SUMMARY OF COMMANDS

rref(A)	It computes the reduced row echelon form of a matrix A
A\b	If the system $A\vec{x} = \vec{b}$ has solution/s, it returns one of the solutions. Otherwise, it returns a "least squares solution".
rank(A)	Rank of A.
eye(n,n)	Identity matrix $(n \times n)$.
ones(m,n)	Matrix of "ones" $(m \times n)$.
zeros(m,n)	Matrix of "zeros" $(m \times n)$.
kernel(A)	Kernel of a matrix A; it returns a matrix whose columns form a basis of the kernel of A.
D=diag(diag(A))	It allows us to compute the matrix D given in the decompositon **A=L+D+U** of a matrix A that one needs for applying the numerical methods of resolution of linear systems.
L=tril(A)-D	It allows us to compute the matrix L of the above decomposition.
U=triu(A)-D	It allows us to compute the matrix U of the above decomposition.
$\vec{x}_{k+1} = \mathsf{D}^{-1}[\vec{b} - (\mathsf{L} + \mathsf{U})\vec{x}_k]$	Formula of the Jacobi's Method.
$(\mathsf{L} + \mathsf{D})\vec{x}_{k+1} = \vec{b} - \mathsf{U}\vec{x}_k$	Formula of the Gauss-Seidel's Method.
inv(A)	It computes the inverse of a matrix A.
[L,U]=lu(A)	It computes the LU decomposition of A.
det(A)	Determinant of A.
norm(u)	Norm of a vector $\vec{u}$.
$Proj_W(\vec{x}) = (\vec{q}^{\,t}\vec{x})\vec{q}$	Orthogonal projection of a vector $\vec{x}$ over a line W spanned by a unitary vector $\vec{q}$.
$\mathsf{M}(S)^t\mathsf{M}(S)\vec{y} = \mathsf{M}(S)^t\vec{x};\ \ Proj_W(\vec{x}) = \mathsf{M}(S)\vec{y}$	Orthogonal projection of a vector $\vec{x}$ over a vector subspace $W = \mathrm{span}(S)$.
$\mathsf{P}_W = \mathsf{M}(S)(\mathsf{M}(S)^t\mathsf{M}(S))^{-1}\mathsf{M}(S)^t$	Projection matrix.