

CE343 TERM PROJECT

LIBRARY MANAGEMENT SYSTEM

REQUIREMENTS DOCUMENT

2021-2022 FALL TERM

TEAM W

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1. Library Management System Description

The Library management system is designed to maintain the record of the library. The system contains the number of available items (Articles, digital items, e-journals, e-reading books, etc.) in the library. Additionally, the library management system allows the librarian to maintain library items and members.

1.1. Testing Program

The flow of the program will be explained in the following parts of the document, you can use the username/student ID and passwords registered in the database below to test the program with different user types:

	Username / Student ID	Password
Admin	alfred@alf.com	abc
Authorized Person	ceylin@ceylin.com	passwCeylin
Student	20181701057	passwHumeyra

2. Library Management System Overview

In the library management system that we have designed, there is a login screen for the staff and the student members of the library. After a successful login, different pages created for each user type. If the person logging into the system as a staff, manage digital items, manage reading books, manage e-text books, manage articles, manage e-journals, manage e-reading books, manage text books, checks items list by category, manage students, manage authorization, issue an item, return an item and back to the login page buttons will be available in the page that appears to the staff, so the user will be able to perform these operations. Since staff is divided into two different types, "admin" and "authorized person", all of these buttons will work for admin, but manage item/person buttons will be restricted for authorized person. On the other hand, for students, a page has been designed that they can see all the items in the library, see their own borrowed books and return to the login screen. To summarize, library management system is designed to allow the librarian to maintain library resources. This system is convenient for the librarian to manage the items. Library management system is also useful for students as well as a librarian to keep constant track of the availability of all books in a library.

Library management program runs with items and people list that are saved in TXT files. These lists contain all kind of item types in library and all kinds of users who saved in library management system.

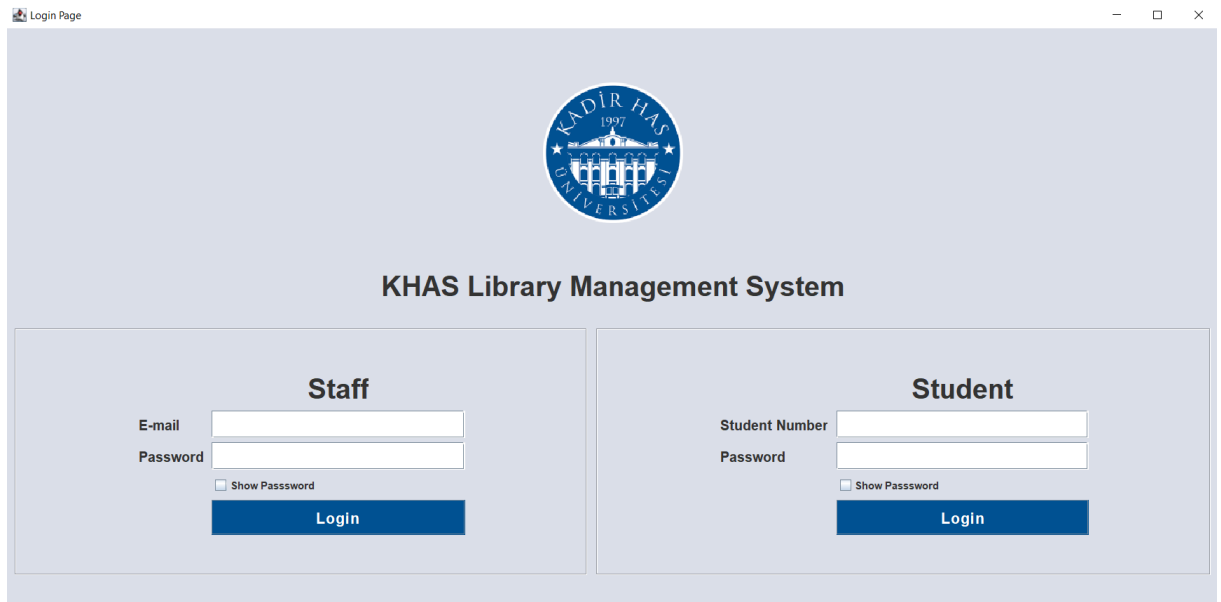
2.1. Library Management System Interfaces

2.1.1. Login Interface

Login page is created for two different user types. Staff panel is created for library staff and student panel is created for students to log in to the library management system.

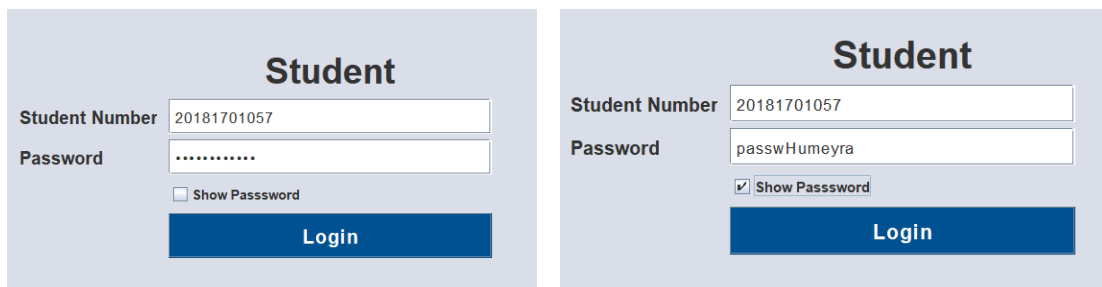
- Text fields that receive input from the user

In the staff panel, the user is expected to enter his/her e-mail address and password and for student panel, the user is expected to enter the student number and password in the relevant text fields.



- Check boxes to make the password visible

"Show Password" fields have been created so that the user can see what is typed after entering the password by clicking the checkbox.




- Login buttons that direct users to related screens

After filling the expected fields with the correct information and clicking the login button, two different screen designs were created according to two different user types. In the case, the user entered wrong information, error messages related to the situation are given on the screen. For instance, if the user leaves both text fields blank and clicks to the login button, "Please enter your e-mail and password." message will appear. In addition, in the case, the user enters any information in the text fields incorrectly, "Your e-mail or password is incorrect." or "Your student number or password is incorrect." messages will appear according to user type respectively.

Login Page

KHAS L System



Message

Please enter your e-mail and password.

OK

Staff

E-mail

Password

☐ Show Password

Login

Student

Student Number


Password

☐ Show Password

Login

Login Page

KHAS L System



Message

Your e-mail or password is incorrect.

OK

Staff

E-mail

Password

☐ Show Password

Login

Student

Student Number


Password

☐ Show Password

Login

Login Page

KHAS L System



Message

Your student number or password is incorrect.

OK

Staff

E-mail

Password

☐ Show Password

Login

Student

Student Number

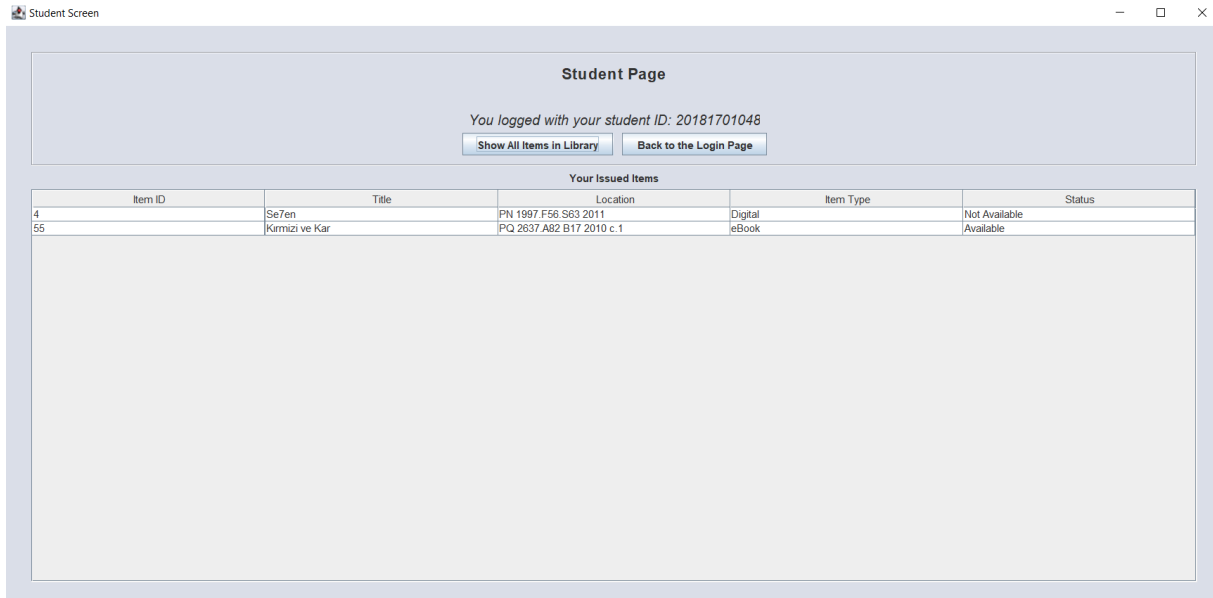
Password

☐ Show Password

Login

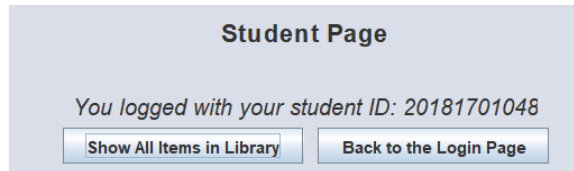
2.1.2. Library Student Interface

If the student has successfully login into the system, a label has been placed on the student page, where he can see his own student number. Buttons have been placed so that the student can see all the items in the library and return to the login screen. Also, a table has been included that allows students to see the items that he/she have been issued from the library.



- A label that displays student's ID

The label containing the text "You logged with your student ID" has been placed on the top of the page to see which student is online in the system.



- A button that lists all items in the library

The "Show All Items in Library" button has been placed so that student can see all non-issued items in the library. The page that the user encounters when clicking the button is given below.

Items Screen

Search Item

Search Title

Q

Items Table

ID	Title	Location	Item Type	Status
1	Bulanti	PQ 2637 A82 B85 2010 c.1	ReadingBook	Available
3	Kozmos	QB 44.2 S2419 2020	ReadingBook	Available
61	Ermis	PR 65.2 R5215 2004	ReadingBook	Available
75	Cesur Yeni Dünya	PQ 2538 A82 B90 2017 a.3	ReadingBook	Available
76	Korkuk	PQ 2238 B82 B10 2012 a.14	ReadingBook	Available
4	Se7en	PN 1997 F56 S63 2011	Digital	Not Available
27	Inception	PN 1997 A46 S61 2011	Digital	Available
31	The fog	PN 1995.9 H6 S57 2005 c.1	Digital	Available
74	This is England	PN 1995.9 S87 T457 2007 c.1	Digital	Available
6	Journal of network and computer applications	ONLINE	EJournal	Available
36	Defence Science Journal	ONLINE	EJournal	Available
65	Academicus	ONLINE	EJournal	Available
51	Kırmızı ve Kar	ONLINE	EReadingBook	Available
52	Albert Camus	ONLINE	EReadingBook	Available
5	Java Late Objects	ONLINE	ETextBook	Available
46	Probability and statistics for engineers and scientist	ONLINE	ETextBook	Available
69	Introduction to Compiler Construction in a Java Wor	ONLINE	ETextBook	Available
73	1984	ONLINE	ETextBook	Available
7	SpinModel	ONLINE	Article	Available
49	Personal programming and the object computer	ONLINE	Article	Available
50	Transmitter source location estimation using crowd	ONLINE	Article	Available
2	Computer Networking	TK 5105.875 I57 K87 2013 c.1	TextBook	Available
48	Introduction to programming in Python	QA 76.73 F98 S43 2015 c.3	TextBook	Available

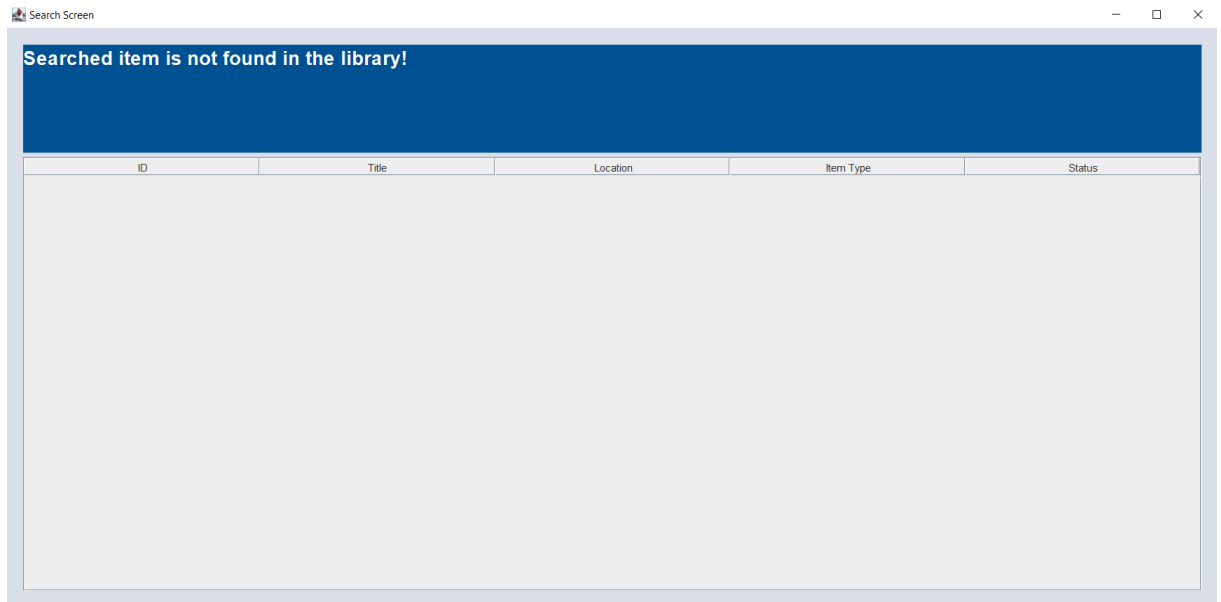
In addition, a search item field has been created on this page for the users to find the item they are looking for in the library. When the user enters the name of the item he/she is looking for in the search field and clicks the search button, there will be a new page demonstrating whether the item is found in the system.

Search Screen

Searched items are found!

Number of items found: 1

ID	Title	Location	Item Type	Status
1	Bulanti	PQ 2637 A82 B85 2010 c.1	ReadingBook	Available



- A button that return the login screen

The "Back to the Login Page" button returns the user to the login screen.

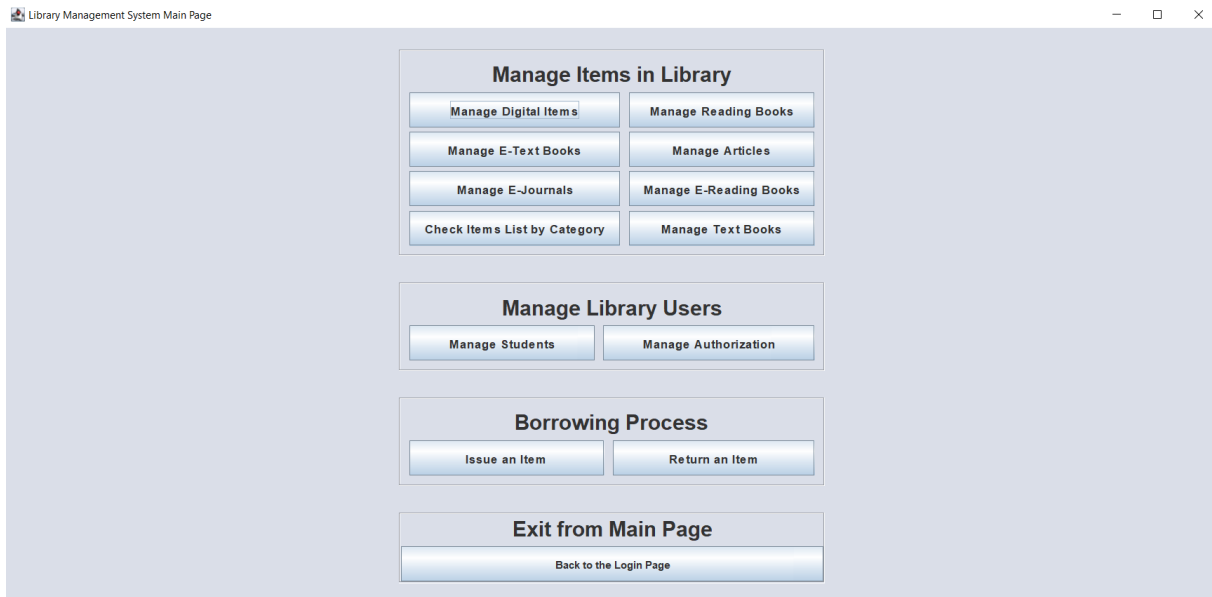
- A table that shows issued items for logged in user

In "Your Issued Items" table, the student can see the items that the he/she has borrowed and not returned to the library.

Your Issued Items					
Item ID	Title	Location	Item Type	Status	
4	Se7en	PN 1997 F56 S63 2011	Digital	Not Available	
55	Kırmızı ve Kar	PQ 2637 A82 B17 2010 c. 1	eBook	Available	

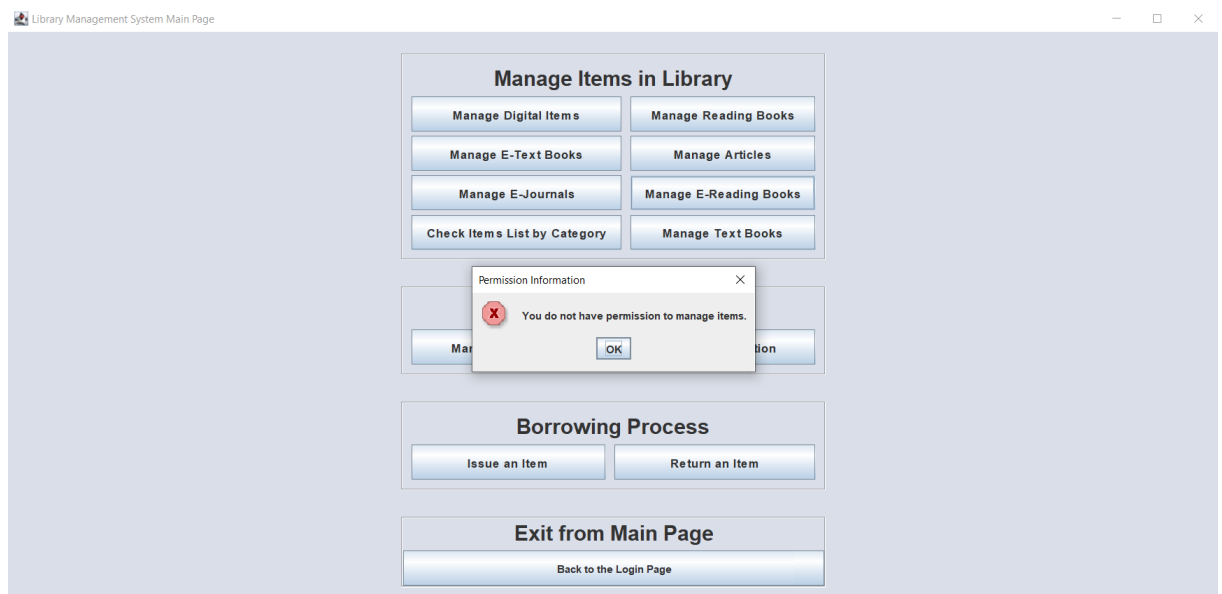
2.1.3. Library Staff Interface

If the staff has successfully login into the system, library management system main page appears. This page contains 4 separate panels for managing items in library, managing library users, borrowing process and exiting from main page. The buttons in these panels become active depending on whether the personnel are an admin or authorized person. All buttons will be active for admin, however, only check items list by category, issue an item, return an item and back to the login page buttons will be active for authorized person.



- Buttons that direct user to the related item's management page

Except for the check items list by category button, all the remaining buttons in this panel will be active only for the admin. If an authorized person clicks on buttons that does not have permission, a message will appear on the screen stating that "You do not have permission to manage items."



- Buttons that direct user to the user management pages

Both buttons in "Manage Library Users" panel area are active only for admin.

- Buttons that direct user to the borrowing process pages

Both buttons in "Borrowing Process" panel area are active for both authorized person and admin.

- A button that exits from the staff interface and directs user to the login page

"Back to the Login Page" button is active for both authorized person and admin. If staff clicks this button, the program will return to the login screen.

2.1.4. Managing Item Interfaces

The buttons on "Manage Items in Library" panel are created to manage digital items, reading books, e-text books, articles, e-journals, e-reading books and text books. The pages that appears after clicking each button have a similar design and can only add, delete, search and create stickers related to a single type of item. To illustrate, when the page that opens after clicking the "Manage E-Journal" button is examined, it is seen that the page is divided into 3 different sections.

The screenshot shows the "E-Journal Screen" interface. It is divided into three main sections:

- Search E-Journal:** Contains two text input fields for "Title" and "Topic", each with a search button (magnifying glass icon).
- Add New E-Journal:** Contains several text input fields for "Title", "Publisher", and "Topic". It also has dropdown menus for "Location" (set to "ONLINE") and "Item Type" (set to "EJournal"). There are radio buttons for "Peer Reviewed" (selected) and "Not Peer Reviewed". At the bottom of this section are three buttons: "Add new E-Journal" (green), "Delete Selected E-Journal" (red), and "Create Sticker For Selected E-Journal" (blue).
- E-Journals Table:** A table displaying a list of e-journals with columns for ID, Title, Location, Item Type, Status, Publisher, ISSN, Topic, URL, and Peer Reviewed.

ID	Title	Location	Item Type	Status	Publisher	ISSN	Topic	URL	Peer Reviewed
6	Journal of network and c...	ONLINE	EJournal	Available	Elsevier	1084-8045	Computer Networks	https://www.journals.els...	true
36	Defence Science Journal	ONLINE	EJournal	Available	Defence Scientific Infor...	2079-3715	Military History & Science	http://publications.drdo.g...	true
65	Academicus	ONLINE	EJournal	Available	Academicus	2309-1088	Science	http://www.academicus...	true

- Search

In the "Search E-Journal" section the user can search a e-journal by entering title or topic. There will be a new page demonstrating whether the item is found in the system after clicking the search button.

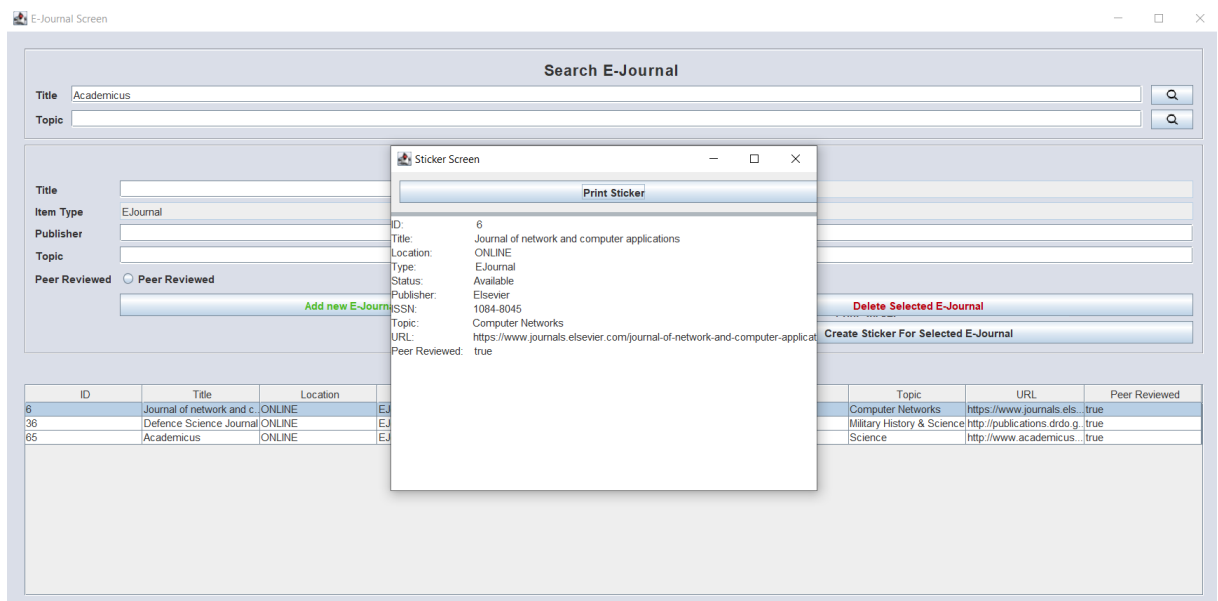
- Text fields

In the "Add New E-Journal" panel text fields have been replaced to enter the information of the new e-journal.

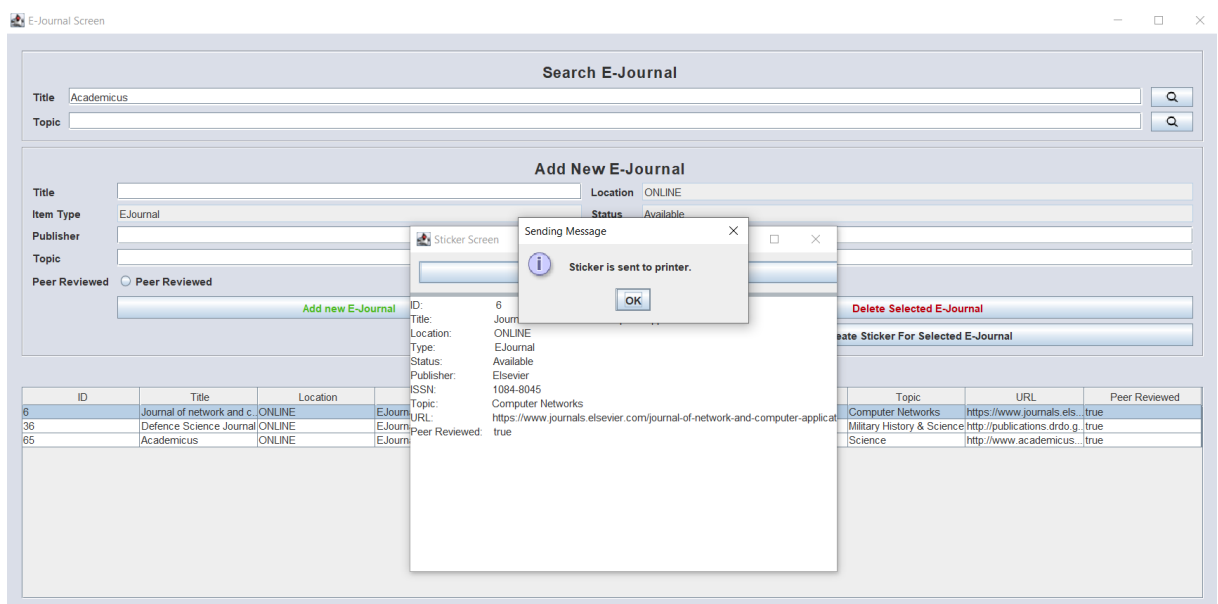
- Add, delete and create sticker buttons

After all the information about the e-journal is entered and "Add New E-Journal" is clicked, the new e-journal is displayed in the "E-Journals Table" section. Also, all the data is saved in the items.txt file where all the items are kept. "Delete" and "Create Sticker For Selected E-Journal" buttons is activated when the e-journal that users want

to delete from the table or the sticker to be created is selected and buttons are clicked. When the sticker button is clicked, all information about the selected e-journal is displayed as shown below.



In addition, when the print sticker button on this page is clicked, the user is informed with the message that the "Sticker is been sent to printer. "

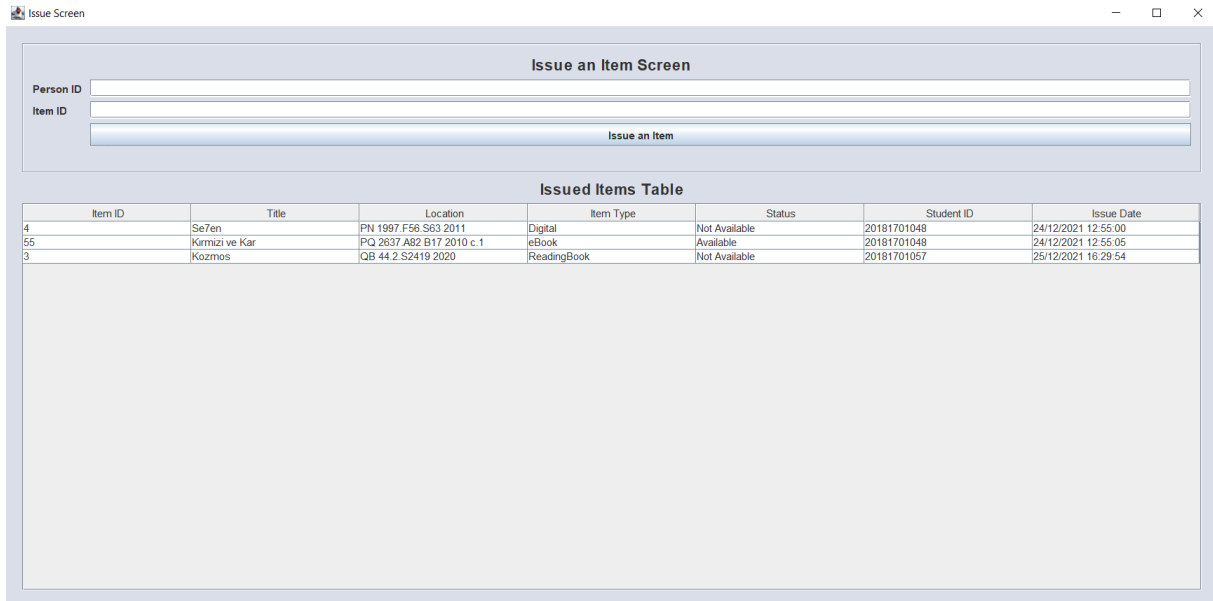


■ Table

In the "E-Journals Table" section, the table lists the e-journals available in the library. Additionally, allows the user to select the e-journal to be deleted from the table or the sticker to be created so that the delete and create sticker buttons are active.

2.1.5. Issue Item Interface

Issue item interface is active for both authorized person and admin. This page consists of two separate panels.



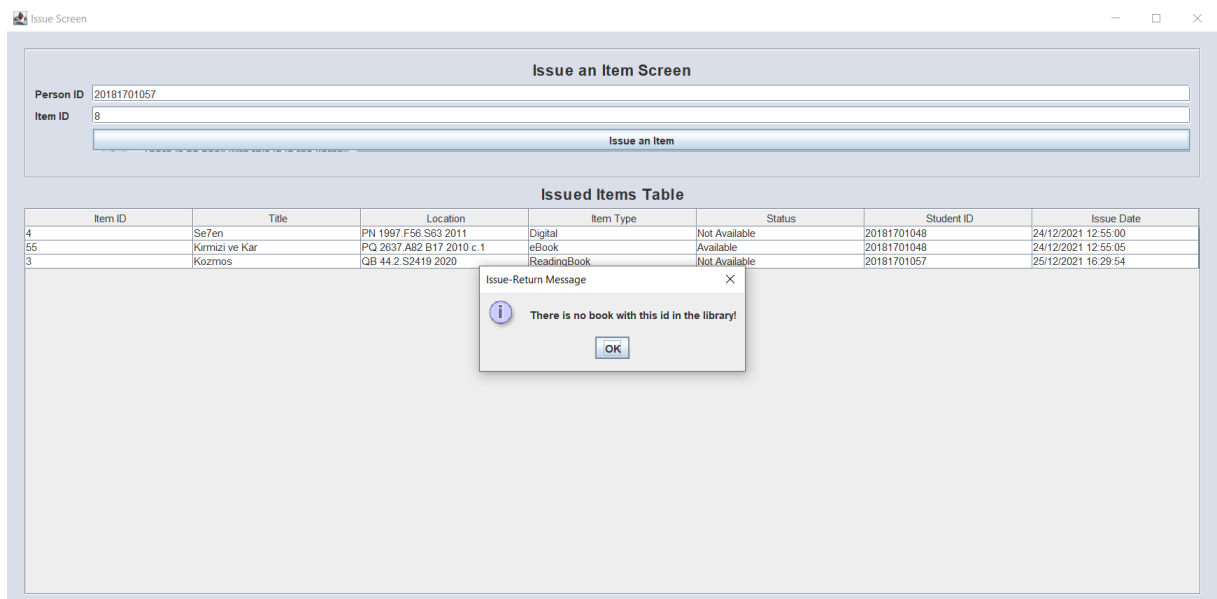
Item ID	Title	Location	Item Type	Status	Student ID	Issue Date
4	Se7en	PN 1997 F56 S63 2011	Digital	Not Available	20181701048	24/12/2021 12:55:00
55	Kirmizi ve Kar	PQ 2637 A82 B17 2010 c.1	eBook	Available	20181701048	24/12/2021 12:55:05
3	Kozmos	QB 44.2 S2419 2020	ReadingBook	Not Available	20181701057	25/12/2021 16:29:54

- Text fields

In the "Issue an Item Screen" panel, the id number of the item to be issued and the id number of the borrower are entered into related text fields.

- Issue an item button

After the text fields are filled, the staff clicks "Issue an Item" button and the item is borrowed. If an item not available in the library is wanted to be issued, a message will appear on the screen informing the user.



Item ID	Title	Location	Item Type	Status	Student ID	Issue Date
4	Se7en	PN 1997 F56 S63 2011	Digital	Not Available	20181701048	24/12/2021 12:55:00
55	Kirmizi ve Kar	PQ 2637 A82 B17 2010 c.1	eBook	Available	20181701048	24/12/2021 12:55:05
3	Kozmos	QB 44.2 S2419 2020	ReadingBook	Not Available	20181701057	25/12/2021 16:29:54

Issue-Return Message

There is no book with this id in the library!

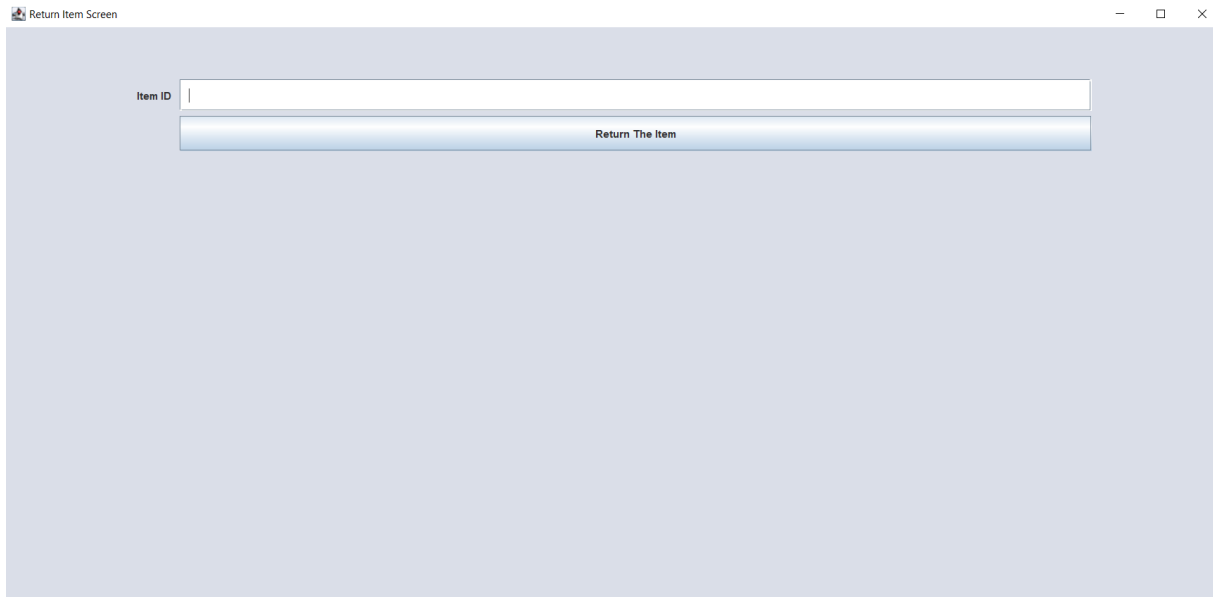
OK

- Table

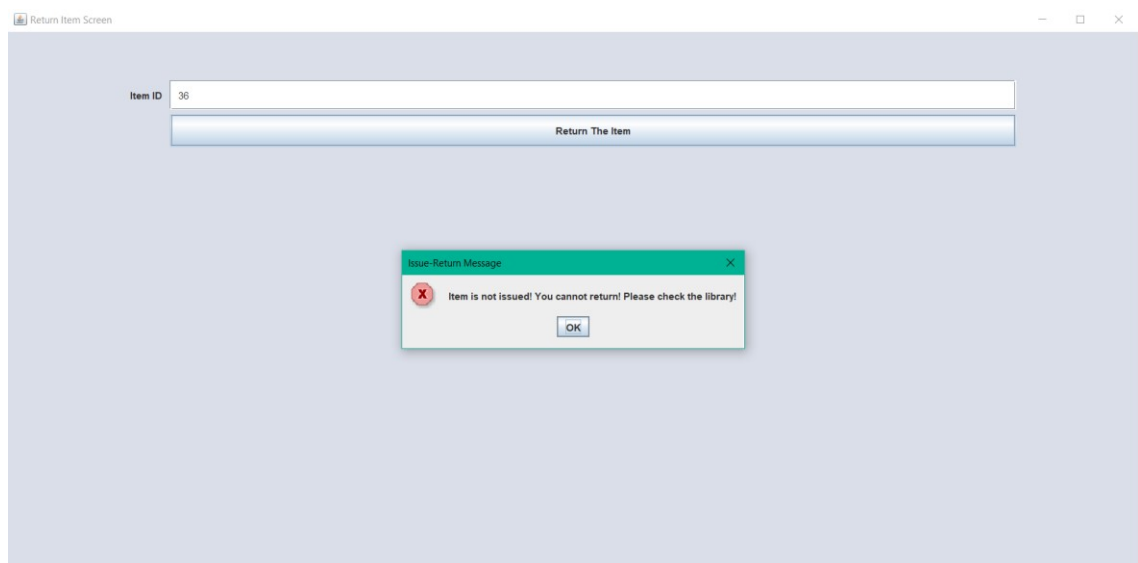
"Issued Items" table shows all items borrowed in the library management system.

2.1.6. Return Item Interface

Return item interface is active for both authorized person and admin. This page consists of a single panel.



- Text field
Item ID text field is placed to enter the ID of the item to be returned to the library.
- Button
After entering the ID of the item to be returned, clicking "Return the Item" button allows the book to be added to the library system again. If the item is not issued and available in library, the message that indicates that item can't be returned because it is not issued will be displayed.



2.1.7. Staff Management Interface

Staff management interface is visible to admin only. It consists of two separate panels. In the first panel "Staff Screen", adding a new staff, deleting a staff and creating personnel card processes are performed. In the second panel "Staff Table", there is a table showing all the library staffs.

Person List Screen

First Name

E-Mail

Password

Staff Type

Authorized Person

Add New Staff

Last Name

Address

Staff ID

Not Editable

Admin

Delete Selected Staff

Create Staff Card For Selected Person

Staff Table

ID	First Name	Last Name	E-Mail	Address	Password	Person Type	Staff/Student ID
1	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Student	20181701048
5	Alfred	Nietzsche	alfred	Istanbul	qwe	Admin	1
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	passwHumeyra	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	passwAyse	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	passwSema	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	passwDerya	Student	20170606011
33	Eray	Polat	eray@eray.com	Eyup	passwEray	Student	20181806845
34	Kivanc	Tatlitug	kivanc@kivanc.com	Sariyer	passwKivanc	Student	20150106120
36	Berra	Koc	berra@berra.com	Beylikduzu	passwBerra	Student	20190104064
37	Ekin	Koc	ekin@ekin.com	Levent	passwEkin	Student	20200104030
38	Tamer	Sahin	tamer@tamer.com	Besiktas	passwTamer	Student	20200105875
39	Seyhan	Aksoz	seyhan@seyhan.com	Atasehir	passwSeyhan	Student	20190105820
40	Sabri	Sari	sabri@sabri.com	Fatih	passwSabri	Admin	13
41	Derin	Tuncay	derin@derin.com	Sancaktepe	passwDerin	Admin	14
42	Pars	Seckin	pars@pars.com	Besiktas	passwPars	Admin	15
43	Ilgaz	Kaya	ilgaz@ilgaz.com	Sariyer	passwIlgaz	Admin	16
44	Ceylin	Erguvan	ceylin@ceylin.com	Esenler	passwCeylin	AuthorizedPerson	17
45	Akgun Gokalp	Taskin	gokalp@gokalp.com	Basaksehir	passwGokalp	AuthorizedPerson	18
46	Yagmur	Kara	yagmur@yagmur.com	Bahcesehir	passwYagmur	AuthorizedPerson	19
47	Unat	Teksen	unat@staff.com	Basaksehir	passwUnat	Admin	20

- Text fields

Text fields and radio buttons are placed to enter the information of the new staff to be added by the personnel.

- Radio buttons

"Authorized Person" and "Admin" radio buttons are placed for the user to select the person type. If all the information of the new staff is entered but the staff type is not selected and the add new staff button is clicked, "Please select a person type!" message is provided to the user.

Person List Screen

First Name

E-Mail

Password

Staff Type

Authorized Person

Add New Staff

Last Name

Address

Staff ID

Not Editable

Admin

Delete Selected Staff

Create Staff Card For Selected Person

Staff Table

ID	First Name	Last Name	E-Mail	Address	Password	Person Type	Staff/Student ID
1	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Student	20181701048
5	Alfred	Nietzsche	alfred	Istanbul	qwe	Admin	1
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	passwHumeyra	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	passwAyse	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	passwSema	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	passwDerya	Student	20170606011
33	Eray	Polat	eray@eray.com	Eyup	passwEray	Student	20181806845
34	Kivanc	Tatlitug	kivanc@kivanc.com	Sariyer	passwKivanc	Student	20150106120
36	Berra	Koc	berra@berra.com	Beylikduzu	passwBerra	Student	20190104064
37	Ekin	Koc	ekin@ekin.com	Levent	passwEkin	Student	20200104030
38	Tamer	Sahin	tamer@tamer.com	Besiktas	passwTamer	Student	20200105875
39	Seyhan	Aksoz	seyhan@seyhan.com	Atasehir	passwSeyhan	Student	20190105820
40	Sabri	Sari	sabri@sabri.com	Fatih	passwSabri	Admin	13
41	Derin	Tuncay	derin@derin.com	Sancaktepe	passwDerin	Admin	14
42	Pars	Seckin	pars@pars.com	Besiktas	passwPars	Admin	15
43	Ilgaz	Kaya	ilgaz@ilgaz.com	Sariyer	passwIlgaz	Admin	16
44	Ceylin	Erguvan	ceylin@ceylin.com	Esenler	passwCeylin	AuthorizedPerson	17
45	Akgun Gokalp	Taskin	gokalp@gokalp.com	Basaksehir	passwGokalp	AuthorizedPerson	18
46	Yagmur	Kara	yagmur@yagmur.com	Bahcesehir	passwYagmur	AuthorizedPerson	19
47	Unat	Teksen	unat@staff.com	Basaksehir	passwUnat	Admin	20

Error

Please select a person type!

OK

- Button

After all the information about the new staff is entered and "Add New Staff" is clicked, the new staff is displayed in the "Staff Table" section. Also, all the data is saved in the person.txt file where all the persons are kept. "Delete" and "Create Staff Card For Selected Person" buttons are activated when the staff that users want to delete from the table or the staff card to be created is selected from the table and buttons are clicked. In the case, no personnel is selected, the buttons will not be active and messages informing the user about the situation appear on the screen. When the create staff card button is clicked, all information about the selected staff is displayed.

Person List Screen

First Name

E-Mail

Password

Staff Type ☐ Authorized Person

Add New Staff

Staff Screen

Last Name

Address

Staff ID Not Editable

☐ Admin

Delete Selected Staff

Create Staff Card For Selected Person

ID	First Name	Last Name	E-Mail	Address	Password	Person Type	Staff/Student ID
1	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Student	20181701048
5	Alfred	Nietzsche	alfred	Istanbul	qwe	Admin	1
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	passwHumeyra	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	passwAyse	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	passwSema	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	passwDerya	Student	20170606011
33	Eray	Polat	eray@polat.com	Etiler	passwEray	Student	20161806845
34	Kivanc	Tatlitug	kivanc@tatlitug.com	Basaksehir	passwKivanc	Student	20150106120
36	Berra	Koc	berra@koc.com	Basaksehir	passwBerra	Student	20190104064
37	Ekin	Koc	ekin@koc.com	Basaksehir	passwEkin	Student	20200104030
38	Tamer	Sahin	tamer@sahin.com	Basaksehir	passwTamer	Student	20200105875
39	Seyhan	Aksoz	seyhan@aksoz.com	Basaksehir	passwSeyhan	Student	20190105820
40	Sabri	Sari	sabri@sari.com	Basaksehir	passwSabri	Admin	13
41	Derin	Tuncay	derin@tuncay.com	Basaksehir	passwDerin	Admin	14
42	Pars	Seckin	pars@seckin.com	Besiktas	passwPars	Admin	15
43	Ilgaz	Kaya	ilgaz@kaya.com	Sariyer	passwIlgaz	Admin	16
44	Ceylin	Erguvan	ceylin@erguvan.com	Esenler	passwCeylin	AuthorizedPerson	17
45	Akgun Gokalp	Taskin	agkalp@taskin.com	Basaksehir	passwAkgun	AuthorizedPerson	18
46	Yagmur	Kara	yagmur@yagmur.com	Bahcesehir	passwYagmur	AuthorizedPerson	19
47	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Admin	20
48	Kerem	Aras	kerem@kerem.com	Zeytinburnu	passwKerem	AuthorizedPerson	21

Please select single row to delete.

Person List Screen

First Name

E-Mail

Password

Staff Type ☐ Authorized Person

Add New Staff

Staff Screen

Last Name

Address

Staff ID Not Editable

☐ Admin

Delete Selected Staff

Create Staff Card For Selected Person

ID	First Name	Last Name	E-Mail	Address	Password	Person Type	Staff/Student ID
1	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Student	20181701048
5	Alfred	Nietzsche	alfred	Istanbul	qwe	Admin	1
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	passwHumeyra	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	passwAyse	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	passwSema	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	passwDerya	Student	20170606011
33	Eray	Polat	eray@polat.com	Etiler	passwEray	Student	20161806845
34	Kivanc	Tatlitug	kivanc@tatlitug.com	Basaksehir	passwKivanc	Student	20150106120
36	Berra	Koc	berra@koc.com	Basaksehir	passwBerra	Student	20190104064
37	Ekin	Koc	ekin@koc.com	Basaksehir	passwEkin	Student	20200104030
38	Tamer	Sahin	tamer@sahin.com	Basaksehir	passwTamer	Student	20200105875
39	Seyhan	Aksoz	seyhan@aksoz.com	Basaksehir	passwSeyhan	Student	20190105820
40	Sabri	Sari	sabri@sari.com	Basaksehir	passwSabri	Admin	13
41	Derin	Tuncay	derin@tuncay.com	Basaksehir	passwDerin	Admin	14
42	Pars	Seckin	pars@seckin.com	Besiktas	passwPars	Admin	15
43	Ilgaz	Kaya	ilgaz@kaya.com	Sariyer	passwIlgaz	Admin	16
44	Ceylin	Erguvan	ceylin@erguvan.com	Esenler	passwCeylin	AuthorizedPerson	17
45	Akgun Gokalp	Taskin	agkalp@taskin.com	Basaksehir	passwAkgun	AuthorizedPerson	18
46	Yagmur	Kara	yagmur@yagmur.com	Bahcesehir	passwYagmur	AuthorizedPerson	19
47	Unat	Teksen	unat@unat.com	Basaksehir	passwUnat	Admin	20
48	Kerem	Aras	kerem@kerem.com	Zeytinburnu	passwKerem	AuthorizedPerson	21

Please select single row to create sticker.

Person List Screen

Staff Screen

First Name: Last Name:
 E-Mail: Address:
 Password:
 Staff Type: ☐ Authorized Person

[Add New Staff](#) [Print Sticker](#) [Delete Selected Staff](#) [Create Staff Card For Selected Person](#)

ID	First Name	Last Name	E-Mail	Address	Person Type	Staff ID
1	Unat	Teksen	unat@unat.com	Basaksehir	Student	20181701048
5	Alfred	Nietzsche	alfred@alfred.com	Sultangazi	Admin	1
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	Student	20170606011
33	Eray	Polat	eray@eray.com	Eyup	Student	20161806845
34	Kivanc	Tatlitug	kivanc@kivanc.com	Sariyer	Student	20150106120
36	Berra	Koc	berra@berra.com	Beylikduzu	Student	20190104064
37	Ekin	Koc	ekin@ekin.com	Levent	Student	20200104030
38	Tamer	Sahin	tamer@tamer.com	Besiktas	Student	20200105875
39	Seyhan	Aksoz	seyhan@seyhan.com	Atasehir	Student	20190105820
40	Sabri	Sari	sabri@sari.com	Atasehir	Admin	13
41	Derin	Tuncay	derin@derin.com	Sancaktepe	Admin	14
42	Pars	Seckin	pars@pars.com	Besiktas	Admin	15
43	Ilgaz	Ilgaz	ilgaz@ilgaz.com	Sariyer	Admin	16
44	Ceylan	Erguvan	ceylan@ceylan.com	Esenler	AuthorizedPerson	17
45	Algun	Gokalp	algun@gokalp.com	Basaksehir	AuthorizedPerson	18
46	Yagmur	Kara	yagmur@yagmur.com	Bahcesehir	AuthorizedPerson	19
47	Unat	Teksen	unat@staff.com	Basaksehir	Admin	20
48	Kerem	Aras	kerem@kerem.com	Zeytinburnu	AuthorizedPerson	21

Table

In the "Staff Table" section, the table lists the all staffs in the library. Additionally, allows the user to select the staff to be deleted from the table or the staff card to be created so that the delete and create staff card buttons are active.

2.1.8. Student Management Interface

Staff management interface is visible to admin only. It consists of two separate panels. In the first panel "Student Screen", adding a new student, deleting a student and creating student card processes are performed. In the second panel " Student Table", there is a table showing all members of the library. Design of the student management interface and its operations exactly the same as the Staff Management Interface described in 2.1.7.

Student List Screen

Students Screen

First Name: Last Name:
 Mail: Person Type: Student
 Password: Student ID:
 Address:

[Add New Student](#) [Delete Selected Student](#) [Create Student Card](#)

Students Table

ID	First Name	Last Name	E-Mail	Address	Person Type	Student ID
1	Unat	Teksen	unat@unat.com	Basaksehir	Student	20181701048
29	Humeyra	Dogus	humeyra@humeyra.com	Sultangazi	Student	20181701057
30	Ayşe	Kaya	ayse@ayse.com	Besiktas	Student	20181704089
31	Sema	Keskin	sema@sema.com	Sariyer	Student	20141704010
32	Derya	Celik	derya@derya.com	Beyoglu	Student	20170606011
33	Eray	Polat	eray@eray.com	Eyup	Student	20161806845
34	Kivanc	Tatlitug	kivanc@kivanc.com	Sariyer	Student	20150106120
36	Berra	Koc	berra@berra.com	Beylikduzu	Student	20190104064
37	Ekin	Koc	ekin@ekin.com	Levent	Student	20200104030
38	Tamer	Sahin	tamer@tamer.com	Besiktas	Student	20200105875
39	Seyhan	Aksoz	seyhan@seyhan.com	Atasehir	Student	20190105820

2.2. Sessions

2.2.1. Login Page Session

Login page session consists of:

Authenticating a student or staff (admin or authorized person) based on a student number and password, matching given inputs to the database in the TXT file.

For each person, database (TXT file) stores id, name, surname, e-mail address, address, password, account type, staff/student id. For each admin user, additional advanced options is available in database.

2.2.2. Student Session

Student session consists of:

- Reading all items in the library from database and showing them in table when the button is pressed.

2.2.3. Authorized Person Session

Authorized person's session consists of:

- Reading all items in the library from database and showing them in table when the button is pressed.
- Issuing an item to the student after reading all items, issued items and people list in the library from database.
- Returning an item from student after reading all items, issued items and people list in the library from database.

2.2.4. Admin Session

Admin session consists of:

- Reading all items in the library from database and showing them in table when the button is pressed.
 - Adding new items, deleting existing items, creating stickers for items.
 - Searching to check if the item is in the library.
- Reading all users (students, authorized people, admins) in the library from database and showing them in table when the button is pressed.
 - Adding new user, deleting existing user, creating card for a user.
 - Searching to check if the user is in the library.
- Reading all issued items in the library from database and showing them in table when the button is pressed.
- Issuing an item to the student after reading all items, issued items and people list in the library from database.
- Returning an item from student after reading all items, issued items and people list in the library from database.

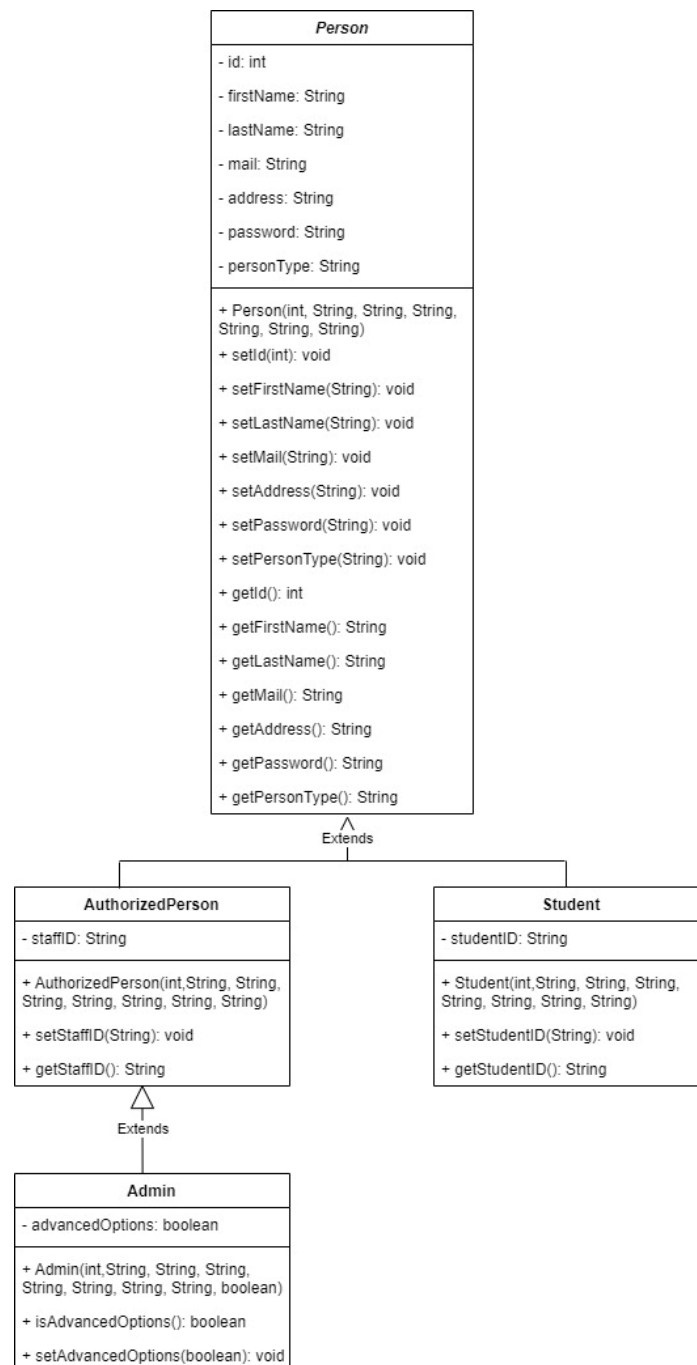
3. Diagrams and All Related Figures

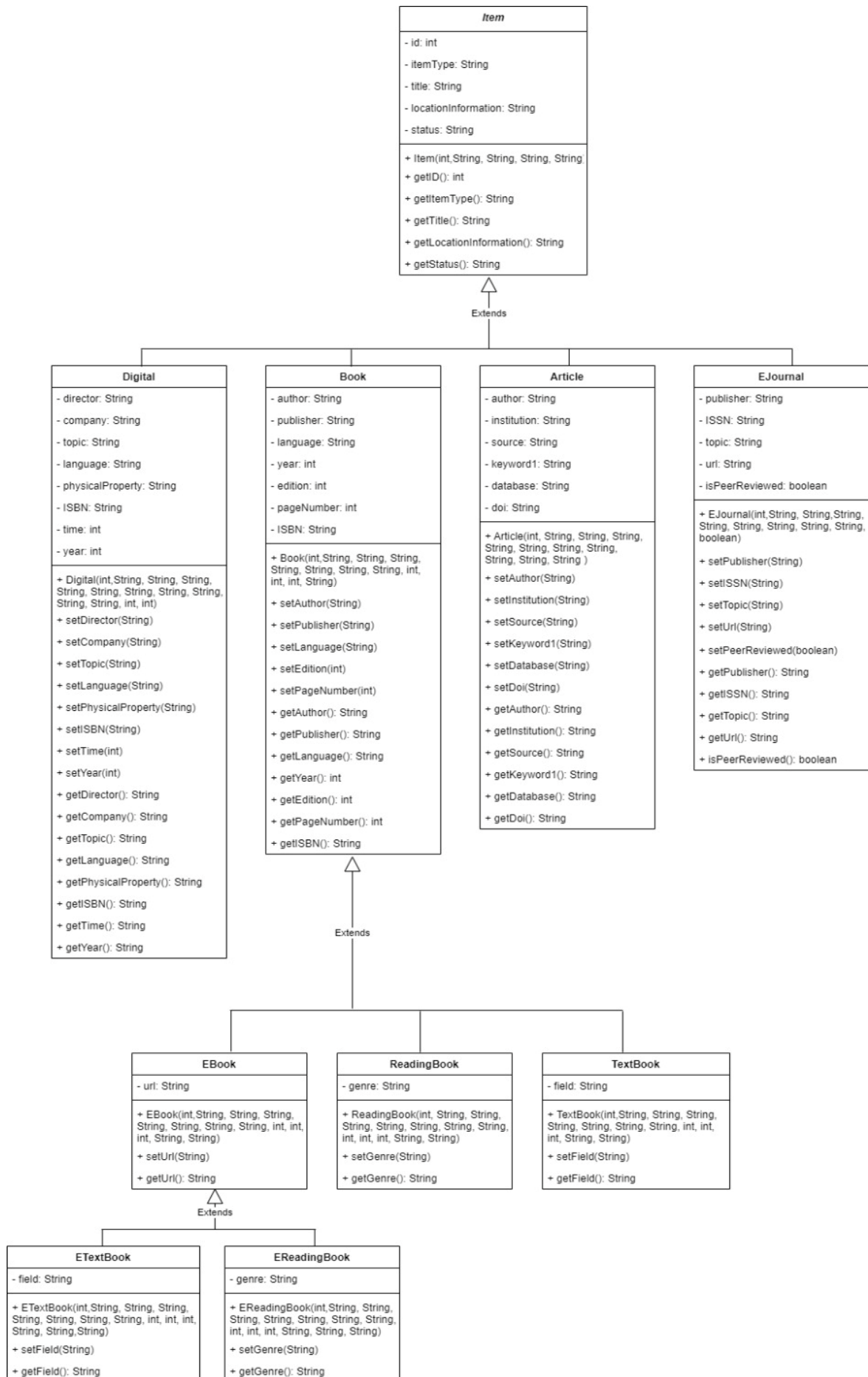
To understand how the program works, following diagrams might be helpful:

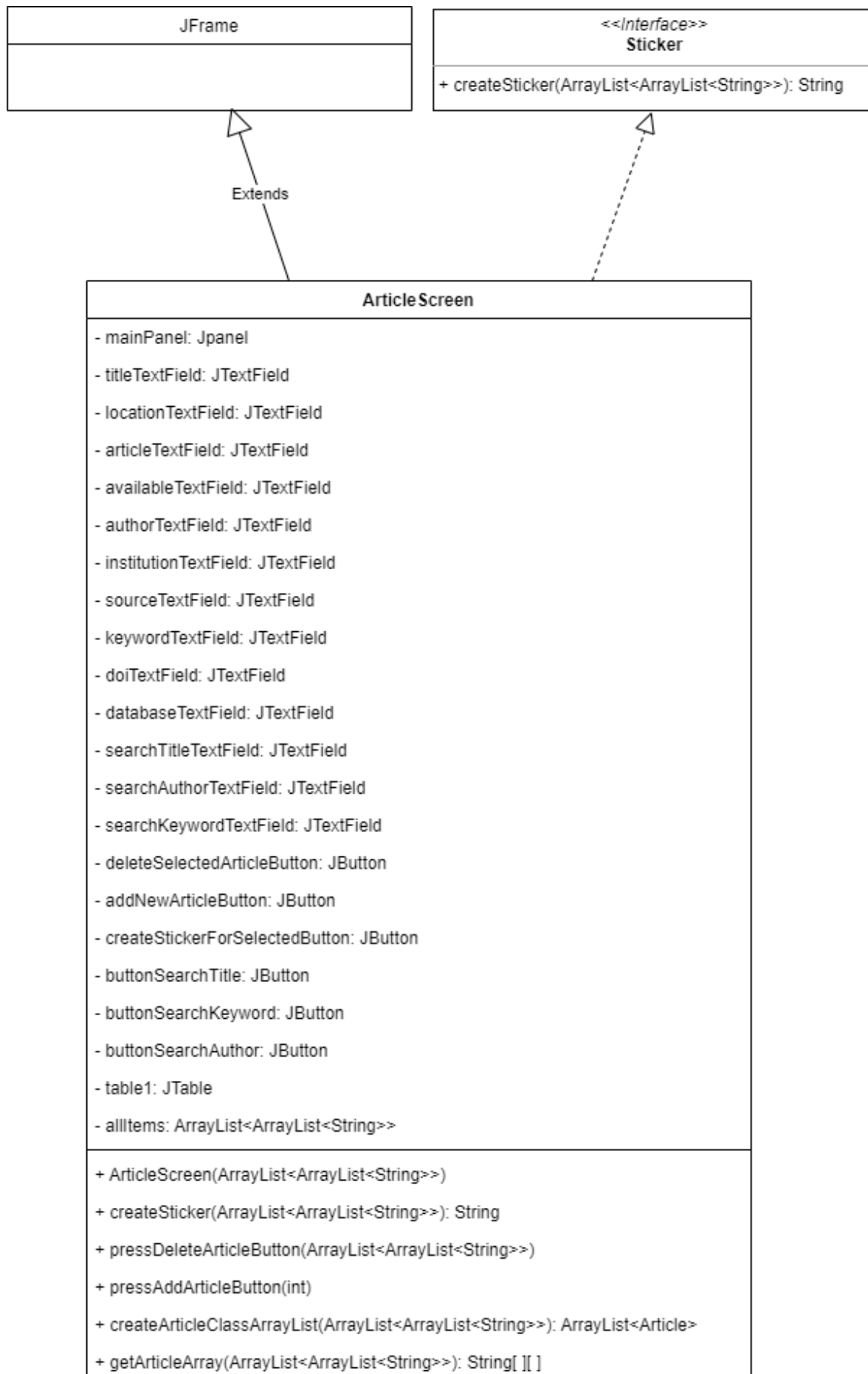
- class diagrams
- case diagrams
- activity diagrams
- state diagram
- collaboration diagram
- communication diagram

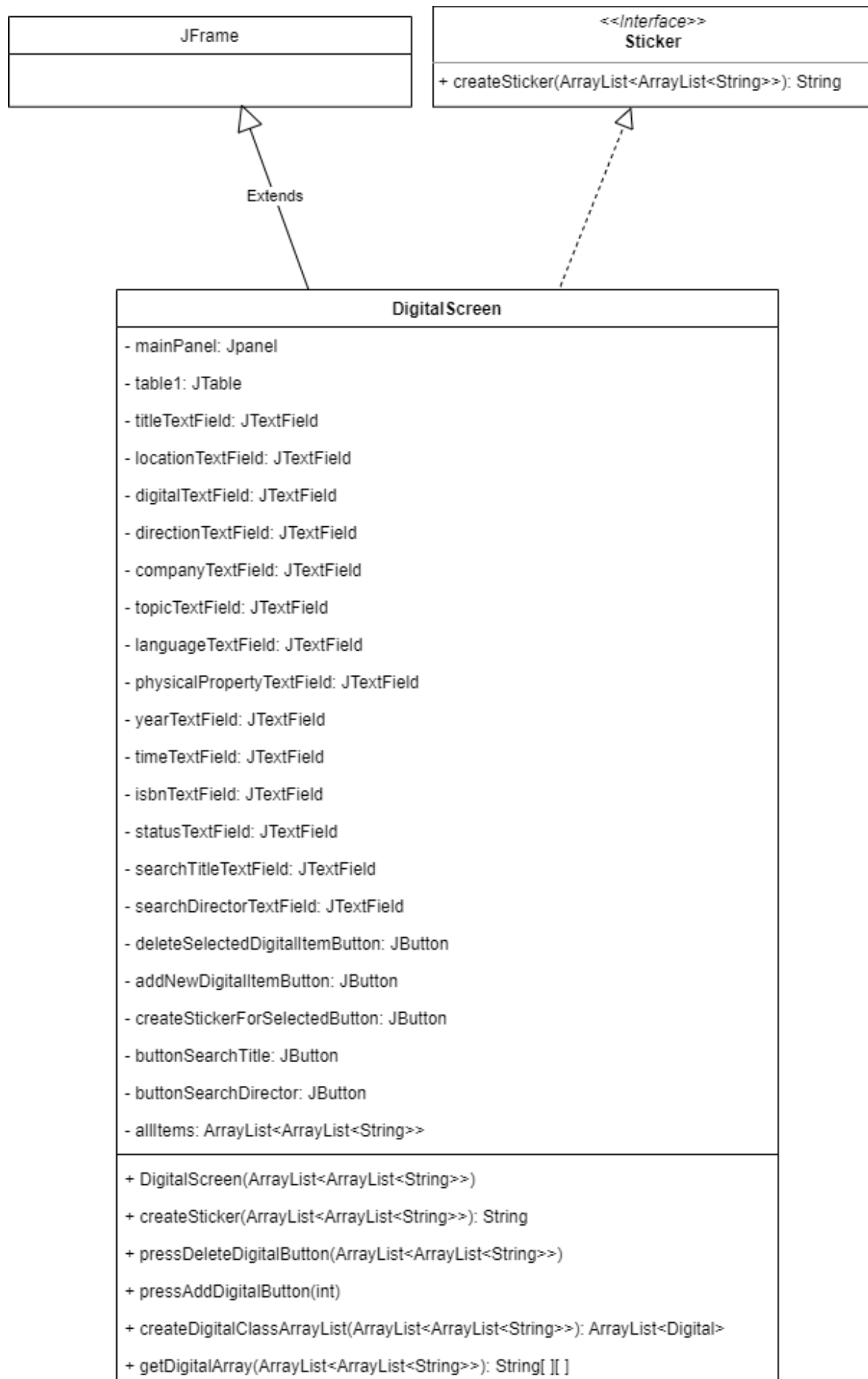
3.1. Class Diagrams

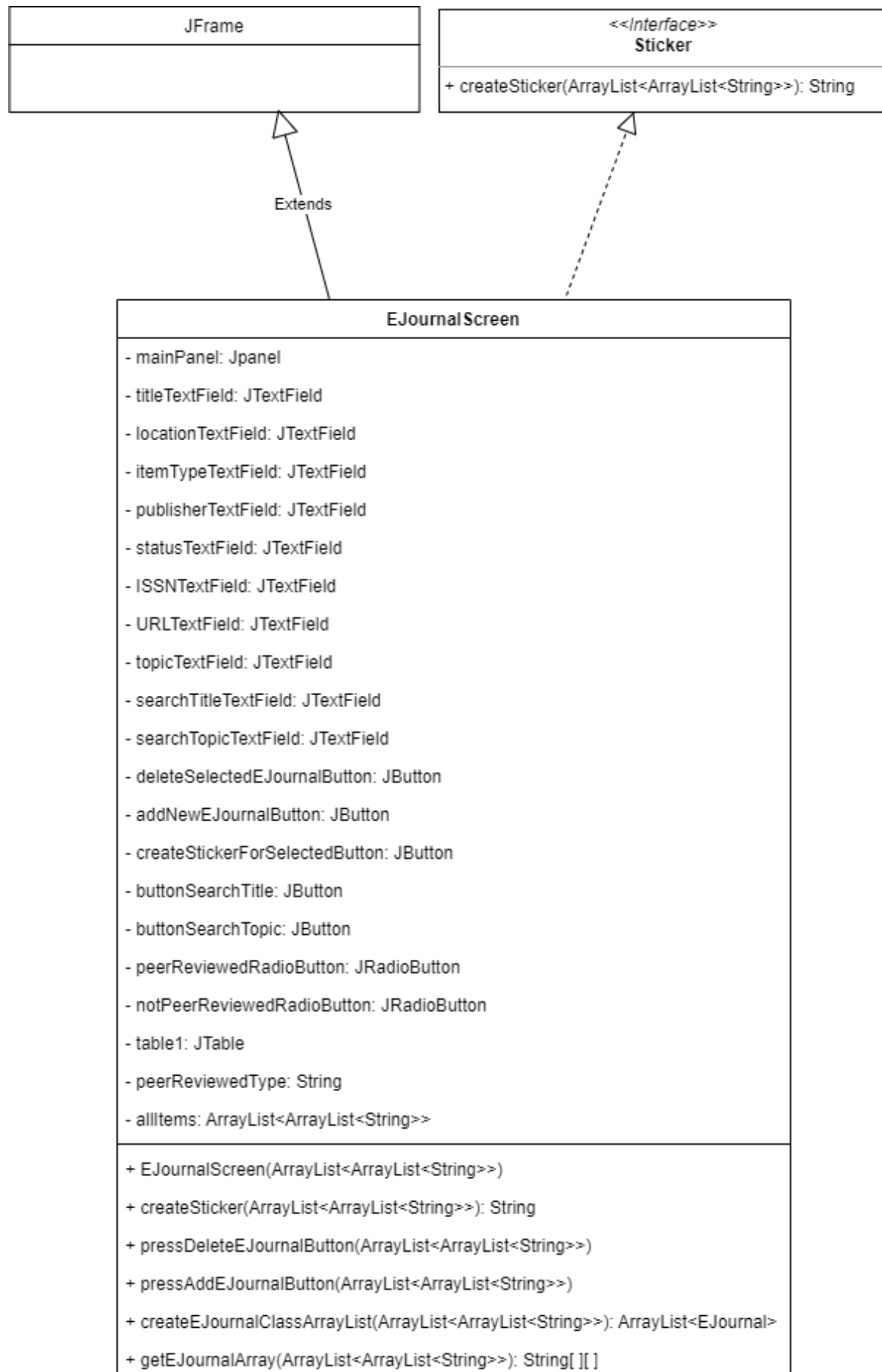
Class diagrams with attributes:



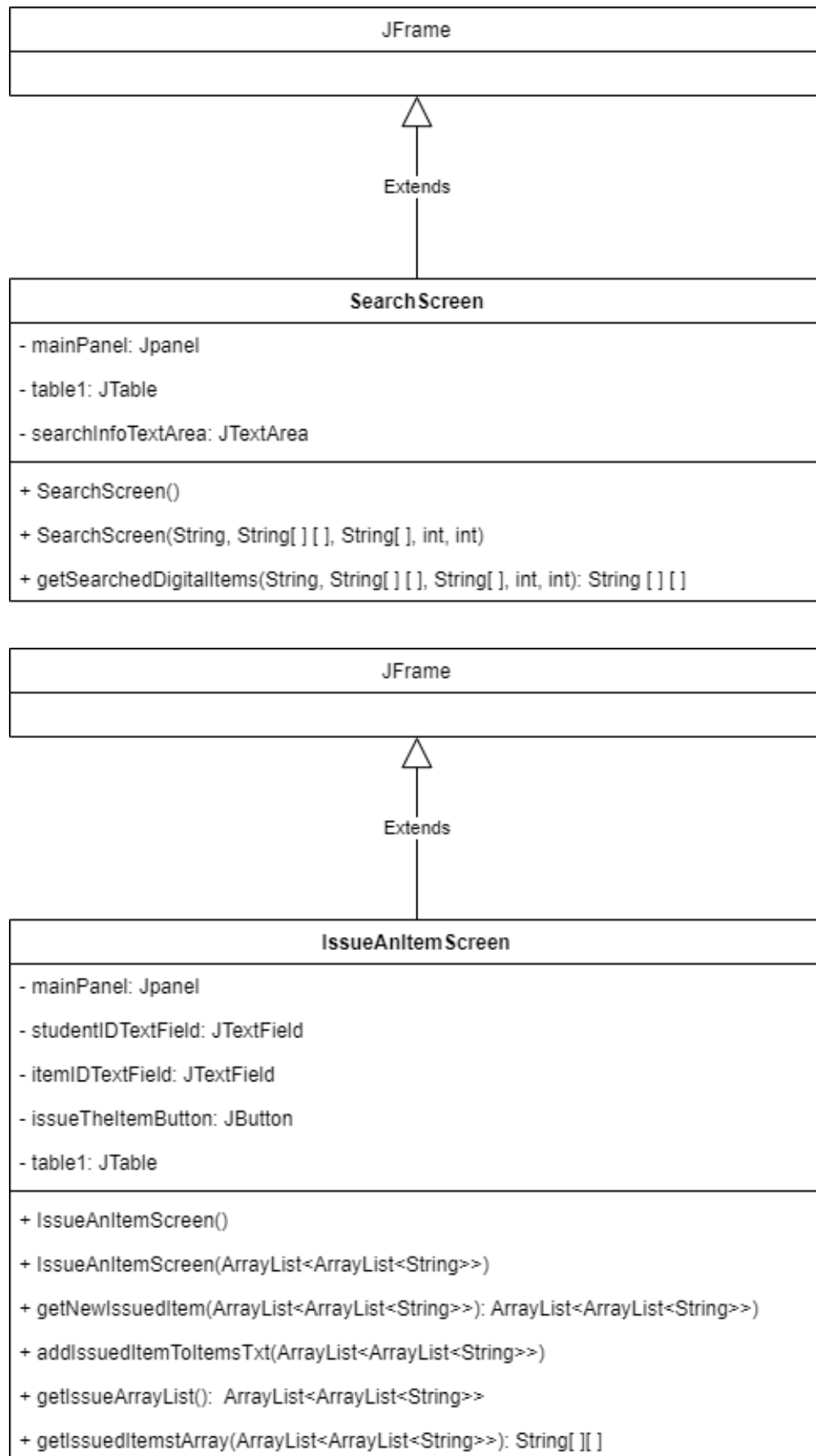


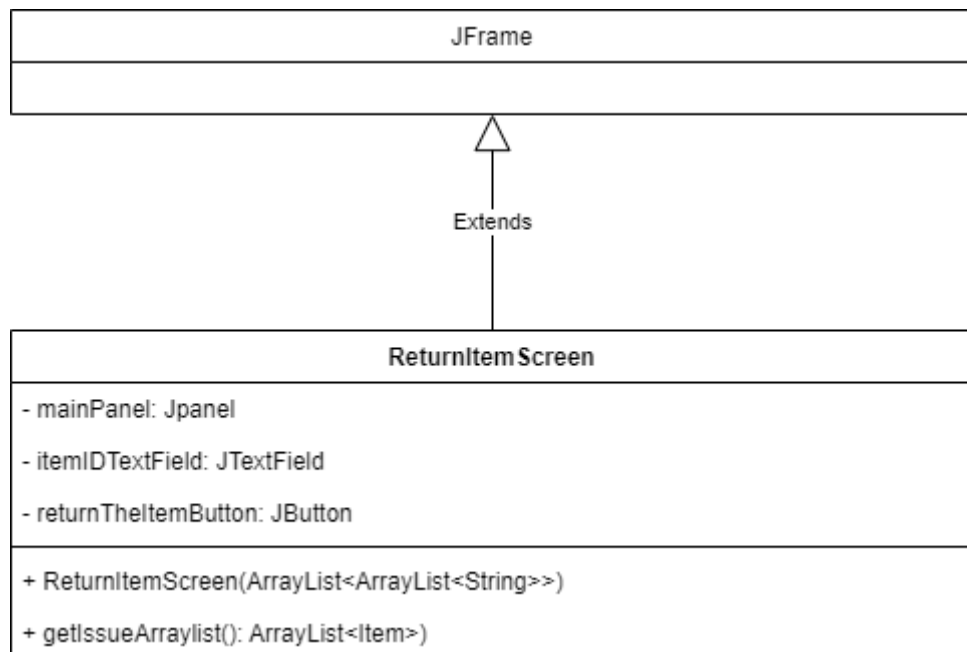
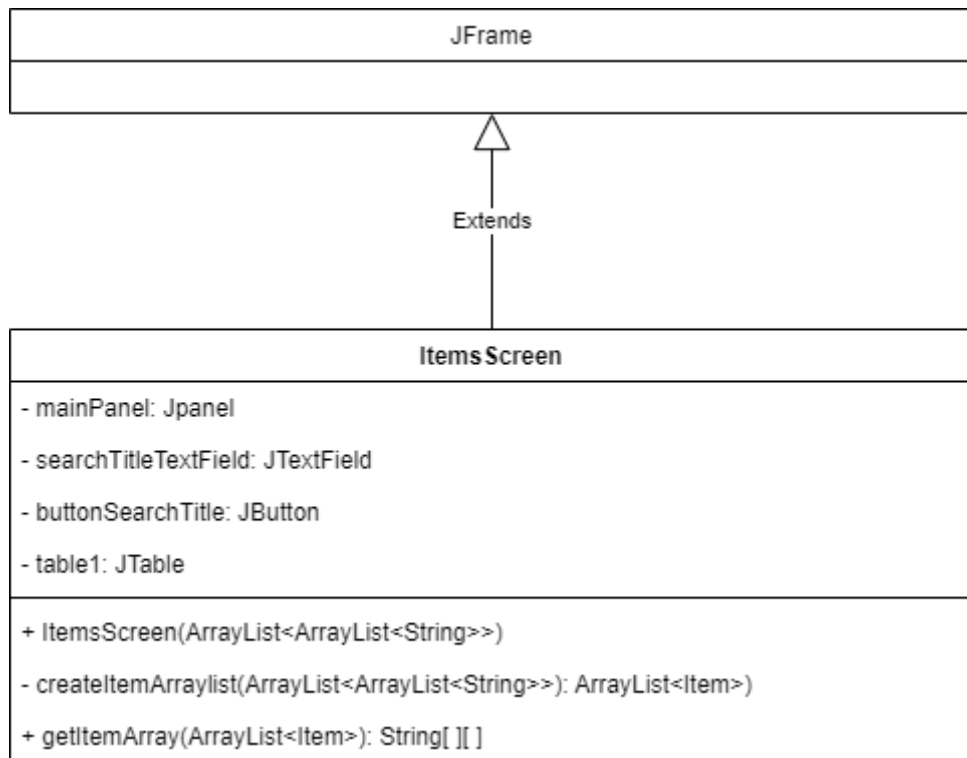




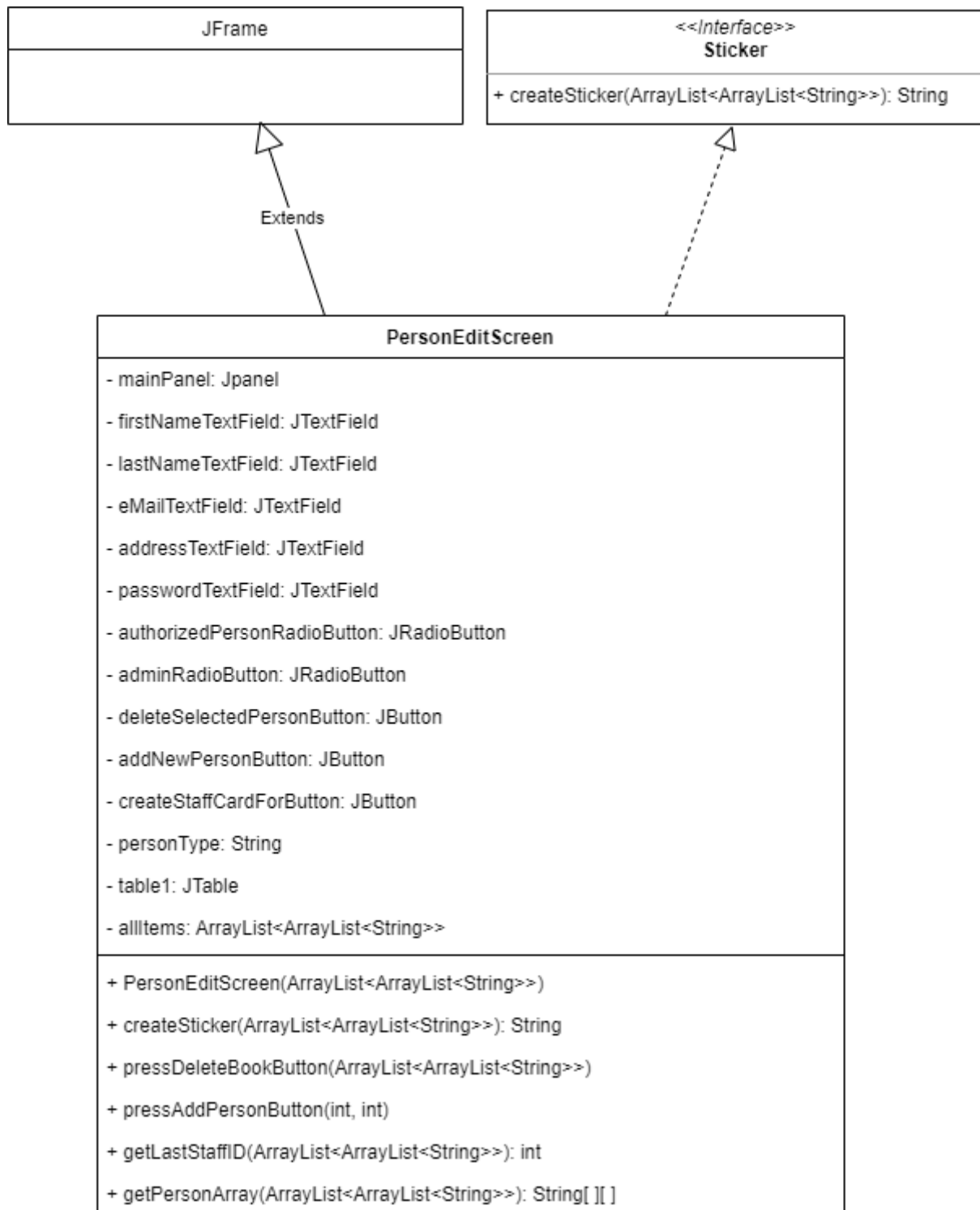




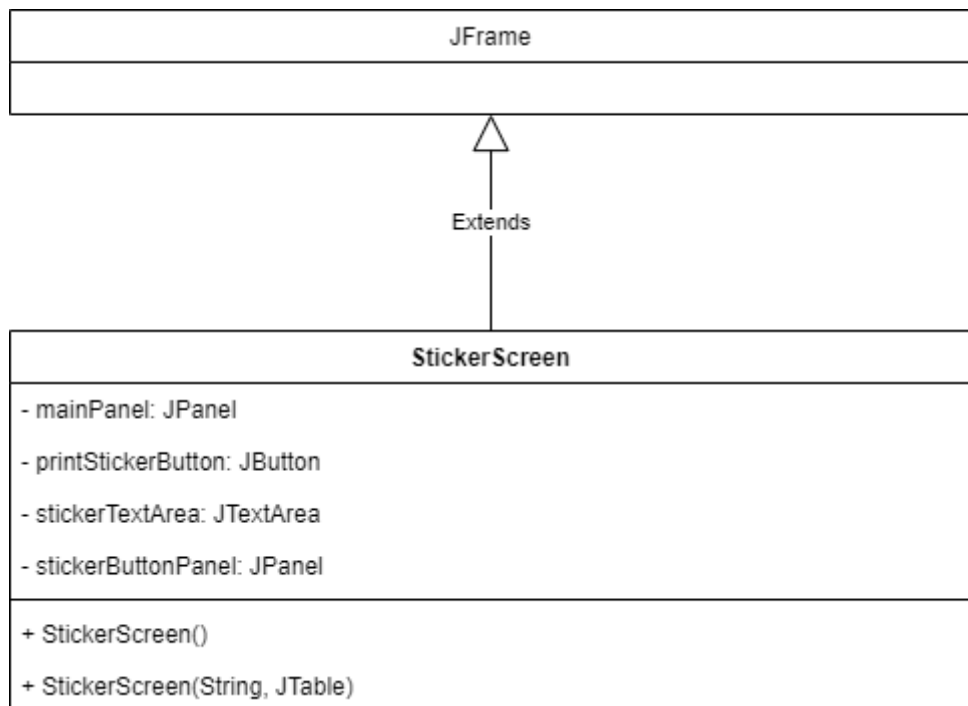
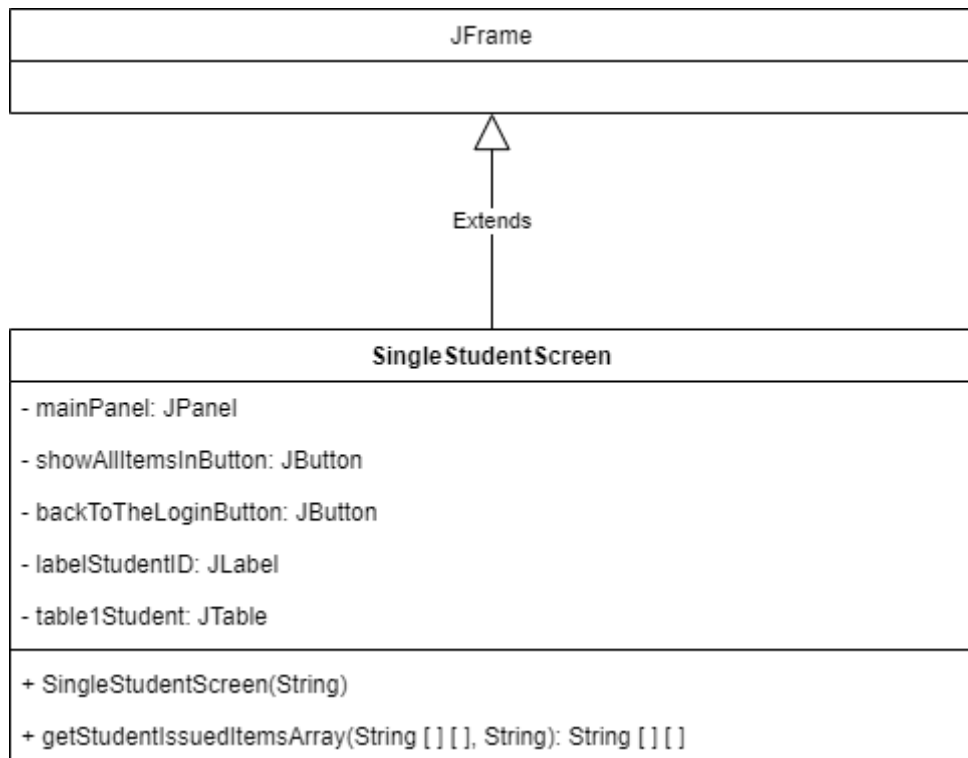


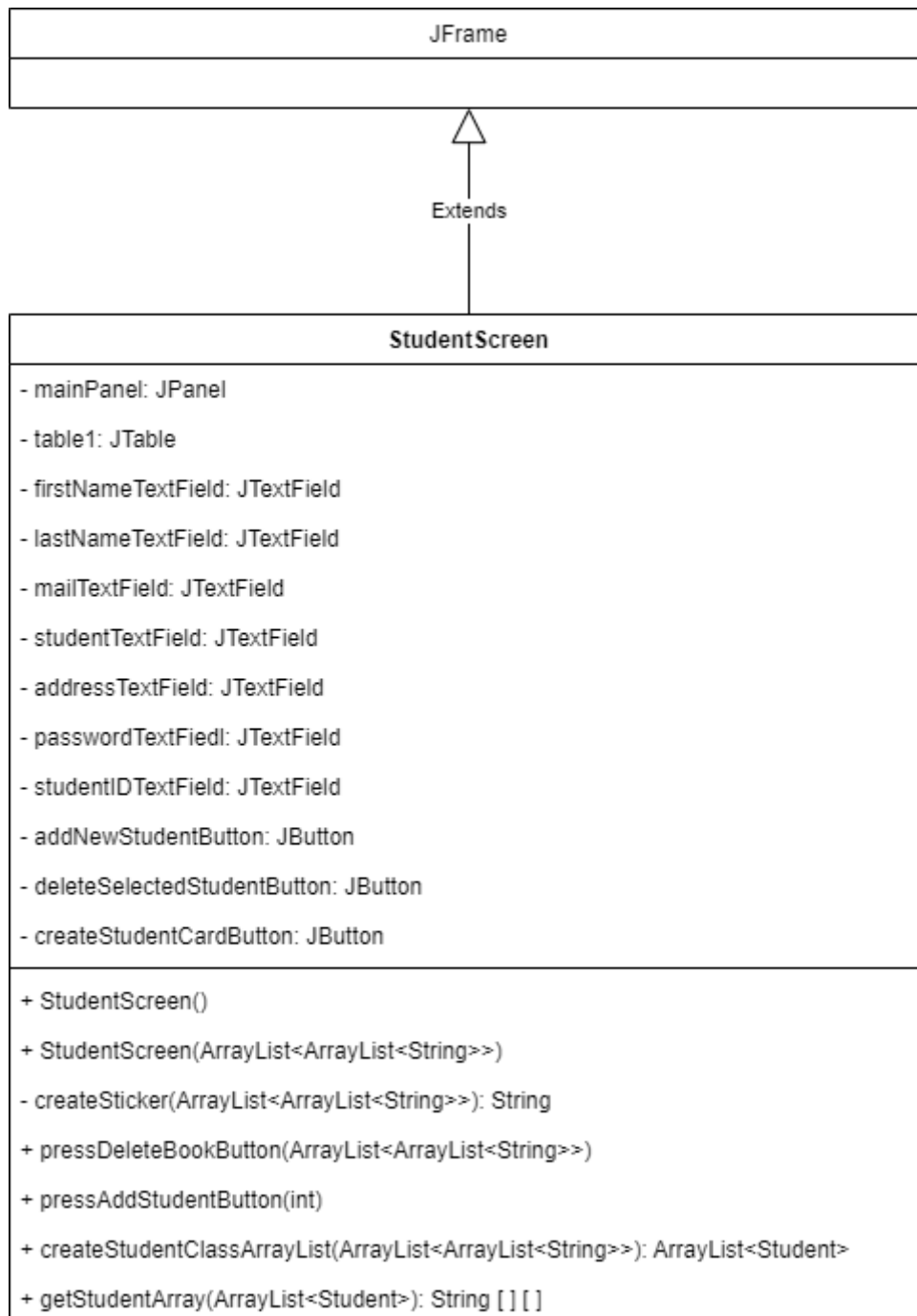


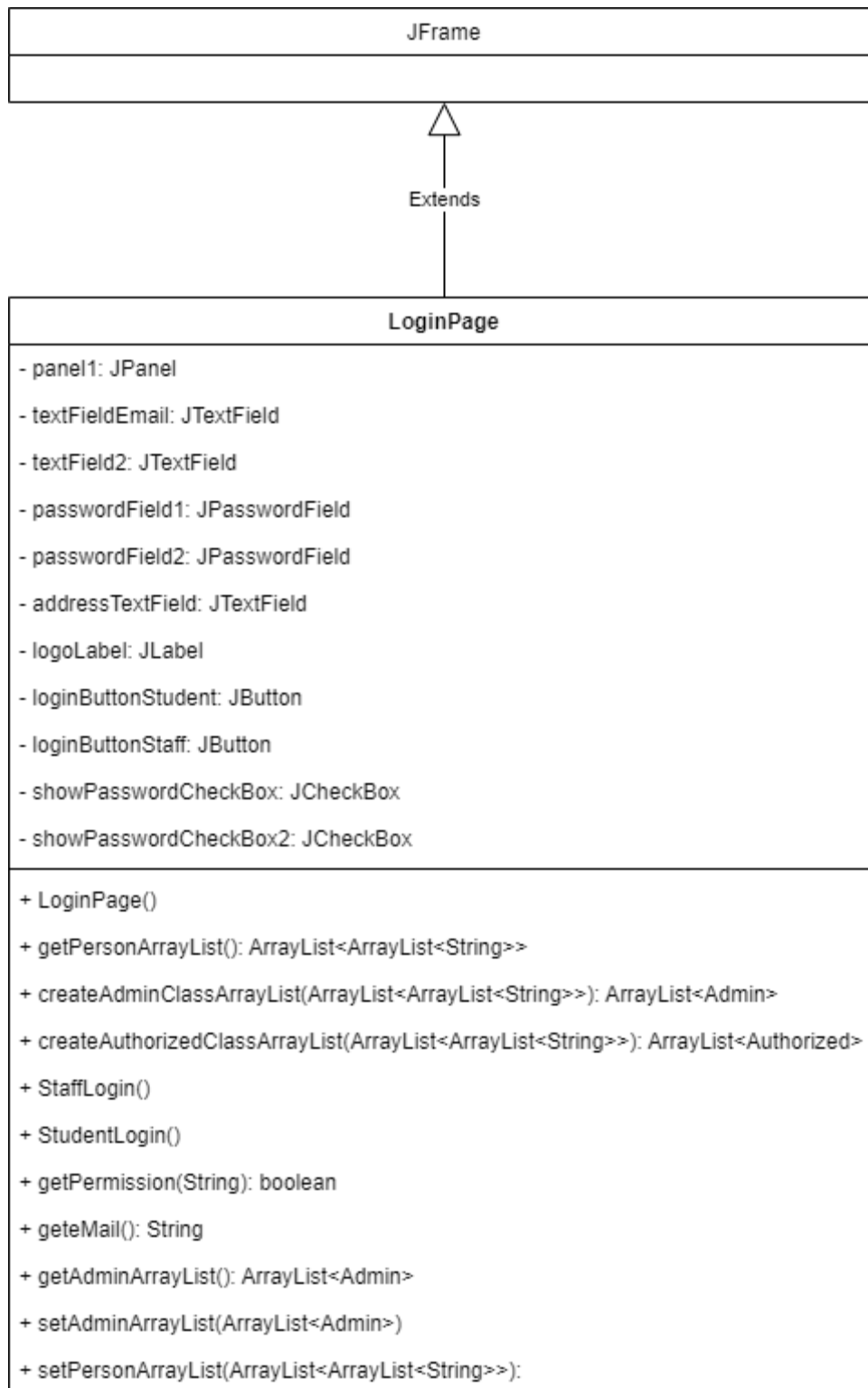








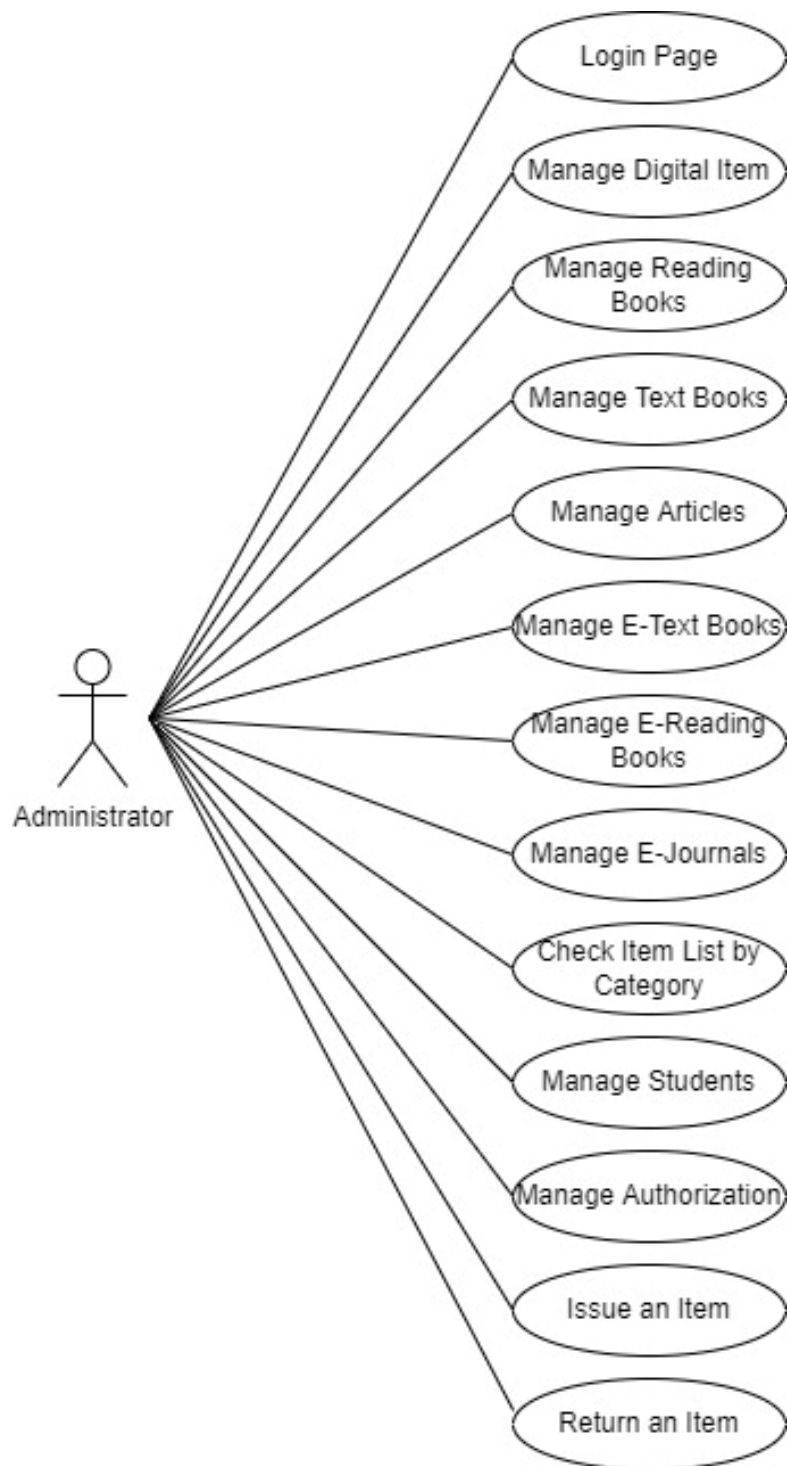




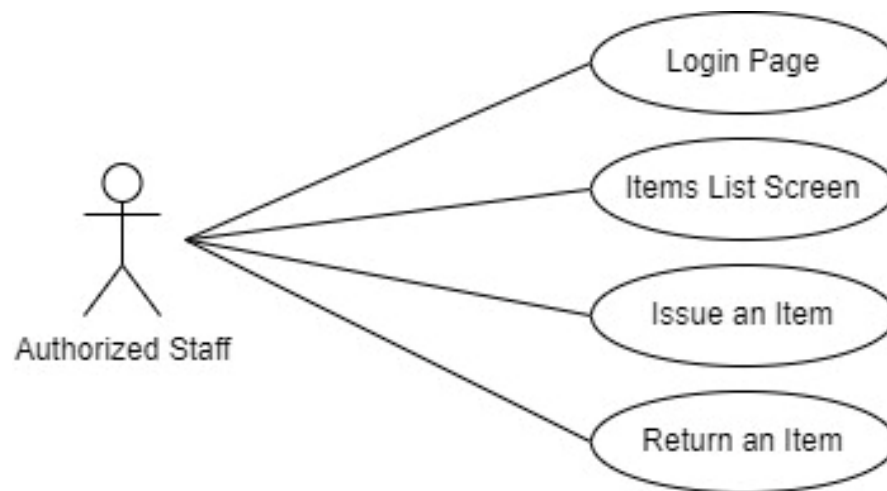




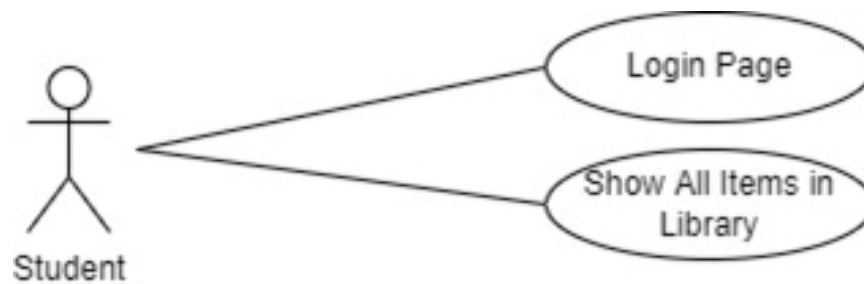
3.2. Case Diagrams



Case diagram for admin

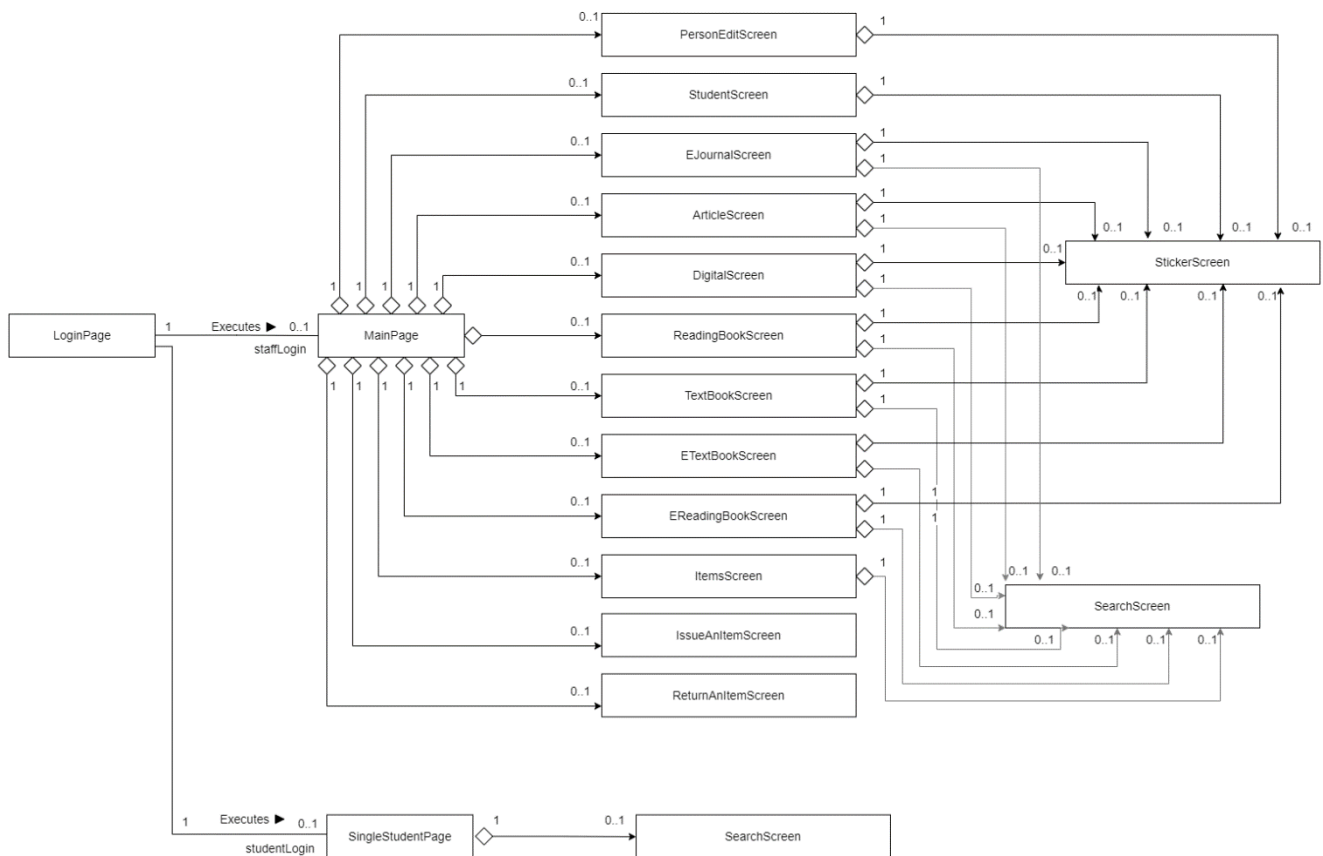


Case diagram for authorized staff

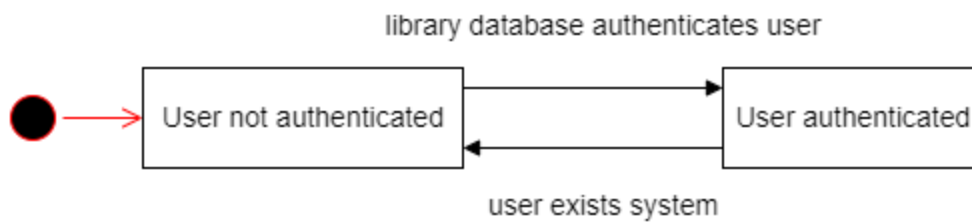


Class diagram for student

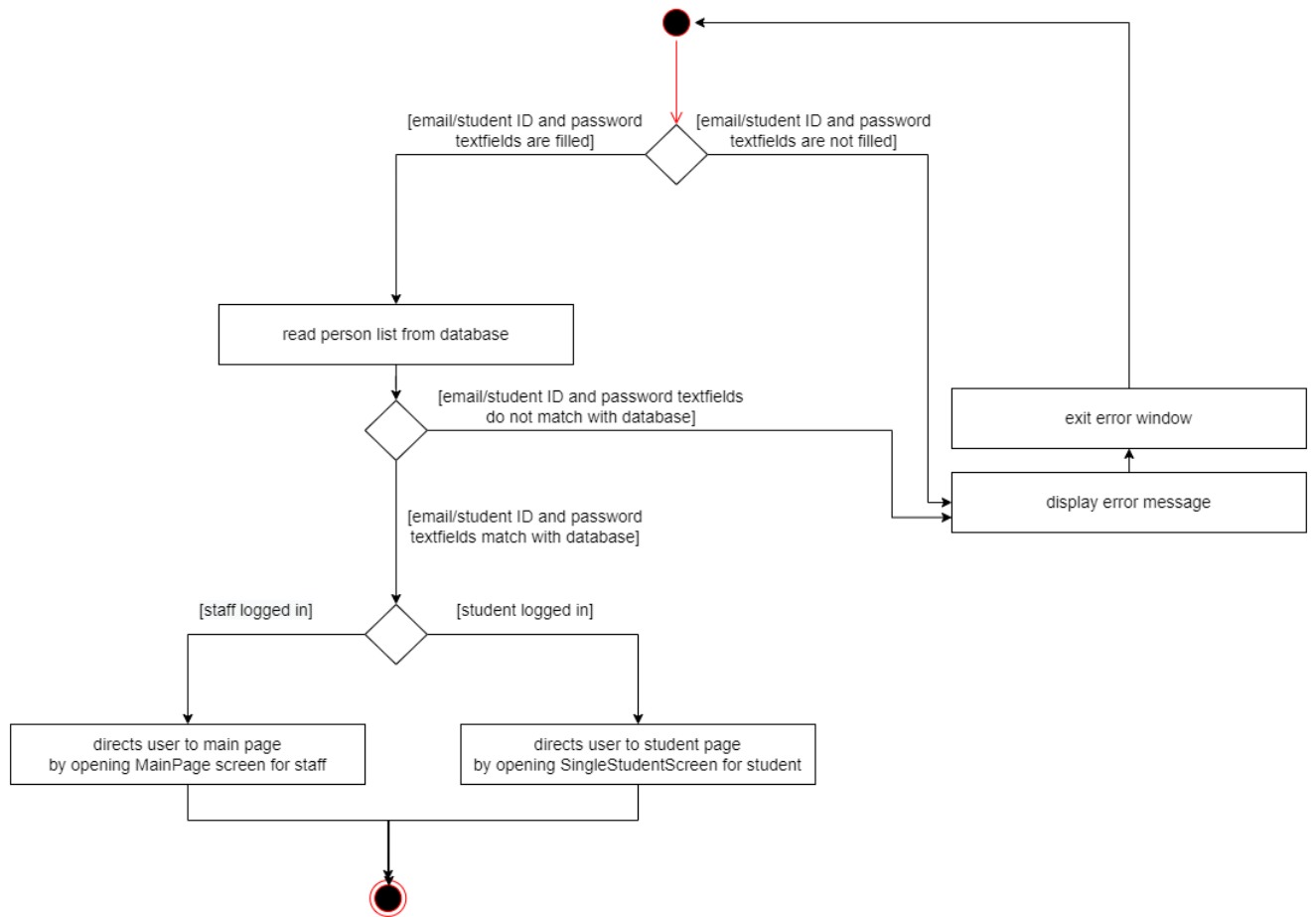
3.3. Other Diagrams (Activity-State-Communication-Collaboration)



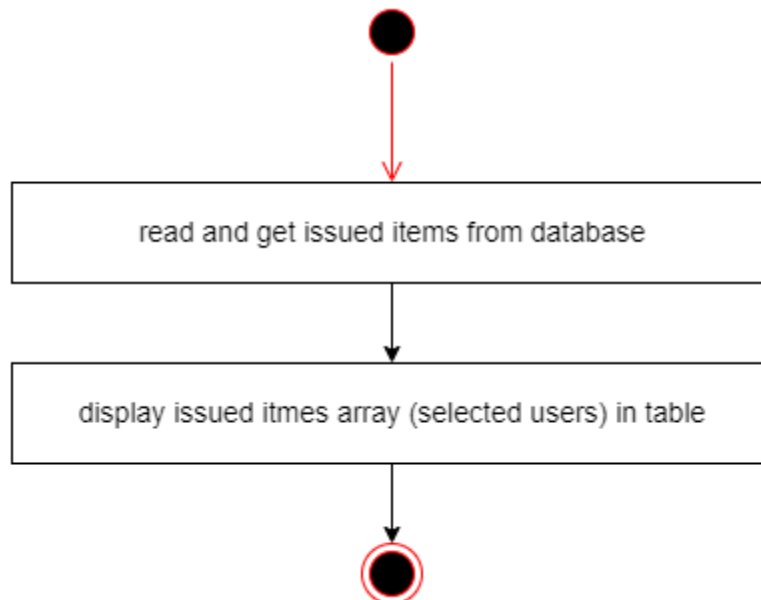
Class diagram showing aggregation relationship



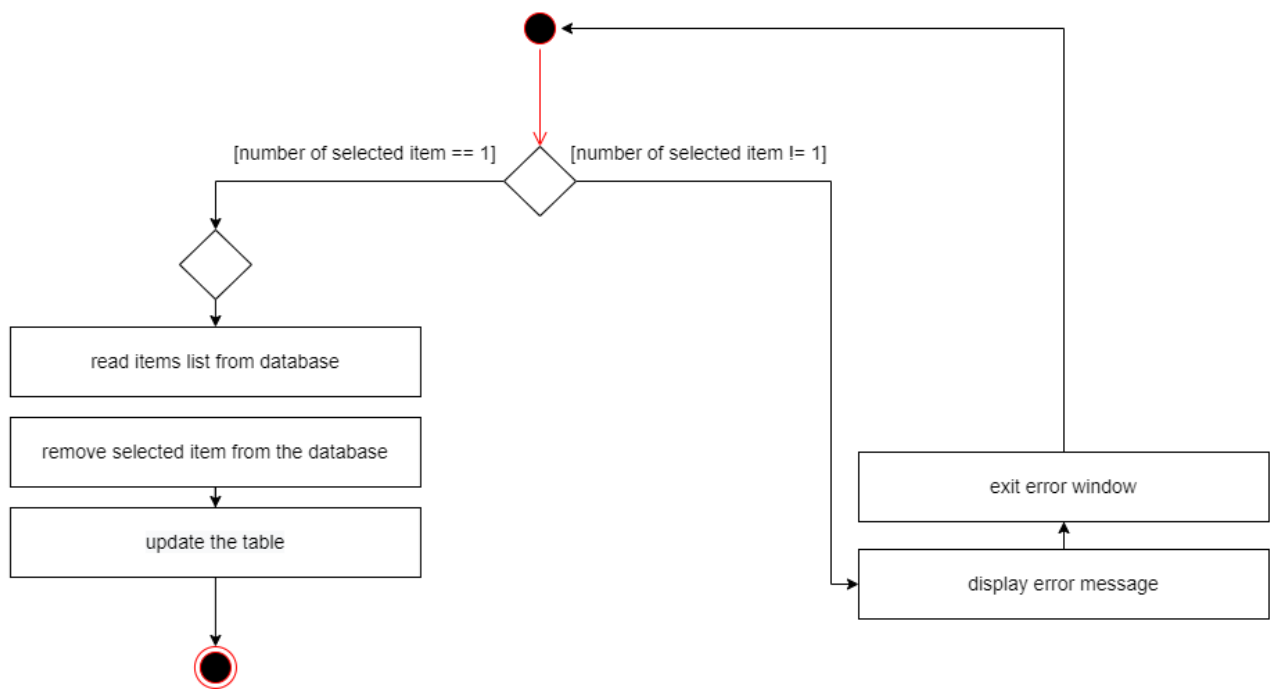
State diagram for user



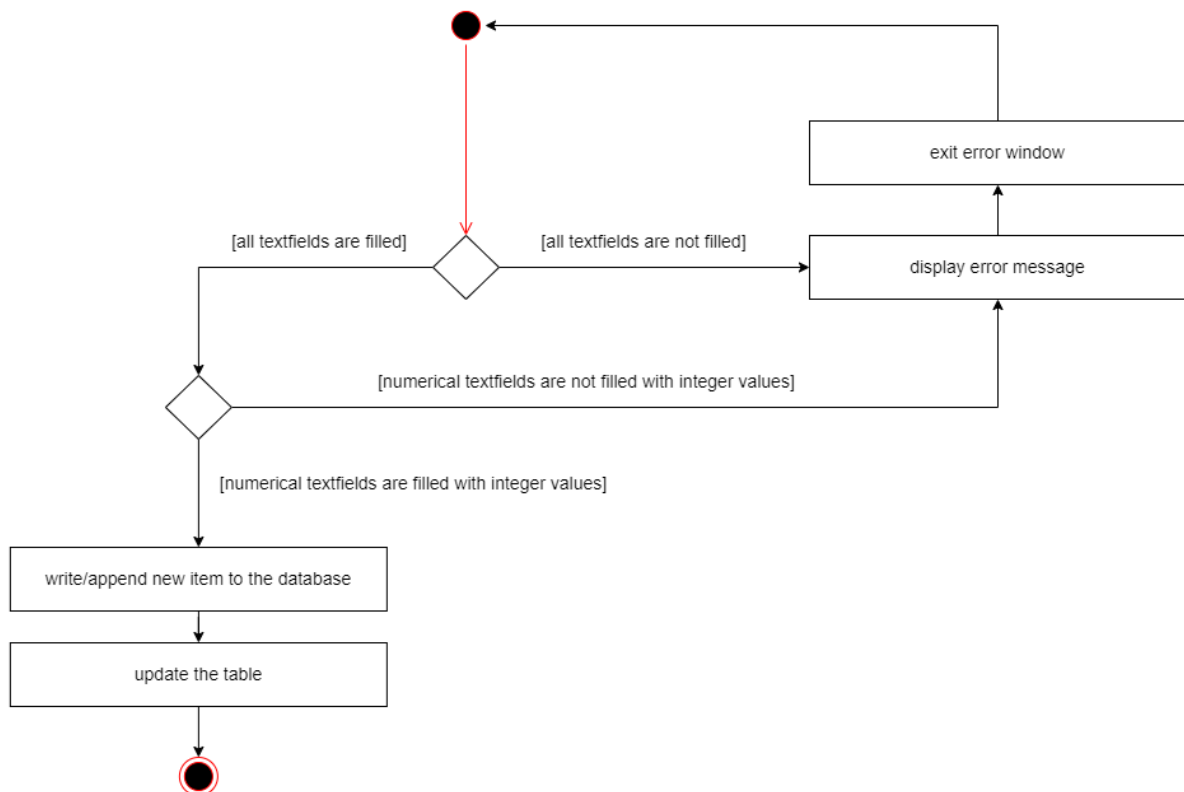
Activity diagram for login: LoginPage



Activity diagram for process of showing items in table, used in: **ArticleScreen, DigitalScreen, EJournalScreen, EReadingBookScreen, ETextBookScreen, IssueAnItemScreen, ItemsScreen, PersonEditScreen, ReadingBookScreen, SearchScreen, SingleStudentScreen, StudentScreen, TextBookScreen**

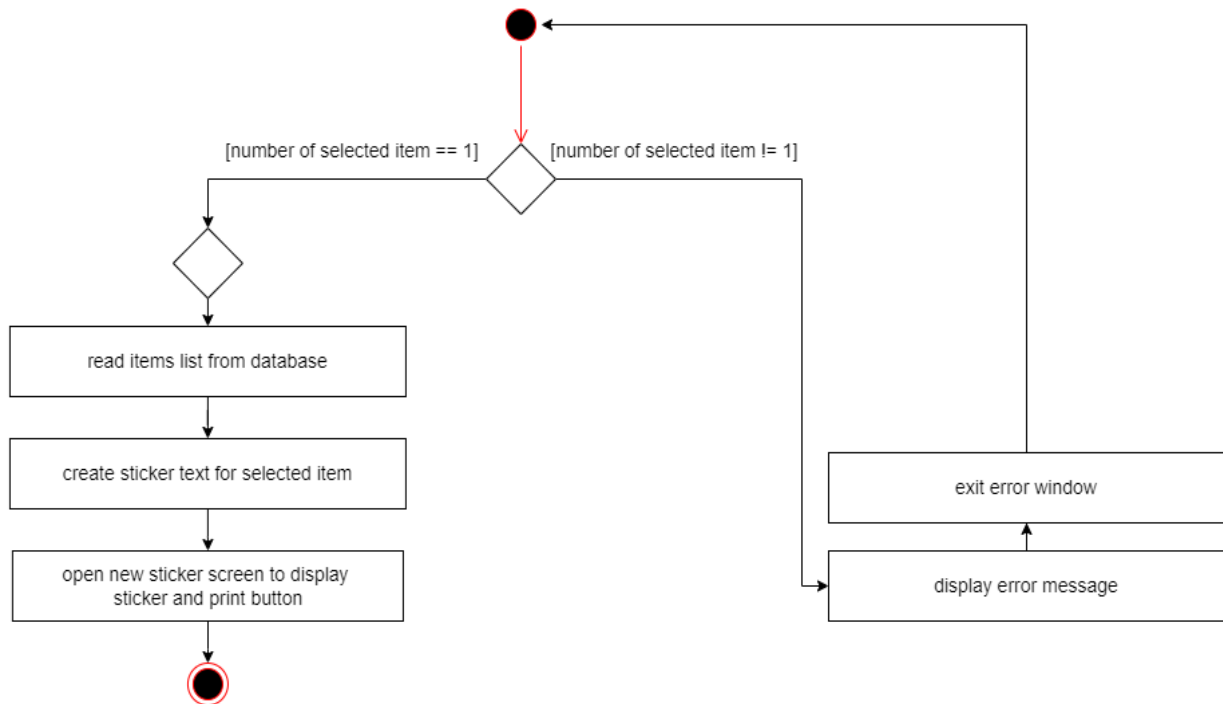


Activity diagram for deleting an item, used in: **ArticleScreen, DigitalScreen, EJournalScreen, EReadingBookScreen, ETextBookScreen, IssueAnItemScreen, PersonEditScreen, ReadingBookScreen, SearchScreen, SingleStudentScreen, StudentScreen, TextBookScreen**

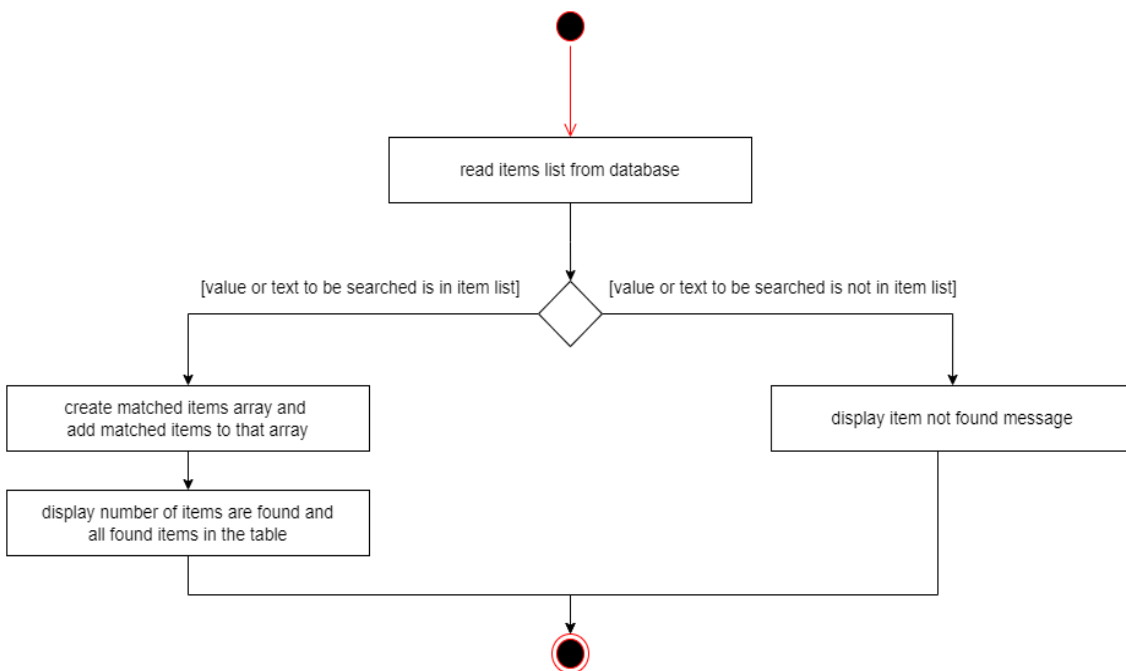


Activity diagram for adding an item, used in: **ArticleScreen, DigitalScreen, EJournalScreen, EReadingBookScreen, ETextBookScreen, IssueAnItemScreen, PersonEditScreen,**

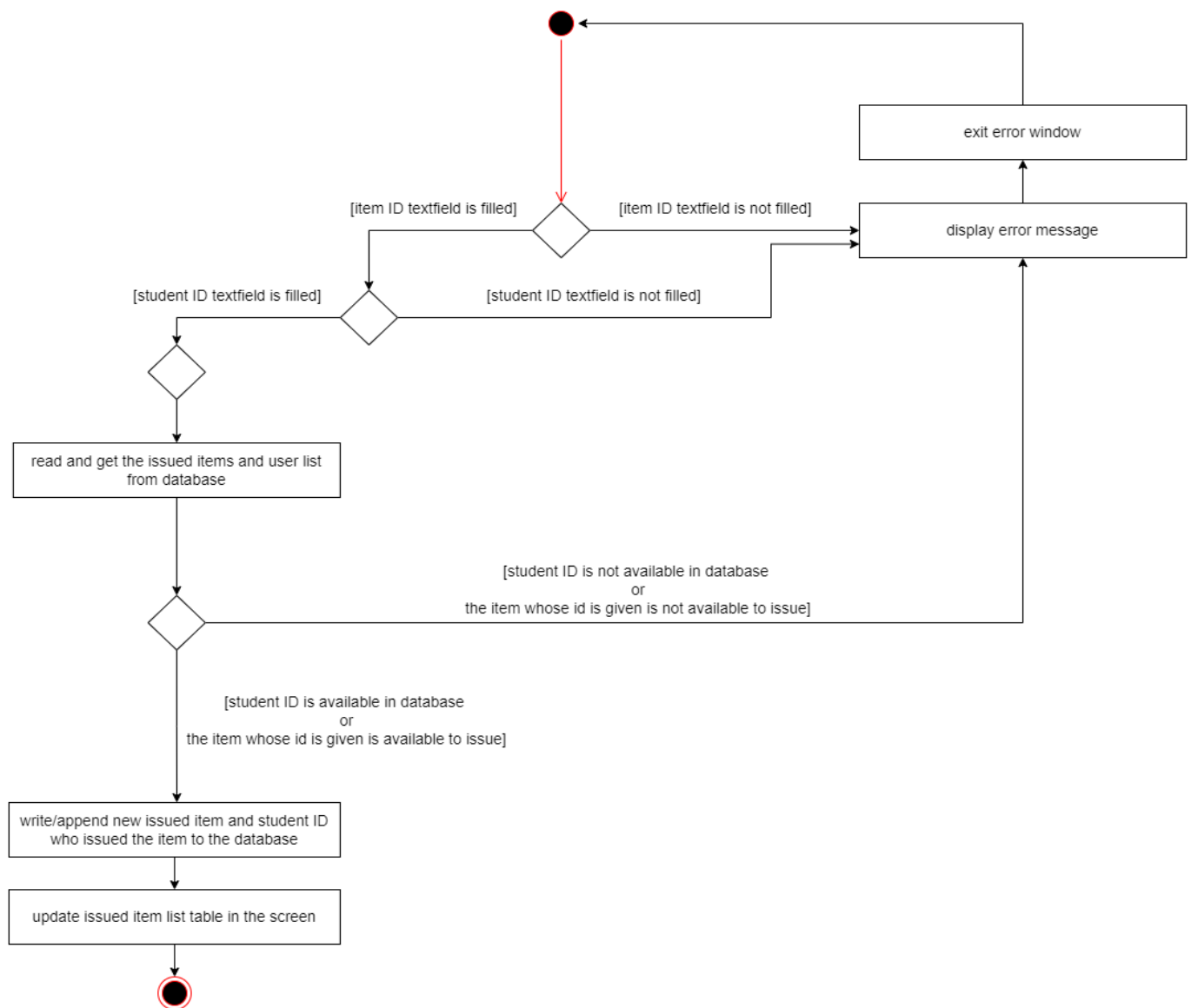
ReadingBookScreen, SearchScreen, SingleStudentScreen, StudentScreen, TextBookScreen



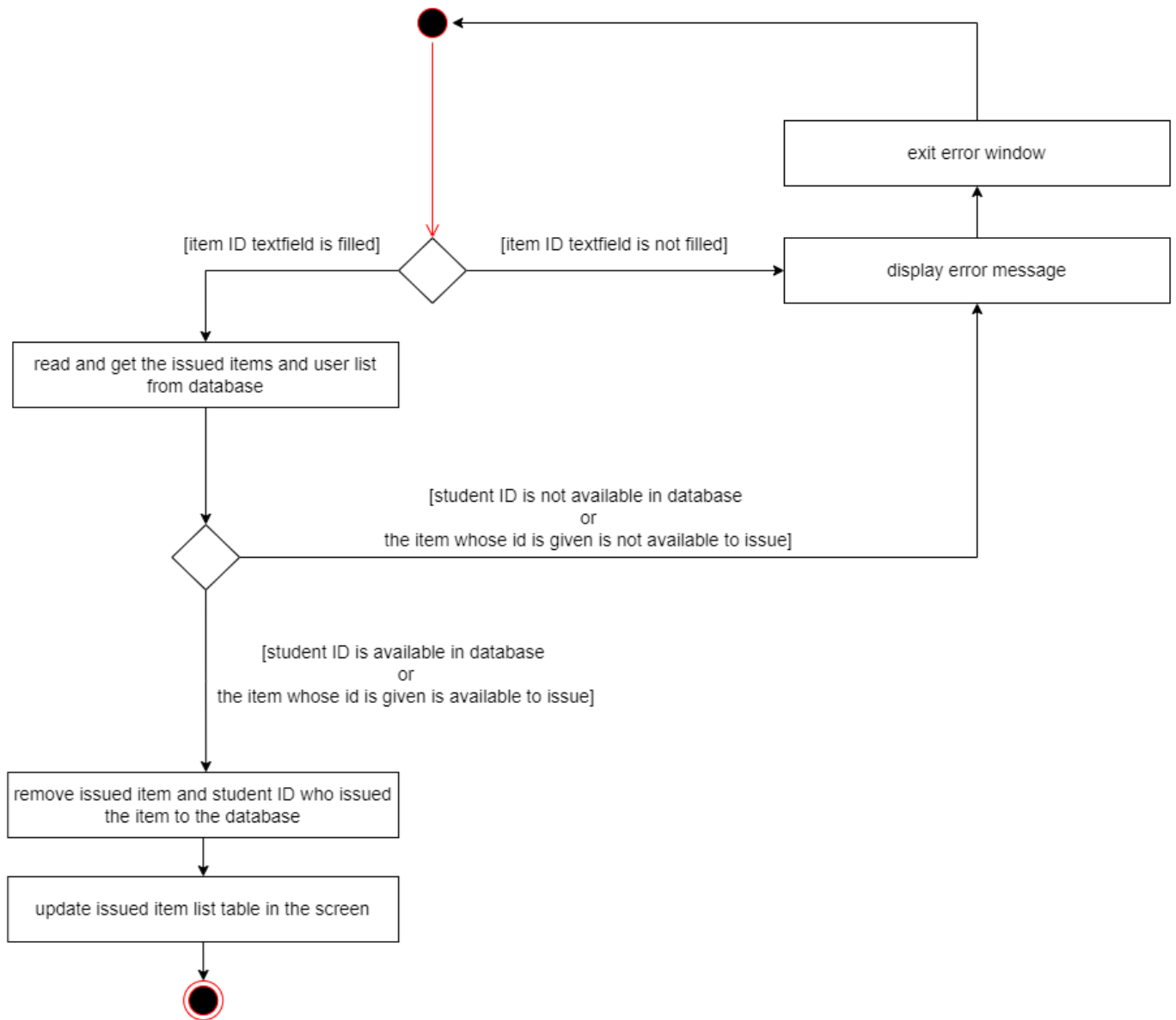
Activity diagram for creating a card/sticker for an item, used in: **ArticleScreen, DigitalScreen, EJournalScreen, EReadingBookScreen, ETextBookScreen, IssueAnItemScreen, PersonEditScreen, ReadingBookScreen, SearchScreen, SingleStudentScreen, StudentScreen, TextBookScreen**



Activity diagram for searching item/user, used in: **ArticleScreen, DigitalScreen, EJournalScreen, EReadingBookScreen, ETextBookScreen, IssueAnItemScreen, ItemsScreen, ReadingBookScreen, SearchScreen, SingleStudentScreen, TextBookScreen**



Activity diagram for issue an item, used in: **IssueAnItemScreen**



Activity diagram for return an item, used in: **ReturnItemScreen**

Collaborations in Library Management System

An object of class...	Sends the message...	To an object of class...
LoginPage	getPermission getPersonArrayList getPersonArrayList getPersonArrayList	MainPage StudentScreen IssueAnItemScreen PersonEditScreen
MainPage	getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getLastItemID getLastItemID getLastItemID getLastItemID getLastItemID getLastItemID getLastItemID getLastItemID getLastItemID isNumeric isNumeric isNumeric isNumeric isNumeric isNumeric isNumeric	ArticleScreen DigitalScreen EJournalScreen EReadingBookScreen ETextBookScreen ReadingBookScreen TextBookScreen ItemsScreen IssueAnItemScreen ReturnItemScreen ArticleScreen DigitalScreen EJournalScreen EReadingBookScreen ETextBookScreen ReadingBookScreen TextBookScreen PersonEditScreen StudentScreen ArticleScreen DigitalScreen EReadingBookScreen ETextBookScreen ReadingBookScreen TextBookScreen StudentScreen
ArticleScreen	stickerText modelTable table1 searchedTitle searchedKeyword searchedAuthor articleArray	StickerScreen StickerScreen StickerScreen SearchScreen SearchScreen SearchScreen SearchScreen

	labelOfTable	SearchScreen
	table1 articleArray labelOfTable	MainPage MainPage MainPage
DigitalScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	searchedTitle searchedDirector digitalArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen
	table1 digitalArray labelOfTable	MainPage MainPage MainPage
EJournalScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	searchedTitle searchedTopic EJournalArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen
	table1 EJournalArray labelOfTable	MainPage MainPage MainPage
EReadingBookScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	searchedTitle searchedAuthor searchedGenre EReadingBookArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen SearchScreen
	table1 EReadingBookArray labelOfTable	MainPage MainPage MainPage

ETextBookScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	searchedTitle searchedAuthor searchedField ETextBookArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen SearchScreen
	table1 ETextBookArray labelOfTable	MainPage MainPage MainPage
IssueAnItemScreen	table1 issuedItemArray labelOfTable	MainPage MainPage MainPage
PersonEditScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	table1 personArray labelOfTable	MainPage MainPage MainPage
PersonEditScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	table1 itemArray labelOfTable	MainPage MainPage MainPage
ReadingBookScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	searchedTitle searchedAuthor readingBookArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen
	table1 readingBookArray labelOfTable	MainPage MainPage MainPage
SearchScreen	table1 searchedItemsArray labelOfTable	MainPage MainPage MainPage

SingleStudentScreen	getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList getItemsArrayList	ArticleScreen DigitalScreen EJournalScreen EReadingBookScreen ETextBookScreen ReadingBookScreen TextBookScreen
	articleArrayList digitalArrayList readingBookArrayList eJournalArrayList eReadingBookArrayList eTextBookArrayList textBookArrayList	ItemsScreen ItemsScreen ItemsScreen ItemsScreen ItemsScreen ItemsScreen ItemsScreen
	searchedTitle searchedAuthor issuedStudentItemArray labelOfTable	SearchScreen SearchScreen SearchScreen SearchScreen
	table1 issuedStudentItemArray labelOfTable	MainPage MainPage MainPage
StudentScreen	stickerText modelTable table1	StickerScreen StickerScreen StickerScreen
	table1 studentArray labelOfTable	MainPage MainPage MainPage