Computing

Lesson 5: Exploring OOP

KS4 Object-Oriented Programming

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Materials from the Teach Computing Curriculum created by the National Centre for Computing Education

Task 1: Investigate the program

Investigate the program using the steps below:

Question 1	Question 2	Question 3
How many books are there already in the program?	What are the names of the users?	Which variable would you use to access the library?

Task 2 - The classes in the project

Use the table below to write the names of the classes in the project, and each of their attributes and methods - *You do not need to add getters and setters to the table.*

Class name	Attributes	Methods

Task 3: Modifying the project

Next I would like you to modify the project.

1. Add a new user to the **main.py** file
   a. Use your own details.

Use the table on the right to plan the attributes for the new user

User name	
User Email	

Task 3: Modifying the project

2. Add two new books to the library - of your choice - along with the relevant information

Use this table to plan the details you will add.

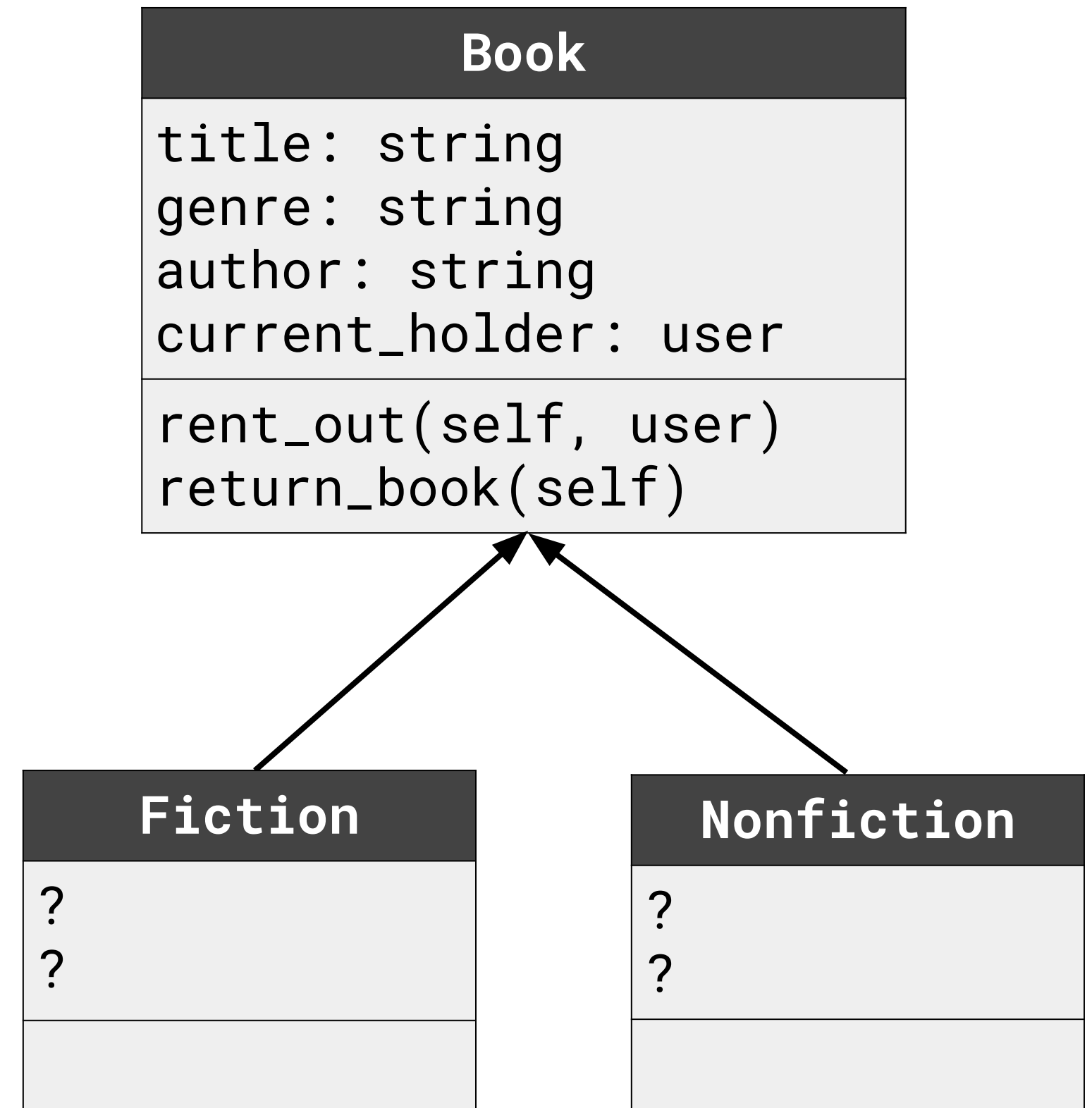| Book title	Book genre	Book author

Task 3: Modifying the project

3. The library wants to test the "check out" functionality, using the methods on each of the books you must…

   a. Rent out "The Fault in Our Stars" to Jakob.

   b. Rent out "The Hunger Games" to Jane.

   c. Rent out one of **your new books** to **your user**.

Task 4 - Adding to the library

1. Add a new subclass of the Book class
2. It can be either
   a. Fiction
   b. Nonfiction
3. Add two new attributes, of your choice
4. Create getters and setters for your new attributes.

```
Book
title: string
genre: string
author: string
current_holder: user

rent_out(self, user)
return_book(self)
```

```
Fiction
?
?

```

```
Nonfiction
?
?

```

Task 4 - Adding to the library

Test your new subclass!

1. Add a new book to the main.py program, using your subclass
2. Add it to the library
3. Rent the book out to one of the users
4. Display the library with your new book in it

Book
title: string genre: string author: string current_holder: user
rent_out(self, user) return_book(self)

Fiction
? ?

Nonfiction
? ?