Static and Dynamic Data structure and its implementation

Static Data Structure :-
Static Data Structure means 'set of data' but that doesnot mean that we cannot change the assigned values of elements.
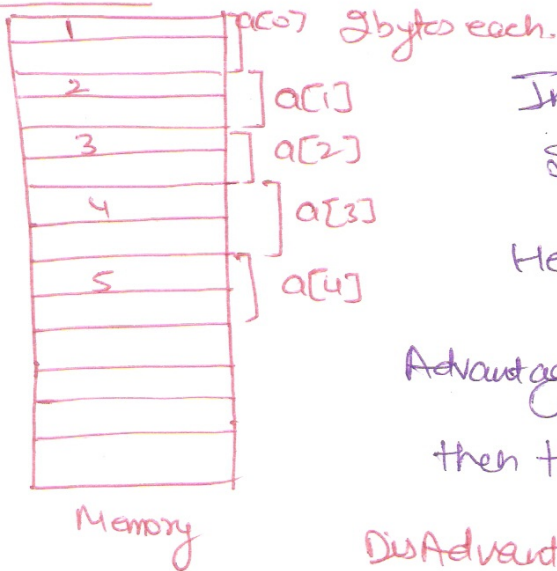
→ Here Static means the size of datatype is fixed

→ Memory size allocated to 'data' is fixed.

Eg

$$int \ a[5] = \{1, 2, 3, 4, 5\}$$

a[0] a[1] a[2] a[3] a[4]

1	2	3	4	5

Here array a[5] which has a fixed size in memory

Implementation

a[0] 2bytes each.

a[1]

a[2]

a[3]

a[4]

Memory

In this we cannot increase the size of array at run time

Here size of 10 bytes is fixed

Advantage :- Where we know the size of element of array to be used then the wastage of memory con be stopped.

DisAdvantage : If we donot know the How much elements to be used then it cause wastage of memory.

Dynamic Data Structure

There are many situation where the no. of items to be stored is not know beforehand. In this case we use dynamic data structure.

→ Data structure is allowed to grow and shrink as the demand for storage arises.

→ programmer should set a maximum size of Data sto help avoid memory collission.

Disadvantege → Because the memory allocation is dynamic, it is possible for the structure to overflow should it exceeds its allowed limit. It should may be underflow. for empty.

Harder to program.

Eg: Stacks

In this elements can be added or removed at runtime