**EX.NO. 9** **DATE: 27.08.2024**

# HADOOP DEMONSTRATE THE MAP REDUCE PROGRAMMING MODEL BYCOUNTING THE NUMBER OF WORDS IN A FILE

## AIM:

To demonstrate the MAP REDUCE programming model for counting the number of words in a file.

## PROCEDURE:

**Step 1 -** Open Terminal

```
$ su hduser
Password:
```

**Step 2 -** Start dfs and mapreduce services

```
$ cd /usr/local/hadoop/hadoop-2.7.2/sbin
$ start-dfs.sh
$ start-yarn.sh
$ jps
```

**Step 3 -** Check Hadoop through web UI

// Go to browser type http://localhost:8088 – All Applications Hadoop Cluster

// Go to browser type http://localhost:50070 – Hadoop Namenode

**Step 4** – Open New Terminal

```
$ cd Desktop/
$ mkdir inputdata
$ cd inputdata/
$ echo “Java Dart Java Hello World” >>input.txt
$ cat>> input.txt
```

**Step 5 –** Go back to old Terminal

```
$ hadoop fs –copyFromLocal /home/hduser/Desktop/inputdata/input.txt
/folder/hduser // Check in input.txt in Namenode using Web UI
```

**Step 6** – WordCount Program

- Mapper.py
- Reducer.py

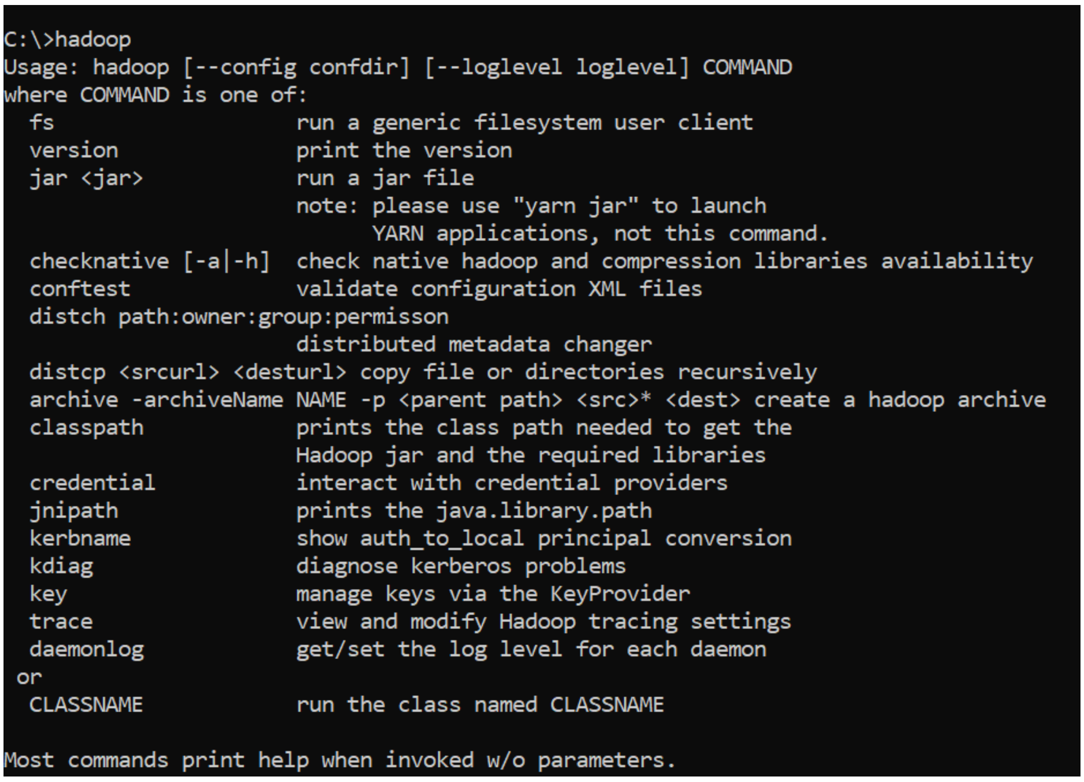
## Mapper.py

```
#!C:/ProgramData/chocolatey/bin/python3.exe
import sys
for line in sys.stdin:
    line = line.strip()
    words = line.split()
    for word in words:
        print('%s\t%s' % (word, 1))
```

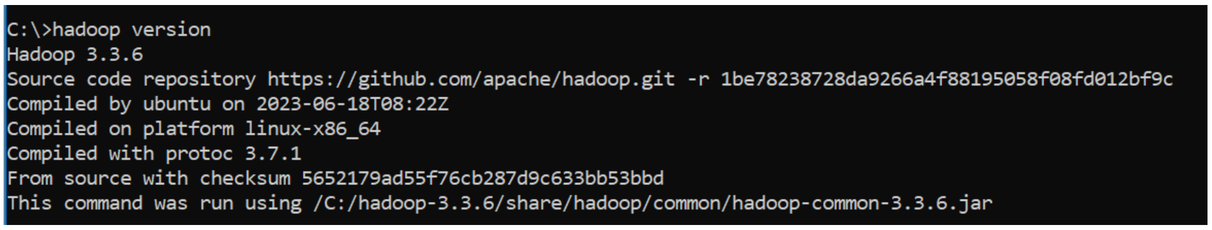
## Reducer.py

```
#!C:/ProgramData/chocolatey/bin/python3.exe
import sys
prev_word = None
prev_count = 0
for line in sys.stdin:
    line = line.strip()
    word, count = line.split('\t')
    count = int(count)
    if(prev_word == word):
        prev_count += count
    else:
        if prev_word:
            print('%s\t%s' % (prev_word, prev_count))
        prev_count = count
        prev_word = word
if prev_word == word:
        print('%s\t%s' % (prev_word, prev_count))
```

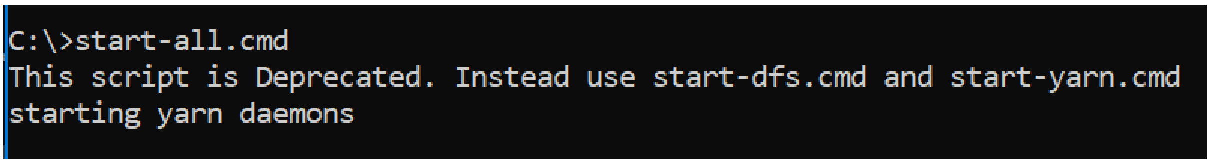
**OUTPUT:**



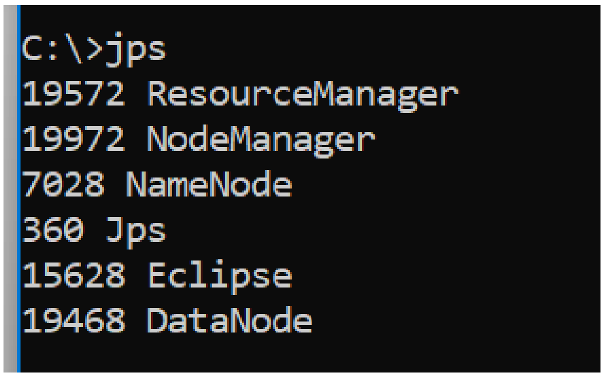
```
C:\>hadoop
Usage: hadoop [--config confdir] [--loglevel loglevel] COMMAND
where COMMAND is one of:
  fs                   run a generic filesystem user client
  version              print the version
  jar <jar>            run a jar file
                       note: please use "yarn jar" to launch
                             YARN applications, not this command.
  checknative [-a|-h]  check native hadoop and compression libraries availability
  conftest             validate configuration XML files
  distch path:owner:group:permisson
                       distributed metadata changer
  distcp <srcurl> <desturl> copy file or directories recursively
  archive -archiveName NAME -p <parent path> <src>* <dest> create a hadoop archive
  classpath            prints the class path needed to get the
                       Hadoop jar and the required libraries
  credential           interact with credential providers
  jnipath              prints the java.library.path
  kerbname             show auth_to_local principal conversion
  kdiag                diagnose kerberos problems
  key                  manage keys via the KeyProvider
  trace                view and modify Hadoop tracing settings
  daemonlog            get/set the log level for each daemon
 or
  CLASSNAME            run the class named CLASSNAME

Most commands print help when invoked w/o parameters.
```



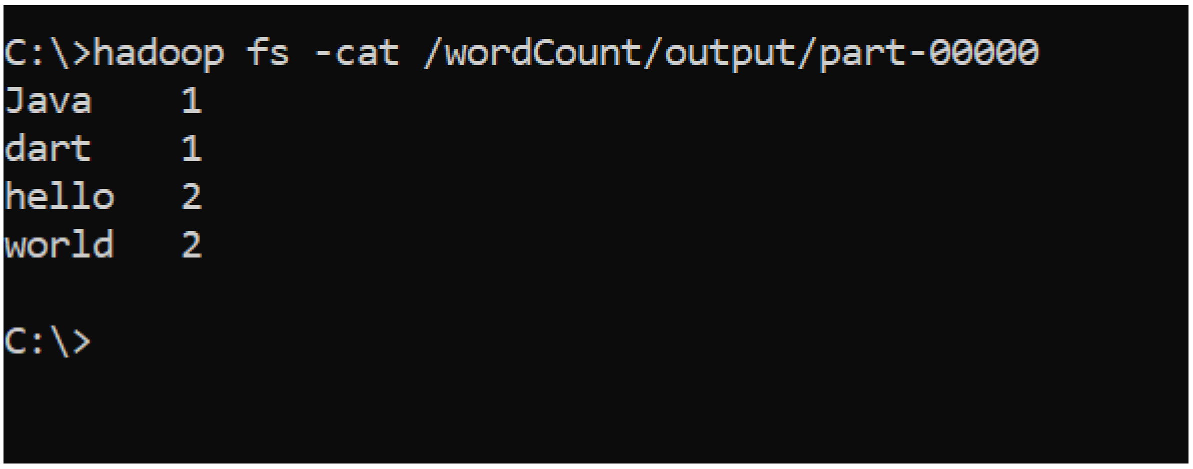
```
C:\>hadoop version
Hadoop 3.3.6
Source code repository https://github.com/apache/hadoop.git -r 1be78238728da9266a4f88195058f08fd012bf9c
Compiled by ubuntu on 2023-06-18T08:22Z
Compiled on platform linux-x86_64
Compiled with protoc 3.7.1
From source with checksum 5652179ad55f76cb287d9c633bb53bbd
This command was run using /C:/hadoop-3.3.6/share/hadoop/common/hadoop-common-3.3.6.jar
```



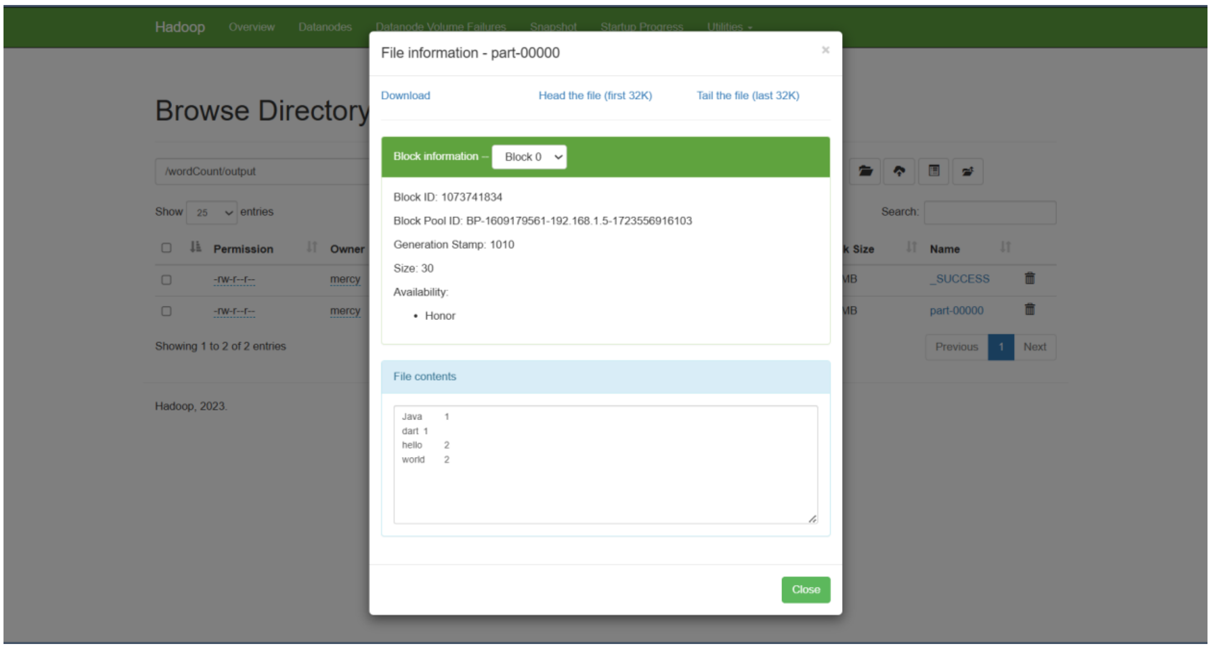
```
C:\>start-all.cmd
This script is Deprecated. Instead use start-dfs.cmd and start-yarn.cmd
starting yarn daemons
```



```
C:\>jps
19572 ResourceManager
19972 NodeManager
7028 NameNode
360 Jps
15628 Eclipse
19468 DataNode
```



```
C:\>hadoop fs -cat /wordCount/output/part-00000
Java    1
dart    1
hello   2
world   2

C:\>
```



File information - part-00000

Block ID: 1073741834

Block Pool ID: BP-1609179561-192.168.1.5-1723556916103

Generation Stamp: 1010

Size: 30

Availability:

- Honor

File contents

```
Java    1
dart 1
hello   2
world   2
```

| | Permission | Owner | k Size | Name |
|---|---|---|---|---|
| ☐ | -rw-r--r-- | mercy | MB | _SUCCESS |
| ☐ | -rw-r--r-- | mercy | MB | part-00000 |

Showing 1 to 2 of 2 entries

Hadoop, 2023.

## RESULT:

Thus the implementation of the python mapper and reducer programs using MapReduce to count the words in a text file using Hadoop is executed successfully.