

LU07.L01 - Bibliothek

customer.py

```
""" Provides the class Customer for the Library application."""

class Customer:
    """
    Defines a customer of our library who,
    * borrows [ borrow_book_by_title() ] or
    * returns [ bring_back_book() ]
    a book.
    Each customer may only borrow one book at a time.

    Attributes
    -----
    name: str
        The full name of this customer.
    reminded: bool (Default: false)
        Has this customer been reminded to return an overdue book.
    librarian: Librarian
        A reference to a librarian of our library.
    book: Book (Default: None)
        The book currently borrowed by this customer. None=no book
    borrowed
    """

    def __init__(self, name, librarian, library):
        """
        Creates a customer object, sets the reference to the librarian
        and registers the client with the library.
        :param name: Full name of this customer.
        :param librarian: A reference to the librarian.
        :param library: A reference to the library.
        """
        self._name = name
        self._reminded = False
        self._librarian = librarian
        self._book = None
        library.add_customer(self)

    def __str__(self):
        """
        Gibt den Namen des Kunden aus.
        """
        return f'Kunde: {self.name}'
```

```
def borrow_book_by_title(self, title):
    """
    Borrows a book identified by the title from the librarian.
    If the book is available, the reference to the book will be
    set.
    Otherwise, an error message is printed.

    :param title: The title of the book.
    """
    self._book = self._librarian.lend_book_by_title(title)
    if self._book is not None:
        print(f'{self.name} hat das Buch "{self.book.title}"
erhalten.')

def bring_back_book(self):
    """
    Returns the book to the librarian.
    The reference to the book will be set to None.
    """
    print(f'{self.name} hat das Buch "{self.book.title}"
zurückgebracht')
    self._librarian.take_back_book(self._book)
    self._book = None

@property
def name(self):
    """
    Gets the name of this customer.
    :return: Name des Kunden
    """
    return self._name

@property
def book(self):
    """
    Gets the name of the borrowed book.
    :return: Referenz zum ausgeliehenen Buch
    """
    return self._book

@property
def reminded(self):
    """
    Gets the status of the reminder.
    :return: Status der Mahnung true/false
    """
    return self._reminded

@reminded.setter
```

```
def reminded(self, value):
    """
    Sets the status of the reminder.
    """
    self._reminded = value
```

librarian.py

```
""" Provides the class Librarian for the Library application."""
from book import Book
from library import Library

class Librarian:
    """
    Defines the librarian, who:

    * buys new books, buy_new_book(...)
    * lends books to the customer, lend_book_by_title(...)
    * takes back the books, take_back_book(...)
    * reminds overdue customers, remind_customer(...)
    * removes books from the library, remove_book(...)

    Attributes
    -----
    name: str
        The full name of the librarian.
    library: Library
        A reference to the library this librarian works for.
    """

    def __init__(self, name, library):
        """
        Creates the librarian-object with his name
        and a reference to the library.
        :param name: The full name of this librarian.
        :param library: A reference to the library.
        """
        self._name = name
        self._library = library

    def buy_new_book(self, title, isbn):
        """
        Creates a new book with the title and ISBN-number to the
        library.
        Adds this book to the library and saves the location (shelf).
        :param title: The title of the new book.
        :param isbn: The ISBN-number of the new book.
        """
```

```
book = Book(title, isbn)
book.location = self._library.add_book(book)

def lend_book_by_title(self, title):
    """
    Lends the book with the specified title to a customer.
    If no book with this title is available, it prints a message.
    :param title: The title of the requested book.
    :return: book-object or None=not found
    """
    book = self._library.search_book_by_title(title)
    if book is None:
        print('Das angefragte Buch ist nicht vorhanden')
    else:
        location = book.location
        book = self._library.lend_book(location)
    return book

def take_back_book(self, borrowed_book):
    """
    Takes back a book and returns it to the library.
    :param borrowed_book: The book given back by the customer.
    """
    self._library.reselve_book(borrowed_book)

def remove_book(self, title):
    """
    Removes the book with the specified title from the library.
    :param title: The title of the book to be removed
    :raise: LookupError when there is no book with the specified
title.
    """
    print(f'\n--\n entferne Buch "{title}"')
    book = self._library.search_book_by_title(title)
    self._library.remove_book(book)

def remind_customer(self, name):
    """
    Reminds a customer, that a book is overdue.
    :param name: The name of the customer to be reminded.
    """
    customer = self._library.search_customer(name)
    customer.reminded = True
    print(f'Erinnerung für {name}: Dein Buch ist überfällig')
```

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