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**:

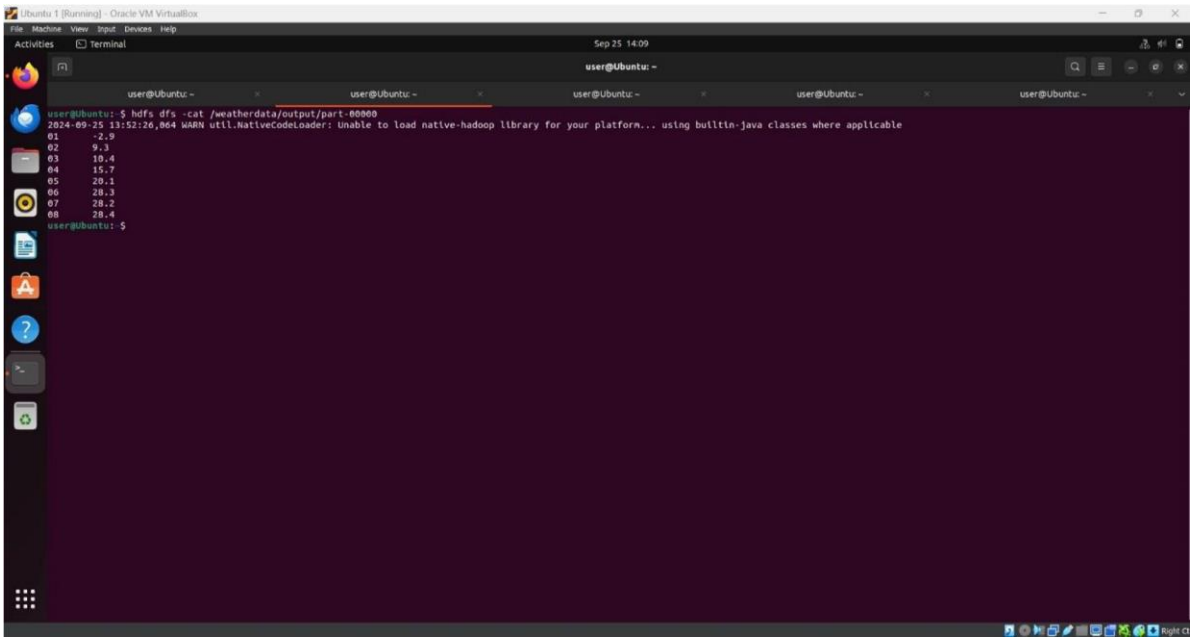
```
hdfs dfs -mkdir /weatherdata
hdfs dfs -copyFromLocal weather_data.txt /weatherdata

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:



RESULT:

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