

IN3200 - Partial exam

Nodes 8 Edges 17 row_ptr = [0, 1, 4, 5, 6, 9, 12, 14, 17]

from	to	col_idx	val	outbound links (G)
0	1	6	1/3	
0	2	0	1/2	
1	3	2	1/2	
2	4	3	1/3	
2	1	0	1/2	
3	4	1	1	
3	5	2	1/2	
3	1	3	1/3	
4	6	4	1/3	
4	7	7	1/2	
4	5	4	1/3	
5	7	7	1/2	
6	0	4	1/3	
6	4	5	1	
6	7	6	1/3	

$\{ \} \rightarrow 2$

← from j →

	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	1/3	0
1	1/2	0	1/2	1/3	0	0	0	0
2	1/2	0	0	0	0	0	0	0
3	0	1	0	0	0	0	0	0
4	0	0	1/2	1/3	0	0	1/3	0
5	0	0	0	1/3	1/3	0	0	1/2
6	0	0	0	0	1/3	0	0	1/2
7	0	0	0	0	1/3	1	1/3	0

↑ to
i
↓

col = 0
row = 1 →

number of elements on
previous row = row_ptr[row]
- row_ptr[row-1]
= 1

current_row = row_ptr[row] = 1

idx = row_ptr[row] = 1

col_idx[idx] = col

val[idx] = 1 / outbound[col_idx]

PageRank $\epsilon = 1e-11$

PageRank	row
6.339	12.150
7.028	13.910
7.061	13.978
10.344	
7.874	

$$val[i] = \frac{1}{outbound[col_idx[i]}}$$

6 4
col = 4
row = 6
idx = row_ptr[row] + col =
col_idx[idx] = col

2	3	6
6	7	8

12 idx

13 idx

IN3200 Project MPI Schedule

0	1	2	3	4
Send →	→ Recv Send →	Send → → Recv	→ Recv	
Recv ←	Recv ← ← Send	← Send Recv	← Send	
Send →	R → S → R ←	S → → R ← S	→ R ← S	
R ←	← S	R ←		
S →	→ R S → R →	S → → R ← S	→ R S → R →	S R → R
R ←	← S	R →	← S	← S R