

## MapReduce Tasks:

**Task 4.** Write MapReduce codes to perform the tasks using the files you've downloaded on your EMR Instance:

All the task bellow is solved using file yellow\_tripdata\_2017-06.csv.

Pre-requisite for this task:

1. Install GCC  
`yum install gcc`
2. Install Python  
`sudo yum install python3-devel`
3. Inatall Happybase  
`pip install happybase`
4. Start ThriftServer  
`hbase thrift start`
5. Import Happybase to python  
`python -c "import happybase"`
6. Install MRJob  
`pip install mrjob`

- a. Which vendors have the most trips, and what is the total revenue generated by that vendor?

```
-----
[root@ip-172-31-10-11 mapr_assignment]# python mrtask_a.py yellow_tripdata_2017-06.csv > mrtask_a.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_a.root.20230808.131259.447829
Running step 1 of 2...
Running step 2 of 2...
job output is in /tmp/mrtask_a.root.20230808.131259.447829/output
Streaming final output from /tmp/mrtask_a.root.20230808.131259.447829/output...
Removing temp directory /tmp/mrtask_a.root.20230808.131259.447829...
[root@ip-172-31-10-11 mapr_assignment]# ls
mrtask_a.py mrtask_a.txt yellow_tripdata_2017-05.csv yellow_tripdata_2017-06.csv
[root@ip-172-31-10-11 mapr_assignment]# cat mrtask_a.txt
"2"      88663878.19566278
[root@ip-172-31-10-11 mapr_assignment]# █
```

- b. Which pickup location generates the most revenue?

```
-----
[root@ip-172-31-10-11 mapr_assignment]# python mrtask_b.py yellow_tripdata_2017-06.csv > mrtask_b.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_b.root.20230808.132835.767549
Running step 1 of 2...
Running step 2 of 2...
job output is in /tmp/mrtask_b.root.20230808.132835.767549/output
Streaming final output from /tmp/mrtask_b.root.20230808.132835.767549/output...
Removing temp directory /tmp/mrtask_b.root.20230808.132835.767549...
[root@ip-172-31-10-11 mapr_assignment]# ls
mrtask_a.py mrtask_a.txt mrtask_b.py mrtask_b.txt yellow_tripdata_2017-05.csv yellow_tripdata_2017-06.csv
[root@ip-172-31-10-11 mapr_assignment]# cat mrtask_b.txt
"132"    13022071.03001022
[root@ip-172-31-10-11 mapr_assignment]# █
```

- c. What are the different payment types used by customers and their count? The final results should be in a sorted format.

```
[root@ip-172-31-10-11 mapr_assignment]# python mrtask_c.py yellow_tripdata_2017-06.csv > mrtask_c.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_c.root.20230808.135614.216112
Running step 1 of 3...
Running step 2 of 3...
Running step 3 of 3...
job output is in /tmp/mrtask_c.root.20230808.135614.216112/output
Streaming final output from /tmp/mrtask_c.root.20230808.135614.216112/output...
Removing temp directory /tmp/mrtask_c.root.20230808.135614.216112...
[root@ip-172-31-10-11 mapr_assignment]# ls
mrtask_a.py mrtask_a.txt mrtask_b.py mrtask_b.txt mrtask_c.py mrtask_c.txt yellow_tripdata_2017-05.csv yellow_tripdata_2017-06.csv
[root@ip-172-31-10-11 mapr_assignment]# cat mrtask_c.txt
"1"      6514906
"2"      3073865
"3"      52711
"4"      15510
"5"       1
[root@ip-172-31-10-11 mapr_assignment]#
```

- d. What is the average trip time for different pickup locations?

```
[root@ip-172-31-10-11 mapr_assignment]# vi mrtask_d.py
[root@ip-172-31-10-11 mapr_assignment]# rm -rf mrtask_d.txt
[root@ip-172-31-10-11 mapr_assignment]# python mrtask_d.py yellow_tripdata_2017-06.csv > mrtask_d.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_d.root.20230808.143109.388834
Running step 1 of 1...
job output is in /tmp/mrtask_d.root.20230808.143109.388834/output
Streaming final output from /tmp/mrtask_d.root.20230808.143109.388834/output...
Removing temp directory /tmp/mrtask_d.root.20230808.143109.388834...
[root@ip-172-31-10-11 mapr_assignment]# cat mrtask_d.txt
"1"      5.338660265203475
"10"     52.437377504753535
"100"    16.125691157068825
"101"    6.0959259259259255
"102"    17.935955056179775
"104"    23.616666666666667
"105"    23.20595238095238
"106"    13.447445972495084
"107"    14.582236916319776
"108"    16.499603174603173
"109"    0.06666666666666667
"11"     15.567610062893085
"111"    10.931884057971013
"112"    14.983972247179802
"113"    15.246709027538865
"114"    16.294550231141617
"115"    16.663888888888888
"116"    16.947191858810125
"117"    17.430864197530866
"118"    3.5595238095238098
"119"    20.20280193236715
"12"     24.6838491234732
"120"    16.28937198067633
"121"    11.659523809523808
"122"    13.484523809523811
"123"    14.638933333333334
"124"    26.166795865633077
"125"    15.941559353172615
"126"    14.923837209302324
"127"    14.145807033363395
"128"    14.4926523297491
"129"    14.080422633601115
"13"     20.890416490537113
"130"    34.60545454545455
"131"    11.845370370370372
"132"    46.67681842362547
"133"    16.22582987551867
"134"    14.012031558185406
"135"    20.77967032967033
"136"    12.672712418300655
"137"    13.88654835412093
"138"    39.98104703004114
"139"    89.84206349206349
"14"     14.279691876750702
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"16"	13.866666666666667
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"163"	16.592894529956983
"164"	16.00447290095435
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"166"	15.557920056465694
"167"	28.013461538461538
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"169"	12.999256900212313
"17"	15.337778143154665
"170"	15.245945603125477
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"176"	45.68333333333333
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"184"	11.269047619047617
"185"	12.698873873873877
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"263"	12.60568429595297
"264"	15.912186995947868
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"38"	76.8343137254902
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"4"	14.936130068816471
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"49"	14.677868920374511
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"49" 14.677868920374511
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"85" 18.283854166666668
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"90" 14.717739062197822
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"96" 15.216666666666665
"97" 16.425666943598266
"98" 11.509166666666669

```

```
[root@ip-172-31-10-11 mapr_assignment]#
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- e. Calculate the average tips to revenue ratio of the drivers for different pickup locations in sorted format.

```
[root@ip-172-31-10-11 mapr_assignment]# python mrtask_e.py yellow_tripdata_2017-06.csv > mrtask_e.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_e.root.20230808.150038.444618
Running step 1 of 1...
job output is in /tmp/mrtask_e.root.20230808.150038.444618/output
Streaming final output from /tmp/mrtask_e.root.20230808.150038.444618/output...
Removing temp directory /tmp/mrtask_e.root.20230808.150038.444618...
[root@ip-172-31-10-11 mapr_assignment]# cat mrtask_e.txt
"1" 0.11567304069705615
"10" 0.1090681751309926
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[root@ip-172-31-10-11 mapr_assignment]#
```

- f. How does revenue vary over time? Calculate the average trip revenue per month - analysing it by hour of the day (day vs night) and the day of the week (weekday vs weekend).

```
[root@ip-172-31-10-43 mapr_assignment]# vi mrtask_f.py
[root@ip-172-31-10-43 mapr_assignment]# python mrtask_f.py yellow_tripdata_2017-06.csv > mrtask_f.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_f.root.20230808.155735.940043
Running step 1 of 1...
job output is in /tmp/mrtask_f.root.20230808.155735.940043/output
Streaming final output from /tmp/mrtask_f.root.20230808.155735.940043/output...
Removing temp directory /tmp/mrtask_f.root.20230808.155735.940043...
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[root@ip-172-31-10-43 mapr_assignment]#
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