**DATA STRUCTURE**

**Q1. What is Data Structure?**

A data structure is a specialized format for organizing, managing, and storing data in a computer so that it can be accessed and modified efficiently.

Data structures define the relationships between data elements and how they can be manipulated.

**Q2. What are the Types of Data Structure?**

**A diagram of data structure

Description automatically generated**

**1. Primitive Data Structures:** Basic data types that serve as the building blocks for more complex structures.

These are the basic data types provided by programming languages. They include:

* **Integers**: Whole numbers (e.g., -1, 0, 1).
* **Floats**: Decimal numbers (e.g., 3.14).
* **Characters**: Single letters or symbols (e.g., 'a', 'b', '1').
* **Booleans**: Represents **true** or **false**

2. **Non-Primitive Data Structures**

These are more complex data structures built from primitive data types. It can store multiple values or collections of data.

They can be further categorized into:

**a. Linear data structure:** Data structure in which data elements are arranged sequentially or linearly, where each element is attached to its previous and next adjacent elements, is called a linear data structure.

* **Static data structure:**Static data structure has a fixed memory size. It is easier to access the elements in a static data structure.   
  *An example of this data structure is an array.*
* **Dynamic data structure:**In the dynamic data structure, the size is not fixed. It can be randomly updated during the runtime which may be considered efficient concerning the memory (space) complexity of the code.   
  *Examples of this data structure are queue, stack, etc.*

**b. Non-linear data structure:**Data structures where data elements are not placed sequentially or linearly are called non-linear data structures. In a non-linear data structure, we can’t traverse all the elements in a single run only.   
*Examples of non-linear data structures are trees and graphs.*