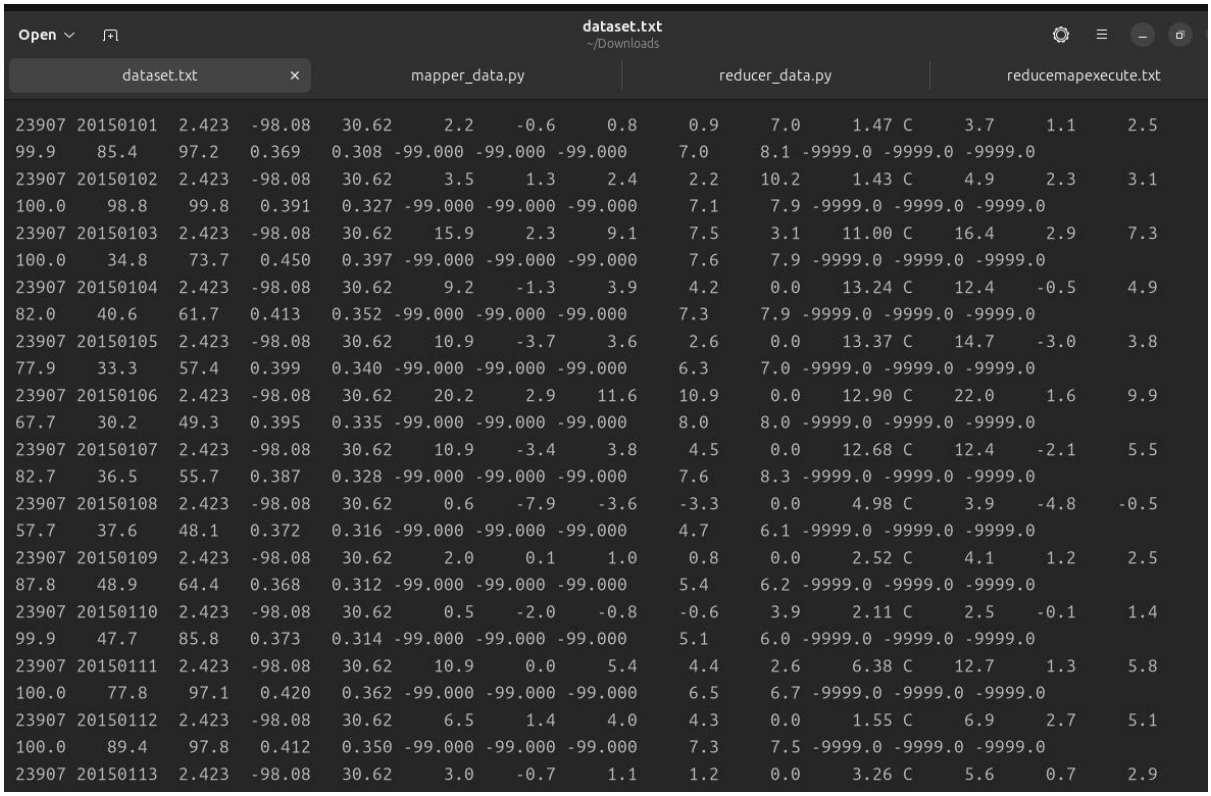
210701120

Map Reduce program to process a weather dataset

Input(dataset.txt):




```
23907 20150101  2.423  -98.08   30.62     2.2    -0.6     0.8     0.9     7.0     1.47 C     3.7     1.1     2.5
99.9    85.4    97.2   0.369   0.308 -99.000 -99.000 -99.000     7.0     8.1 -9999.0 -9999.0 -9999.0
23907 20150102  2.423  -98.08   30.62     3.5     1.3     2.4     2.2    10.2     1.43 C     4.9     2.3     3.1
100.0    98.8    99.8   0.391   0.327 -99.000 -99.000 -99.000     7.1     7.9 -9999.0 -9999.0 -9999.0
23907 20150103  2.423  -98.08   30.62    15.9     2.3     9.1     7.5     3.1    11.00 C    16.4     2.9     7.3
100.0    34.8    73.7   0.450   0.397 -99.000 -99.000 -99.000     7.6     7.9 -9999.0 -9999.0 -9999.0
23907 20150104  2.423  -98.08   30.62     9.2    -1.3     3.9     4.2     0.0    13.24 C    12.4    -0.5     4.9
82.0    40.6    61.7   0.413   0.352 -99.000 -99.000 -99.000     7.3     7.9 -9999.0 -9999.0 -9999.0
23907 20150105  2.423  -98.08   30.62    10.9    -3.7     3.6     2.6     0.0    13.37 C    14.7    -3.0     3.8
77.9    33.3    57.4   0.399   0.340 -99.000 -99.000 -99.000     6.3     7.0 -9999.0 -9999.0 -9999.0
23907 20150106  2.423  -98.08   30.62    20.2     2.9    11.6    10.9     0.0    12.90 C    22.0     1.6     9.9
67.7    30.2    49.3   0.395   0.335 -99.000 -99.000 -99.000     8.0     8.0 -9999.0 -9999.0 -9999.0
23907 20150107  2.423  -98.08   30.62    10.9    -3.4     3.8     4.5     0.0    12.68 C    12.4    -2.1     5.5
82.7    36.5    55.7   0.387   0.328 -99.000 -99.000 -99.000     7.6     8.3 -9999.0 -9999.0 -9999.0
23907 20150108  2.423  -98.08   30.62     0.6    -7.9    -3.6    -3.3     0.0     4.98 C     3.9    -4.8    -0.5
57.7    37.6    48.1   0.372   0.316 -99.000 -99.000 -99.000     4.7     6.1 -9999.0 -9999.0 -9999.0
23907 20150109  2.423  -98.08   30.62     2.0     0.1     1.0     0.8     0.0     2.52 C     4.1     1.2     2.5
87.8    48.9    64.4   0.368   0.312 -99.000 -99.000 -99.000     5.4     6.2 -9999.0 -9999.0 -9999.0
23907 20150110  2.423  -98.08   30.62     0.5    -2.0    -0.8    -0.6     3.9     2.11 C     2.5    -0.1     1.4
99.9    47.7    85.8   0.373   0.314 -99.000 -99.000 -99.000     5.1     6.0 -9999.0 -9999.0 -9999.0
23907 20150111  2.423  -98.08   30.62    10.9     0.0     5.4     4.4     2.6     6.38 C    12.7     1.3     5.8
100.0    77.8    97.1   0.420   0.362 -99.000 -99.000 -99.000     6.5     6.7 -9999.0 -9999.0 -9999.0
23907 20150112  2.423  -98.08   30.62     6.5     1.4     4.0     4.3     0.0     1.55 C     6.9     2.7     5.1
100.0    89.4    97.8   0.412   0.350 -99.000 -99.000 -99.000     7.3     7.5 -9999.0 -9999.0 -9999.0
23907 20150113  2.423  -98.08   30.62     3.0    -0.7     1.1     1.2     0.0     3.26 C     5.6     0.7     2.9
```

mapper_data.py:


```
import sys

for line in sys.stdin:
    line = line.strip()
    #words = line.split()
    month = line[10:12]
    daily_max = line[38:45].strip()
    #daily_max = daily_max.strip()
    try:
       print ('%s\t%s' % (month ,daily_max))
    except ValueError:
        continue
```

reducer_data.py:

reducer_data.py
~/Documents

dataset.txt | mapper_data.py | reducer_data.py | reducemapexecute.txt

```
import sys

current_month = None
current_max = 0
month = None

for line in sys.stdin:
    line = line.strip()
    month, daily_max = line.split('\t', 1)
    try:
        daily_max = float(daily_max)
    except ValueError:
        continue

    if current_month == month:
        if daily_max > current_max:
            current_max = daily_max
    else:
        if current_month:

            print ('%s\t%s' % (current_month, current_max))
        current_max = daily_max
        current_month = month
# output of the last month
if current_month == month:
    print ('%s\t%s' % (current_month, current_max))
```

Output:

```
hadoop@jeff-VirtualBox:~/hadoop$ hdfs dfs -cat /weather_data/output/part-00000
01      26.5
02      26.6
03      29.1
04      30.8
05      31.1
06      33.6
07      38.5
08      40.2
09      36.5
10      36.9
11      27.6
12      25.9
```