Chapter 5-
Array

VARIABLES

WE USUALLY STORE DATA IN MEMORY USING VARIABLES.

WHAT IF WE WANT TO STORE DATA IN

100 VARIABLES AT THE SAME TIME?

IS IT POSSIBLE TO COMPLETE THIS TASK SO EASILY?

ARRAY

What is an array?

- **A fixed-length sequential collection of data elements of same data type.**
- **Array is used to represent list of data.**
- **For example: list of numbers, list of name, list of products, list of students etc.**

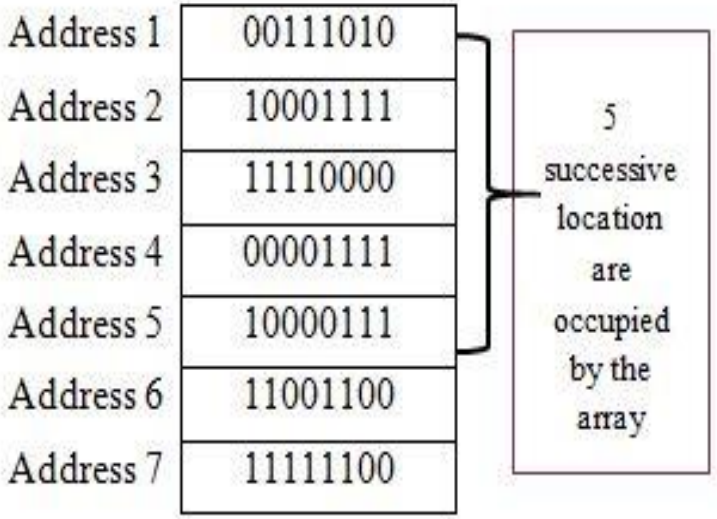
Comparison of Variable & Array

Memory in case of normal data variable

Varaible1->Address 1	00111010
Varaible2->Address 2	10001111
Varaible3->Address 3	11110000
Varaible4->Address 4	00001111
Varaible5->Address 5	10000111
Varaible6->Address 6	11001100
Varaible7->Address 7	11111100

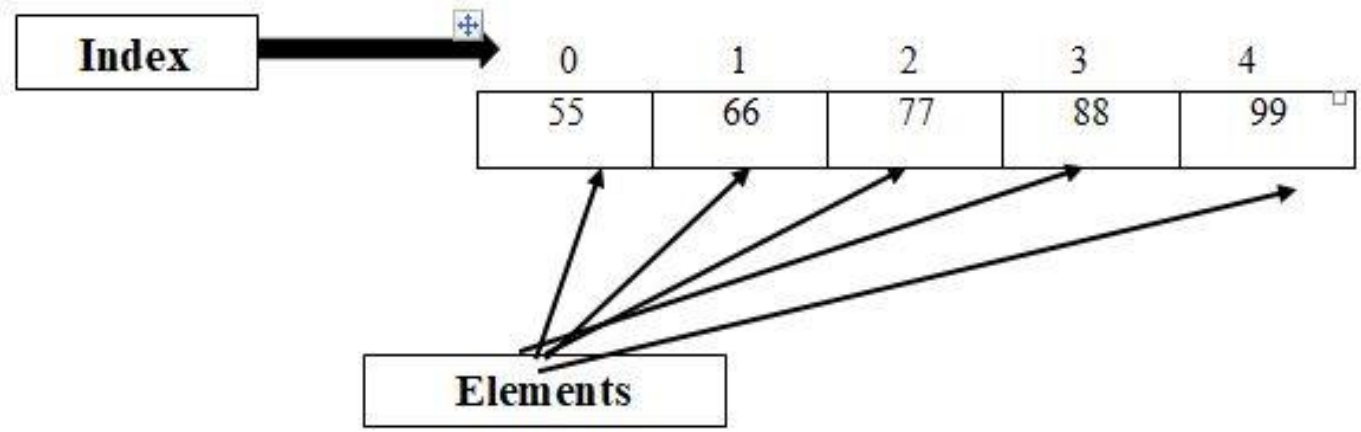
Memory in case of Array

Suppose an array of size 5:



FORMAT OF ARRAY-1

- Each of the location is a compartment.
- In array, a number is used to indicate these compartment so that we can easily access them is known as **Index.**
- Value that are stored in each compartment are called Elements. Consider an array of integers and the size of the array is 5.

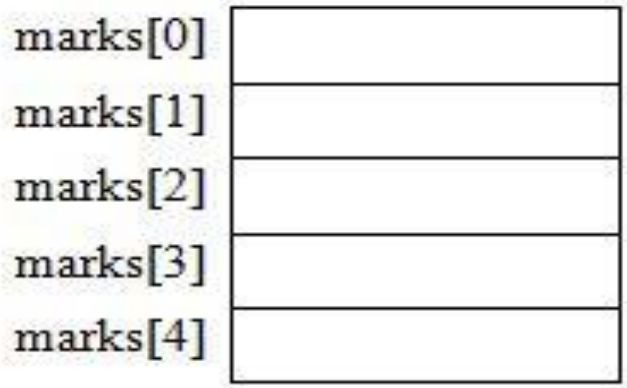


ONE DIMENSIONAL ARRAY

Writing format: data-type array-name[size];

float marks[5];

Declaring the array will result in this :



ONE DIMENSIONAL ARRAY

The values to the array elements can be assigned as:

marks [0] = 55.5
marks [1] = 44.5
marks [2] = 77.0
marks [3] = 99.0
marks [4] = 88.5

After assign values the array is as:

marks[0]	55.5
marks[1]	44.5
marks[2]	77.0
marks[3]	99.0
marks[4]	88.5

ONE DIMENSIONAL ARRAY(PROGRAM)

```
#include<stdio.h>
        int main()
        {
                float marks[5];
                int counter;
                for(counter=0;counter<5;counter++)
                {
                        scanf( " %f", &marks[counter]);
                }
                return 0;
        }
```