

```

public static void main(String[] args)
{
    Book theBook = new Book("A Tale of Two Cities", "Dickens", 1);
    Copy theCopy = new Copy(theBook);
    LibMember theLibMember = new LibMember();

    if (theLibMember.borrow(theCopy))
        System.out.println("successfully borrowed");
    else System.out.println("Borrowing failed!");
}

class LibMember
{
    private String memberID;
    private String name;
    private String address;
    private int numberBooksBorrowed = 0; // or, initialized to zero in constructor

    private bool okToBorrow()
    {
        return numberBooksBorrowed < Constants.MAX_BOOKS;
    }

    public bool borrow(Copy aCopy)
    {
        if okToBorrow()
            return aCopy.borrow2();
        else return false;
    }
}

class Copy
{
    private Book book;
    private int copyID;

    Copy(Book b)
    {
        book = b;
        // code for generating copyID
        book.incrementNumberCopiesOnShelf() // other designs are possible: e.g., static
    }

    public bool borrow2()
    {
        return book.borrowed();
    }
}

// The given design has navigability from Copy to Book (not the other way): Copy
// maintains info about Book.
// No way for a given Book to find all of its own copies. To find how many copies a
// given book has, we will
// have to loop over all copies of all books, checking whether a copy belongs to the
// given book.

```

```
class Book
{
    private int numberCopiesOnShelf = 0; // it's possible that all copies are lost or
    out on loan
    private String Title;
    private String Author;
    private int edition;

    Book(String title, String author, int ed)
    {
        Title = title;
        Author = author;
        edition = ed;
        Copy c = new Copy(this); // c unused
    }

    public bool borrowed()
    {
        if (numberCopiesOnShelf > 0)
        {
            numberCopiesOnShelf--;
            return true;
        }
        else return false;
    }

    public void returned()
    {
        incrementNumberCopiesOnShelf();
    }

    public void incrementNumberCopiesOnShelf()
    {
        numberCopiesOnShelf++;
    }
}

public class Constants
{
    public static final int MAX_BOOKS = 6;
}
```