Documentation of the MATLAB function `ProjLinCoefMV.m`

The function's arguments and returned quantities are listed in the help section of the function which is reproduced below.

```
function [prest,prvar,Lincoef] =ProjLinCoefMV(x,G)
% projects time series missing values onto observed for m by n series x
% Uses covariance matrix G of x taken by columns of x giving blocks of size mxm
% Solves for linear coefficients of projection from which missing values are derived
% prest is the original series with missing values replaced by projected values
% prvar has same with zeros except variances in place of missing values
% Lincoeff is same size as G with coeffs of missing values in terms of known, elsewhere zeros
```

To be specific, the given array `x` of size $m \times n$, which is determined in the function, has elements $x_{i,t}$ for $i = 1...m, t = 1...n$ that contain the values $x_{i,t}$ of stationary times series with lagged covariances

$$\Gamma_{i,j,k} = \mathrm{Cov}(x_{i,t}, x_{j,t-k}).$$

Any desired (strict) subset of elements of `x` may be set to `NaN` as indicating unknown values to be predicted by the function from the complementary set of elements (which should not be empty).

The square array `G` should then be of size mn with elements `G(i,j)` that are the elements of the covariance matrix G of $X = (x_1', x_2', \ldots, x_n')'$ and therefore has elements

$$G_{u,v} = \mathrm{Cov}(x_{i,s} x_{j,t}) = \Gamma_{i,j,s-t}$$

where $u = (s-1)m + i$ and $v = (t-1)m + j$ for $i, j = 1...m$ and $s, t = 1...n$.

The returned array `prest` is identical to `x` except that the missing (unknown) values are replaced by their minimum error variance linear predictions (or projections) from the supplied (known) values.

The returned array `prvar` is identical in size to `x` and contains, where `x` had missing values, the (minimum error) variance of those values. Elsewhere, the elements of `prvar` are set to zero.

The returned array `Lincoef` is square of size mn with elements `Lincoef(i,j)` that are the elements of a matrix L. If $\tilde{X}$ is the vector $X = (x_1', x_2', \ldots, x_n')'$ with the unknown values set to zero, then $\hat{X} = L\,\tilde{X}$ has the same structure but with the missing values set to their predictions and the known values set to zero. Thus L contains the linear coefficients of the missing values in terms of the known, and is elsewhere zero.