Introduction | Coursera

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Previously, we learned about arrays, which let us store a sequence of elements of the same type, and to access a particular element by indexing into the array. We can expand on this concept with *multidimensional arrays*. For example, we might want to represent a mathematical matrix (which is conceptually rectangular, rather than linear), as a 2-dimensional array of numbers, or an image with a 2-dimensional array of colors. If we wanted to have an array of strings, we would actually end up with a 2-dimensional array of characters, as strings are themselves arrays of characters.

As always, deciding how to represent your data is part of Step 2 of your algorithmic design process, in which you figure out exactly what it was that you did in Step 1. You have learned that data which is represented as a sequence of elements of the same type is naturally represented as an array. This concept extends to multidimensional arrays whenever your data naturally occurs in a higher dimensional organization. You can create multidimensional arrays with any number of dimensions, so you can represent data of any number of dimensions that you want. For example, if your program works with data that is organized by day of the year, then within each day, by hour of the day, and within each hour by room number within a building, then a natural representation would be a three-dimensional array: 365 x 24 x (number of rooms).

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