Lecture 6.1: What we will not be talking about

Optimization and Computational Linear Algebra for Data Science

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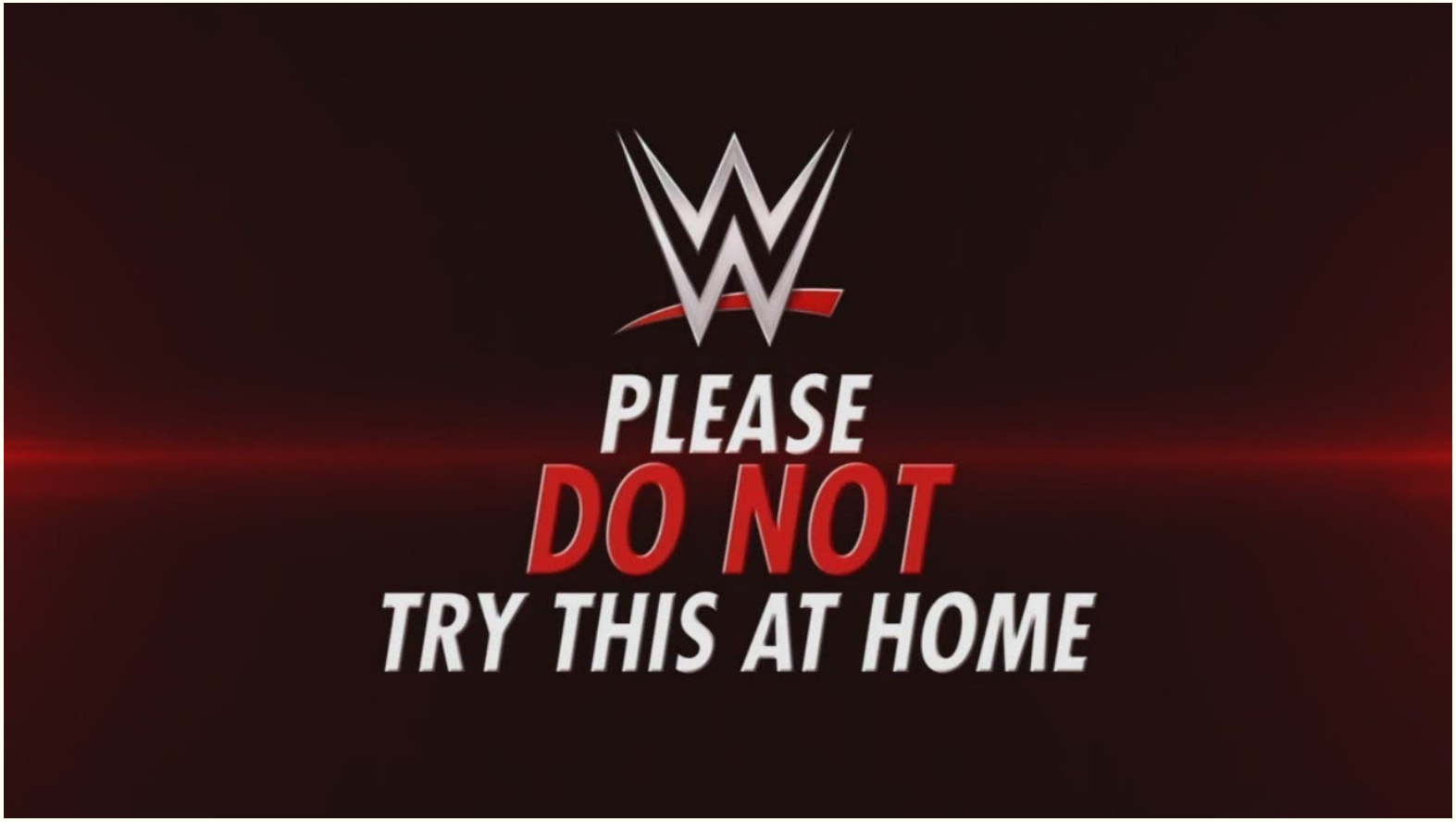
Warning



The determinant

There exists a function $\det : \mathbb{R}^{n\times n} \to \mathbb{R}$ called *the determinant* that verifies

$$\det(M) = 0 \qquad \iff \qquad M \quad \text{is not invertible.}$$

The determinant can be computed using the following formula:

$$\det(M) = \sum_{\sigma\in\mathfrak{S}_n} \epsilon(\sigma) \prod_{i=1}^{n} M_{i,\sigma(i)}$$

Geometrical interpretation

Link with eigenvalues

The characteristic polynomial

Example