Intelligent Review System (IRS) Project Proposal

Group Members and Skills

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    - 3rd Year Computer Science (& ALIS) Major
    - Programming Experience: Java, C, Android, Python, SQL, C#
- Neal Kurande (NK)
    - 3rd Year Computer Engineering Major
    - Programming Experience: Java, C/C++, Python, Javascript, Matlab
- Adam Chau (AC)
    - 2nd Year Computer Science Major
    - Programming Experience: Java, Python, JavaScript, SQL

Project Goals

- Compile a dynamic dataset of all the ITS problems completed by students
- Through a machine learning approach, determine the concepts (tags) that the students find most difficult based on the results of the related questions.
- Update the GUI for new data parameters
- Continue working with Python and SQL

IRS Description

The main purpose of ITS is to help students succeed in the class and currently all of the resources provided in the system are targeted towards the students themselves. The team believes that TAs serve an integral part in a student's success and we believe they need additional insight into how the class is performing. Our goal is to develop a system that will help TAs identify the subject areas that students are struggling with the most in order to provide a more personalized learning experience.

Last semester, IRS was created as a data visualization tool for TAs. As of February 1st, the IRS application pulls data from the database, performs basic statistical analysis, and displays data on the GUI. This semester, the team plans to expand the capabilities of the IRS application. The primary goal of the semester is to use machine learning techniques to determine the tags that students find the most difficult and then display those tags within the GUI. This will give TA's a more accurate image on what to review with students. If the team has time, we will begin to integrate the IRS system with the database servers so that it updates in real time.

Project Timeline

Week	Task
Week 5	Final Project Proposal Due
Week 6 Phase 1: Resource Setup	Set up SQL- become acquainted with SQL/ Python Set up React - look at other languages Either dual boot or install virtual machine Look into SciPy and other libraries for ML Research on machine learning
Week 7 - 9 Phase 2: Selecting data output, determining clusters & modularization of code	Determine what data is most important for our users and which methods best show our users said data. View and determine the best datastream to focus on Make code easier to use for future VIP members.
Week 10 - 13 Phase 3: Training data & modularization of code	Supervised - create a training set and feed into the algorithm Unsupervised- segment the data and feed parts into the algorithm Demo current algorithm to ITS team
Week 14 Phase 4: Modularization of code & Begin working on connecting database to gui dynamically (if we have time)	Make code easier to use for future VIP members. Make comments on code explaining the project for future VIP members.
Week 15	Prepare for the final presentation and upload all of the code to GitHub
Week 16	Final presentation

Implementation Tools & Resources

- GitHub: https://github.gatech.edu/VIP-ITS
- Project Documentation Notebook.
- React JS
- Machine Learning Library
- Python Library
- SQL Library