Kodiak Island Borough School District
Executive Summary

Community Partner
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Background

Kodiak Island Borough School District (KIBSD) is a rural, public school district containing seven City of Kodiak schools and eight Alaska Native rural schools. From their mission statement, KIBSD seeks to "*provide an educational program of the highest standard that empowers all students to achieve personal and academic excellence while developing their full potential as responsible, productive citizens."* To practically meet this goal, the Kodiak Middle School has adopted a "Response to Intervention" (RTI) scheduling model in the form of an existing application, Pickr. On top of their normal semester schedules, students are able to register for 2-week long "tutorials" during their elective period. The innovative flexibility of tutorial time caters on the needs of each student, allowing enrichment or intervention when needed.

Project Description

Project Opportunity

KIBSD experiences issues with its scalability and usability of the current Pickr scheduling tool. It works for bi-weekly tutorial rescheduling, but is only being used by Kodiak Middle School. Other schools do not have access to this technology because it currently cannot be distributed and access instructions are unclear. With a distributable application that does not require complicated installation, Kodiak Middle School could disperse this application with all of Kodiak Island Borough School District or any school who is interested in utilizing RTI scheduling.

Project Vision

After comprehending our client's core problem with scalability and conducting extensive requirements gathering, we focused on modifying the current Pickr scheduling tool to be packageable and installable. We compared five possible solutions using a decision matrix - eventually proceeding by maintaining their original AngularJS front-end, re-building the CakePHP back-end with Node.js, storing data in SQLite, and packaging using Electron.

The interface and functionality of the application would not be drastically altered despite the change in development stack, making the application easier to adopt by the current users. Along the way, usability issues could be solved as noted by our community partners. Packaging and installation ability will allow distribution of this RTI scheduling tool to benefit other schools' educational programs as well.

Project Outcomes

Our solution, Pickr2.0, is a custom-built Node.js application that runs on a SQLite3 database packaged as a desktop application that facilitates easy download and distribution for other schools to use. Since user interface was a prominent concern for our client, we managed to keep the current AngularJS front-end and connect it to our Node back-end maintaining the same user experience as the prototype application. With ease-of-use and replicability in mind, we ensured that our Pickr2.0 behaved akin to a native desktop app with clear, simple download and usage instructions. Our solution provides a robust RTI scheduling application that anyone can download and use. In alignment with Mr. Hargraves' overarching goal, Pickr2.0 can easily be distributed to any other school that wants to implement this type of curriculum, propagating KIBSD as an innovator in educational technology throughout the nation.

Project Deliverables

The final packaged application is hosted on GitHub Pages (kibsd-tech.github.io/Hosting-Pickr) has been sent to Mr. Hargraves for use in Kodiak Middle School and distribution anywhere else. In addition, we transferred ownership of Pickr2.0's GitHub repository which includes extensive technical documentation.

Recommendations

Moving forward, KIBSD can begin using the delivered solution within their own school district and distribute this innovative scheduling tool to other interested school districts. KIBSD has impactful ideas for future development and we recommend building on top of Pickr2.0 to implement additional features, such as Windows and Linux integration, attendance marking functionality, automated A/B lunch scheduling and more. We valued our experience working with our community partners and KIBSD and would recommend future CMU IS - KIBSD partnership to continue development on the Pickr2.0 scheduling tool.

Student Development Team

Sebastián Guerrero Cárdenas served as the team's QA and technical lead. He is a third year student double-majoring in Information Systems and Human Computer Interaction, and will be interning at Microsoft this summer. Sebastián is interested in software engineering at Airbnb.

Chris Lewis served as the team's project manager and back-end developer. He is a third year student double-majoring in Information Systems and Business Administration, and will be interning at Aetna Life Insurance Company this summer. Chris hopes to pursue a career in consulting or business strategy.

Sophie Zhao served as the team's client liaison and front-end developer. She is a third year student majoring in Information Systems with a minor in Business Administration, and will be interning at Wayfair this summer. Sophie aims to pursue a career in application development.