

Project Proposal DLTI Expansion

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- Java, Python, React, HTML, CSS, JavaScript, SQL
- Task: Backend

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Project Goals and Description

The previous semester, the DLTI team successfully implemented several things. First, we were able to change the code over to fit the LCT React template. The frontend GUIs are now in React components that can be manipulated more readily compared to HTML and plain JavaScript. Furthermore, the React code that we have can be used to convert other labs into a

React framework as well. On the backend side, we were able to create an SQL database and connect the database to the DLTI demo. We used Node.js as a middle man to connect the database and communicate from the frontend to the backend. Currently, the demo has the functionality to submit answers and write them to the database. Also, we are able to grab JSON objects of the current answers in the database.

This semester, we want to focus on finalizing the DLTI demo. There are several frontend fixes with controllers that we would like to fix and add. Also, we want to make sure that the backend is ready to be used by students. We believe that the backend is very simple and lacks a lot of useful functionality. For example, we are not able to grab a state from the database and post it into the GUI. We also want to continue testing our current database tables to make sure that no bugs occur and that it is as efficient as possible. We want to finalize DLTI by finding a way to have it up and running on a server/host machine so it's publically accessible.

If we are able to finish the DLTI tasks early, then we plan to move to the PEZ demo. We would use our existing files and code as a template to build this new demo.

Project Timeline

Week	Task
Week 5, 6 Phase 1: Resource set- up,	New members get ramped up with the previous code. Understand the React that is used in the current DLTI Demo. Examine old techniques and explore new options for creating, logging to, and maintaining a database for the project. Week 6: Finish adding controllers
Week 7, 8, 9, 10, 11 Phase 2: Database	Begin updating the frontend controllers. Also begin testing on the current database.

	Week 8: have some elements of demo able to save/restore from DB. finish debugging controllers
Implementation and state saving	Create more functionality with the database, such as grabbing a state from the database and restoring the GUI. Setup host machine Week 10: run from host machine
Week 12, 13 Phase 3: PEZ Demo	begin working on the PEZ demo.
Week 14 Phase 4: Testing	Week 14: PEZ GUI prototype Finalize both projects and continue testing and improving existing features
Week 15	Finish up documentation and work towards the final presentation. DLTI finished, PEZ in functioning state, documented for continued work in semesters
Week 16	Final Presentation

Potential Issues

- Creating the methods to save and restore states
- The database should efficiently store and retrieve data in a timely manner
- Setting up a reliable host for the database and the website
- understanding mechanics behind PEZ demo
- Learning React and other frameworks

Implementation Tools and Resources

- GitHub: <https://github.gatech.edu/VIP-ITS>
- W3Schools: <https://www.w3schools.com/>
- Project Documentation Notebook
- JSXGraph Demos: <http://its.vip.gatech.edu/VIP/demos/>
- Flask Documentation: <http://flask.pocoo.org/docs/1.0/>
- Express Documentation: <https://expressjs.com/en/5x/api.html>
- Nodejs Documentation: <https://nodejs.org/en/docs/>
- Mathjax Documentation: <https://www.mathjax.org/#docs>
- MySQL Documentation: <https://dev.mysql.com/doc/>