

Visualization In Money Donation to Public School

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Backgrounds

In recent years, people are becoming increasingly enthusiastic about charitable giving, especially in public school donation which aims at improving study and life quality of children and teenagers. However, many people find it difficult to get useful information about public donations, since much information are given as large tables, which might make no sense to ordinary people who are enthusiastic about charity giving. In order to solve the problem, we need to introduce visualization. Visualization is instrumental in inferring the trends from the data, spotting outliers and making sense of the data-points. What's more, a picture is indeed worth a thousand words.

Project Domain, Task and Dataset

After careful search, we decided to choose the dataset from an official NGO website called DonorsChoose.org, a US based non-profit organization that allows individuals to donate money directly to public school classroom projects. It is true that a picture is indeed worth a thousand words, especially for large tables which might make no sense to target readers. Without visualization, it would be difficult and miserable to compare and analyze data, as a result, we may not get right conclusions. We are going to convert the large two-dimension table into human visualized graphs, and try to find out something interesting behind their donation behavior, the trend in public school donations and give appropriate suggestions to the target donators and the public. The original dataset contains data points for the classroom projects data, we have chosen a 9000-row and 45-column subset of the original dataset we are familiar with and relevant to our purposes so that we can focus on getting the charts done quickly rather than waiting for the data to be fetched each time we refresh. In this way, target users can find out where to donate, and how to donate in an appropriate and effective way. The target users are those who are interested in public donation and want to find interesting and useful information about their future donation.

Personal expertise

We make donations as well, and we've just been somewhat interested and curious about human donation behavior for months, so we read about and discuss it occasionally. We may not know much about the area yet, but it seems to be an interesting area that attracts both of us.

Huaying is a freshman in InfoVis field and is interested in finding appropriate ways to visualize data to help people especially those target readers get better understanding of the data they're interested in, and is looking for interesting things behind the data. She is now learning script programming and trying to find out appropriate ways to visualize data using the knowledge we learn in class.

Arthur has been a freshman in this InfoVis field too and is curious about how to convert and make wonderful InfoVis to show people some interesting findings behind the 'cold' data. He is now proactively learning web technologies and script programming.

Our Proposed Info vis solution and the interface

The original dataset contains more than 300000 lines of records and 41 columns of properties with the snapshot from Excel as a way to open the dataset.

What we want to show people is to allow people to dynamically choose the available time range and they can get a full view of the total amount of donation classified by region, poverty level, class-room property as well as grade level, which is all automatically calculated and counted by back-end database and be transparently transferred into front-end InfoVis framework.

We abstract some key column words as follows: school_state, resource_type, poverty_level, date_posted, total_donations, funding_status and grade_level. We are going to use a drop-down menu to let target users choose a school_state they're interested in, a line chart to show the date_posted, horizontal bar charts to show resource_type, poverty_level and grade_level, and a pie chart to show the funding_status. You can choose any date range you like, the graphs change dynamically.

Since it is more than 30000 records stored, we are going to use a fast, easy-to-use database to do the data storing and related basic calculation. As for the front-end showing, as we are all new freshmen into the field, we are going to use some simple technology while which will have good performance effect. For now we consider D3.js and Node.js for hosting and show the InfoVis.

Milestones and schedules

First, we need to figure out more interesting phenomena beyond their donation and identify what our analysis will do by 13th, November. Then we need to analyze whether the language and platforms we use are appropriate, find out their pros and cons and decide the way to implement our visualization by 20th, November. Next, we will build our frontend using D3.js, Dc.js and some good old javascript before 4th, December. Finally, we will make some improvement according to our purposes and hand in the final project paper by 17th, December.

Previous work

Previous work about public donation has not been well-seen in our search in the Internet due to the lack of well-organized public dataset or other reasons. We are also trying to find relevant projects regarding this field.