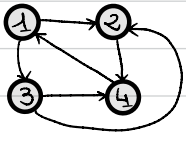
Ejercicio 1



$\alpha = 0.75$

La matriz asociada es:

$$M = \begin{pmatrix} 0 & 0 & 0 & 1 \\ 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 \end{pmatrix} \Rightarrow \tilde{M} = \begin{pmatrix} 0 & 0 & 0 & 1 \\ 1/2 & 0 & 1/2 & 0 \\ 1/2 & 0 & 0 & 0 \\ 0 & 1 & 1/2 & 0 \end{pmatrix}$$

La matriz que buscamos es $G_\alpha = \alpha \cdot \tilde{M} + \underbrace{\frac{1-\alpha}{N}}_{\frac{1-0.75}{4} = 1/16} \cdot \mathbb{1}$:

$$G_\alpha = 3/4 \cdot \begin{pmatrix} 0 & 0 & 0 & 1 \\ 1/2 & 0 & 1/2 & 0 \\ 1/2 & 0 & 0 & 0 \\ 0 & 1 & 1/2 & 0 \end{pmatrix} + 1/16 \cdot \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{pmatrix} = \begin{pmatrix} 1/16 & 1/16 & 1/16 & 13/16 \\ 7/16 & 1/16 & 7/16 & 1/16 \\ 7/16 & 1/16 & 1/16 & 1/16 \\ 1/16 & 13/16 & 7/16 & 1/16 \end{pmatrix}$$