**Tutorial 01**

1.

|  |  |
| --- | --- |
| **Array** | **Data Structure** |
| * Collection Of homogeneous data | * Collection of heterogeneous data |
| * Array data area access using index | * Structure data are access using operator |
| * Allocates Static Memory | * Allocates Dynamic Memory |
| * Has a fixed size | * Has a fix size ,but it can be changed by char pointer |

2.

Data structures are used in various applications and scenarios.

Ex :

* Algorithm Design and Analysis
* Database Management Systems
* Compiler Design
* Operating Systems
* Graph Algorithms
* Artificial Intelligence and Machine Learning

3.

* Primitive Data Structures
* Abstract Data Structures (ADS)

4.

A linked list is the most sought-after data structure when it comes to handling dynamic data elements.

5.

A recursive data structure is a data structure that is partially composed of smaller or simpler instances of the same data structure

6.

|  |  |
| --- | --- |
| **linear data structures** | **Non-linear data structures** |
| * Easy To Implement | * Difficult to Implement |
| * Single Level | * Multi Level |
| * Memory utilization is inefficient | * Memory utilization is efficient |
| * Data arrangement is in linear sequence | * Data arrangement is not sequencing |