



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

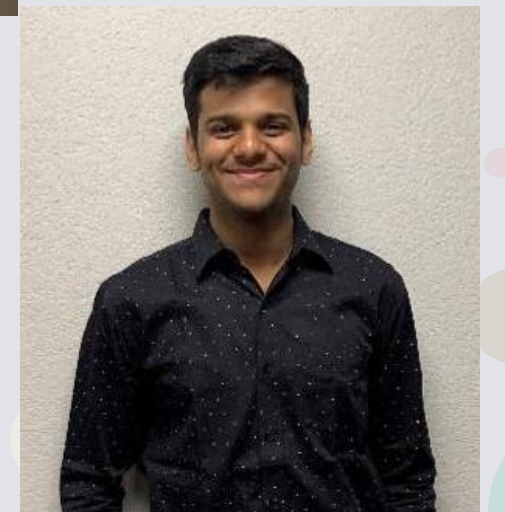
• Full Stack Developer

Chris Aungst

• Project Sponsor

Italo Santos

• Graduate Mentor

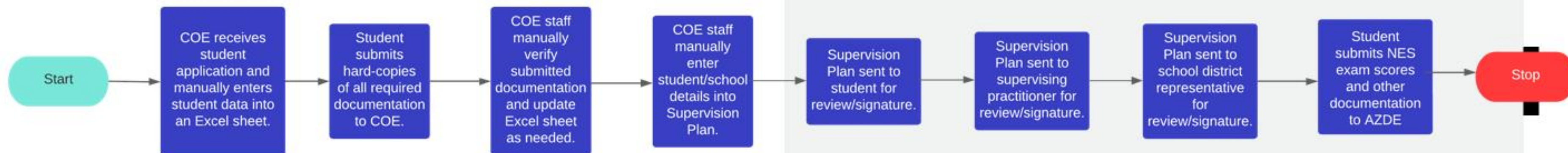


Introduction

- 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.



Solution Overview

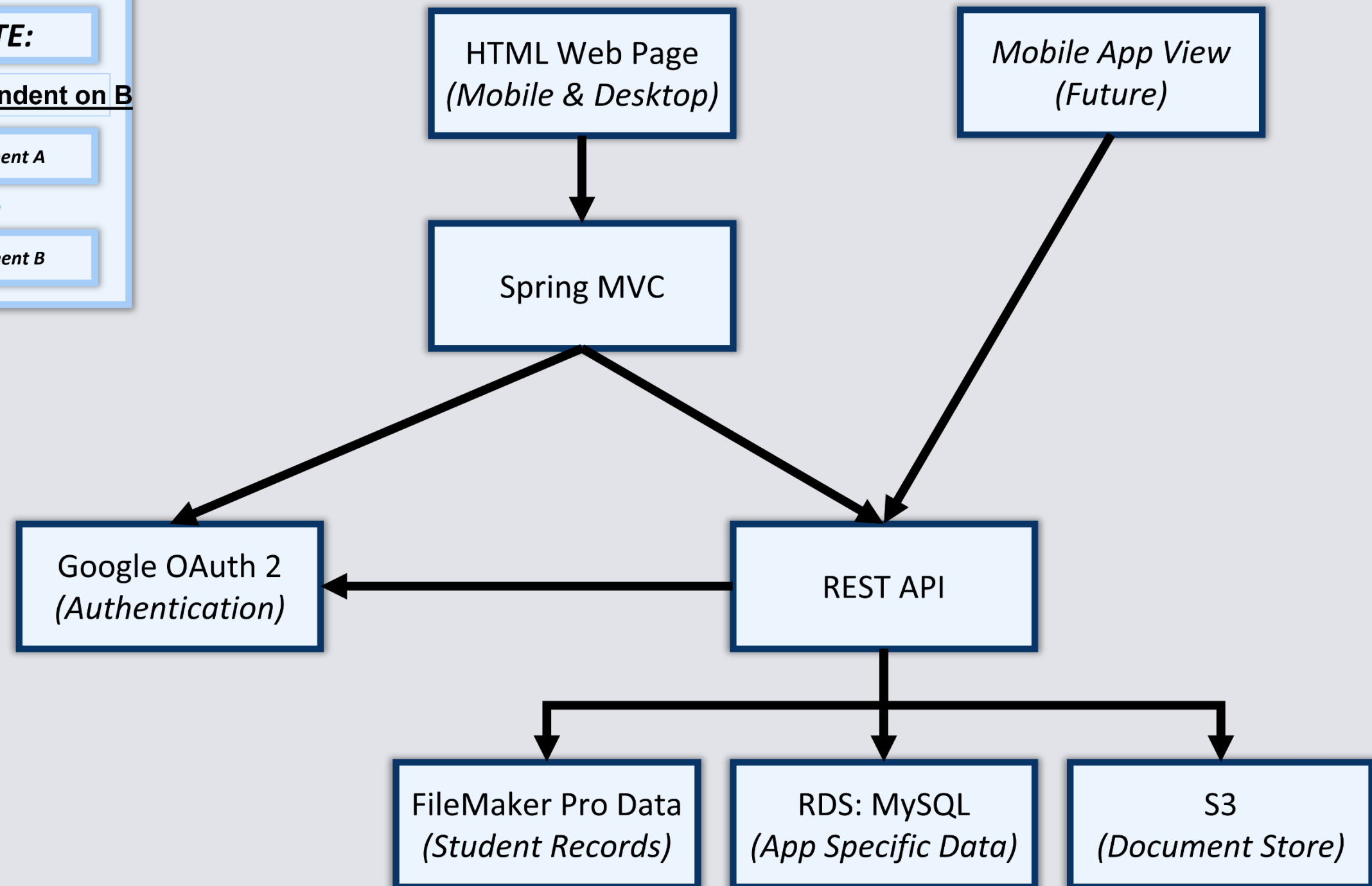
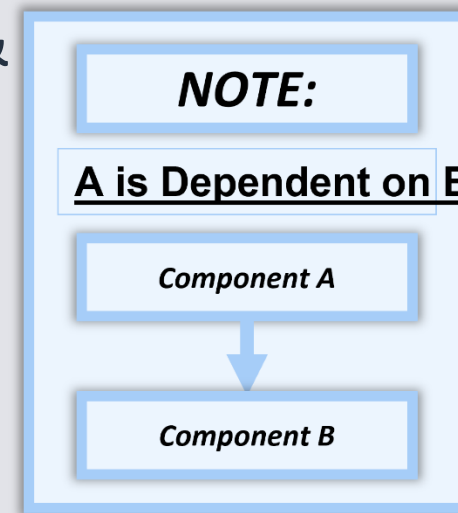
- COE is looking for a web application
 - Help them manage and track student requirements in the STIC program
- Allows for storage tracking and storing any needed documentation
 - Allow for COE staff to easily view requirements for each students
- Ability to generate progress reports to see an overview 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.

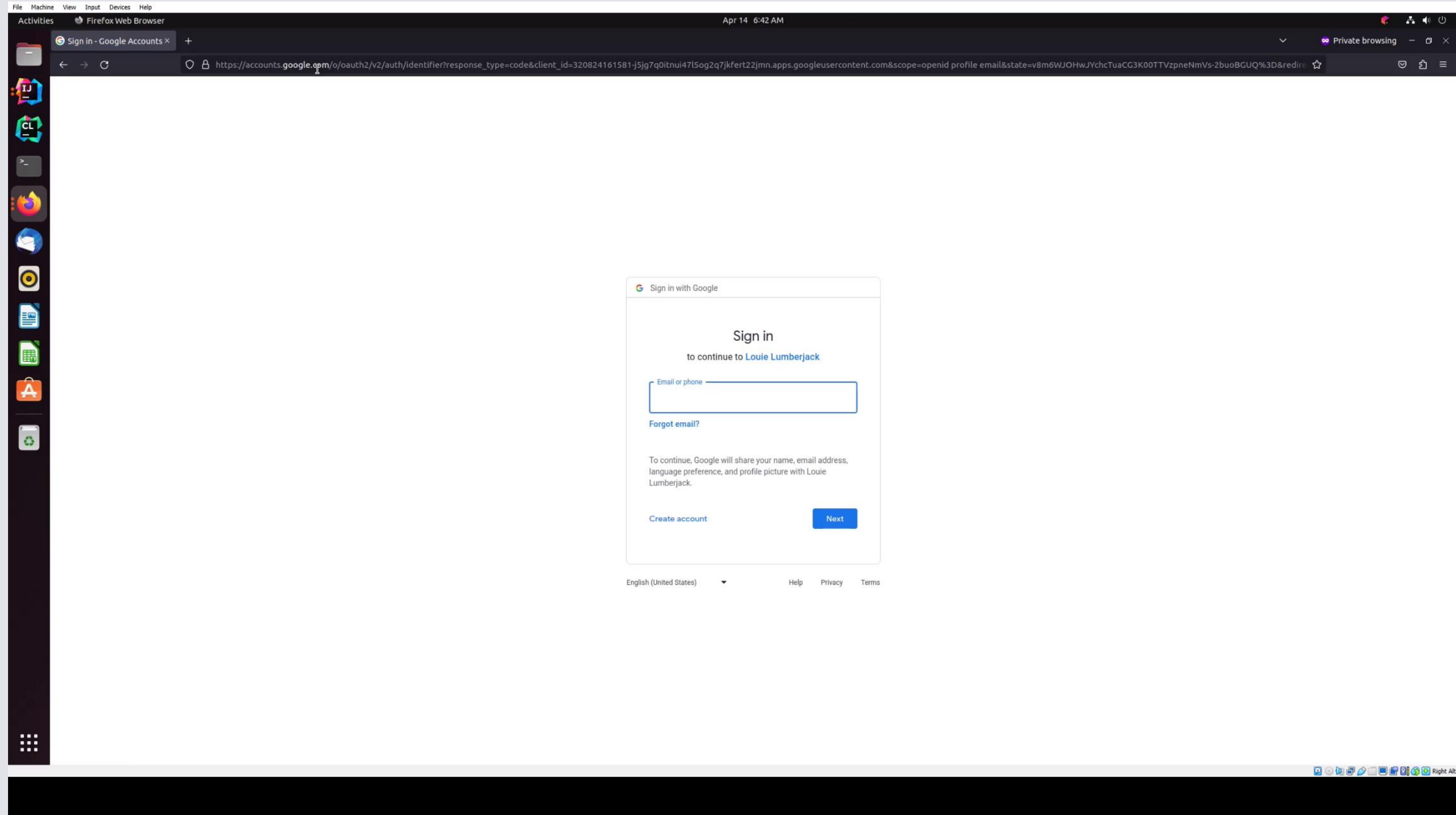


Product Review

- 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

The screenshot shows a web browser window with the following content:

- Browser Header:** Activities, Firefox Web Browser, Apr 14 6:43 AM, Private browsing.
- Page Title:** Teacher To-Do Student Tasks
- Address Bar:** localhost:8080/?continue
- Header:** Teacher To-Do logo and tagline: "A project devoted to helping new student teachers."
- Main Content:**
 - Student ID:** 459c857678de7fd622295c13208a416929a11cfa80e53c27973ea4e048dcb9f2
 - Requirements:**
 - Computer Engineering Requirement 3 Title** (with expand/collapse arrow)
 - Computer Engineering Requirement 3 Description
 - Task Status - In Progress
 - Browse... No file selected. Submit
 - Computer Engineering Requirement 2 Title** (with expand/collapse arrow)
 - Computer Engineering Requirement 2 Description
 - Task Status - In Progress
 - Browse... No file selected. Submit
 - Computer Engineering Requirement 1 Title** (with expand/collapse arrow)
 - Computer Engineering Requirement 1 Description
 - Task Status - In Progress
 - Browse... No file selected. Submit
- Left Sidebar:** A vertical stack of application icons including TJ, CL, a terminal, Firefox, a chat bubble, a camera, a document, a spreadsheet, a shopping bag, and a recycling bin.
- Bottom:** A system tray with various icons and the text "Right Alt".

Admin Dash Experience

The screenshot shows a web browser window displaying an admin dashboard. The browser's address bar shows the URL `localhost:8080/admin`. The dashboard header features the 'Teacher To-Do' logo and the tagline 'A project devoted to helping new student teachers.' Below the header is a navigation menu with items like 'Admin Dashboard', 'Majors', 'Documents', 'Requirements', 'Admins', and 'FileMaker Pro'. The main content area is titled 'Students' and includes a filter section with options for 'Major' and 'Status', and a search input field labeled 'E-mail'. The student list is currently filtered to show 'Roger Gilmour'. His profile is expanded to show three 'Mechanical Engineering Requirement' entries, each with a title, a status of 'In Progress', a description, and 'Download', 'Approve', and 'Deny' buttons. Below the expanded entry, the names of other students are visible: 'Bruce Watts', 'Tom Wyman', and 'John Lennon', each with a dropdown arrow.

Filter By:	Major	Status	E-mail	Search
Students				
Roger Gilmour				
Mechanical Engineering Requirement 1 Title				
Status: In Progress				
Mechanical Engineering Requirement 1 Description				
Download Approve Deny				
Mechanical Engineering Requirement 3 Title				
Status: In Progress				
Mechanical Engineering Requirement 3 Description				
Download Approve Deny				
Mechanical Engineering Requirement 2 Title				
Status: In Progress				
Mechanical Engineering Requirement 2 Description				
Download Approve Deny				
Bruce Watts				
Tom Wyman				
John Lennon				

Admin Filtering Experience

The screenshot shows a web browser window displaying an admin dashboard for 'Teacher To-Do'. The browser's address bar shows the URL 'localhost:8080/admin?filter=major'. The dashboard has a dark blue header with the 'Teacher To-Do' logo and the tagline 'A project devoted to helping new student teachers.' Below the header is a navigation menu with items like 'Admin Dashboard', 'Majors', 'Documents', 'Requirements', 'Admins', and 'FileMaker Pro'. The main content area is titled 'Students' and features a filter interface. The 'Filter By' dropdown is set to 'Major', and the 'Status' dropdown is set to 'In Progress'. A search bar with the placeholder 'E-mail' and a 'Search' button is also present. The results are filtered to 'Computer Science' and show a list of students. The first student, Brian Jones, has three requirements listed, each with a 'Status: In Progress' label and a 'Description' field. The second student, Mick Jagger, has one requirement listed with a 'Status: In Progress' label. Each requirement entry includes 'Download', 'Approve', and 'Deny' buttons.

Teacher To-Do
A project devoted to helping new student teachers.

Admin Dashboard Majors Documents Requirements Admins FileMaker Pro

Students

Filter By: Major Status E-mail Search

Computer Science

Brian Jones

Computer Science Requirement 2 Title
Status: In Progress
Computer Science Requirement 2 Description
Download Approve Deny

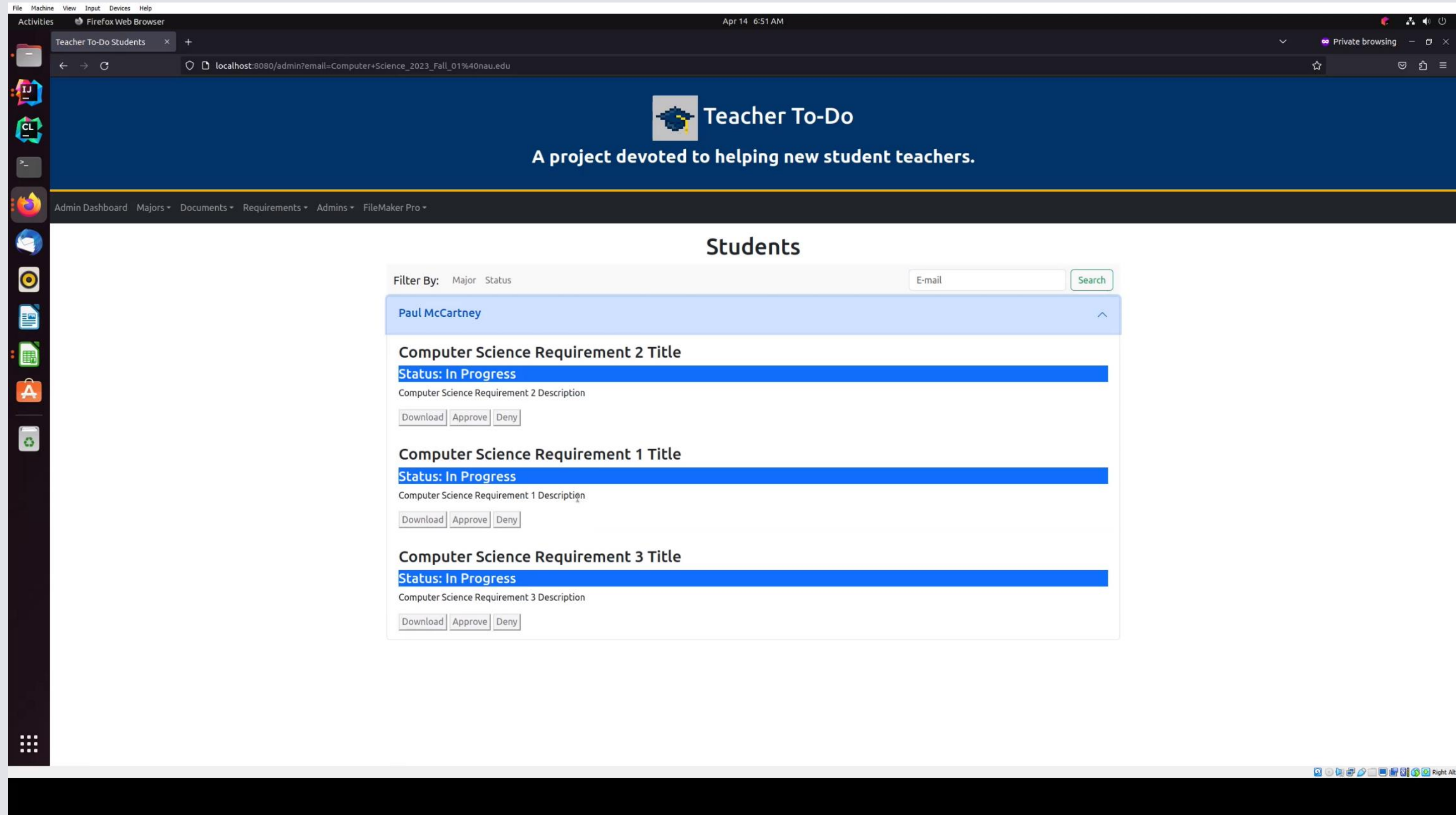
Computer Science Requirement 1 Title
Status: In Progress
Computer Science Requirement 1 Description
Download Approve Deny

Computer Science Requirement 3 Title
Status: In Progress
Computer Science Requirement 3 Description
Download Approve Deny

Mick Jagger

Computer Science Requirement 3 Title
Status: In Progress

Admin Search Experience



The screenshot shows a web browser window with the following elements:

- Browser Header:** Activities, Firefox Web Browser, Apr 14 6:51 AM, Private browsing.
- Page Title:** Teacher To-Do
- Page Description:** A project devoted to helping new student teachers.
- Navigation:** Admin Dashboard, Majors, Documents, Requirements, Admins, FileMaker Pro.
- Section:** Students
- Filter:** Filter By: Major Status, E-mail, Search.
- Search Results:** Paul McCartney
- Requirement 2:** Computer Science Requirement 2 Title, Status: In Progress, Computer Science Requirement 2 Description, Download, Approve, Deny.
- Requirement 1:** Computer Science Requirement 1 Title, Status: In Progress, Computer Science Requirement 1 Description, Download, Approve, Deny.
- Requirement 3:** Computer Science Requirement 3 Title, Status: In Progress, Computer Science Requirement 3 Description, Download, Approve, Deny.

Admin Document Approval

The screenshot shows a web browser window displaying the 'Teacher To-Do' admin dashboard. The browser's address bar shows the URL 'localhost:8080/admin/all-docs'. The page has a dark blue header with the 'Teacher To-Do' logo and the tagline 'A project devoted to helping new student teachers.' Below the header is a navigation menu with items like 'Admin Dashboard', 'Majors', 'Documents', 'Requirements', 'Admins', and 'FileMaker Pro'. The main content area is titled 'View Documents' and contains a table with the following structure:

Student Name	Requirement	Actions
--------------	-------------	---------

The table is currently empty. The browser's taskbar at the bottom shows various system icons and the date 'Apr 14 6:52 AM'.

Admin Major Management

The screenshot shows a web browser window displaying the 'View Majors' page of the 'Teacher To-Do' application. The browser's address bar shows the URL 'localhost:8080/admin/view-majors'. The page features a dark blue header with the 'Teacher To-Do' logo and the tagline 'A project devoted to helping new student teachers.' Below the header is a navigation menu with items like 'Admin Dashboard', 'Majors', 'Documents', 'Requirements', 'Admins', and 'FileMaker Pro'. The main content area is titled 'View Majors' and contains a table with the following data:

Major	Actions
Computer Engineering	Delete
Computer Science	Delete
Electrical Engineering	Delete
Mechanical Engineering	Delete
our special major	Delete
Plan 1	Delete
Plan 2	Delete
Plan 3	Delete

Admin Requirement Management

The screenshot displays a web browser window with the following elements:

- Browser Title Bar:** Activities, Firefox Web Browser, Apr 14 6:52 AM, Private browsing.
- Address Bar:** localhost:8080/admin/add-requirement
- Header:** Teacher To-Do logo and text: "A project devoted to helping new student teachers."
- Navigation Bar:** Admin Dashboard, Majors, Documents, Requirements, Admins, FileMaker Pro.
- Main Content Area:**
 - Add New Requirement** (Section Header)
 - Major:** Plan 1 (dropdown menu)
 - Description:** Have fun and rock! (text input)
 - Documentation Required:** (text input)
 - Submit** (button)

Admin Requirement Management

The screenshot shows a web browser window displaying the 'Teacher To-Do' admin interface. The browser's address bar shows the URL 'localhost:8080/admin/view-requirements'. The page features a dark blue header with the 'Teacher To-Do' logo and the tagline 'A project devoted to helping new student teachers.' Below the header is a navigation menu with items like 'Admin Dashboard', 'Majors', 'Documents', 'Requirements', 'Admins', and 'FileMaker Pro'. The main content area is titled 'View Requirements' and contains a table with the following data:

Major	Description	Requires Documentation	Actions
Computer Science	Computer Science Requirement 1 Description	false	Edit Delete
Mechanical Engineering	Mechanical Engineering Requirement 1 Description	false	Edit Delete
Computer Engineering	Computer Engineering Requirement 2 Description	false	Edit Delete
Electrical Engineering	Electrical Engineering Requirement 2 Description	false	Edit Delete
Computer Science	Computer Science Requirement 2 Description	false	Edit Delete
Mechanical Engineering	Mechanical Engineering Requirement 2 Description	false	Edit Delete
Computer Engineering	Computer Engineering Requirement 3 Description	false	Edit Delete
Electrical Engineering	Electrical Engineering Requirement 3 Description	false	Edit Delete
Computer Science	Computer Science Requirement 3 Description	false	Edit Delete
Mechanical Engineering	Mechanical Engineering Requirement 3 Description	false	Edit Delete
Plan 1	Requirement 1 Description	false	Edit Delete
Plan 1	Requirement 2 Description	false	Edit Delete
Plan 1	Requirement 3 Description	false	Edit Delete
Plan 2	Requirement 1 Description	false	Edit Delete
Plan 2	Requirement 2 Description	false	Edit Delete
Plan 3	Requirement 1 Description	false	Edit Delete

Admin Account Management

The screenshot displays a web browser window with the following elements:

- Browser Title Bar:** Shows "Activities", "Firefox Web Browser", and the date/time "Apr 14 6:52 AM".
- Address Bar:** Contains the URL "localhost:8080/admin/add-admin".
- Page Header:** Features the "Teacher To-Do" logo (a graduation cap) and the text "A project devoted to helping new student teachers." on a dark blue background.
- Navigation Menu:** A horizontal menu with items: "Admin Dashboard", "Majors", "Documents", "Requirements", "Admins", and "FileMaker Pro".
- Form Area:** Includes a text input field labeled "Admin E-mail", a "Submit" button, and a dropdown menu with "Add Admin" and "Delete Admin" options.
- Footer:** The browser's status bar at the bottom shows "localhost:8080/admin/add-admin#" and a system tray with various icons.

Student Import

The screenshot shows a LibreOffice Calc spreadsheet titled "generated-data.xlsx" with the following data:

ID #	PEU Master::	PEU Master::	PEU Master::	PEU Master::	ST Plan
6771755	Maria	Farrell	mar55@nau.e	Plan 1	
3486087	Amy	Murray	aam87@nau.e	Plan 1	
2851491	Cherry	Wilson	caw91@nau.e	Plan 1	
2320106	Arianna	Ross	aar06@nau.e	Plan 1	
1984885	Catherine	Johnston	caj85@nau.e	Plan 1	
8513691	Audrey	Martin	aam91@nau.e	Plan 2	
3591909	Dominik	Bailey	dob09@nau.e	Plan 2	
3499242	Carl	Richardson	car42@nau.e	Plan 2	
2194594	Ellia	Holmes	eah94@nau.e	Plan 2	
1888423	Preston	Miller	pam23@nau.e	Plan 2	
6865634	Justin	Bennett	jab34@nau.e	Plan 3	
5063854	Freddie	Henderson	fah54@nau.e	Plan 3	
3946144	Haris	Russell	har44@nau.e	Plan 3	
3623456	Adrian	Riley	aar56@nau.e	Plan 3	
3401269	Garry	Moore	gam69@nau.e	Plan 3	

The spreadsheet is displayed in a window titled "generated-data.xlsx - LibreOffice Calc". The status bar at the bottom indicates "Sheet 1 of 1", "PageStyle_Fall 23", "English (USA)", and "Average: ; Sum: 0". A notification bubble on the right side of the window states "generated-data.xlsx selected (7.1 kB)".

Student Export

The screenshot displays a LibreOffice Calc spreadsheet titled 'filemaker-export.xlsx'. The spreadsheet contains a table with the following data:

ID #	First Name	Last Name	E-mail	Requirement 1	Requirement 2	Requirement 3
6771755	Maria	Farrell	mar55@nau.edu	Not Started	Not Started	Not Started
3486087	Amy	Murray	aam87@nau.edu	Not Started	Not Started	Not Started
2851491	Cherry	Wilson	caw91@nau.edu	Not Started	Not Started	Not Started
2320106	Arianna	Ross	aar06@nau.edu	Not Started	Not Started	Not Started
1984885	Catherine	Johnston	caj85@nau.edu	Not Started	Not Started	Not Started

The spreadsheet is open in a window titled 'filemaker-export.xlsx - LibreOffice Calc'. The status bar at the bottom indicates 'Sheet 1 of 3' and 'PageStyle_Plan 1'. A second window titled 'Fall 23' is partially visible below, showing 'Sheet 1 of 1' and 'PageStyle_Fall 23'. The status bar for the second window indicates 'Selected: 16 rows, 1 column'.

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:

Teacher To-Do

Select a period to highlight at right. A legend describing the charting follows.

Period Highlight: 10

Plan Duration

Actual Start

Complete

Actual

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE	Weeks															
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Student Dashboard	1	4	1	4	100%	Actual Start	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Complete				
Admin Dashboard	1	4	1	4	60%	Actual Start											Complete				
Rest API	1	5	1	5	35%	Actual Start	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual			Complete				
Google SSO	1	2	2	2	20%	Actual Start	Actual Start										Complete				
FileMaker Import	3	1	3	1	10%		Actual	Actual Start									Complete				
Document Storage	4	2	4	2	100%			Actual	Actual Start	Actual	Actual	Actual	Actual	Actual	Actual		Complete				
Integration Testing	5	1	5	1	0%				Actual					Actual Start	Actual	Actual	Actual	Complete			

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 .