Arrays

A simple variable can hold a single value only. However in many applications, we need to store multiple values. For eg marks of a particular subject for 50 students OR salary details of say 500 employees, etc. In such cases, declaring too many variables is a tedious process.

int m1, m2, m3, ……., m50;

printf(“Enter marks of 50 students :- “);

scanf(“%d %d %d …… %d”,&m1,&m2,&m3,…..,&m50);

total = m1 + m2 + m3 + …. + m50;

In such cases, we use arrays.

Definition of array :- An array is a collection of values known as elements with same data type only.

Syntax to declare an array

datatype array\_name[SIZE]; // SIZE of array has to be a constant

For eg. to store marks of a particular subject for 50 students

int marks[50];

This will reserve 50 continuous memory locations with built in index values / positions starting from 0 to SIZE-1

marks[ ] =

0 1 2 3 …… 49

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600 604 608 612 614 …….

As int type requires 4 bytes of memory (system with 64 bit OS, can be confirmed using a built in operator / function sizeof(int)), each memory location is separated by 4 bytes.

To access each element of array, we can use a loop

for (i=0;i<SIZE;i++) // i represents index

scanf(“%d”,&marks[i]); // and marks of i

0 1 2 3 4

|  |  |  |  |  |
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|  |  |  |  |  |

600 604 608 612 616

main() nos[ ] =

incr()

x[ ]