**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.**

**Skills Highlighted**

## **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**