
EE/CprE/SE 491

Iowa State A.I. Schedule Companion

Weekly Report #4

Wednesday, February 21 – Tuesday, February 27

Group number: sdec24-08

Client: Koby Fowler

Faculty Advisor: Abraham Aldaco

Team Members:

Koby Fowler - Overall Application Leader

Chandrashekar Tirunagiri - Frontend Design Leader

Raghuram Guddati - Backend Design Leader

Jacob Paustian - Artificial Intelligence Research Leader

Christian Deam - Meeting Manager

Anna Huggins - Team Manager/Communicator

Weekly Summary

The event of most importance that happened was the meeting with Matt from OARDE. Through the meeting, we were made aware that AccessPlus was getting replaced with Workday, where it would be implemented at the beginning of March. So, properly implementing our AI and ISU's scheduler (Workday) would most likely not happen this semester. We were also informed to use Qualtrics instead of Google Forms for the survey. Other than that, the week was relatively quiet as we planned our next significant move.

Past Week Accomplishments

OARDE Meeting - Chandrashekar, Raghuram, Jacob, Christian, & Anna

- **Met with Matt Pistilli from the Office of Assessment, Research, and Divisional Effectiveness**
 - Discussed our student survey rough draft from Google Forms
 - Open discussion regarding what general questions might be the most beneficial to include in our survey
 - Considered the impact of Workday registration dropping in the very near future
 - Gained good insight into how quickly we should begin distributing surveys

Frontend, Brainstorming, Project Organization - Koby Fowler

Throughout the week, I made significant progress on multiple fronts. On the frontend, I focused on implementing fixes to align the user interface more closely with our design prototype in Figma, enhancing the overall user experience. Simultaneously, I delved into a comprehensive brainstorming session to establish the foundational elements of our backend infrastructure, laying the groundwork for seamless functionality.

Communication within the app was a key area of attention. I dedicated time to brainstorming and mapping the app's communication flow, ensuring a cohesive and efficient system. This involved collaboration with the team to refine the abstraction of the app, contributing to a clearer understanding of its structure.

Regarding project organization, I took the initiative to set up a GitHub organization, streamlining our version control and collaboration processes. This will enhance code management and facilitate smoother collaboration among team members.

Additionally, I began the crucial task of setting up a new AWS environment now that ece has provided specific accounts for AWS.

OARDE Meeting, Research - Chandrashekar Tirunagiri

- Last week I did some formal research on our backend and Aws stuff, which we will use.
- I also learned a few techniques in NextJS (like angle gradients and graphic animator) to make our website look better.
- I had a productive meeting with Matt, where we discussed our survey and what platform we had to use for the survey.

Terraform, Backend - Raghuram Guddati

- Finally got the chance to learn more about Terraform last week. It was helpful to understand how it works. This has helped me learn more about EC2 and how it works with AWS, which was my main goal. I also had a good chat with Matt where we agreed on clear deadlines and what was expected of each other. This made the work go more smoothly.
- I also know a lot more about how the UI and backend talk to each other. I learned more about full-stack development from this study because it showed me how these different parts talk to each other in very complicated ways.

AI Research, AI Service Cleanup, and Planning for the Future - Jacob Paustian

- Performed clean-up on the AI Service.
- Added streaming to AI service retrieves information from GPT in real time versus on a singular response. This gives chatGPT the effect of typing its responses versus the entire message just appearing once it is entirely loaded.
- Future AI dev work becomes more complicated as without a paid version of GPT 4.0, I cannot do the following:
 - Submit many requests per minute, meaning multiple-user support is yet to be feasible.
 - Provide the model with a large enough context menu, i.e., all of the information about every class offered at Iowa State. Me and Koby had talked, however, about writing a script that would transform these public PDFs into condensed JSON. This would be a good idea even with GPT 4.0, as this would also help condense the number of tokens.
- Organized a meeting related to getting everyone on the same page for the future design of the backend/AI Service, as I was not sure whether I should start integrating my AI Service into our backend or should I leave it as is. Right now, we will be leaving it separate. Koby made a grand diagram detailing the content of this meeting.

OARDE Meeting, Weekly Summary, Lightning Talk - Christian Deam

- Finally held a meeting and was able to take proper minutes
- Worked on the weekly summary
- Created the lightning talk (need to improve for next time, learned much to do so)

Qualtrics Student Survey, ETG Coordination - Anna Huggins

- Qualtrics Student Survey
 - Met with the team and consulted Matt from OARDE

- The majority of the meeting was spent discussing the best options for creating our survey
 - Matt recommended Qualtrics for the most customization and feedback options
 - Discussed Workday's impact on our app, but also how it impacts the data we are trying to collect
- Converted our initial rough draft from Google Forms to Qualtrics
 - Updated some questions
 - Reduced the number of open-ended questions so that we can get more direct feedback
 - Clarified how students can potentially become testers/provide us with more feedback later in the development process
 - Updated the summary at the beginning of the quiz to clarify our intentions as well as the purpose of our application
- ETG Coordination
 - Corresponded with ETG over email to clarify our funding request
 - Currently, funding has been sent to our senior project email, which is excellent but not ideal for our current development setup, as we were using a different account for the bulk of our progress
 - Moving forward, we will be continuing to work with ETG as we may need additional funding for:
 - ChatGPT API testing
 - Domain names
 - Additional AWS functionality

Individual Contribution Tracker

Name	Individual Contributions	Hours this Week	Hours Cumulative
Raghuram Guddati	<ul style="list-style-type: none"> - Met with Matt Pistilli of OARDE to discuss survey revisions and distribution - Deepened my understanding of Terraform, particularly focusing on EC2 integration within AWS 	4	22.0
Christian Deam	<ul style="list-style-type: none"> - Met with Matt Pistilli of OARDE to discuss survey revisions and distribution - Held minutes for the meeting with Matt Pistilli - Created and submitted Lightning Talk 1 - Made weekly summary 	4	14.0
Jake Paustian	<ul style="list-style-type: none"> - Met with Matt Pistilli of OARDE to discuss survey revisions and distribution - Coordinated major future application brainstorming - Minor fixes to backend 	4.5	25
Anna Huggins	<ul style="list-style-type: none"> - Met with Matt Pistilli of OARDE to discuss survey revisions and distribution - Created an updated Qualtrics student survey - Coordinated funding request with ETG 	4.5	19.5
Chandrashekar Tirunagiri	<ul style="list-style-type: none"> - Met with Matt Pistilli of OARDE to discuss survey revisions and distribution - 	5.0	18.0
Koby Fowler	<ul style="list-style-type: none"> - Researched funding issues - Major overhead application brainstorming - Minor fixes to frontend 	6.0	35.0

Pending Issues

Issue #1 - Confirming Funding for ChatGPT API and Amazon Web Services (AWS)

- **Anna Huggins**
 - Status: Pending (2/27)
 - Upon further communication with ETG:
 - They added our senior design account to Iowa State's Open AI API organization
 - Created an account for our team in Iowa State's AWS organization
 - Told us to use AWS Pricing Calculator for a better idea of what additional funding we will need
 - They also asked for more information regarding the use of domain name(s) (isu-companion), which we are doing more research on
 - Based on ETG's feedback, we will have to re-implement much of our current project structure to use the designated account that ETG provided funds to

Summary of Weekly Meetings

Student Survey Development Meeting with OARDE - Matt Pistilli

- **Christian Deam**
 - **Roll Call**
 - Call to Order
 - A meeting with our advisor, Matt, for the AI-powered Scheduled Companion team was formally started at 4:17 in the Student Services Building.
 - Present:
 - Anna Huggins
 - Christian Deam
 - Jacob Paustian
 - Chandrashekar Tirunagiri
 - Raghuram Guddati
 - Excused
 - NA
 - Absent
 - Koby Fowler
 - **Reports**
 - No Reports
 - **Unfinished Business**
 - NA

- **New Business**
 - NA
- **Work Time (Optional)**
 - Advisor Meeting Minutes Notes
 - Workday issues need to understand the backend to implement it properly. We will not be able to this semester. This sets our constraint since we already have our requirements.
 - Qualtrics over SurveyMonkey, deadline on Monday. That survey has been sent out (in our Snapchat group chat).
- **Unfinished Business for Next Meeting**
 - NA
- **Closing Statements**
 - Meeting was overall successful.
 - Meeting was adjourned at 4:49

Weekly Team Meeting Notes (2/27)

- **Anna Huggins**
 - ETG Funding Request Feedback
 - Due to ETG providing funding to our designated senior design account, we will have to re-implement much of our current repository's infrastructure using these accounts (namely, for AWS/OpenAI)
 - Could use ece to host, but we are leaning towards using AWS because it provides more resources, and our team has more familiarity with it
 - General Backend Infrastructure Design
 - Discussed general database construction
 - How to divide database structures among various data we will need to store, i.e.) SchoolInfo, Users, UserInfo, UserStats, Majors, etc.)
 - How the backend connects to OpenAI resources
 - S3's role in containing survey and GPT response
 - User Interface Design for A.I. Schedule Making
 - Key points:
 - Prompting users to answer general questions about what they want in the schedule
 - We will be including a "previous info" tab to contain user preferences and other information that the AI can access during schedule generation
 - Front-end Design
 - Updating Figma to match the current state

- Add additional screens to Figma
- Update current UI's to reflect our plans
- Login
 - If the user has previously logged in
 - Go to a user-specific homepage
 - If the user has not logged in before
 - Try to prompt the user to the survey page to get user information
 - Reference: general apple.com design - welcoming, easy to follow, clean
 - Add a scrollable component for easier visibility on the homepage
- Sidebar
 - Have on most pages, except for the login page\
- Abstraction
 - Can add additional components to break down pages even further
- Goals
 - Futuristic, sleek, easy to navigate
- Overview
 - App folder holds our code
 - Page.tsx - root page
- A.I. Functionality
 - Jake gave a small demo to share with the team about how the Open AI API works
 - What we have so far, how it works, any important research info
 - AI is very much NOT context-aware and will need training and tracking for memory
 - AI can pull from a given link, namely the ISU catalog, for information
 - Outcomes
 - If we know a major, we can use our contained information within our app/trained AI
 - If we don't know a specific major, we can use the catalog website for information
- Qualtrics Student Feedback Survey
 - Discussed the current state of survey design as well as its distribution moving forward

Plans for the Upcoming Week

Koby Fowler

Looking ahead to the next week, my goals include finalizing the setup of the new AWS environment and focusing on connecting the frontend and backend. This integration is vital for achieving a fully functional and cohesive application. I am committed to ensuring the successful realization of these objectives, contributing to our senior design project's overall progress and success.

Chandrashekar Tirunagiri

- Next week I and Anna will be discussing the home page of our website and making it look futuristic. We are also planning to make a user info page.
- I am also looking forward to working on the terraform to make the user tables and related data related to our website.

Raghuram Guddati

- For the upcoming week, I will focus on advancing my Terraform skills, specifically by creating additional tables. Additionally, I'll collaborate with Koby, Chan, and Jacob to further develop the backend infrastructure.
- I'd also like to establish roundtrips between the frontend crafted by Chan and the backend tables. This will enable us to effectively test the POST and GET methods and ensure seamless communication between the two components.

Jacob Paustian

- This next week, I will unfortunately not be able to contribute much until this weekend. Midterms are hitting me hard, and my focus will have to shift for now. This weekend, I plan to work on either backend infrastructure with the other backend developers or look into a way to minimize our training sets with a script to condense PDFs into JSON.

Christian Deam

- Await for further backend information
- Create the next Lightning Talk (this and next week's Lightning Talks to improve slides and also add more pictures).

Anna Huggins

- Work with Chan we develop more front-end screens
 - Implement the sidebar that Koby mentioned in our team meeting
- Distribute our initial student survey (along with the rest of my team) to get an idea of what students would be interested in regarding our application