Video: “MATLAB Reshape” (1:58)

Video (00:00)
This short video discusses reshaping an array in MATLAB. The reshape function has several nice properties. Although it alters the number of rows and columns, it does not change the number of elements, nor does it change the linear representation. Reshape is very useful for applying functions such as mean or sum to sections of an array.

(00:22)
Let’s first reshape an array that originally had 2 rows and 3 columns to an array that has 3 rows and 2 columns using the MATLAB strategy.

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The process is pretty straightforward. We start with the linear representation and recut to the right number of rows. In the example, the result has three rows and two columns. This is what the reshape does. To get MATLAB to reshape an array, I simply call reshape, the name of hte array, the number of rows, and the number of columns. The new number of rows times the new number of columns has to be the same number of elements in the original array.

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Let’s see how to apply reshape in practice. Let’s say we record a patient’s sleeping habits over 21 days for a sleep study. We want to find out whether this patient sleeps longer on the weekends on average than during the week. In other words, we want an average over the weeks for each day of the week.

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The data comes in as a column vector of 21 values; we’ll call it “sHours.” We need to reshape the array so that each row corresponds to a day of the week. The first row corresponds to Sunday.

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We define a new variable “wHours,” which is the reshaped version of sHours. wHours has 7 rows and 3 columns. Now that we have an array where the rows correspond to days of the week and the columns correspond to weeks, we can simply apply the mean function and average over dimension 2.