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Final Project Report

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Abstract

This project is completed independently by myself, and a blog-type system based on React and nodeJS is implemented. Users who are not logged in can browse all the posts, comments and vote numbers, but they can only send posts and comments and vote after logging in. All project data is stored in MongoDB by mongoose. In addition, this project implemented many things beyond the basic functions, hoping to get a score of 55, which will be explained and discussed in detail later.

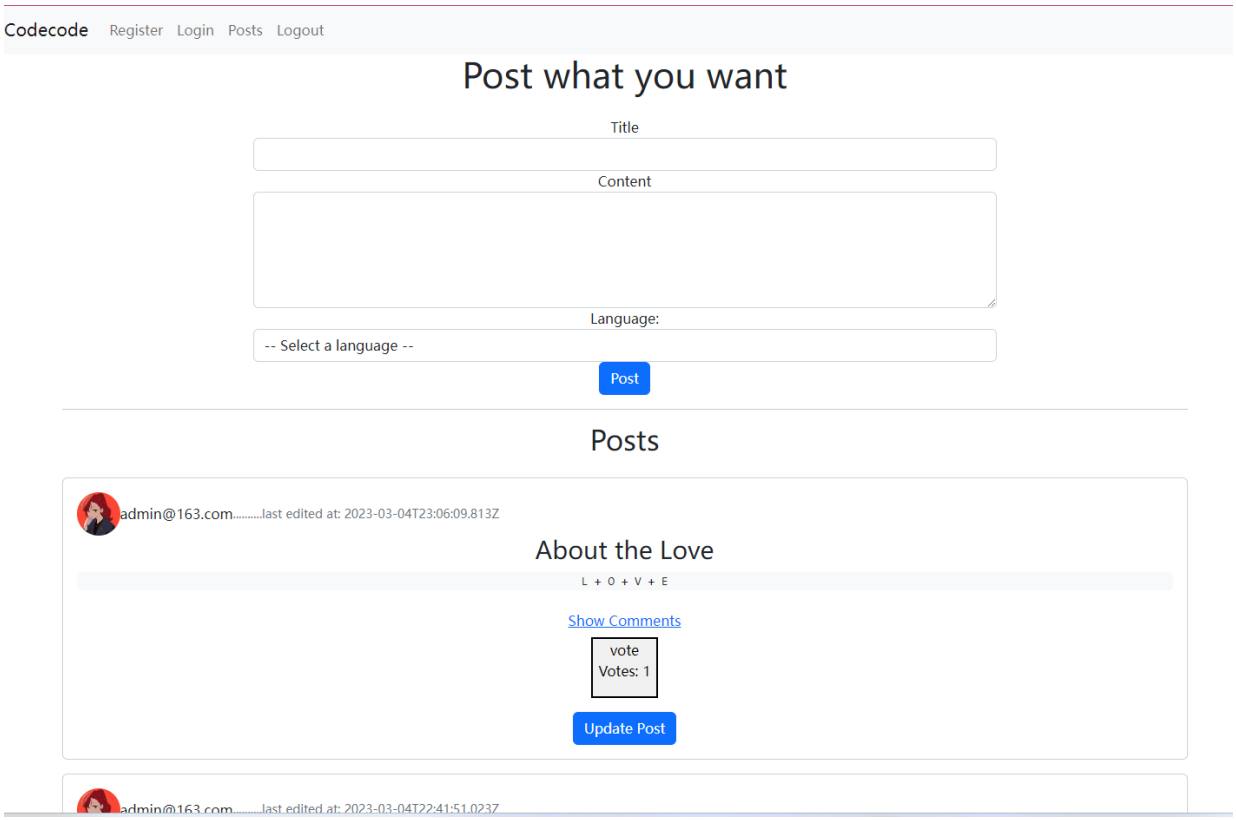

Figure 1: A sample image about the main part.

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1 Start

At the beginning of this project report, I need to introduce the technical choices and installation guidelines for the project.

1.1 Technology choice

This section describes the main technologies used.

For the backend part of the project, the Express framework is used for the following reasons: Express is the Node.JS backend framework I am most familiar with, and it makes adding and removing features easy and efficient.

Using React technology in the front end, the construction of complex interactive interfaces through the component-based structure also easier to design large applications, with a large number of toolkits.

MongoDB was chosen as the data storage structure, based on the mongoose object modelling library. This is because Mongoose simplifies database operations and works well with React and NodeJS.

For the front-end framework, I chose Bootstrap, which imports CSS and javascript plugins for UI beautification. Axios is used as a tool to process client requests, which has high applicability.

1.2 Installation guidelines

Here are the main things I installed personally, and if you are a user, use **npm install** to install all the required tools.

```
npm install bootstrap
```

```
npm install react-bootstrap
npm install highlight.js
npm install mongoose
npm install cypress --save-dev
npm install bcryptjs
npm install react-router-dom
npm install axios
npm install cors
npm install express-jwt
npm install dotenv
```

As a user, follow these steps: cd to /project, create two terminals (PowerShell, etc.), one of them type

npm run dev:server

, the other type

npm run dev:client

, and wait for the system to start.

2 Main function for user

2.1 Basic feature

1. **Authentication:** Users can register new accounts and log in. The same email address cannot be registered twice. If the password is too simple or less than 8, an error message will be displayed. JWTS are used as authentication. Only authenticated users can post and comment and vote.

2. **Features:** Authenticated users can post, comment, and vote, while non-authenticated users can view all posts, comments, and votes. When the show comment button is clicked, all comments and usernames are displayed.

3. **Responsive design:** After testing, the App can be used normally in different kinds of mobile devices and desktop browsers. This App uses Bootstrap as the framework.

2.2 Extra function:

1. **Edit:** Users can edit their own posts and comments

2. **React framework:** The frontend part uses React framework

3. **highlight:** Code sections can be highlighted, while regular text will not, making the distinction.

4. **pager:** When a page has more than 10 posts, it will paginate to the next page.

5. **Admin:** Accounts with administrator privileges are automatically stored in the database:
   email: admin@163.com
   password: Programmer! 123

When the account with administrator privileges logs in, the administrator can manage all users' posts, comments, and has the ability to edit, add and delete.

6. **Test software for accessibility:** After testing, the app can be done entirely through the keyboard.

7. **Vote:**Each user can vote for posts, and each user can only vote for one post.

8. **Profile image:** Users have their own avatar, which is displayed in the post

9. **Timestamp:**The time of the last edit is shown in post and comment (UTC).

10. **Password strength certification:**If the user's password is too simple, the case lacks a case-sensitive letter, one of the special characters, the system will remind the user to use a more secure password and display the message to the page.

11. **User-friendly UI page:** The page has a navigation bar where the user can navigate freely.

12. **Language choose:** Users can choose the language of the post, such as python, javascript, or others. If it's a programming language, then the code in the post will be highlighted. If it is a natural language, it will not be highlighted.

13. **Unit test:** 10 automated test cases were written using cypress.

3 Explain with Demo

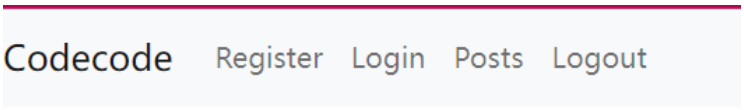

Figure 2: A sample image about the navigation bar.

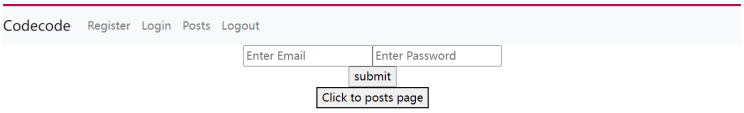

Figure 3: A sample image about the login page.

Figure 4: A sample image about the post Demo.

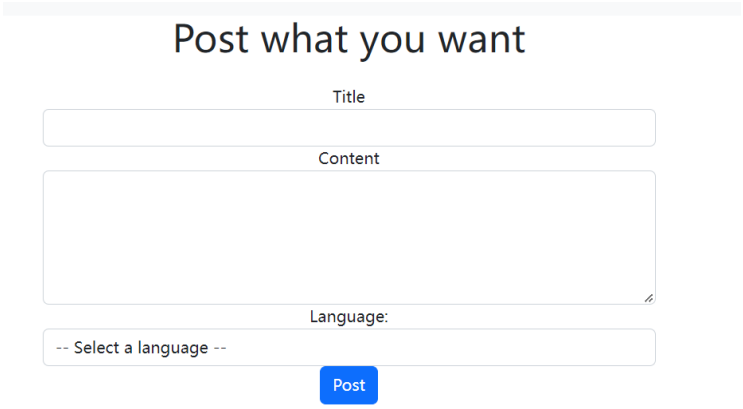

Figure 5: A sample image about the post page.

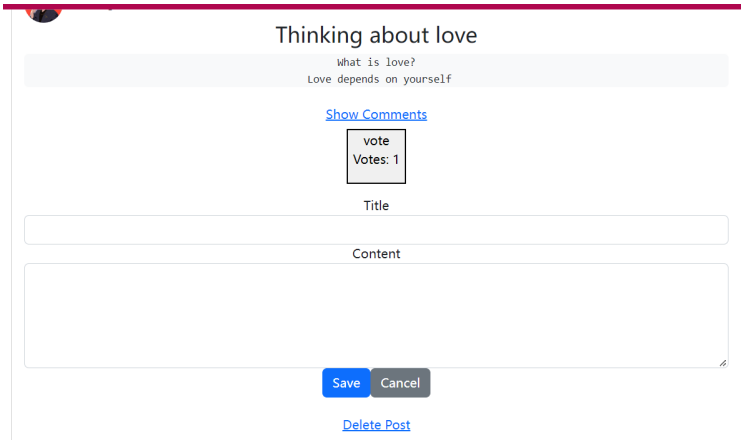

Figure 6: A sample image about the update Post.

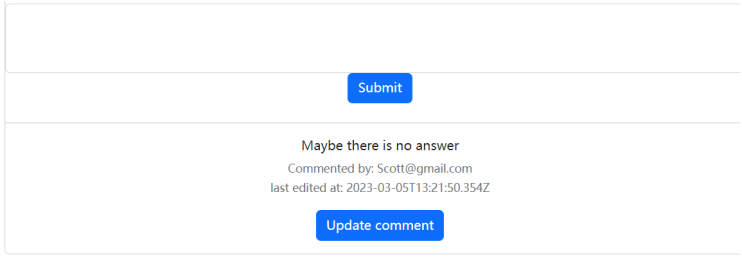

Figure 7: A sample image about the show comment page.

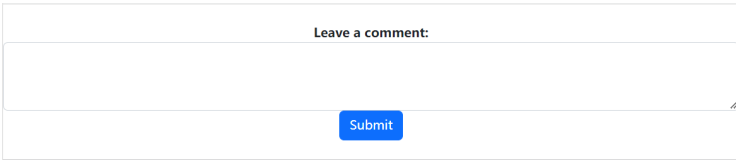

Figure 8: A sample image about the send comment page.

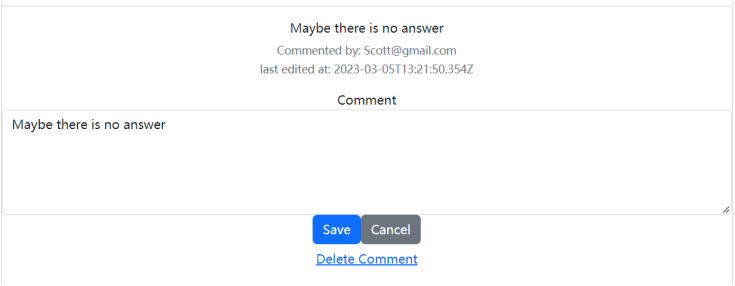

Figure 9: A sample image about the edit comment page.

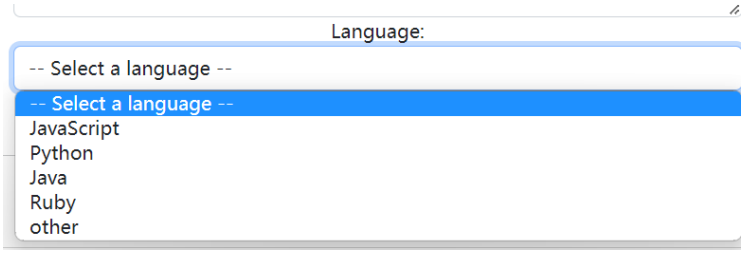

Figure 10: A sample image about the language page.

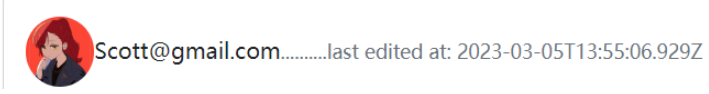

Figure 11: A sample image about the timeStamp .