

Data Structures:

Suppose to store data

- How to store information in the structure
- How to efficient access information in the structure
- How to answer interesting implementation.

(A) Variable

- Integer or float: it can store one data.
- Character or Boolean: It is unstructured data, store one value
- It is a scalar structure (it means simple value)

(B) List (unsorted or sorted):

- **Arrays**: scalar, executing an item is easy, but not easy for inserting or deleting.
- **Linked list**: linear structure, it is easy to insert, but not easy for executing an item.

(C) **Stack**: Operations: push , pop.

LIFO: last in first out, first in last out.

Queue: FIFO: first in first out.

Both stack and queue are **linear structures**.

(D) **Hierarchical structure**:

- Organization is “data”.
- Operation is formed (read & write)
- Structure needs to store value and makes sure that “ searching” could be done in a nice way.
- Using “tree” to store data.
- Example: **Binary Search Tree**: It is able to put the data according to how large of the value of data so that it is easy to do searching.