Kindness Tracker: Network Visualization for Post-Pandemic Random Acts of Kindness

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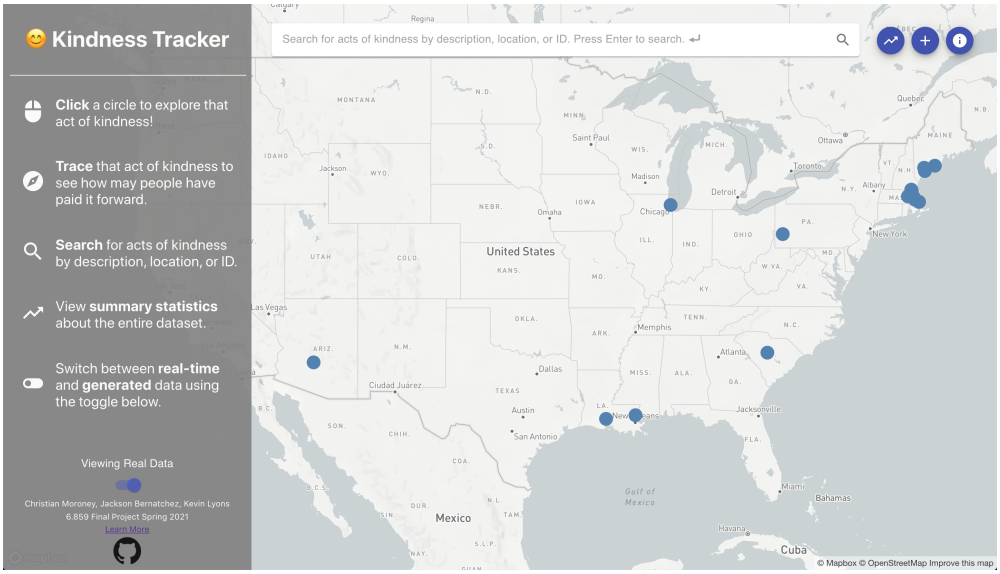

Fig. 1. Example view of the Kindness Tracker home page, showing real-time data from the United States.

Abstract—In the midst of current economic, political, and public health concerns, we believe that being kind to one another is more important than ever. That's why we developed Kindness Tracker, a data collection and visualization application for random acts of kindness. Utilizing physical "Kindness Cards", an active database, and a front-end application, we are able to visualize the spread of kindness across the country between friends, family, and total strangers. We have found that not only is it an enjoyable experience to observe the spread of kindness, but also a catalyst for future acts of kindness in viewers. Our hope is that this application plays a small role in increasing happiness across the country.

Index Terms—Visualization, acts of kindness, pandemic, React, networks.

1 Introduction

For this project, we wanted to find something that we were passionate about, and that had a real-world application. Rather than finding an external dataset to produce a visualization, we decided we would create our own. Have you ever wondered how far an act of kindness could travel? We developed a method for tracking acts of kindness across the globe, and visualizing them on a simple, yet highly thought out frontend application. Thus, the focuses of the project fall into two main categories, which are highly intertwined - data collection, and data visualization. We will spend some time discussing data collection strategies, but the primary focus of this paper will be on the visualization itself, and various design decisions that were made throughout its development.

2 Related Work

MIT MindHandHeart motivates the MIT community to perform charitable acts. They accomplish this task by allowing students to sign up and receive MITCoins [2]. These MITCoins are given to fellow community members upon recognition of an act of kindness. Furthermore, students can receive coins by performing acts of kindness. At the end of the semester, accumulated MITCoins can be converted to US dollars which are then donated to a charity of the persons choosing.

Similar to the MIT MindHandHeart group, the MIT Athletics Department promoted MIT sports teams to partake in a Random Act of Kindness campaign for the Community Service Cup [1]. MIT student-athletes were encouraged to perform acts of kindness for friends, TAs, professors, and strangers. Upon completing an act of kindness competitors could submit a form and gain points for their respective athletic teams. We drew inspiration from these kindness-promoting initiatives for motivating kindness around the World. We felt strongly that acts of kindness should travel as far as MIT students will themselves. We sought to design an act of kindness initiative capable of providing a unique hands-on experience for users. Enabling participants to visualize the impact their act of kindness has on a rapidly growing network of community, country, and worldwide acts of kindness.

3 Methods

3.1 Data Collection

To collect data about random acts of kindness, we decided to create physical Kindness Cards that could spread from person to person after an act of kindness took place. Each card is identical, except for a unique ID number which is used for tracking the spread of given acts of kindness. The card simply prompts the user to fill out a quick questionnaire (accessible by scanning a QR-code) on the act of kindness

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Fig. 2. Kindness Card used for data collection (with ID number redacted).

they received. To maximize responses to the form, we made the form as simple as possible. The form asks respondents three questions:

- 1. What was the act of kindness you received?
- 2. Where did the act of kindness take place?
- 3. What is the ID number on your Kindness Card?

From these three questions, we get all of the information necessary for tracking the spread of kindness. The response to item 2 is passed through a Google Maps API to map it to a geographical coordinate, and the resulting information, along with items 1 and 3, is stored in a database that our front-end accesses.

After some feedback from our peers, we learned that people wanted to be able to participate in Kindness Tracker even if they had not been given a card from someone else. For that reason, we added the capability for users to enter acts of kindness that are not linked to a physical kindness card. This allows us to more easily expand our user base, and more importantly, increase the spread of kindness.

3.2 Visualization

Similar to our data collection strategy, our number one priority with the Kindness Tracker visualization was simplicity. We wanted to show the user something as close to ground truth as possible while keeping the tool easy to use and understandable. Our first major design decision was to make our visualization full-screen. We feel that this format for the visualization immerses the user in the data, with limited distractions and a clear focus. The visualization itself has two main modes - base mode and trace mode. In these modes, users are able to explore different aspects of the data.

3.2.1 Base Mode

When the app is launched, it starts in base mode. In this mode, a map is displayed, and acts of kindness are encoded with blue circles at their geographical locations. The region of the globe that is displayed is determined by where acts of kindness have taken place - a bounding box for all points is calculated, and that region is displayed to the user. Since our main focus in this project is to visualize the spread of kindness, we decided that geographic location was the most important aspect of the data to visualize. In this mode, the user is able to freely explore the map, and can learn more about a given datum by hovering their mouse over a circle. When this happens, a tooltip is displayed, which shows what the act of kindness was, and the address of the location. By clicking the circle, the additional information is displayed on the left-side panel, such as the date and time the act took place, and how many other acts of kindness are connected to that act (meaning the same Kindness Card was used). At this point, we decided to have the map zoom in on the act's location. We felt that this made the user's relationship with the act of kindness more intimate - instead of seeing a blue circle somewhere in Louisiana, the user can see the exact street that the act of kindness took place on, which we feel helps ground the act to reality for the user.

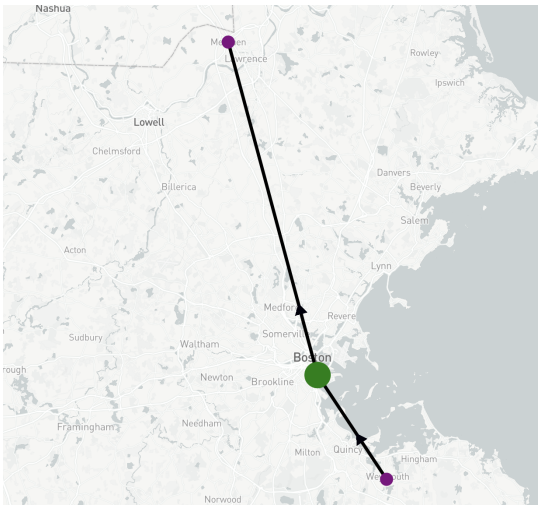

Fig. 3. Example of multiple acts of kindness being viewed in Trace Mode.

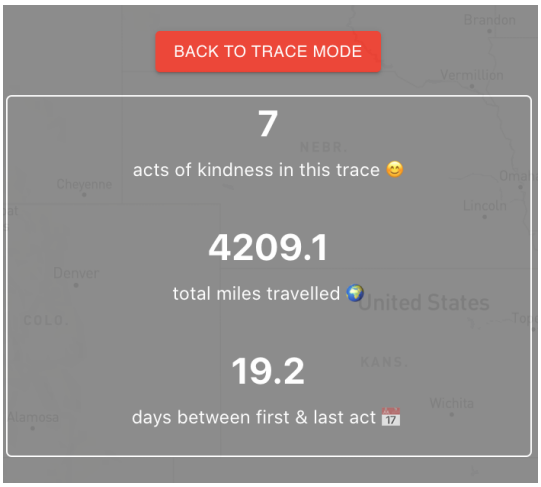

Fig. 4. Example of trace statistics being viewed.

3.2.2 Trace Mode

Upon selecting an act of kindness, a "Trace Act" button is displayed. By clicking the button, the user enters "Trace Mode" in this mode, only acts of kindness that are connected to the selected act are displayed. In addition to the encoding of acts, we display arrows going to/from acts of kindness that are connected to the selected act. This allows the viewer to see where the specific act of kindness came from, and how it spread across the globe. By using right and left arrow buttons, the user is able to follow the trace and see how each act is connected along the trace. We additionally proved "first" and "last" buttons, in case the user wants to see where the act originated, or where the spread of kindness ultimately led to in a single click. Finally, we additionally provide a "View Trace Statistics" button. After this button is pressed, we show some engaging statistics about the trace, such as how many acts of kindness are in the trace, how many miles it has covered, and what the period of time is between the first and last act in the trace.

3.2.3 Other Features

In addition to the main functionalities described, we implemented several other tools that allow viewers to experience the data. One such feature is a search bar, in which users can enter locations, ID numbers, or keywords to filter the data. Here, and across all modes, a bounding box is computed so the data displayed spans the full screen. Additionally, on the main screen, we display a "View Summary Statistics" button. When this is clicked, a right-side panel is displayed containing

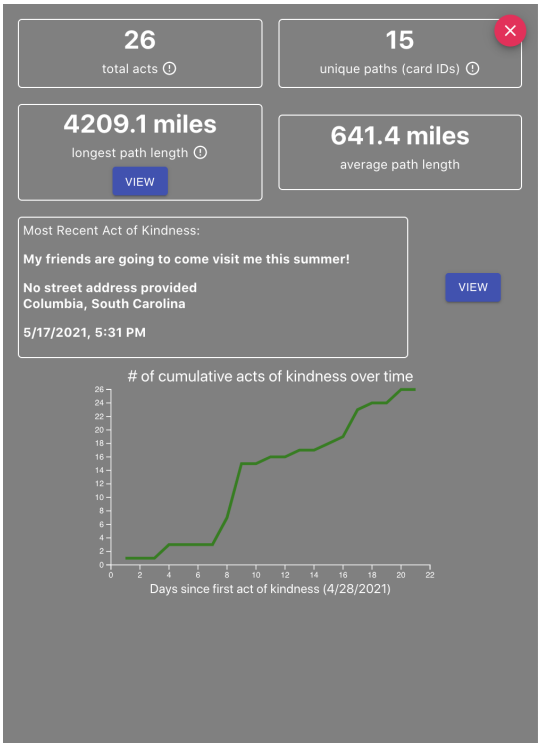

Fig. 5. Example of summary statistics being viewed.

a few summary statistics, as well as a line chart displaying cumulative acts of kindness versus time. We decided to provide these summary statistics after receiving feedback from peers on the matter.

4 Discussion

Throughout the process of building the Kindness Tracker application, we have learned a lot about what users needs and want. First, the ability to easily search for acts of kindness is critical, as it allows users to quickly find an act they know they were involved in. It creates a sense of curiosity in the user, in addition to being a common UI feature that many have come to expect in modern web applications. In addition, the practice of tracing an act of kindness, we have found, promotes a sense of altruism and community benefit that may not be as evident without our application. By clearly seeing how acts of kindness are connected, it gives the user more clarity into how their single act **matters** within the larger network.

Another key user insight is that the application itself must make it very easy for them to provide information. The barrier to entry must be very low, given that we are asking the user to voluntarily provide us some information that they provided. As a result, we had to tweak our data collection strategy through multiple iterations until we achieved a satisfactory result. By automating address lookup via the Google Maps API, and limiting the form to three simple questions, we have been able to make the user experience much more seamless, and increase the total amount of traffic our application receives overall.

5 Future Work

Our biggest goal in the future is to increase the accessibility of our application. For data collection, we believe we could increase the response rate by further simplifying the questionnaire by tracking card IDs implicitly via the QR code and requesting location from the user's device. Then, the only field the user would need to fill out is the description of the act of kindness. Additionally, we would like to provide a way for people to print off their kindness cards if they would like to get involved. For the visualization, we have implemented all encoding and features that we would currently like to see, but would like to acquire more feedback on how we can improve the visualization's expressiveness and effectiveness.

Acknowledgments

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References

[1] M. A. D. . Share your Random Act of Kindness (:.
[2] M. M. Initiative. MITCoin.