2024-09-19

# Introduction

Arrays are structures that allow you to store multiple values in memory using a single name and indexes. Internally, an array contains a fixed number of variables (called *elements*) of a particular type[[1]](#footnote-20). The elements in an array are always stored in a contiguous block of memory, providing fast and efficient access.

An array can be:

* Single-Dimensional,
* Multidimensional.

Multidimensional arrays can be

* Jagged,
* Rectangular.

Arrays are useful, for instance,

* When you want to store a collection of related values,
* When you do not know in advance how many variables will be needed,
* When you need a large number of variables (say, 10) of the same type,
* When you want to represent matrices (as you can use an array of arrays to represent 2-dimensional objects).
1. Usually, all the elements of an array have the same type, but an array can store elements of different types if object is its type, since any element is actually of type object. [↑](#footnote-ref-20)