

Arrays.

→ An array is a finite, ordered and collection of homogeneous data elements. All elements are stored one by one in contiguous location of the computer memory in a linear ordered fashion. All the elements of an array are of the same data type.

Terminology

1) Base → The Base of an array ~~represent the~~ is the address of the memory location where the first element of the array located.

Memory Allocation for an Array.

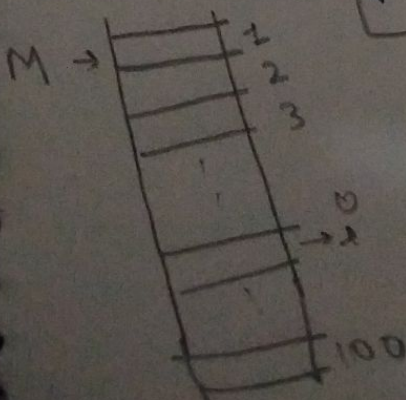
→ Suppose, an array $A[100]$ is to be store in a memory

→ M → memory location where the first element is to be store

→ Each element required one word

→ For any element say $A[i]$ in the array

$$\rightarrow \text{Address}(A[i]) = M + (i-1)$$



$$\# \text{ Address}(A[i]) = M + (i - L) \times w$$

Where L = Lower bound

w = each elem. req. 'w' no. of words.

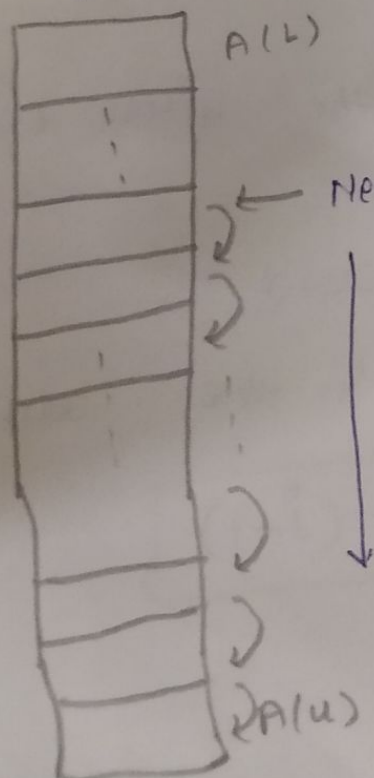
→ Indexing Formula.

→ It is use to map the logical presentation of an array to physical presentation.

Operations on Arrays.

→ Various oper. that can be performed on an array are : traversing, sorting, searching, insertion, deletion & merging.

Insertion → Used to insert an element into an array provided that array is not full



New element is to be ^{inserted} ~~store~~ here

Push down one stroke to make room for the new element to be inserted.

Deletion:

→ The ~~de~~ element will be deleted by overwriting it with its subsequent element and this subsequent element will then also be ~~de~~ deleted. In other words, push the tail one stroke up.

Push up each element (after the ~~victim~~ element) by one position.

