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6/15/2017

CS6460

Proposal

**Task List**

1. Find what metrics to use that would help influence a student’s decision for picking the right college to help improve student retention.

COMPLETED: Average net price by income level, Living Costs, Cohort Default Rate, Repayment Rate on Federal Student Loans, Average and Median Earnings.

1. Organize all of the metrics for the top 25 California Colleges that I want for student retention in excel sheets. - Tyler
2. Create the visualizations to use for each group of data I am using incorporating some California map layovers as well as drop down menus: Tyler/Jon

* Average Net Price by Income Level
* Average Pell Grants
* Cohort Default Rate
* Average income After Graduation
* Average Default Rate
* Average Loan Repayment

1. Find a suitable bootstrap framework that is user friendly and easy to navigate. - Tyler
2. Research ReactJS/Tableau integration – Jon
3. Research and configure server technology best suited for above technologies – Jon
4. Set up Git repository; consider configuring Travis/Circle for CI - Jon
5. Find the order in which each of the visualizations should go in on the site. - Tyler
6. Insert them into the site, making sure that all the sizing is correct. - Tyler
7. Final Presentation – Video explaining how to use the site. –Tyler/Jon
8. Final Paper – Explanation of how I implemented the visualizations, and how one should proceed to the next step. Tyler/Jon

**Descriptions and deadlines for your two intermediate milestones. You should consult**[**the assignment page**](http://omscs6460.gatech.edu/summer-2017/intermediate-milestones/)**for those for a better idea of what to include. Note that you may choose your own deadlines: you may pick any two non-consecutive Sundays from Week 8 to Week 15 as the deadlines for your two intermediate milestones.**

Week 6 (Week of 6/19/2017) – Solidify what groups of data I want to focus on displaying for the purpose of student retention. Start mapping out how I intend to display each group of data to incorporate my visualizations.

Week 7 (Week of 6/26/2017) – Find an appropriate design for the website that is user friendly and appealing to the eye. Make the layout for the page and start adding some visualizations.

**Intermediate Milestone I (7/02/2017)** – Demonstrate that the site works with parallax scrolling and that I have at least two visualizations up and running.

Week 8 (Week of 7/03/2017) – Start creating the visualizations for each metric. Try to get half done.

Week 9 (Week of 7/10/2017) – Finish all the visualizations and add them to the site.

**Intermediate Milestone II (7/10/2017)** – Demonstrate that all the visualizations are completed and are easy to navigate.

Week 10 (Week of 7/17/2017) – Work out any bugs that may be occurring and make sure all the sizing is the correct size.

**Development Track**

* A description of the problem to be solved.

The problem that I intend on addressing is college retention, this is a well-documented problem that many people in the educational community are attempting to solve. This is supported by Nes Lise, his article was mainly focused on the importance of college retention which stated that, “the positive impact of higher education and the alarmingly high attrition rate from colleges have led educators and researchers to strive to identify predictors of college success, specifically graduation”. [[1]](#footnote-1)

My plan on tackling this problem is to visualize various cost metrics for individual colleges in California. The reason I chose to visualize cost metrics and why displaying this information to applying students would have a positive effect on college retention stems from a study published by John M. In his study he states that, “The financial nexus between college choice and persistence requires the consideration of how two sets of "parallel factors" influence persistence: (1) students' perceptions of financial factors, such as the availability of low tuition or high aid, that students view as very important at the time of their initial college choice decisions (finance related college-choice variables); and (2) measures of the dollar amounts of financial variables (e.g., tuition, aid, living costs) that students actually experience at the time of a subsequent persistence decision.“[[2]](#footnote-2) Financial Nexus Theory provides evidence that supports a relationship between a student’s education on cost and retention. This is why I have decided to display the following metrics for students to view; In state tuition and out of state tuition, Average net Price by Income level, Average Pell Grants, Cumulative Debt, Average income After Graduation, Average Default Rate, Average Loan Repayment and Maybe Debt to Income Ratio.

In addition to displaying these metrics, I also plan on showing the difference in price between community colleges and traditional four year universities as well as displaying a few statistics on why one would choose to take their first two years at a community college. I believe that this can improve college retention because according to Paul Fain, “Only one in five community college students transfer to a four-year institution. But 60 percent of those who do so earn a bachelor’s degree within four years, according to new research from the National Student Clearinghouse Research Center. Another 12 percent are sticking with it and remain enrolled after four years. Relatively good graduation rates for community college transfers get even better for students who complete their associate degree before heading to a four-year institution. The [research](http://www.studentclearinghouse.info/snapshot/docs/SnapshotReport8-GradRates2-4Transfers.pdf) found that 71 percent of those transfer students earned a bachelor degree within four years of transferring, with 80 percent either graduating or remaining enrolled.”[[3]](#footnote-3) In contrast to transfers from community colleges U.S News states for four year universities, “an average of 64.2 percent of full-time, first-time students who started school in fall 2013 returned in fall 2014”.[[4]](#footnote-4) These statistics shed light on student’s college retention if they attend community college first. The average of 80% of student’s ether completing or staying in school without dropping out is significantly higher than the students who did not transfer.

My project plans to educate students on these two facts 1. College costs 2. The benefit of going to community college first from a financial stand point as well as showing them the statistics for retention. As a prior community college graduate myself I believe that financially and educationally that they are a very good alternative than jumping right into a 4-year college. I know a lot of my peers did not even consider community college when applying to colleges from high school because they were not educated on the price or outcomes of attending one. I believe that educating incoming freshman on these facts could very well help college retention rates.

These statistics shed light on student’s college retention if they attend community college first. The average of 80% of student’s ether completing or staying in school without dropping out is significantly higher than the students who did not transfer.

* A description of existing solutions for that problem, specifically to contextualize why your solution is needed.

There are a number of websites that focus on college statistic information but none made with just the intention of improving college retention rates. I intend for my site to be different than those by just displaying the information that can lead to higher retention. I also aim for it to be easier for students with less of a technical background to navigate, unlike a lot of other college websites there are a number of different pages to navigate, I plan on only having one page that has the main data for comparing schools on it.

* A description of the design of the tool you will create.

I intend to create a website that has visualizations of college data that I will obtain from Collegescoreboad.org for at least 25 colleges in California. The page will be one big continuous page with parallax scrolling and the student will be able to use the visualizations to compare different school criteria.

* A technical description of the tools, languages, and other resources that will be used.

I will be using a bootstrap with parallax scrolling for the main site framework. I will then create my visualizations using mostly Tableau, I was originally planning on using D3.js libraries but they do not handle the large amount of data I intend to display very well. The main data source I will be using is from datascoreboard.org. Additionally, I might get some data outside of college scoreboard, such as the average cost of living off campus.

* A description of the integrations or external resources that will need to be obtained, as well as spring-back plans in case portions of these details cannot be completed. (For example, if OIT refuses to provide integration with T-Square, you could instead plan for how to handle standalone student registration in a streamlined and simple way.)

If I cannot get a visualization that I want working in Tableau then I will utilize various JavaScript libraries that are built on top of D3.js they include but are not limited to; plotly.js, react.js, dimple.js, NVD3.js, and C3.js.

1. Nes Solberg Lise, <http://onlinelibrary.wiley.com.prx.library.gatech.edu/doi/10.1111/j.1559-1816.2009.00508.x/full> [↑](#footnote-ref-1)
2. John, M. B. P. E. P. S. (2002, March 1). Social Class and College Costs. The Journal of Higher Education. https://doi.org/10.1080/00221546.2002.11777141 [↑](#footnote-ref-2)
3. Fain, Paul. "Graduate, Transfer, Graduate." High Graduation Rates for Community College Transfers. N.p., n.d. <https://www.insidehighered.com/news/2012/11/08/high-graduation-rates-community-college-transfers> [↑](#footnote-ref-3)
4. Smith-Barrow, D. “Colleges Where Freshmen Usually Return.”<https://www.usnews.com/education/best-colleges/the-short-list-college/articles/2016-01-05/colleges-where-freshmen-usually-return> [↑](#footnote-ref-4)