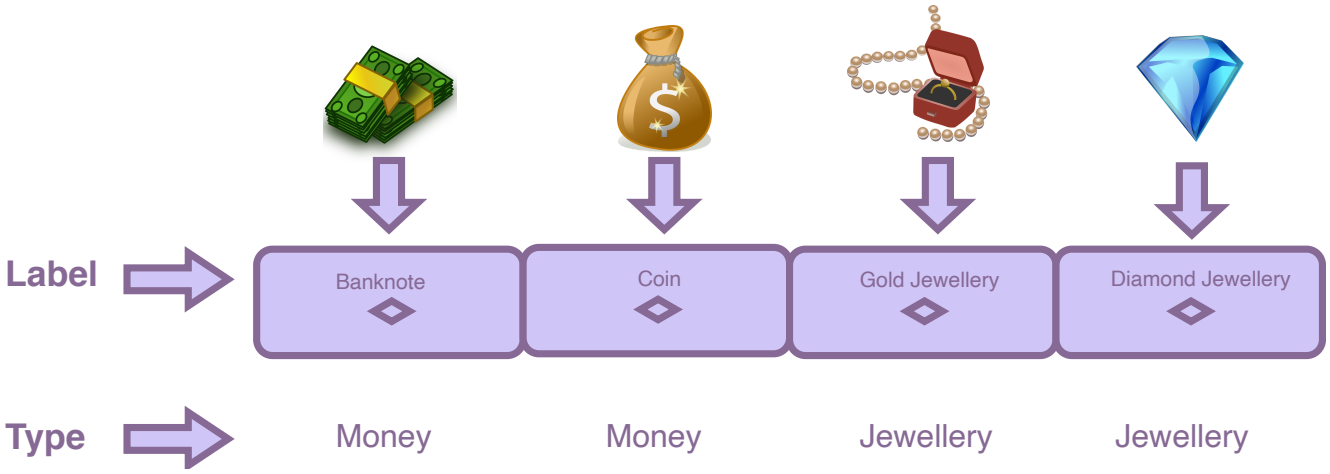
Introduction to Arrays

Get introduced to arrays.

We'll cover the following

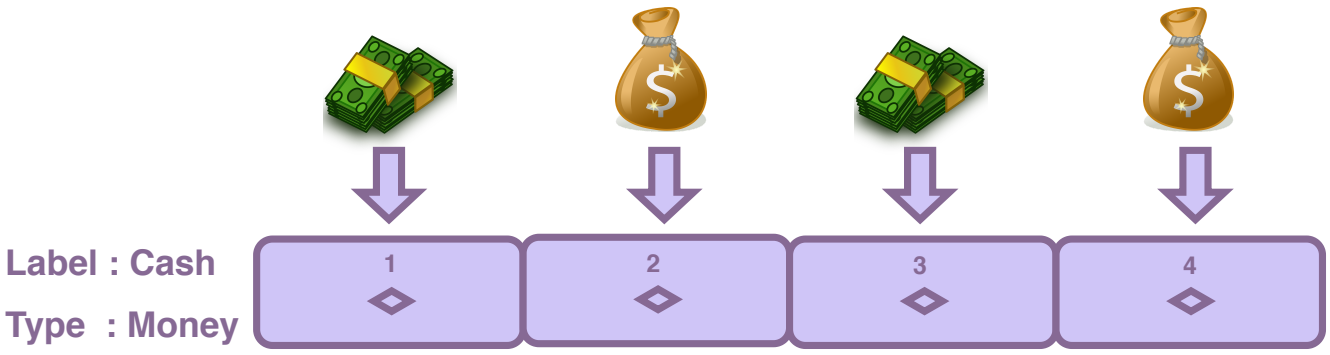
What is an array?#

In the lesson on variables (https://www.educative.io/collection/page/10370001/6619096843026432/4769360997515264), we saw that a variable is just like a cabinet that can store one item only. To store the item in the cabinet, we must decide its type (analogous to data type) and put a unique label on it (analogous to variable name).



If we have to store a lot of items of the same type, putting a label on each cabinet is quite a tedious task. Instead, we can just store the items of the same type under the same label.

This is where arrays come in.



Array analogy

*An **array** is a sequential collection of values of the same data type under the same name.*

> ℹ️ An array is a derived data type.

In the above figure, we have stored items of the same type under a single label `Cash`.

Basic terms#

Let's get introduced to the basic terms associated with an array.

Element#

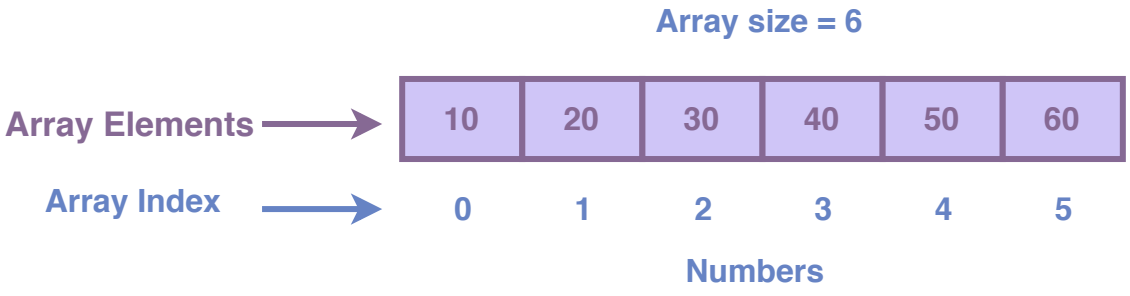
The array element is a **value stored in an array**. Elements in an array are stored at neighboring memory locations.

Index#

An array index **identifies the position of an element** in an array. It starts from 0 and increments by one for each element added in an array.

Size#

The size of an array is the **total number of elements** stored in an array.



Array representation

In the above figure, you can see an array with 6 elements. The name of an array is `Number`, and its size is **6**.

- The first element, **10**, is stored at index `0`.
- The second element, **20**, is stored at index `1`.
- The third element, **30**, is stored at index `2`.
- The fourth element, **40**, is stored at index `3`.
- The fifth element, **50**, is stored at index `4`.
- The sixth element, **60**, is stored at index `5`.

Why use arrays?#

The limitation of fundamental data types such as int, long, char, etc., is that they can store one value at a time. When we have large volumes of data, we need a data type that can store and access different amounts of data under a single name.

Example#

Suppose there are **100** students in a class, and you want to store their roll numbers. Declaring **100** variables and then storing the roll number of each student is quite an impractical approach. Here, arrays will come in handy!

Quiz

Q In the figure given below, array `Numbers` can store **3** elements. What is the value of the element stored at index **1**?

A) 67

Your Answer

B) 12

Explanation

Array index starts from **0**. Therefore, the second element of an array will be stored at index **1**.

C) 95

D) 0

Submit Answer

Reset Quiz

In the upcoming lesson, you will see how to create arrays in C++.

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Quiz

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Creating an Array

Mark as Completed