



Anjuman-I-Islam's  
**M. H. Saboo Siddik**  
**College of Engineering**

**Course  
Code**  
**VSEC102**

**Credits**  
**2**



# C programming

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Sem-I



# Arrays in C

Array is a data type like int, float, char, double etc. **Note that int, float, char, double data types can store only one item of data.** But **array can store set of values (data items).** **Array stores same kind of data.** It is important to note that array stores similar kind of data.

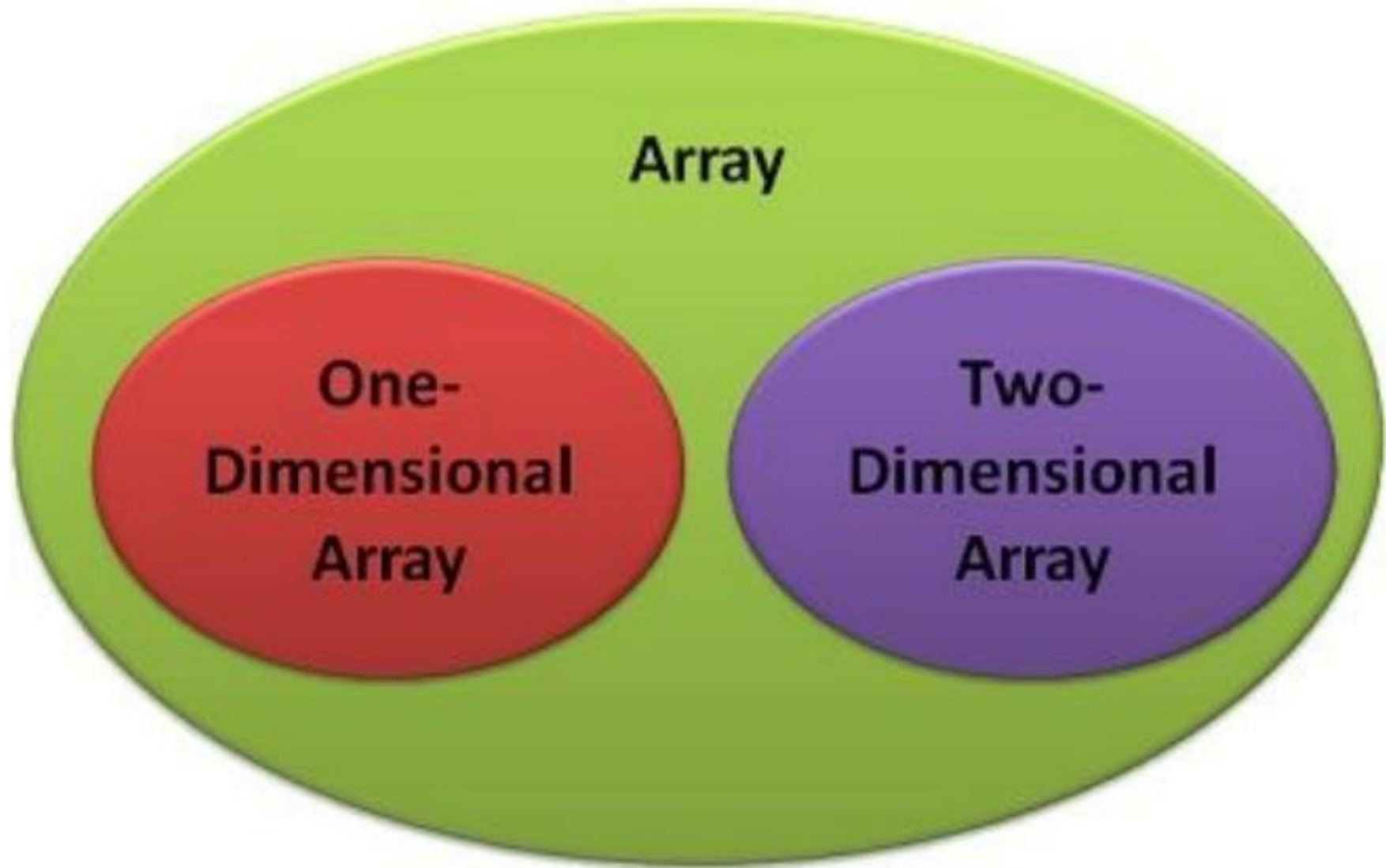




# Arrays in C

**Example:** suppose we want to **store roll numbers of all the students**. Remember that **roll number cannot be float**. **Roll numbers are only integer values**. So, we can **declare an array of integers**. Marks obtained by students can be float (can have decimal values).









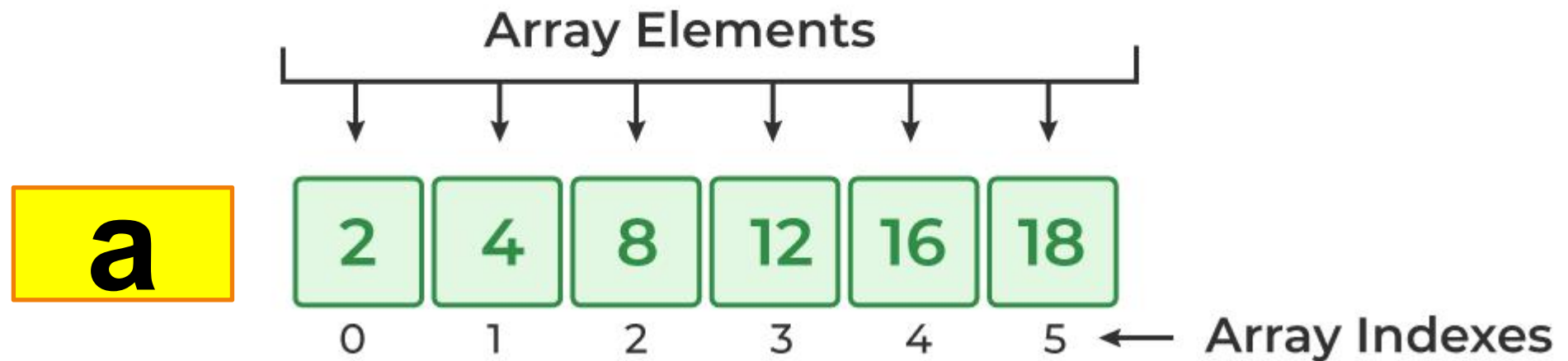
## 1D Array Declaration Syntax

In declaration, we specify then name and the size of the 1d array.

```
elements_type array_name[array_size];
```

**int a [6];**

## One Dimensional Array in C





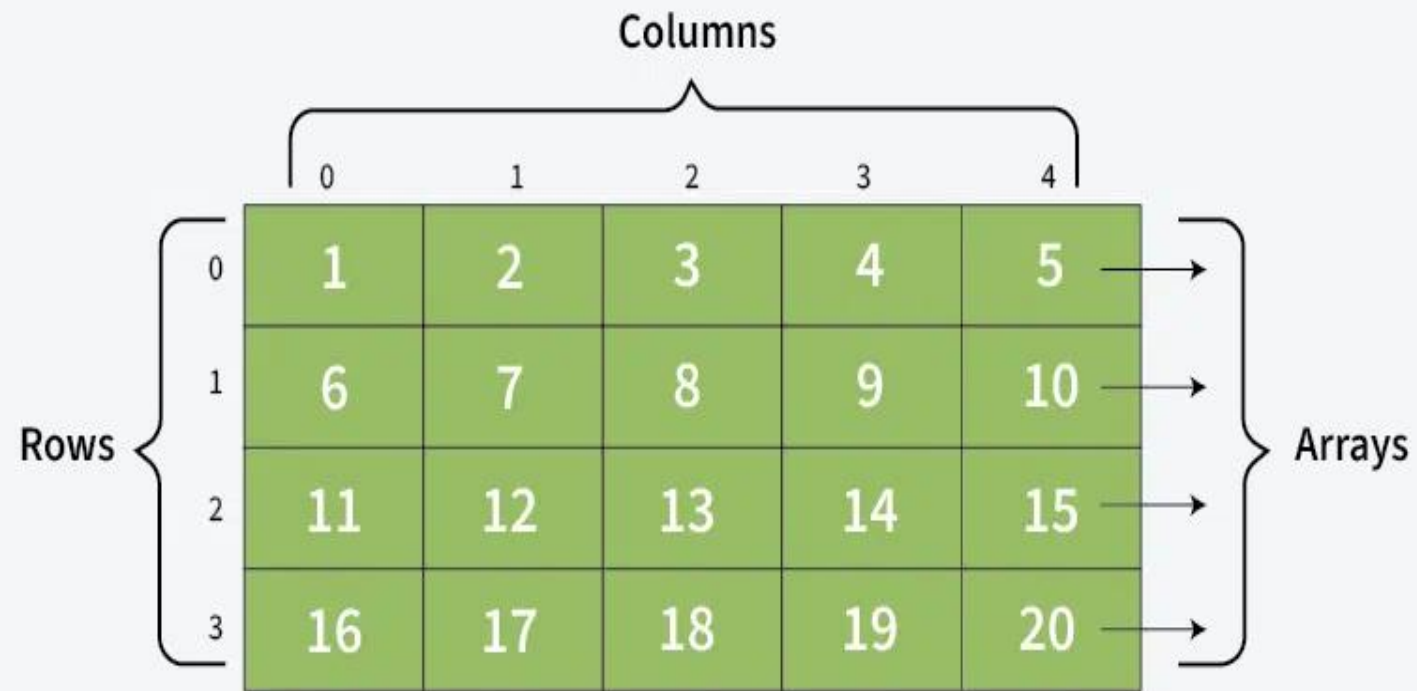
## Declaration of 2D Array

A 2D array with **m** rows and **n** columns can be created as:

```
type arr_name[m][n];
```

For example, we can declare a two-dimensional integer array with name 'arr' with 10 rows and 20 columns as:

```
int arr[10][20];
```



2D Array



# Question



## Expt 7 - Task 1

**WAP to find the largest element in an array.**

**Experiment**



# ALGORITHM

**Step I : START**

**Step II : PRINT "Enter value of n".**

**Step III : INPUT n**

**Step IV :  $i = 0$**

**Step V : IF  $i > n - 1$  THEN GOTO step X**

**Step VI : PRINT "Enter a value"**

**Step VII : INPUT  $a[i]$**

**Step VIII :  $i = i + 1$**

**Step IX : GOTO step V**

**Step X :  $i = 1$ ,  $large = a[0]$**

**Step XI : IF  $i > n - 1$  THEN GOTO step XV**

**Step XII : IF  $large < a[i]$ , THEN  $large = a[i]$**

**Step XIII :  $i = i + 1$**

**Step XIV : GOTO step XI**

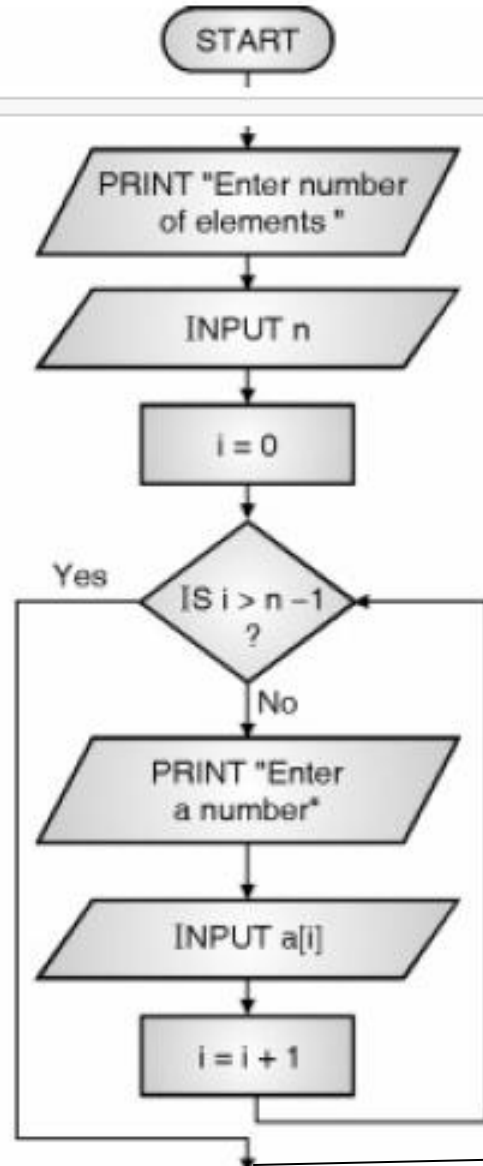
**Step XV : PRINT large**

**Step XVI : STOP**

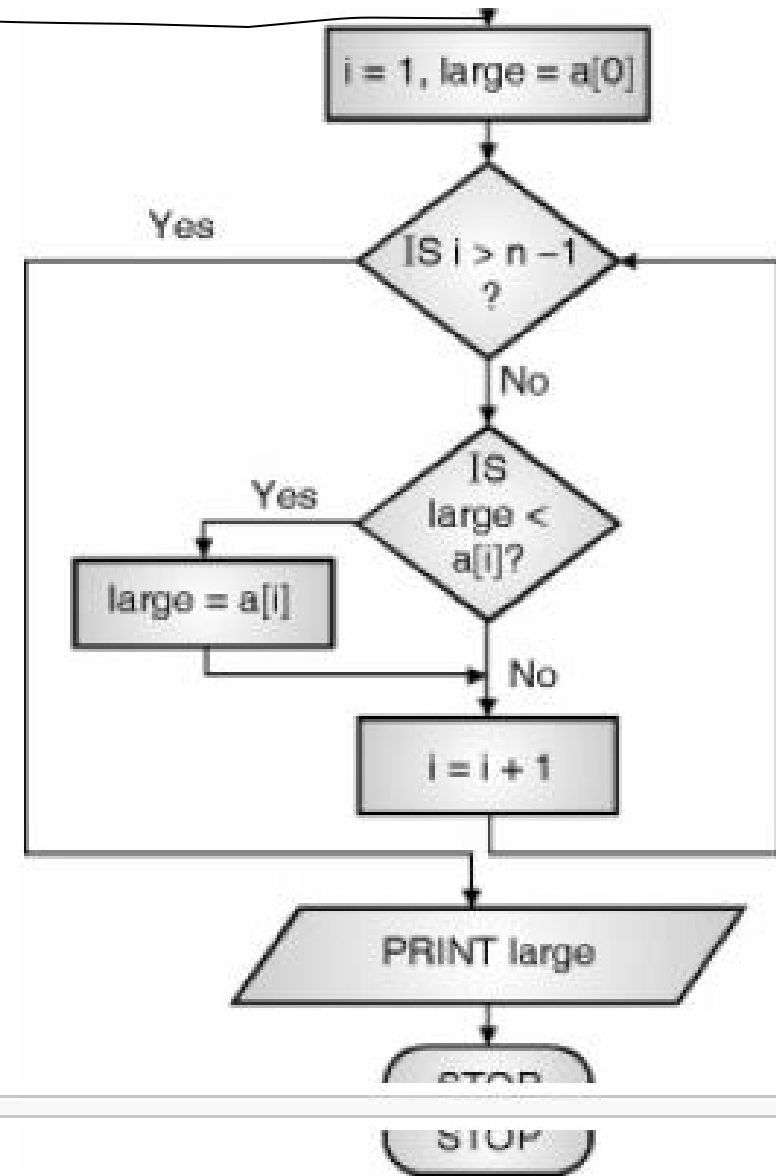




# FLOWCHART



Prof. Shaikh Mohd Ashfaque



M.H. Saboo Siddik College of Engineering



```
/* Expt 7 - Task 1
Aim: WAP to find the largest element in an array.
```

```
*/
#include<stdio.h>
int main( )
{
    int n,i,a[100],large;

    printf("Enter the number of elements:");
    scanf("%d",&n);

    for (i=0;i<=n-1;i++)
    {
        printf("Enter a value:");
        scanf("%d",&a[i]);
    }

    large=a[0];
    for (i=0;i<=n-1;i++)
    {
        if(large<a[i])
            large=a[i];
    }

    printf("The largest number is %d",large);
    return 0;
}
```





# Question



## Expt 7 - Task 2

**Aim: WAP to calculate sum of two matrix.**

**Experiment**



```
#include <stdio.h>
```

```
int main() {  
    int arr1[50][50], brr1[50][50], crr1[50][50], i, j, n;  
  
    // Prompt user for input  
    printf("\n\nAddition of two Matrices :\n");  
    printf("-----\n");  
    printf("Input the size of the square matrix : ");  
    scanf("%d", &n);
```

```
Addition of two Matrices :
```

```
-----
```

```
Input the size of the square matrix : 3
```







**// Input elements for the first matrix**

```
printf("Input elements in the first matrix :\n");
```

```
for (i = 0; i < n; i++) {
```

```
    for (j = 0; j < n; j++) {
```

```
        printf("element - [%d],[%d] : ", i, j);
```

```
        scanf("%d", &arr1[i][j]);
```

```
    }
```

```
}
```

Addition of two Matrices :

-----  
Input the size of the square matrix : 3

Input elements in the first matrix :

element - [0],[0] : 1

element - [0],[1] : 2

element - [0],[2] : 3

element - [1],[0] : 4

element - [1],[1] : 5

element - [1],[2] : 6

element - [2],[0] : 7

element - [2],[1] : 8

element - [2],[2] : 9



// Input elements for the second matrix

```
printf("Input elements in the second matrix :\n");
```

```
for (i = 0; i < n; i++) {
```

```
    for (j = 0; j < n; j++) {
```

```
        printf("element - [%d],[%d] : ", i, j);
```

```
        scanf("%d", &brr1[i][j]);
```

```
    }
```

```
}
```

```
Input elements in the second matrix :
element - [0],[0] : 9
element - [0],[1] : 8
element - [0],[2] : 7
element - [1],[0] : 6
element - [1],[1] : 5
element - [1],[2] : 4
element - [2],[0] : 3
element - [2],[1] : 2
element - [2],[2] : 1
```



**// Display the first matrix**

```
printf("\nThe First matrix is :\n");  
for (i = 0; i < n; i++) {  
    printf("\n");  
    for (j = 0; j < n; j++)  
        printf("%d\t", arr1[i][j]);  
}
```

**// Display the second matrix**

```
printf("\nThe Second matrix is :\n");  
for (i = 0; i < n; i++) {  
    printf("\n");  
    for (j = 0; j < n; j++)  
        printf("%d\t", brr1[i][j]);  
}
```

The First matrix is :

1	2	3
4	5	6
7	8	9

The Second matrix is :

9	8	7
6	5	4
3	2	1



```
// Calculate the sum of the matrices
for (i = 0; i < n; i++)
    for (j = 0; j < n; j++)
        crr1[i][j] = arr1[i][j] + brr1[i][j];
```

```
// Display the addition of two matrices
printf("\nThe Addition of two matrix is : \n");
for (i = 0; i < n; i++) {
    printf("\n");
    for (j = 0; j < n; j++)
        printf("%d\t", crr1[i][j]);
}
printf("\n\n");
return 0;
}
```

```
The Addition of two matrix is :

10      10      10
10      10      10
10      10      10
```





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We  
**LEARN**  
from  
our  
**MISTAKES**

