Question 1
Implement in Java the following Java class diagram:

```
Library
- titles: String[]
- nbPages: integer[]
- nb: integer
- author: String[]

+ displayAll()
+ displayBook(tit: String)
+ displayBook(index: integer)
+ displayAuthorBooks(auth: String)
+ displayNumberOfBooksAuthor(auth: String) : integer
+ addBook(tit: String, nbp: integer): boolean
+ deleteBook(index: integer): boolean
+ updateTitle(index: integer, tit: String): boolean
+ getBookIndex(tit: String): integer
+ updateTitle(oldTit: String, tit: String): boolean
+ getIndexThinnestBook(): integer
+ getTitleThinnestBook(): String
+ getTitleThickestBook(): String
```

Attributes:
- titles: array of book titles
- nbPages: array of book number of pages
- nb: total number of books

Methods:
- displayAll() : Shows data of all the books.
- displayBook(tit: String) : Shows data of the book whose title is \textit{tit}
- displayBook(index: integer) : Shows data of the book whose index is \textit{index}
- displayAuthorBooks(auth: String) : Shows all the books of a given author.
- displayNumberOfBooksAuthor(auth: String) : Returns total number books of a given author otherwise -1.
- addBook(tit: String, nbp: integer): Adds a book with the provided as parameters and returns true if it succeeds, false otherwise
- deleteBook(index: integer): Removes the book whose index is the provided parameter and returns true if it succeeds, false otherwise
- updateTitle(index: integer, tit: String): Updates the title of the book whose index is provided as parameter and returns true if it succeeds, false otherwise
- getBookIndex(tit: String): returns the index of the book whose title is the provided parameter, -1 if not found
updateTitle(oldTit: String, tit: String): updates the title of the book whose title is oldTit and returns true if it succeeds, false otherwise
getIndexOfThinnestBook(): returns the index of the thinnest book
getIndexOfThickestBook(): returns the index of the thickest book
titleOfThinnestBook(): returns the title of the thinnest book
titleOfThickestBook(): returns the title of the thickest book

Question 2
Write a Java class Example, which contains a main that performs the following processing:
- Asks the user to enter the library size.
- Creates the library object.
- Asks user to enter number of books that he wants to enter.
- Reads book data from user.
- Displays all the entered data.
- Displays the data of the book whose title is “Java”.
- Displays the data of the book whose index is 0.
- Deletes the book at index 0 then display all the remaining data.
- Updates the book at index 1 with the title “C++” then display all the available data.
- Displays the index of the title “Java”.
- Updates the book whose title is “C++” with “C#” then display all the data.
- Displays the index of the thinnest book and the thickest book.
- Displays the title of the thinnest book and the thickest book.
- Displays all the books whose author is Robert Mark.
- Displays total number of book by Peter Jones.