BOOKLAND LIBRARY PLATFORM

Database Systems Course Project

Version 1.0

Introduction

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Project Idea & Mission

Project Idea and Purpose:

Bookland Library Platform aims to revolutionize access to literature by offering a digital platform where users can freely download PDF books, buy new titles, and sell used ones. It's designed to be a holistic digital library that not only provides diverse reading materials but also fosters a community through features like blogs, comments, and reviews. The essence of Bookland is to make reading more accessible and interactive, breaking down barriers that readers face due to cost or location. By integrating a user-centric approach with customer dashboards, Bookland personalizes the reading experience, making it engaging and fulfilling for book lovers everywhere.

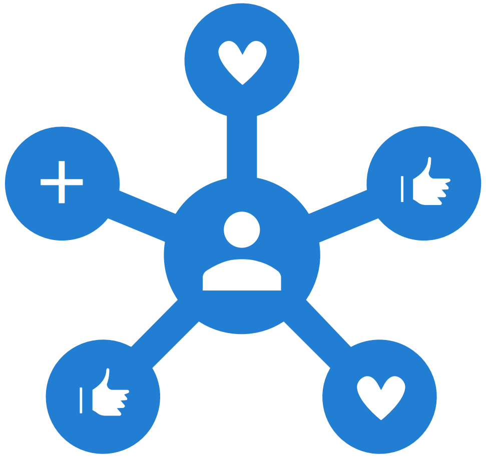
Inspiration & Objectives

Inspiration

- **Problem Identification**: Noticed the challenges faced by students and enthusiasts in accessing diverse literature conveniently.
- **Opportunity**: Leveraging technology to bridge the gap between readers and a wide array of books, especially in areas like technology, medicine, and engineering.
- **Community Building**: Inspired by the potential to create a platform that not only serves as a book repository but also fosters a community of readers and thinkers.

Objectives

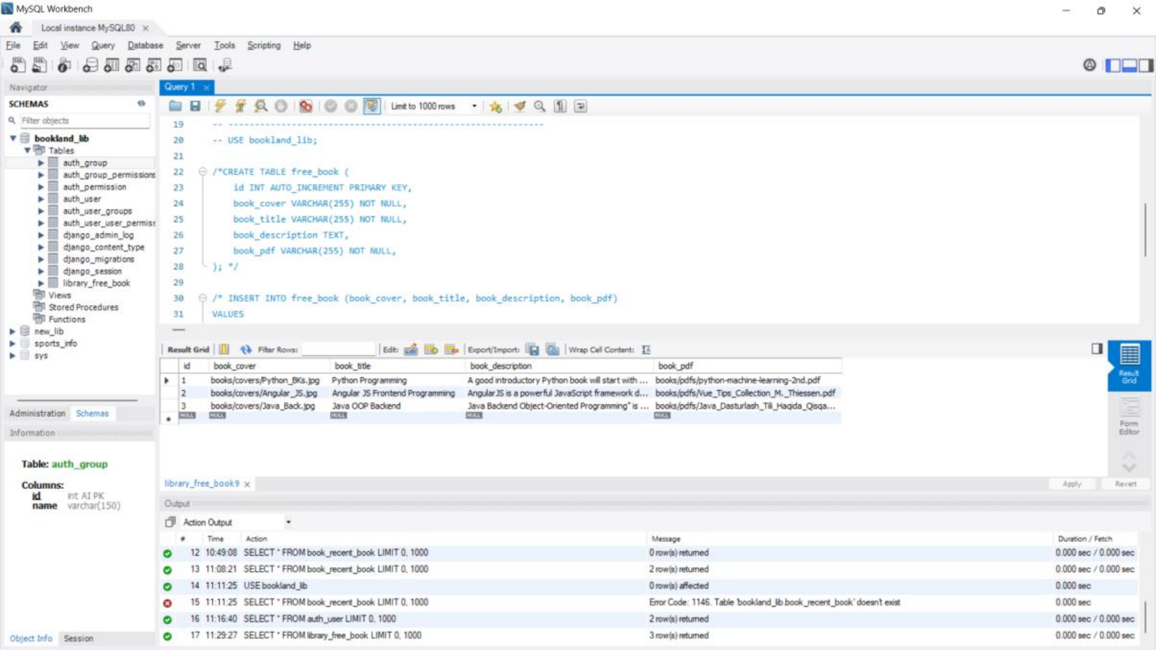
- **Accessibility**: To make a wide range of books easily accessible to people all over the world, regardless of geographic and economic barriers.
- **Engagement**: Enhance user engagement by integrating features that allow users to interact, such as book discussions and reviews.
- **Education and Growth**: Provide a resource that supports both academic and personal growth, making learning materials available in a structured and easy-to-navigate format.
- **Sustainability**: Offer a system where books can be reused and circulated among users, promoting sustainable practices in reading



Tools and Technologies

- **Languages**: Python, JavaScript, HTML, CSS
- **Frameworks**: Django, BOOTSTRAP,
- **Databases**: MySQL
- **APIs and Other Tools**: Django Rest Framework, GitHub for version control, and Heroku for deployment.
- **Management Tool:** Notion, PyCharm, Visual Studio Code

Database Design Schema



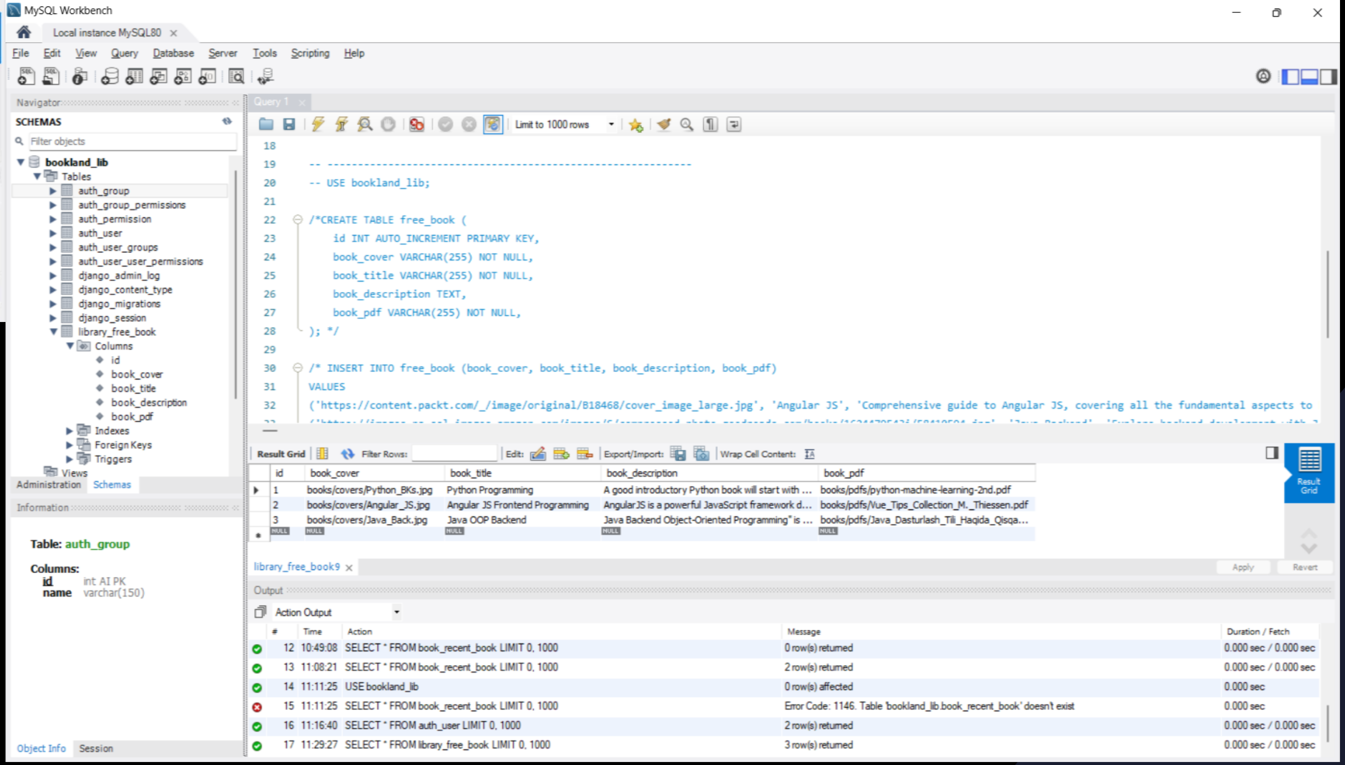
```sql
-- ------------------------------------------------------------
-- USE bookland_lib;

/*CREATE TABLE free_book (
    id INT AUTO_INCREMENT PRIMARY KEY,
    book_cover VARCHAR(255) NOT NULL,
    book_title VARCHAR(255) NOT NULL,
    book_description TEXT,
    book_pdf VARCHAR(255) NOT NULL,
); */

/* INSERT INTO free_book (book_cover, book_title, book_description, book_pdf)
VALUES
```

id	book_cover	book_title	book_description	book_pdf
1	books/covers/Python_BKs.jpg	Python Programming	A good introductory Python book will start with ...	books/pdfs/python-machine-learning-2nd.pdf
2	books/covers/Angular_JS.jpg	Angular JS Frontend Programming	AngularJS is a powerful JavaScript framework d...	books/pdfs/Vue_Tips_Collection_M._Thiessen.pdf
3	books/covers/Java_Back.jpg	Java OOP Backend	Java Backend Object-Oriented Programming" is ...	books/pdfs/Java_Dasturlash_Tili_Haqida_Qisqa...
NULL	NULL	NULL	NULL	NULL

Table: auth_group

Columns:
id int AI PK
name varchar(150)

```
#   Time      Action                                        Message                                                       Duration / Fetch
12  10:49:08  SELECT * FROM book_recent_book LIMIT 0, 1000  0 row(s) returned                                             0.000 sec / 0.000 sec
13  11:08:21  SELECT * FROM book_recent_book LIMIT 0, 1000  2 row(s) returned                                             0.000 sec / 0.000 sec
14  11:11:25  USE bookland_lib                              0 row(s) affected                                             0.000 sec
15  11:11:25  SELECT * FROM book_recent_book LIMIT 0, 1000  Error Code: 1146. Table 'bookland_lib.book_recent_book' doesn't exist  0.000 sec
16  11:16:40  SELECT * FROM auth_user LIMIT 0, 1000         2 row(s) returned                                             0.000 sec / 0.000 sec
17  11:29:27  SELECT * FROM library_free_book LIMIT 0, 1000 3 row(s) returned                                             0.000 sec / 0.000 sec
```



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    book_title VARCHAR(255) NOT NULL,
    book_description TEXT,
    book_pdf VARCHAR(255) NOT NULL,
); */

/* INSERT INTO free_book (book_cover, book_title, book_description, book_pdf)
VALUES
('https://content.packt.com/_/image/original/B18468/cover_image_large.jpg', 'Angular JS', 'Comprehensive guide to Angular JS, covering all the fundamental aspects to
```

id	book_cover	book_title	book_description	book_pdf
1	books/covers/Python_BKs.jpg	Python Programming	A good introductory Python book will start with ...	books/pdfs/python-machine-learning-2nd.pdf
2	books/covers/Angular_JS.jpg	Angular JS Frontend Programming	AngularJS is a powerful JavaScript framework d...	books/pdfs/Vue_Tips_Collection_M._Thiessen.pdf
3	books/covers/Java_Back.jpg	Java OOP Backend	Java Backend Object-Oriented Programming" is ...	books/pdfs/Java_Dasturlash_Tili_Haqida_Qisqa...
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16  11:16:40  SELECT * FROM auth_user LIMIT 0, 1000         2 row(s) returned                                             0.000 sec / 0.000 sec
17  11:29:27  SELECT * FROM library_free_book LIMIT 0, 1000 3 row(s) returned                                             0.000 sec / 0.000 sec
```
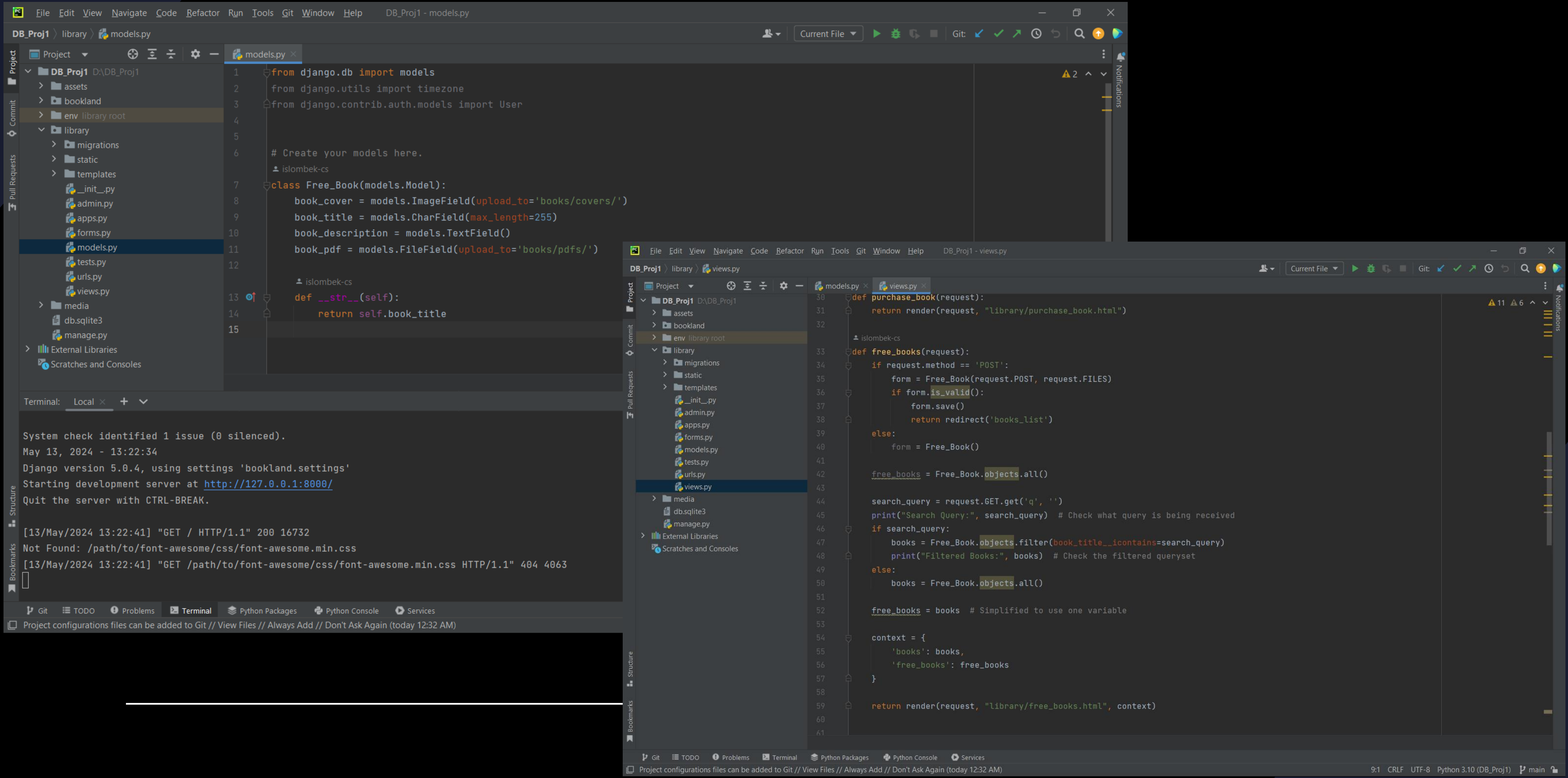

Django Model - Book



```python
from django.db import models
from django.utils import timezone
from django.contrib.auth.models import User


# Create your models here.
class Free_Book(models.Model):
    book_cover = models.ImageField(upload_to='books/covers/')
    book_title = models.CharField(max_length=255)
    book_description = models.TextField()
    book_pdf = models.FileField(upload_to='books/pdfs/')

    def __str__(self):
        return self.book_title
```

```
System check identified 1 issue (0 silenced).
May 13, 2024 - 13:22:34
Django version 5.0.4, using settings 'bookland.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.

[13/May/2024 13:22:41] "GET / HTTP/1.1" 200 16732
Not Found: /path/to/font-awesome/css/font-awesome.min.css
[13/May/2024 13:22:41] "GET /path/to/font-awesome/css/font-awesome.min.css HTTP/1.1" 404 4063
```

```python
def purchase_book(request):
    return render(request, "library/purchase_book.html")

def free_books(request):
    if request.method == 'POST':
        form = Free_Book(request.POST, request.FILES)
        if form.is_valid():
            form.save()
            return redirect('books_list')
    else:
        form = Free_Book()

    free_books = Free_Book.objects.all()

    search_query = request.GET.get('q', '')
    print("Search Query:", search_query)  # Check what query is being received
    if search_query:
        books = Free_Book.objects.filter(book_title__icontains=search_query)
        print("Filtered Books:", books)  # Check the filtered queryset
    else:
        books = Free_Book.objects.all()

    free_books = books  # Simplified to use one variable

    context = {
        'books': books,
        'free_books': free_books
    }

    return render(request, "library/free_books.html", context)
```

Development Process & Challenges

Initial Approach

- **Starting Point**: Began the project using Java Spring Boot aiming to leverage its robust framework for managing backend services.
- **Technical Challenges**: Encountered several package errors and configuration issues that hindered progress, leading to significant setbacks.

UI Design Challenges

- **Initial Designs**: Faced difficulties in implementing a user-friendly interface that could efficiently handle the functionalities envisioned for the platform.
- **Solution Strategy**: Conducted multiple design iterations and sought feedback from peers to refine the user interface, focusing on usability and accessibility.

Future Direction

- Implementation of Finding Readers page -> Improving networking between readers

- Connecting to AI to find necessary books

THANKS)