



Social Book Cataloguing & Recommendation Application

CSE461 - Software Engineering (Spring 2020) - Final Project

Shubham Das, Ravsimar Singh Sodhi, Manojit Chakraborty, Vaibhav Bajaj,
Ayush Agarwal, Apoorav Kumar Singh



Project Highlights

Our web application is a Social Cataloguing System. Users are able to freely search its database of books, view and rate books. Users can create bookshelf(s) and add the books they have read, or plan to read and get suggestions based on what their bookshelf contains.

We have Groups in our web application. Users can join one or more groups to his/her choice. They can add bookshelves in the groups. Books can be added in the bookshelves. Users also can use the chat functionality for having conversations with other users in the group.

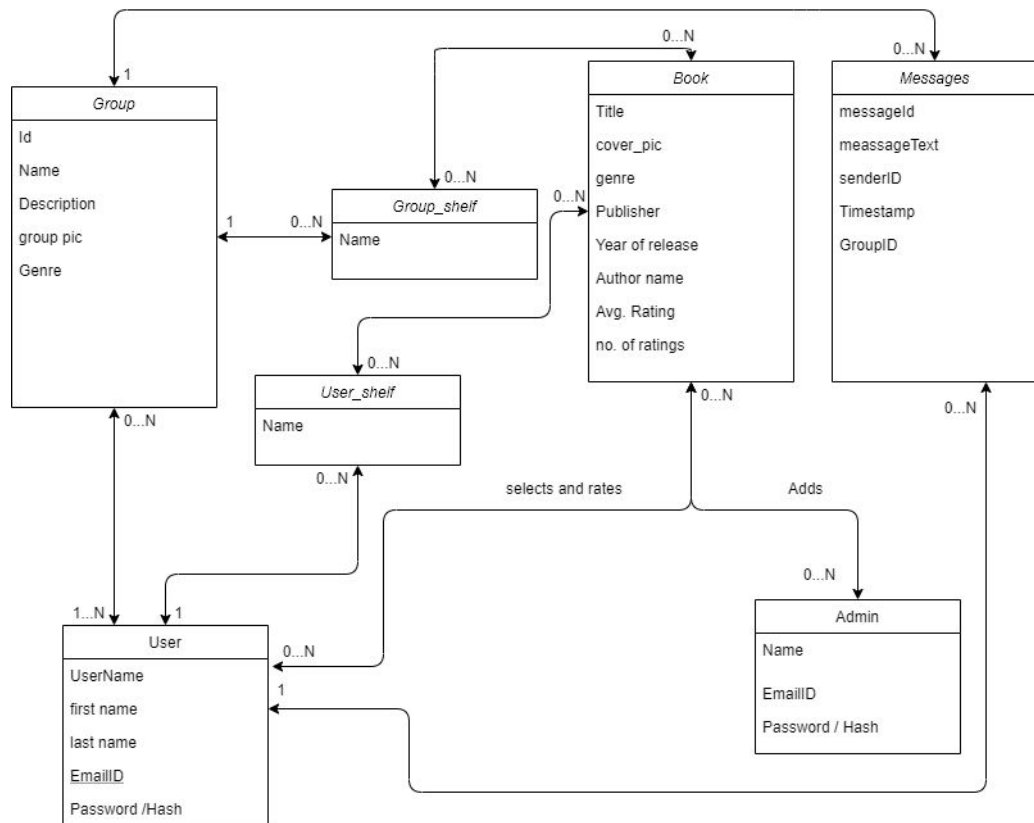
Our app uses books' and users' data to recommend books to users suitable to their interests. Our model takes in relevant features (Book title, Book genres, Book author, Book Description etc.) and uses NLP and collaborative filtering to provide quality recommendations to users.



Recommendation System

- Database of 20000+ books. (UCSD Books data)
- Book title, book authors, book genres, book description
- We used RAKE algorithm of NLP, which is Rapid Automatic Keyword Extraction algorithm, a domain independent keyword extraction algorithm which tries to determine key phrases in a body of text by analyzing the frequency of word appearance and its co-occurrence with other words in the text.
- Generated Bag-of-Words from above extracted keywords.
- Used cosine similarity to generate similarity values among books.
- Recommendation based on similarity values.

Design





Project Planning and Management

- Brainstorming ideas and choice of project topic.
- Planning of deliverables and abstract submission.
- Design documentation - Entity Relationship diagrams, Class Interaction Diagrams.
- Choice of Coding Principles.
- Project Management using Git (Github Platform)
- Tracking of module implementation deadlines according to our internal deliverables document.
- Module Integration and Unit testing
- Comprehensive Integration testing of the whole application.
- Demo and Presentation.



Project Integration and Testing

- We worked on our separate modules according to the project plan. As soon as each module was implemented, it was integrated into the system by making the necessary changes into other dependent modules, database etc.
- Integration testing was done for every submodule after integration of a module into our application. If there is any problem, we updated our code and followed the same integration and unit testing cycle.
- After we completed the whole application, a few comprehensive testings were done to check how each module is working, and how is the behavior of the main application.



Learnings & Improvements

- We learnt a lot about project management & integration using Git.
- Gained knowledge to implement a web app using Django.
- Implementation and integration of runtime ML and Recommendation model.
- Integration of external database to the application.
- Improvements
 - Adding blogs, news and interviews to the application.
 - Reading Activity implementation for users.
 - Discussion forum for each book.
 - Integration of one-click ecommerce buy button.
 - Implementation of authors' webpage.