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# Bibliotheca Ver. 1.2

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## Online Library System (Bibliotheca) Software Requirements Specification

**Version 1.2**

<b>Bibliotheca</b>	Version : 1.2
Software Requirements Specification	Date : November 22, 2017

## Revision History

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
29/Oct/2017	1.0	Software Requirements Specification Document Initial Release.	Sachin B.
19/Nov/2017	1.1	Software Requirements Specification Document Release 1.1.	Sachin B.
23/Dec/2006	1.2	Software Requirements Specification Document Final Release.	Sachin B.

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## Online Library System

### 1. Introduction (Why its advantageous over traditional library management)

Borrowing books, returning books or viewing the available books at the Library of the local College is currently done manually where in the student has to go to the Library and check the available books at the Library. Students check the list of books available and borrow the books if the book is a borrow book otherwise it is of waste for the student to come to the library to come to check for the books if the student doesn't get the book. Then the librarian checks the student id and allows the member to check out the book and the librarian then updates the member database and also the books database. This takes at least one to two hours if the member is available at the near by place otherwise it may take more time.

I have decided to investigate the use of an Online Library Management System. This system would be used by members who may be students or professors of that College to check the availability of the books and borrow the books, and by the librarian to update the databases. The purpose of this document is to analyze and elaborate on the high-level needs and features of the *Online Library System (Bibliotheca)*. It focuses on the capabilities and facilities provided by a Library. The details of what all are the needs of the *Online Library System* and if it fulfills these needs are detailed in the use-case and supplementary specifications.

#### 1.1 Purpose

The purpose of **Software Requirements Specification (SRS)** document is to describe the external behavior of the Online Library System (Bibliotheca). Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the Online Library System. The document also describes the nonfunctional requirements such as the user interfaces. It also describes the design constraints that are to be considered when the system is to be designed, and other factors necessary to provide a complete and comprehensive description of the requirements for the software. The Software Requirements Specification (**SRS**) captures the complete software requirements for the system, or a portion of the system. Requirements described in this document are derived from the Vision Document prepared for the Online Library System.

#### 1.2 Scope

The Software Requirements Specification captures all the requirements in a single document. The *Online Library System (bibliotheca)* that is to be developed provides the members of the Library and employees of the library with books information, online renewal of books and many other facilities. The Online Library System is supposed to have the following features.

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- The product provides the members with online issue of books capabilities and the Online Library System is up and running all day.
- The system provides logon facility to the users.
- The system provides the members with the option to check their account and view submission date of books.
- The system allows the members to issue the books 24 hours a day and all the through the semester.
- The system lets the library staff to check which all members have issued the books and whether they can borrow any more books or not.
- The system allows the Librarian to create the books catalog, add/delete books and maintain the books catalog.
- The system updates the billing system as and when the member borrows or returns a book.
- Librarian ( **Staff** ) can renew the book which has been bought, with maximum of 15 days to keep the book.

The features that are described in this document are used in the future phases of the software development cycle. The features described here meet the needs of all the users. The success criteria for the system is based in the level up to which the features described in this document are implemented in the system.

### 1.3 Definitions, Acronyms and Abbreviations

- Provided wherever necessary in the document.
- PIN – Personal Identification Number
- SRS – Software Requirement Specification

### 1.4 References

- Django Docs <https://docs.djangoproject.com/en/1.11/>
- Wikipedia [https://en.wikipedia.org/wiki/Django\\_\(web\\_framework\)](https://en.wikipedia.org/wiki/Django_(web_framework))
- StackOverflow <https://stackoverflow.com/>
- Django Girls (Tutorial) <https://tutorial.djangogirls.org/en/>
- Github (project available on) <https://github.com/Sac08/bibliotheca-A-local-library-Django>

### 1.5 Overview

The SRS will provide a detailed description of the Online Library System. This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.

**1.5.1 Section 1:** This section of the SRS will provide the general factors that affect the product and its requirements. It provides the background for those requirements. The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are described in this section.

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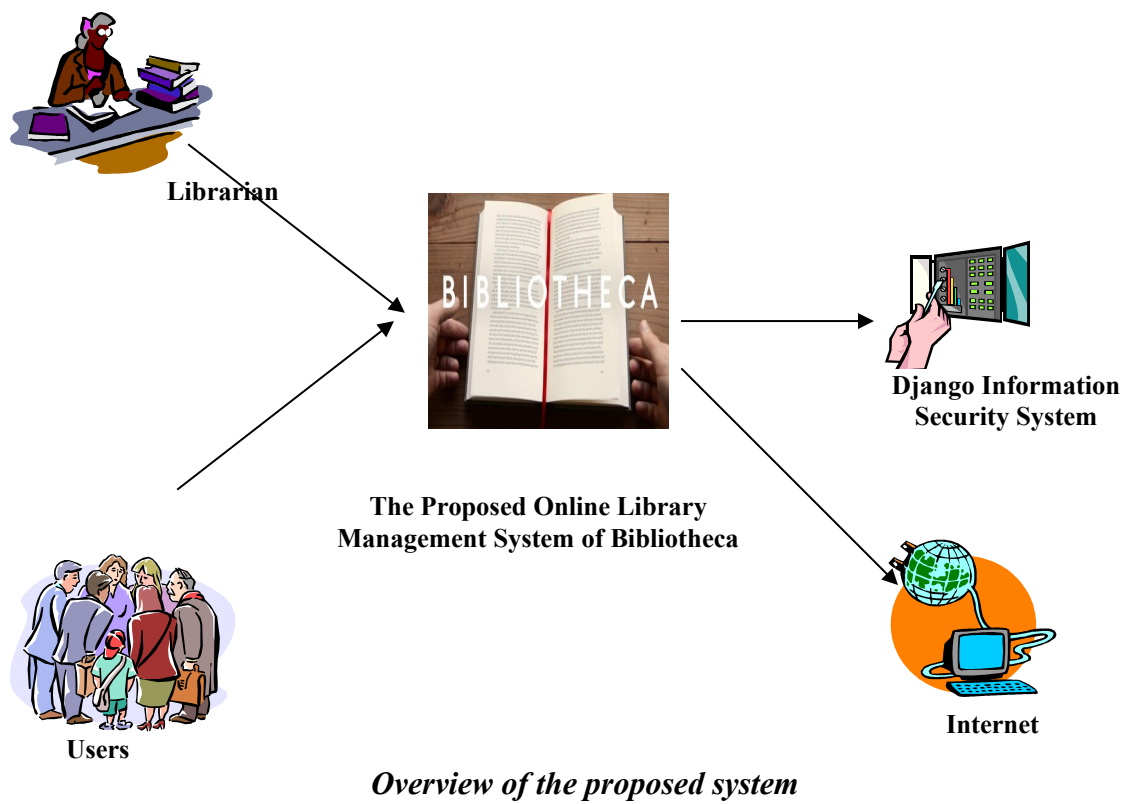
**1.5.2 Section 2:** This section of SRS contains all the software requirements mentioned in section 1 in detail sufficient enough to enable designers to design the system to satisfy the requirements and testers to test if the system satisfies those requirements.

## 2. Overall Description

- **Product Perspective**

The Online Library System is a package to be used by Libraries to improve the efficiency of Librarians, Library employees and Users. The Online Library System to be developed benefits greatly the members and the Librarian of Bibliotheca. The system provides books catalog, author catalog and information to members and helps them decide on the books to borrow from the library. The Librarian can keep the books catalog updated all the time so that the members (students and the professors) get the updated information all the time.

The complete overview of the system is as shown in the overview diagram below:  
The product to be developed has interactions with the users: Librarian, Members who are the students and professors.



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- **Product Functions**

The Online Library System of Bibliotheca provides online real time information about the books available in the Library and the user information. The Product functions are more or less the same as described in the product perspective. The functions of the system include the system providing different type of services based on the type of users [Member/Librarian].

- The member should be provided with the updated information about the books catalog.
- Provisions for the members to borrow the books they want, if all the other required rules hold good.
- The member is given a provision to check his account information.
- The members are provided with the list of books available in bibliotheca and allowed to choose the books, which they want to use in the coming up days.
- The librarian can get the information about the members who have borrowed or returned the books.
- The librarian is provided with interfaces to add/delete the books available in the book catalog.
- The members when complete the book borrowing or returning process, the due to be paid by the member must be calculated and the information about the member and the due amount is paid to staff of the bibliotheca.
- The system uses the Django information security requirements to provide the login facility to the users.

- **User characteristics**

Staff      The Staff has the following powers:

- VIEW All The Members who have issued books from bibliotheca
- Can RENEW the books
- Can ADD the books to library
- Can MODIFY book details
- Can Register students to bibliotheca

Member    The Member has the following powers:

- Can VIEW submission date of book
- Can Be Able to Access Website

Universe    The Universe can access the website but they are not allowed alter/modify Database.



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- **Constraints**

- The information of all the users must be stored in a database that is accessible by the Online Library System.
- The Django information security system must be compatible with the Internet applications (no problem).
- The Online Library System of bibliotheca is connected to the College computer and is running all 24 hours a day.
- The users access the Online Library System of Bibliotheca from any computer that has Internet browsing capabilities and an Internet connection.
- The users must have their correct usernames and passwords to enter into the Online Library System.

- **Assumptions and dependencies**

- The users have sufficient knowledge of computers.
- The University computer should have Internet connection and Internet server capabilities.
- The users know the English language, as the user interface will be provided in English

### 3. **Specific Requirements**

This section describes in detail all the functional requirements.

#### 3.1 **Functionality**

##### 3.1.1 Logon Capabilities

The system shall provide the users with logon capabilities.

##### 3.1.2 Mobile Devices

The Online Library System is also supported on mobile devices such as cell phones (Current version does not hosted into web).

##### 3.1.3 Alerts

The system can alert the Librarian or the administrator in case of any problems.

#### 3.2 **Usability**

- The system shall allow the users to access the system from the Internet using HTML. The system uses a web browser as an interface.
- Since all users are familiar with the general usage of browsers, no specific training is required.

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- The system is user friendly and self-explanatory.

### **3.3 Reliability**

The system has to be very reliable due to the importance of data and the damages incorrect or incomplete data can do.

#### **3.3.1 Availability**

The system is available 100% for the user and is used 24 hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.

#### **3.3.2 Accuracy**

The accuracy of the system is limited by the accuracy of the speed at which the employees of the library and users of the library use the system.

#### **3.3.3 Maximum Bugs or Defect Rate**

Not specified.

#### **3.3.4 Access Reliability**

The system shall provide 100% access reliability.

### **3.4 Performance**

#### **3.4.1 Response Time**

The access time for a mobile device should be less than a minute. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs.

#### **3.4.2 Administrator/Librarian Response**

The system shall take as less time as possible to provide service to the administrator or the librarian.

#### **3.4.3 Throughput**

The number of transactions is directly dependent on the number of users, the users may be the Librarian, employees of the Library and also the people who use the Library for checking-out books, returning books and checking online library account.

#### **3.4.4 Capacity**

The system is capable of handling more than 5k users concurrently (Django speciality).

#### **3.4.5 Resource Utilization**

The resources are modified according the user requirements and also according to the books requested by the users.

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### 3.5 Supportability

The system designers shall take in to considerations the following supportability and technical limitations.

#### 3.5.1 Internet Protocols

The system shall be comply with the TCP/IP protocol standards and shall be designed accordingly.

#### 3.5.2 Information Security Requirement

The system shall support the Django information security requirements and use the same standard as the D information security requirements.

#### 3.5.3 Maintenance

The maintenance of the system shall be done as per the maintenance contract.

#### 3.5.4 Standards

The coding standards and naming conventions will be as per the American standards.

### 3.6 Design Constraints

#### 3.6.1 Software Language Used

*Front-End : HTML, CSS, Bootstrap.*

*Back-end : Django1.10, SQLite.*

#### 3.6.2 Development Tools

Sublime Text Editor (for writing code)

Database Viewer (To view Database)

Firefox/Chrome (To view The Result)

#### 3.6.3 Class Libraries

Not specific.

### 3.7 On-line User Documentation and Help System Requirements

Since On-line User Documentation and Help System is not handled in project, the particular who needs help may contact to ,

<mailto:sachinbagalakoti08@gmail.com>

### 3.8 Purchased Components

No such for this version.

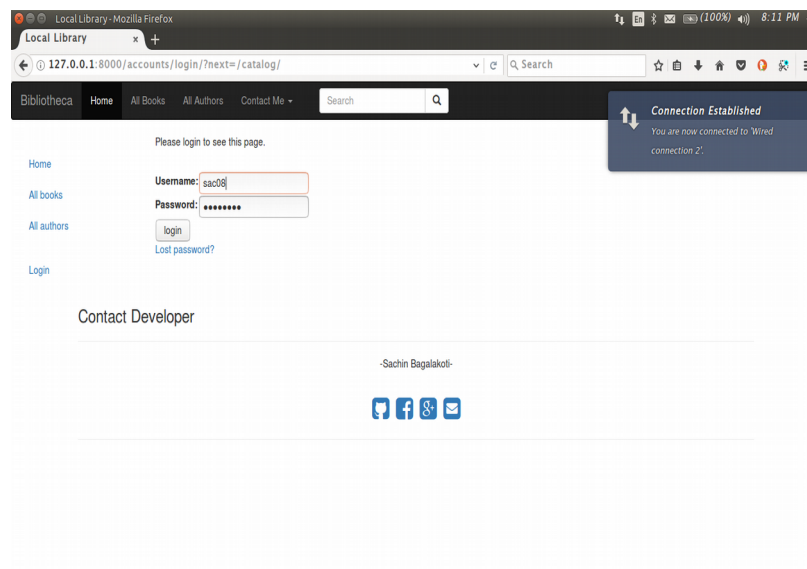
### 3.9 Interfaces

#### 3.9.1 User Interfaces

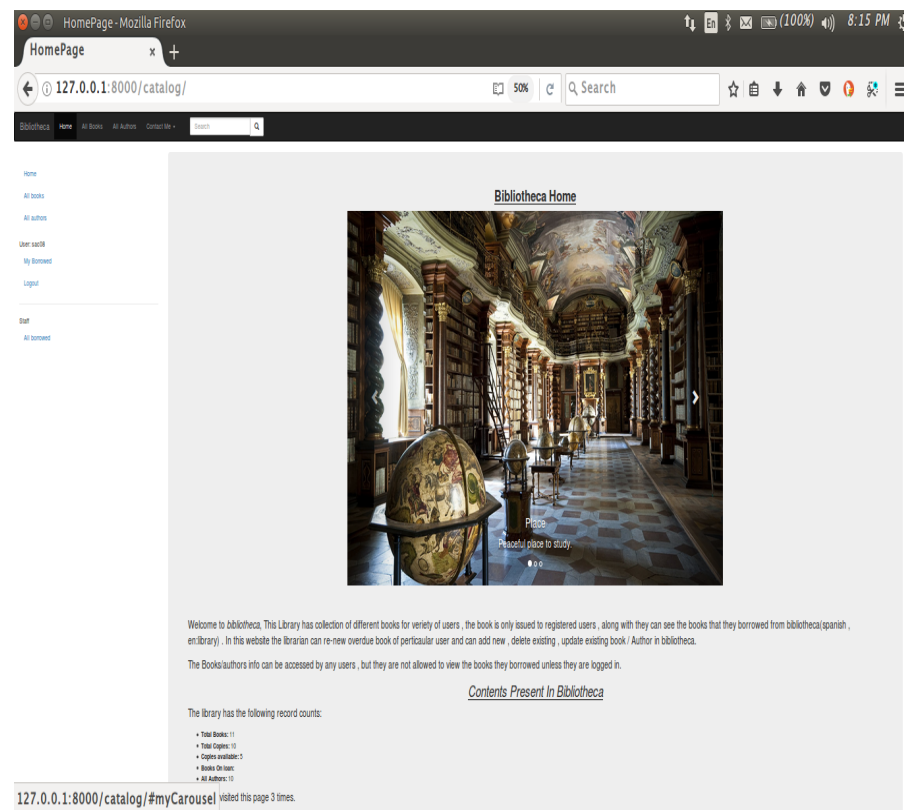
Will make use of the existing Web Browsers such as Microsoft Internet Explorer or Netscape or Firefox. The user-interface of the system shall be designed as shown in the user-interface prototypes.

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### **Logon Screen :**



### **Home Page Of Bibliotheca Library :**



### **Adding Value to Database Screen:**

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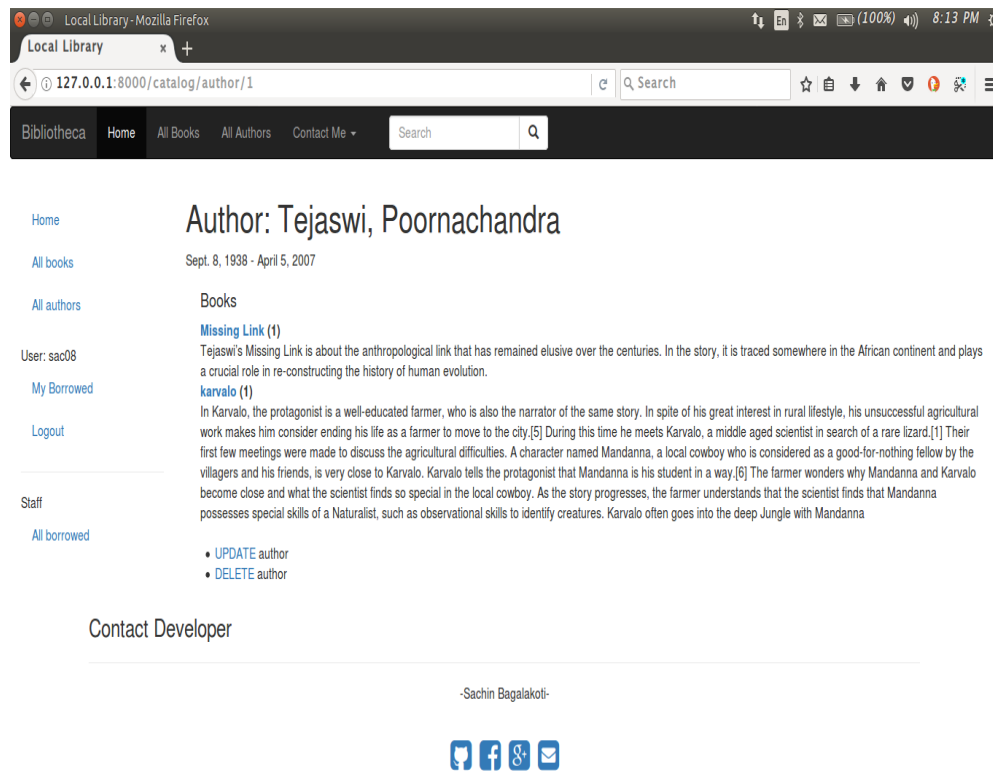
The screenshot shows the Django administration interface for the 'Change book instance' page. The browser address bar shows the URL: 127.0.0.1:8000/admin/catalog/bookinstance/95fad5b9-f625-4d7a-86f9-a6f64d1ca9d7. The page title is 'Django administration' with a welcome message for 'SACHIN' and links for 'VIEW SITE', 'CHANGE PASSWORD', and 'LOG OUT'. The breadcrumb trail is 'Home > Catalog > Book instances > 95fad5b9-f625-4d7a-86f9-a6f64d1ca9d7 (The Monk Who Sold His Ferrari)'. The main form is titled 'Change book instance' and includes a 'HISTORY' button. The form fields are: 'Book' (The Monk Who Sold His Ferrari), 'Imprint' (heaven pub.), 'id' (95fad5b9f6254d7a86f9a6f64d), 'Availability' (Reserved), 'Due back' (2017-09-25), and 'Borrower' (niti48). At the bottom, there are buttons for 'Delete', 'Save and add another', 'Save and continue editing', and 'SAVE'.

### **After Logged in:**

The screenshot shows the 'Local Library' website after logging in. The browser address bar shows the URL: 127.0.0.1:8000/catalog/books/. The page has a dark header with 'Bibliotheca' and navigation links: 'Home', 'All Books', 'All Authors', and 'Contact Me'. A search bar is also present. The main content area is titled 'BOOKS LIST' and displays a list of books: 'Missing Link (Tejaswi, Poornachandra)', 'The Monk Who Sold His Ferrari (Sharma, Robin)', 'karvalo (Tejaswi, Poornachandra)', 'wings of fire (Kalam, Abdul)', and 'tesla spacex and the quest for a fantastic future (Vance, Ashlee)'. The page also shows 'User: sac08', 'My Borrowed' link, 'Logout' link, 'Staff' link, and 'All borrowed' link. At the bottom, there is a 'Contact Developer' section with the name '-Sachin Bagalakoti-' and social media icons for GitHub, Facebook, Google+, and Email.

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### **Author/Books Detail:**



### **3.9.2 Hardware Interfaces**

No such.

### **3.9.3 Software Interfaces**

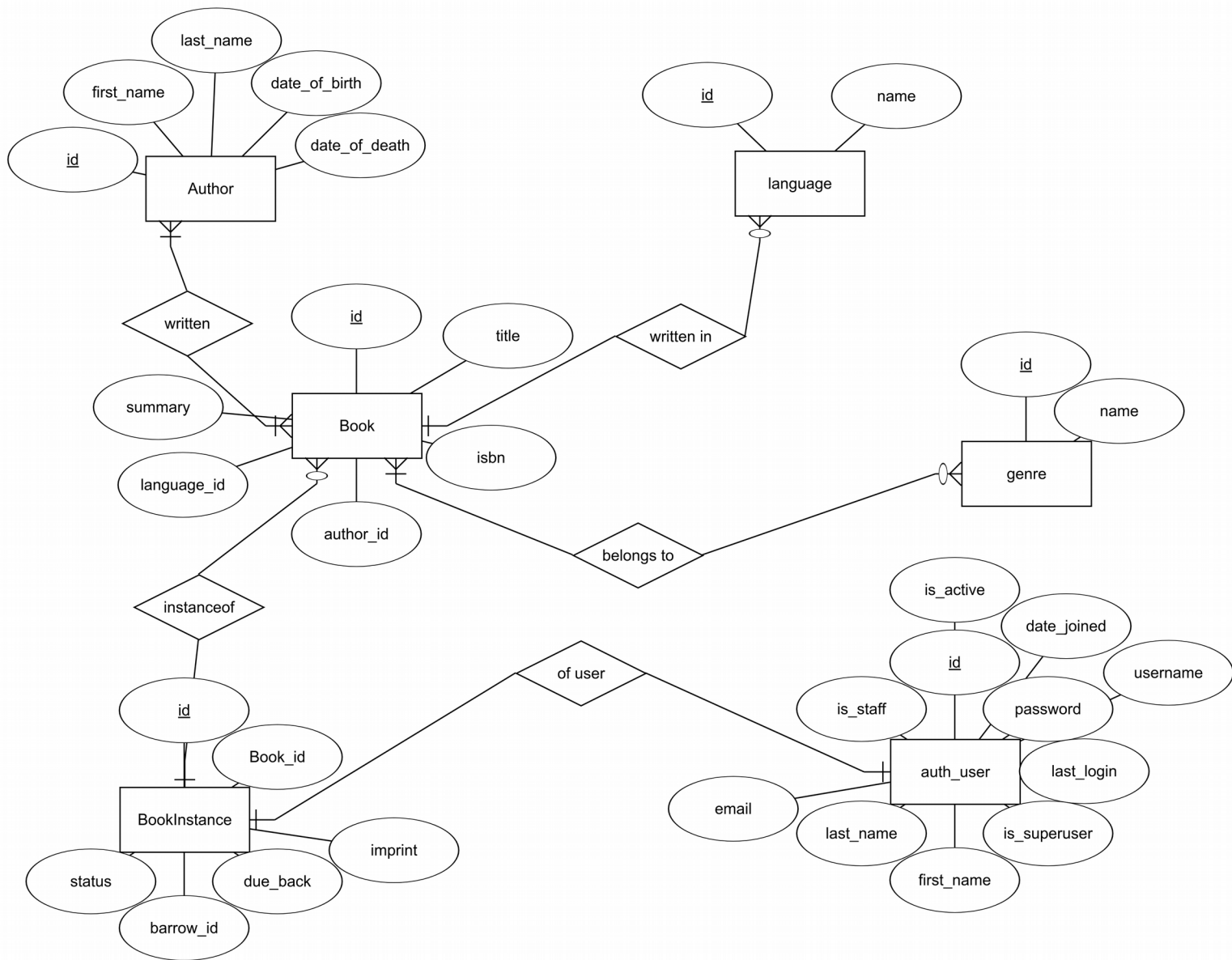
Django Provides Security interface.

### **3.9.4 Communications Interfaces**

The Online Library System will be connected to the World Wide Web.

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## 4. ER Diagram



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## 5. Tables in Database

### All books :

The screenshot shows a database management interface with a table named 'catalog\_author'. The table has 5 columns: 'id', 'first\_name', 'last\_name', 'date\_of\_birth', and 'date\_of\_death'. It contains 10 rows of data. The interface also shows a SQL editor with the query 'select \* from catalog\_author;' and a results pane displaying the table data.

id	first_name	last_name	date_of_birth	date_of_death
1	Poornachandra	Tejaswi	1938-09-08	2007-04-05
2	Robin	Sharma	1978-09-08	NULL
3	Abdul	Kalam	1931-10-15	2015-07-27
4	Ashlee	Vance	1971-10-15	NULL
5	S.L.	Bhairappa	1971-01-23	NULL
6	Dan	Harris	1982-09-28	NULL
7	Grant	Cardone	1959-03-21	2016-09-28

10 rows returned in 1ms from: select \* from catalog\_author;

### book-genre :

The screenshot shows a database management interface with a table named 'catalog\_book\_genre'. The table has 3 columns: 'id', 'book\_id', and 'genre\_id'. It contains 11 rows of data. The interface also shows a SQL editor with the query 'select \* from catalog\_book\_genre;' and a results pane displaying the table data.

id	book_id	genre_id
1	1	1
2	2	2
3	3	2
4	4	3
5	5	3
6	6	4
7	7	5

11 rows returned in 0ms from: select \* from catalog\_book\_genre;



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### book-instance :

DB Browser for SQLite - /home/sachin\_b/Documents/projects/bibliotheca-A-local-library-Django/db.sqlite3

New Database Open Database Write Changes Revert Changes

Database Structure Browse Data Edit Pragma Execute SQL

SQL 1

```
1 select * from catalog_bookinstance
```

	id	imprint	due_back	book_id	borrower_id	status
1	8af11811d7714710a3d603e81a1ee776	Sudha Publications	2017-09-30	1	NULL	a
2	95fad5b9f6254d7a86f9a6f64d1ca9d7	heaven pub.	2017-09-25	2	2	r
3	af6951d81a6c496d8823ae0eb5a684fa	Sudha Publications	NULL	3	NULL	a
4	c75818e734624f428d1f40db0ba36e70	Universities Press	2017-10-22	4	1	r
5	0c3ccd4cbc3b45058ee29cf6154640cc	HarperCollins	2017-12-30	5	1	o
6	6780073fa6c7473596282ae6d25595...	Mehta Publishing House	NULL	6	NULL	a
7	2a2c6aba15fa450ba660eb60b1143604	oxford publication	NULL	7	NULL	a

10 rows returned in 0ms from: select \* from catalog\_bookinstance

UTF-8

### genre :

DB Browser for SQLite - /home/sachin\_b/Documents/projects/bibliotheca-A-local-library-Django/db.sqlite3

New Database Open Database Write Changes Revert Changes

Database Structure Browse Data Edit Pragma Execute SQL

SQL 1

```
1 select * from catalog_genre
```

	id	name
1	1	Science
2	2	Life Advice
3	3	autobiography
4	4	history
5	5	Meditation
6	6	Self Improvement
7	7	fiction

7 rows returned in 0ms from: select \* from catalog\_genre

UTF-8

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## language :

The screenshot shows the DB Browser for SQLite interface. The 'Execute SQL' tab is active, displaying the query 'select \* from catalog\_language'. The results are shown in a table with two rows: (1, English) and (2, Kannada). The status bar at the bottom indicates '2 rows returned in 0ms from: select \* from catalog\_language'.

id	name
1	English
2	Kannada

## All Authors :

The screenshot shows the DB Browser for SQLite interface. The 'Execute SQL' tab is active, displaying the query 'select \* from catalog\_author;'. The results are shown in a table with 10 rows. The status bar at the bottom indicates '10 rows returned in 1ms from: select \* from catalog\_author;'. On the right, the 'Edit Database Cell' panel is visible, showing 'Type of data currently in cell: NULL' and '0 byte(s)'. The 'DB Schema' panel on the right lists 17 tables, including auth\_group, auth\_group\_permissions, auth\_permission, auth\_user, and auth\_user\_groups.

id	first_name	last_name	date_of_birth	date_of_death
1	Poornachandra	Tejaswi	1938-09-08	2007-04-05
2	Robin	Sharma	1978-09-08	NULL
3	Abdul	Kalam	1931-10-15	2015-07-27
4	Ashlee	Vance	1971-10-15	NULL
5	S.L.	Bhairappa	1971-01-23	NULL
6	Dan	Harris	1982-09-28	NULL
7	Grant	Cardone	1959-03-21	2016-09-28