

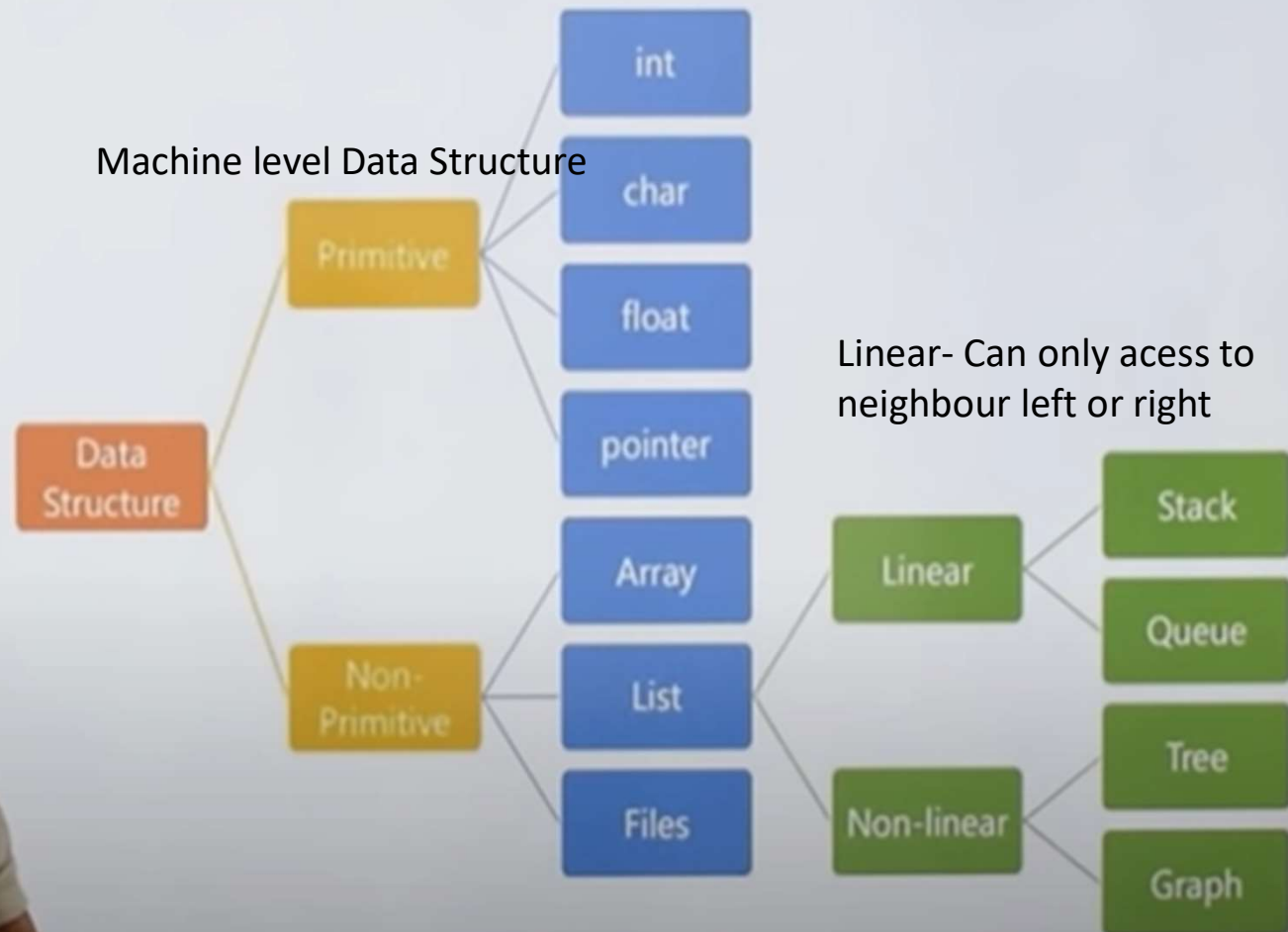
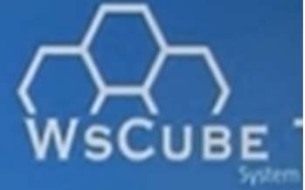
Data Structures

Data Structure is a way of collecting and organizing data in such a way that we can perform operations on these data in an effective way.

Types Of Data Structures

- Primitive data structures
- Non-primitive data structure

Classification of Data Structures



Primitive and Non-primitive DS



Primitive Data Structures: Primitive Data Structures are the basic data structures that directly operate upon the machine instructions.

Non-primitive Data Structures

Non-primitive data structures are more complicated data structures and are derived from primitive data structures.

They emphasize on grouping same or different data items with relationship between each data item.

linear and non-linear data structure



Linear DS:

- every item is related to its previous and next time.
- data is arranged in linear sequence.
- data items can be traversed in a single run.
- implementation is easy

Non-linear DS:

- every item is attached with many other items.
- data is not arranged in sequence.
- data cannot be traversed in a single run.
- implementation is difficult.

Static and Dynamic DS

Static	Static data structures are those whose sizes and structures associated memory locations are fixed, at compile time. Example: Array
Dynamic	Dynamic structures are those which expands or shrinks depending upon the program need and its execution. Also, their associated memory locations changes. Example: Linked List created using pointers

Homogeneous and Non-Homogeneous DS

Homogeneous	In homogeneous data structures, all the elements are of same type. Example: Array
Non-Homogeneous	In Non-Homogeneous data structure, the elements may or may not be of the same type. Example: Structures