

46885-A3 Data Exploration and Visualization - Homework 3
Team 12 Write-up

Question 1: Open the data set in Tableau, and create the extract. List the variable names for 3 measures and 3 dimensions.

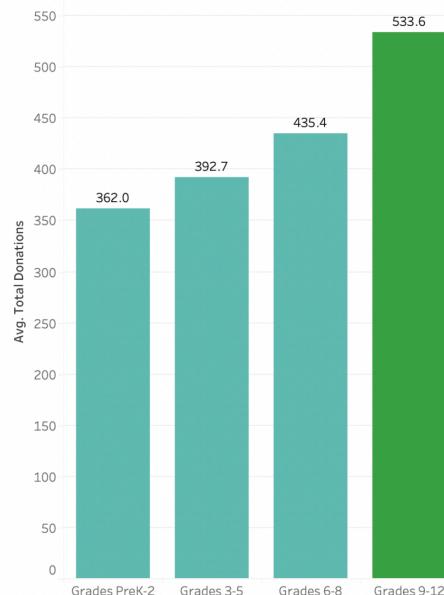
- Three measures included in the dataset are:
 - “Num Donors”
 - “Total Donations”
 - “Sales Tax”
- Three dimensions included in the dataset are:
 - “School Zip”
 - “School City”
 - “Teacher Prefix”

Question 2: Donors Choose classifies grades into four levels.

a)

The average donations for each of the 4 grade groups

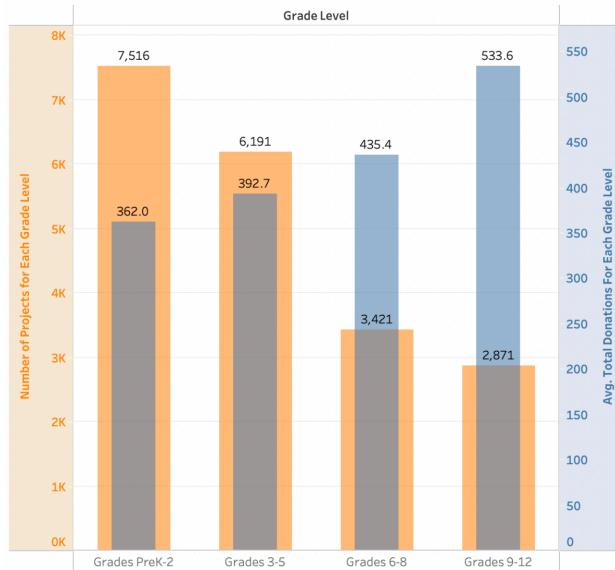
Average of Total Donations for each Grade Level is shown by using bar graphs. The grades 9-12 get maximum support from the doners.



b)

Number of Projects and the average donations for each grade level

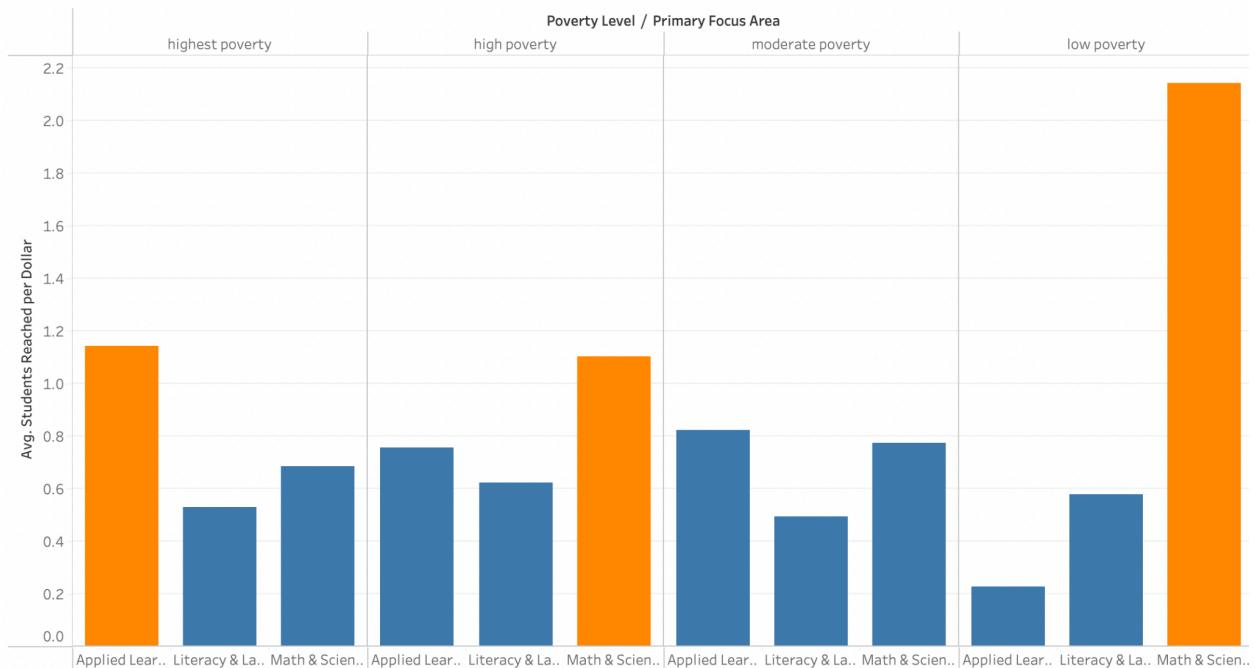
The number of projects is higher for lower grader and keeps on decreasing as the grades increase. But the average donation per project is higher for higher grades.



Question 3: Suppose we care about “Students Reached Per Dollar”, to get some insight about maximizing impact of donations.

Average Students reached per Dollar - study area and poverty wise distribution

Maximum number of students with low poverty have the access to donations, followed by the students with highest poverty. The moderate poverty students see the least impact of all.

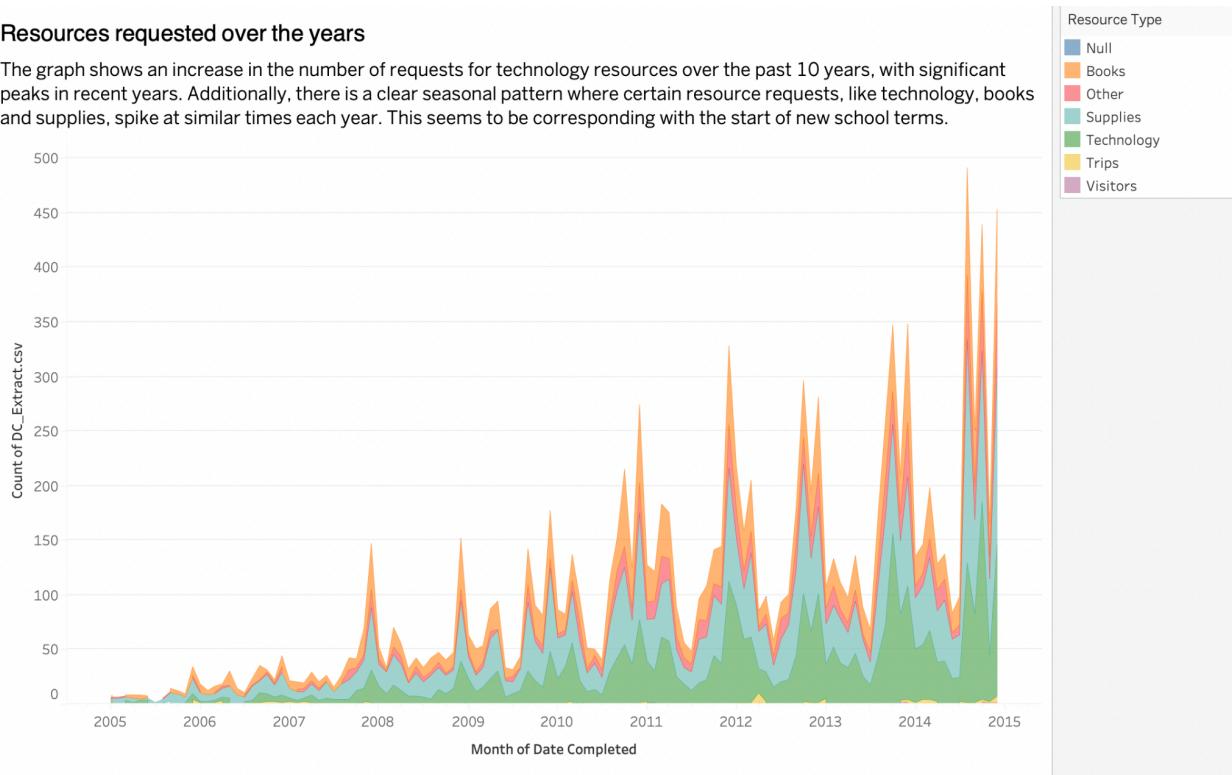


Question 4: Let's look at donations over year for year 2005 through 2014 (including 2005 and 2014).

a)

Resources requested over the years

The graph shows an increase in the number of requests for technology resources over the past 10 years, with significant peaks in recent years. Additionally, there is a clear seasonal pattern where certain resource requests, like technology, books and supplies, spike at similar times each year. This seems to be corresponding with the start of new school terms.



b)

Year-by-year growth rate of the donation projects per resource type

Based on the data provided by this table, we can observe that 'trips' have shown the most significant year-by-year drop in the number of donation projects. There was a 25% decrease from 2006 to 2007, a 55.6% decrease from 2007 to 2008, a 50% decrease from 2008 to 2009, a 66.7% decrease from 2010 to 2011, and a 47.1% decrease from 2012 to 2013.

Year of Dat..	Resource Type					
	Books	Other	Supplies	Technol..	Trips	Visitors
2004						
2005	45.0%	33.3%	40.0%	20.0%	166.7%	
2006	151.7%	137.5%	123.2%	138.9%	50.0%	0.0%
2007	83.6%	147.4%	56.8%	104.7%	-25.0%	0.0%
2008	24.6%	17.0%	37.8%	68.2%	-55.6%	0.0%
2009	54.5%	16.4%	40.4%	62.2%	-50.0%	0.0%
2010	40.3%	110.9%	37.2%	65.4%	200.0%	0.0%
2011	9.1%	51.1%	4.0%	18.9%	-66.7%	100.0%
2012	0.8%	4.4%	32.2%	31.6%	750.0%	0.0%
2013	14.1%	9.4%	-4.6%	11.6%	-47.1%	100.0%
2014	14.3%	36.5%	47.5%	23.1%	166.7%	0.0%

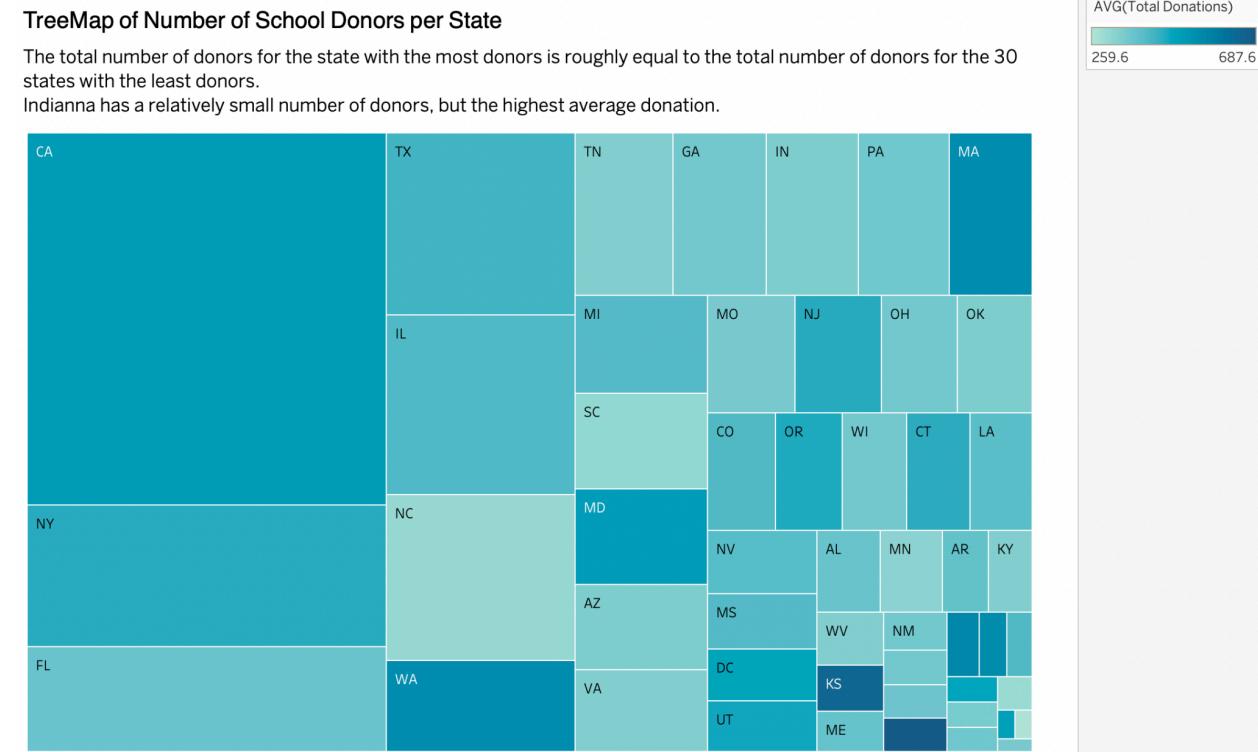
c)

Percentage of donation projects for each resource type

Year of Dat..	Books	Other	Supplies	Technol..	Trips	Visitors
2005	24.17%	6.67%	46.67%	15.00%	6.67%	0.83%
2006	26.74%	6.96%	45.79%	15.75%	4.40%	0.37%
2007	28.21%	9.89%	41.26%	18.53%	1.89%	0.21%
2008	25.89%	8.53%	41.86%	22.95%	0.62%	0.16%
2009	27.33%	6.78%	40.15%	25.42%	0.21%	0.11%
2010	25.48%	9.50%	36.59%	27.94%	0.42%	0.07%
2011	24.44%	12.62%	33.48%	29.21%	0.12%	0.12%
2012	20.24%	10.83%	36.37%	31.59%	0.86%	0.10%
2013	21.88%	11.23%	32.87%	33.40%	0.43%	0.19%
2014	19.05%	11.67%	36.93%	31.31%	0.88%	0.15%

Question 5: Let's look at the number of donations to schools by state.

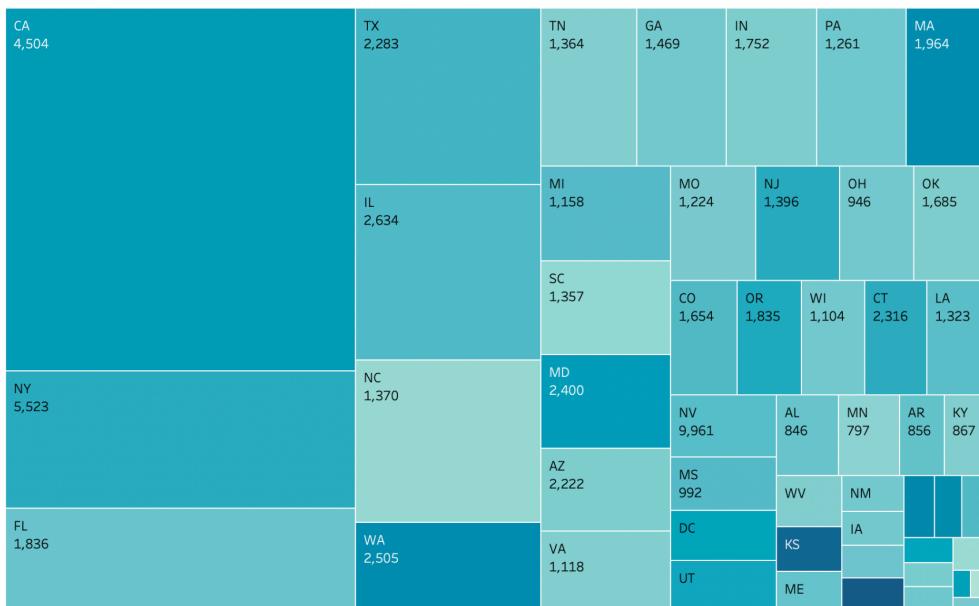
a)



b)

Total donation per state averaging across cities

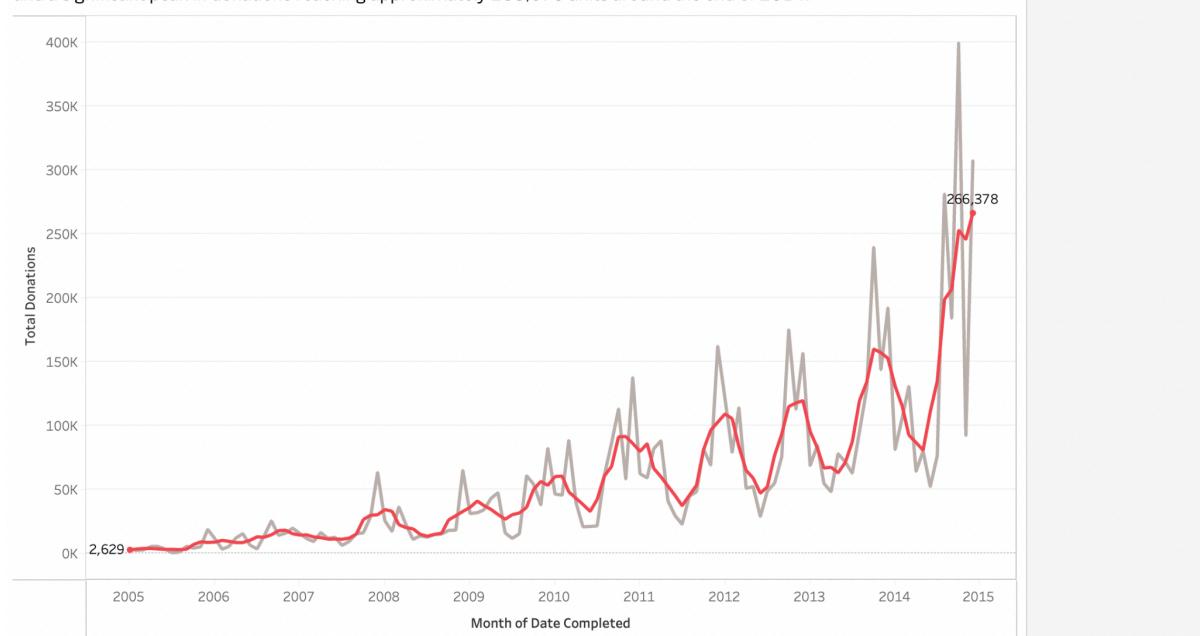
By this metric, Pennsylvania is an average donation state (#30 out of 50). It does good at an average donation of 1,261\$ per city.



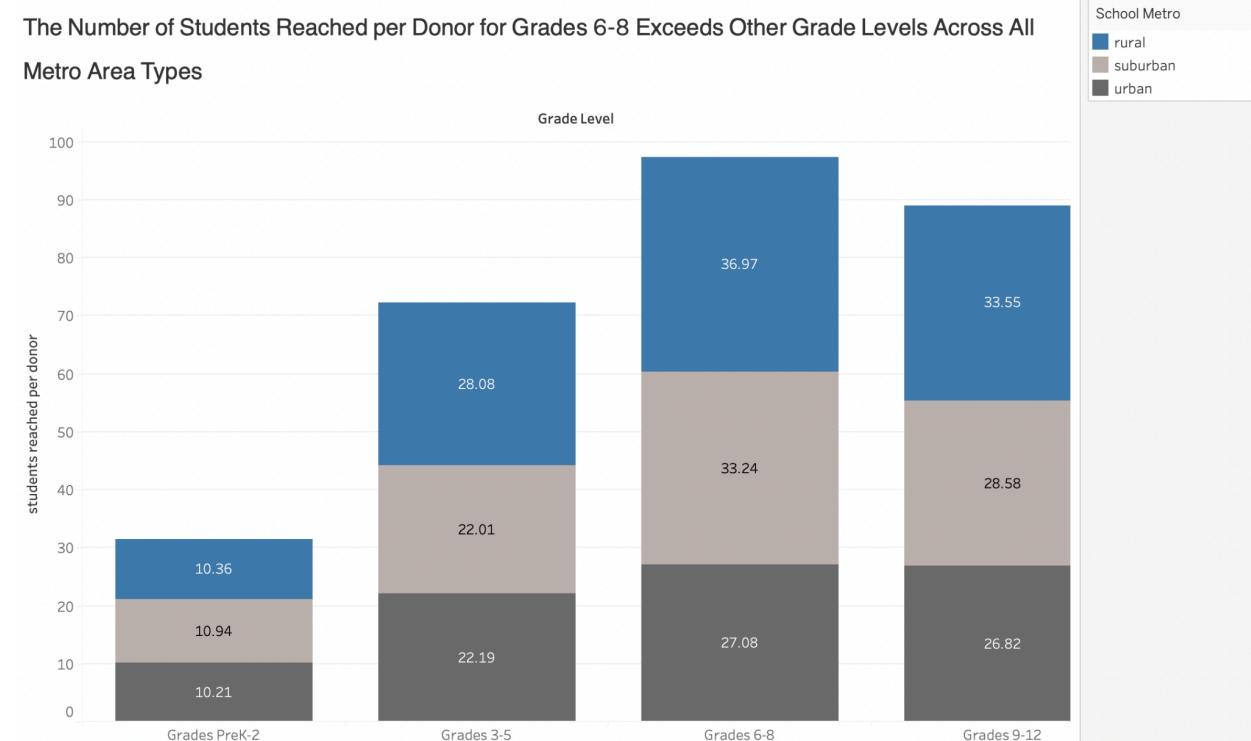
Question 6: Plot the sum of total donations over time for year 2005—2014 (including 2005 and 2014).

Sum of total donations over time for year 2005—2014

This graph shows a general upward trend with seasonal spikes (most often in the months of November and September), and a significant peak in donations reaching approximately 258,670 units around the end of 2014.



Question 7: Present one visual displaying some insight that you discovered on your own.



For this visualization, we wanted to understand the impact of donations to Donors Choose at a metro area level. There are often differences in school funding depending on the school's location and we wanted to explore if the impacts of donations would be more impactful in certain areas. Additionally, we wanted to explore whether there were differences in the impact of donations at the grade level. The visualization displays the impact of each donation by showing the number of students reached per donation. The results show that more students were reached per donation across all metro area types for grades 6-8. This is a surprising trend and could indicate that there are differences in the types of donations that are given to schools based on grade levels. Additionally, the number of students reached per donation tends to be lower across all grade levels for schools located in urban areas in comparison to schools in rural and suburban areas.