Data Structure:

7 Questions

Searching, Sorting, Stack,Queue, LinkedList, Tree, Graph , Hash Table

Array : can be implementated using

Static implementation of memory - int arr[5]
can not be shrinked or grown at runtime
if prerequisite is known in advance i.e. how many eles to be processed

Dynamic memory implementation

malloc(sizeof(int)*5)
can be shrinked or grown memory at runtime
if prerequisite is not known in advance i.e. how many eles to be processed

Data structure :
1. Linear - Array, Stack, Queue, LinkedList
2. Non

Linear - Tree, Graph

Searching :

1. Linear/Sequential Search
2. Binary Search
3. Fibonacci Search

Efficiency of algorithm is calculated based on

Time Complexity: Mathematical calucations are done to conclude time span required to compelete specific task

There are 2 ways to calculate Time Complexity

1. Asymptotic Method
    a) Best Case
    b) Average Case
    c) Worst Case
2. Symptotic Method

Space Complexity : based two factors

a) fixed space component
b) variable space component

Linear Search - Visit each element in sequence and compare it with key value to conclude its 1st occurance.

Binary Search - one of the fastest searching alogorithm

Works on collection which is in sorted order. (Prerequisit is collection has to be sorted)

if collection is sorted and later we modify any element then we need to invest time again to resort collection. In such case it will be slower

Binary search uses divide and conqur algorithm

In case of binary search if key is present in collection it will be available at mid location.