Write a Java program to create a class called "🔍 Library" with a collection of books and methods to add and remove books.

Sample Solution:

Java Code:

```java
// Book.java
// Define the Book class
public class Book {
  // Private field to store the title of the book
  private String title;
  // Private field to store the author of the book
  private String author;

  // Constructor to initialize the title and author fields
  public Book(String title, String author) {
    // Assign the title parameter to the title field
    this.title = title;
    // Assign the author parameter to the author field
    this.author = author;
  }

  // Getter method for the title field
  public String getTitle() {
    // Return the value of the title field
    return title;
  }

  // Setter method for the title field
  public void setTitle(String title) {
    // Assign the title parameter to the title field
    this.title = title;
  }

  // Getter method for the author field
  public String getAuthor() {
    // Return the value of the author field
    return author;
  }
```

```
  // Setter method for the author field
  public void setAuthor(String author) {
    // Assign the author parameter to the author field
    this.author = author;
  }
}
```

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```
// Library.java
// Import the ArrayList class from the java.util package
import java.util.ArrayList;

// Define the Library class
public class Library {
  // Private field to store a list of Book objects
  private ArrayList<Book> books;

  // Constructor to initialize the books field
  public Library() {
    // Create a new ArrayList to hold Book objects
    books = new ArrayList<Book>();
  }

  // Method to add a Book to the books list
  public void addBook(Book book) {
    // Add the specified book to the books list
    books.add(book);
  }

  // Method to remove a Book from the books list
  public void removeBook(Book book) {
    // Remove the specified book from the books list
    books.remove(book);
  }

  // Method to get the list of books
  public ArrayList<Book> getBooks() {
```

```
        // Return the list of books
        return books;
    }
}
```

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```java
// Main.java

// Define the Main class
public class Main {
    // Main method, entry point of the program
    public static void main(String[] args) {
        // Create a new instance of the Library class
        Library library = new Library();

        // Create new Book objects with title and author
        Book book1 = new Book("Adventures of Tom Sawyer", "Mark Twain");
        Book book2 = new Book("Ben Hur", "Lewis Wallace");
        Book book3 = new Book("Time Machine", "H.G. Wells");
        Book book4 = new Book("Anna Karenina", "Leo Tolstoy");

        // Add the books to the library
        library.addBook(book1);
        library.addBook(book2);
        library.addBook(book3);
        library.addBook(book4);

        // Print a message to indicate the books in the library
        System.out.println("Books in the library:");
        // Iterate through the list of books in the library
        for (Book book : library.getBooks()) {
            // Print the title and author of each book
            System.out.println(book.getTitle() + " by " + book.getAuthor());
        }

        // Remove a book from the library
```

```java
        library.removeBook(book2);
        // Print a message to indicate the books in the library after removal
        System.out.println("\nBooks in the library after removing " + book2.get
        // Iterate through the updated list of books in the library
        for (Book book : library.getBooks()) {
          // Print the title and author of each book
          System.out.println(book.getTitle() + " by " + book.getAuthor());
        }
      }
    }
```

In the above class, we create an instance of the Library class and add two Book objects to the collection using the "addBook()" method. We then display the books in the 🔍 library using the "displayBooks()" method. We remove one of the books using the "removeBook()" method and display the updated collection of books in the library.

Sample Output:

```
Books in the library:
Adventures of Tom Sawyer by Mark Twain
Ben Hur by Lewis Wallace
Time Machine by H.G. Wells
Anna Karenina by Leo Tolstoy

Books in the library after removing Ben Hur:
Adventures of Tom Sawyer by Mark Twain
Time Machine by H.G. Wells
Anna Karenina by Leo Tolstoy
```

Flowchart: