Payoda-Phase2 – Day7 (07-08-23)

C#

Task 1: Create a C# program to model a simple Library Management System in continuation to the previous assignment, using classes, objects, and interfaces to demonstrate polymorphism. Design classes for "Book" and "Library" with the following properties and methods:

Book.cs:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SampleProgram
{
    class Book : ILendable
    {
        private readonly int bookId;
        private string title;
        private string author;
        private bool isAvailable;

        public Book(int bookId, string title, string author, bool isAvailable)
        {
            this.bookId = bookId;
            this.title = title;
            this.author = author;
            this.isAvailable = isAvailable;
        }

        public int BookId => bookId;

        public string? Title { get => title; set => title = value; }
        public string? Author { get => author; set => author = value; }
        public bool IsAvailable { get => isAvailable; set => isAvailable = value; }

        public void DisplayDetails() {
            Console.WriteLine( BookId + "  " + Title + "  " + Author + "  " +
IsAvailable);
        }

        public  static void LendItem(string title) {
            int count = 0;
            foreach (Book i in Library.book)
            {
                if (i.Title.ToLower().Equals(title.ToLower()))
                {
```

```
                    i.IsAvailable = false;
                    Console.WriteLine("Borrowed");
                    count++;
                }
            }
            if (count == 0) { Console.WriteLine("Book not Available"); }
        }
    }
}
```

Library.cs:

```
using System;
using System.Collections;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SampleProgram
{
    class Library
    {
        public static ArrayList book = new ArrayList();

        public void BorrowBook(string title)
        {
            Book.LendItem(title);
        }
        public void ReturnBook(string title)
        {
            foreach (Book i in book)
            {
                if (i.Title.Equals(title))
                {
                    i.IsAvailable = true;
                    Console.WriteLine("Returned");
                }
            }

        }
        public void DisplayBookDetails()
        {
            foreach (Book i in book)
            {
                Console.WriteLine("Title :" + i.Title + " Author :" + i.Author + "
Availablity " + i.IsAvailable);
            }
        }
    }
}
```

Ilendable.cs:

```
using System;
using System.Collections.Generic;
```

```
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace SampleProgram
{
    internal interface ILendable
    {
        public abstract static void LendItem(string title);
    }
}
```

Program.cs:

```
using System;
using SampleProgram;
using System.Collections;


namespace SampleProgram
{
    class Program
    {
        static void Main(string[] args)
        {

            Book book1 = new(101, "The Love", " Sanjai", true);
            Book book2 = new(102, "The Thunder", "Harsha", true);
            Book book3 = new(103, "The Avenger", "Yogi", false);
            Book book4 = new(104, "Infinity Wars", "JK", true);

            Library.book.Add(book1);
            Library.book.Add(book2);
            Library.book.Add(book3);
            Library.book.Add(book4);

            Library library = new Library();
            int choice = 0;
            while (choice != 4)
            {
                Console.WriteLine("Choose the option\n1.Borrow Book\n2.Return
Book\n3.Display Books\n4.Exit");
                choice = Convert.ToInt32(Console.ReadLine());
                if (choice == 1)
                {
                    Console.WriteLine("Enter the title of the book to borrow");
                    string title = Console.ReadLine();
                    Console.WriteLine(title);
                    library.BorrowBook(title);
                }
                else if (choice == 2)
                {
                    Console.WriteLine("Enter the title of the book to return");
                    string title = Console.ReadLine();
                    library.ReturnBook(title);
                }
                else if (choice == 3)
```

```
                {
                    library.DisplayBookDetails();
                }
                else if (choice == 4)
                {
                    break;
                }


            }
        }
    }
}
```

Output: