

Mini Project: "Personal Library"

Objective:

To create a digital representation of a personal book library where users can manage their

book collection and perform various operations on it.

1. Define the Book Object with methods:

- Properties: title, author, yearPublished, readStatus
- Methods:
 - o getSummary: Returns a string summary of the book.
 - o toggleReadStatus: Toggles the readStatus of the book using this.

2. Books Collection (Array)

Initialize an empty array library to store book objects.

3. Array Methods:

- Create functions:
 - o addBook(book): Adds a new book to the library using push().
 - o removeLastBook(): Removes the last book from the library using pop().
 - o addBookToFront(book): Adds a book to the beginning of the library using unshift().
 - o removeFirstBook(): Removes the first book from the library using shift().

4. Additional Methods:

- Create functions:
 - getAllTitles(): Uses map() to return an array of all book titles in the library.
 - getBooksByAuthor(author): Uses filter() to return books written by a specific author.

getTotalBooksPublishedBefore(year): Uses filter() and reduce() to count how many books were published before a given year.

removeBookByTitle(title): Uses splice() to remove a book with a specific title from the library.

getBooksByReadStatus(status): Uses filter() to return books based on their read status (read or unread).

getSubLibrary(start, end): Uses slice() to get a portion of the library.

Project Workflow:

1. Start by defining the book object with its properties and methods.
2. Initialize the library array.
3. Implement the array methods for managing the library.
4. Implement the additional methods to perform various operations on the library.

Bonus: You can implement user interaction using prompt and alert to allow users to manually

add, remove, or search books in their library.

Code:

```
class Book {  
  constructor(title, author, yearpublished, readstatus){  
    this.title = title;  
    this.author = author;  
    this.yearpublished = yearpublished;  
    this.readstatus = readstatus;  
  }  
  getsummary(){  
    return `Title: ${this.title}, Author: ${this.author}, yearpublished: ${this.yearpublished}`;  
  }  
}
```

```
toglereadStatus(){
    this.readstatus=!this.readstatus;
}
}

let library=[];

function addBook(book){
    library.push(book);
}

function removeLastBook(){
    library.pop();
}

function addBookToFront(book){
    library.unshift(book);
}

function removeFirstBook(){
    library.shift();
}

function getAllTitles(){
    return library.map(book => book.title);
}

function getBooksByAuthor(author){
    return library.filter(book => book.author === author);
}

function getTotalBooksPublishedBefore(year) {
    return library.filter(book=>book.yearpublished < year).reduce((acc,curr)=>acc+1, 0);
}

function removeBookByTitle(title){
```

```
const index = library.findIndex(book => book.title === title);

if(index !== -1){

return library.splice(index,1);

}

}

function getBooksByReadStatus(status){

return library.filter(book => book.readstatus === status);

}

function getSubLibrary(start, end){

return library.slice(start, end);

}

addBook({ title: "The Great Gatsby", author: "F. Scott Fitzgerald", yearPublished: 1925 });

addBook({ title: "To Kill a Mockingbird", author: "Harper Lee", yearPublished: 1960 });

addBook({ title: "Pride and Prejudice", author: "Jane Austen", yearPublished: 1813 });

removeLastBook();

addBookToFront({ title: "The Catcher in the Rye", author: "J.D. Salinger", yearPublished: 1951 });

removeFirstBook();

console.log(getAllTitles());

console.log(getBooksByAuthor("Harper Lee"));

console.log(getTotalBooksPublishedBefore(1900));

removeBookByTitle("Pride and Prejudice");

console.log(getBooksByReadStatus("read"));

console.log(getBooksByReadStatus("unread"));

console.log(getSubLibrary(1, 2));
```

OUTPUT:

▶ (2) ['The Great Gatsby', 'To Kill a Mockingbird']

▼ [{...}] ⓘ

▼ 0:

author: "Harper Lee"

title: "To Kill a Mockingbird"

yearPublished: 1960

▶ [[Prototype]]: Object

length: 1

▶ [[Prototype]]: Array(0)

0

▶ []

▶ []

▼ [{...}] ⓘ

▼ 0:

author: "Harper Lee"

title: "To Kill a Mockingbird"

yearPublished: 1960

▶ [[Prototype]]: Object

length: 1

▶ [[Prototype]]: Array(0)