled Maps =1
Failed Shuffles=0
                                           Failed Shuffles=0
Merged Map outputs=1
GC time elapsed (ms)=93
CPU time spent (ms)=1940
Physical memory (bytes) snapshot=1137397760
Virtual memory (bytes) snapshot=9607958528
Total committed heap usage (bytes)=1416101888
Peak Map Physical memory (bytes)=689102848
Peak Map Virtual memory (bytes)=4805976064
Peak Reduce Physical memory (bytes)=448294912
Peak Reduce Virtual memory (bytes)=4801982464
                     Shuffle Errors
BAD_ID=0
                                           CONNECTION=0
IO_ERROR=0
                                           WRONG_LENGTH=0
WRONG_MAP=0
                                           WRONG_REDUCE=0
                     File Input Format Counters
                     Bytes Read=279
File Output Format Counters
 Bytes Written=17
pi2018 nyu edu@nyu-dataproc-m:~$ hdfs dfs -ls
Found 5 items
-rw-r-r-- 1 pi2018_nyu_edu pi2018_nyu_edu 1092 2023-09-21 16:4
drwxrwxr-x+ - pi2018_nyu_edu pi2018_nyu_edu 0 2023-09-21 16:5
drwxrwxr-xr - pi2018_nyu_edu pi2018_nyu_edu 0 2023-09-21 16:5
-rw-r-r-- 1 pi2018_nyu_edu pi2018_nyu_edu 279 2023-09-21 16:5
drwxr-xr-x - pi2018_nyu_edu pi2018_nyu_edu 0 2023-09-21 16:5
pi2018_nyu_edu@nyu-dataproc-m:~$ hdfs dfs -cat new_output/part-r-00000
1949 111
1950 22
                                                                                                                                         1092 2023-09-21 16:41 MaxTemperatureMapper.java

0 2023-09-14 15:42 dirToShareAccess

0 2023-09-21 16:32 hw

279 2023-09-21 16:40 input.txt

0 2023-09-22 16:58 new_output
 pi2018_nyu_edu@nyu-dataproc-m:~$
```

```
Linux nyu-dataproc-m 5.10.0-0.bpo.12-amd64 #1 SMP Debian 5.10.103-1~bpo10+1 (2022-03-08) x86_64
                       `\__\
`\__\
 Last login: Thu Sep 21 16:40:00 2023 from 35.235.244.32
pi2018_nyu_edu@nyu-dataproc-m:~$ ls
HW1 MaxTemperature.java
HW1 MaxTemperature.java MaxTemperatureMapper.java MaxTemperatureReducer.java maxTemp.jar
MaxTemperature.class MaxTemperatureMapper.class MaxTemperatureReducer.class input.txt
                                                                                       MaxTemperatureMapper.java
pi2018_nyu_edu@nyu-dataproc-m:~$ hdfs dfs -ls
Found 6 items
drwxr-xr-x
                      - pi2018_nyu_edu pi2018_nyu_edu
1 pi2018_nyu_edu pi2018_nyu_edu
- pi2018_nyu_edu pi2018_nyu_edu
                                                                                              0 2023-09-21 16:32 -mkdir
                                                                                          1092 2023-09-21 16:41 MaxTemperatureMapper.java
 -rw-r--r--
                                                                                          0 2023-09-11 16:41 MaxTemperatureMa
0 2023-09-14 15:42 dirToShareAccess
0 2023-09-21 16:32 hw
279 2023-09-21 16:40 input.txt
0 2023-09-21 16:46 new_output
 drwxrwxr-x+
drwxr-xr-x - pi2018_nyu_edu pi2018_nyu_edu 0 2
-rw-r-r-- 1 pi2018_nyu_edu pi2018_nyu_edu 279 2
drwxr-xr-x - pi2018_nyu_edu pi2018_nyu_edu 0 2
pi2018_nyu_edu@nyu-dataproc-m:~$ hdfs dfs -ls new_output
-rw-r-r-- 1 pi2018 nyu edu pi2018 nyu edu 0 2023-09-21 16:
-rw-r-r-- 1 pi2018 nyu edu pi2018 nyu edu 17 2023-09-21 16:

pi2018 nyu edu@nyu-dataproc-m:~$ hdfs dfs -cat new_output/part-r-00000 1949 111
                                                                                            0 2023-09-21 16:46 new_output/_SUCCESS 17 2023-09-21 16:46 new_output/part-r-00000
pi2018_nyu_edu@nyu-dataproc-m:~$
```