

Data Structures & Algorithms – Short Notes

What is Data Structure?

- A way to organize and store data efficiently
- Improves performance and memory usage

Types of Data Structures

- Primitive: int, float, char, boolean
- Non-Primitive: Array, Linked List, Stack, Queue, Tree, Graph

Linear Data Structures

- Array – Fixed size, fast access
- Linked List – Dynamic size
- Stack – LIFO
- Queue – FIFO

Non-Linear Data Structures

- Tree – Hierarchical structure
- Graph – Nodes and edges

Basic Operations

- Insertion
- Deletion
- Traversal
- Searching
- Sorting

Applications

- Operating Systems
- Databases
- Web Applications
- AI & ML