Exp No: 2

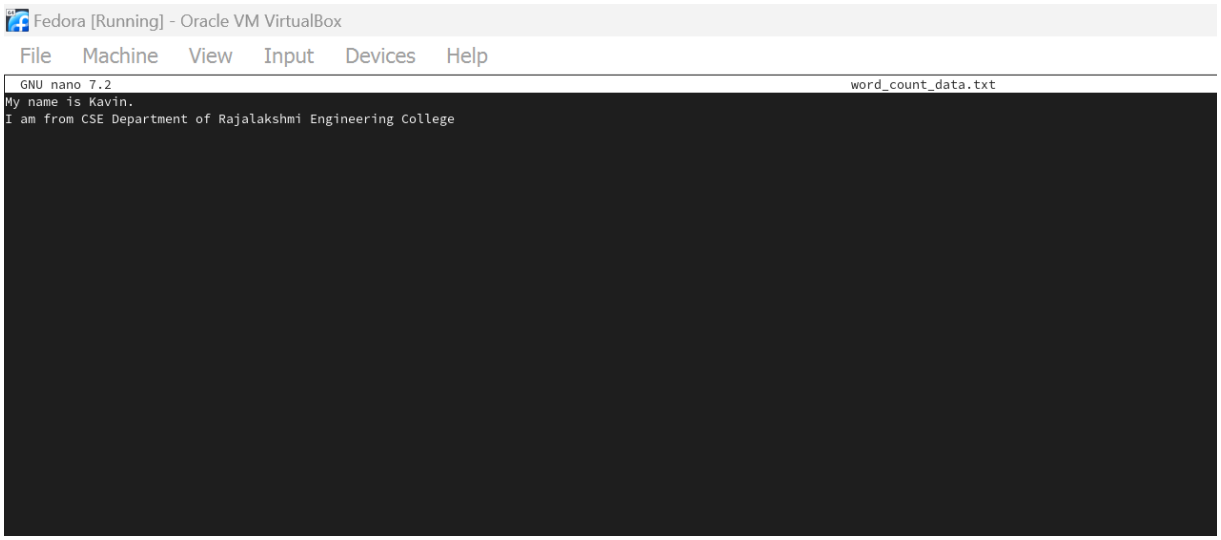
Run a basic Word Count Map Reduce program to understand Map Reduce Paradigm Aim:

To Run a basic Word Count MapReduce program to understand Map Reduce Paradigm.

Procedure:

Step 1: Create Data File:

Create a file named "word_count_data.txt" and populate it with text data that you wish to analyze. Login with your Hadoop user.



Step 2: Mapper Logic - mapper.py:

Create a file named "mapper.py" to implement the logic for the mapper. The mapper will read input data from STDIN, split lines into words, and output each word with its count.

nano mapper.py

Copy and paste the mapper.py code

#!/usr/bin/env python3

import sys because we need to read and write data to STDIN and STDOUT

```
#!/usr/bin/python3
import sys   for line
in sys.stdin:
        line = line.strip()
         # remove leading and trailing whitespace
        words = line.split()
        # split the line into words for word in words:

        nano word_count.txt print( '%s\t%s' % (word, 1))
```

Step 3: Reducer Logic - reducer.py:

Create a file named "reducer.py" to implement the logic for the reducer. The reducer will aggregate the occurrences of each word and generate the final output.

nano reducer.py

```
# Copy and paste the reducer.py code
reducer.py #!/usr/bin/python3 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:
                        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))
```

Step 4: Prepare Hadoop Environment:

Start the Hadoop daemons and create a directory in HDFS to store your data.

start-all.sh

hdfsdfs -mkdir /word_count_in_python hdfsdfs -copyFromLocal

/path/to/word_count.txt/word_count_in_python

Step 5: Make Python Files Executable:

Give executable permissions to your mapper.py and reducer.py files. chmod

777 mapper.py reducer.py

Step 6: Run Word Count using Hadoop Streaming:

Download the latest hadoop-streaming jar file and place it in a location you can easily

access.

Then run the Word Count program using Hadoop Streaming.

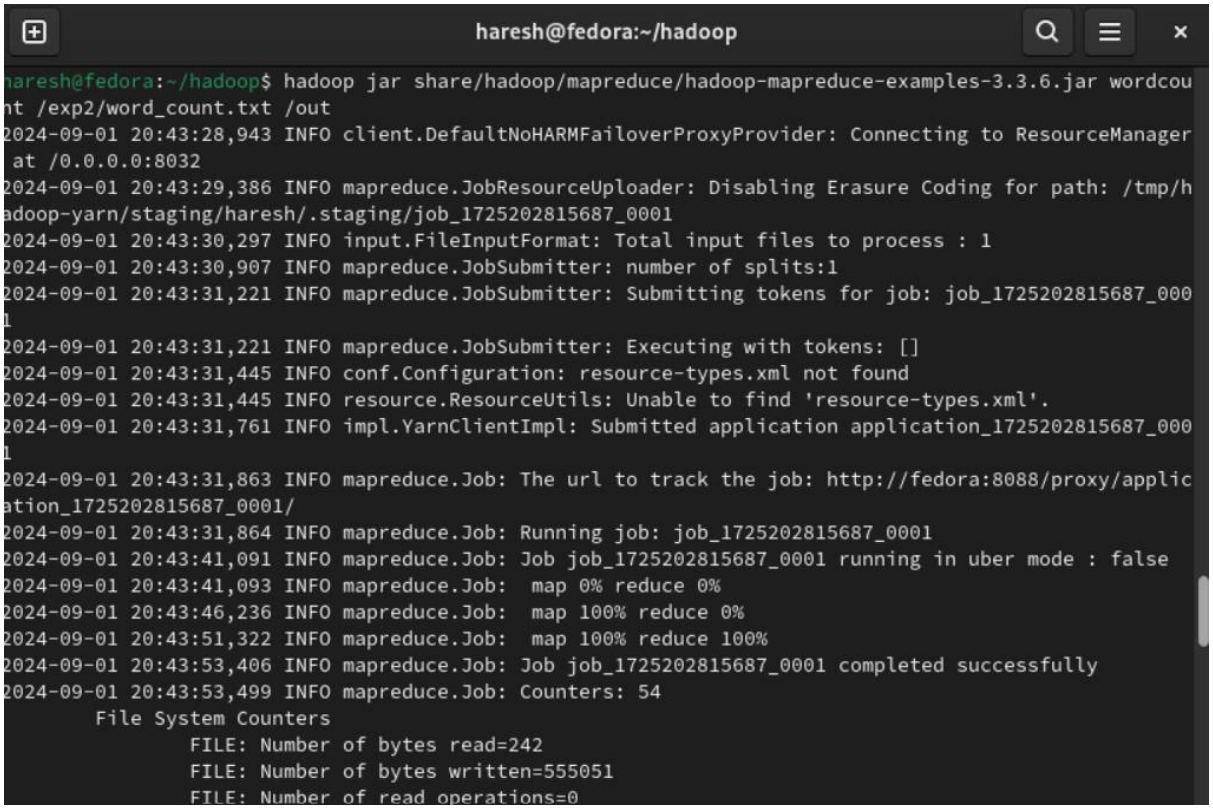
hadoop jar /path/to/hadoop-streaming-3.3.6.jar \

 -input /word_count_in_python/word_count_data.txt \

-output /word_count_in_python/new_output \

-mapper /path/to/mapper.py \

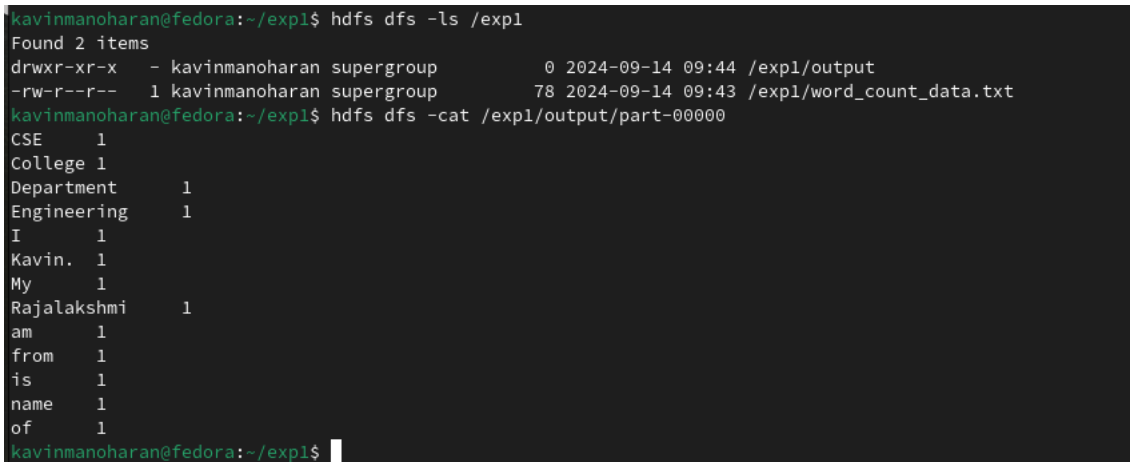
-reducer /path/to/reducer.py



Step 8: Check Output:

Check the output of the Word Count program in the specified HDFS output directory. hdfs

dfs -cat /word_count_in_python/new_output/part-00000



Result:

Thus, the program for basic Word Count Map Reduce has been executed successfully.