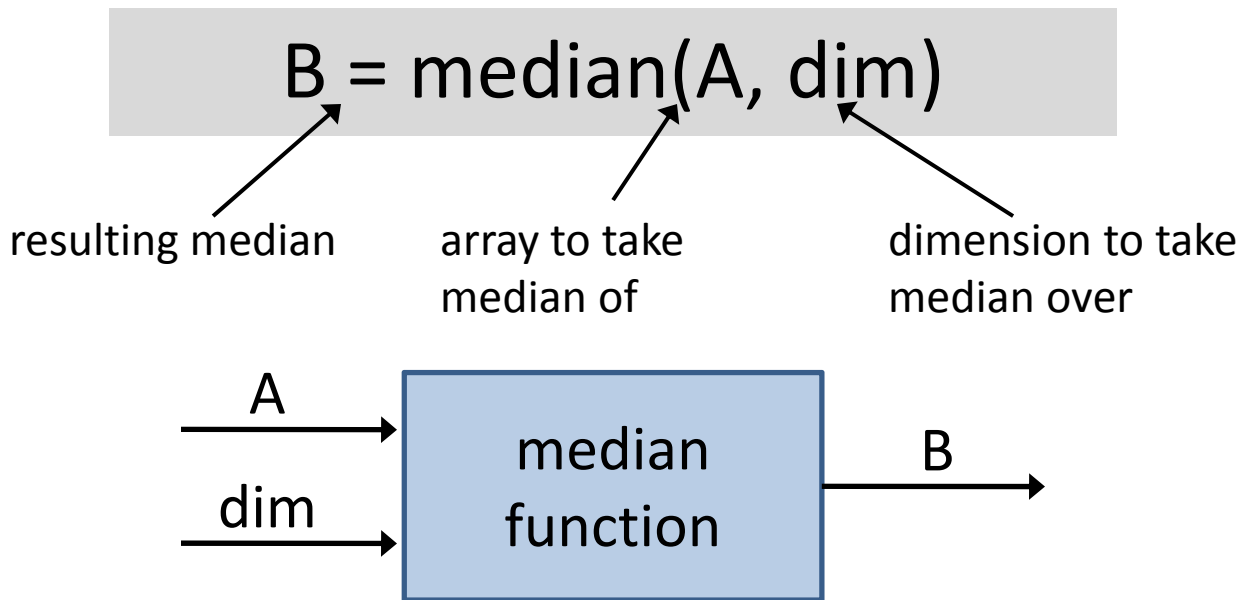


CS 1173: MATLAB median function

The median function returns the median or middle value along an array dimension.



Example 1: Different ways to take median of array A

```
A = [1, 2, 6; 4, -7, 0];  
B = median(A, 1);  
C = median(A, 2);
```

Diagram illustrating the array A and its dimensions:

$$A = \begin{matrix} & \xrightarrow{\text{dim 2}} & & \\ \text{dim 1} \downarrow & \begin{bmatrix} 1 & 2 & 6 \\ 4 & -7 & 0 \end{bmatrix} & & \end{matrix}$$

$B = \text{median}(A, 1) =$

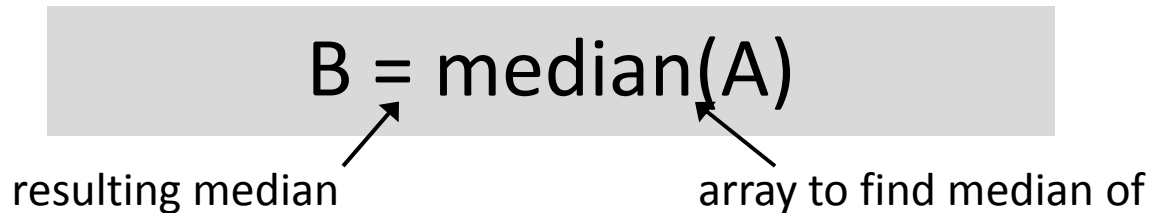
$[2.5 \quad -2.5 \quad 3]$

$C = \text{median}(A, 2) =$

$\begin{bmatrix} 2 \\ 0 \end{bmatrix}$

CS 1173: MATLAB median function (1 argument)

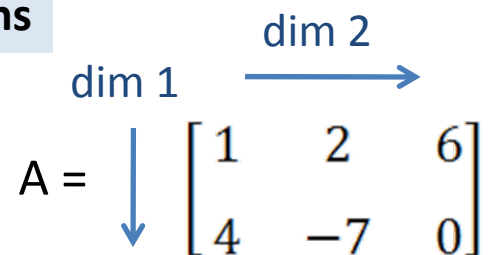
When you don't include the dimension argument, `median` finds the middle value along the first non-singleton dimension. For a single row or column, the result is just one number.



Example 1: A has both rows and columns

```
A = [1, 2, 6; 4, -7, 0];  
B = median(A);  
C = median(A(:));
```

The first non-singleton dimension is 1



$$B = \text{median}(A) = [2.5 \quad -2.5 \quad 3]$$

$$C = \text{median}(A(:)) = 1.5$$

Example 2: A has just one row

```
A = [1, 2, 6];  
B = median(A);
```

The first non-singleton dimension is 2

$$B = \text{median}(A) = 2$$

$$A = [1 \quad 2 \quad 6]$$

Example 3: A has just one column

```
A = [1; 4];  
B = median(A);
```

The first non-singleton dimension is 1

$$B = \text{median}(A) = 2.5$$

$$A = \begin{bmatrix} 1 \\ 4 \end{bmatrix}$$