




1c. Given the PageRank formula:

$$\vec{x}^{k+1} = (1 - c)\vec{x}^k A + \frac{c}{N}\vec{e}$$

$\vec{e}$  is  $\vec{1}$ . In  $\vec{x}_0$  the random walk is uniformly distributed. Compute the vector  $\vec{x}$  for the first five iterations of the PageRank formula ( $k = 0..4$ ) for this graph. Round to 5 decimal places!


## Crawling

Sketch the architecture of a Crawler. How will this architecture modified in a distributed system?