CS 660 Assignment 1

Collaborators

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Output

PageRank Toy Example - Iteration 1

Node	[PageRank, Adjacency List]
3	[0.16666666666666669, [4]]
5	[0.30000000000000004, [1, 2, 3]]
2	[0.16666666666666669, [3, 5]]
4	[0.30000000000000004, [5]]
1	[0.06666666666666667, [2, 4]]

PageRank Toy Example - Iteration 2

Node	[PageRank, Adjacency List]
3	[0.18333333333333335, [4]]
5	[0.3833333333333334, [1, 2, 3]]
2	[0.13333333333333336, [3, 5]]
4	[0.2, [5]]
1	[0.10000000000000002, [2, 4]]

PageRank Toy Example - Full Iterations (8)

```
python3 driver.py input/graph.txt 5
```

Node	[PageRank, Adjacency List]
2	[0.19438740941308597, [3, 5]]
1	[0.1808254972595215, [2, 4]]
5	[0.21650994537829593, [1, 2, 3]]
4	[0.21287259500732425, [5]]
3	[0.19540455294177247, [4]]

PageRank Toy Example w/ Dangling Node - Full Iterations (7)

```
python3 driver.py input/graph_dangling.txt 5
```

Node	[PageRank, Adjacency List]
2	[0.2001702944644922, [3, 5]]
1	[0.18620492507765626, [2, 4]]
5	[0.1916359021149219, [1, 2, 3]]
4	[0.22077115389347657, []]
3	[0.20121769719257815, [4]]

PageRank Random Graph Example

A randomly constructed graph seems to converge quickly, and the number of iterations actually decrease as the size of graph increases.

Graph Size	Iterations	Runtime
50	5	1.727s
100	5	2.143s
250	4	3.382s
1000	4	33.022s
10000	1	6m35.225s