

Fall 11-15-2021

Automating UNLV's Computer Science Mentorship System

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Recommended Citation

Aquino, Ivan Jasper; Lucci, Spencer; and Fonseca Cacho, Jorge Ph.D., "Automating UNLV's Computer Science Mentorship System" (2021). *Undergraduate Research Symposium Posters*. 61.
https://digitalscholarship.unlv.edu/durep_posters/61

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Automating UNLV's Computer Science Mentorship System

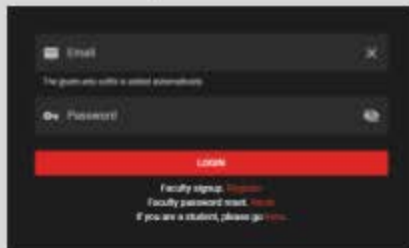
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Current Mentorship System

The current state of the Department of Computer Science (CS) faculty mentorship program functions by emailing every student individually, giving them the option of picking their own mentor or having one assigned to them, and then responding via email with their answer. The CS administrative assistant keeps track of the pairs of students and mentors through excel sheets that are updated if changes occur. This job takes an extremely long time for a single person to accomplish, hence the goal to automate the system. By creating a website that runs with minimal input from the faculty, the mentorship system can be both self-sustaining and serve as a basis for future mentorship programs for other departments in UNLV.

Removing Human Intervention

To accomplish this, we needed to remove manual tasks such as excel sheet upkeep and messaging both students and faculty. The application is set up in such a way that keeping data consistency and cleanliness does not need to be maintained by the administration. This application also lets students choose their faculty mentor themselves depending on the availability of the professor (i.e. their mentee count). The image below shows where faculty members can sign in and register while students get redirected to their own login verification.



Key Concepts

Web Design (Front-End)

Web pages were designed to be easily understandable and usable by faculty. The website was modified to be responsive to the size of the user's current browser size, so if they shrunk the window's size, the website would also shrink so that all the features were still visible. The menu was formatted for the user to easily navigate through the website, and any buttons are labeled accordingly. For displaying user's information, we added paging so that users can flip through data without all of the information filling up the web page.



Data Management (Back-End/Cybersecurity Practices)

Before taking in any new information, we had to clean the existing excel sheet using python to remove empty data fields and to keep data consistent such as lower casing all names to keep consistency. Any information that is taken in through the application will also keep the same consistency. The image below shows an example of how the data is stored in the Google Firebase website.



To prevent misuse, the application automatically adds the student email suffix (i.e. @unlv.nevada.edu) and sends a verification link to their inbox. Google Firebase API also prevents users to sign up a number of times if people find a workaround to the forced email suffix. These practices apply not only to this project, but research, data management, and analytics by understanding how to operate a large amount of data, and organizing it properly.

Project Outcomes

Learning and Applying Technologies to Existing Problems

To create the website, we utilized Quasar Framework ([introduction-to-quasar](#)), an "MIT licensed open-source Vue.js based framework" that comprises of Node.js and Vue.js to help the website creating process become more efficient. Quasar uses syntax from CSS, JavaScript and HTML to create capable applications that can perform a variety of tasks. The design features in Quasar allowed us to make the layout and UI for the website.

In order to store the information, we used Firebase, a database tool developed by Google for users to quickly store and retrieve information based on categories and documents. Firebase checks for the appropriate authentication level before making any transactions, and stores related information in the same document so it can be retrieved quickly. Each document has its own unique identifier to make each document easily searchable.

Expanding to Other Departments

Other programs in the university can utilize this website as a basis for their own mentorship programs, but with different databases and mentors to choose from. While this website was made for the computer science department, all features involving the Computer Science department, such as faculty mentor names and student names within that department, were obtained from a database. By expanding the website to have users choose their department, they can only choose from that specific department's section of the database. If they wish to make a new website entirely, then the design can be exported for their own usage and they can use their own database.