Data structures: It is a way to organise process, retrive and store data efficiently.

Dictionary: In dictionary data are arranged in alphabetical order. Searching is fast in dictionary and it is easier to insert new words at proper place.

Data Structures

Linear

In linear data structure every data is arranged sequentially or linearly where each and every element is attached to its previous and next adjacent element.

Non linear

They are those data structures in which data is not arranged sequentially or linearly.

Arrays: In this data structure elements of same data type are reffered to as by a common name. It is used to store data in contiguous memory.

We can carry out different operations on array elements search for an element, insert and delete an element.

deletion and insertion would require a lot of operation while searching would require very less operation if array is sorted.

Linked lists: It is a linear data structure that allows the user to avail the facilities of storing various data items in randomly available/ empty memory locations and linking them together such as they can be manipulated simply like an array.

Storing data along with the address of the next data in a single empty space is known as list.

A single list in a linked list structure is also termed as Node.

each node contains
(a) data
(b) link to next node

42 | A 76 | B 53 | C Ø → The last node points to null.

address of next node   single node   data   link

Queue: It is a linear data structure that stores elements sequentially. IT follows FIFO principle.

addition of element : enqueue   deletion of element : dequeue
→ used to access elements.

It has front end and a rear end.

Stack It is also a linear data structure that stores elements sequentially. It follows LIFO principle. The elements of the stack can be accessed only from top.

Tree: A data structure formed by using lists with multiple links is said to be a tree. It stores information in nodes each node other than rootnode has exactly one node pointing to it.
→ Binary Tree
→ Binary Searched Tree.

Graph It represents the relationships among data items. A graph G consists of a set V of nodes (vertices) and a set E of edges : each edge connvis two node. Each node represents an item and each edge represents relationship between two items.