

## Problem Description: Book Collection Manager

**Objective:** Create a Python application that helps manage a personal book collection. The program will allow the user to add books, view their collection, and save/load the collection from a JSON file.

### Requirements:

#### 1. Data Structure:

- Use a list to store individual books.
- Each book should be represented as a dictionary with the following keys:
  - **title**: the title of the book (a string)
  - **author**: the name of the author (a string)
  - **year**: the year the book was published (an integer)
  - **genre**: the genre of the book (a string)

#### 2. Core Features:

- **Add Book**: Prompt the user to enter the title, author, year, and genre of a book, then add it to the collection.
- **View Collection**: Display all the books in the collection, with each book's details listed clearly.
- **Save to JSON**: Write the book collection to a JSON file. Ensure that existing data is not overwritten unintentionally.
- **Load from JSON**: Read the book collection from a JSON file. This should update the program's book list with the contents of the file.
- **Search Functionality**: Allow the user to search for books by title or author.
- **Remove Book**: Enable the user to remove a book from the collection by specifying its title.
- **Sort Collection**: Provide options to sort the collection by title, author, or year of publication.

#### 3. User Interface:

- The application should use a simple text-based interface in the console.
- Provide clear prompts and messages to guide the user through using the application.

#### 4. Error Handling:

- The application should handle common errors, such as entering incorrect data types or trying to load a non-existent file.

### Deliverables:

- A Python script that implements the above requirements.
- A JSON file that contains a sample book collection.

### Sample books.json file

```

[
    {"title": "To Kill a Mockingbird", "author": "Harper Lee", "year": 1960, "genre": "Fiction"},
    {"title": "1984", "author": "George Orwell", "year": 1949, "genre": "Dystopian"},
    {"title": "Pride and Prejudice", "author": "Jane Austen", "year": 1813, "genre":
"Romance"},
    {"title": "The Great Gatsby", "author": "F. Scott Fitzgerald", "year": 1925, "genre":
"Fiction"},
    {"title": "Moby Dick", "author": "Herman Melville", "year": 1851, "genre": "Adventure"},
    {"title": "One Hundred Years of Solitude", "author": "Gabriel García Márquez", "year":
1967, "genre": "Magical Realism"},
    {"title": "War and Peace", "author": "Leo Tolstoy", "year": 1869, "genre": "Historical
Fiction"},
    {"title": "The Catcher in the Rye", "author": "J.D. Salinger", "year": 1951, "genre": "Literary
Fiction"},
    {"title": "Crime and Punishment", "author": "Fyodor Dostoevsky", "year": 1866, "genre":
"Philosophical Fiction"},
    {"title": "The Hobbit", "author": "J.R.R. Tolkien", "year": 1937, "genre": "Fantasy"},
    {"title": "The Adventures of Sherlock Holmes", "author": "Arthur Conan Doyle", "year":
1892, "genre": "Mystery"},
    {"title": "Frankenstein", "author": "Mary Shelley", "year": 1818, "genre": "Science Fiction"},
    {"title": "Beloved", "author": "Toni Morrison", "year": 1987, "genre": "Historical Fiction"},
    {"title": "Brave New World", "author": "Aldous Huxley", "year": 1932, "genre":
"Dystopian"},
    {"title": "Invisible Man", "author": "Ralph Ellison", "year": 1952, "genre": "Fiction"},
    {"title": "Gone with the Wind", "author": "Margaret Mitchell", "year": 1936, "genre":
"Historical Fiction"},
    {"title": "Jane Eyre", "author": "Charlotte Brontë", "year": 1847, "genre": "Gothic Fiction"},
    {"title": "The Lord of the Rings", "author": "J.R.R. Tolkien", "year": 1954, "genre":
"Fantasy"},
    {"title": "The Grapes of Wrath", "author": "John Steinbeck", "year": 1939, "genre":
"Fiction"},
    {"title": "Slaughterhouse-Five", "author": "Kurt Vonnegut", "year": 1969, "genre": "Science
Fiction"},
    {"title": "The Chronicles of Narnia", "author": "C.S. Lewis", "year": 1950, "genre":
"Fantasy"},
    {"title": "Catch-22", "author": "Joseph Heller", "year": 1961, "genre": "Satire"},
    {"title": "The Diary of a Young Girl", "author": "Anne Frank", "year": 1947, "genre":
"Biography"},
    {"title": "Don Quixote", "author": "Miguel de Cervantes", "year": 1605, "genre": "Satire"},
    {"title": "The Handmaid's Tale", "author": "Margaret Atwood", "year": 1985, "genre":
"Dystopian"}
]

```