

Generalised Data Structures Library

Technology: C++ Programming

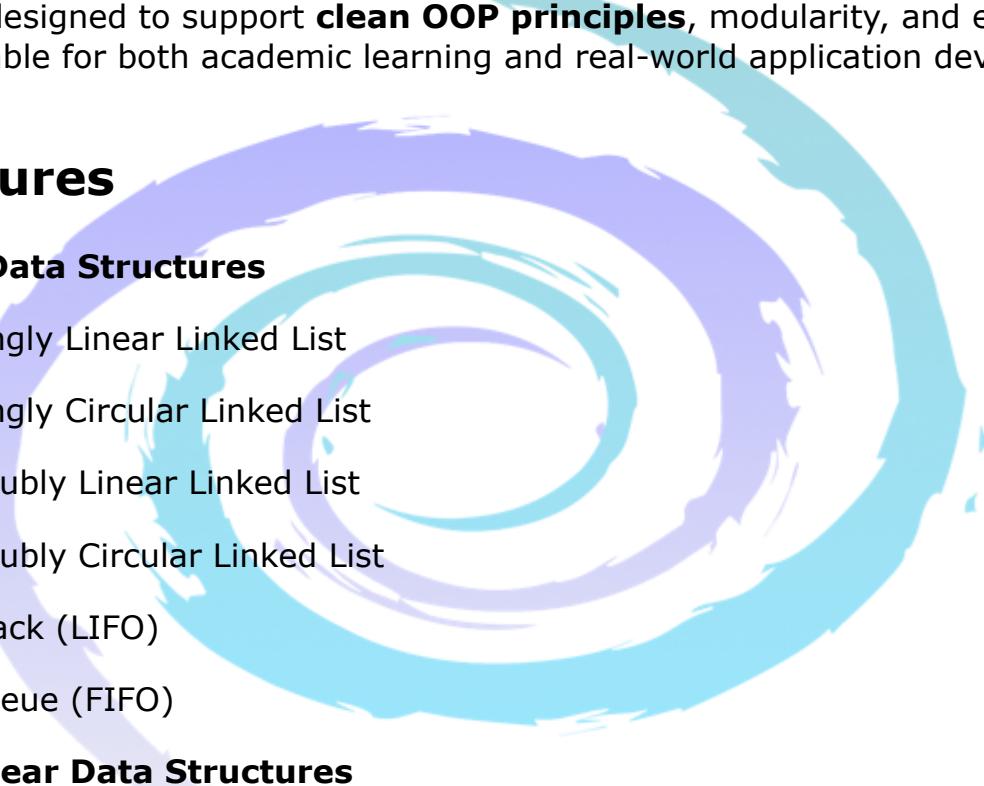
Project Overview

This project is a **C++ library of generic data structures** that provides **object-oriented implementations** of both **linear and non-linear data structures**.

It offers **ready-to-use functionalities** for fundamental as well as advanced operations, designed in a **generic way** using templates so that they can be reused with **any data type**.

The library is designed to support **clean OOP principles**, modularity, and extensibility—making it suitable for both academic learning and real-world application development.

Key Features

- 
- **Linear Data Structures**
 - Singly Linear Linked List
 - Singly Circular Linked List
 - Doubly Linear Linked List
 - Doubly Circular Linked List
 - Stack (LIFO)
 - Queue (FIFO)
 - **Non-Linear Data Structures**
 - Binary Search Tree (BST) with insert, delete, traversal operations
 - **Algorithms**
 - Searching (Linear Search, Binary Search etc)
 - Sorting (Bubble Sort, Selection Sort, Insertion Sort etc)
 - **Generic Implementation**
 - Uses **C++ templates** for data type independence.
 - Same implementation works for integers, floats, strings, and custom objects.
 - **Library Format**
 - Designed as a reusable **C++ library** that can be linked with client applications.

Learning Outcomes

- Mastery of **C++ Object-Oriented Programming (OOP) principles.**
- Strong foundation in **linear and non-linear data structures.**
- Implementation of **generic programming with templates.**
- Practical knowledge of **searching and sorting algorithms.**
- Experience in designing **reusable libraries** for software development.

GitHub Repository

 [Generalised Data Structures Library](#)

(Replace your-username with your actual GitHub ID)

How to Present in an Interview

I built a Generalised Data Structures Library in C++ that provides object-oriented, generic implementations of all major data structures like linked lists, stacks, queues, and binary search trees, along with searching and sorting algorithms.

I used C++ templates so the library works with any data type.

The goal was to design a reusable, modular library that client applications can integrate directly.

This project strengthened my knowledge of OOP, generic programming, data structures, and reusable software design.