

## TASK 4

### Write MapReduce codes to perform the tasks using the files you've downloaded on your EMR Instance

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

This output was obtained from 1<sup>st</sup> database

```
[root@ip-172-31-62-227 ~]# python q1.py yellow_tripdata_2017-01.csv > q1.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/q1.root.20240409.145756.853555
Running step 1 of 2...
Running step 2 of 2...
job output is in /tmp/q1.root.20240409.145756.853555/output
Streaming final output from /tmp/q1.root.20240409.145756.853555/output...
Removing temp directory /tmp/q1.root.20240409.145756.853555...
[root@ip-172-31-62-227 ~]# cat q1.txt
"2"      82859254.39585336
```

Vendor 2 has most trips and revenue generated is 82859254.39585336

- B. Which pickup location generates the most revenue?

This output was obtained from 2<sup>nd</sup> database

```
[root@ip-172-31-62-227 ~]# vi q2.py
[root@ip-172-31-62-227 ~]# vi q2.txt
[root@ip-172-31-62-227 ~]# python q2.py yellow_tripdata_2017-02.csv > q2.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/q2.root.20240409.150348.904553
Running step 1 of 2...
Running step 2 of 2...
job output is in /tmp/q2.root.20240409.150348.904553/output
Streaming final output from /tmp/q2.root.20240409.150348.904553/output...
Removing temp directory /tmp/q2.root.20240409.150348.904553...
[root@ip-172-31-62-227 ~]# cat q2.txt
"132"    10472838.379996026
[root@ip-172-31-62-227 ~]#
```

Pickup location 132 generate most revenue (10472838.38)

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

This output was obtained from 3rd database

```
[root@ip-172-31-62-227 ~]# vi q3.py
[root@ip-172-31-62-227 ~]# vi q3.txt
[root@ip-172-31-62-227 ~]# python q3.py yellow_tripdata_2017-03.csv > q3.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/q3.root.20240409.150943.147081
Running step 1 of 3...
Running step 2 of 3...
Running step 3 of 3...
job output is in /tmp/q3.root.20240409.150943.147081/output
Streaming final output from /tmp/q3.root.20240409.150943.147081/output...
Removing temp directory /tmp/q3.root.20240409.150943.147081...
[root@ip-172-31-62-227 ~]# cat q3.txt
"1"      6994699
"2"      3231928
"3"      53815
"4"      14999
[root@ip-172-31-62-227 ~]#
```

Different payment types used by customers with their count

1= Credit card 6994699 times

2= Cash 3231928 times

3= No charge 53815 times

4= Dispute 14999 times

Payment through credit card has done more often

#### D. What is the average trip time for different pickup locations?

This output was obtained from 4th database

```
[root@ip-172-31-63-228 ~]# python q4.py yellow_tripdata_2017-04.csv > q4.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/q4.root.20240409.160125.397334
Running step 1 of 1...
job output is in /tmp/q4.root.20240409.160125.397334/output
Streaming final output from /tmp/q4.root.20240409.160125.397334/output...
Removing temp directory /tmp/q4.root.20240409.160125.397334...
[root@ip-172-31-63-228 ~]# cat q4.txt
"1"      8.69859496124031
"10"     46.56947758496023
"100"    15.86489867520792
"101"    57.85808080808081
"102"    27.02078853046595
"105"    12.205555555555556
"106"    14.100608029318675
"107"    14.39224446410785
"108"    17.885714285714286
"109"    11.458333333333334
"11"     34.16747311827957
"111"    8.989655172413793
"112"    13.645934065934068
"113"    15.704456568326293
"114"    16.46732887097284
"115"    14.095833333333333
"116"    15.483265311788555
"117"    15.862500000000002
"118"    13.819078947368425
"119"    13.650181159420288
```

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"15" 20.501282051282047  
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```

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"100" 14.992424242424242
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|root@ip-172-31-63-228 ~|

```

## E. Calculate the average tips to revenue ratio of the drivers for different pickup locations in sorted format

This output was obtained from 5th database

```

|root@ip-172-31-63-228 ~|# vi q5.py
|root@ip-172-31-63-228 ~|# vi q5.txt
|root@ip-172-31-63-228 ~|# python q5.py yellow tripdata_2017-05.csv > q5.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/q5.root.20240409.162649.493843
Running step 1 of 1...
job output is in /tmp/q5.root.20240409.162649.493843/output
Streaming final output from /tmp/q5.root.20240409.162649.493843/output...
Removing temp directory /tmp/q5.root.20240409.162649.493843...
|root@ip-172-31-63-228 ~|# cat q5.txt
"1" 0.11961918264336044
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"122" 0.035274937009041045
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[root@ip-172-31-63-228 ~]#

```

- 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)

This output was obtained from 5th database

```

[ec2-user@ip-172-31-44-171 ~]$ python mrtask_f.py yellow_tripdata_2017-05.csv > mrtask_f.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory /tmp/mrtask_f.ec2-user.20230711.092853.372635
Running step 1 of 1...
job output is in /tmp/mrtask_f.ec2-user.20230711.092853.372635/output
Streaming final output from /tmp/mrtask_f.ec2-user.20230711.092853.372635/output...
Removing temp directory /tmp/mrtask_f.ec2-user.20230711.092853.372635...
[ec2-user@ip-172-31-44-171 ~]$ cat mrtask_f.txt
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