

HomeTeacher

by Paul Lehmann
@paultlehmann on GitHub

Description

My project is a React-based distance learning platform that allows teacher and student users to interact via creating, assigning, taking, and grading tests and assignments. I chose this particular project in response to the increased demand for remote learning software prompted by the coronavirus outbreak.



Features

- User registration, login, authentication, and sessioning
- For teachers:
 - Creating tests and adding questions
 - Assigning tests to students
 - Grading completed tests
- For students:
 - Taking tests
 - Reviewing grades



Planning - User Stories

Standard workflow:

1. A teacher creates a multiple-choice test and adds questions to it, and then assigns it to students.
2. The test appears on the dashboard of any student it is assigned to. The students take the test and submit it back to the teacher.
3. Submitted tests appear on the teacher's dashboard, who can then grade them and return them to the student at the click of a button.
4. The graded test now appears on the student's dashboard.



Planning - Database

- Only two model classes / collections, Users and Tests.
- Almost all functionality comes from manipulation of Test objects.
- A new test object is generated each time it is assigned, so every Test object corresponds to exactly one teacher and exactly one student.
- Tests have many fields that are added and accessed at various points in the workflow, such as an array of question objects and an object storing question prompts along with the students' guesses.



Technology Stack

- MERN stack
 - MongoDB
 - Express.js
 - React
 - Node.js
- Passport
- MongooseJS
- bcrypt



Demo



What I Learned

- The MERN stack – I had no prior experience with MongoDB, Express, or React
- Sessioning
- APIs



What's Next

- Styling
- Usability improvements, e.g. grouping different students' submissions of the same test on teacher dashboard
- More options when creating tests, e.g. due dates or free-response questions
- Implement "classrooms" to simplify test assignment

