

CS 457 Fall 2016

Assignment - 1

Team Number - 10

Team Members:

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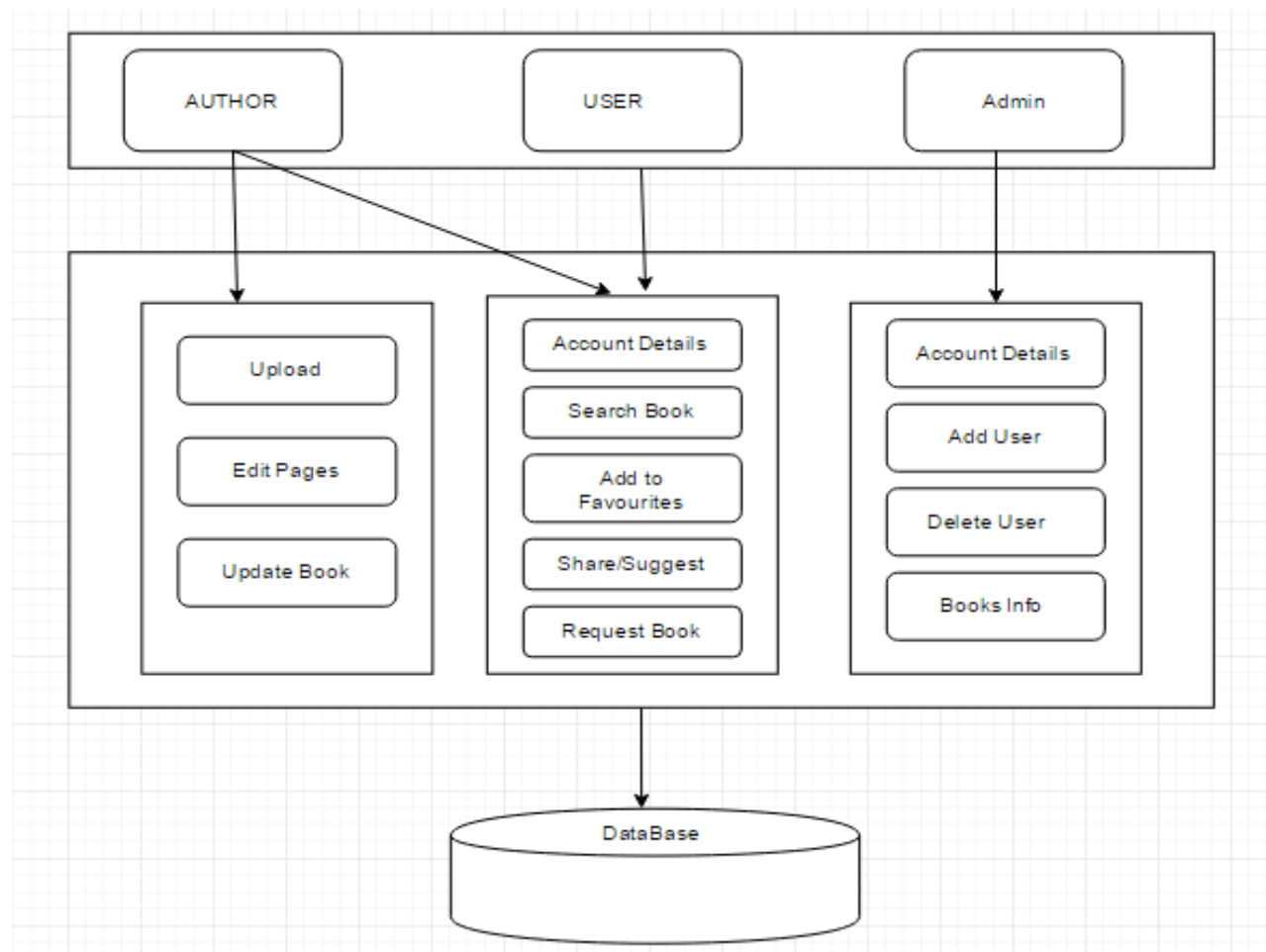
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Use Case: Cloud Library

Design an application that is a Cloud Library. In essence the application must allow you to upload the books and then do basic operations on the document in the application. The operations could include editing the pages, sharing the books to other users. The application must allow users to save their favorite books list and also suggest books to other readers. The functionality of the operations must be done in the form of APIs. Try to use the cloud infrastructure in this application

Architecture Diagram:



Description

User: Upon entering the credentials, User contains the basic user information like Name, id and account information

Author: Only the authors of the books have access to this. On entering the credentials, the author could view his basic information.

Admin: Contains all users information and have access to add/delete user, Account information, Books information as in when the books come in.

Upload: The author can upload books.

Update Book: The author can edit pages in the book and can update the same.

Request Book: The user can request book which is not available currently.

Edit Pages: Edit pages is the one where only the authors have access to it. If any modifications are required in the book the author can edit the pages and update it.

Search Books: The users and the authors can search the books required, book it online and take the book for free of cost for some days as suggested by the librarians. We can search a book based on title, author name, book id, language.

Share/Suggest Books: The users and the authors can suggest or share a book to his/her friends.

Add to Favorites: The users can add few books to favorite list and view the availability of those books later.

Account Details: The account details consist of user information like any fines in his account, check in and check out of the book, notification of availability of a book that is previously added to favorites that is not available.

Database: The Database consists of the user data, Authors Data, Librarian Data and the Books data.

Architectural Styles:

An architectural style is building of structure based on various features. With time these architectures styles keep changing. We have chosen Object oriented architectural style for our project. The reason behind is that it reduces the maintenance cost, real world modeling is possible, code reusability, flexibility and reliable. In object oriented architectural style everything is considered as an object. In this architecture the tasks are divided for an application. Each task could be reused and contains the data and behavior of objects related to it. Object oriented architecture is applied to structure based approach. The key principles of object oriented architecture include:

- **Abstraction** – This feature allows for reduce complexity of operation by generalizing them based on the characteristics.
- **Inheritance** – Each object can use the functionalities of other objects i.e they can override the behavior.
- **Decoupling** – By defining an abstract interface the objects can be decoupled in such a way that the consumer can understand.
- **Encapsulation** – The internal details of the objects can be hidden. This ensures security.
- **Composition** – Objects can be integrated with other objects and can hide that object details.
- **Polymorphism** – The functionalities can be reused in several objects.