**OBJECT-ORIENTED PROGRAMMING**

|  |  |
| --- | --- |
| Graded Lab 2 | |
| **Topic** | Constructors, shallow copy and deep copy |
| **Objective** | To Evaluate a C++ program with a basic OOP structure |

**Task 1:**

Define a Book class with the following features:

**Attributes:** title(char \*), author(char \*), year(int), isbn (ISBN number).

**Default constructor:** Initialize the attributes with default values.

**Parameterized constructor:** Accept values for title, author, year, and isbn during object creation.

**Destructor:** Display a message indicating that the book is being destroyed.

**Copy constructor:** Create a copy of an existing book.

**Member function:**

**Getters and setter**: write separate getter and setter functions for each attribute of the book.

**deepCopy**: Implement a deepCopy function that creates a deep copy of the book, ensuring that any dynamically allocated resources (e.g., strings) are duplicated.

**shallowCopy:** Implement a shallowCopy function that creates a shallow copy of the book, sharing the same dynamically allocated resources.

**Main program:**

1. Create instances of the Book class using different constructors.
2. Display the details of each book using the display function.
3. Explore the behavior of copy construction and move construction by creating new objects based on existing ones.
4. Use the deepCopy function to create a deep copy of the book.
5. Use the shallowCopy function to create a shallow copy of the book.
6. Modify the original book and observe the behavior of the deep copy and shallow copy.

**Ensure proper error handling for cases like invalid inputs**