

Truexam

System Design Assignment

Frameworks used:

Backend: Node.js

Frontend: HTML (EJS), CSS

Database: MongoDB

Backend Models:

User Schema:

1. `_id`: Unique id created by the database.
2. `name`: Name of the User.
3. `email`: Unique email id of the User.
4. `password`: Required for logging in.
5. `userType`: Type of user (Student or Instructor).

Task Schema:

1. `_id`: Unique id created by the database.
2. `insID`: id of the Instructor who created the task.
3. `studentEmail`: email of the student to whom the task is assigned.
4. `origImage`: Name of the original image uploaded by the Instructor.
5. `editImage`: Name of the edited image uploaded by the student.
6. `score`: Score given by the Instructor.

API Structure:

Public Access:

1. `users/register` – Anyone can register a new account as a student or an instructor.
2. `users/login` – Anyone can login using the registered credentials.

Private Access:

1. `users/student/dashboard` – Only accounts registered as Student can access this API.
2. `users/student/submitTask/{{tid}}` – Only Student accounts to which the task with id = tid can use this API.
3. `users/student/downloadImage/{{tid}}` - Only Student accounts to which the task with id = tid can use this API.
4. `users/instructor/dashboard`, `user/instructor/createTask` – Only accounts registered as Instructor can access this API.
5. `users/instructor/createTask` - Only accounts registered as Instructor can access this API.
6. `users/instructor/evaluate/{{tid}}` – Only Instructors that created the task with id = tid can access this API.

7. `users/instructor/downloadOrigImage/{{tid}}` - Only Instructors that created the task with `id = tid` can access this API.
8. `users/instructor/downloadEditImage/{{tid}}` - Only Instructors that created the task with `id = tid` can access this API.

Images stored in Backend:

The images uploaded by the instructor are stored in `static/uploads/originals` with a unique name that is stored in the `origImage` variable of a Task object.

Similarly, the images uploaded by the students are stored in `static/uploads/edits` with a unique name that is stored in the `editImage` variable of the Task object.

As the images have a unique name, they can be accessed easily using the unique name from the respective folders.

Basic Working:

Anyone can create an account with a unique email id and register as an Instructor or a student.

Instructors' dashboard will display all the tasks created by them. They can assign any an Image editing task to any student by using that student's unique email and upload an image for the task. An instructor can download the images uploaded by the students after editing and then evaluate (all this is available on the dashboard plus the status of all the tasks they created).

Students' dashboard will display all the tasks assigned to that student. They can download the image available on the dashboard and upload after editing. Their score and status for every task is also available at the dashboard.