

# OOP Library Project - Explanation

This document explains the basic OOP tools used in the simple Library Management project.

## 1. Class

A class is a blueprint for creating objects. In this project, we defined a class 'Book' to represent each book in the library.

## 2. Object

An object is an instance of a class. Each book added to the library is an object of the 'Book' class.

## 3. Constructor

A constructor is a special function inside a class that initializes objects when they are created. In this project, the constructor of 'Book' takes title and author as inputs.

## 4. Encapsulation

Encapsulation means keeping the data safe inside the class and controlling access through functions. Here, 'title' and 'author' are private, and we use methods like 'getTitle' and 'display' to interact with them.

## 5. Vector

A vector is a dynamic array from the C++ Standard Template Library (STL). In this project, we used 'vector' to store all the books in the library.

## 6. Looping

Loops are used to iterate through the collection of books. For example, a for loop was used to display all books in the library.

## 7. Searching

The search functionality was implemented using a loop and comparing the input title with each book's title using the 'getTitle' method.

## Conclusion

This project demonstrates how OOP concepts like classes, objects, constructors, and encapsulation can be applied in a simple C++ program for managing a library.