

Data Structure lab

CSE-604

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Basic Introduction of Array

What is array?

An array is a collection of items of the same data type stored at contiguous memory locations.

Example:

Suppose, we have to find the average mark of 100 students. So, we need to declare 100 variable like marks1, marks2, marks3----marksn to store it. That is very time-consuming and also difficult. That's why we need array to do the work simply.

How to Declare Array?

Syntax:

Data type array name [array size];

Ex:

```
int marks [100];
```

Representation of an array

The diagram illustrates the components of the array declaration `int array [10] = { 35, 33, 42, 10, 14, 19, 27, 44, 26, 31 }`. The text is written in red. Annotations include:

- Name:** A green label with a blue arrow pointing down to the identifier `array`.
- Elements:** A green label with a blue horizontal line above it, spanning the list of values `{ 35, 33, 42, 10, 14, 19, 27, 44, 26, 31 }`.
- Type:** A green label with a blue arrow pointing up to the data type `int`.
- Size:** A green label with a blue arrow pointing up to the array size `10`.

As per the above illustration, there are some of the following important points -

- Index starts with 0.
- The array's length is 10, which means we can store 10 elements.
- Each element in the array can be accessed via its index.

Memory allocation of array

Int array [5];

So , the size of array is 5. There will be 5 variable.

Ex: array [0], array [1], array [2], array [3], array [4],

Initialize array with value:

```
arr [5] = {100, 104, 108, 112, 116}
```

That means

```
arr [0] =100;
```

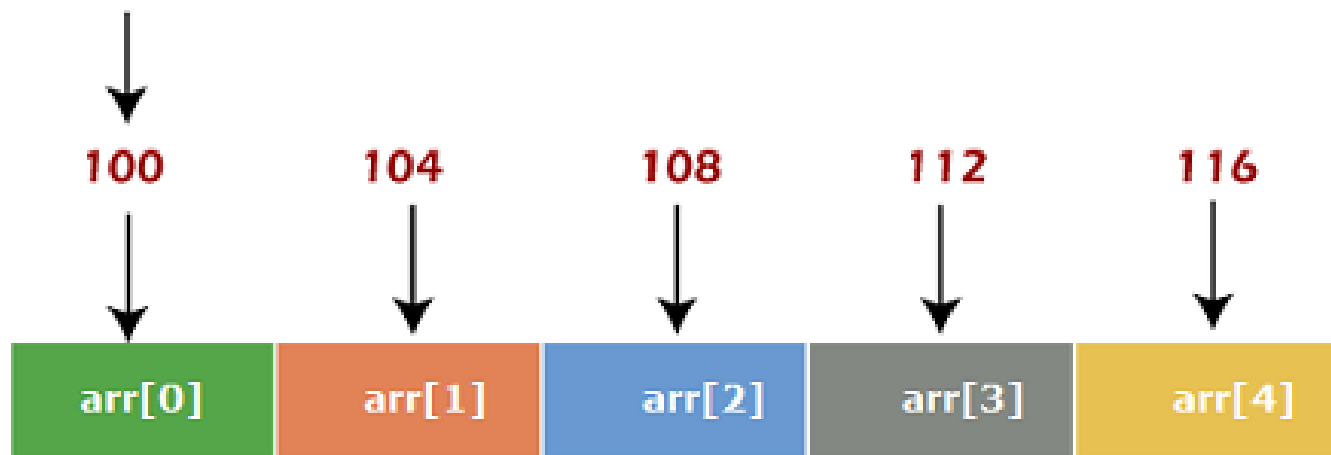
```
arr [1] = 104
```

```
arr [2] = 108
```

```
arr[3] = 112
```

```
arr[4] = 116
```

Base Address



int arr[5]