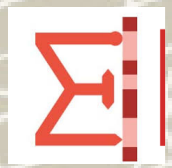
Linear Advance Algebra

Homework 01: Eigen Values

To be delivered until next Monday, May 30, 2022

To be discusses the following Tuesday



ESCUELA DE
CIENCIAS MATEMÁTICAS
Y COMPUTACIONALES

Raúl Manzanilla

Escuela de Ciencias Matemáticas y Computacionales

May 26, 2022

Homework 01

Let be $A \in \mathcal{M}_n$ a symetric matrix. Given a initial vector $u_0 \in \mathbb{R}^n$, one builds the following scalar sequence and vector sequence:

- $v_{i+1} = \dfrac{Av_i}{\|Av_i\|}$ with $i \in \mathbb{N}$ and $v_0 = \dfrac{u_0}{\|u_0\|}$
- $\alpha_i = (Av_i, v_i), i \in \mathbb{N} \cup \{0\},$

Do the following activities:

1. Develop an algorithm for building de sequence $\{v_i\}_{i\in\mathbb{N}\cup\{0\}}$ and $\{\alpha_i\}_{i\in\mathbb{N}\cup\{0\}}$
2. Make the programming on Matlab.
3. Analyze the results and compare them with the classic power method.