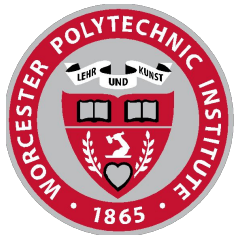


WPI

caras con causa

Addressing Data Utilization for Non-Profit Organizations

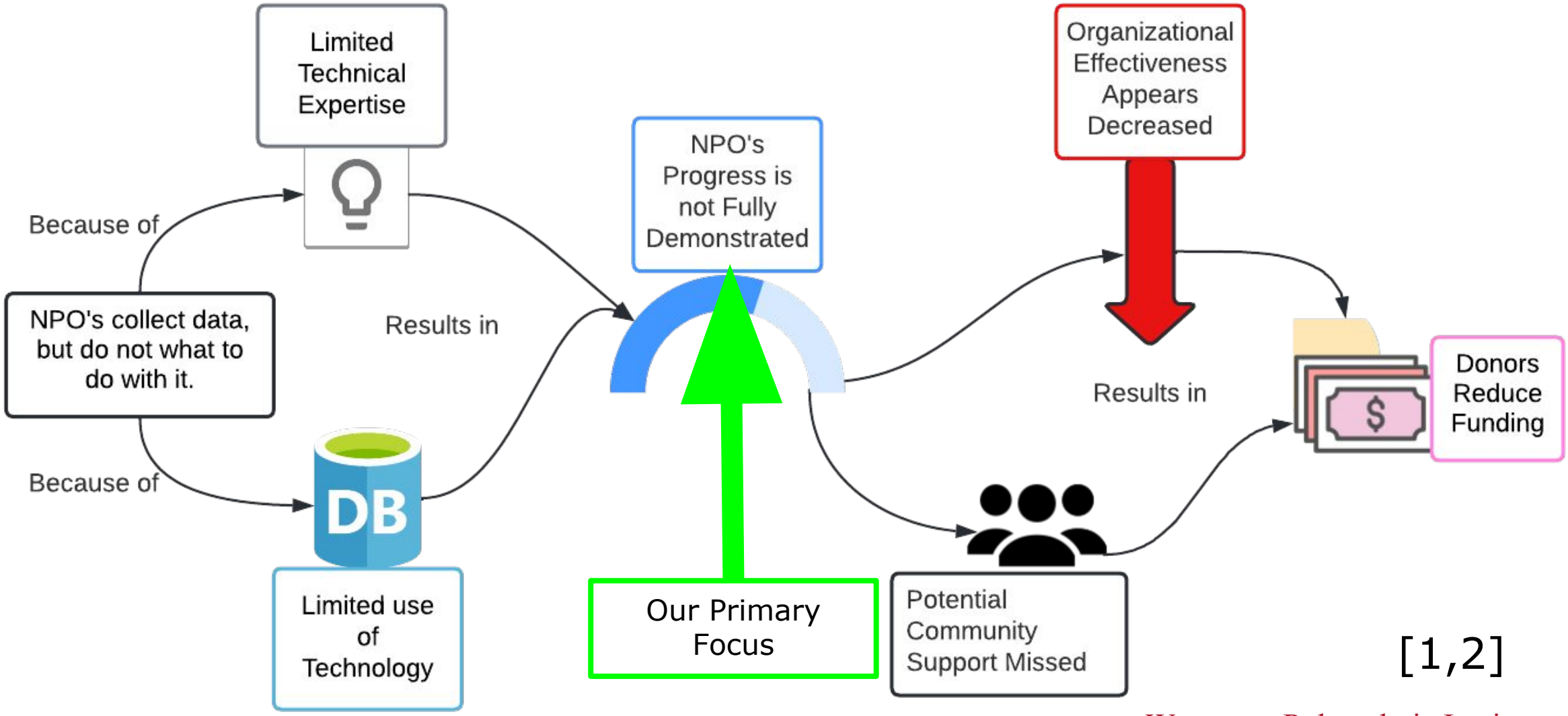
A Case Study with Caras con Causa

John Puksta, Alexander Breiling,
John Higgins, Darian Tavana

Agenda

- Overview of Societal Problem
- Sponsor Information
- Design Process
- Final Product Showcase

Societal Problem Process Context



[1,2]

Societal Problem of Non-Profit Organizations

Societal Problem: Non-profit organizations struggle to communicate their mission statement through data due to a lack of technical awareness and expertise.

Project Goal: To improve our sponsor, Caras con Causa's data organization and provide a platform that displays their data. This will enhance their ability to make internal decisions and attract donors.

Who is Caras con Causa?

Mission Statement : "To eliminate poverty in the Cataño and Guaynabo communities of Puerto Rico by leading projects that address societal challenges in four major areas: ecology, education, economy and community."

[3] Caras con Causa Website

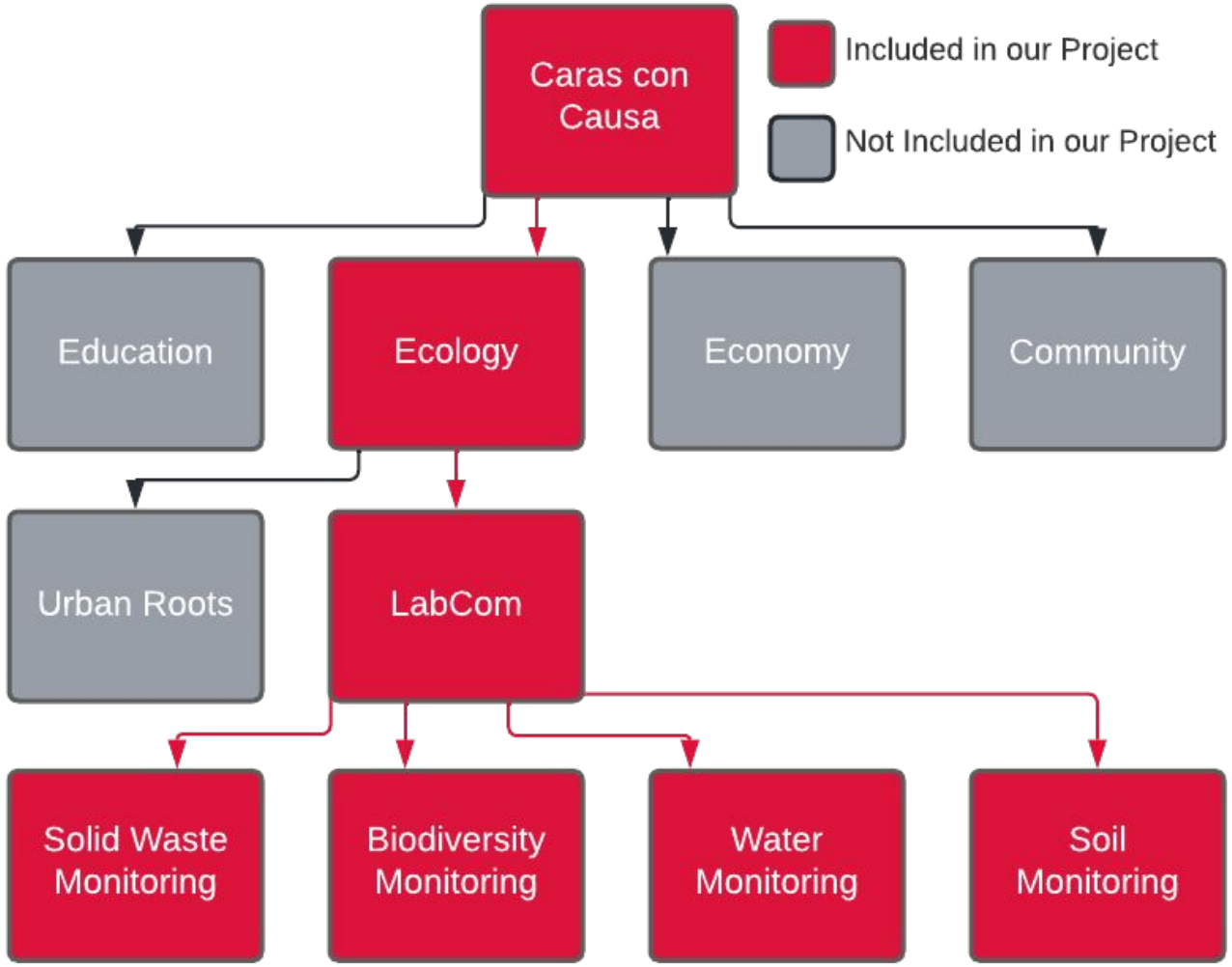
Organizational Breakdown Structure

Education:
- Runs a community school
- Hosts tutoring programs
- Provides science education

Ecology:
- Monitors environmental state
- Runs reforestation projects

Economy:
- Offers summer internships through organization of community projects

Community:
- Provides a Coronavirus relief program (food and protective equipment distribution)
- Performs services for the elderly

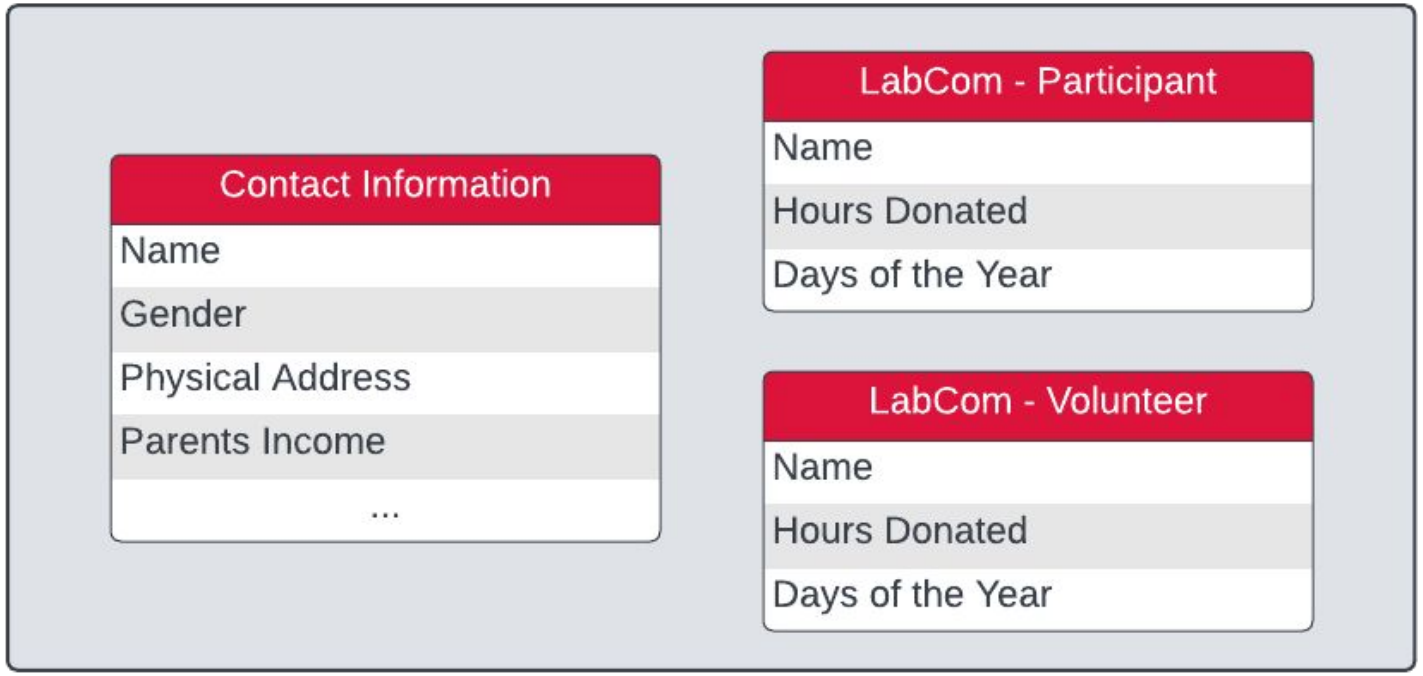


Preliminary Data Collection

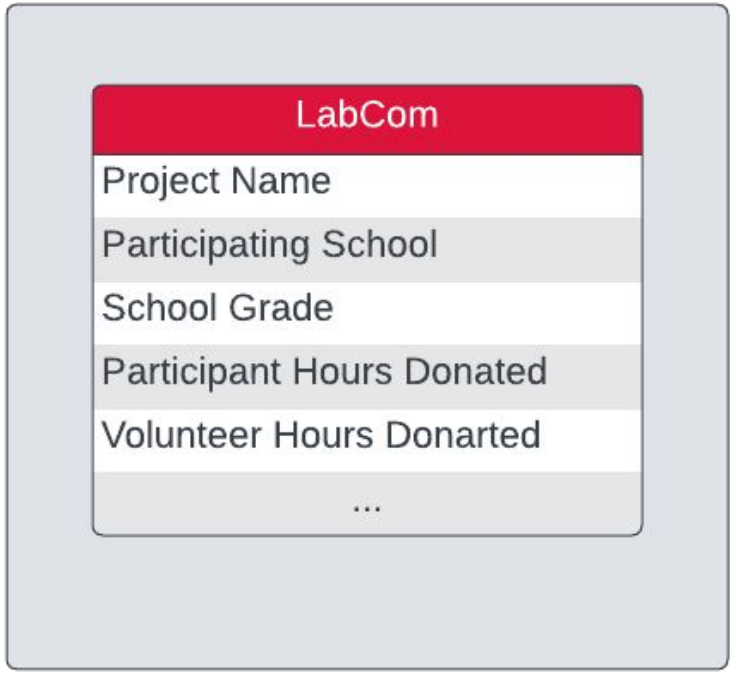
- Data is recorded on paper during activities and later stored digitally via Google Form or manual entry to a Google Sheet
  - Creates a gap between the organization's current state and the data they collect
  - Increases likelihood of errors recording the same information twice
- The format of data is tailored toward manual analysis and is hard to analyze programmatically
- Data is unstandardized and decentralized making it hard to analyze holistically

Data Structure for LabCom

Contact Spreadsheet



LabCom Spreadsheet



Preliminary Data Visualization

- Only means of data visualization is a manually compiled infographic
  - Infographic manually updated each year
  - Viewer has no means to interact with the data

Revised Project Focus

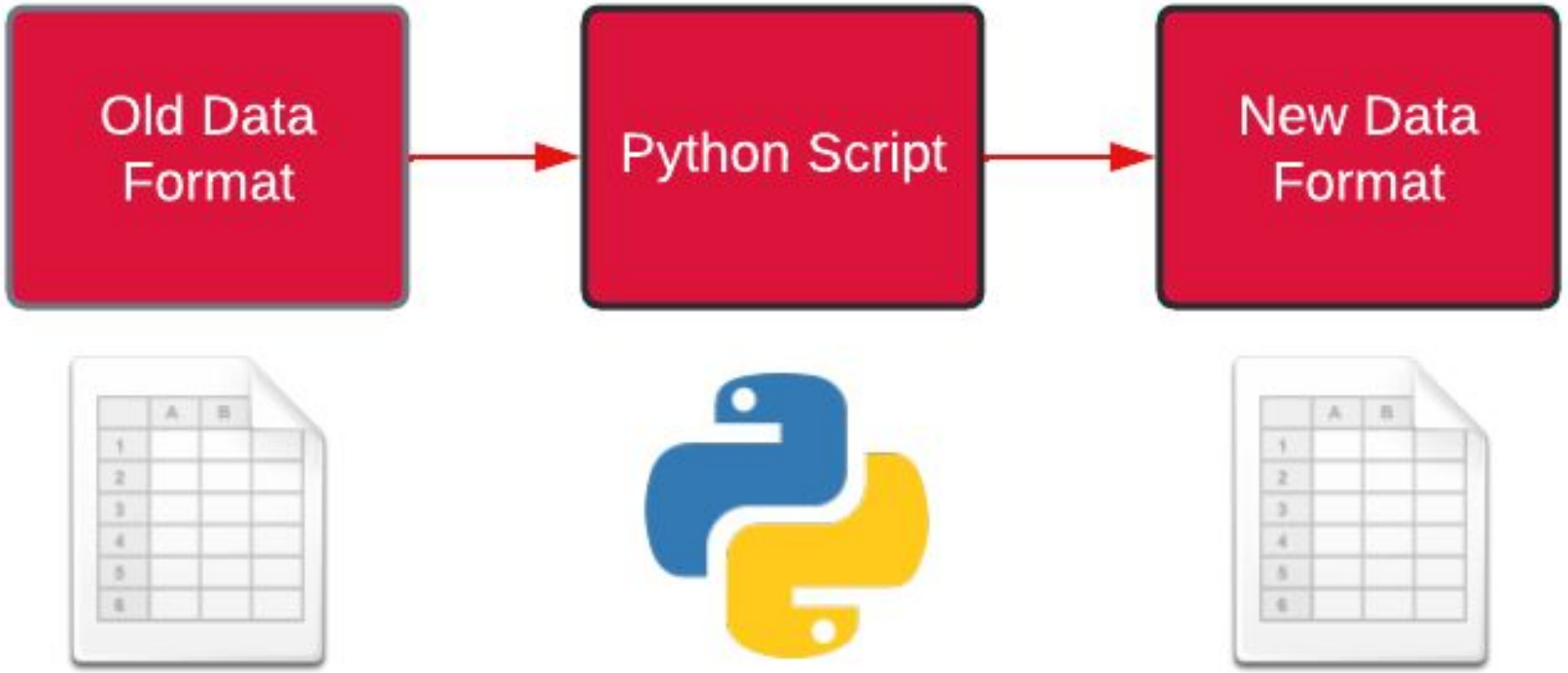
- Project goal changed from creating an external dashboard to an internal dashboard
  - Internal dashboard is meant for tracking organization progress and illustrating success to donors
- Data we worked with is social metrics
  - Metrics of importance are number of participants, hours donated by participants
  - Other platforms currently store scientific metrics and therefore for simplicity, our focus was on social metrics
- Original goal was to create a dashboard for each program
  - After running into several problems, our project focus shifted to be a polished dashboard for LabCom that could be used as a template for future dashboards
  - Additionally, we worked to improve data cleanliness, formatting, and collection

Data Cleaning

	Old	New
Manual Form Entries	Ability to type in your own unique entry	Standardized all entry options by removing unique entries
	Creates indistinguishable data: John, JOHN, john	Ensures all data is entered as John
Duplicate Column Headers	Multiple questions have the same title	Each question is named uniquely
	Multiple spreadsheet columns have the same title. This causes issues with Data Studio connection	Column titles are specific to the data, removing ambiguity
Comma Separated Values	Ability to select multiple checkboxes at entry	Changed checkboxes to single choice
	Creates data that cannot be divided such as 1 hour participated for John, Alex	Ensures data is either not group or distributed correctly. Changed data format to accommodate

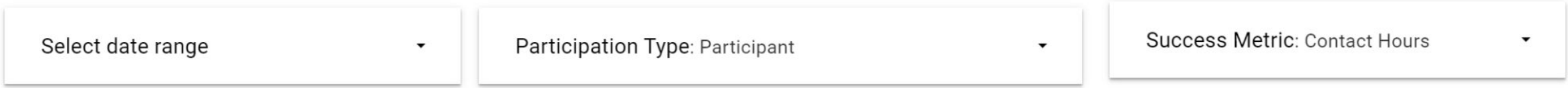
Google Forms | Google Sheets

Python Script to Reformat Data



Implementing Interactivity

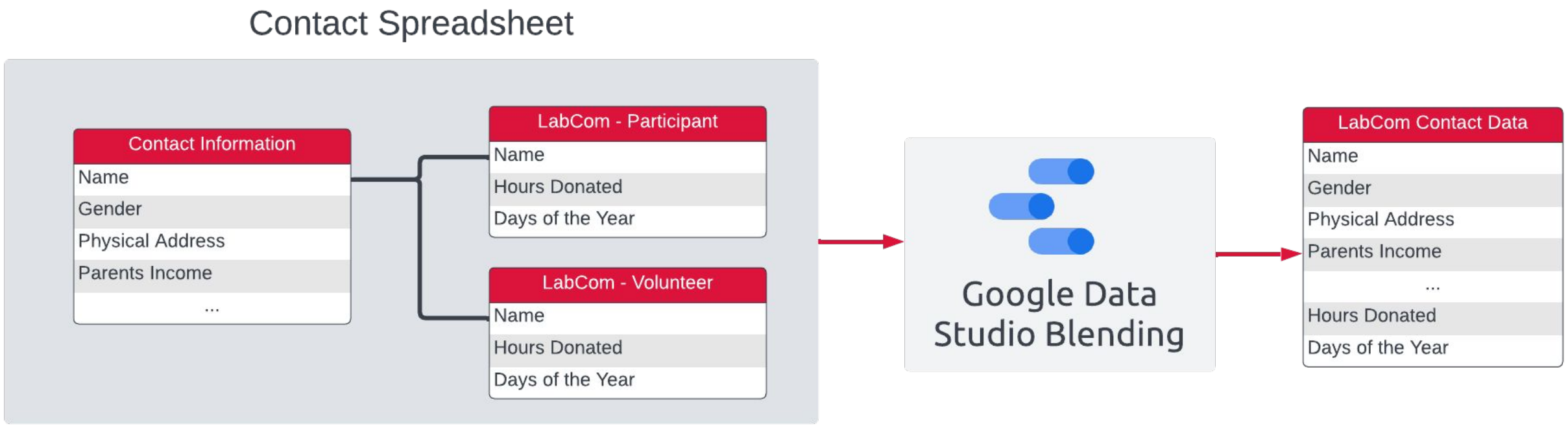
We made use of Parameters, Controls, and Calculated Fields to add more interactivity to the dashboard



This allows a user to control what they want to see or show depending upon their purpose/audience

Inserting Contact Information

The subsheets within the contact sheet are all connected by name. We can use this inside Google Data Studio to combine all contact data into a single place.

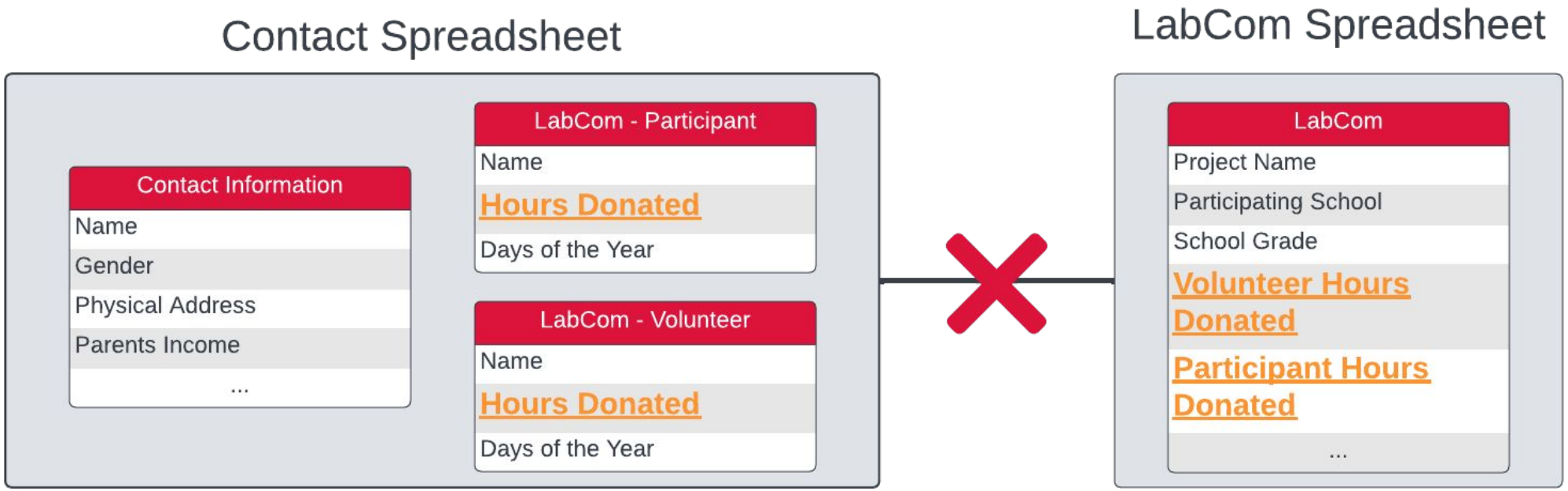


Inserting Contact Information

This gives us the ability to visualize useful information present in the contact sheet such as hours contributed by a participation displayed by geographic area.

Dynamically Creating Forms

- Within LabCom's data, information such as hours donated is included in the contact spreadsheet and labcom spreadsheet, repeating the data across two different scopes.
- Furthermore these two sets of data have no way of being connected together.
- These two factors limit the functionality available to us in Google Data Studio.

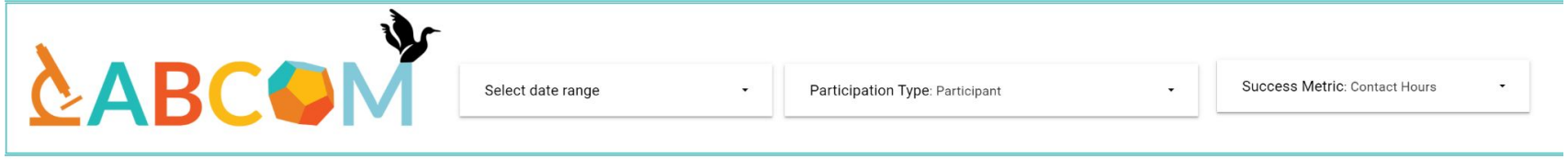


Dynamically Creating Forms

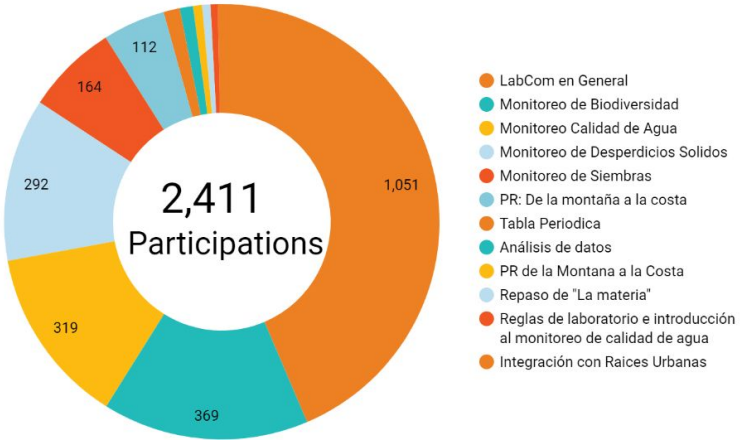
- The ideal solution to this problem is recording LabCom data in a single spreadsheet based on each individual and later combining this data in Google Data Studio.
- To implement this, we created a form that dynamically populates based on a spreadsheet that contains a list of all individuals Caras con Causa serves.

	A	B	C	D	E	F
1	School A			School B		
2	Grade 1	Grade 2	Grade 3	Grade 1 - 2	Grade 1 - 3	Grade 1 - 4
3	John Higgins	John Puksta	Darian Tavana	a	c	e
4		Alexander Breiling		b	d	f

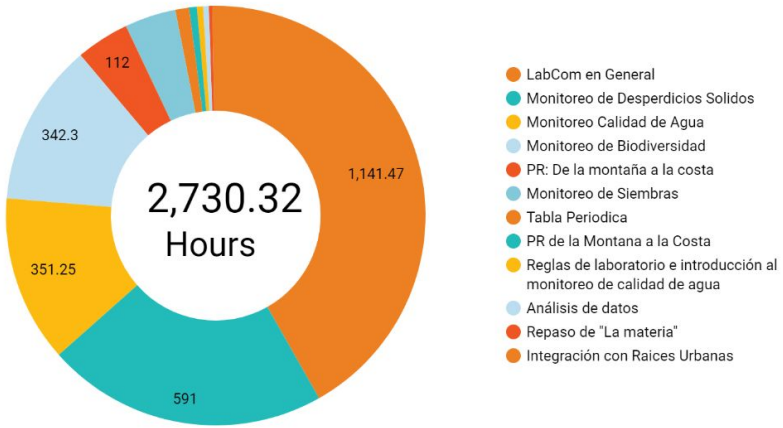
Final Product

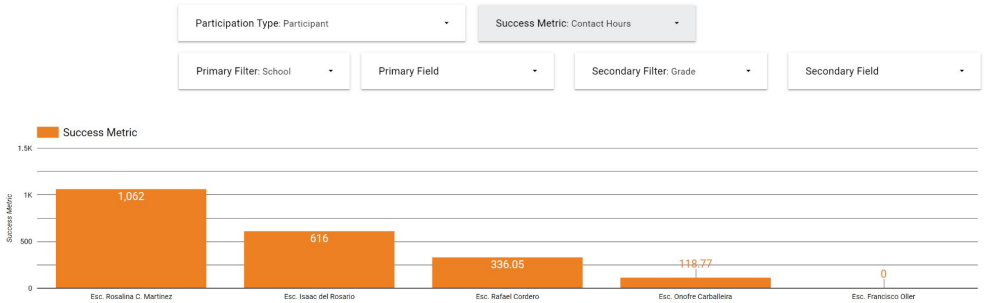


Total Number of Participations by Project

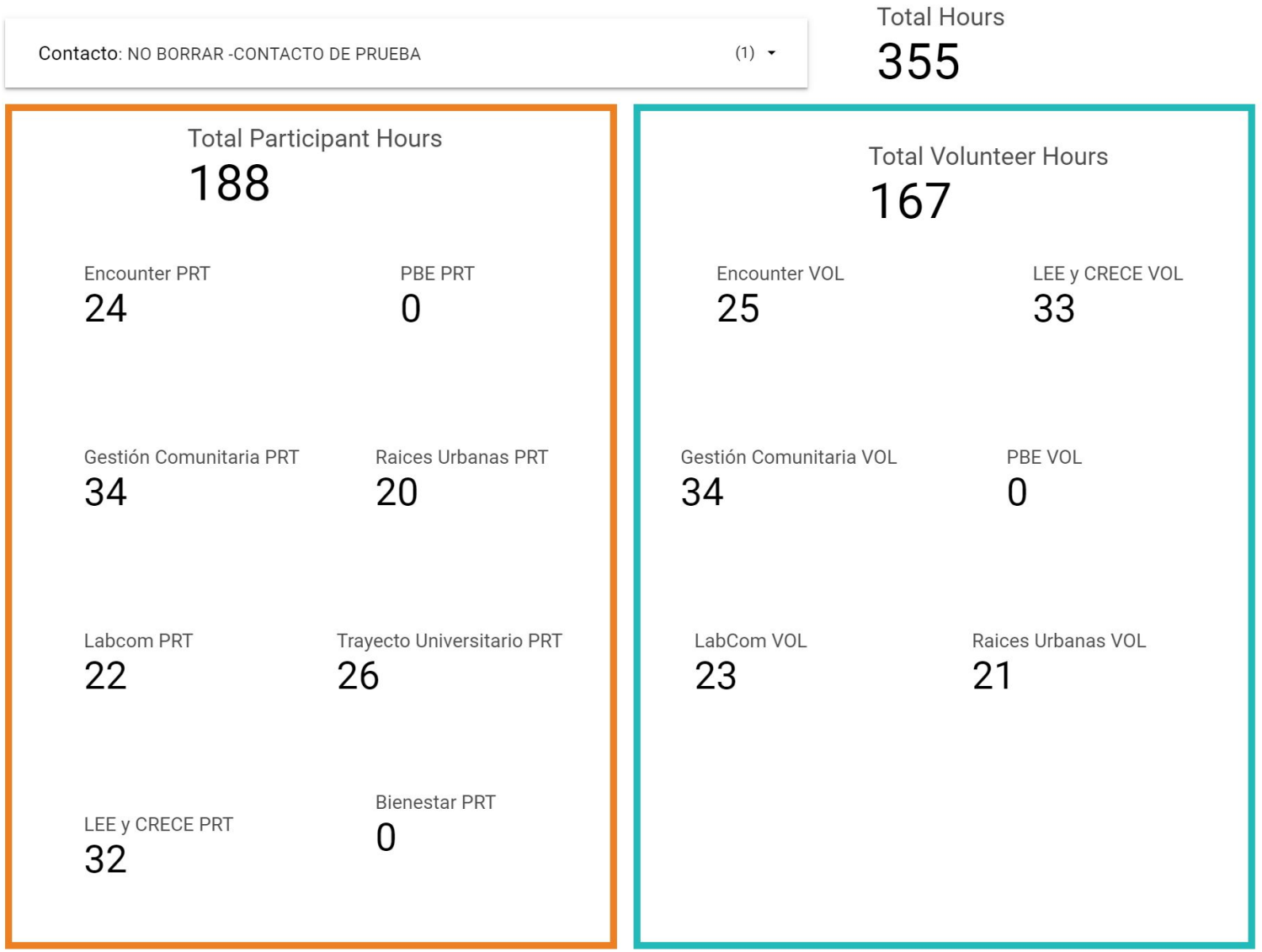


Total Contact Hours by Project





Final Product Part 2



Using this dashboard you can identify a single individual's contributions to each program.

Help Documentation

- To create a maintainable solution we created help documentation in the form of a Google Doc that outlines the features of Google Data Studio we used.
- We tried to make this relatable to our sponsor by providing examples of where these features were used in our solution

Suggestions

- Individuals exist in the volunteer and participant spreadsheet that don't exist in Contact Sheet. We highlight these individuals in our dashboard to make it easy to identify those with missing information.
- Continue to correct data practices
  - Standardize forms
  - Build upon our dynamic forms
  - Centralize data sources (1 spreadsheet per program when possible)
  - Move away from manual collection
- Adapt our LabCom final prototype to all programs

Thank you for listening!
Any Questions?

Works Cited

[1] 5 Things You Need to Know about Nonprofits + Big Data. (2018, March 18). EveryAction. https://www.everyaction.com/blog/5-things-you-need-know-about-nonprofits-big-data/

[2] Shattuck, S. (2019, May 15). Outcomes and output: Nonprofit impact reporting in the 21st Century. Big Duck. Retrieved April 20, 2022, from https://bigduck.com/insights/nonprofit-impact-reporting-for-donor-retention/

[3] Caras con Causa. (2022). Caras con Causa. Retrieved February 28, 2022 from https://www.causapr.org/es/inicio

[4] American Red Cross. (n.d.). American Red Cross. Retrieved February 8, 2022, from https://www.redcross.org

[5] Helen Keller Intl. (n.d.). Helen Keller Intl—Continuing Her Work. Helen Keller Intl. Retrieved February 8, 2022, from https://www.hki.org/

[6] PRxPR. (n.d.). HELP SUPPORT PUERTO RICO. PRXPR. Retrieved February 8, 2022, from https://www.prxpr.org/