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Task: 01

### 1. **Class Definition (**Book**)**:

In Python, a **class** is a blueprint for creating objects. In this case, the Book class models the essential features of a book in a library system. Each book has a **title**, an **author**, and an **availability status**. The system allows users to borrow or return books, updating their availability accordingly.

### 2. **Attributes**:

* **Title**: This attribute stores the name of the book (e.g., " A good day to die"). It's a key identifier that allows the system to differentiate between various books.
* **Author**: This stores the name of the author who wrote the book (e.g., " A good day to die").
* **Availability Status**: This attribute is a Boolean value, either True or False. Initially, every book is available (True). Once a book is borrowed, its status changes to unavailable (False). When returned, the status reverts to available.

### 3. **The** \_\_init\_\_ **Method**:

This method is called the **constructor** in Python. It initializes the attributes of a new Book object. When you create a new book, you need to provide its title and author, and the constructor will set the availability to True by default.

### 4. **The** borrow() **Method**:

This method allows a library member to borrow a book if it's available.

* If the book is available, the method updates the availability status to False (indicating it’s borrowed), and prints a message to confirm the borrowing.
* If the book is already borrowed (availability is False), the method informs the user that the book is unavailable, preventing the book from being borrowed twice simultaneously.

### 5. **The** return\_book() **Method**:

This method allows a library member to return a borrowed book.

* If the book is currently borrowed, the method updates the availability status back to True, indicating that the book can now be borrowed again.
* If the book was not borrowed, the method informs the user that there’s no need to return the book.

### 6. **The** display\_status() **Method**:

This method prints out the current status of the book. It displays the book's title, author, and availability (either "Available" or "Not Available"). This gives a clear summary of the book's current state to the user.

### 7. **Creating Book Objects**:

After defining the Book class, we create several Book objects, each with different titles and authors. These objects represent individual books in the library.

### 8. **Borrowing and Returning Books**:

Once the book objects are created, we can demonstrate the borrowing and returning actions by calling the respective methods. We first check the status of each book, borrow or return it, and then check the status again to see the change.

### 9. **Example Output**:

The program will print details about the books before and after borrowing or returning them. For example:

* Before borrowing: “A good day to die" by Jim Harrison is available.
* After borrowing: “To Kill a Mockingbird" by Harper Lee not available.
* After returning: “Die Twice" by Simon Kernick is available again.

This system illustrates basic **Object-Oriented Programming (OOP)** concepts such as classes, objects, instance variables, and methods, and how they work together to model real-world entities like books in a library system.