

Expt-3

## Map Reduce program to process a weather dataset.

**AIM:**

To implement MapReduce program to process a weather dataset.

**PROCEDURE:****1. Create Weather Dataset:**

```
nano weather_data.txt
```

**Example content:**

```
20220101 30.5
```

```
20220102 29.8
```

**2. Mapper Program (mapper.py):**

```
#!/usr/bin/env python3

import sys

for line in sys.stdin:
    line = line.strip()
    month = line[4:6] # Extracting month
    temp = line[7:11] # Extracting temperature
    print(f'{month}\t{temp}')
```

**3. Reducer Program (reducer.py):**

```
#!/usr/bin/env python3

import sys

current_month = None
current_max_temp = -float('inf')

for line in sys.stdin:
    line = line.strip()
    month, temp = line.split('\t')

    try:
```

```
        temp = float(temp)
    except ValueError:
        continue

    if current_month == month:
        current_max_temp = max(current_max_temp, temp)
    else:
        if current_month:
            print(f'{current_month}\t{current_max_temp}')
        current_month = month
        current_max_temp = temp

    if current_month == month:
        print(f'{current_month}\t{current_max_temp}')
```

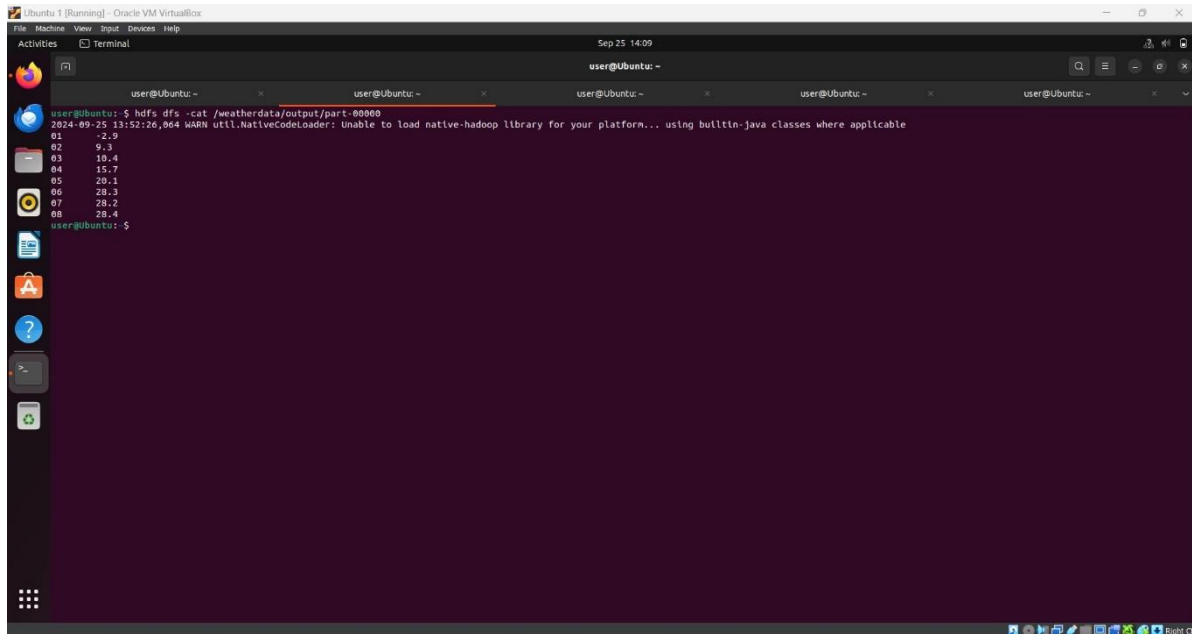
#### 4. Run the Program:

```
hdfs dfs -mkdir /weatherdata
hdfs dfs -copyFromLocal weather_data.txt /weatherdata

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

#### 5. Check Output:

```
hdfs dfs -cat /weatherdata/output/part-00000
```

**OUTPUT:**

```
user@ubuntu: ~  
2024-09-25 13:52:26,064 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable  
01 -2.9  
02 5.3  
03 18.4  
04 15.7  
05 20.1  
06 29.3  
07 28.2  
08 28.4  
user@ubuntu: $
```

**RESULT:**

Thus, the program for weather dataset using Map Reduce has been executed successfully.