

## 1. Feature Overview

### 1.1 Collaboration Editing

- Markdown Display
- Realtime Editing

### 1.2 Document Management

- Create, List, Delete documents
- Access Control

## 2. Specification

### 2.1 Features description

Feature	Description
Markdown Edit & Display	<ul style="list-style-type: none"><li>- The editing page is mainly splited into two parts, the left part is the editing area, the right is the display area.</li><li>- User can edit markdown text in the left area, while the translated markdown text will be displayed in the right area</li></ul>
Realtime Editing	<ul style="list-style-type: none"><li>- There would be multiple users viewing one document and one (or multiple) user writing a document (the first milestone is to develop single-writer multiple-users mode)</li><li>- When the writer is editing the document, the edited content would be displayed realtime on all viewers' display area</li></ul>
Create, List, Delete Documents	<ul style="list-style-type: none"><li>- There is a personal page where the user can see all his documents (documents created by him and shared with him)</li><li>- The user can create a new document by clicking on the "Add" button</li><li>- For every document listed under the page, there would be a "Delete" button, user can delete the button to remove the document from his documents. (When the owner of the documents delete the document, all users the owner shared with would also have the document removed from their list)</li></ul>

Access Control V1	<ul style="list-style-type: none"> <li>- At any time, there would be only one user who has the writing control of the document</li> <li>- The user can share his document with other users by clicking the “Edit” button on each document and add the target user in the popping up dialog</li> <li>- A viewing user of a document can request the writing permission of a document by clicking the “Request” button on document editing page. Then, there would be a notification requesting the document writer-permission on current writer’s editing page, if the current writer accepts the request, then the writing control is transferred to the requesting user.</li> <li>- After all users go offline, the write control is taken back to server. And the control will be given to the first user who access the document next time.</li> </ul>
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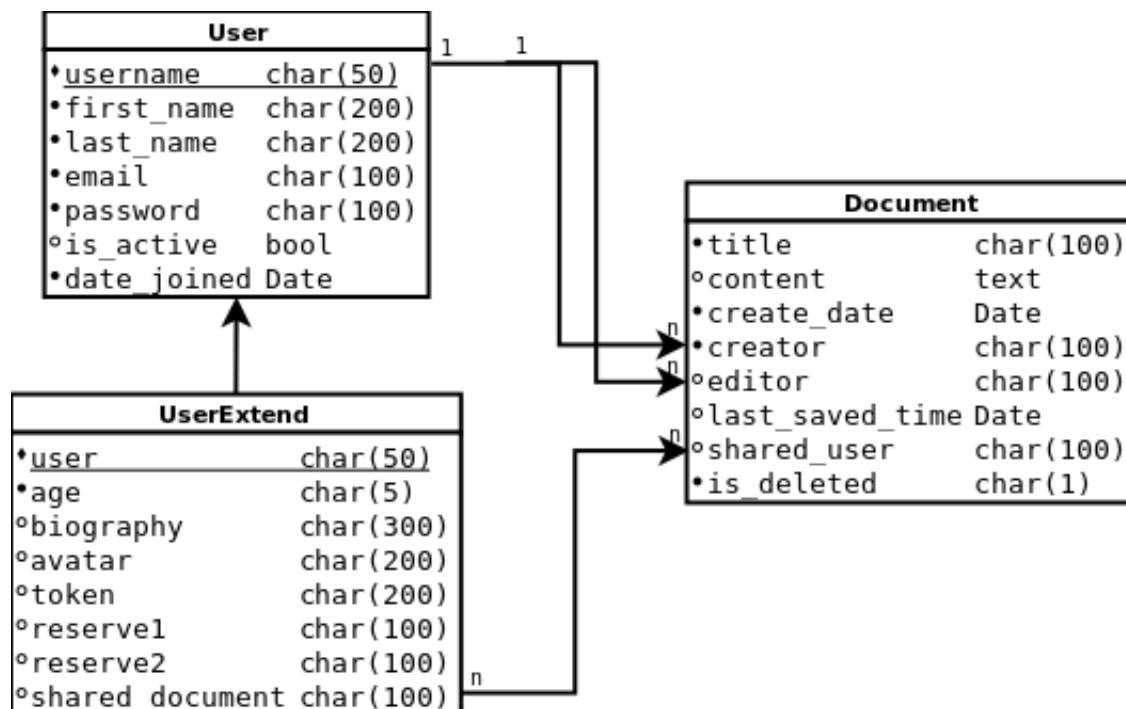
## 2.2 Synchronisation data format

```
{
  operation: ["add","remove","update"],
  start_loc: 102,
  length: 106,
  content: "xxxxxx"
}
```

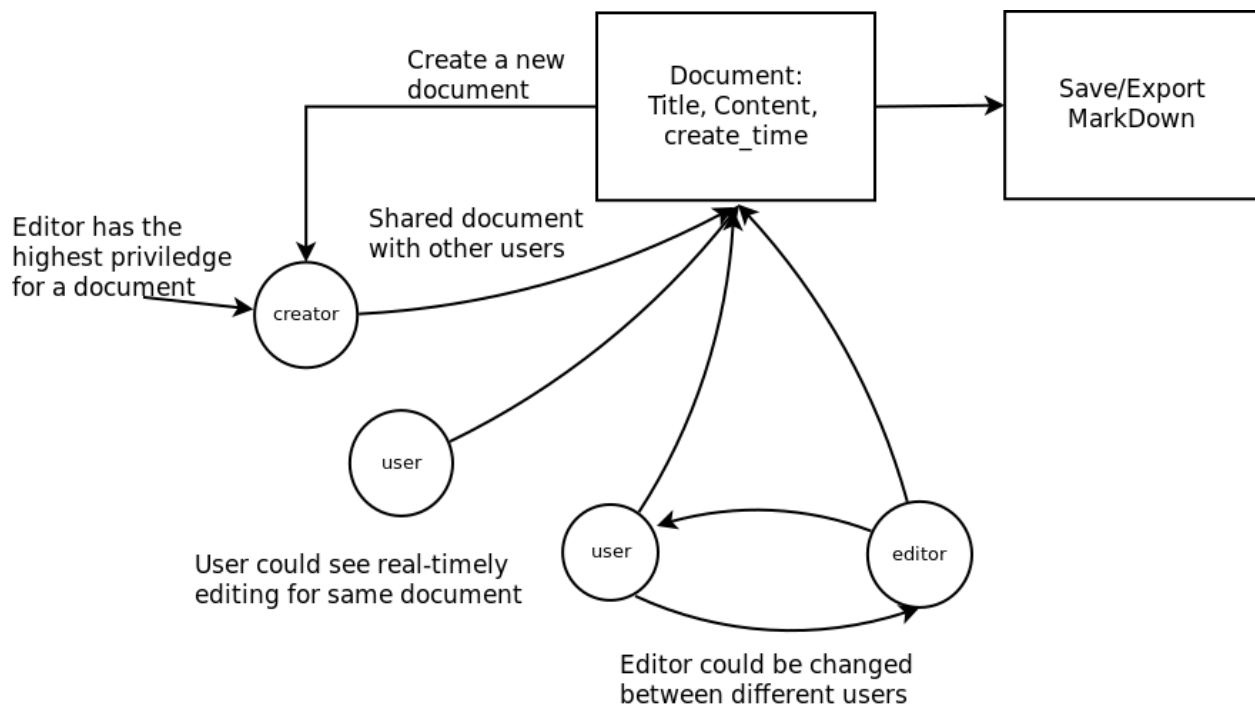
### Term Definition

- start\_loc: the start location of operated substring
- length: the length of original operated substring, for example if you change “abcdef” to “abcgff”, then the length of updated string is 2

## 3. Database Model



## 4. Data Flow Model



## 5. Server-Client Data Flow

