Application Proposal

Team SQ(L)aud

Due: 14 November 2016

Project/Application Goal:

Our goal is to display the demographic and post graduation rates from schools in Pennsylvania in a couple of comparative visualizations. Our data is organized by school id; each school has an associated county, school type, AUN and LEA. The majority of our data is rates for each school, in both yearly graduation data and multi-year cohort data. The yearly data contains post high school graduation statistics as rates (0-100 percentages) about graduates proceeding to different types of post secondary schools. The multi-year data contains statistics about graduations rates by gender, ethnicities and other characteristics over 4, 5 and 6 year time periods. We have tons of statistics in tables, but it's not easy to see the big picture. We aim to display this data in a comparable and interactive view.

Our hope is to be able to provide two things within our website; a static section of comparisons we have made, as well as an interactive interface on the site. The interactive section will give the United Way the chance to make their own queries while the static side will provide them with our own discoveries based on the data.

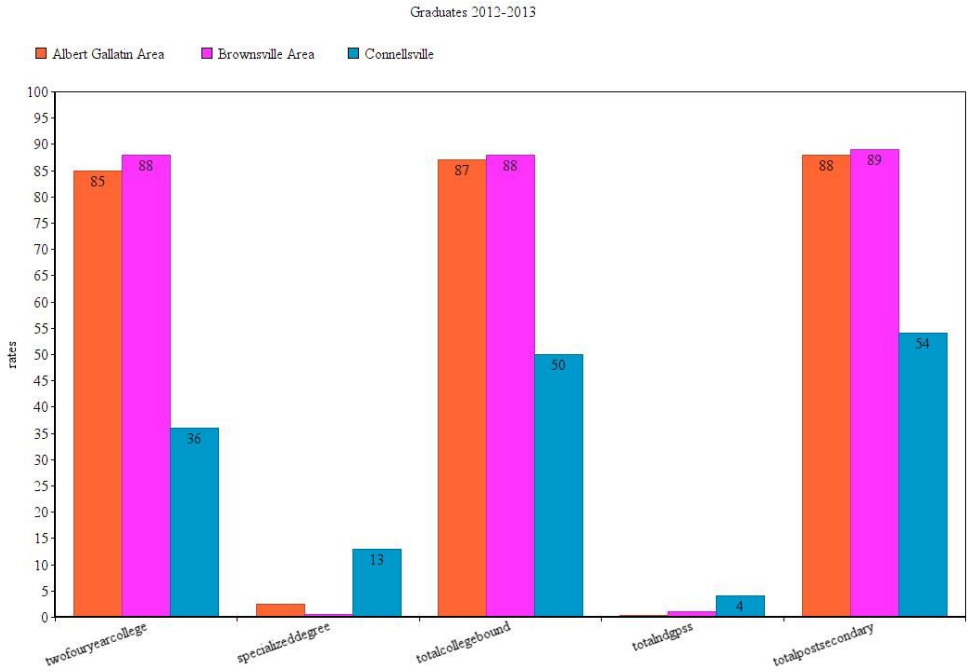
In our interactive visualizations we can compare multiple schools against one another; for each year and time period, you can view different comparisons. One visualization compares 3 user selected schools against one another to specifically compare their yearly and multi-year rates for post graduation and demographic cohort data. Another view is to group schools by school districts, or counties, this would involve more than just a few schools, so we could view overall trends of post graduation and cohort data. We can visualize the range of the statistics within the county, or which schools doing the strongest and weakest in specific categories.

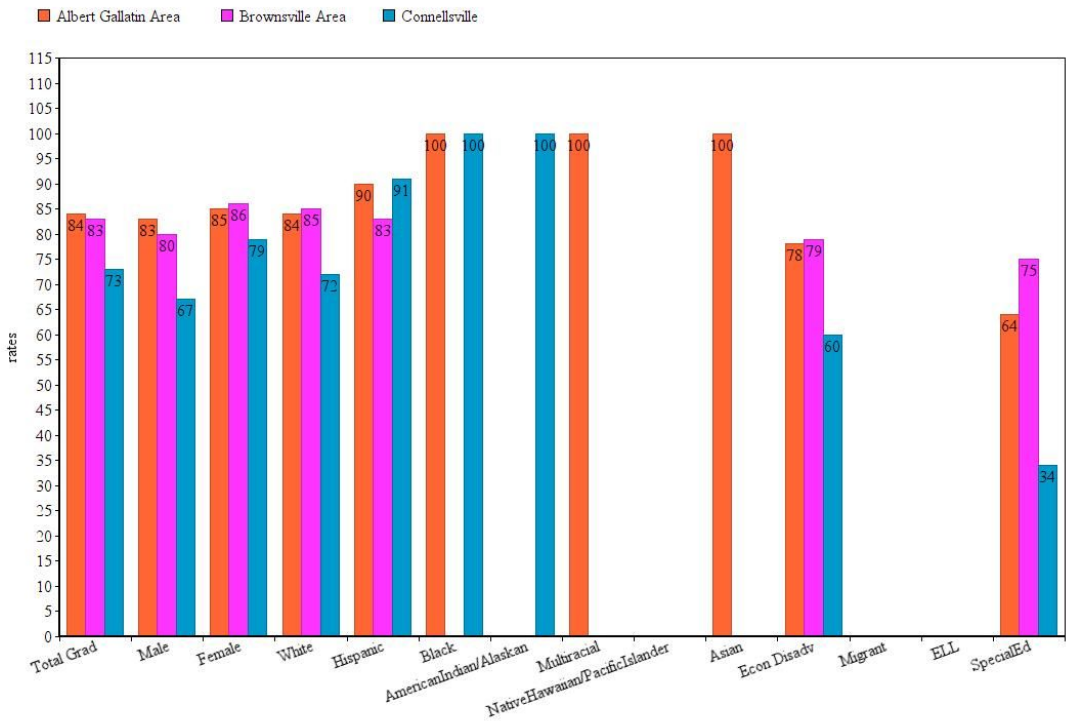
The goal of the interactive section is to allow the user to explore the data without having any knowledge of SQL or other languages. This requires that within our section of the class website we have the capability for users to select different parameters to use to compare schools. The interactive section will have the ability to find certain schools or certain districts and compare them based on the metrics(attributes) in the table. We hope that this section will include charts, graphs, and maps.

The static portion of the website will include the comparisons listed in part two as well as the visualizations shown below. These visualizations are essentially our research with the data. They are trends or observations we found to be interesting and helpful to the United Way. The static portion will hopefully assist the user in finding some information that can be used to improve the quality of education in the Lehigh Valley and in all of Pennsylvania.

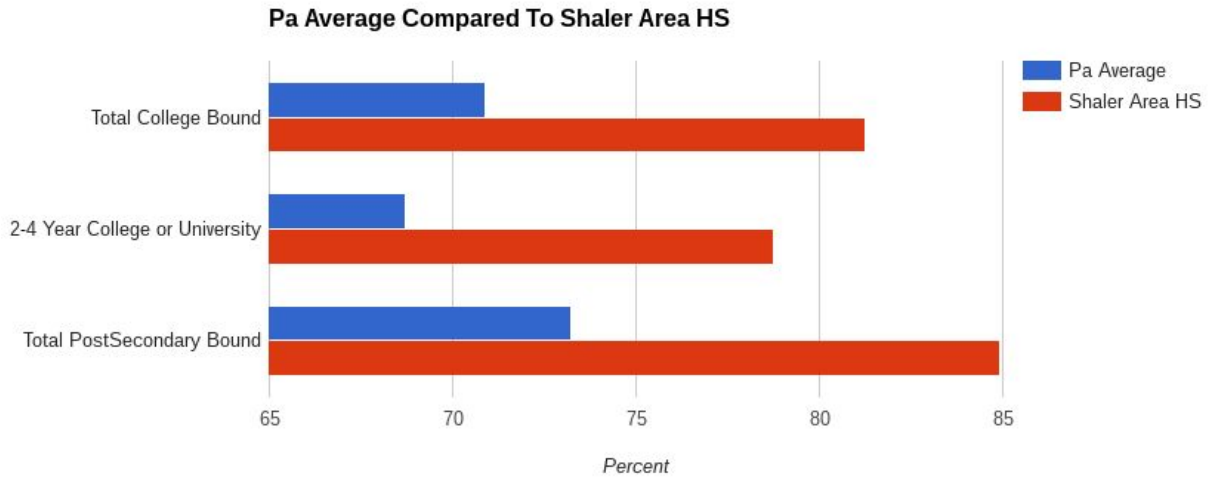
With the data provided, in the future, this database can be extended to correlate our rates geographically, possibly using heat-maps, to reveal possible connections between location and demographic graduation rate. It can also extend multi-year rates to compare rates of change overtime for each statistic between schools, also possibly geographically, to compare progress/change and reveal locations in need of the most help.

Visualizations that compare three schools, allow user to pick three schools, and a start year, and a time period for the cohort data. Our graphs compare the postgraduate rates and cohort data for the chosen three schools.

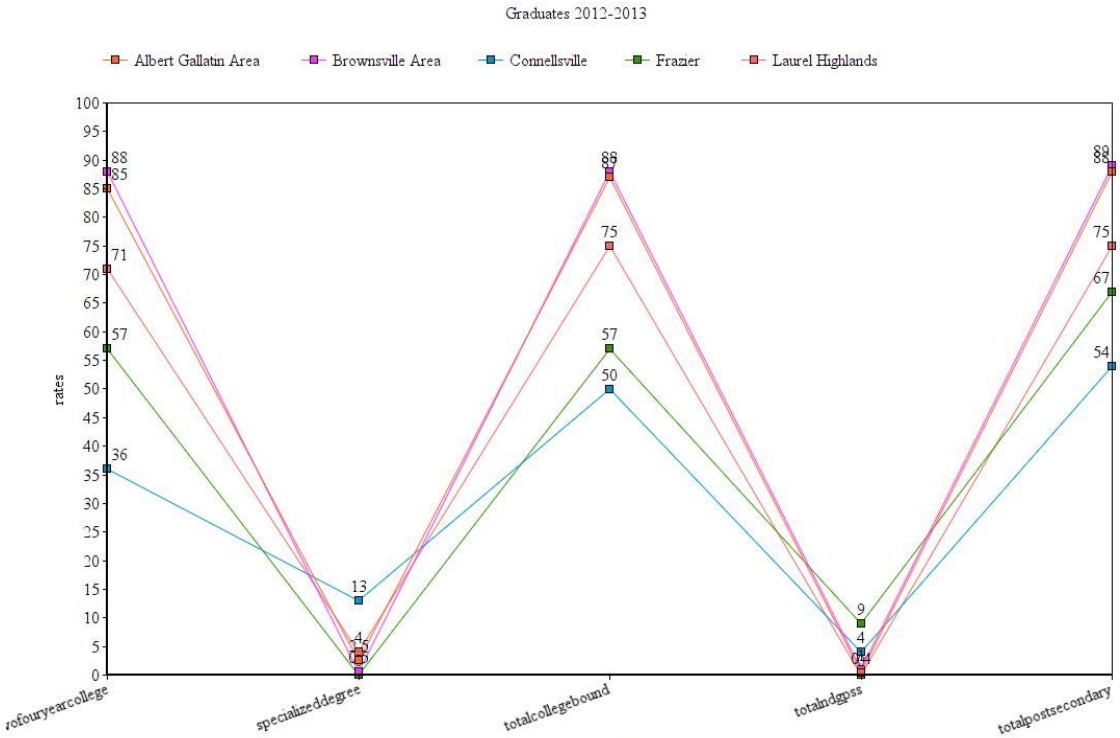


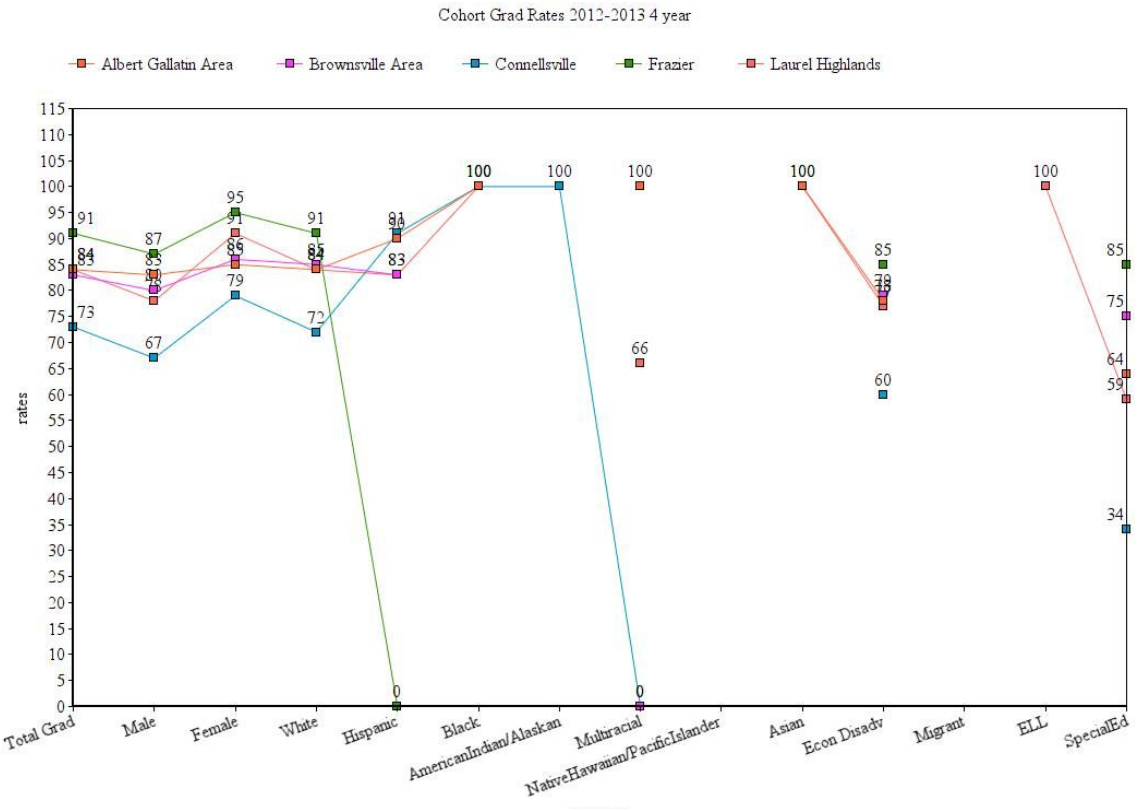


Visualizations that can generate maxs, mins, averages, medians and/or other useful quantities for various statistics across schools and compare them to specific schools to evaluate specific performance.



Visualizations for school districts: we can visualize multiple schools at once, showing the strongest and weakest. Also showing the common level of statistics of schools in the district, ranges and you can choose the year and observe how these districts change.





Visualization for Cohort Graduation over time: Aggregation of 4, 5, and 6 year cohort graduation rates for a given school and given start year, to compare to other schools of the same start year, the same school of different start years, or an average over the dataset. This can be valuable to compare progress, not just for one school, but also to compare rates of change amongst schools.