Functions_in_MATLAB

December 12, 2018

```
In [4]: help("min")
        help("max")
        help("mean")
```

 MIN   Smallest component.
    For vectors, MIN(X) is the smallest element in X. For matrices,
    MIN(X) is a row vector containing the minimum element from each
    column. For N-D arrays, MIN(X) operates along the first
    non-singleton dimension.

    [Y,I] = MIN(X) returns the indices of the minimum values in vector I.
    If the values along the first non-singleton dimension contain more
    than one minimal element, the index of the first one is returned.

    MIN(X,Y) returns an array with the smallest elements taken from X or Y.
    X and Y must have compatible sizes. In the simplest cases, they can be
    the same size or one can be a scalar. Two inputs have compatible sizes
    if, for every dimension, the dimension sizes of the inputs are either
    the same or one of them is 1.

    MIN(X,[],'all') returns the smallest element of X.

    [Y,I] = MIN(X,[],DIM) operates along the dimension DIM.

    MIN(X,[],VECDIM) operates on the dimensions specified in the vector
    VECDIM. For example, MIN(X,[],[1 2]) operates on the elements contained
    in the first and second dimensions of X.

    When X is complex, the minimum is computed using the magnitude
    MIN(ABS(X)). In the case of equal magnitude elements, then the phase
    angle MIN(ANGLE(X)) is used.

    MIN(...,NANFLAG) specifies how NaN (Not-A-Number) values are treated.
    NANFLAG can be:
    'omitnan'   - Ignores all NaN values and returns the minimum of the
                     non-NaN elements. If all elements are NaN, then the
                     first one is returned.
    'includenan' - Returns NaN if there is any NaN value. The index points

1

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                to the first NaN element.
    Default is 'omitnan'.

    Example:
        X = [2 8 4; 7 3 9]
        min(X,[],1)
        min(X,[],2)
        min(X,5)

    See also MAX, BOUNDS, CUMMIN, MEDIAN, MEAN, SORT, MINK.

    Reference page in Doc Center
       doc min

    Other functions named min

       categorical/min      duration/min      gpuArray/min      tall/min
       codistributed/min    fints/min         sym/min           timeseries/min
       datetime/min

MAX    Largest component.
    For vectors, MAX(X) is the largest element in X. For matrices,
    MAX(X) is a row vector containing the maximum element from each
    column. For N-D arrays, MAX(X) operates along the first
    non-singleton dimension.

    [Y,I] = MAX(X) returns the indices of the maximum values in vector I.
    If the values along the first non-singleton dimension contain more
    than one maximal element, the index of the first one is returned.

    MAX(X,Y) returns an array with the largest elements taken from X or Y.
    X and Y must have compatible sizes. In the simplest cases, they can be
    the same size or one can be a scalar. Two inputs have compatible sizes
    if, for every dimension, the dimension sizes of the inputs are either
    the same or one of them is 1.

    MAX(X,[],'all') returns the largest element of X.

    [Y,I] = MAX(X,[],DIM) operates along the dimension DIM.

    MAX(X,[],VECDIM) operates on the dimensions specified in the vector
    VECDIM. For example, MAX(X,[],[1 2]) operates on the elements contained
    in the first and second dimensions of X.

    When X is complex, the maximum is computed using the magnitude
    MAX(ABS(X)). In the case of equal magnitude elements, then the phase
    angle MAX(ANGLE(X)) is used.
```

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MAX(...,NANFLAG) specifies how NaN (Not-A-Number) values are treated.
NANFLAG can be:
'omitnan'    - Ignores all NaN values and returns the maximum of the
               non-NaN elements.  If all elements are NaN, then the
               first one is returned.
'includenan' - Returns NaN if there is any NaN value.  The index points
               to the first NaN element.
Default is 'omitnan'.

Example:
    X = [2 8 4; 7 3 9]
    max(X,[],1)
    max(X,[],2)
    max(X,5)

See also MIN, BOUNDS, CUMMAX, MEDIAN, MEAN, SORT, MAXK.

Reference page in Doc Center
   doc max

Other functions named max

   categorical/max      duration/max     gpuArray/max      tall/max
   codistributed/max    fints/max        sym/max           timeseries/max
   datetime/max
```

MEAN   Average or mean value.
```
   S = MEAN(X) is the mean value of the elements in X if X is a vector.
   For matrices, S is a row vector containing the mean value of each
   column.
   For N-D arrays, S is the mean value of the elements along the first
   array dimension whose size does not equal 1.

   MEAN(X,'all') is the mean of all elements in X.

   MEAN(X,DIM) takes the mean along the dimension DIM of X.

   MEAN(X,VECDIM) operates on the dimensions specified in the vector
   VECDIM. For example, MEAN(X,[1 2]) operates on the elements contained
   in the first and second dimensions of X.

   S = MEAN(...,TYPE) specifies the type in which the mean is performed,
   and the type of S. Available options are:

   'double'    -  S has class double for any input X
   'native'    -  S has the same class as X
   'default'   -  If X is floating point, that is double or single,
                  S has the same class as X. If X is not floating point,
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                S has class double.

    S = MEAN(...,NANFLAG) specifies how NaN (Not-A-Number) values are
    treated. The default is 'includenan':

    'includenan' - the mean of a vector containing NaN values is also NaN.
    'omitnan'    - the mean of a vector containing NaN values is the mean
                   of all its non-NaN elements. If all elements are NaN,
                   the result is NaN.

    Example:
        X = [1 2 3; 3 3 6; 4 6 8; 4 7 7]
        mean(X,1)
        mean(X,2)

    Class support for input X:
       float: double, single
       integer: uint8, int8, uint16, int16, uint32,
                int32, uint64, int64

    See also MEDIAN, STD, MIN, MAX, VAR, COV, MODE.

    Reference page in Doc Center
       doc mean

    Other functions named mean

       codistributed/mean    fints/mean       tall/mean
       datetime/mean         gpuArray/mean    timeseries/mean
       duration/mean
```

```matlab
In [5]: a = [2, 3, 4, 7, -4, 3];
        min(a) % el mínimo de a
        max(a) % el máximo de a
        mean(a) % la media de a
        length(a) % longitud de a
        c = [2, 3; 4, 5; 7, 1]
        size(a)
        [numf, numc] = size(a)
```

```
ans =

   -4
```