Implementation Document

for

College PathFinder

Version 1.0

Prepared by

GroupName: **DominatorDevs**

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Course: CS253

Mentor: Yemike Abhilash Chandra

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.0	DominatorDevs	Implementation of the software	18/03/24

1 Implementation Details

	Back end	Benefits	Front end	Benefits
Programming Language	JavaScript	JavaScript is a highly versatile and powerful programming language that offers numerous benefits. It's swift to develop applications with, as it's executed directly within the client's browser, which makes it very efficient. One of the most significant advantages of JavaScript is its interoperability. It can be inserted into any web page and used in many different applications because of support in other languages. JavaScript is also client-side, reducing the demand on servers overall, and simple applications may not need a server at all. It can be used to create rich interfaces, greatly enhancing the user interface and experience of a site.	JavaScript	JavaScript is a cornerstone of front-end development, providing dynamic and interactive web experiences. It enables the creation of rich, responsive user interfaces, enhancing user engagement and satisfaction. With its ability to manipulate the Document Object Model (DOM), it offers real-time content updates, improving website performance. Thus, JavaScript is instrumental in crafting superior, user-centric digital experiences.
			HTML	HTML, or Hypertext Markup Language, is the backbone of web development, providing structure to web content. Its simplicity and ease of learning make it accessible to developers at all levels. Being lightweight, it ensures fast loading of web pages, enhancing user experience. HTML's compatibility with all browsers enhances its universality. Moreover, its integration with other languages like CSS and JavaScript

				allows for the creating of dynamic, interactive websites.
			CSS	Cascading Style Sheets (CSS) is a vital tool in frontend development, offering many benefits. It provides developers with control over the visual aspects of a webpage, enabling the creation of aesthetically pleasing and consistent designs. CSS enhances user experience by allowing for responsive design, ensuring that webpages look good on devices of all sizes. Furthermore, it improves website performance by separating the presentation of content from the content itself, leading to faster loading.
Frameworks	NodeJS	Node.js is a robust framework renowned for its speed and efficiency, courtesy of Chrome's V8 engine. Its event-driven, non-blocking architecture makes it ideal for real-time applications. The scalability of Node.js caters to modern applications' growth needs. Its use of JavaScript reduces the learning curve and boosts productivity. Lastly, its extensibility allows customization to meet specific requirements, enhancing its utility in web development.	Bootstrap	Bootstrap is a robust frontend framework that speeds up the development process with its ready-to-use components. It provides a responsive grid system, ensuring optimal viewing on various devices. Bootstrap's extensive library of customizable themes enhances the visual appeal. Its compatibility with all modern browsers ensures a consistent user experience. Lastly, Bootstrap's active community provides a wealth of resources and support, making it a popular choice among developers.

Libraries	Express	Express.js is a fast, unopinionated web framework that accelerates the development process with its minimalist approach. It provides a robust set of features for web and mobile applications. Express.js facilitates the rapid setup of routes to send/receive requests between the frontend and the backend. Its middleware modules allow developers to perform additional tasks on request and response objects. Lastly, Express.js integrates seamlessly with other libraries and tools in the Node.js ecosystem.	React.JS	A powerful JavaScript library that enhances frontend development with its component-based architecture, promoting code reusability and readability. Its implementation of a virtual DOM ensures efficient updates and rendering, improving application performance. React.js's flexibility allows seamless integration with other libraries. Its large community provides a wealth of resources and support. Overall, React.js is instrumental in crafting superior, user-centric digital experiences.
DBMS	MongoDB	MongoDB is a flexible, scalable, and high-performance NoSQL database that supports a wide range of data models and provides a rich query language123. It's used in diverse real-world applications such as product data management, operational intelligence, customer analytics, and real-time data integration.	NA	
Build System	Node.js & npm	Node.js and npm offer several advantages for backend development. First, Node.js delivers high performance due to its event-driven, non-blocking architecture, resulting in faster response times. Second, it's highly scalable, making it suitable for building applications that can handle concurrent connections. Third, the extensive npm library provides access to a wide	Vite	Vite is an advanced build tool that revolutionizes web development. It comprises a powerful development server with Hot Module Replacement (HMR) for native ES modules. When integrating Vite with a backend framework (e.g., Rails or Laravel), you can serve HTML traditionally while

		range of open-source packages, simplifying third-party integrations. Lastly, Node.js benefits from an active community, ensuring continuous improvement and support .		leveraging Vite for efficient asset delivery. Configure your Vite entry point, ensure proper asset serving, and benefit from faster development cycles and optimized production builds
Packages	bcrypt	This is a library to help you hash passwords in Node.js. It's handy when you need to store user passwords securely.	React Router DOM	A dynamic routing library for React, React Router DOM enables the creation of single-page applications with navigation without the page being refreshed.
	Cookie-Parser	This is a middleware that parses the Cookie header and populates `req.cookies` wi th an object keyed by the cookie names. It's used in Express applications to help manage cookies.	Axios:	A promise-based HTTP client for JavaScript, Axios simplifies making asynchronous HTTP requests to REST endpoints and performing CRUD operations.
	CORS	This is a Node.js package for providing a middleware that can be used to enable Cross-Origin Resource Sharing (CORS) with various options.	Redux	Redux is a predictable state container for JavaScript applications. It centralizes the application state, making it easier to trace and debug state changes. Redux also improves performance by minimizing unnecessary component re-renders.

	JWT	This is a package that implements JSON Web Tokens functionality. It's used for securely transmitting information between parties as a JSON object.		
	Mongoose	This is an Object Data Modelling (ODM) library for MongoDB and Node.js. It manages relationships between data, provides schema validation, and is used to translate between objects in code and the representation of those objects in MongoDB.		

2 Codebase

GitHub Repository-
https://github.com/AYushM25/College-Pathfinder_1.git

About the Web Apps

As of now, the frontend and the backend are complete and

deployed on the website .

For Back-end Part,

We have deployed it using render.com and can be accessed

anywhere in this world .

For the Front-end Part,

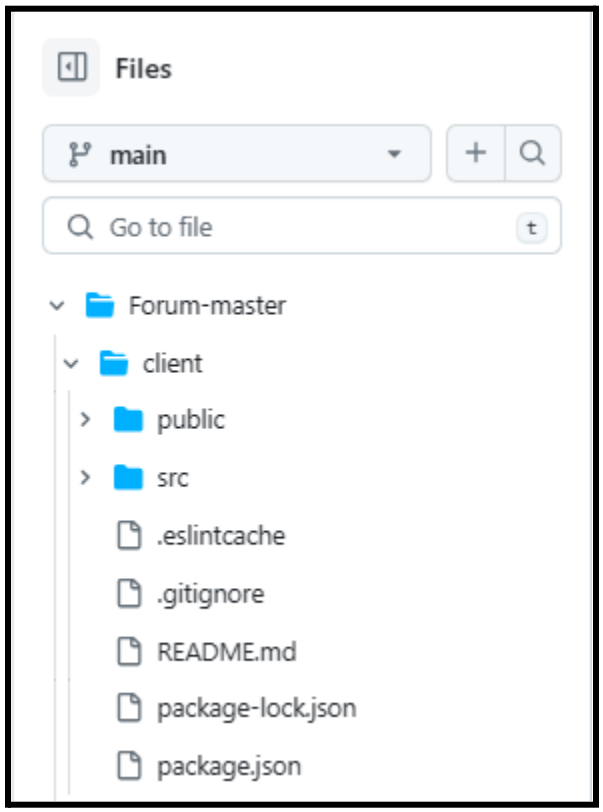
The frontend part has been deployed using vercel.com , and could be accessed anywhere

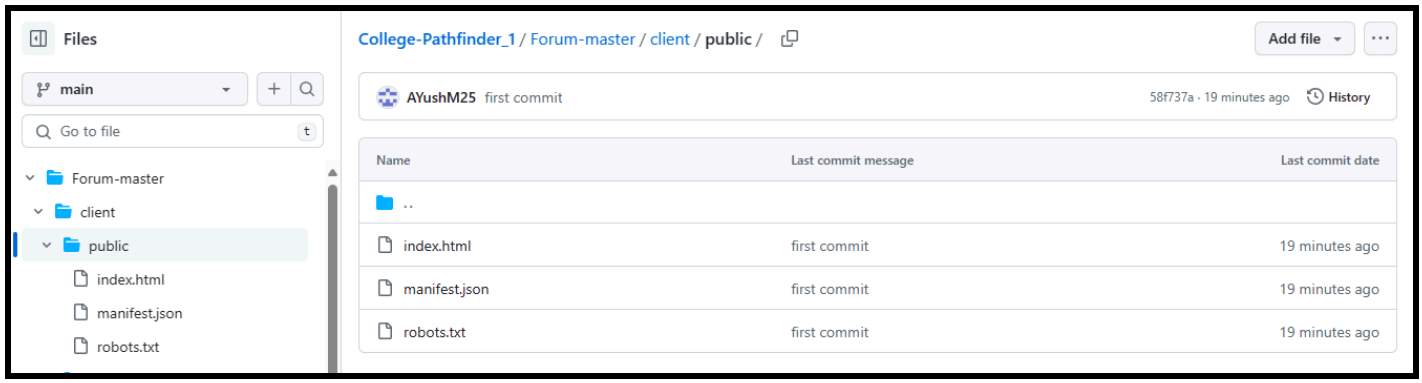
For the Database-part , we have deployed it using MongoDB

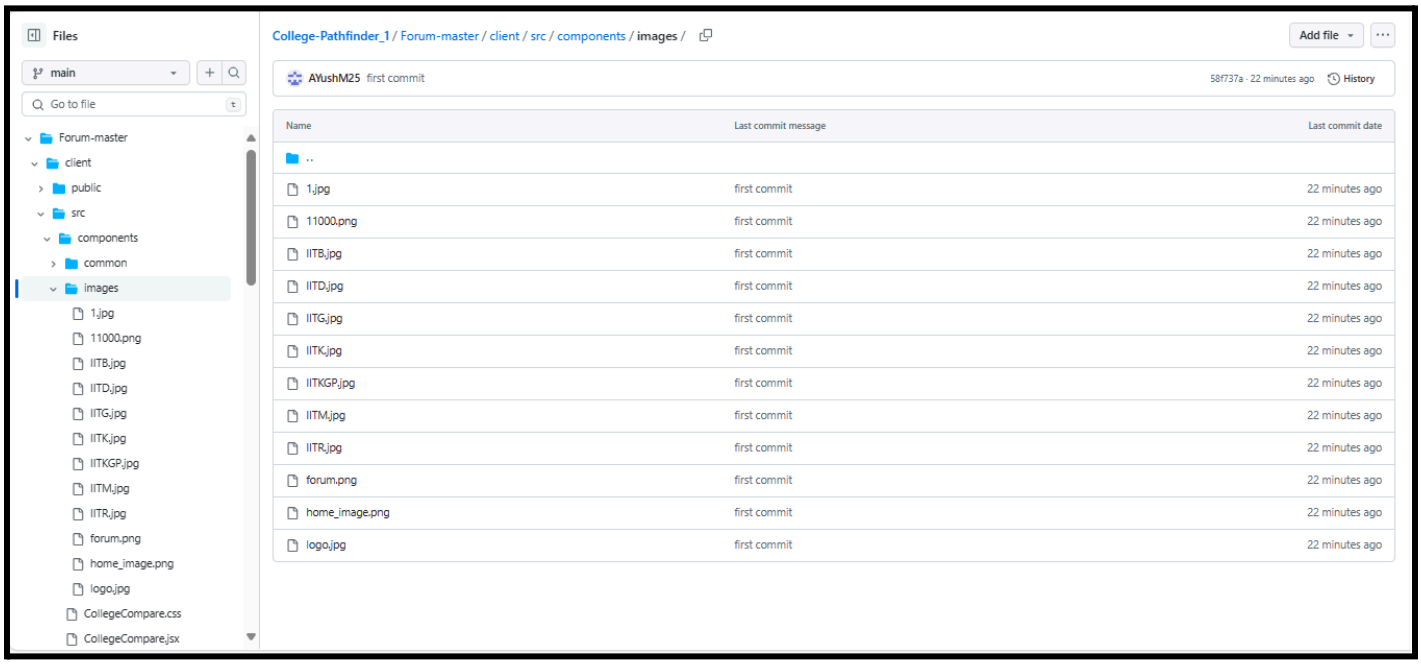
Codebase Navigation

FrontEnd

The Front-end codebase is structured as follows: the "src" directory houses all React source code files, while the "public" directory contains assets and files that are directly rendered within the web browser interface. The client directory serves as the root directory encompassing all frontend development components and assets within the project structure.



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Go to file
Forum-master
client
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src
components
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11000.png
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IITD.jpg
IITG.jpg
IITK.jpg
IITKGP.jpg
IITM.jpg
IITR.jpg
forum.png
home_image.png
logo.jpg
CollegeCompare.css
CollegeCompare.jsx
College-Pathfinder_1 / Forum-master / client / src / components / images /
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AYushM25 first commit
58f737a · 22 minutes ago
History
Name
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11000.png first commit 22 minutes ago
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IITKGP.jpg first commit 22 minutes ago
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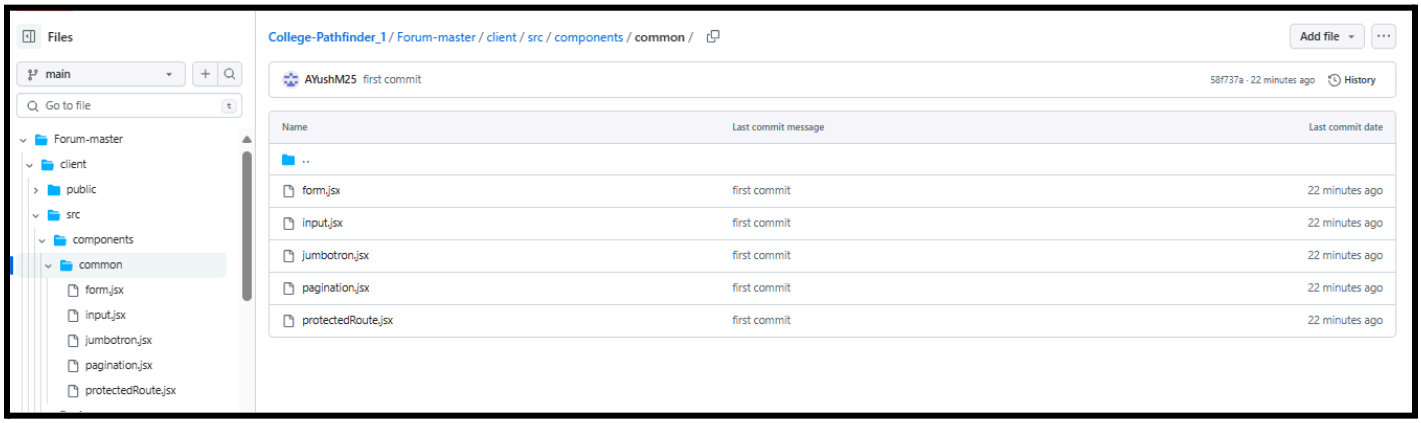
forum.png first commit 22 minutes ago
home_image.png first commit 22 minutes ago
logo.jpg first commit 22 minutes ago


Files
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Go to file
Forum-master
client
public
src
components
common
form.jsx
input.jsx
jumbotron.jsx
pagination.jsx
protectedRoute.jsx
College-Pathfinder_1 / Forum-master / client / src / components / common /
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History
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Last commit message
Last commit date
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form.jsx first commit 22 minutes ago
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jumbotron.jsx first commit 22 minutes ago
pagination.jsx first commit 22 minutes ago
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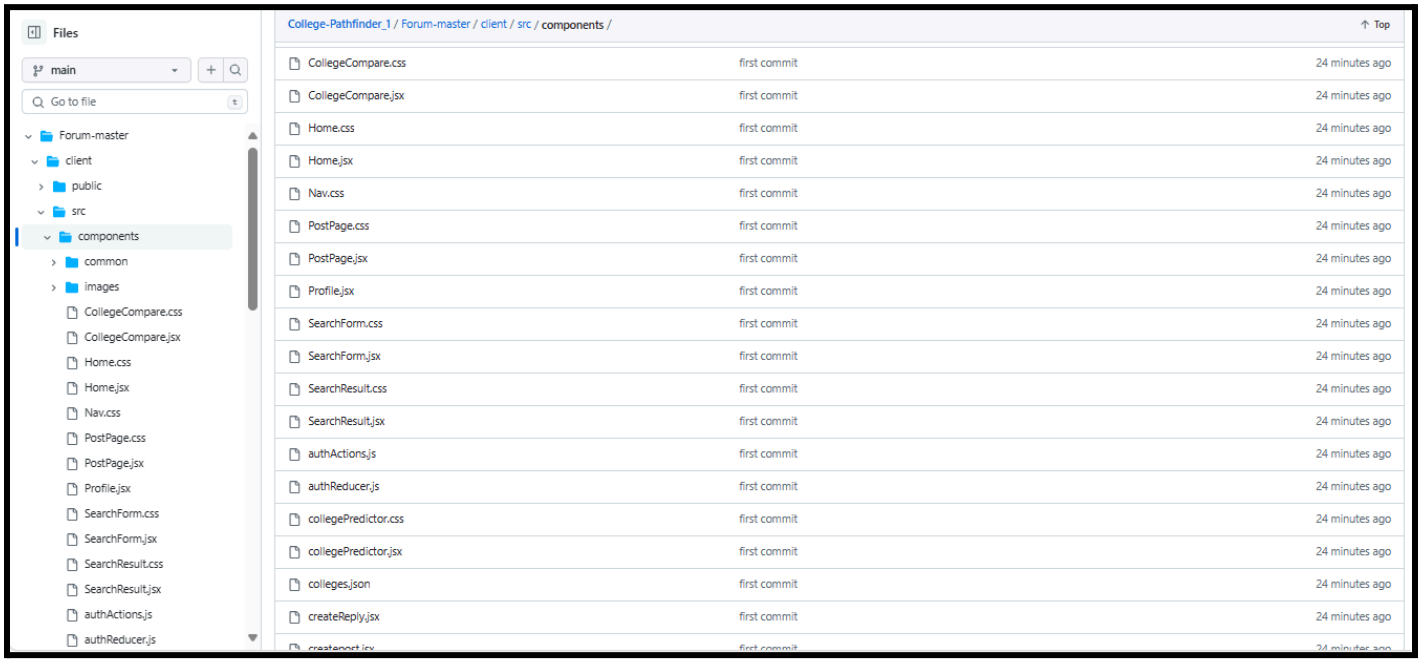
Files
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Forum-master
client
public
src
components
common
images
CollegeCompare.css
CollegeCompare.jsx
Home.css
Home.jsx
Nav.css
PostPage.css
PostPage.jsx
Profile.jsx
SearchForm.css
SearchForm.jsx
SearchResult.css
SearchResult.jsx
authActions.js
authReducer.js
College-Pathfinder_1 / Forum-master / client / src / components /
Top
CollegeCompare.css first commit 24 minutes ago
CollegeCompare.jsx first commit 24 minutes ago
Home.css first commit 24 minutes ago
Home.jsx first commit 24 minutes ago
Nav.css first commit 24 minutes ago
PostPage.css first commit 24 minutes ago
PostPage.jsx first commit 24 minutes ago
Profile.jsx first commit 24 minutes ago
SearchForm.css first commit 24 minutes ago
SearchForm.jsx first commit 24 minutes ago
SearchResult.css first commit 24 minutes ago
SearchResult.jsx first commit 24 minutes ago
authActions.js first commit 24 minutes ago
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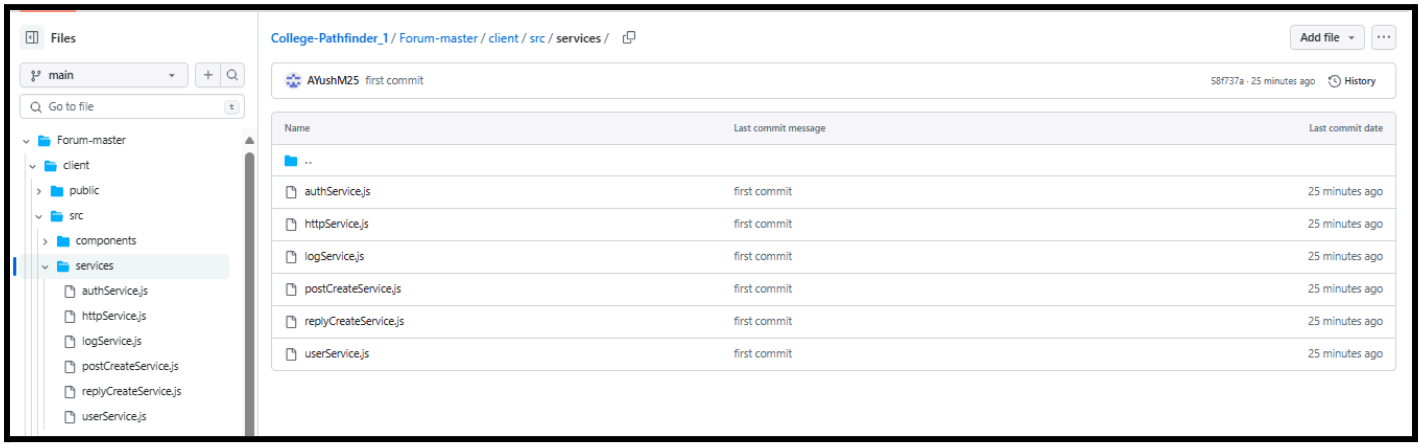
collegePredictor.jsx first commit 24 minutes ago
colleges.json first commit 24 minutes ago
createReply.jsx first commit 24 minutes ago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Go to file
Forum-master
client
public
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services
authService.js
httpService.js
logService.js
postCreateService.js
replyCreateService.js
userService.js
College-Pathfinder_1 / Forum-master / client / src / services /
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authService.js first commit 25 minutes ago
httpService.js first commit 25 minutes ago
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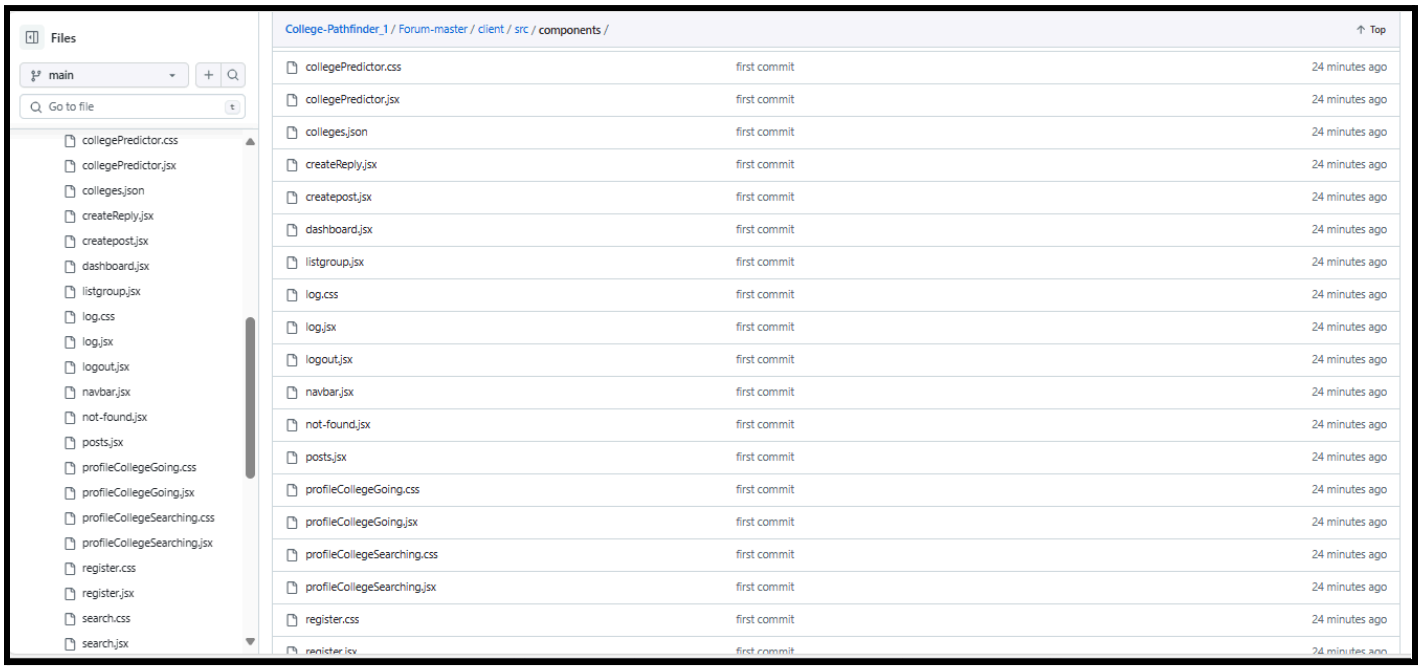
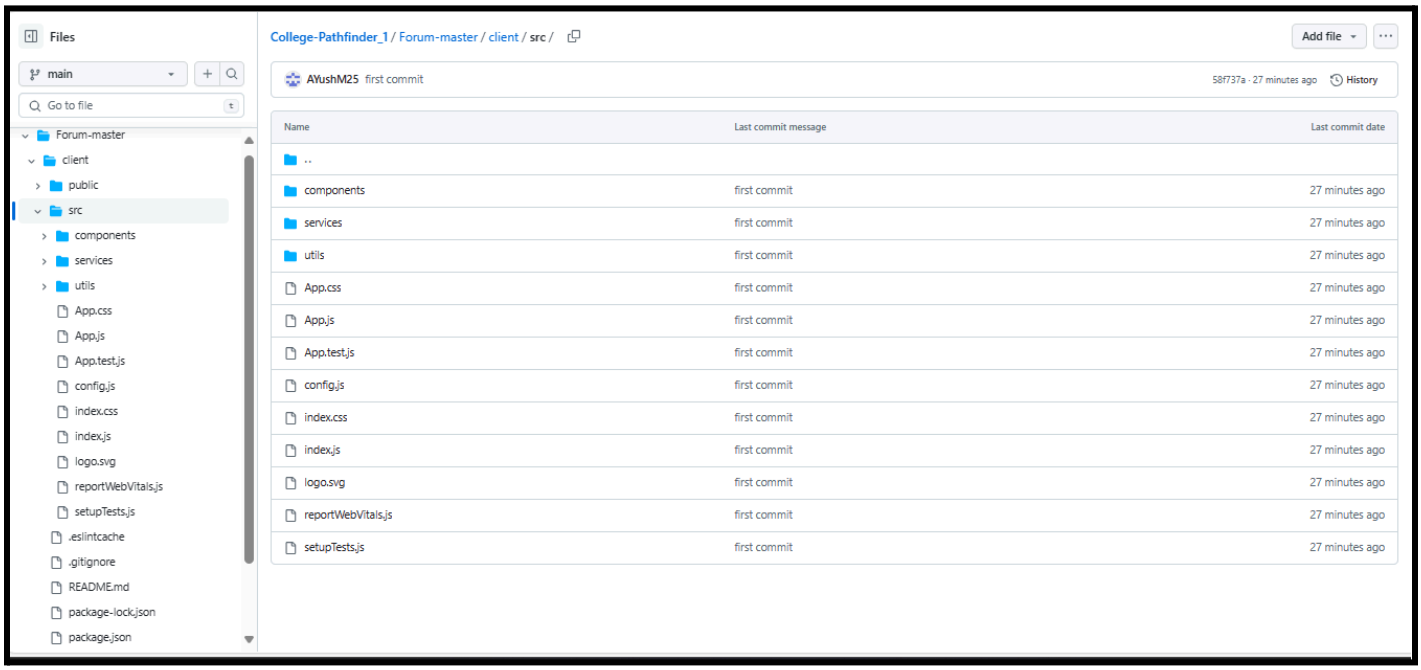
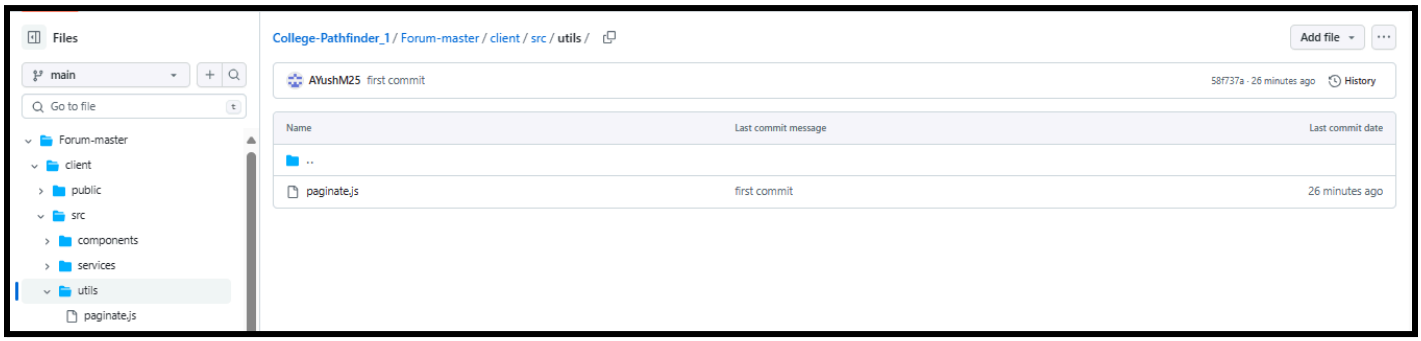
replyCreateService.js first commit 25 minutes ago
userService.js first commit 25 minutes ago

Software Design Document for <Group 1>





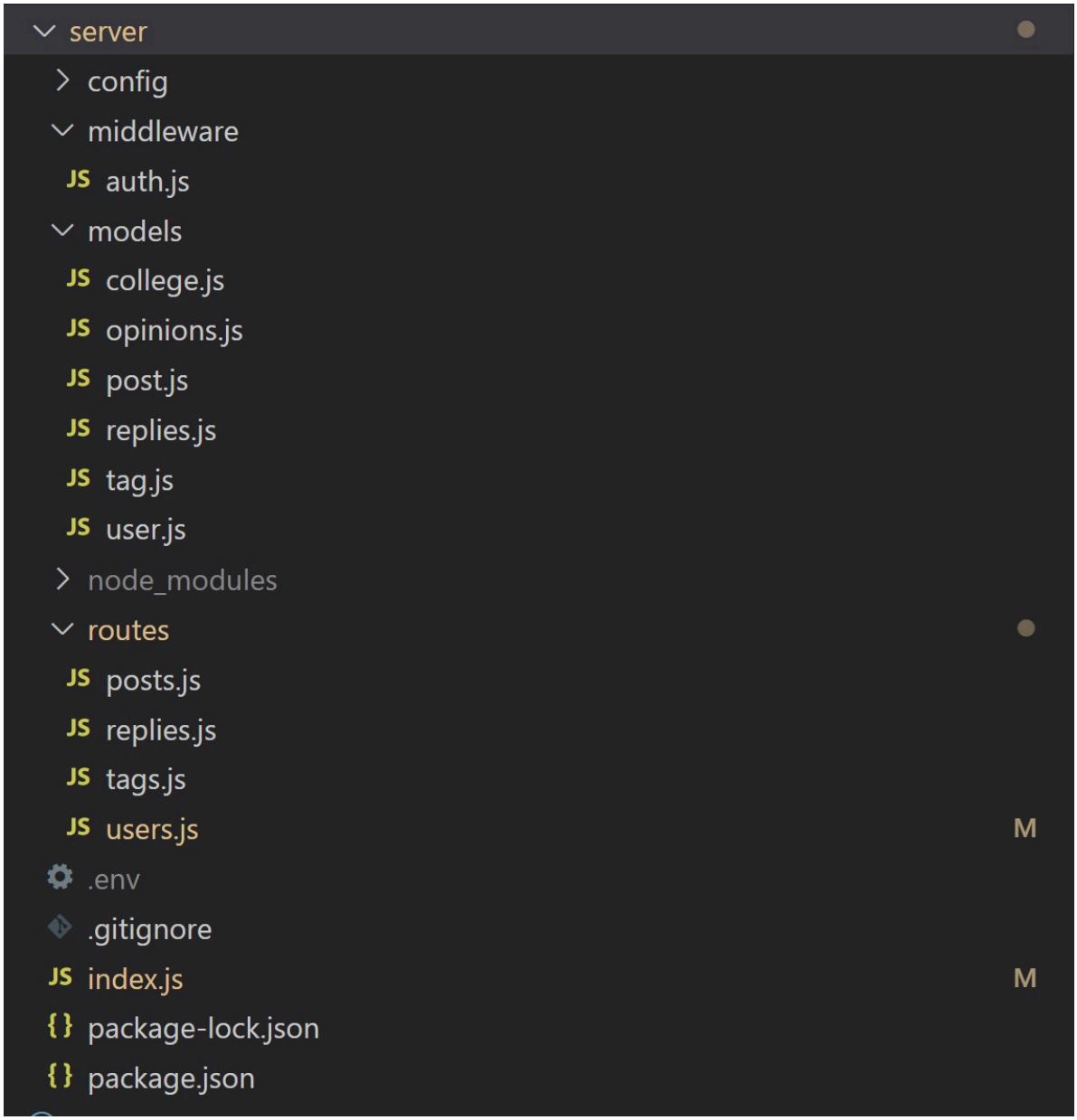
Software Design Document for <Group 1>

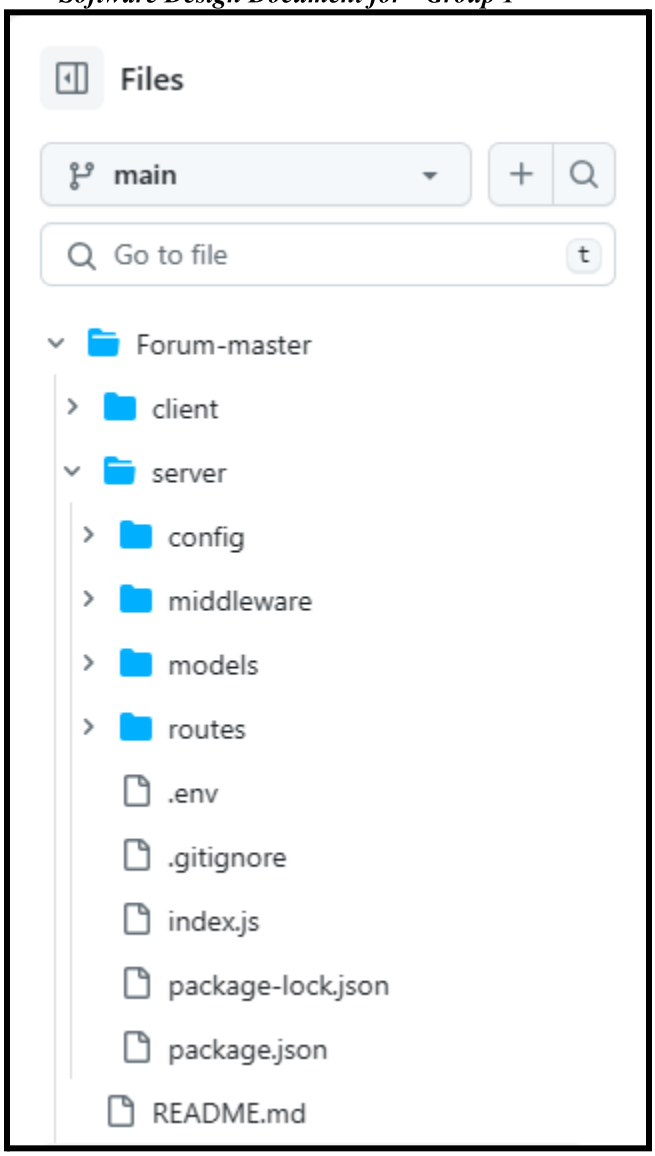


BackEnd

The backend codebase resides within the "/server" directory. It comprises various individual units, each housed within their respective folders. The "index.js" unit serves as the integration point for combining these units into a cohesive whole. The "models" directory encapsulates database schemas, while the "routes" directory hosts controllers responsible for managing interface logic transitions. Authorization functionalities are implemented within the "middleware" directory.

Below is the organization of the backend components within the server directory.

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server
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middleware
models
routes
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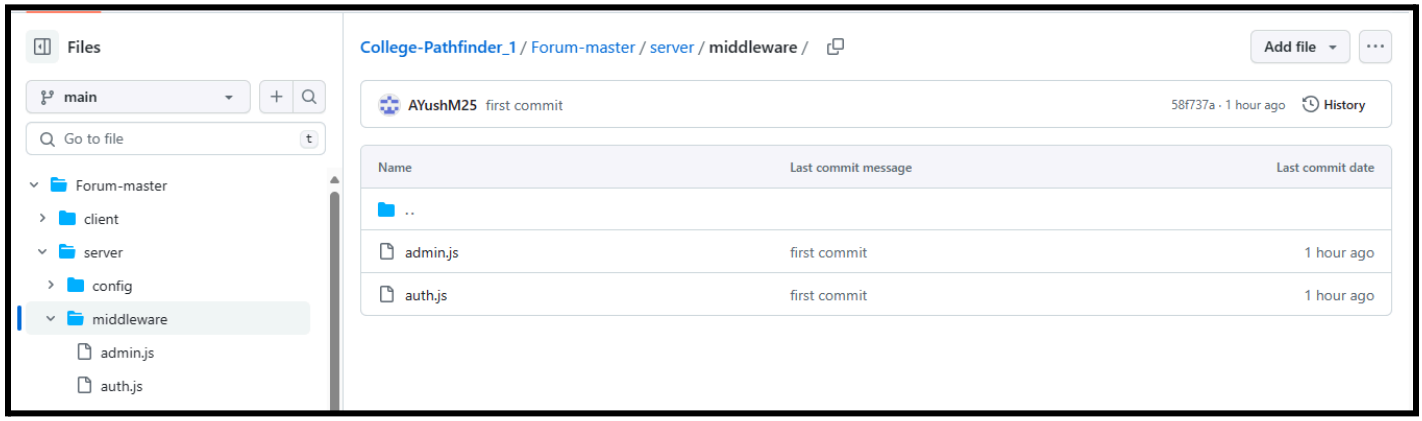
index.js
package-lock.json
package.json
README.md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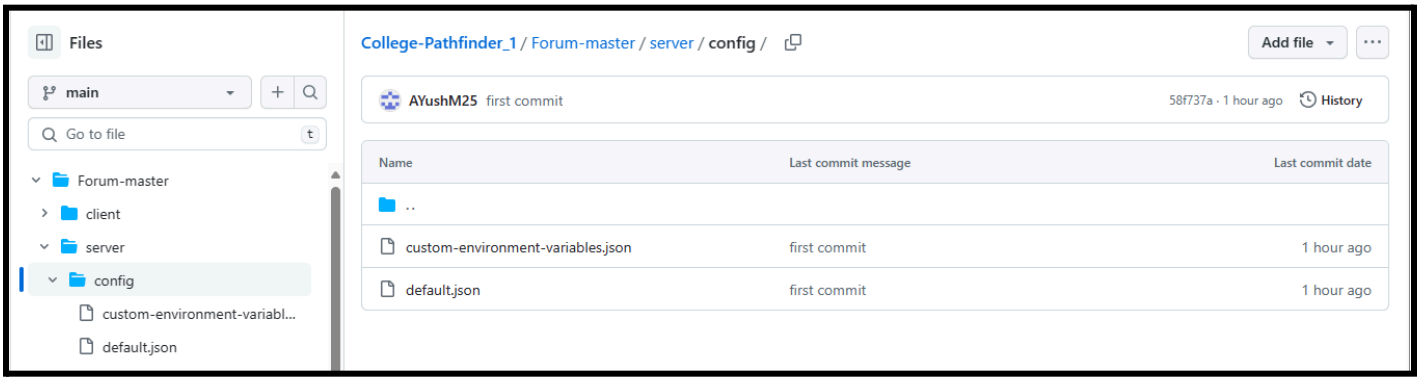
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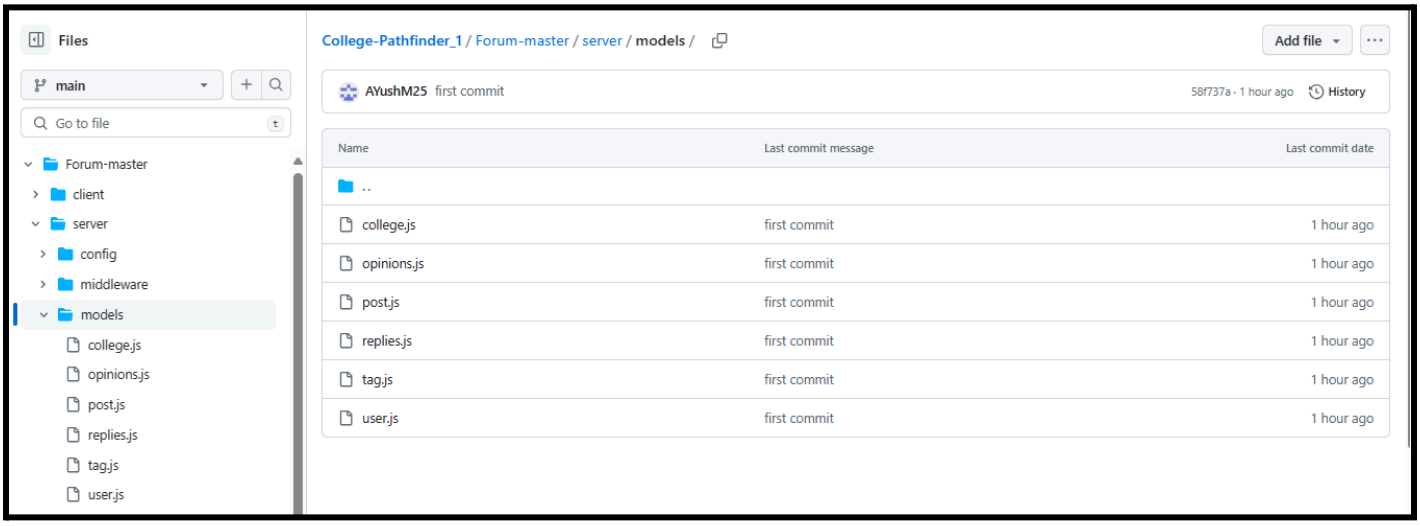
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replies.js
tag.js
user.js
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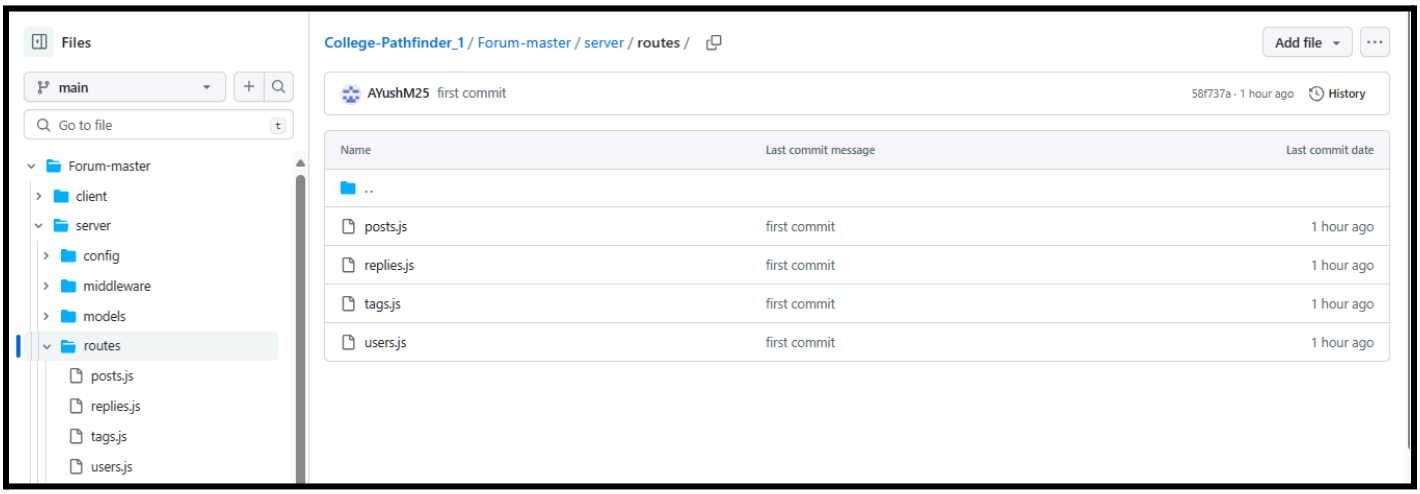
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replies.js
tags.js
users.js
College-Pathfinder_1 / Forum-master / server / routes /
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first commit
1 hour ago
replies.js
first commit
1 hour ago
tags.js
first commit
1 hour ago
users.js
first commit
1 hour ago

Software Design Document for <Group 1>

We have deployed our website on the web; please click the link below:

<link:->

https://college-frontend-vert.vercel.app/

<<please use the above link to visit the website deployed>>

If you want to host the website on a local system, please follow these procedures

Installation Requirements

1. Web Browser
2. Node.js
3. npm
4. express
5. mongoose
6. mern stack
7. react
8. bcrypt

Installation

For Frontend, i.e., website,

1. Navigate to "/client".
2. Open the Command Line Terminal in this folder.
3. Run the following commands one by one -
4. npm install --force
5. npm start

The webpage will automatically open in localhost:3000.

If it doesn't automatically open, the user can open it manually.

For the Back-end part,

1. Navigate to "/server."
2. Open the Command Line Terminal in this folder.
3. Run the following commands one by one.
4. npm install --force
5. npm start
   (if there is some error after running npm start, then type npm uninstall bcrypt and then npm install bcrypt)

3 Completeness

SRS Features for College Searching :

SRS features	Status	Future development plan/Current working
Profile login/registration	Completed	Provide users with the option to log in or register as individuals searching for colleges. In the future, we plan to add the ability for users to edit their profiles.
College predictor	Completed	The feature is functioning smoothly; design can be improved if needed in future. This tool enables users to predict their college based on their JEE Advanced ranks.
College Search	Completed	The working of this functionality is complete and running fine. Allow users to search for different college programs according to their interest and JEE ranks.
College Compare	Completed	The feature is completed and working as specified. It allows users to compare colleges, based on multiple factors.
Forum	Completed	We've established a forum, and moving forward, we plan to expand the available tags. The forum provides users a platform to discuss their doubts, and clarify any information regarding the colleges they are targeting. Since we are using free deployment, it takes some time for the forum to Load(2 sec approximately).
College Review	Complete	Search for the reviews of the desired colleges according to academics, non academics, location, and other crucial factors. Functionality is working well and is complete.
Bookmarks	Incomplete	We've right now not completed it; therefore it is a part of our future plan to implement it. It can be easily implemented in future and will be a part of the final product.

SRS Features for College Going :

SRS features	Status	Future development plan/Current working
Profile login/registration	Completed	It lets College going students to register and login in the platform. Further we wish to add the functionality to edit the profiles
College predictor	Completed	The college students can also use the functionality of predicting colleges for giving reviews on the forum of different queries.
College Search	Completed	The working is complete and furthermore the design can be made better.
College Compare	Completed	The working of this functionality is complete and running fine. Allow users to search for different college programs according to their interest and JEE ranks.
Forum	Completed	College going students can answer queries on the Forum. The functionality is smoothly running and is complete.
College Review	Complete	They can provide reviews for specific colleges.
On call Advice	Complete	Personalized Advice can be provided to college seeking student by giving contact details on Forum.

Appendix A - Group Log

Sl. no.	Date	Timings	Venue	Description
1	04/03/24	4 pm - 5 pm	RM building	Discussed regarding the structure of the website, initiation of the website frontend development
2	08/03/24	11 am- 12 pm	RM building	Completed the website frontend and distributed the responsibility of backend to the teammates
3	10/03/24	4 pm - 6 pm	RM building	Met to track the progress of the members
4	11/03/24	6 pm - 8 pm	RM building	Met to track the progress of the members.
5	12/03/24-14/03/24	2:30 pm - 9 pm	RM building	Integrated the website's frontend and backend, with just one functionality left, and planned to implement it.
6	15/03/24	5 pm - 7 pm	RM building	There was discussion regarding the construction of the forum
7	16/03/24	2:30 pm - 9 pm	RM building	The forum construction is done.
8	17/03/24	4 pm - 6 pm	RM building	Forum integrated with the main website
9	18/03/24	5 pm - 8 pm	RM building	Final review of the implementation document and other tasks.