

TD05 - Information Retrieval and Algorithms

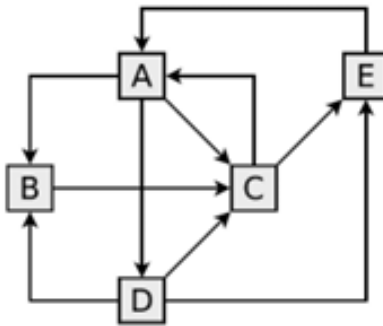
Third Year ISIL - University of M'Sila

Exercise 01

Calculate the first 10 iterations of the PageRank algorithm for the following example based also on the following formula of page rank

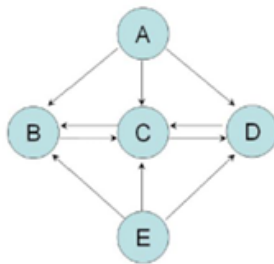
$$PR(p) = (1 - d) + d * \sum_{p_i \in L_{IN}(p)} \frac{PR(p_i)}{\text{amount } L_{OUT}(p_i)}$$

We consider for this example $d = 0.5$, and initial PR for all pages equal to 1, for the following Web Graph:



Exercise 02

Consider the following web graph:



- Calculate the adjacency matrix of this graph.
- Assuming alpha (teleportation ration) equal to 0.1 calculate the transition probability P from adjacency matrix.
- Give page rank for each pages by solving the equation $\mathbf{PR} = \mathbf{P} \mathbf{PR}$ using power iteration method.