

# 코스누(CoSNU)

## Final Report

### Members

Team 2 (김종범, 윤지학, 이재범, 조승현)

### Abstract

CoSNU is a web service for students from Seoul National University who take the same lecture gather and share various information about lectures. It provides basic services in the form of a board so that students can easily talk and exchange information about courses. In order to make it easier to get important information, we will also add the upvote system on a per-post basis.

### Motivation & Problem

- a. There is no space for discussing about course with other students.
- b. Most students had used KaKao Talk's Open Chat. However, creating and maintaining Open Chat requires too much efforts of Professor or TAs. So, only few classes have their own open chat.
- c. Reading history of Open Chat is difficult and information is gone away shortly.
- d. Students from other departments are hard to get information about courses.

### Related Work

There were several online communities for SNU students. A famous example is SNULIFE. many people in SNU uses it. However, there is a big difference between CoSNU and SNULIFE. First, SNULIFE is not a class-oriented community. Although there is a board to write an evaluation of specific lecture, there is no place to talk about useful resources of lecture that is currently open. Also, it is not only for students currently ongoing lectures, but a space for all people in SNU including undergraduates, graduate students, graduates, and professors. CoSNU, on the other hand, has a clear difference from the SNULIFE that it is a forum for current lectures.

There is an e-learning system in SNU, called ETL. Professors and TAs use it to upload lecture notes, or collect homeworks. But ETL can't carry out all the functions in CoSNU. Because ETL uses real name system, it is not comfortable to share resources of the lectures in ETL. Also, professors and TAs can browse the articles. So, it is not easy to activate a board in ETL. In contrast, CoSNU don't use real name. Users can choose their own nickname for each lecture. People can write posts more freely.

For a few lectures, there is a KakaoTalk open chat room for the class. Actually, it worked. Students shared useful resources such as problems in previous exam. TAs answered students' questions in detail. But, it needs a lot of helps of professors and TAs. Also, even if there is an important message, it will disappear quickly because of the property of Kakao talk. CoSNU can provides boards for all lectures. Also, we made an upvote system, so you can find articles that contain useful resources easily by its number of upvotes.

## Functionality

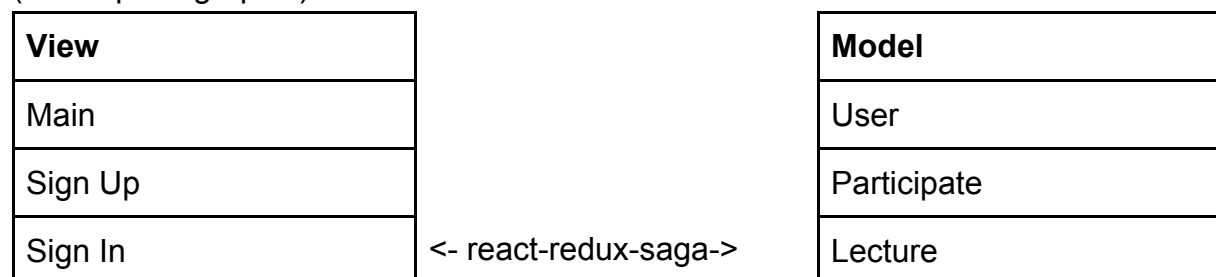
- a. User authentication
  - i. Only students from Seoul National University can register our service.
  - ii. Using our service demands login.
  - iii. Users can logout.
- b. Communication interfaces for each class
  - i. Users can write information articles.
  - ii. Users can add comment to articles.
- c. Upvote system
  - i. Users can recommend articles to mark it important.
  - ii. Provide a page for most upvoted articles to share helpful resources.
- d. Lecture registration system
  - i. Users can search lecture by type its name.
  - ii. Users can register a lecture and use its board.
- e. Report system
  - i. User can report an article.
  - ii. Admin will see a report message and may delete the post.

## Design & Implementation

### System Architecture

MVC

(Conceptual graphic)



Lecture Board
View Article
Write Article
Modify Article
Edit Profile

<- django rest ->

<- django model->

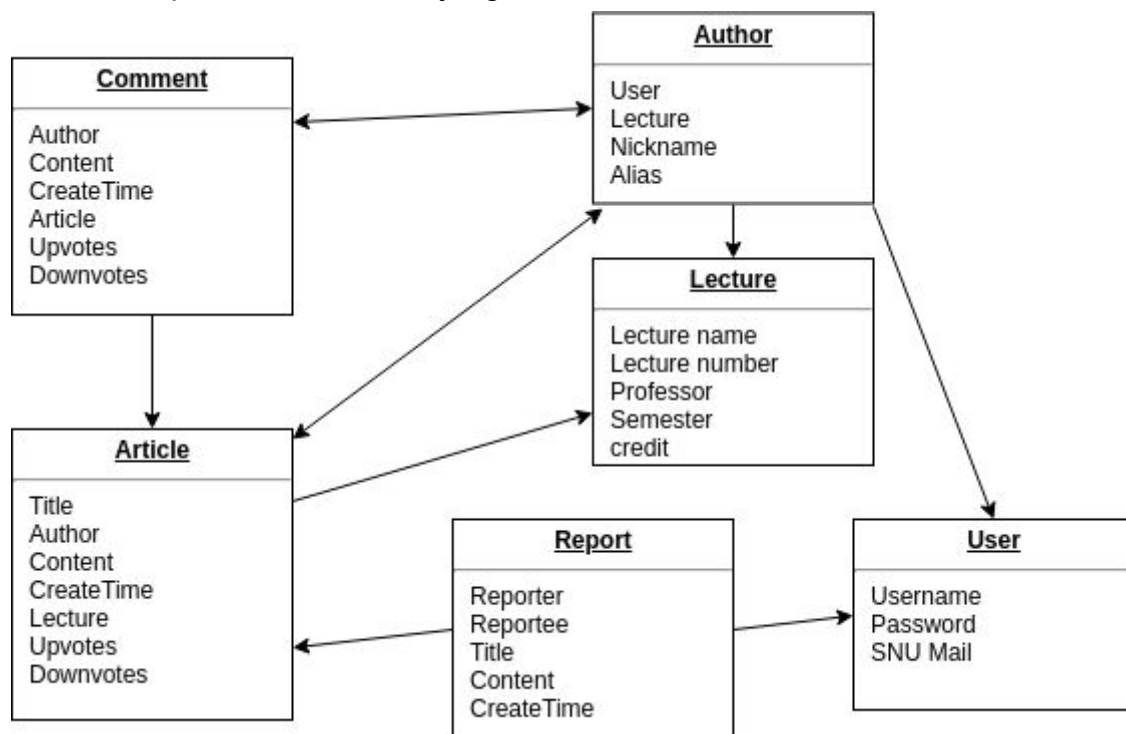
Article
Comment
Report

## Backend Design

We use Django and Django Rest Framework for implement our backend.

### Model

First, we implement model in django.



1. User (just use django's default user)
  - a. Username
  - b. Password(encrypted)
  - c. SNU Mail (used in mail field)
2. Author
  - a. User (Foreign Key to User)
  - b. Lecture (Foreign Key to 3.Lecture)

- c. Nickname : Nickname in lecture board
- d. Alias : alias of lecture in lecture list

3. Lecture

- a. Lecture name
- b. Lecture number
- c. Semester
- d. professor
- e. credit

4. Article

- a. Title
- b. Author (Foreign Key)
- c. Content
- d. Create Time
- e. Lecture (Foreign Key)
- f. Upvotes (Many-to-Many field with Author)
- g. Downvotes (Many-to-Many field with Author)

5. Comment

- a. Author (Foreign Key)
- b. Content
- c. Create Time
- d. Article (Article Foreign Key)
- e. Upvotes (Many-to-Many field with Author)
- f. Downvotes (Many-to-Many field with Author)

6. Report

- a. User (Foreign Key)
- b. Article (Foreign Key)
- c. Title
- d. Content
- e. Create Time

## Backend View

Implement API with django rest framework's serializers and view.  
All API's endpoints listed below.

## RESTful API

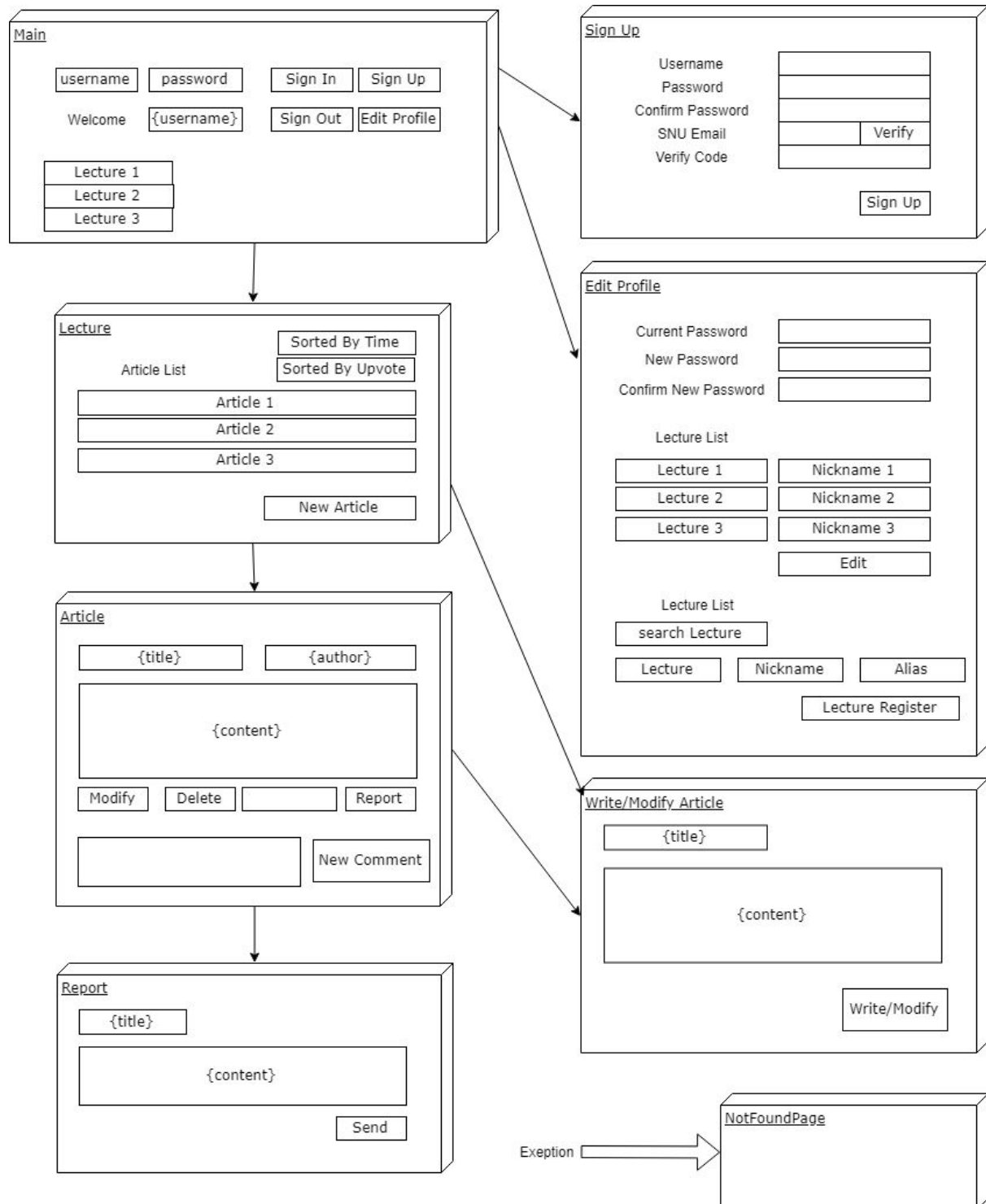
Name	API	GET	POST	PUT	DELETE
User	/user/	Get Info with Lecture List	Sign Up	X	X
Email Verify	/auth-email/	X	post email to given addr	X	X
Register	/register/	X	Register for given lecture		
Author	/author/	get Author=(user, lecture)'s list	X	edit Author info	delete Author =unregister lecture
All Lectures	/lectures	get all lectures.	X	X	X
Lecture	/lecture/:id	Get Registered Lecture Info	Write Article	X	X
Article	/lecture/lid/article	get Article List	X	X	X
Article	/lecture/lid/article/:id	Get Article Contents with Comments	X	Edit Article	Remove Article
upvote(same for downvote)	/lecture/lid/article/:id/upvote	X	upvote	X	X
Article Report	/lecture/lid/article/:id/report	X	Report Article	X	X
Add Comment	/lecture/lid/article/:id/comment	X	Write Comment	X	X

Article related apis implemented with drf Viewset. some additional actions, like write comments and up&down votes, report are made with View set's action.

Register, Lecture, Author view are made with generic view, and remains are just apiview.

We use django rest framework's useful pagination, permission, filter feature classes for implement detail features in such views.

## Frontend Design



### 1. Main

- Sign Up (Button) : Redirect to Sign Up page
- Edit Profile (Button) : Redirect to Edit Profile page

- c. My lecture with link : Show Lecture List and Redirect to each Lecture page.
  - d. Username (Input)
  - e. Password (Input)
  - f. Sign In(Button) : Use Django's default feature
- 2. Sign Up
  - a. Username (Input)
  - b. Password (Input)
  - c. Password Check (Input)
  - d. Email (Input)
  - e. Verify code (Input)
  - f. Sign Up (Button) : Call Backend API(/user/ POST)
- 3. Boards in Lecture
  - a. Lecture
  - b. Article List
  - c. Write article (Button) : Redirect to Write Article page
  - d. Sort by (Most Upvoted / Latest) : Show Article list with selected order.
- 4. Article
  - a. Title
  - b. Content
  - c. Upvote & Downvote (Button) : Call Backend API(/article/:id/vote POST)
  - d. Report (Button) : Call Backend API(/article/:id/report POST)
  - e. Delete (Button) : Call Backend API(/article/:id DELETE)
  - f. Comments
  - g. Write Comment : Input
  - h. Post Comment (Button) : Call Backend API(/article/:id/comment POST)
- 5. Edit Profile
  - a. current password : Input(text)
  - b. new password : Input(text)
  - c. confirm new password : Input(text)
  - d. nickname of each lecture : Input(text)
  - e. Update Profile (Button) : Call Backend API(/user/ POST)
  - f. Search bar
  - g. Nickname for new lecture : Input(text)
  - h. Alias for new lecture : Input(text)
  - i. Register new lecture (Button) : Call Backend API(/register POST)
- 6. Write Article
  - a. Title : Input(text)
  - b. Content
  - c. Post Article (Button) : Call Backend API(/article/:id POST)
- 7. Report
  - a. Title : Input(text)

- b. Contents : Input(text)
- c. Send Report : (Button) : Call Backend API(/article/:id/report POST)
- 8. NotFoundPage
  - a. 404 Not Found

## UI/UX



CoSNU

test1

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로그인

회원가입

Please Login First

Index Page (Before Login) - Only after login, user can use our service.



CoSNU

test1님, 환영합니다.

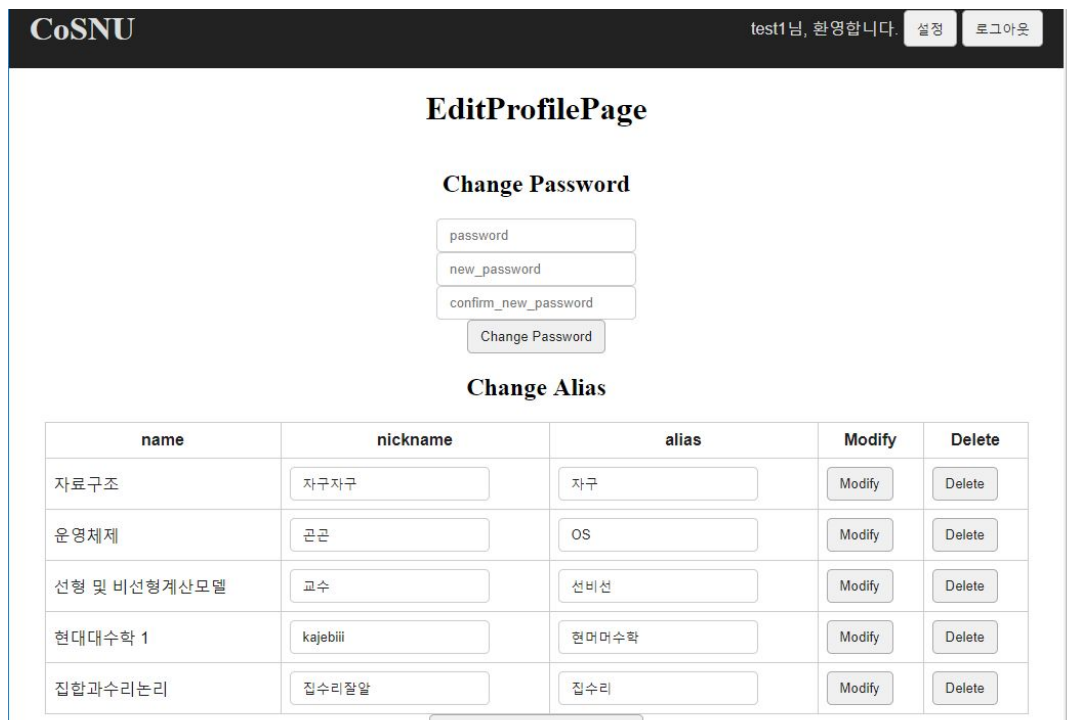
설정

로그아웃

Lecture List

name	code	professor	semester
자료구조	M1522.000900_001	문병로	2018Spring
운영체제	4190.307_001	전병곤	2018Spring
선형 및 비선형계산모델	4190.313_001	김명수	2018Spring
현대대수학 1	881.301_002	조영현	2018Spring
집합과수리논리	881.313_001	계승혁	2018Spring

Index Page (After Login) - After login, user can see own's lecture list.



CoSNU

test1님, 환영합니다.

설정

로그아웃

### EditProfilePage

#### Change Password

password

new\_password

confirm\_new\_password

Change Password

#### Change Alias

name	nickname	alias	Modify	Delete
자료구조	자구자구	자구	Modify	Delete
운영체제	곤곤	OS	Modify	Delete
선형 및 비선형계산모델	교수	선비선	Modify	Delete
현대대수학 1	kajebiii	현머머수학	Modify	Delete
집합과수리논리	집수리잘알	집수리	Modify	Delete

Edit Profile Page (1) - User can change nickname, alias and for each course. Also, modify and delete lecture.



집합과수리논리

집수리잘알

집수리

Modify

Delete

Edit Lecture Information (Todo)

### Lecture List

name	code	professor	semester
자료구조	M1522.000900_001	문병로	2018Spring
운영체제	4190.307_001	전병곤	2018Spring
선형 및 비선형계산모델	4190.313_001	김명수	2018Spring
현대대수학 1	881.301_002	조영현	2018Spring
집합과수리논리	881.313_001	계승혁	2018Spring

수학 및 연습 1

code

Search Lectures With Name and Code

name	code	professor	semester
수학 및 연습 1	033.001_001	김창호	2018Spring
수학 및 연습 1	033.001_002	주장원	2018Spring
수학 및 연습 1	033.001_003	김지영	2018Spring
수학 및 연습 1	033.001_004	김병일	2018Spring
수학 및 연습 1	033.001_005	유연주	2018Spring
수학 및 연습 1	033.001_006	마대건	2018Spring
수학 및 연습 1	033.001_007	김동운	2018Spring
수학 및 연습 1	033.001_008	남계숙	2018Spring
수학 및 연습 1	033.001_009	마대건	2018Spring
수학 및 연습 1	033.001_010	김다노	2018Spring

카제비

수및연

Register Lecture

<<

1

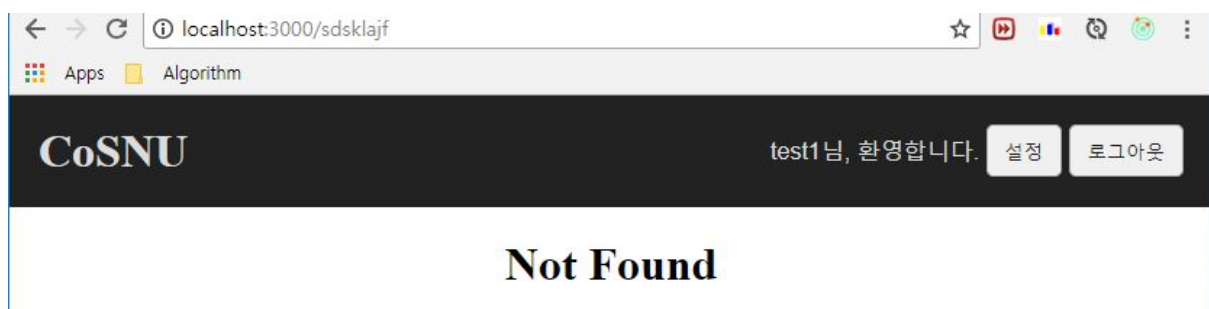
2

3

>

>>

Edit Profile Page (2) - User can register new lecture. The course list was taken from the SNU course registration site. Color of selected lecture is orange. Color of mouse-point-on lecture is blue.



Not Found Page - When exception occurred, show Not Found page.

CoSNU

test2님, 환영합니다. 설정 로그아웃

## 집합과수리논리

Article List (Lecture\_id = 6926)

Sorted by Time (Todo) ☒ Sorted by Upvote (Todo) ☐ List Write

id	title	comments	author	create_time	upvotes	downvotes
20	<a href="#">집수리 듣고 다음에 뭐들을까여</a>	1	집수리잘알	2018-06-15T07:07:42.662350Z	0	0
19	<a href="#">님들님들 시험언제임?</a>	0	집수리잘알	2018-06-15T07:07:34.993840Z	1	1
18	<a href="#">해해</a>	0	집수리잘알	2018-06-15T07:07:28.710634Z	0	0
17	<a href="#">안녕하세요</a>	4	집수리잘알	2018-06-15T07:07:22.749566Z	0	0
16	<a href="#">흑흑 너무어려워</a>	0	집수리잘알	2018-06-15T07:07:16.175129Z	0	0
15	<a href="#">중간고사 어렵지 않았나여</a>	1	집수리잘알	2018-06-15T07:07:06.326489Z	1	0
14	<a href="#">이거 숙제 왜이리 어려워요?</a>	0	집수리잘알	2018-06-15T07:06:55.567197Z	1	0
13	<a href="#">힉힉</a>	0	집수리잘알	2018-06-15T07:06:44.848841Z	0	0
12	<a href="#">더미더미</a>	1	집수리잘알	2018-06-15T07:06:39.977857Z	0	1
11	<a href="#">더미글</a>	0	집수리잘알	2018-06-15T07:06:34.783735Z	0	1

<<
<
1
2
3
>
>>

Article List - If click the lecture name on index page, show article list of that lecture board. Article list show number of comments, upvotes, downvotes, create\_time, author, and title.

ARC - Atomic React x Author - Django REST fr x

localhost:3000

Apps Algorithm

CoSNU

test1님, 환영합니다. 설정 로그아웃

### Lecture List

name	code	professor	semester
<a href="#">자료구조</a>	M1522.000900_001	윤영로	2018Spring
<a href="#">운영체제</a>	4190.307_001	전영곤	2018Spring
<a href="#">선형 및 비선형계산모델</a>	4190.313_001	집수리	2018Spring
<a href="#">현대대수학 1</a>	881.301_002	조영진	2018Spring
<a href="#">집합과수리논리</a>	881.313_001	김승혁	2018Spring

정상적으로 로그인 되었습니다.

정상적으로 로그아웃 되었습니다.

정상적으로 로그인 되었습니다.

Show Alerts - When server want to give information, show the alerts to user.

## 집합과수리논리

안녕하세요

집수리잘알

2018-06-15T07:07:22.749566Z

추천 0 비추천 0

안녕하세요~`

수정(todo)

삭제

추천

비추천

신고

author	contents	create_time
집수리잘알	안녕하세요~~	2018-06-15T07:09:16.411871Z
집수리잘알	아무도 없네	2018-06-15T07:09:19.594326Z
ㅈㅈㄴ	저 있는데여 ㅋㅋ	2018-06-15T07:09:37.634121Z
ㅈㅈㄴ	님들 수업감?	2018-06-15T07:09:43.112482Z

댓글 작성

## Article List (Lecture\_id = 6926)

Sorted by Time (Todo) ● Sorted by Upvote (Todo) ●

List

Write

id	title	comments	author	create_time	upvotes	downvotes
20	집수리 듣고 다음에 뭐들을까여	0	집수리잘알	2018-06-15T07:07:42.662350Z	0	0
19	님들님들 시험언제임?	0	집수리잘알	2018-06-15T07:07:34.993840Z	0	0

Article Page - If user click one of article, show contents of article.

## 집합과수리논리

제목

글쓰기

취소

내용

Write Page - User can post new article.

## 집합과수리논리

제 목: 3페이지 가자가자  
작성자: 집수리잘알

Report Page - User can report about one of article.

## Conclusion

With our CoSNU service, we expect many students in SNU share their information about lecture easily, and help each other. Since our service has many advantages than other services, like etl or snulife, CoSNU can be selected by many users.

To make our service better, we can add many features. First, calendar system. It will help manage schedules like submission due or make-up class. We will provide a calendar for each course, and students can choose calendars to watch. Second, mini-talk system for one-to-one or many people's talk even they not share some lecture. It makes our service more extendable, not just for share lecture info, talk about general school-life. Third, we will improve our UI to be more mobile friendly. So, people can access our service more easily by mobile.

Within a two-month development schedule, we learned a lot about software development. By developing frontend, we have learned about react-redux and redux-saga. With react, we can make a page easily. We can connect frontend and backend server by using redux-saga. It was the most important that managing state by actions and reducers. Also, we used css to make the website look better. Before using css, the website looks like that no one wants to use it. But now, it looks like a real website people are using.

By developing backend, we have learned about Django and Django rest framework. Models and relation between models was an important part, and we designed it carefully before coding. The most hardest part was authentication. We used token to resolve it. It was a strong tool to authenticate user.

In our team, there was a teammate who familiar with github, but there was a teammate who never used it before. But now, we all know that the power of version management system in git. We used several branches, make pull request, post some issues when the site have problems. By using github, we learned how to cooperate in software development.