CS 1173: MATLAB mean function

The mean function returns the mean or average along an array dimension.

\[ B = \text{mean}(A, \text{dim}) \]

resulting average array to average dimension to average over

Example 1: Different ways to average array \( A \)

\[ A = \begin{bmatrix} 1 & 2 & 6; 4 & -7 & 0 \end{bmatrix}; \]

\[ B = \text{mean}(A, 1); \]

\[ C = \text{mean}(A, 2); \]

\[ A = \begin{bmatrix} 1 & 2 & 6 \ 4 & -7 & 0 \end{bmatrix} \]

\[ B = \text{mean}(A, 1) = \begin{bmatrix} 2.5 & -2.5 & 3 \end{bmatrix} \]

\[ C = \text{mean}(A, 2) = \begin{bmatrix} 3 \\ -1 \end{bmatrix} \]
CS 1173: MATLAB mean function (1 argument)

When you don’t include the dimension argument, `mean` adds along the first non-singleton dimension. For a single row or column, the result is just one number.

\[
B = \text{mean}(A)
\]

resulting average array to average

**Example 1: A has both rows and columns**

\[
\begin{align*}
A &= [1, 2, 6; 4, -7, 0]; \\
B &= \text{mean}(A); \\
C &= \text{mean}(A(:)); \\
\end{align*}
\]

The first non-singleton dimension is 1

\[
B = \text{mean}(A) = \\
\begin{bmatrix}
2.5 & -2.5 & 3
\end{bmatrix}
\]

**Example 2: A has just one row**

\[
\begin{align*}
A &= [1, 2, 6]; \\
B &= \text{mean}(A); \\
\end{align*}
\]

The first non-singleton dimension is 2

\[
B = \text{mean}(A) = 3
\]

**Example 3: A has just one column**

\[
\begin{align*}
A &= [1; 4]; \\
B &= \text{mean}(A); \\
\end{align*}
\]

The first non-singleton dimension is 1

\[
B = \text{mean}(A) = 2.5
\]