**Ministerul Educaţiei și Cercetării al Republicii Moldova Colegiul Universitatii Tehnice a Moldovei**

RAPORT

# Lucrarea de laborator

*Asistenta pentru OOP*

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**Lucrare de laborator**

**Tema lucrarii:** Bazele OOP

A simple laboratory work focused on the basics of Object-Oriented Programming (OOP). In this lab, students will create a basic program to manage a library of books using Python. This lab covers the fundamental concepts of classes, objects, and basic inheritance.

**Lab Title:** Simple Library Management System

**Objective:** To create a simple Library Management System using Object-Oriented Programming concepts.

## Sarcina lucrării:

1. Implement two classes: Book and Library.
2. The Book class should have attributes like title, author, and ISBN.
3. The Library class should have a list to store books and methods to add a book, remove a book, and display all books in the library.
4. The code should be uploaded to your github account, if not then make sure you’ll create one.
5. Your repository should be public.
6. You can use gitUI, fork or other programs instead of git command line.

**Codul:**

import java.util.ArrayList;

class Book {

private String title;

private String author;

private String ISBN;

public Book(String title, String author, String ISBN) {

this.title = title;

this.author = author;

this.ISBN = ISBN;

}

public String getTitle() {

return title;

}

public String getAuthor() {

return author;

}

public String getISBN() {

return ISBN;

}

@Override

public String toString() {

return "Title: " + title + ", Author: " + author + ", ISBN: " + ISBN;

}

}

class Library {

private ArrayList<Book> books;

public Library() {

this.books = new ArrayList<>();

}

public void addBook(Book book) {

books.add(book);

}

public void removeBook(Book book) {

books.remove(book);

}

public void displayBooks() {

System.out.println("Books in the Library:");

for (Book book : books) {

System.out.println(book);

}

}

}

public class App {

public static void main(String[] args) {

// Creating instances of Book and Library

Book book1 = new Book("The Catcher in the Rye", "J.D. Salinger", "978-0-316-76948-0");

Book book2 = new Book("To Kill a Mockingbird", "Harper Lee", "978-0-06-112008-4");

Library library = new Library();

// Adding books to the library

library.addBook(book1);

library.addBook(book2);

// Displaying all books in the library

library.displayBooks();

// Removing a book from the library

library.removeBook(book1);

// Displaying updated list of books in the library

library.displayBooks();

}

}

## Concluzie:

## Această lucrare a explorat Programarea Orientată pe Obiect în Java prin implementarea claselor Book și Library. Experiența practică a evidențiat beneficiile encapsulării și relațiilor între obiecte. Proiectul de gestionare a bibliotecii ilustrează eficienta și extensibilitatea conceptelor OOP, oferind o bază solidă pentru dezvoltarea software-ului coeziv și ușor de întreținut.