

Expt-2

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

AIM:

To run a basic Word Count MapReduce program using Hadoop.

PROCEDURE:

1. Create Data File:

```
nano word_count_data.txt
```

Example content for word_count_data.txt:

Hadoop is a framework that allows for distributed processing of large data sets.

2. Mapper Program (mapper.py):

```
import sys

for line in sys.stdin:
    line = line.strip()
    words = line.split()
    for word in words:
        print(f'{word}\t1')
```

3. Reducer Program (reducer.py):

```
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(f'{current_word}\t{current_count}')
    current_count = count
    current_word = word
```

```
if current_word == word:
    print(f'{current_word}\t{current_count}')
```

4. Set Hadoop Environment:

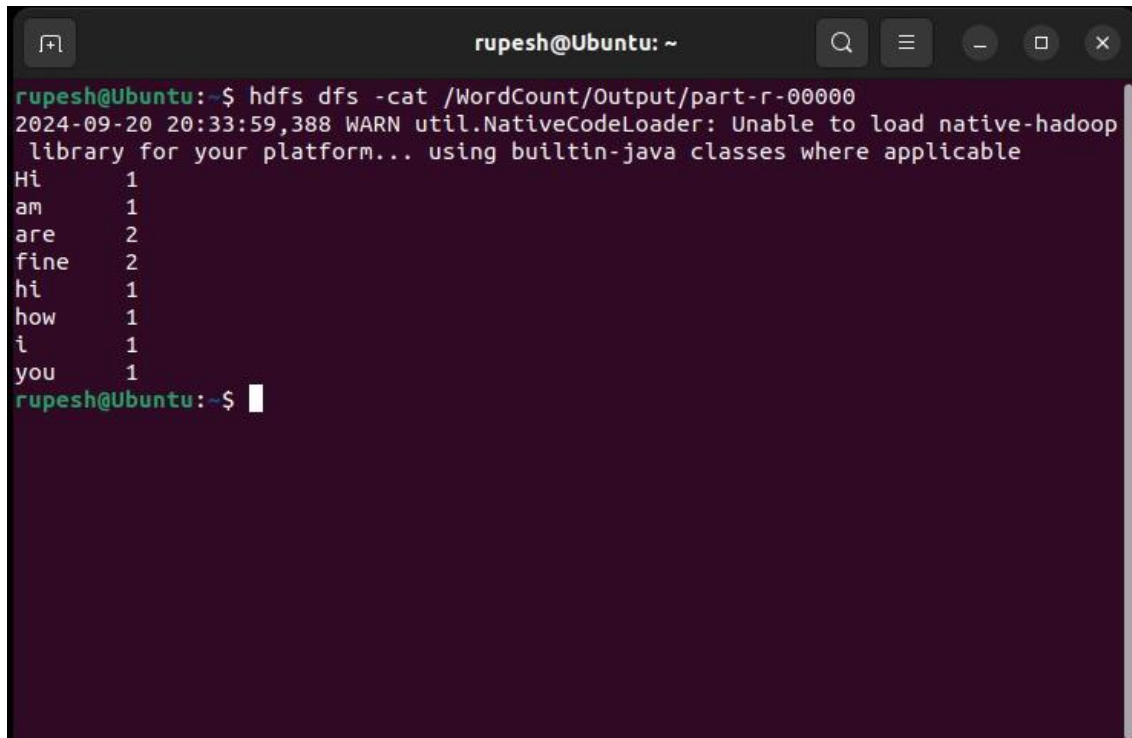
```
hdfs dfs -mkdir /word_count_input
hdfs dfs -copyFromLocal word_count_data.txt /word_count_input
```

5. Run Word Count Program:

```
hadoop jar $HADOOP_HOME/share/hadoop/tools/lib/hadoop-streaming-*.jar \
-input /word_count_input/word_count_data.txt \
-output /word_count_output \
-mapper mapper.py \
-reducer reducer.py
```

6. Check Output:

```
hdfs dfs -cat /word_count_output/part-00000
```

OUTPUT:A terminal window titled 'rupesh@Ubuntu: ~' with standard Ubuntu window controls. The terminal shows a command to cat a file from HDFS. The output includes a warning message about a missing native-hadoop library and a list of words with their counts. The words and counts are: 'Hi' (1), 'am' (1), 'are' (2), 'fine' (2), 'hi' (1), 'how' (1), 'i' (1), and 'you' (1).

```
rupesh@Ubuntu: ~  
rupesh@Ubuntu:~$ hdfs dfs -cat /WordCount/Output/part-r-00000  
2024-09-20 20:33:59,388 WARN util.NativeCodeLoader: Unable to load native-hadoop  
library for your platform... using builtin-java classes where applicable  
Hi      1  
am      1  
are     2  
fine    2  
hi      1  
how     1  
i       1  
you     1  
rupesh@Ubuntu:~$
```

RESULT:

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