

PROJECT REPORT

Basile Dymont and Tony Mercier

Book Management Android Application CheckBook

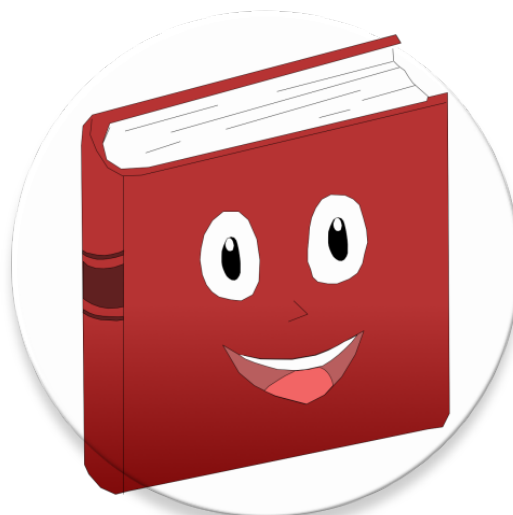


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Introduction

CheckBook is an Android application intended to the readers who have a lot of books in their personal library. This application allows to save all the books you own and organize them into different collections. You can also record many informations in CheckBook : verify if you have read the book, verify if your book is borrowed and put some personal comments about the book.

There are other extra functionalities like scan a real book and record its informations in the application.

We: Basile Dyment and Tony Mercier are the creator of this Android application. We are both student in "Université Lille 1" in "Master 1". You can join us respectively at: basile.dyment@etudiant.univ-lille1.fr and tony.mercier@etudiant.univ-lille1.fr .

The version of the software is 1.00 since this is available. We have much ideas to make the project grow. For example, we want to add a search function in the book library and in the collections.

1. Installation Manual

To install the CheckBook application, first of all you should have an Android device. It can be a smartphone or a tablet or anything using Android. The application is not yet available on IOS.

Go to download the application at this link:

<https://github.com/basaile92/checkBook/blob/master/checkBook.apk>

You can download it with your Android device. If you download it in another device, you should transfer the file to your Android device. The Android app is not yet available on the Play Store.

Before opening the APK, you should allow the "Unknown Sources". To allow it, go to "Settings>> Applications" and check the "Unknown sources" checkbox if it isn't checked.

Open the APK file. And push the Install button. Wait the installation to be finished.

You can launch the application now.

If you want to use the photo function, you have to accept when it will be asked the Photo permission.

2. User Manual

1. *The functions in the application*

- Add a book in the library

To add a book in your library, when you are in the "Book Library" tab, you should push the "Plus" button. It will open a menu with three buttons: each one is corresponding to a function:



"Plus" button



Add menu

• *Add Book by Form*

The first button is to add a book only by filling its informations. When you touch it, you are going in another page. It's a form page, you can fill the different book informations here.

Photo: touch the book picture, accept the request of camera permission and take a photo of your book.

ISBN: Fill the text field. Your ISBN should contains 13 characters and should not exist yet in your book library. **Field Required**

Title: Fill the text field. **Field Required**

Authors: Fill the text field and push the "plus" button. You can add as much author as you want. If you want to remove some, push the "pencil" button. You will have a popup which will ask you to check which author(s) you want to remove. Check it and validate to remove them. **You have to add at least minimum one author.**

Publisher: Fill the text field.

Year: Fill the text field.

Type(s): To add a new type you should push the "pencil" button. It will open a pop up which ask you to check the checkbox corresponding to the already existing types you want to add to your book. "Validate" it if you want to add the checked types. If you want to create new types or delete existing types, go to the Type Manager by pushing the button in the popup: "Create new Type". To have more informations about the Type Manager, go to the Type

Manager section in the Function of the User Manual.

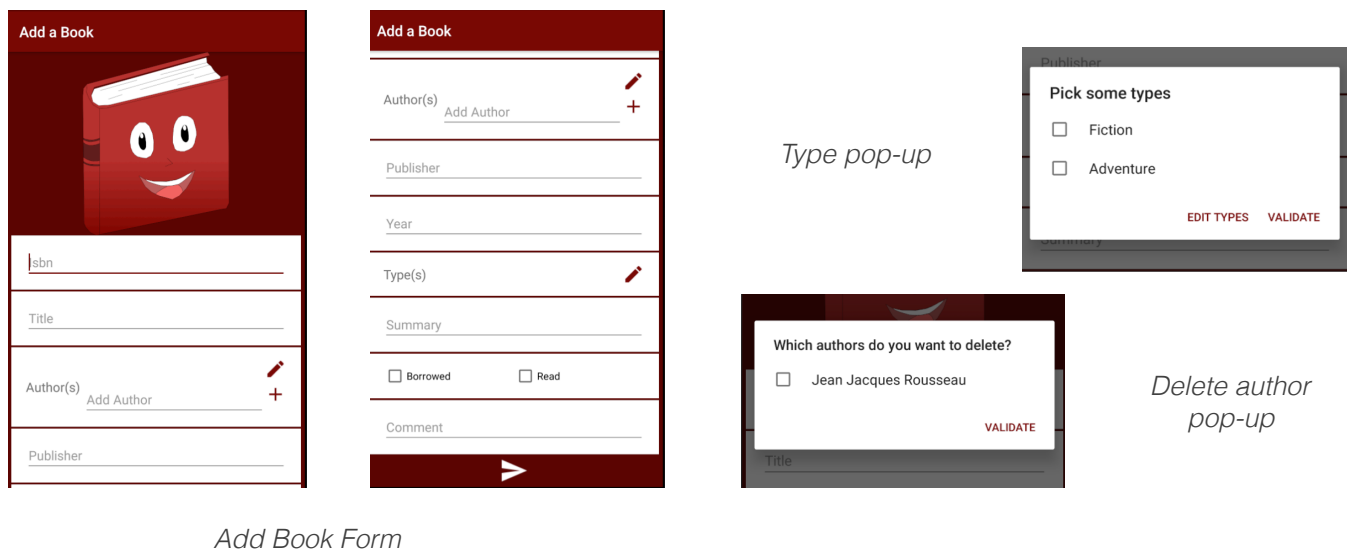
Summary: Fill the text field.

Borrowed: Check the checkbox if you lend your book.

Read: Check the checkbox if you have read this book.

Comments: Fill the text field.

When you want to finish creating your book, push the right arrow button at the bottom of the page. If you filled each fields correctly, you will come back to the "Book Library" Tab. If not you will have a error message corresponding to what you did bad.



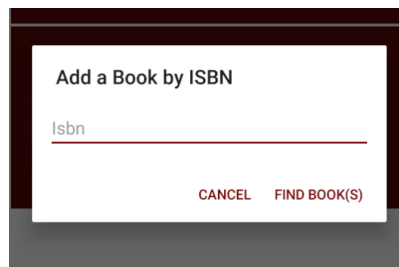
• *Add Book by ISBN by typing it*

The second button is to add a ISBN by typing it. When you touch it, a pop-up appeared and ask you to fill a text field with a ISBN. Your ISBN should contains 13 characters, it should not exist yet in your book library and it should be available in the Google Books database. If not, the pop-up will disappear and you will have a error message. If yes, the pop-up will disappear and it will be loading until your application find some book(s). When it will find, a pop-up will appear with a list of books (book main informations will be displayed: title, authors and editor) that is available for this ISBN (usually there is only one book). Touch which one you want to add to the library. There will be a loading and it will be added right after.

• *Add Book by ISBN by barcode Scanner*

The third button is to add a ISBN by scanning a barcode with your camera. When you touch it, the camera is opening and is waiting that you scan a book barcode. The ISBN will be

taken from this barcode This ISBN should contains 13 characters, it should not exist yet in your book library and it should be available in the Google Books database. If not, you will have a error message. If yes, it will be loading until your application find some book(s). When it will find, a pop-up will appear with a list of books (book main informations will be displayed: title, authors and editor) that is available for this ISBN (usually there is only one book). Touch which one you want to add to the library. There will be a loading and it will be added right after.

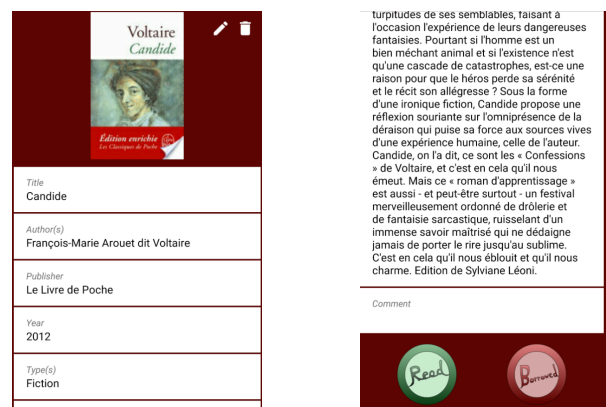


Add Book by ISBN pop-up

- Display the information of the books of your library and edit it

To display the informations of a book in your library, you should be in the "Book Library" tab. You will have there all books listed with their main informations: the photo of it, the title and the authors. Touch the book that you want to see the different informations. It will open a new page with all the informations of that book:

- Photo
- Title
- Authors
- Publisher
- Year
- Types
- Summary
- Comments



-Stamps: borrowed and read. There is a stamp if it is lend and one if it is read but no stamp at if it isn't.

There is also one pencil button and a thrash button.

Edit book

The pencil button is to edit the book you are displaying. When you touch it, you are going in another page. It's a form page, the informations about the book which are already set are filled. You can modify the different book informations here.

Photo: touch the book picture, accept the request of camera permission and take a photo of your book.

ISBN: Fill the text field. Your ISBN should contains 13 characters and should not exist yet in your book library. **Field**

Required

Title: Fill the text field. **Field Required**

Authors: Fill the text field and push the "plus" button. You can add as much author as you want. If you want to remove some, push the "pencil" button. You will have a popup which will ask you to check which author(s) you want to remove. Check it and validate to remove them. **You have to add at least minimum one author.**

Publisher: Fill the text field.

Year: Fill the text field.

Type(s): To add a new type you should push the "pencil" button. It will open a pop up which ask you to check the checkbox corresponding to the already existing types you want to add to your book. "Validate" it if you want to add the checked types. If you want to create new types or delete existing types, go to the Type Manager by pushing the button in the popup: "Create new type". To have more informations about the Type Manager, go to the Type Manager section in the Function of the User Manual.

Summary: Fill the text field.

Borrowed: Check the checkbox if you lend your book.

Read: Check the checkbox if you have read this book.

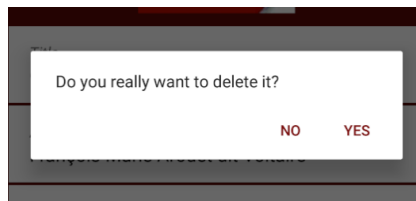
Comments: Fill the text field.

When you want to finish editing your book, push the right arrow button at the bottom of the page. If you filled each fields correctly, you will come back to the display book page of the book you are editing. If not you will have a error message corresponding to what you did bad.

The screenshot shows a 'Modify a Book' interface. At the top, there's a book cover for 'Candide' by Voltaire. Below the cover, there's a form with the following fields: ISBN (9782253094555), Title (Candide), Author(s) (François-Marie Arouet dit Voltaire), and Publisher (Le Livre de Poche). There are also buttons for 'Add Author' and a plus sign.

• Delete a book

The trash button is to delete a book. If you push it, a pop-up will appear and ask you if you want to delete the book. If yes, the book will be deleted and you will come back to the book library page, if not, the pop-up will disappear.



Delete pop-up

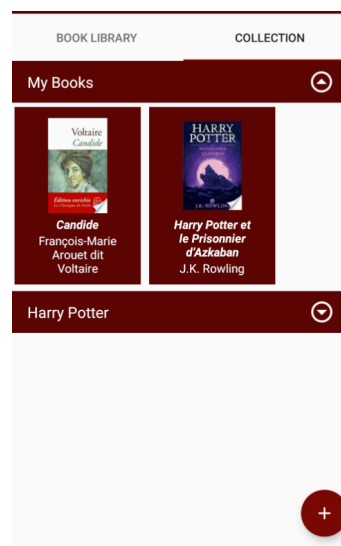
- The Type Manager

When you are in the type manager, to create a new type, you have to fill his name in the text field and push the "plus" button. Under the text field there is all type which already exist. If you want to delete one, just touch it and accept the validation pop-up which appears.



- The Collections

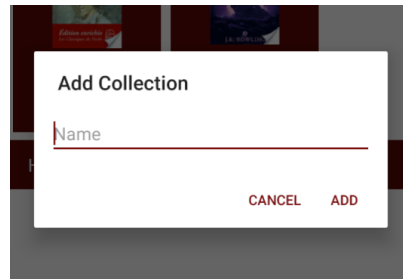
To see the different collections, you should be in the "Collection" tab. You have all Collection listed. If you want to see the content of a collection you should touch the label bar of one collection. You can swipe left to right to browse the collection.



-

Create a new collection

To create a new collection, push the "plus" button. It will open a popup where you can put the collection name and create.



*Add Collection
pop-up*

-

Collection Manager

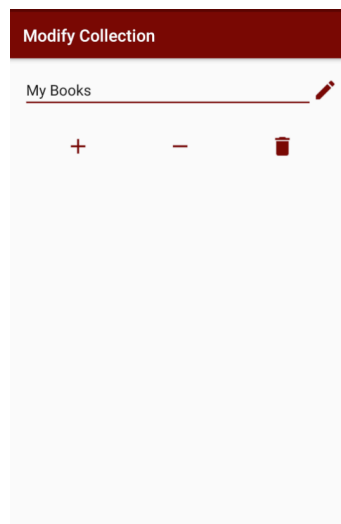
To manage one collection you should push longly the collection label of this collection.

You can change the name of the collection. You only have to replace the label in the text field and push the "pencil" button.

You can add some books to the collection by pushing the "plus" button. One pop-up will appear and will ask you to check the book that you want to add in the library. Push the button "Add" to add it in the collection.

You can remove some books from the collection by pushing the "minus" button. One pop-up will appear and will ask you to check the book that you want to add in the library. Push the button "Delete" to remove it to the collection.

You can destroy a collection by pushing the trash button. One validate pop-up will appear. Push Yes" if you want to destroy the collection



2. *The functions to add in the application*

- Make the book in the collection clickable

A function to add is to make the book clickable and show their informations. For the moment in the app, you can only watch in the book collections the main informations (Author Title Photo). We should make when we click on a book an activity change to the display of the book informations.

- Export and Import the database

An important function to add is to export and import the database. For example in some settings menu, we can export the database in a calc page. It would contains an array for all book data, one for all types, one for the link association between types and books, one for all authors, one for the collection and one for association between collection and books. It would have also in the book array all the book photo saved in hard data.

Import the CSV would parse all of these array and add to the database table all of its data. It will also save the photos in the phone memory.

3. *Some known bugs*

- Bug of the master detail

The problem is happening when you use the application in landscape view. When you are in the "Book Library" tab. You touch a book. It appears in the right. But when we want to edit this book or to delete it, the application crash. We tried to find a solution but couldn't. The only solution we found is to use the application in portrait mode.

- Bug of the comeback from the type manager

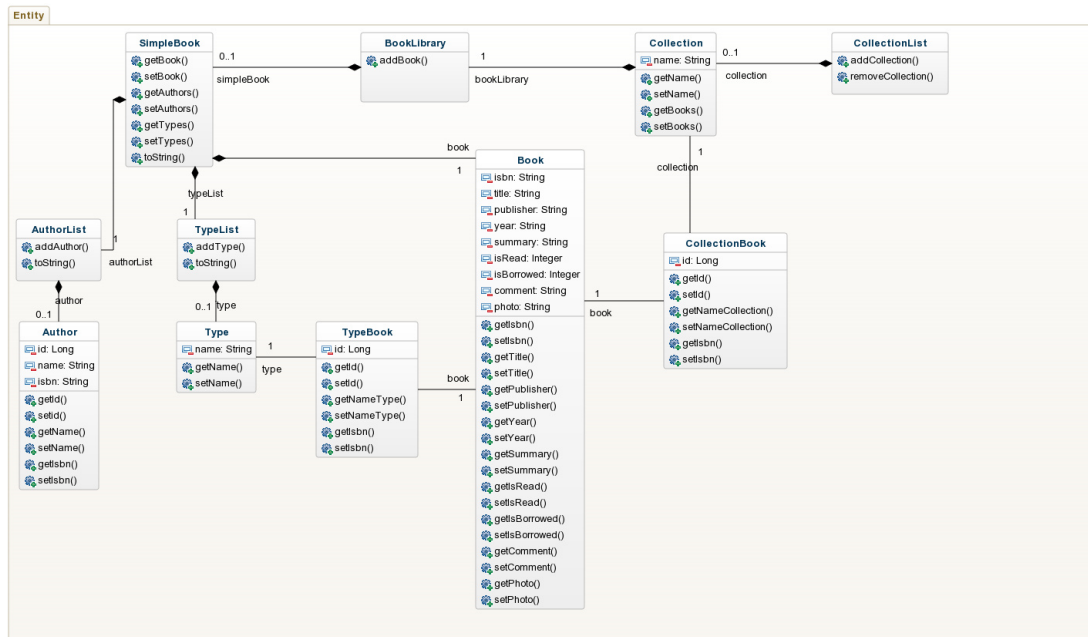
You have choose some type for your book when you create or when you modify one book and decide to change it again and to go to the Type Manager. There you delete the type that you added before. When you will come back to the previous page, the type even if it is deleted will

still be printed in the Type box but when you will save, it won't be added because the type doesn't exist anymore. It's not a big bug.

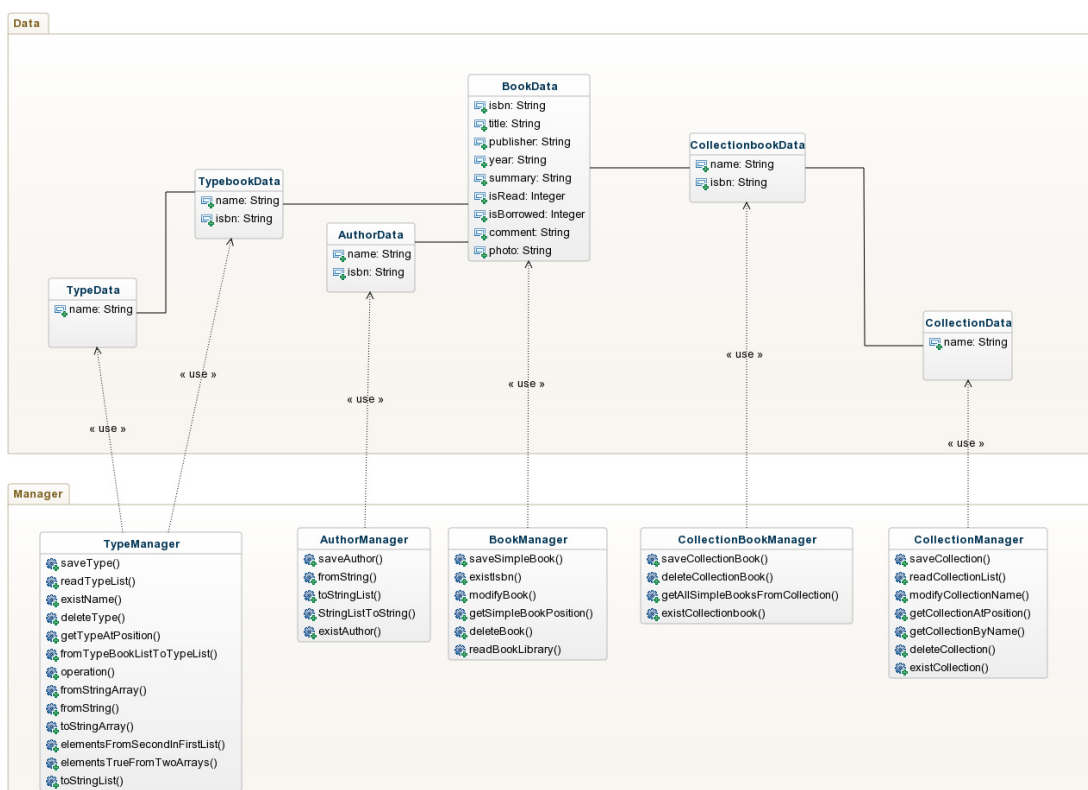
3. Service Manual

1. Project Architecture

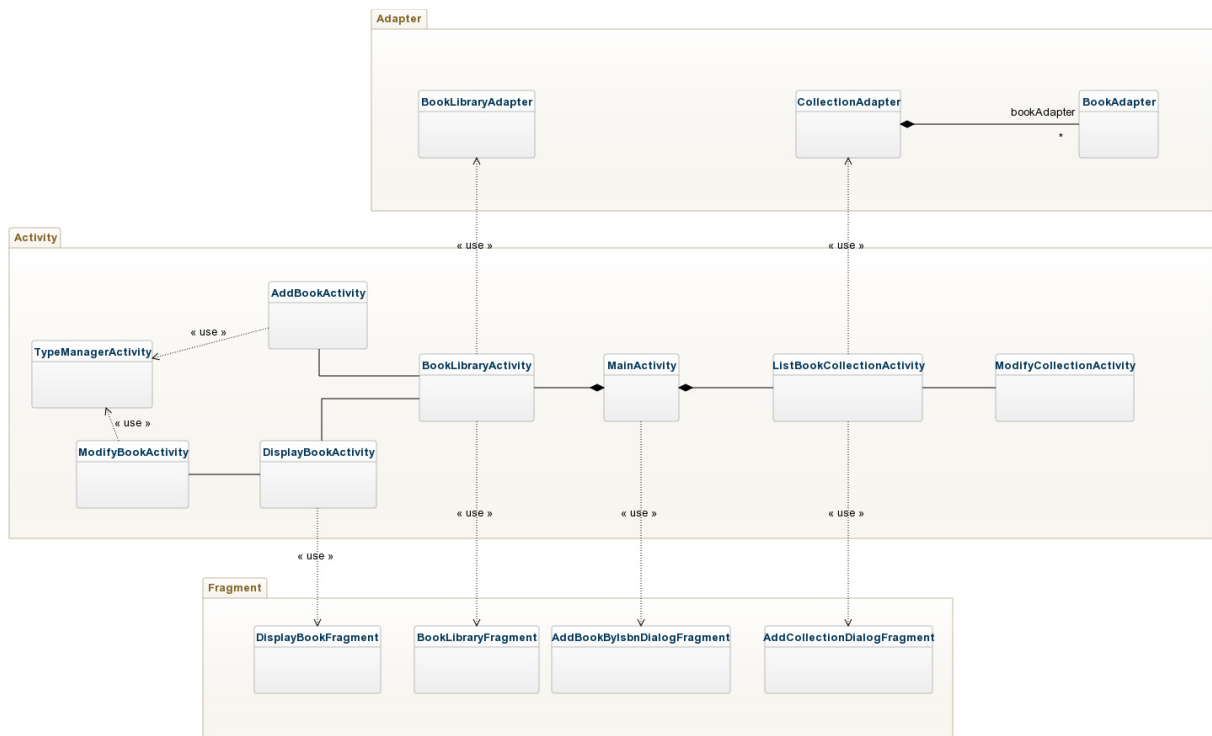
- Entities UML



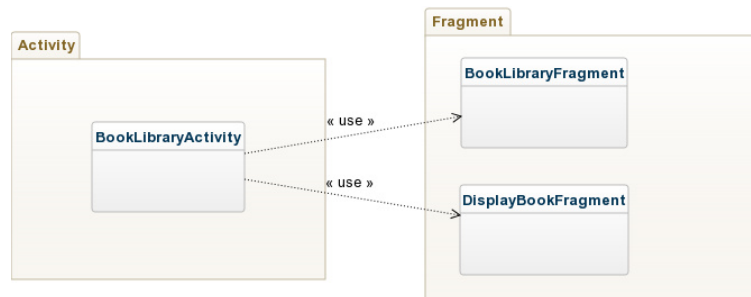
- Database UML



- Activities and Fragments UML

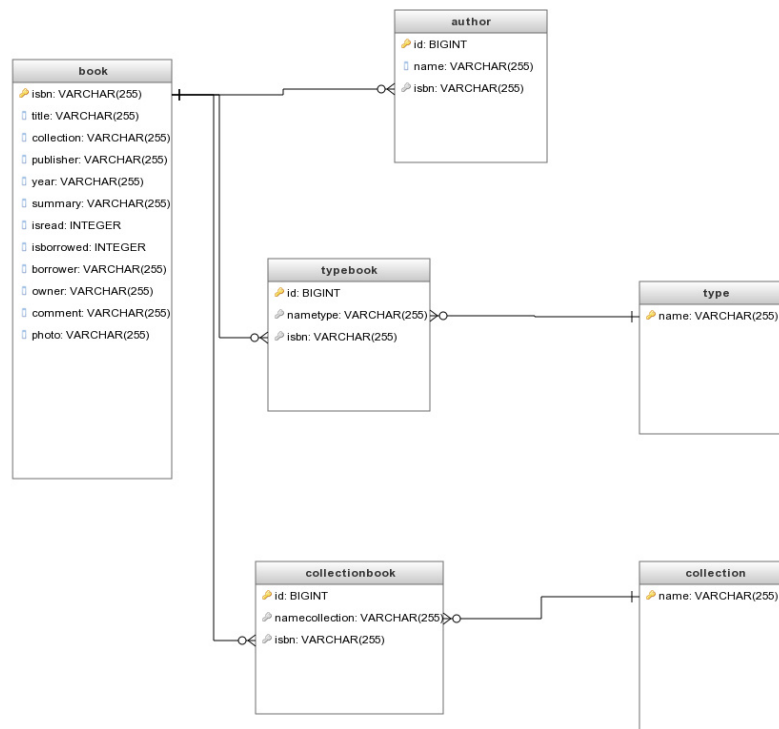


In portrait orientation



In landscape orientation

- Database



2.

Activities description

- **MainActivity:**

It contains the Tab Host with the two most important activities inside: BookLibraryActivity and CollectionActivity. The back button makes the application closed.

- **BookLibraryActivity**

Contains three buttons to add a book to the list (one is changing activity to AddBookActivity). The back button makes the application closed.

Portrait: It contains the list of all books which are saved by the user.

Landscape: It contains the list of all books which are saved by the user in the left and their description in the right. In the right there is also two buttons one to edit (which changes activity to ModifyBookActivity and finishes the current activity) and one to delete the book.

- DisplayBookActivity

Portrait: It contains the description of a book. There is also two buttons one to edit (which changes activity to ModifyBookActivity and finish the current activity) and one to delete the book. The back button changes the activity to the MainActivity and finishes current activity.

Landscape: Changes Activity directly to MainActivity and finishes current activity.

- AddBookActivity:

Portrait: It contains a form. The photo button is here to change to a photo taking activity. There is a button "Create new type" in a dialog created which lead to the TypeManagerActivity. The button in the bottom add a book in database and changes the activity to the MainActivity and finishes the current activity. book. The back button changes the activity to the MainActivity and finish current activity.

Landscape: Blocked.

- ModifyBookActivity

Portrait: It contains a form. The photo button is here to change to a photo taking activity. There is a button "Create new Type" in a dialog created which lead to the TypeManagerActivity. The button in the bottom modify the book and changes the activity to the MainActivity and finishes the current activity. book. The back button changes the activity to the DisplayBookActivity and finish current activity

Landscape: Blocked.

- TypeManagerActivity

It contains a form, a button to add the type and a list of type. Each type is a button to delete the type. The back button finishes current activity.

- ListBookCollectionActivity

It contains an Expendable list view with the name of collections and with their contents. When you touch the name of collection, it display the content of the collection and hide all of the others one. There is a button in the bottom right to create a new collection. When you push longly the name of the collection, it changes activity to the ModifyCollectionActivity and finishes the current activity. The back button closes the application.

- **ModifyCollectionActivity**

It contains a form to change the name of the collection, to add or remove books in the collection or to destroy the collection. When you type the edit button to change the name of the collection it changes activity to the MainActivity and finishes the current activity. The back button changes activity to the MainActivity and finishes the current activity

4. Development History

You can find our git project deposit here: <https://github.com/basaile92/checkBook.git>.

- 1 Activity: Booklist ,1 Activity: Add book with form, 1 Activity: Display and Modify book with form. Record of the book data in files.
- Transform the Booklist Activity and the ModifyBookActivity in Fragment.Add of a MainActivity to manage the fragments.
- Change the way to save the file: not anymore directly in a file but now in a SQLiteDatabase. Database generated with the help of GenMyModel and modified after.
- Creation of the Activity Collection Book.
- Change of all fragment system. Add of a display fragment. ModifyBookFragment become an activity ModifyBookActivity. (We don't show anymore the book description with modifyBookFragment).
- Change of AuthorManager and TypeManager in AddBookActivity. Creation of TypeManagerActivity
- Change of MainActivity which contains two activities with a TabHolder.
- Add of BookCollectionListFragment
- Add of book by scanner and by form.
- Add of ImageManager which help to download pictures and to save picture
- Add of ModifyCollectionActivity.

5. Results

We managed to implement the most important functionalities of the application. We had some problems also because there were much more functions that we wanted to add but we didn't have enough time to add all of it and we also had some problems to integrate the functions and in the same time to let the application be ergonomic. These functions are:

- The search function:

One of the most important function that we need to add to the application is the search function:

- Dynamic search bar in the "Book Library" tab which search in the description field of the book the words which are in the text field and dynamically change the library with the result of it. Two checkbox next to the search bar for Borrowed and Not Read to show the books which are not read yet and the one which are borrowed.

- Dynamic search bar in the "Collection" tab which search the collection which has its name and dynamically change the displayed collection with the result of it.

- Dynamic search bar in the "add book to the collection" pop-up to be able to add all book which has some criterion.

- Dynamic search bar in the "add type to the book" pop-up to be able to find easily the type we want to add.

- Dynamic search bar in the "type manager" pop-up to be able to find easily the type we want to remove.

- The sort function

A function that we want to add is the sort function. The possibility in the Book Library to sort by title or to sort by author and the possibility in the Collection list to sort by collection name.

- Possibility to add a book in collections when we create it

Another function we want to add is when we create a book by form, we can choose some existing collections in for example a pop-up and when we create the book, the book will be added directly to these collections.

Conclusion

During this project, we have learnt how to create an Android application. We were surprised because we thought that the most difficult part would be in the programming part but we discovered that creating an ergonomic application is even more difficult. It requires other competences. We finally made it but we can improve it.

We have learnt that participating in a big group project is difficult. We had some difficulties in the task distribution but we solved it. We've learnt to use well a group coding tool to be able to work on the project in the same time.

We have got a great experience of it and we have learnt much. If we had to do it again, we wouldn't do it in the same way. We would use a better methodology with the new experiences that we got in PJE and in GL.