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An array is a collection of similar data items stored at contiguous memory locations.

For example,

Example 01:

Array initialization:

```
int a[6] = {2, 4, 6, 8, 10, 12};
```

In above example,

- int is the type of the array
- ‘a’ is the name of the array
- a[6] shows number of elements in array

- Bracket {}, contains the array elements.
- Each element in array has its unique index number.

Index numbers of array elements in above example,

- 2 has index number 0
- 4 has index number 1
- 6 has index number 2
- 8 has index number 3
- 10 has index number 4
- 12 has index number 5

Example 02:

```
int a[ ] = {2, 4, 6, 8, 10, 12};
```

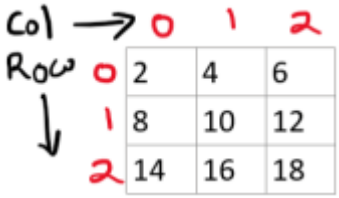
This example is same as example 01 above. Only size of a[ ] is not defined.

Types of arrays

One-dimensional array:

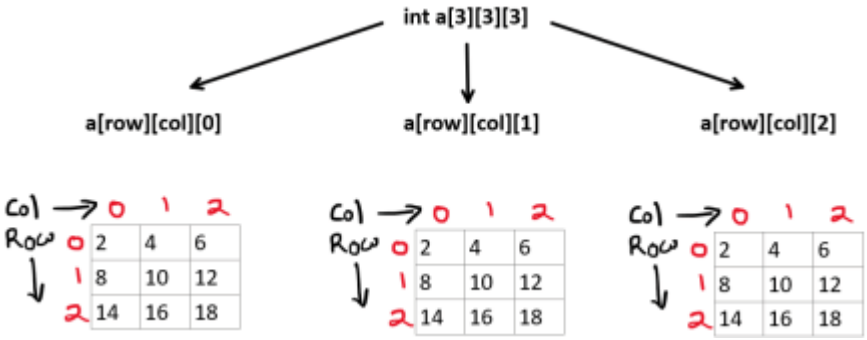
Multi-dimensional array:

Two-dimensional array



Three-dimensional array

Three-domensional array is like a cuboid.



Syntax for arrays

```
One-dimensional array
int arr[i];
```

```
Two-dimensional array
```

```
int arr[i][j];
```

```
Three-dimensional array
int arr[i][j][k];
```

Operations on array

1. Traversal : Visiting each element once.
2. Insertion : Process of inserting one or more elements in an array.
3. Deletion : Process of deleting one or more elements in an array.
4. Searching : Process of searching specific value in an array.
5. Sorting : Process of arranging elements in an array.

How to access array elements ?

Here the array index number is used.

```
#include <stdio.h>
int main() {
int a[5] = {2,4,6,8,10};
printf("%d\n",a[0]); // Accessing using index number
```

```
  printf("%d\n",a[1]);
  printf("%d\n",a[2]);
  printf("%d\n",a[3]);
  printf("%d",a[4]);
  return 0;
  }
```

Output

```
Index numbers for 2,4,6,8,10 is 0,1,2,3,4 respectively
2
4
6
8
10
```

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