Python Exam

Part 2

Classes and File Reading

Create a class called Book in a file called book.py
The class Book should have the following instance variables:

- title – the title of the book.
- author – the author of the book.
- genre – the genre of the book (e.g., Fiction, Non-fiction).
- checked_out – a boolean indicating whether the book is currently checked out (default is False if the user does not provide a value).

The Book class should have the following methods:

- __init__ – initializes the title, author, genre, and checked_out (optional).
- __str__ – returns a string in the format:
  "title by author (genre): is_checked_out".
  For example: "1984 by George Orwell (Fiction): False".
- check_out – changes checked_out to True. If the book is already checked out, print: "This book is already checked out."
- return_book – changes checked_out to False. If the book is not checked out, print: "This book is not currently checked out."
- get_title – returns the book's title.
- get_author – returns the book's author.
- get_genre – returns the book's genre.
- is_checked_out – returns the value of checked_out.

1. **Create a file called book_tester.py that reads in the file books.txt**
   The file books.txt contains data for 5 books. Each line of the file contains the title, author, and genre of a book. Note that checked_out is not part of the file. The default value for each book should be False. In Python true is True and false is False. Each value is separated by a comma. When reading in the file and splitting the data, you don't want to split on whitespace. You should split on a comma. Use:
   line.split(",")

2. Read the file and create five Book objects using the data. Store the five Book objects in a list called books. Print out each Book object as you create it.
3. Call the following methods on the first book: get_title(), get_author(), get_genre(), and is_checked_out().
   Example:
   books[0].get_title() # Output: To Kill a Mockingbird
4. **Check out and return the first book:**
   a. Call the check_out() method on the first book.
   b. Print the book object to confirm the change.
   c. Call the return_book() method on the first book.
   d. Print the book object again to confirm the change.

   (*Book class is worth 30 points and book_tester.py is worth 20 points*)

Submission

Submit exam_part1.py, book.py and book_tester.py