EXP 2 210701231

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

Aim:

To run a basic Word Count MapReduce program.

Procedure:

Step 1: Create Data File:

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

```
nano word_count.txt
```

Output: Type the below content in word_count.txt

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:
        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 6: Make Python Files Executable:

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

```
chmod 777 mapper.py reducer.py
```

Step 7: 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
```

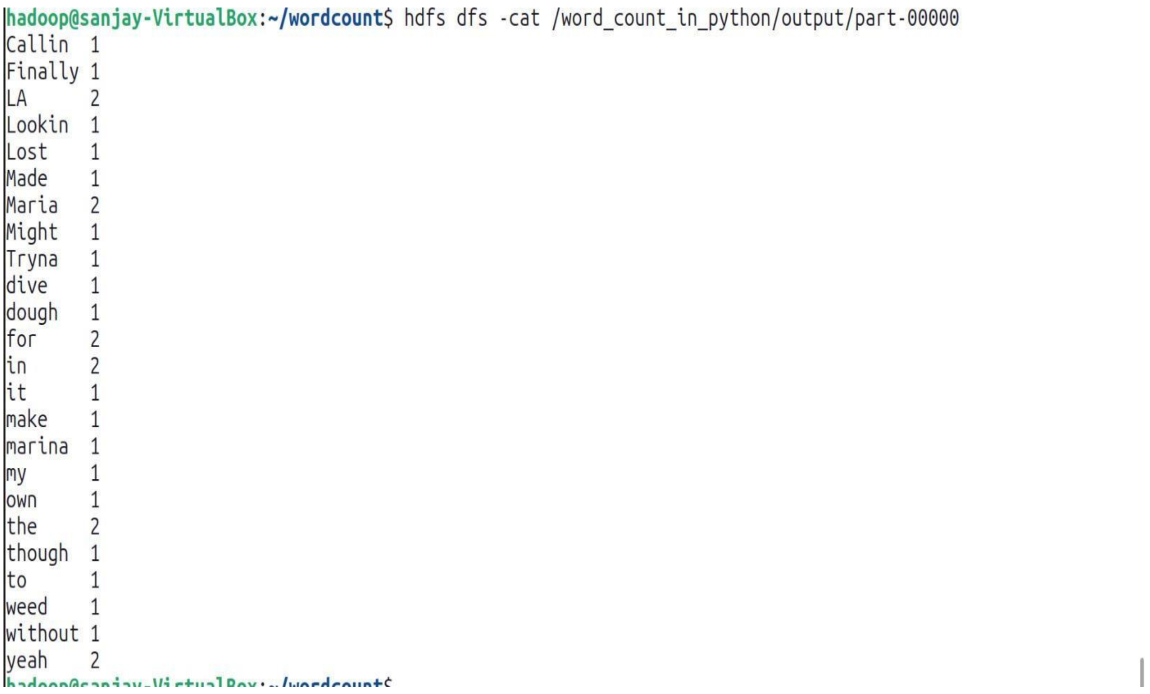
Step 8: Check Output:

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
```

OUTPUT:



```
hadoop@sanjay-VirtualBox:~/wordcount$ hdfs dfs -cat /word_count_in_python/output/part-00000
Callin  1
Finally 1
LA      2
Lookin  1
Lost    1
Made    1
Maria   2
Might   1
Tryna   1
dive    1
dough   1
for     2
in      2
it      1
make    1
marina  1
my      1
own     1
the     2
though  1
to      1
weed    1
without 1
yeah    2
hadoop@sanjay-VirtualBox:~/wordcount$
```

Result:

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