

Computer Science

2017 Senior Project

User Manual

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Abstract

This document describes the source data and procedures used to prepare the data sets available on the database laftech. The database was created on a request from the United Way organization. United Way is a leadership organization operating in more than 43 countries and territories around the world. United Way aims to create opportunities for a better life by focusing on education, income and health. As our client United Way has asked the Lafayette College CS 470: Senior Project class to build a database and web application capable of integrating different data files relating to education data. The education data may vary in content, however in general they consist of similar metrics assessing a school's performance, along with identification markers for specific student groups such as ethnicity and grade level. The data is anonymous, there are no set identification markers that could be used to identify a student in real life. No individual student-level data is included in the database.

Introduction

Various amounts of education data are collected by the school systems and made public each year, however until this point there has been no centralized database where all of this information can be viewed together. Education data is often formatted differently from year to year and often times will even vary throughout the state in the same year. These facts have made it very difficult for research organizations such as the United Way to analyze how the school systems are performing and to organize public outreach programs. The goal of this project is to provide a place where this data can be seen and compared so that these organizations will be able to use this data to positively influence local communities throughout the state of Pennsylvania.

Background

The Laftech team is comprised of Conrad Stoerker, Manuel Tenorio, and William Dixon. All three are seniors at Lafayette College who are really hoping to graduate.

This project is a continuation of the previous class CS320 in which the K-12 data was taken from 6 separate sources, each with a unique set of information. 6 different groups handled their sections of the data individually and attempted to design prototype applications for displaying the data. For this project those 6 databases needed to be unified into a single database that contained all of the data in one location.

The Data

The data currently in the database is as follows:

- **Schools:**
 - School fact summaries from school year 2012-2013 to 2014-2015
 - Academic performance data from 2012-2013 to 2014-2015
 - Enrollment reports for public schools from 2007-2008 to 2015-2016
 - Enrollment reports for private schools from 2005-2006 to 2014-2015
 - Cohort graduation rates from 2010-2011 to the present 2014-2015
 - Low income data for private schools from 2005-2006 to 2013-2014
 - Keystone Exam results for schools from 2014-2015
 - PSSA results for schools from 2014-2015
 - State Accountability Assessment from 2013-2014
 - SPP scores from 2012-2013 to 2013-2014
 - Federal accountability data from 2013-2014
 - School location information (latitude and longitude) circa 2009-2010

- **Districts:**
 - Stanford Education Data Project: aggregated performance means in grade equivalent units, constant population units, NAEP referenced units, and state referenced units including white-black and white-Hispanic achievement gaps, along with model covariates. Data from 2008-2009 to 2012-2013
 - Fiscal data from 2012-2013 to 2013-2014
 - Academic performance data from 2012-2013 to 2014-2015
 - District fact summaries from school year 2012-2013 to 2014-2015

- **Existing Yet Unused Data**
 - Low income data for public schools from 2005-2006 to the 2013-2014
 - Professional support personnel from 2012-2013 to 2014-2015

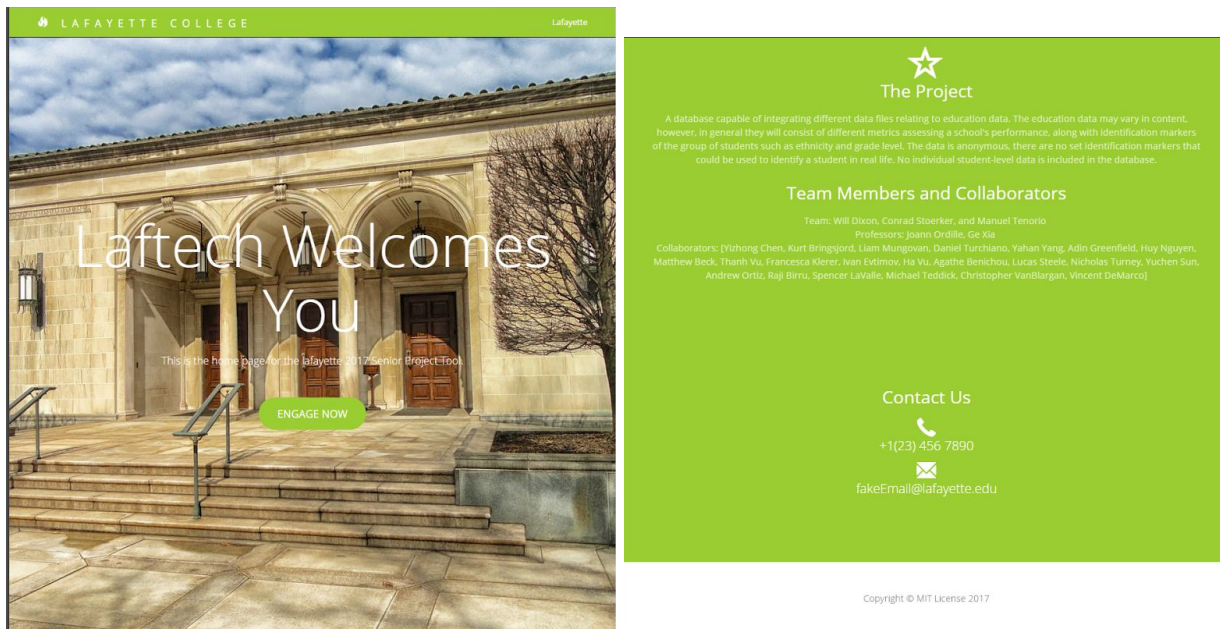
In addition to that, contained in the data dictionary are the sources from where each part of the original data came from as well as what data is missing or nonexistent in the database. All of this data has been mapped to one of two main tables in the database, either school or district. The school table contains the combined data existing on all of the available schools for the state of Pennsylvania, and the district table contains the equivalent information for all of the districts.

The Application

When the website is first accessed, the user will see the welcome page, which offers some basic info about the project and the team members. In addition to that there is an engage button which will bring the user to the main page of the application which will offer the option to display data from the database. On this page the user will have the option to search for any school or district in the state of Pennsylvania, and once selected the user will be brought to a page where the tables for the selected school or district are displayed. The search box includes a predictive search feature which streamlines the search process, and there is also an option for the user to search for two schools or districts at the same time, which will display the two tables next to each other for easy comparison.

Website Walkthrough

This is the page you see upon arrival at the website:



Scrolling to the bottom of the page will show information about the project, and by clicking the buttons in the navigation bar in the upper righthand corner of the page you will be brought to various parts of the website.

Here is an enlarged version of the navigation bar:



The navigation bar is organized as follows: "Home" "Search" "Data" "Lafayette"

"Home" will bring the user back to the start page.

"Search" will bring the user to a page where they can search for data on schools and districts.

"Data" will bring the user to a page where all of the district and school names are displayed.

“Lafayette” will bring the user to the Lafayette College website.

By clicking the “Engage Now” button on the home screen you will be brought to the search page.

The “Search” page:

Select A School Or A District

Enter name of school or district for information.

District SEARCH

School SEARCH

Enter the names of two districts to display them side by side.

District SEARCH

District SEARCH

Enter the names of two Schools to display them side by side.

School SEARCH

School SEARCH

Enter one District and one School to display their Average.

District SEARCH

School SEARCH

On this page you have the option to search for information about schools and districts. By entering a school or district into one of the search boxes, assisted by autocomplete of course, the user will be brought to a new page which has a table containing data about the school or district selected. If the table is not found the search page will simply refresh itself and prepare for another input. If the search button is clicked without an input then the website will let you know what box needs input. The user also has the option to select two schools at a time, two districts at a time, or a school and a district in order to do a side by side comparison of the data, as shown below:

School	
Local Education Agency (LEA) Name	HARBOR HOUSE CENTER FOR EARLY ACADEMICS
LEA Type	PS
NCES Local Education Agency (District) Code	None
PA State LEA ID / AUN	208072205
County	Blair
IU Number	8
IU Name	None
Latitude	None
Longitude	None
School Name	HARBOR HOUSE CENTER FOR EARLY ACADEMICS
State School Code	0
NCES School ID	None
Private School - Fulltime Equivalent Teachers	
None	208072205

District	
Local Education Agency (LEA) Name	BEDFORD AREA SD
NCES Local Education Agency (District) Code	4203180
PA State LEA ID / AUN	108051003
City	Bedford
Urban-centric Locale Code	Town: Distant
Metro-Micro Area Code	New England (NECTA) or not reported
County	Bedford
IU Number	8
IU Name	Appalachia IU 8
Latitude	40.01601
Longitude	-78.49812
State Abbreviation	PA
State FIPS code	42
Public School Enrollment	compute217.cs.lafayette.edu:3010

District	
Local Education Agency (LEA) Name	BAKERSFIELD CITY
NCES Local Education Agency (District) Code	603630
PA State LEA ID / AUN	0
City	None
Urban-centric Locale Code	None
Metro-Micro Area Code	None
County	None
IU Number	None
IU Name	None
Latitude	None
Longitude	None
State Abbreviation	CA
State FIPS code	6
Stanford meanA	None
None	603630

The "Data" page:

District	State	School	County
BANGOR AREA SD	PA	ABC ACADEMY	None
CHESTER-UPLAND SD	PA	EXECUTIVE EDUCATION ACADEMY CHARTER SCHO	Lehigh
CHESTNUT RIDGE SD	PA	GRAHAM ACADEMY	None
CHICHESTER SD	PA	GODDARD SCHOOL	None
NORTHERN YORK COUNTY SD	PA	HILL HOUSE PASSPORT ACADEMY CHARTER SCHO	Allegheny
NORTHGATE SD	PA	GODDARD SCHOOL	None
NORTH HILLS SD	PA	GODDARD SCHOOL	None
NORTH PENN SD	PA	MIFFLIN COUNTY ACADEMY OF SCIENCE AND TE	Mifflin
NORTH POCONO SD	PA	MOMS INC	None
BEAVER AREA SD	PA	NUR ACADEMY	None
BEDFORD AREA SD	PA	PARADISE LANE SCHOOL	None
BELLEFONTE AREA SD	PA	PROPEL CS - HAZELWOOD	Allegheny
BELLE VERNON AREA SD	PA	GODDARD SCHOOL	None
BELLWOOD-ANTIS SD	PA	ROBERTO CLEMENTE ELEMENTARY CHARTER SCHO	Lehigh
BELLWOOD-ANTIS SD	PA	GODDARD SCHOOL	None
BENSALEM TOWNSHIP SD	PA	GODDARD SCHOOL	None
BENTON AREA SD	PA	SOLOMON CHARTER SCHOOL INC.	Philadelphia
BENTON AREA SD	PA	GODDARD SCHOOL	None
BENTWORTH SD	PA		
BERLIN BROTHERSVALLEY SD	PA		

On this page there are two tables, one for districts and one for schools. The district table will list out all of the districts in the dataset as well as the state from which they come, and the school table will list out all of the schools in the dataset along with the county from which they come, if applicable.

Project Goal

The goal of this project is to provide a place where this data can be seen and compared so that these organizations will be able to use this data to positively influence local communities throughout the state of Pennsylvania.

Conclusion

The web application is designed as an easy way to make the data publicly accessible. The target user population consists of education researchers and students or faculty in Pennsylvania who may be interested in using the data for projects in the future.

License

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Acknowledgements

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References

Packages Implemented:

1. PostgreSQL Databases
2. Django Open Source API
3. Bootstrap Framework
4. JQuery AutoComplete