

Data Structure

Modules

Module 1: Introduction to Data Structures and Algorithms

Get introduced to the fundamental concepts of data structures and algorithms in this module. Understand the importance of efficient data management and algorithmic problem-solving. Explore the basics of data structures in the context of the C programming language. This module provides a solid foundation for the rest of the **data structures and algorithms course in Lucknow**.

Module 2: Arrays and Linked Lists

Dive into the world of arrays and linked lists, two fundamental data structures. Learn their implementation, operations, and performance characteristics. Understand how to manipulate and traverse arrays and linked lists effectively. Discover the power of these **data structures in C** through hands-on exercises and practical examples.

Module 3: Stacks, Queues, and Recursion

Explore the concepts of stacks, queues, and recursion. Understand their uses and applications in various algorithms. Learn how to implement and operate stacks and queues efficiently. Dive into the power of recursion for solving complex problems. Gain practical experience through coding exercises and problem-solving challenges.

Module 4: Trees and Binary Search Trees

Delve into the world of trees and binary search trees (BST). Learn about different tree structures, traversal algorithms, and search operations. Understand the properties and characteristics of BSTs. Explore their applications in data storage and retrieval. Develop your skills through coding exercises and tree manipulation tasks.

Module 5: Graphs and Algorithms

Learn about graph theory and its applications. Explore different types of graphs and their representations. Dive into graph traversal algorithms, such as depth-first search (DFS) and breadth-first search (BFS). Understand graph algorithms like shortest path, minimum spanning tree, and topological sorting. Apply your knowledge through hands-on exercises and graph-based problem-solving challenges.