

No Clue Senior Expo Video Transcript

CS 4928 - Dr. Danforth

Gaede, Khan, Manning, Villareal

SLIDES:

Hasun:

Hi my name is Hasun Khan and I'm joined by Joseph Gaede, Julian Villareal, and Chad Manning and together we are No Clue. Under the guidance and support of Dr. Danforth, we were tasked with creating a project that solved a problem we perceived in the real world. To kick things off - we began informally discussing some of the challenges we've faced as students and in a very short amount of time, we discovered a pervasive universal issue each of us experienced as Computer Science students at CSUB.

Joseph:

Throughout our time here at CSUB, we each found that our Department's website for Computer Science and Engineering lacked critical information like up-to-date professors' office hours, counseling information, and basic FAQs.

We set out to solve this lack of support so that our target audience of subsequent generations of Computer Science students could get the online support we didn't.

Julian:

To help better understand the problem we were attempting to solve we started by researching it. We first looked at the existing website and tried to find answers to each of the questions we had previously asked. Namely: office hours for our professors, counseling information, and grades. As much as we love CSUB, their website myCSUB can be a bit hard to understand, especially for new students! Our virtual assistant would attempt to relieve some of those troubles; It already knows where to find most information students are looking for.

Chad:

Our research helped guide the areas of information our virtual assistant would help focus on. To learn more about what our virtual assistant could help with, we started to review existing education based virtual assistants. We also took time aside to review CSUB's main website's resources to avoid doubling any efforts that already existed including replicating FAQ pages or counseling information.

Hasun:

Our plan evolved over the project's development but our initial thought process was to develop the simplest way to connect users with a database of information. We created modules to help organize this process including a chatbot that would handle the core AI logic, an expert system to provide answers, a database to pool all relevant data in, and finally a front-end interface for users to interact with. Overtime we were able to simplify our workflow to just a database, front-end, and chatbot.

Joseph:

To assist us with our development process we utilized the following tools: DialogFlow to design and deploy the chatbot, NodeJs for Java based back-end support, and SQL for database development and integration. DialogFlow offered a great way to start since it already had useful tools for easily setting up the chatbot and Google offers a reliable server for us to host the virtual

No Clue Senior Expo Video Transcript

CS 4928 - Dr. Danforth

Gaede, Khan, Manning, Villareal

assistant through. Chatbots are incredibly complex, as they have to know how to respond to a variety of questions and account for innumerable variables that show up in user interaction. Having DialogFlow as a package helped since it allowed us to focus more on feature development than reconstructing every part of building the framework behind a chatbot from the ground up.

Julian:

Key features we wanted to implement were the ability to chat with the virtual assistant, request professor information including office hours and contact information, counseling information, and up to date grades. We then added some more features like real time local weather and temperature info, some of the business hours for the buildings on campus and the ability to tell a random joke. We designed this with the intention that the virtual assistant should be easily modified in the future to make sure we can continue building out features well past the end of the semester.

Chad:

Our timeline for the project was split up between the Fall 2020 semester and the Spring 2021 semester. We treated the Fall as a period for research and ideation while the Spring semester was our implementation and revision period. While we were able to set up some frameworks in Fall, the majority of our coding happened during the Spring semester. This timeline offered us flexibility when approaching project management that helped out a lot down the line.

Hasun:

To manage the project, we utilized both agile and scrum based on what the needs were at different times of the project. This helped because we could apply scrum for hectic coding sprints in the Spring semester and agile for more sustained periods of research and development in the Fall semester. While I served as the project lead, every team member managed a feature of the webapp and additionally served as backup for one or more of the remaining functions.

DEMO PORTION:

Anyone:

To start using the chatbot we first enter our user's credentials through our login page.

I designed the front-end interface to be responsive and scale-able to work with both mobile and desktop clients.

Joseph created the database that user credentials are checked against and also wrote the javascript that processes the interactions between the front-end and back-end.

After verifying the user's information we're brought into the chatbot interface.

No Clue Senior Expo Video Transcript

CS 4928 - Dr. Danforth

Gaede, Khan, Manning, Villareal

The chatbot interface was modeled after csub's virtual assistant but with a few additions in functionality we'll show.

To get started, let's say hello.

types hello

Let's ask what the Virtual assistant can do.

types what can you do

Let's ask for help.

types Ok Help me

On the back-end, Julian coded the chatbot's logic and rules so that the user can interact with the bot in a myriad of ways. Our ultimate goal was to break down as many barriers as we can between information and the users.

We have a few options here but let's start out with something simple. The prompt mentioned professor information. Let me ask for my professor's email

types alright what's my professors email?

The Virtual Assistant has access to each student's class schedule so let's specify our test student's class to Calculus

types calculus

I'm thinking of heading out soon let me find out what the weather is like.

types what's the weather like today

Cool. My plan was to head to the library but let's first see what their hours are like

types nice. I need some information on the library

We can also request specific webpages that students might want to check out. Let's try finding our department page

types where's the computer science page

No Clue Senior Expo Video Transcript

CS 4928 - Dr. Danforth

Gaede, Khan, Manning, Villareal

We wanted to provide a quick stop for grades as well. Let's go ahead and ask for a quick GPA check.

types ok what's my GPA right now

In case you need to check your login we included a function that checks that for you.

types what's my student ID

Julian added this new feature we want to demo that involves having the virtual assistant tell you a joke. Let's see if they're any good

types tell me a joke

Not bad but let's see what other jokes it has.

**types tell me another joke misspelling another joke*

If you notice, I misspelled another and the output was still what we wanted. We were able to leverage DialogFlow's fuzzy matching to provide the answers the user expects even when their input isn't perfect. This took some time for Julian to nail down since fuzzy matching isn't a concrete process. We're still continuing to improve this though.

SLIDES

Hasun:

The Virtual Assistant was a great project for us because it challenged us to take a real problem we experienced, dissect it, and find an innovative but reachable solution to it. Growth we found happened in three areas.

Joseph:

The first was interpersonal. Throughout the process we had to own our sections of the project. This meant communication over git pushes, learning to talk through decisions as a group, and above all, trusting each other when we couldn't always communicate directly especially under Covid restrictions.

Julian:

The second was organizational. We each had to maintain records of the work we had done and plan ahead for anything we were going to add to the shared project so that if anyone had to revisit the project they could easily understand how we arrived at each feature.

Chad:

The third was coding. While we tried to assign each module based on each team member's strengths we couldn't always pick areas we had mastery over. Hasun had to try new methods

No Clue Senior Expo Video Transcript

CS 4928 - Dr. Danforth

Gaede, Khan, Manning, Villareal

for adapting for mobile interfaces, Joseph had to expand his back-end skills to pull information from the login pages, and DialogFlow was an entirely new software suite for Julian to learn.

In each of these ways we learned from our experience.

Julian:

The project doesn't end just because of the deadline and one of the most exciting things for us with the virtual assistant was discovering all the new features we could come up with while just playing with the bot. For example, I was able to write a feature the week the project was due to have the virtual assistant tell jokes. We plan to individually continue contributing to the project and may even follow up with the campus to see if there's an interest in adopting it down the line.

Hasun:

With that, we conclude the presentation. On behalf of No Clue we want to thank you so much for taking time to join us and learn about our Senior Project. Our github repo is listed here along with our contact information. Contact us with any questions or comments and we'll get back to you as soon as we can.