

DATA STRUCTURE Q/A

Q What are data structure?

→ Data Structure are the methods and techniques used to maintain data in an organized fashion. This is primarily done to ensure that data can be manipulated and accessed in an efficient manner.

Q What is difference between Data Structure and File Structure?

Data Structure	File Structure
• Data stored on both (Disk and Ram.)	• Data stored only on Disk.
• Customized storage Policies	• Standard file storage Policies
• High compatibility with external apps	• Low compatibility with external apps.

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Q What is Linked List?

→ Linked List is a data structure consisting of individual entities called nodes. These nodes have capability of connecting other nodes, and create chain in the process. These continuous chain structure forms a linked list as the name suggests.

Q What are the types of searching used in Data Structure?

→ There are two methods of searching :-

Linear:- Linear search involves iterating over a data unit in order to perform the required operation.

Binary Search :- Binary search is more efficient in a way that it has the ability to split the data unit into chunks and then perform search operation.

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Q How are individual elements accessed in an array?

→ Each of the values in an array is given an index position from 0 to $n-1$, where "n" is the number of elements in the array. Individual element can be accessed by using the index element or operations. Multidimensional arrays have more than one dimension to work with.

Q How does binary search work?

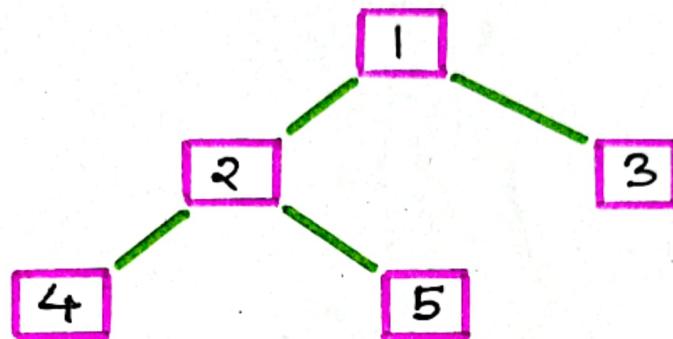
→ Binary search is used when there is primarily a creation of efficiency. It involves working on already ordered data, which is stored either in ascending order or descending order. To begin with the middle element of the array is find out and search begin from there. The array is searched in two parts based on a search value being higher or lower than middle element. It is the key to know the order of the arrangement to help search the value accordingly.

Q What is Queue in Data Structure?

→ A Queue is widely used data structure that is used to denote the ordered access and manipulation of an element. The operation of this data structure is exactly same as literal queue in the real world. Elements are added one after the other and are processed on the front end.

Q What is binary tree ?

→ A binary tree, as a name suggest, is the tree data structure with two nodes, which are the nodes on the left and the right sides of the root node. In usage, binary tree are considered to be extended linked list.



Q Where are Data Structure Primarily used ?

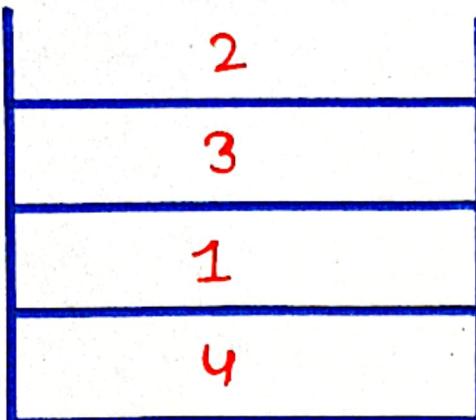


1).	Numerical Operation
2).	Operating System design
3).	Artificial Intelligence
4).	Compiler design
5).	Database handling
6).	Graphical Processing
7).	Lexical analysis
8).	Statistics

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Q What is the meaning of stack ?

→ A stack is another widely used data structure that provides user with the ability to work with data at one point only. As the name suggest this can literally corresponds to working of a stack of cards.



Stack

Q What is the working of LIFO?

→ LIFO stands for the Last In First Out access order. It is directly corresponding to how the data can be worked on and modified. The data entity is stored or pushed in last is the first one to be worked on at any point in time. If there is requirement to access the very first element stored then first you have to retrieve all of the data that came after that element.

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Q What are Multidimensional array?

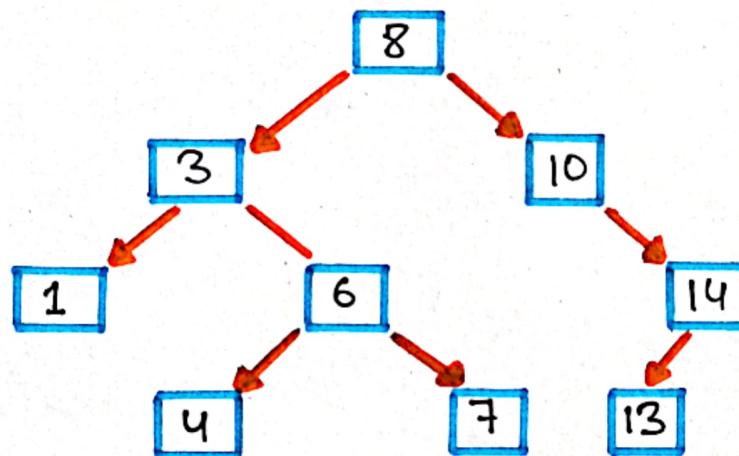
→ Multidimensional arrays are the arrays that with more than one level or dimension for every point of storage. This is primarily used in cases where data cannot be represented or stored using only one dimension.

Q Are Linked list Linear or non linear data Structure?

→ Linked list are considered to be the best words here (Both). Based on usage, if it is a storage policy then it is considered as non-linear. whereas if a person is considered it based on retrieval strategies then it can be considered linear.

Q What is Binary Search tree?

→ A Binary search tree is a data structure that stores data in every efficient manner. It consists of two primary nodes from root node. The main thing here is that the values of the nodes in the left subtree are less than the values of the root node and the values of the nodes on the right of the root node are correspondingly higher than the root. Also individually both of these left and right subtree are their own binary search trees at all points of time.



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Q What is the meaning of FIFO?

→ FIFO is also known as First In First Out is a way of representing a data operation on factors such as how data is accessed and in what order here the data is first put into the list will be the first entity to exit from the ordered data structure.

Q What is the difference between void and null ?

→ void :- Void is data type identifier in data structure.

null :- Null is considered to be value with no physical presence. When while is used it indicates that there is no size while initializing the data structure.

Q What is dynamic memory management?

→ Dynamic memory management is a technique in which storage units are allocated based on requirements continuously. Using dynamic memory allocation, individual data structures can be either stored separately or combined to form entities called composites. These composites can be worked on when required.

Q What are Push and POP Operations In Data Structure?

→ Both Push and POP operations denote how data can be stored and used when required in a stack. The Push operation denotes that users are adding data into structure, and the POP operation denotes data being pulled or removed from the structure. Usually, the top most element is considered when performing Push and POP operations.

Q How variable is stored in memory when using data structure?

→ A variable is stored based on amount of memory that is needed. First the required quantity of memory is assigned and later it is stored based on the data structure being used. Using concept such as dynamic allocation ensures high efficiency and that the storage unit can be supplied based on requirements in real time.

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Q What is Merge sort?

→ Merge sort is method of sorting which is based on the divide and conquer technique. Here the data entities adjacent to each other are first merged and sorted in every iteration to create sorted lists. These smaller sorted lists are combined at the end to form the completely sorted list.