Books
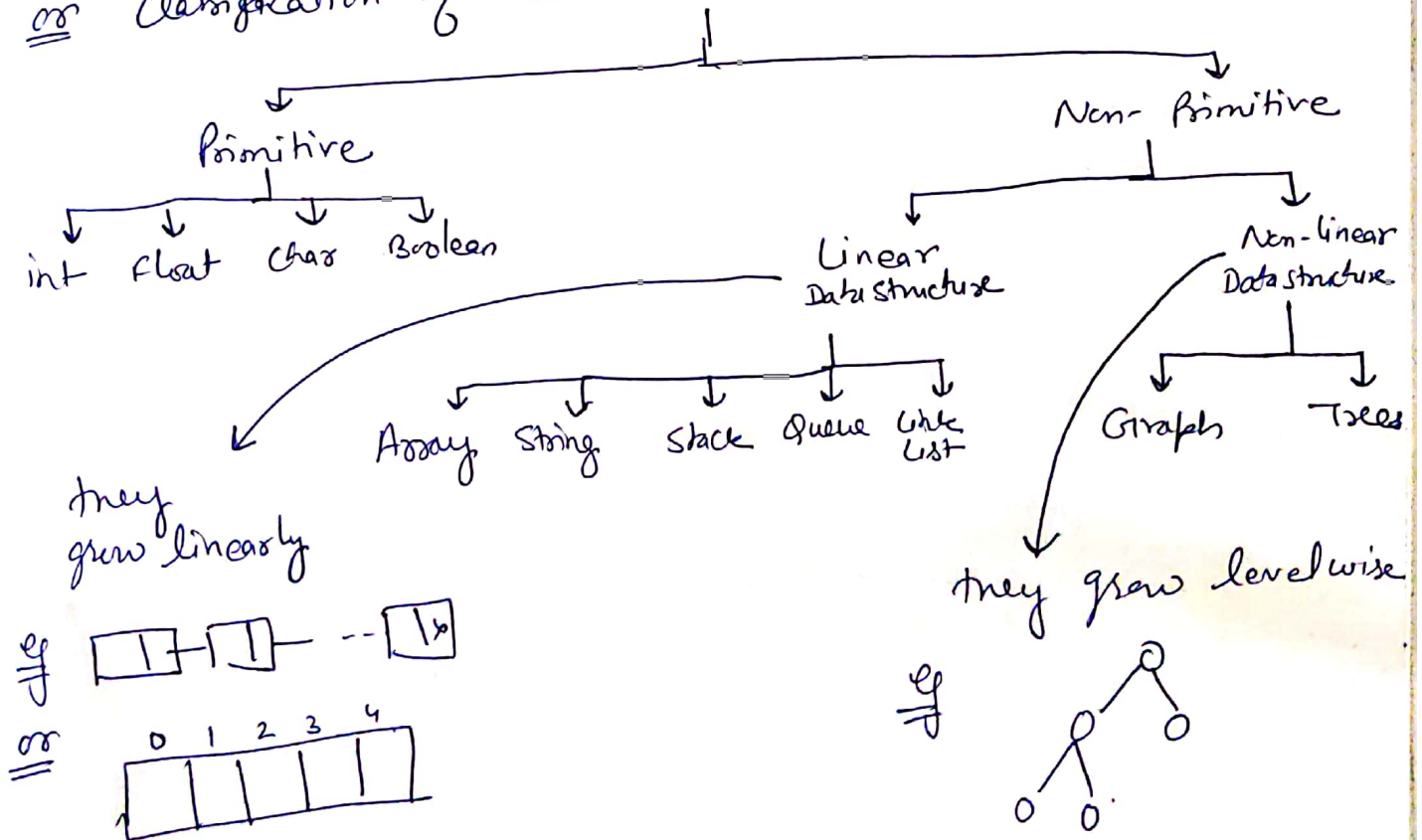
1. Schaum's Series : Data structures with C, The Mc Graw Hill Companies.

2. Tenenbaum , Augenstein : Data structures using C & C++ : PhI , New Delhi

3. Data Structures (A pseudocode Approach with c) Richard F. Gilberg & Behrouz A. Forouzan.

4. Robert L. Kruse , Data Structures & program Design : PHI

5. Cormen H.T. , Leiserson E.C. , Rivest & Stein C , Introduction to Algorithms , MIT Press.

6. Sahni S. , Data structures , Algorithm & Applications in C++ , University Press

7. Schaum's Series : Data Structures & Algorithms.

8. Karumanchi N. , Data Structures & algorithms Made Easy , Carrier Monk Publication.

9. Pointer in C By Yeshwant Kanitekar.

Data Structures :- Data may be organised in many different ways, the logical or mathematical model of a particular organisation of data is called Data Structures.

or you can say that to store the data in a specialized format.

On the Basis of our requirement we choose data structure :→ such as if we have a cup & a glass, And we are asked to make so for a tea., so according to our requirement we will choose a cup. Same is the case with data structure.

A specialised format for organising & storing data types
or Classification of Data Structures.

```
                    Data structures
                    |
        ┌───────────┴───────────────┐
        ↓                           ↓
    Primitive                  Non- Primitive
        |                           |
  ┌───┬──┴──┬────┐          ┌───────┴───────┐
  ↓   ↓     ↓    ↓          ↓               ↓
 int float char Boolean   Linear        Non-Linear
                          Data structure  Data structure
                    ┌───┬───┬──┴──┬───┐    ┌───┴───┐
                    ↓   ↓   ↓     ↓   ↓    ↓       ↓
                  Array String Stack Queue Link  Graphs  Trees
                                           List
```

they grow linearly

they grow levelwise

Primitive DS	Non-Premitive DS.
⇒ They are predefined data types	⇒ Are not predefined in programming languages.
⇒ They are supported by all programming languages ie int, char, float	⇒ They can be implemented with help of primitive data types.

Few Application where Data Structures are used.

• Recursive Function calls. (Here Stack DS is used)

• Printer in Network (Here Queue DS is used)

• Store Data (Files DS is used)

• Connect cities (Graph DS is used)

And many more.

Operations to be performed on Data Structures (whether it is performed on Linear or Non-Linear, these operations are both)

• Traversing :→ Visiting or Accessing each record at least once.

• Searching :→ Find the location of a record - or finding location of all record

- Inserting : Adding a new record.

- Deleting :- Removing or eliminating a record.

- Sorting :- Arranging the record in some logical order.

- Merging :- Combining the record of two different sorted files into a single sorted file.