

Learning Management Platform

sdmay24-46

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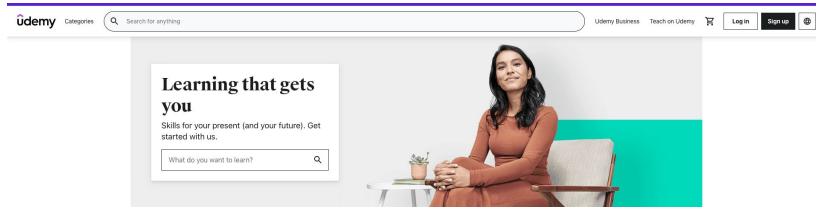
Project Vision

Our goal is to provide a centralized platform for students to access quality educational resources and user-driven study tools.

Our platform will make learning more efficient and effective by organizing content into lessons, tracking user progress, and offering study tools like flashcards and quizzes.



Concept Visual



Learning that gets you
Skills for your present (and your future). Get started with us.
What do you want to learn?

A broad selection of courses






Choose from 155,000 online video courses with new additions published every month

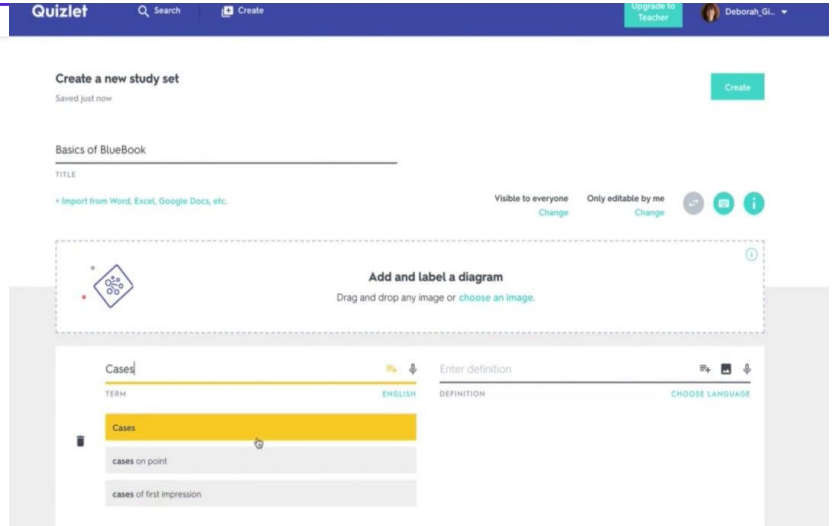
Python Excel Web Development JavaScript Data Science AWS Certification Drawing

Expand your career opportunities with Python

Whether you work in machine learning or finance, or are pursuing a career in web development or data science, Python is one of the most important skills you can learn. Python's simple syntax is especially suited for desktop, web, and business applications. Python's design philosophy emphasizes readability and usability...

Explore Python

 2021 Complete Python Bootcamp From Zero to Hero Jose Portilla 4.5 ★★★★★ (181,791) \$89.99	 Machine Learning A-Z™ Hands-On Python & In Data Kiril Elenski, Hristov de Poretova, S... 4.5 ★★★★★ (792,590) \$89.99 <small>Bestseller</small>	 Python for Data Science and Machine Learning Bootcamp Jose Portilla 4.5 ★★★★★ (104,482) \$119.99	 Learn Python Programming Masterclass Tim Buchalka, Jean-Paul Salerni, Thi... 4.5 ★★★★★ (169,871) \$89.99	 The Python Mega Course: Build To Real World Anton Saldin 4.5 ★★★★★ (162,180) \$89.99
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Quizlet Search Create Upgrade to Teacher Deborah_Gl...

Create a new study set

Saved just now Create

Basics of BlueBook

TITLE

+ Import from Word, Excel, Google Docs, etc.

Visible to everyone Change Only editable by me Change ES i

Add and label a diagram
Drag and drop any image or [choose an image](#).

Cases Enter definition ENGLISH CHOOSE LANGUAGE

TERM	DEFINITION
Cases	
cases on point	
cases of first impression	



System Design - Overall Architecture

Client Side

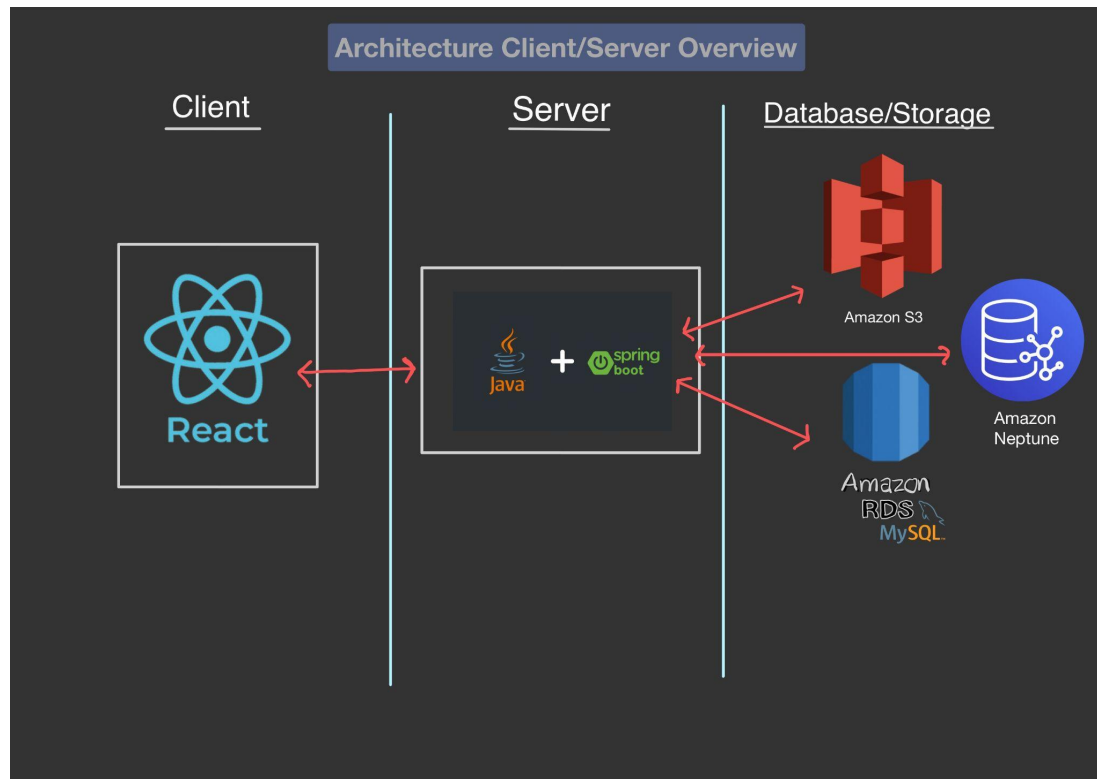
- ReactJS

Server

- Java (SpringBoot)

Database

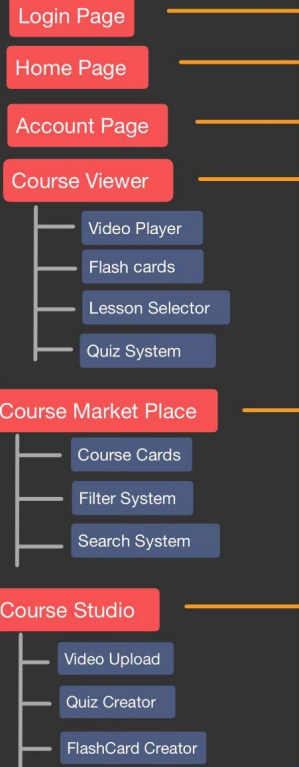
- S3 (AWS)
- Neptune (AWS)
- RDS (AWS)



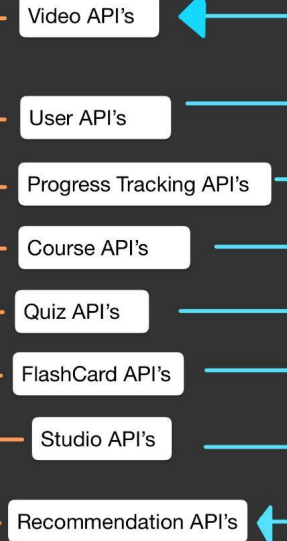
System Design More Detailed

Client/Server/DB Detailed

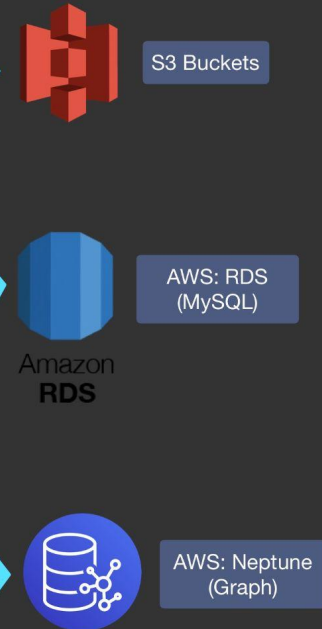
Client



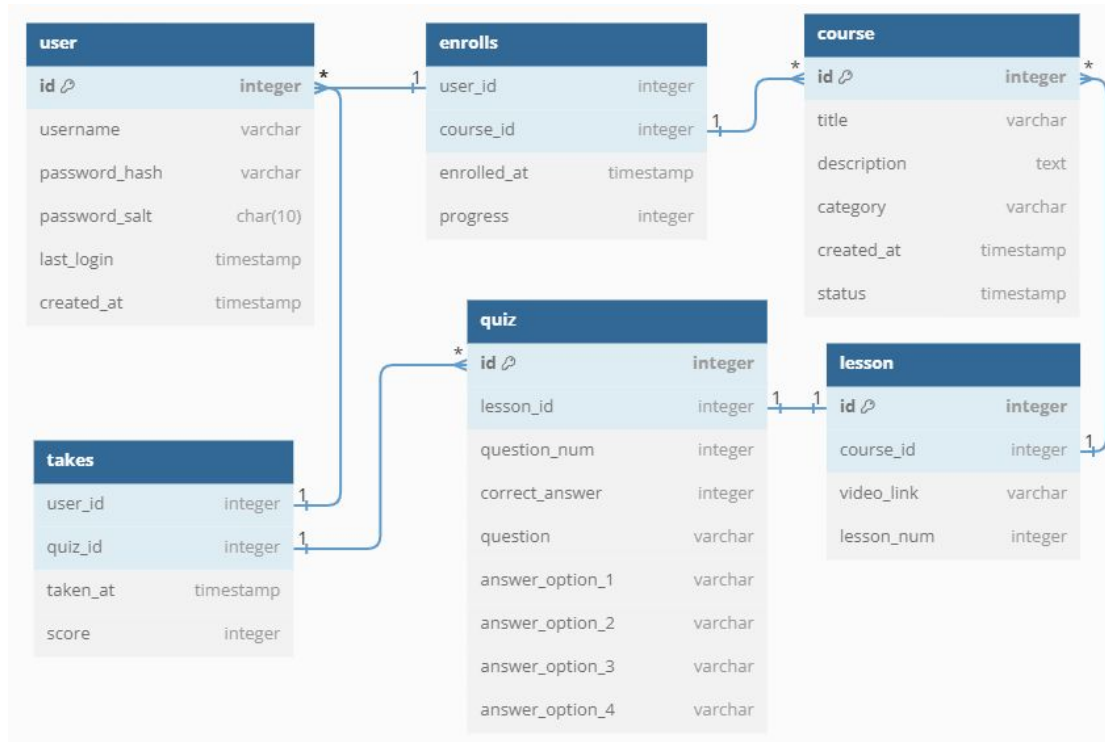
Server



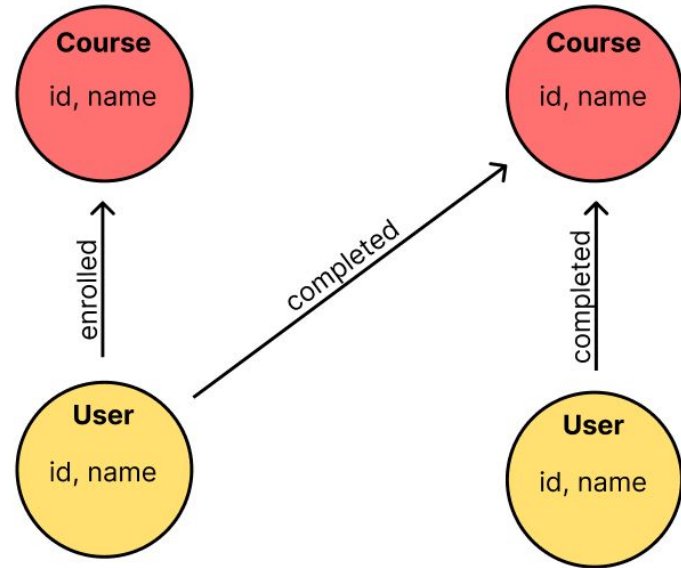
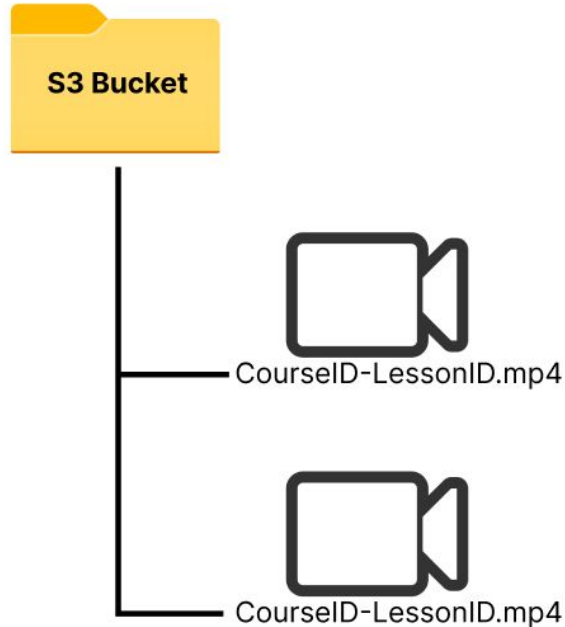
Database/Storage



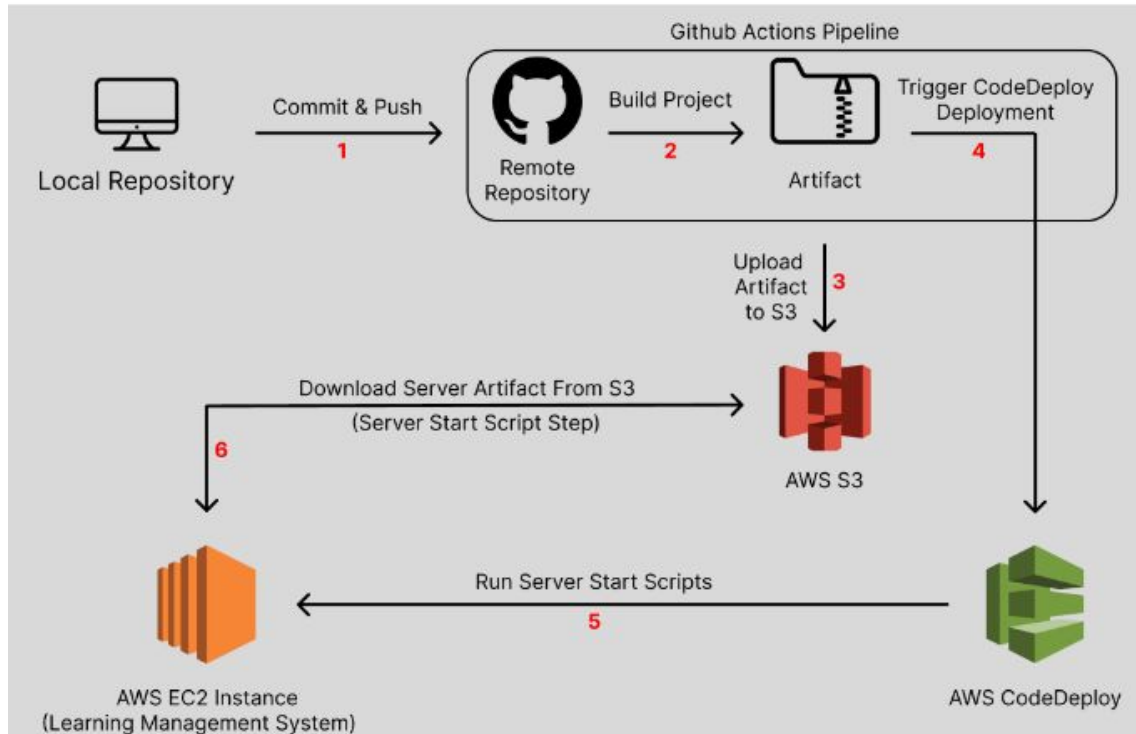
System Design - Databases



System Design - Databases



System Design - CI/CD Pipeline



Work Progress

Backend

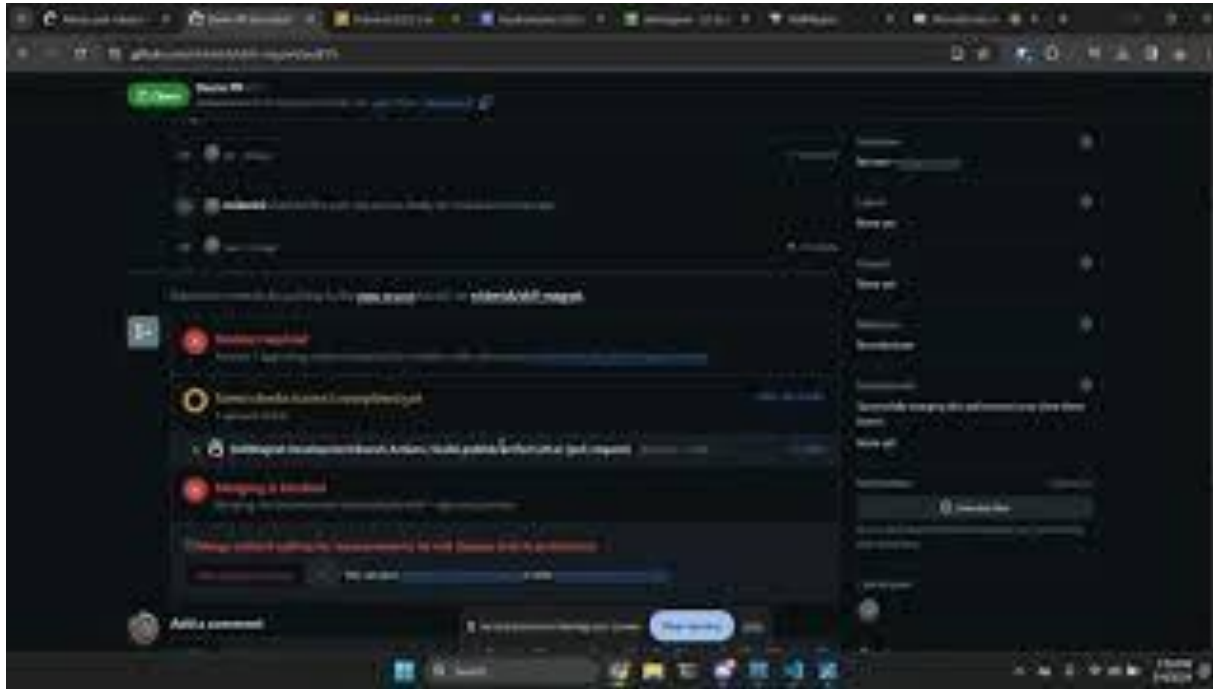
- Core APIs (User, Course, Lesson) [100%]
- Video Upload/Streaming [100%]
- Quiz Endpoints [10%]
 - Agree on final quiz model / dataflow
 - Implement Quiz API
- Course Recommendations [25%]
 - Find new place to host graph database
 - Implement a *simple* endpoint to retrieve course recommendations for a user
- Flashcards [0%]
 - Determine who has access to edit flashcards / where accessed from
 - Implement Flashcard API

Frontend

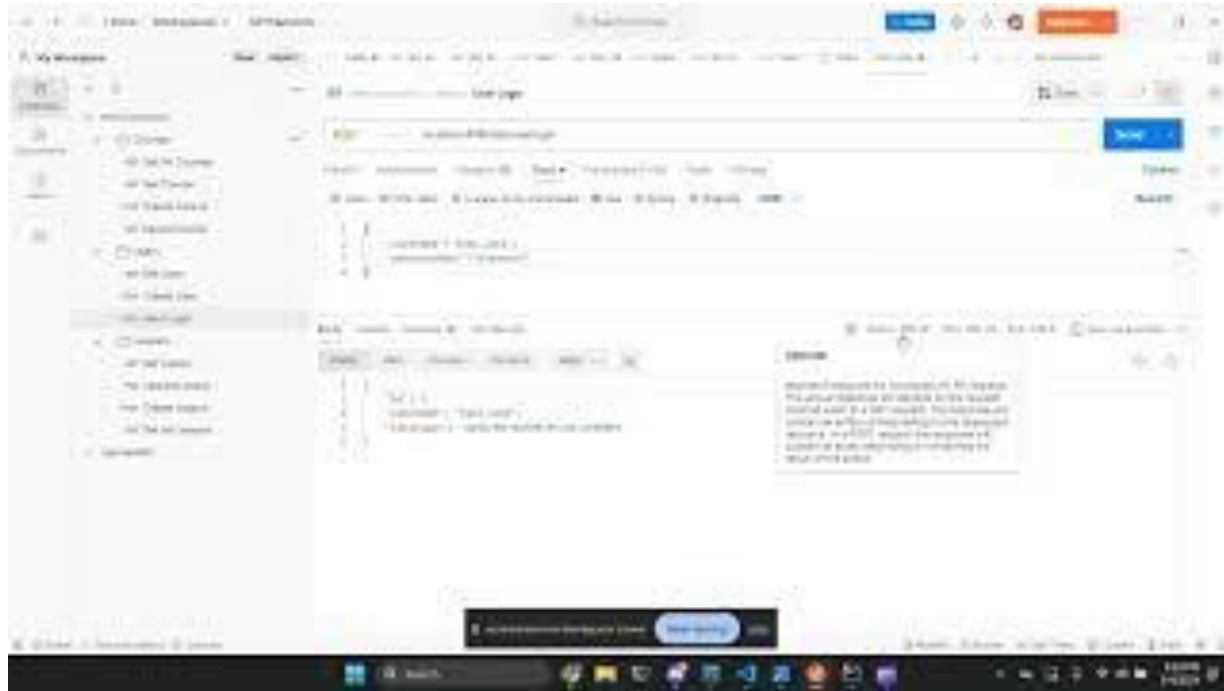
- Homepage [80%]
 - Improve formatting of text and add more information about the site
- Course Marketplace [60%]
 - Use courses API to interface with stored course information to populate the marketplace with course data.
 - Setup marketplace search bar.
- Course Viewer [60%]
 - Use lesson API and mock data to populate data and load videos on lesson select
 - Connect course cards in marketplace to direct to course viewer screen
- Login/Signup Pages [50%]
 - Make improvements to the login screen
 - Work on the Signup page



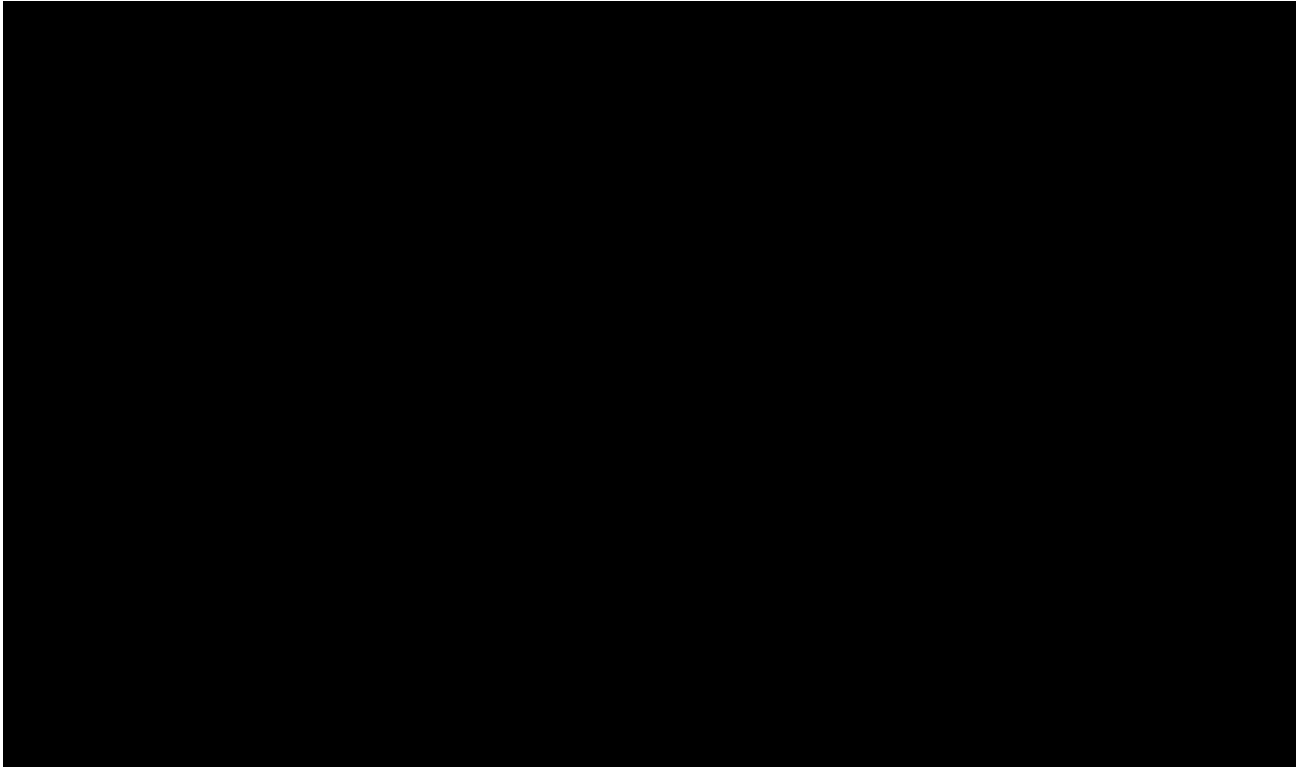
CI/CD Demo



Backend Demo



Frontend Demo



Challenges & Solutions

Resolved Challenges

- Playing video on client is difficult and expensive to transport large video files from a server
 - Discovered how to authenticate AWS S3 requests from React client
 - Override the request headers to stream the video from AWS rather than download
- When deciding how to hash passwords, there are many varying solutions ranging from out of date algorithms to expensive resource consuming algorithms.
 - Found an easy implementation through the Spring Security Library
 - Selected the Argon2 algorithm, which can be customized to match your use case.

Remaining Challenges

- When designing our course recommendations system we had planned to utilize the free tier of Amazon's Neptune graph DB, but Amazon recently added restrictions and it is no longer free.



Conclusion

Overall Progress

- Core APIs & Video Streaming Complete
- Frontend Pages 50-80% Complete

Remaining Work

- Use local mock data to populate web pages
- Connect navigation bar buttons with corresponding pages
- Setup course recommendations via the graph DB
- Build out Flashcards and Quizzes with APIs and decide on access rights

Team's Plan

- Make some major strides in the next few weeks in order to prepare the system for user feedback via surveys.
- Get the recommendations system up and running.
- Populate the frontend with live data.
- Creator Studio, Flashcards, and Quizzes to be implemented.
- If we check these boxes in the next few weeks, we can gather feedback from users, and have time to act on the feedback.

