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CS 6460
Assignment 1

From the projects that you perused, select the three projects that you find most interesting. If you perused some very similar projects, you can group them together and talk about them as one. For each project, share its title and semester (and a link, if you're using Kirk's library). Then, briefly summarize the project: who were the students? What did they do? What did they build, and why? Or, what did they investigate, and why? What were their findings or results? Then, briefly give your thoughts on the project: why do you find it interesting? What opportunities for further work do you think there might be?

Project 1: Study on the Best Uses of Technology in Support of Project-Based Learning
Student: James Taylor; Semester: Fall 2017

The student studied the best usage of technology on project based learning. Project based learning is a teaching technique that teaches based on real world projects. With Project Based Learning, the final project is the main vehicle for education for the class. Project based learning has been found to be very useful for students since they actually gain real world experience. That said, there are some challenges, only 1% of schools actually have adopted it as a teaching approach. It represents a real shift as how teachers interact with students. His key research questions were:

1. Which types of technology tools do experienced teachers find most helpful in their implementation of PBL
2. Which types of technology tools do students find most helpful in their implementation of PBL?
3. Is there alignment between students and teachers w.r.t. technology tools

The student then built surveys online to survey teachers and students regarding their use of Project Based Learning methods.

I found this interesting because I am very passionate about K-12 learning, and Project Based Learning seems extremely innovative to improve learning outcomes. One of the opportunities I think there can be further work is improving the data. The student only got 23 survey responses; I think integration with school administrations, more teachers, principals, and students could improve the data which could allow for more insights!

His key finds were that collaboration tools were the most important for teachers. Teachers also favored assessment tools and content development tools which students could use to create projects. For students, they had the same top 3 ranking as teachers.

Project 2: Foobazzle+: An Exercise in Student Sentiment Analysis

Student: Lynn Reynolds; Semester: Fall 2017

This project is a continuation of another project "Foobazzle" done in Spring 2016. Foobazzle is deployed in an Amazon EC2 instance. The original project used IBM Watson's Tone Analyzer to guage student sentiment. However, this project's purpose is to make it easier to search through past course archive and course library. Their findings and results was essentially a search engine to make it easier to search through past material. So for example, created a "Search Assignment Database" where you can put in a search term and it returns results related to the key word. This gives assignment and metadata associated with the assignment.

I find this interesting, because I can see this as a useful tool for both teachers and students alike across K-12, Undergrad, and Grad. A common task for all educators is to understand previous material. For students, easily accessible previous material can facilitate learning and provide more practice problems. For teachers this makes it easier to find more material so that the teacher can focus on preparing for their lesson.

I think a good next step would be to think about how this can be scaled for different types of schools. Each school will keep track of previous assignments differently, so scalability is definitely an issue and needs to get tackled for wide-spread adoption.

Project 3: Does the STEM Gender Gap exist in Online Classes?

Student: Komanduri; Semester: Fall 2017

This project explores STEM Gender Gap and if they exist in Online Classes. Women are often underrepresented in STEM fields. Personally, as a data scientist in tech, I've noticed that there definitely is a gender gap and understanding why there is a gender gap is important to ensuring equity. In doing this research the student tried to figure out the reason for Gender gap. They found the self-confidence is a major reason for the STEM Gender Gap.

I find this interesting because I am passionate about solving the gender gap and I recognize that this along with other forms of discrimination is a very important problem that needs to be solved in this world.

What the student built was dashboards using data from an online class: "Introduction to Python" and build data visualization tools to explore how students did comparing females to males. The hypothesis was that since there was more anonymity with an online class, perhaps students would be able to get over the self-confidence problems that were reported to be a reason for the Gender Gap (reported by the student). The student performed hypothesis testing to compare male performance to female performance. The tool is largely meant for teachers to see how students performed.

I think a good next step would be more data regarding student characteristics. By getting additional student characteristics, the analyst can control for more factors to try to better understand causality instead of just correlations. Furthermore, additional tooling that allows teachers to export data, and other types of visualizations to make the analysis more compelling would be useful as well.