Teacher To-Do

Presented By: Sam Gerstner, Alexander Frenette, Noah Nannen, & Shlok Sheth

Team Introduction

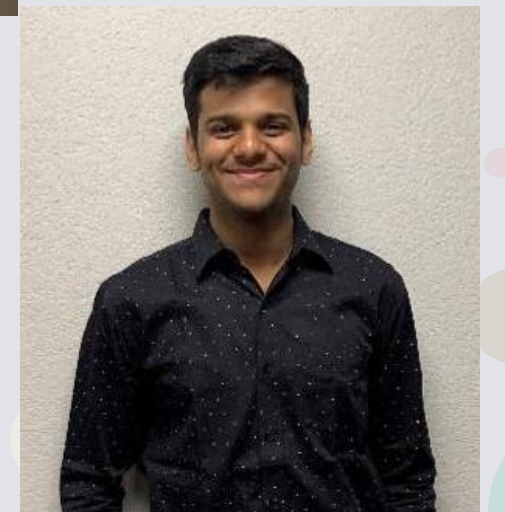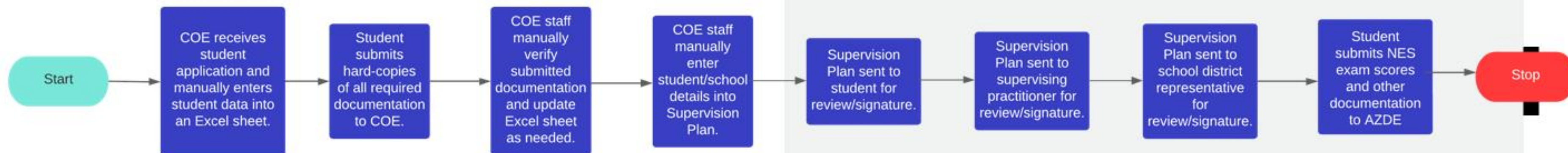|	
Sam Gerstner	• Team Lead/Backend Developer
Alexander Frenette	• Backend Developer
Noah Nannen	• User Interface Developer
Shlok Sheth	• Full Stack Developer
Chris Aungst	• Project Sponsor
Italo Santos	• Graduate Mentor

Introduction

- Currently over 2,600 vacant teaching positions in Arizona
  - Can be seen trending across the nation.

- Arizona Department of Education has started a new program to mitigate this.
  - Allows undergraduate education students to fill positions.
  - Replaces traditional student teaching experience.

- NAU's College of Education must track all requirements associated with STIC.
  - Currently done via a manual process that takes lots of time.

- Our client, Chris Aungst oversees this program.
  - Wants to streamline the process.
  - Reduces the number of hours spent on this project.

The Problem

- COE staff currently use a manual process to track requirements
  - Each individual student teacher is a row in an Excel spreadsheet.
- The STIC program is available to 12 different degree programs .
  - All have different requirements that must be managed.
- COE staff spend over 500 hours each semester on this process .
  - Could be used to provide other services to COE students.
- Accuracy and completeness are key aspects of this process.
  - Want to represent the University in a positive light.

Start → COE receives student application and manually enters student data into an Excel sheet. → Student submits hard-copies of all required documentation to COE. → COE staff manually verify submitted documentation and update Excel sheet as needed. → COE staff manually enter student/school details into Supervision Plan. → Supervision Plan sent to student for review/signature. → Supervision Plan sent to supervising practitioner for review/signature. → Supervision Plan sent to school district representative for review/signature. → Student submits NES exam scores and other documentation to AZDE → Stop

Solution Overview

- COE is looking for a web application
  - Help them manage and track student requirements in the STIC program
- Allows for storage tracking and storing any needed documentation
  - Allow for COE staff to easily view requirements for each students
- Ability to generate progress reports to see an overview of students' progress
  - Have it based on individual tracking
- Create the product in a mobile-friendly web application
  - Allows both students and COE faculty to view the application
  - Tracks missing and completed requirements for different students
- The goal is to streamline the process of tracking student requirements associated with STIC
  - Reduce the administrative burden on COE staff

Requirements Overview

- Student Privacy
  - FERPA and university guidelines prevent storage of student identifying data.
- An application that is universally accessible.
- Students self-reporting requirement status
- Administrators can filter students
  - Students with documents needing approval
  - Students by progress
- Administrators need a way to export student data to a CSV or Excel file for reporting.

Implementation & Architecture Overview

- Two primary modules: Web Application & Data API
- Web application is the user facing module that users will interact with.
- Data API interacts with FileMakerPro, MySQL, & S3 for document storage.
- MySQL stores application specific data such as requirement statuses.
- S3 stores any uploaded documentation for safe storage.
- FileMakerPro export file has student data such as name, major, etc.
- For more information on low-level coding implementation, please visit our team website to view our as-built report.

NOTE:

A is Dependent on B

Component A

Component B

HTML Web Page
(Mobile & Desktop)

Mobile App View
(Future)

Spring MVC

Google OAuth 2
(Authentication)

REST API

FileMaker Pro Data
(Student Records)

RDS: MySQL
(App Specific Data)

S3
(Document Store)
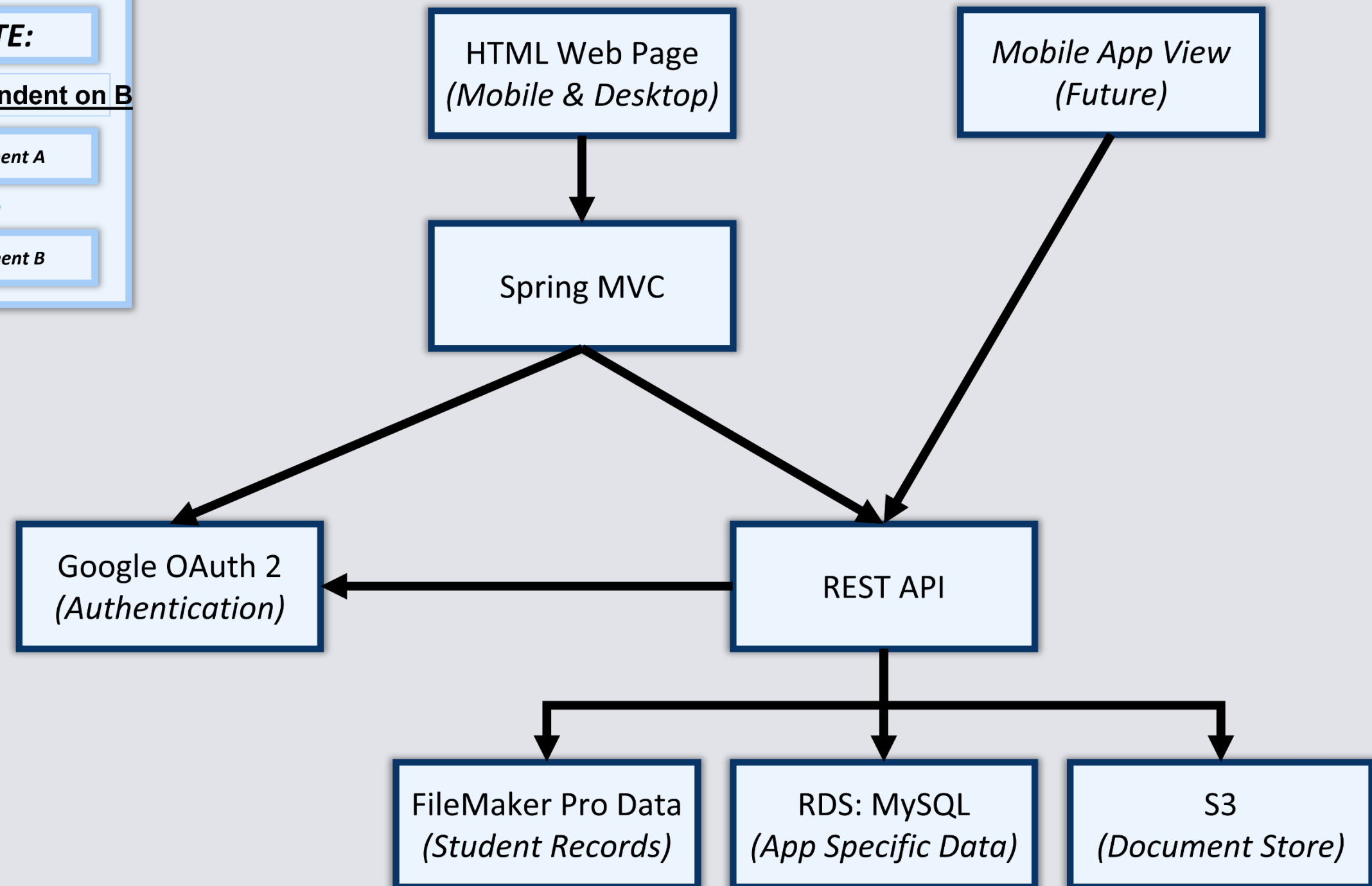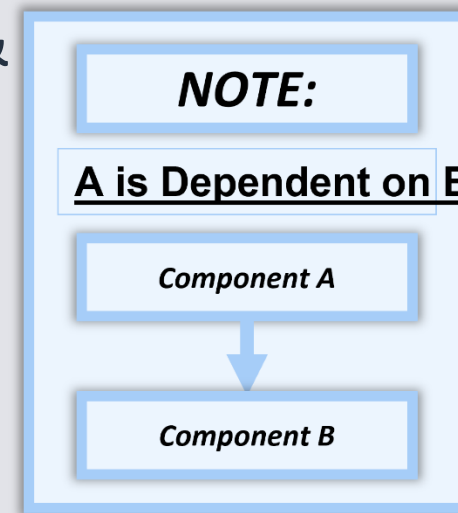
Product Review

- Goal of the Student Dashboard: Create a single webpage to allow students to view all requirements of the STIC program in one simple, easy to read place.

- Separated tasks by Incomplete, In-Progress, and Completed

- Tasks contain task title, description, and a file upload.

- Goal of the Admin Dashboard: Provide a way for all administrators to review individual student progress and maintain a cohesive process for students.

- Able to sort students based on task status, UID, and Major.

Student Login Experience
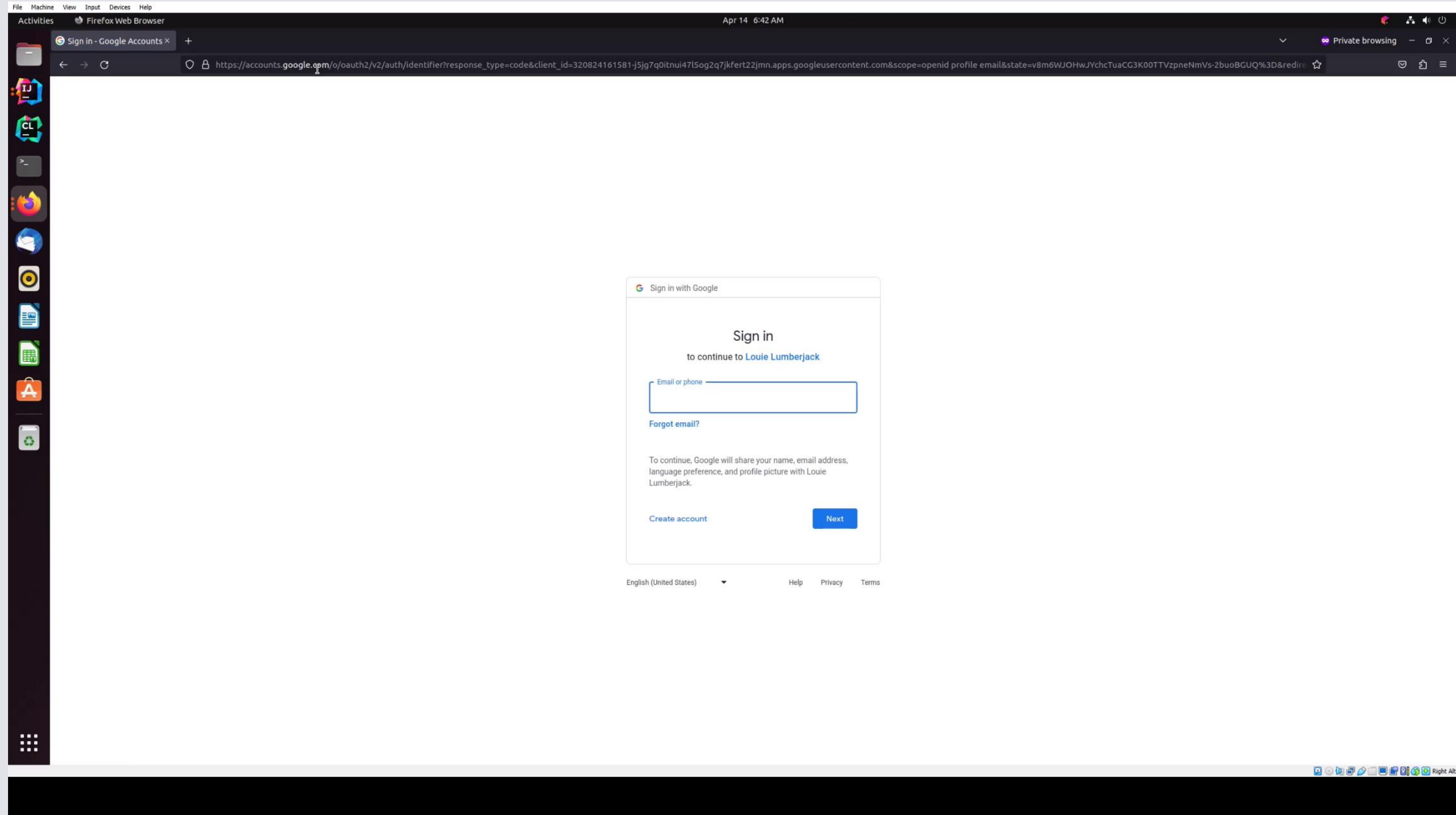
Student Dash Experience

Admin Dash Experience

Admin Filtering Experience

Admin Search Experience

Admin Document Approval

Admin Major Management

Admin Requirement Management

Admin Requirement Management

Admin Account Management

Student Import

Student Export

Technical Challenges

- Application designed as two separate "modules":
    - Data API
    - Front-end web application
    - Integration between these two modules is time consuming and is prone to errors.
- Used 3rd party library for sending HTTP requests to the data API.
    - Helps reduce simple errors by simplifying the syntax of our code.
- As previously mentioned, this application will be storing FERPA protected data
    - Must remain protected in the application.
- To ensure student privacy, we are hashing the student's user ID using SHA256 before storing it in any database record.
    - By hashing the user ID, if the database is compromised, students cannot be linked directly back to their data stored in the compromised database.

Technical Challenges Continued

- Any documents uploaded to the application are stored in an Azure file store rather than on the MySQL database.
  - This gives an extra layer of security to any uploaded documentation as it may contain FERPA and other sensitive data.
- Creating a flexible system that allows for modification of requirements
  - Rather than a static system where requirements cannot change.
- Teacher requirements tend to be updated every year
  - Evolve according to current affairs
  - Our system has admin roles that can modify and add requirements to the database manually
    - Keep up with the state regulations

Testing Plan

- Software testing has two purposes:
  - Ensure our project meets all requirements from the project sponsor.
  - Test the project's security and stability.

- Usability Testing
  - We have already had a meeting with the client to test functionality and usability.
  - Setting up more meetings with other users of the project through our client.

- Important information in the form of user reviews
  - Need the product as streamlined and easy to use as possible when handling sensitive data.

- Revisions are ongoing.
  - Working on changes as they come in, before reintroducing the final product.

Project Timeline

- Currently we are in the unifying phase of the capstone project
- This Gantt chart represents our progress over the weeks:

Conclusion

- The shortage of teachers in both Arizona and across the nation has created a demand for new teachers.

  - Cannot currently be met.

  - Arizona is taking measures to address this shortage.

  - Getting more qualified teachers in the classroom.

- Reducing the administrative burden of tracking and updating program requirements with our application will allow COE staff to spend that time on other services that benefit their students.

- We have just concluded our testing phase and have a fully realized alpha product since April 20th.

- Our client has reviewed the alpha product, and he was very excited for the project .