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//CIS 200-01
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// File: LibraryItem.cs
// This file creates a simple LibraryItem abstract class capable of tracking
// and passing the item's title, author, publisher, copyright year, call number,
// and checked out status.
// LibraryItem HAS-A LibraryPatron (when the book is checked out)

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

public abstract class LibraryItem
{
    public const int DEFAULT_YEAR = 2015; // Default copyright year

    private String _title;           // The library item's title
    private String _publisher;       // The library item's publisher
    private int _copyrightYear;      // The library item's year of copyright
    private int _loanPeriod;         // The library item's loan period
    private String _callNumber;      // The library item's call number in the library
    private bool _checkedOut;        // The library item's checked out status
    private LibraryPatron _patron;   // The person that has the book checked out (null
otherwise)

    // Precondition: None
    // Postcondition: The library book has been initialized with the specified
    //                 values for title, publisher, copyright year, and
    //                 call number. The book is not checked out.
    public LibraryItem(String theTitle, String thePublisher,
        int theCopyrightYear, int theLoanPeriod, String theCallNumber)
    {
        // Establish default first in case invalid
        CopyrightYear = DEFAULT_YEAR;

        Title = theTitle;
        Publisher = thePublisher;
        CopyrightYear = theCopyrightYear;
        LoanPeriod = theLoanPeriod;
        CallNumber = theCallNumber;

        ReturnToShelf(); // Make sure book is not checked out
    }

    public String Title
    {
        // Precondition: None
        // Postcondition: The title has been returned
        get
        {
            return _title;
        }
    }
}
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        // Precondition: None
        // Postcondition: The title has been set to the specified value
        set
        {
            _title = value;
        }
    }

    public String Publisher
    {
        // Precondition: None
        // Postcondition: The publisher has been returned
        get
        {
            return _publisher;
        }

        // Precondition: None
        // Postcondition: The publisher has been set to the specified value
        set
        {
            _publisher = value;
        }
    }

    public int CopyrightYear
    {
        // Precondition: None
        // Postcondition: The copyright year has been returned
        get
        {
            return _copyrightYear;
        }

        // Precondition: value >= 0
        // Postcondition: The copyright year has been set to the specified value
        set
        {
            if (value >= 0)
                _copyrightYear = value;
            else
                throw new ArgumentOutOfRangeException("Copyright Year", value, "Copyright
Year must be greater than 0");
        }
    }

    public int LoanPeriod
    {
        // Precondition: None
        // Postcondition: The loan period is returned
        get
        {
            return _loanPeriod;
        }

        // Precondition: value >=0
        // Postcondition: The loan period has been set to the specified value

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        set
        {
            if (value >= 0)
                _loanPeriod = value;
            else
                throw new ArgumentOutOfRangeException("LoanPeriod", value, "LoanPeriod
must be greater than 0");
        }
    }

    public String CallNumber
    {
        // Precondition: None
        // Postcondition: The call number has been returned
        get
        {
            return _callNumber;
        }

        // Precondition: None
        // Postcondition: The call number has been set to the specified value
        set
        {
            _callNumber = value;
        }
    }

    public LibraryPatron Patron
    {
        // Precondition: IsCheckedOut() == true
        // Postcondition: The patron that has an item checked out is returned
        // (otherwise null)
        get
        {
            return _patron;
        }

        // HELPER - not public
        // Precondition: None
        // Postcondition: The associated patron value is stored
        private set
        {
            _patron = value;
        }
    }

    //Abstract Method CalcLateFee
    //Precondition: daysLate must be greater than 0
    //Postcondition: The fee calculated for the returned item
    public abstract decimal CalcLateFee(int daysLate);

    // Precondition: None
    // Postcondition: The item is checked out by thePatron
    public void CheckOut(LibraryPatron thePatron)
    {
        _checkedOut = true;
        Patron = thePatron;
    }

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// Precondition: None
// Postcondition: The item is not checked out (by any patron)
public void ReturnToShelf()
{
    _checkedOut = false;
    Patron = null; // No longer associated with anyone
}

// Precondition: None
// Postcondition: true is returned if the book is checked out,
//                otherwise false is returned
public bool IsCheckedOut()
{
    return _checkedOut;
}

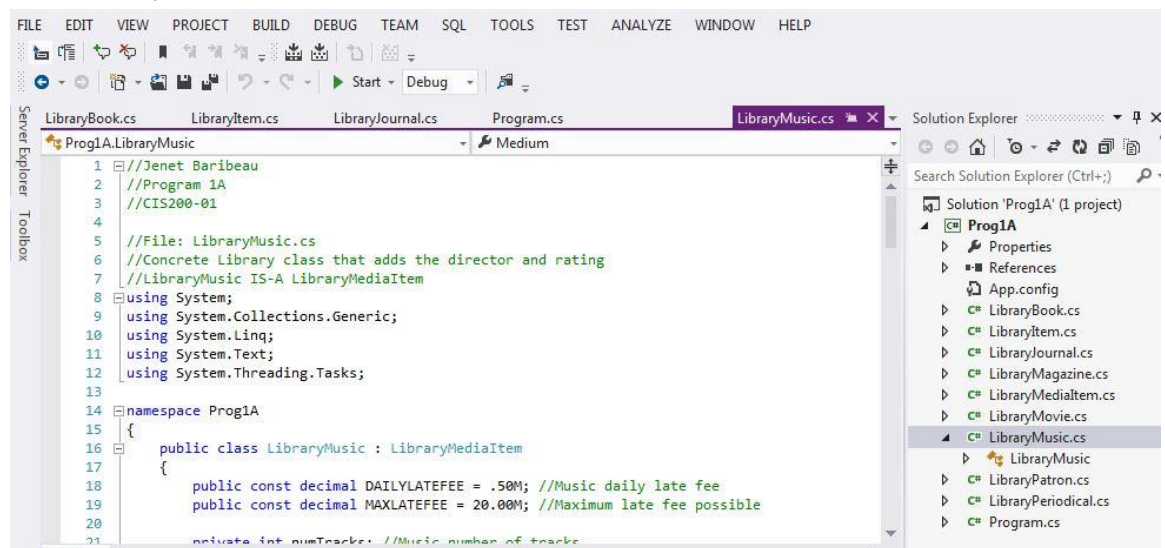
// Precondition: None
// Postcondition: A string is returned presenting the library item's data on
//                separate lines
public override string ToString()
{
    String result; // Holds for formatted results as being built

    result = String.Format("Title: {0}{5}Author: {1}{5}Publisher: {2}{5}" +
        "Copyright: {3}{5}Call Number: {4}{5}",
        Title, Publisher, CopyrightYear, CallNumber, System.Environment.NewLine);

    if (IsCheckedOut())
        result += String.Format("Checked Out By: {1}{0}", Patron,
System.Environment.NewLine);
    else
        result += "Not Checked Out";

    return result;
}

```



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}
}

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