database.txt

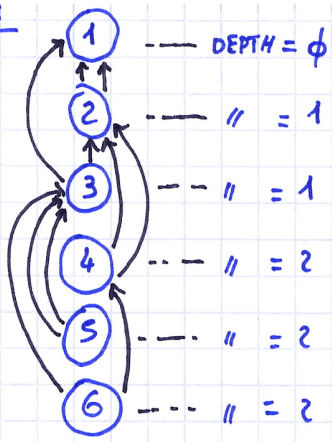
#1	5 ← # of nodes		
#2	1	1	0
#3	1	2	0
#4	2	2	1
#5	3	3	2
#6	3	4	3
		LEFT	RIGHT	TIMESTAMP

lines represents nodes (origin has ID = 1, assumed not listed in the file)

ADJACENCY MATRIX

i ↓ / ID →	1	2	3	4	5	6
0	1	x				
1	2	2	x			
2	3	1	1	x		
3	4	0	2	0	x	
4	5	0	0	2	0	x
5	6	0	0	1	1	0	x

GRAPH



a) AVG DEPTH DAG = $\frac{0+1+1+2+2+2}{\#\ \text{NODES}} = \frac{8}{6} = 1,\overline{33}$ ✓

b) AVG # OF TXs PER DEPTH = $\frac{5}{\#\ \text{DEPTH S}} = \frac{5}{2} = 2,5$ ✓

DEPTH 1 → 2 TIMES
DEPTH 2 → 3 TIMES

c) AVG # OF IN-REFERENCE PER NODE = $\frac{3+3+3+1+0+0}{\#\ \text{OF NODES}} =$

$= \frac{10}{6} = 1,67$ ✓

PROPOSED STATISTICS

d) AVG TXs PER SECONDS = $\frac{\#\ \text{of TXs}}{\text{LAST TIMESTAMP}} = \frac{10}{3} = 3,\overline{33}$ ✓

→ can be generalized for a certain time interval:

$\frac{\#\ \text{of TXs}}{t - t_0}$, in my case t = last timestamp, t_0 = first timestamp (assumed start at $t=0$)

e) TX CONFIRMATION % REFERRING TO OVERALL NETWORK

REFERENCE (NODE 1) = 3 + REF(2) + REF(3) = 3 + 7 + 3 = 13 ← MAX
REF(2) = 3 + REF(3) + REF(4) = 3 + 3 + 1 = 7
REF(3) = 3 + REF(5) + REF(6) = 3 + 0 + 0 = 3
REF(4) = 1 + REF(6) = 1 + 0 = 1
REF(5) = 0
REF(6) = 0

Reference = direct + indirect

CONFIRMATION % :

Node 1 → 100 % (is the maximum)
" 2 → 7/13 · 100 = 53,84 %
" 3 → 23,07 %
" 4 → 7,69 %
" 5 → ϕ %
" 6 → ϕ %

DAG → Adjacency matrix
↘ links has weight = 1

→ Read Data from txt file
→ Create Adjacency matrix
→ Perform Breadth First Search on DAG (my lib)
→ Compute Depth
→ Compute statistics