Experiments and Results

Specs

- Apple M1, 16GB RAM, 8 cores
- Hadoop single node setup
    - Max split size → 40MB

Dataset Scale

details: https://github.com/omkarprabhu-98/mining-white-house-visitor-logs/blob/master/DATA.md

1x → 28 MB

2x → 80 MB

6x → 180 MB

14x → 407 MB

Application 1

Get top 10 based on the key:

- key 0 → top10 visitors

    Sample Result 6x Dataset:

```
cat Top10Tmp/output/part-r-*
fontenot_yvette_e	155
levitis_jason_a	156
schultz_william_b	156
borzi_phyllis_c	165
khalid_aryana_c	179
brookslasure_chiquita_n	185
tavenner_marilyn_n	196
hoff_james_c	197
oneil_dennis_p	234
hash_michael_m	315
```

- key 1 → top10 visitee

    Sample Result 6x Dataset:

```
cat Top10Tmp/output/part-r-*
raghavan_gautam 3401
matusiak_ari    3883
_   3946
/_potus 3992
mccullough_victoria 4037
lambrew_jeanne  6426
lierman_kyle    8023
_potus/flotus   11060
_potus  39551
office_visitors 623575
```

- key 2 → top10 visitor-visitee combination

  Sample Result 6x Dataset:

```
cat Top10Tmp/output/part-r-*
levitis_jason_a_&&_lambrew_jeanne   115
mann_cynthia_r_&&_lambrew_jeanne    115
kronick_richard_g_&&_lambrew_jeanne 117
fontenot_yvette_e_&&_lambrew_jeanne 122
choe_kenneth_y_&&_lambrew_jeanne    123
brookslasure_chiquita_n_&&_lambrew_jeanne   144
khalid_aryana_c_&&_lambrew_jeanne   151
tavenner_marilyn_n_&&_lambrew_jeanne    163
hoff_james_c_&&_hoff_joanne 177
hash_michael_m_&&_lambrew_jeanne    231
```

- key 3 → top 10 locations for meetings (based on no of visitors)

  Sample Result 6x Dataset:

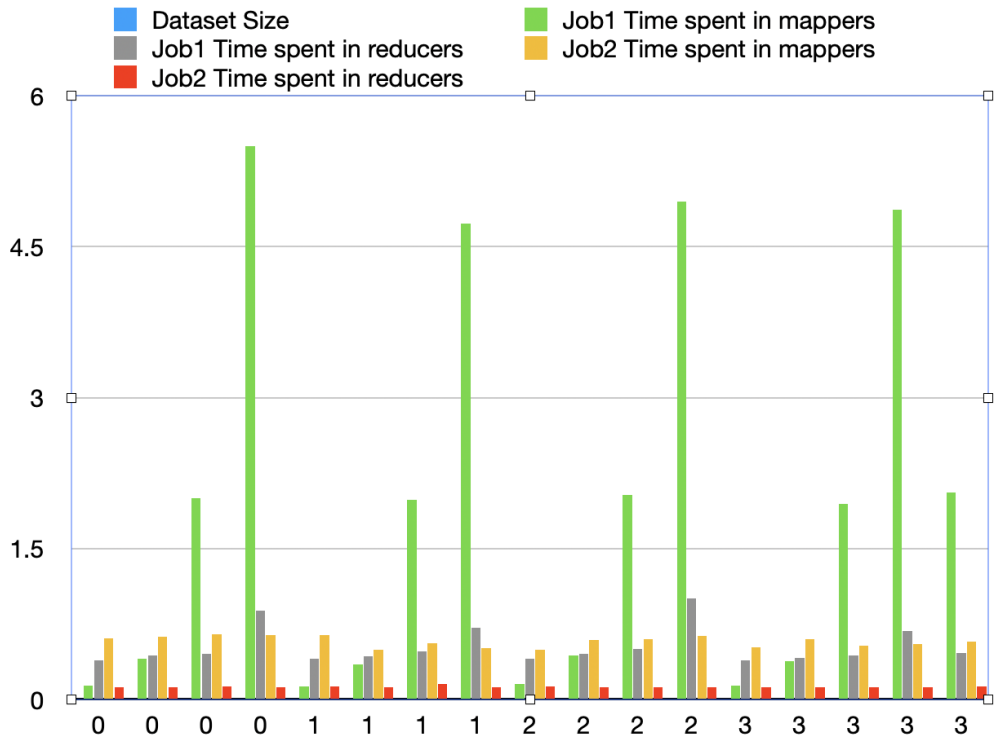
```
cat Top10Tmp/output/part-r-*
meeting_loc 2
vpr 3945
neob    22138
oeob    186590
wh  785654
```

Table 1

Aa Key No	Dataset Size	No of Mappers (Job1, Job2)	No of Reducers (Job1, Job2)	Job1 Time spent in mappers	Job1 Time spent in reducers	Job2 Time spent in mappers	Job2 Time spent in reducers
0	1x	1, 3	3, 1	0.14	0.39	0.61	0.12
0	2x	2, 3	3, 1	0.40	0.44	0.62	0.12

Key No	Dataset Size	No of Mappers (Job1, Job2)	No of Reducers (Job1, Job2)	Job1 Time spent in mappers	Job1 Time spent in reducers	Job2 Time spent in mappers	Job2 Time spent in reducers
0	6x	5, 3	3, 1	2.0	0.45	0.65	0.13
0	14x	11, 3	3, 1	5.5	0.88	0.64	0.12
1	1x	1, 3	3, 1	0.13	0.40	0.64	0.13
1	2x	2, 3	3, 1	0.35	0.43	0.49	0.12
1	6x	5, 3	3, 1	1.98	0.48	0.56	0.15
1	14x	11, 3	3, 1	4.73	0.71	0.51	0.12
2	1x	1, 3	3, 1	0.15	0.40	0.49	0.13
2	2x	2, 3	3, 1	0.44	0.45	0.59	0.12
2	6x	5, 3	3, 1	2.03	0.50	0.60	0.12
2	14x	11, 3	3, 1	4.95	1.00	0.63	0.12
3	1x	1, 3	3, 1	0.14	0.39	0.52	0.12
3	2x	2, 3	3, 1	0.38	0.41	0.60	0.12
3	6x	5, 3	3, 1	1.94	0.44	0.53	0.12
3	14x	11, 3	3, 1	4.87	0.68	0.55	0.12
3	14x	5, 3 (default split size)	3, 1	2.06	0.46	0.57	0.13

Execution logs (containing results) can be found in folder app<app_no>_<key_no>_<dataset_scale>



Application 2

Monthly Distribution:

- key 0 → of visitors

  Sample Result 6x Dataset:

```
cat MonthlyDistTmp/output/part-r-*
2-2009	1
3-2014	74398
NULL-NULL	985668
1-2014	39202
6-2009	1
4-2009	1
```

- key 1 → of no. of visits to the POTUS

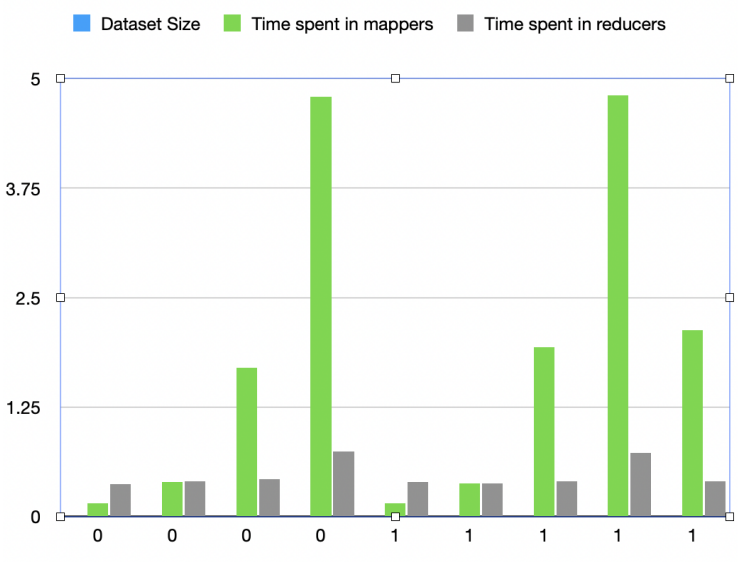
  Sample Result 6x Dataset:

```
cat MonthlyDistTmp/output/part-r-*
3-2014	1284
NULL-NULL	39807
1-2014	1413
```

Table 2

Key No	Dataset Size	No of Mappers	No of Reducers	Time spent in mappers	Time spent in reducers
0	1x	1	3	0.15	0.37
0	2x	2	3	0.39	0.40
0	6x	5	3	1.70	0.43
0	14x	11	3	4.79	0.74
1	1x	1	3	0.15	0.39
1	2x	2	3	0.38	0.38
1	6x	5	3	1.93	0.40
1	14x	11	3	4.81	0.73
1	14x	5 (default split size)	3	2.13	0.40

Execution logs (containing results) can be found in folder app<app_no>_<key_no>_<dataset_scale>


Dataset Size
Time spent in mappers
Time spent in reducers
5
3.75
2.5
1.25
0
0
0
0
0
1
1
1
1
1