Library System Database Proposal

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Users

The user collection will store all users and their profiles. Users will be able to login, and update their profile.

```
{
    "_id":"7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310",
    "sessionId":"b3988882-627f-4c59-8d5d-54b7a43b030e",
    "username": "masterGroup",
    "hashedPassword":"$2a$08$XdvNkfdNIL8Fq7l8xsuIUeSbNOFgK0M0iV5HOskfVn7",
    "identity": "student",
    "profile":{
        "name":"Guanqin Zeng",
        "gender":"male",
        "email":"agoodemail@amail.com",
        "phone":"347-123-1234",
        "avatar":"/imag/masterGroup.png"
    },
    "record":[
        {
            "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
            "bookid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
            "time":"EST-2018-11-22-23-59-59",
            "action":"borrow",
            "returnTime": "EST-2018-11-23-23-59-59",
            "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
        },
        {
            "_id":"7b7997a222-abcd-4f8c-b27a-6a1d4b5b6310",
            "bookid":"2112223123-abcd-4f8c-b27a-6a1d4b5b6310",
            "time":"EST-2018-11-22-23-59-58",
            "action":"rent",
            "returnTime": "EST-2018-11-23-23-59-59",
            "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
        }
    ]
}
```

Name	Type	Description
_id	string	A globally unique identifier to represent the user
sessionid	string	A globally unique identifier to represent the user's current session

Name	Type	Description
username	string	User's login name
hashedpassword	string	A hashed version of the user's password
identity	String	Student or staff
profile	User Profile	User's profile
record	User Record	User's records

User Profile (subdocument)

This subdocument is used to describe the user's profile. These are the information can be changed by the user.

```json
{
    "name":"Guanqin Zeng",
    "gender":"male",
    "email":"agoodemail@amail.com",
    "phone":"347-123-1234",
    "avatar":"/imag/masterGroup.png"
}
```

Name	Type	Description
name	string	User's real name
gender	string	As it is
email	string	As it is
phone	string	As it is
avatar	string	A link to the place avatar stored

User Record (subdocument)

This subdocument is used to describe the user's records, stored as a list. Student can check the record but can't change it. Staff should be able to change this.

```json
[
    {
        "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
        "bookid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
        "time":"EST-2018-11-22-23-59-59",
        "action":"borrow",
        "returnTime": "EST-2018-11-23-23-59-59",
        "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
    },
    {
        "_id":"7b7997a222-abcd-4f8c-b27a-6a1d4b5b6310",
        "bookid":"2112223123-abcd-4f8c-b27a-6a1d4b5b6310",
        "time":"EST-2018-11-22-23-59-58",
        "action":"rent",
        "returnTime": "EST-2018-11-23-23-59-59",
        "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
    }
```

```
    ]
```

Name	Type	Description
_id	string	Globally unique id for this action
bookid	string	As it is
time	string	The time this action was taken
action	string	Borrow or rent
returnTime	string	Return date
staffid	string	Operated by staff

Book

The book collection will store all books and their records. Staff can add, update, and delete this collection.

```
 {
     "_id":"7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310",
     "title": "ABook",
     "edition": 4,
     "storage": 9,
     "totalStorage": 20,
     "location": "Library 2nd floor 2B-5-20",
     "price": 20.98,
     "profile":{
         "Author": "Someone",
         "ISBN": "978-0-321-57351-3",
         "description":"This is a book",
         "tag": "Tech"
     },
     "record":[
         {
             "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
             "studentid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
             "action":"borrow",
             "time":"EST-2018-11-22-23-59-59",
             "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
         },
         {
             "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
             "studentid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
             "action":"return",
             "time":"EST-2018-11-22-23-59-59",
             "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
         }
     ]
 }
```

Name	Type	Description
_id	string	Globally unique id for this book
title	string	As it is
edition	int	Book edition

Name	Type	Description
storage	int	Number of books avaliable for action
totalStorage	int	Not all book stored in library.
location	String	Avaliable book's location in library
Price	Float	As it is
profile	book profile	Description for this book
record	book record	Record for this book (Could be 100 same books)

Book Profile (subdocument)

This subdocument is used to describe the book's profile.

```
{
    "Author": "Someone",
    "ISBN": "978-0-321-57351-3",
    "description":"This is a book",
    "tag": "Tech"
}
```

Name	Type	Description
Author	string	As it is
ISBN	string	As it is
description	string	What this book is about
tag	string	For search and placement easiness

Book Record (subdocument)

This subdocument is used to describe the book's records.

```
[
    {
        "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
        "studentid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
        "action":"borrow",
        "time":"EST-2018-11-22-23-59-59",
        "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
    },
    {
        "_id":"7b7997a2-abcd-4f8c-b27a-6a1d4b5b6310",
        "studentid":"21123123-abcd-4f8c-b27a-6a1d4b5b6310",
        "action":"return",
        "time":"EST-2018-11-22-23-59-59",
        "staffid":"7b7997a2-abcd-efgh-b27a-6a1d4b5b6310"
    }
]
```

Name	Type	Description
_id	String	Globally unique id for this action

Name	Type	Description
studentid	String	Who requred this action
action	String	borrow/rent/return/sell
time	string	Time this action performed
staffid	String	Who operated this action