City of Oakland
Small Business Outreach

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Project goals

For this project, we worked with the City of Oakland's Economic & Workforce Development Department (EWD) to create an information visualization that captures the impact of their outreach initiatives as part of the CARES Act response.

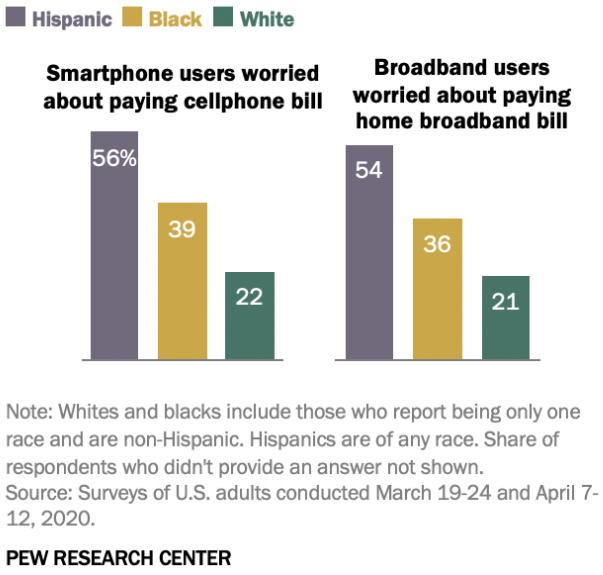
The primary target audience for our visualizations is the EWD officials. We aimed to create a set of visualizations utilizing the data provided to help the EWD officials evaluate the demographic distribution of outreach recipients. In addition to the EWD officials, we also wanted to target interested members of the public to help them understand the impact of COVID-19 on Oakland businesses and how EWD responded.

Our goals for this project include quantifying outreach impact on minority business owners using the data we've been provided from the city, and to visualize that impact both for city officials to help evaluate the distribution of future funds if they become available, and for interested members of the public.

Related work

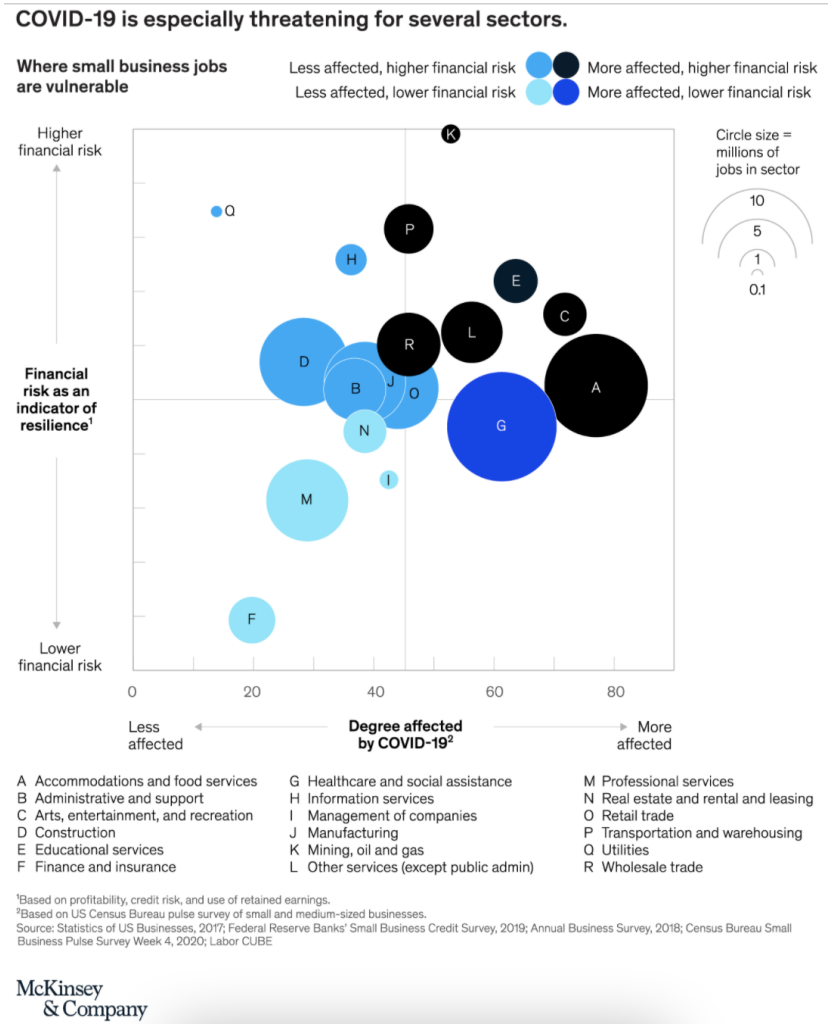
[Financial and health impacts of COVID-19 vary widely by race and ethnicity]

This article deals with the impacts of COVID-19. It shows the difference in the impacts by race and visualizes it as bar graphs. It is a very simple visualization and the difference is very clear in the bar graph. This inspired us to use a bar graph in showing the difference in race of the business owner and make it simple to show the difference in numbers that are not related to any continuous variable.



[Which small businesses are most vulnerable to COVID-19—and when]

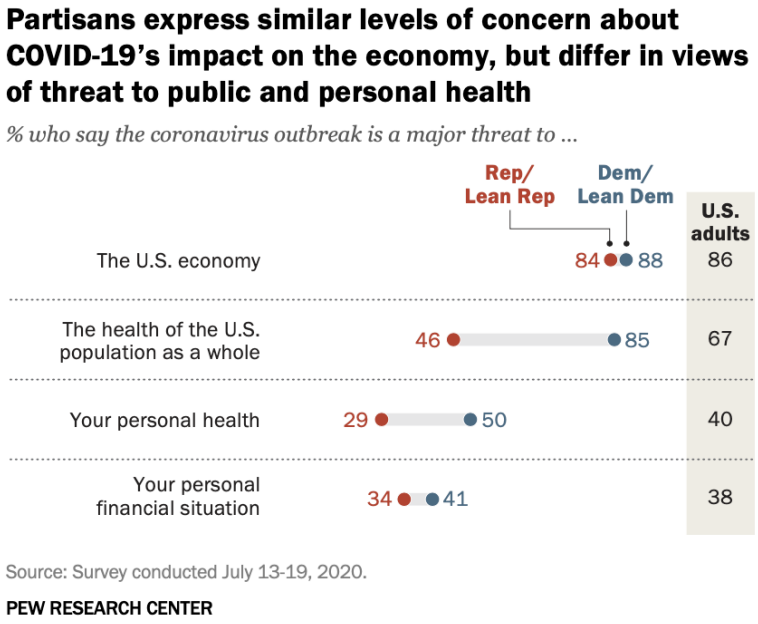
This article shows the different sectors of business that are vulnerable to the COVID-19 impact and show the difference with color, size, and location. It is showing different financial risk levels and the impact of COVID-19. The color and location are not really different and the labeling of the sectors is in the bottom of the graph, so it is not really simple to read the graph. This is an interesting graph so it inspired us to see the difference in impact by business types that leads to the sunburst visualization.



[Republicans remain far less likely than Democrats to view COVID-19 as a major threat to public health]

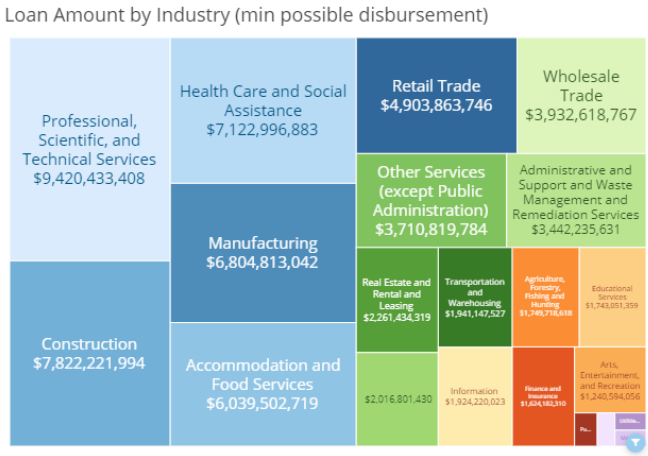
This article reports some different data and used different visualizations to show the result. It used a line graph to show the change of percentage as the time passes, a

barbell graph to show the difference of two parties in different aspects, and a bar graph showing the difference by race. Since we were comparing more than two groups and our data did not include any time data, it was good to use the bar graph showing the difference in each race or each organization.



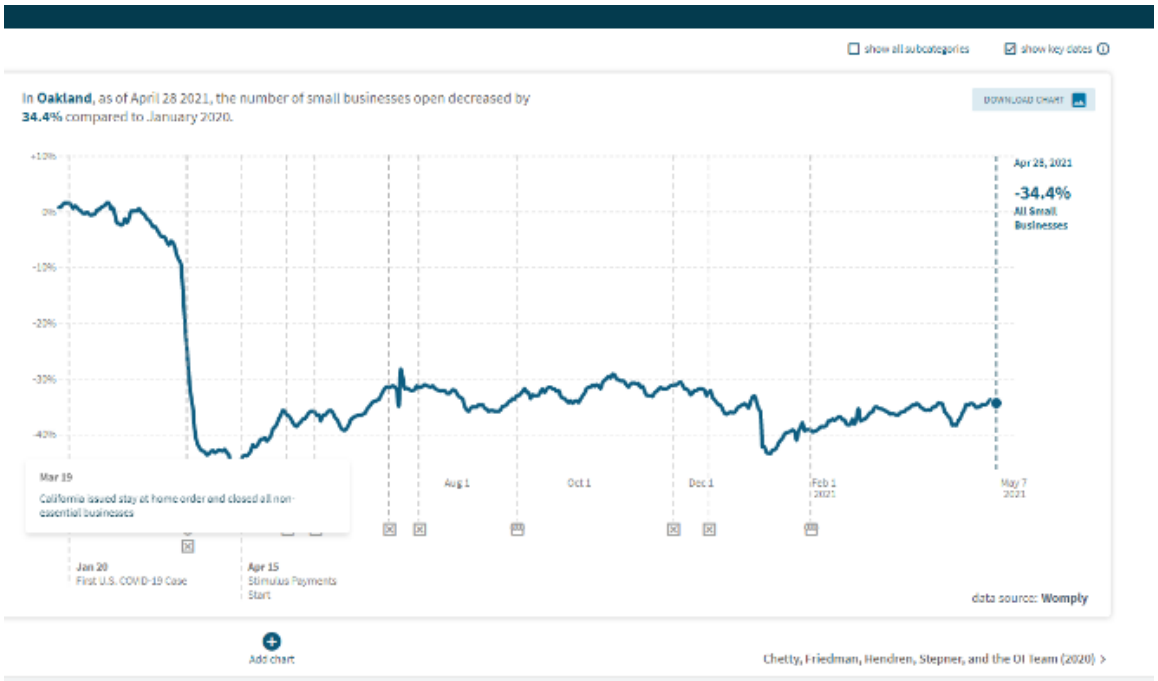
How is the U.S. government supporting small businesses?

DOMO has published a Coronavirus Tracker that shed light on how the federal government is supporting small businesses during the COVID-19 pandemic. The visualization is a lengthy series of dashboards that can be filtered by state. The dashboards primarily leveraged Paycheck Protection Program (PPP) loan data to evaluate the distribution of loans provided to small businesses. One such example includes the below treemap that breaks down the loan amounts by industry. This treemap served as a starting point for us in brainstorming how we could visualize the breakdown of outreach to small business owners by industry category, which we ultimately visualized using a sunburst diagram.



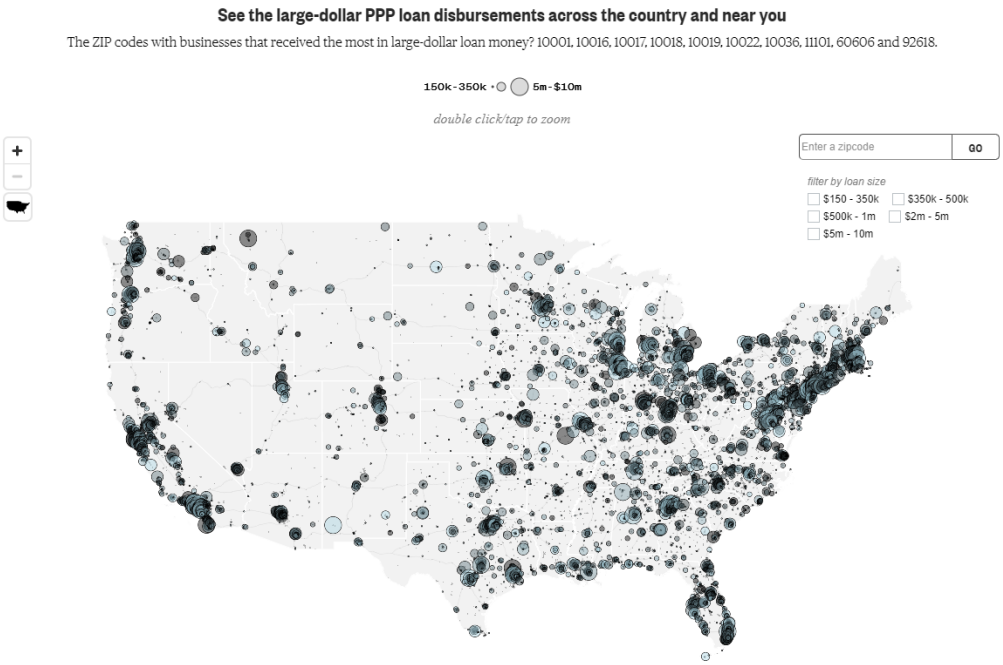
[Track the Recovery Economic Tracker]

Track the Recovery is a public database built using private sector data that was developed by Opportunity Insights, an organization at Harvard University. It also serves primarily as a dashboard to present metrics involving COVID-19's impact on small businesses, and can be filtered by state and metro area. We were impressed with their visualization of the percent change in small businesses open over time during the pandemic, and appreciated how it highlighted, through icons and tooltips, specific events during the pandemic that may have impacted the businesses' ability to operate.



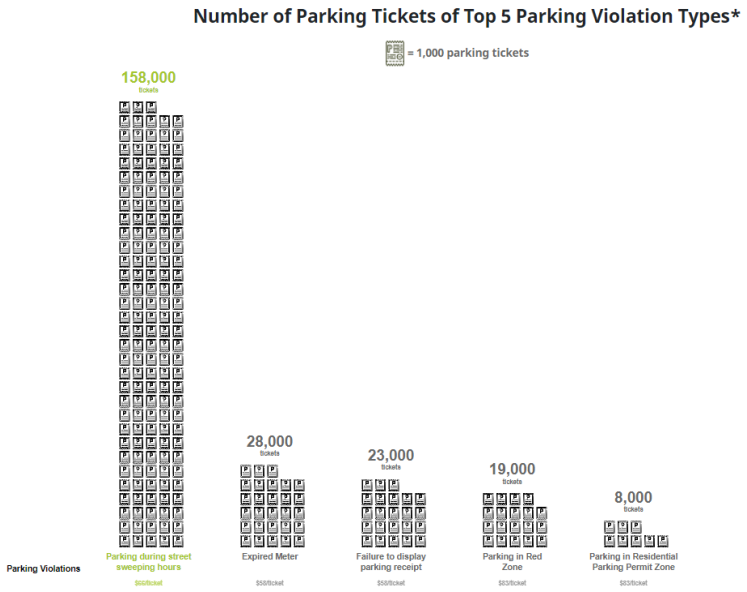
[PPP Loan Disbursements Across the Country]

NBC News' visualization of businesses that received PPP loans across the country and by how much was shared with us during the mid-project presentation by a fellow classmate. This piece inspired us to investigate PPP loan data specifically for Oakland, and join it with the outreach data provided to us by the city. We incorporated our findings into our visualization to enhance the storyline and add a substantive component of "impact", which we felt was lacking in our original design since we were only working with demographic data, and was also pointed out by fellow classmates as lacking.



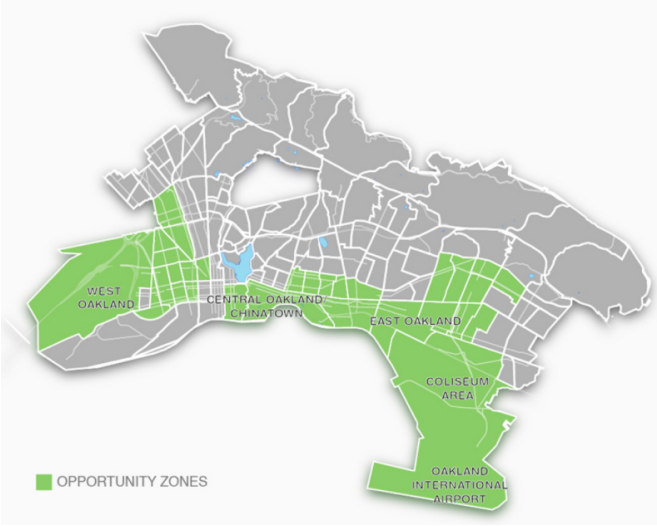
[Sweep Smart]

We were also inspired by a previous student group's project, "Sweep Smart". We thought their use of isotypes and animation for the counts of parking tickets was visually attractive, understandable, and engaging. This inspired us to use repetitive small business isotypes with animation to draw in the viewer at the beginning of our visualization.



[City of Oakland Designated Opportunity Zones]

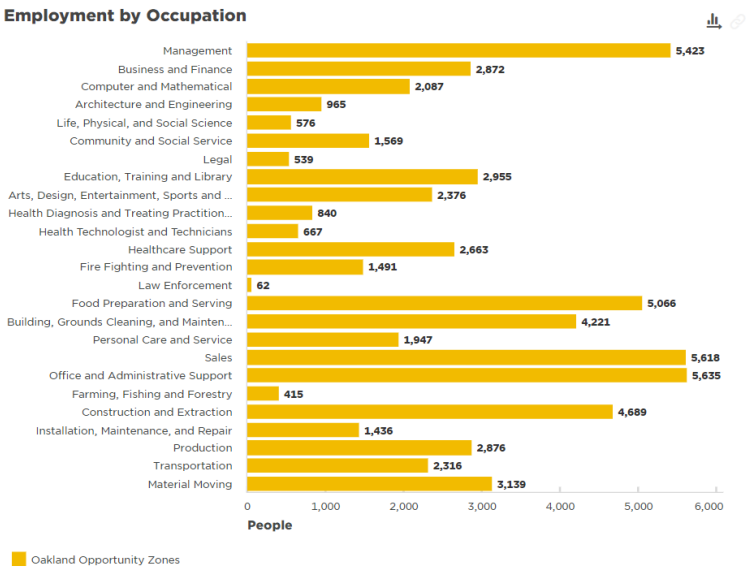
The city of Oakland has designated opportunity zones that are meant to spur economic development and job creation. The site allows us to monitor how these opportunity zones recover in response to COVID. This information helps us to figure out whether the businesses that the outreach community has contacted are targeting these opportunity zones or not.



[City of Oakland Opportunity Zones - Economy & Entrepreneurship Dashboard]

We found this website, which is a dashboard that illustrates the economy and entrepreneurship in Oakland. We found it appealing how the contents are presented

and how the story flows on the website. It has a short message to explain the background information and transition into a set of visualizations. The following could potentially serve as a template for how we design our visualization. This site depicts the current economic status in Oakland, split by race/ethnicity.



Description of the visualization

We put together our independent visualizations in one webpage, leveraging Github Pages. Ultimately, we wanted the visualizations to be informative for the viewers, but also tell a cohesive and compelling story.

Beginning

Our beginning includes the header, opening statistic and animation to draw in the viewer, then it moves into the background to provide context for viewers not working for EWD. It essentially presents the setting for the viewer, preparing them to understand the graphs and visualizations we lay out in the middle.

CITY OF OAKLAND Small Business Outreach

Nationally, nearly 80% of minority-owned businesses are struggling financially because of the pandemic[1]

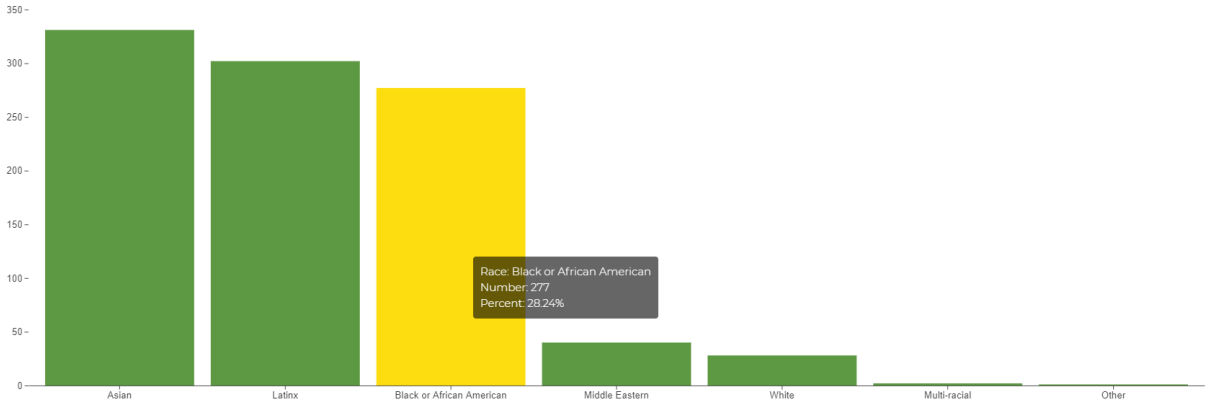
As the viewer learns that 80% of minority-owned businesses are financially impacted, we wanted to evoke their emotion by displaying an animation, where 80% of the icons fade away amplifying the impact. We changed the layout of the visualization after the usability study as we got the feedback that the participants did not connect the design and the texts about 80% of minority-owned businesses are struggling.

Middle

While no conflict or “rising action” are part of our middle, like a typical storyline, it provides the bulk of our analysis. After setting up the background context that minority-owned businesses are struggling, we provided how the City Oakland has responded to assist the ongoing situation with more context. After the usability study, we changed the layout and the order of the community organizations. We put them in two columns side by side because the information is related to each other

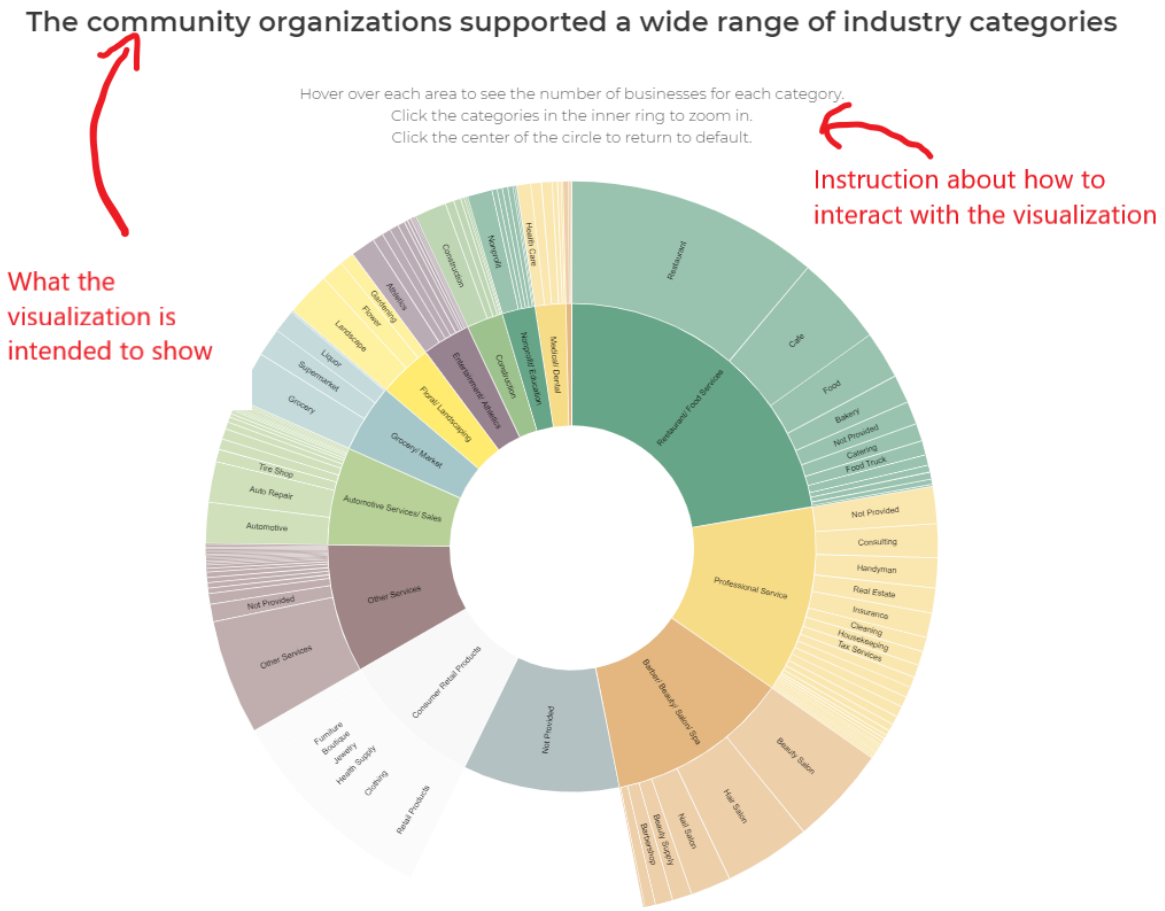
and we used alphabetical order in the organization list in order to avoid viewer assumptions that the order has some meaning behind it. We also added a colored background to foster a sense of hierarchy for the overall visualization.

This bar graph shows the race distribution of the business owners who were reached out by business organizations. We strive to maintain a balance between simplicity and a substantial amount of information to assist the viewer to understand what the visualization is intended to show. After the viewer internalized what's shown in the text, we displayed a bar chart showing statistics to educate the view regarding how the outreach was distributed among racial groups. This graph was a sunburst showing the race and ethnicity of the business owners in our first iteration but we changed to a bar graph after the feedback from the usability study that the ethnicity is not essential information.



For the next visualization, we provided a line explaining what the visualization is intended to show and some instructions about how to interact with the visualization. Since the participants of the usability study were not familiar with the sunburst diagram, they did not know what to do to explore the visualization. We categorized the business categories again in the more intuitive ways in the final iteration. For

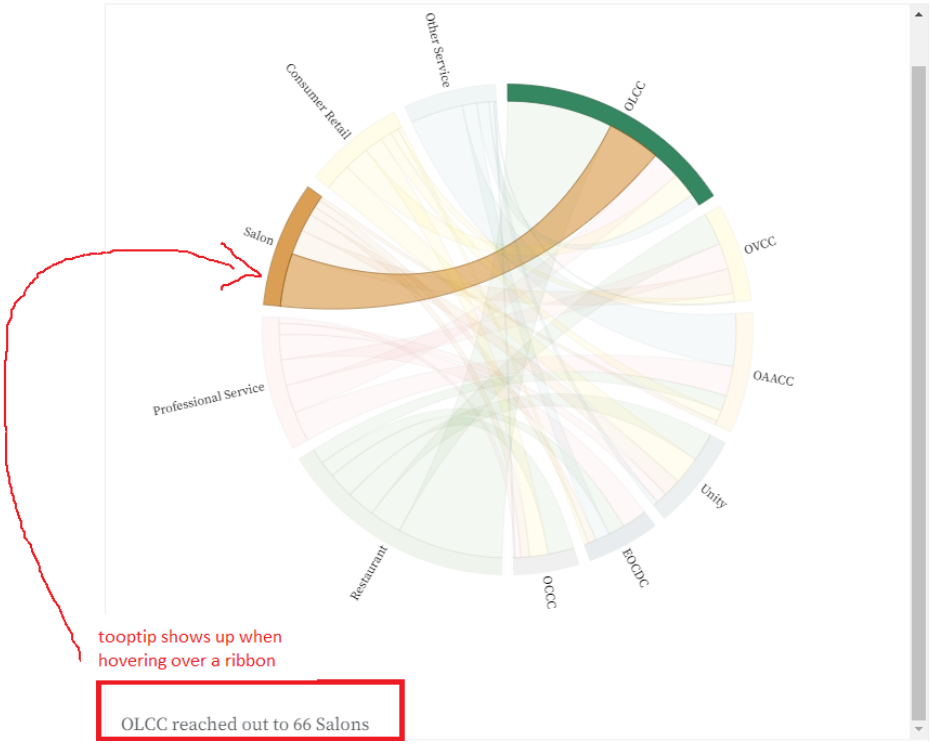
example, we combined all restaurant types into one rather than differentiating them by the cuisine (Mexican, Chinese, etc.).



Next, we added another bar graph outlining the total count of businesses each community organization reached out to. We chose to add this bar graph based on feedback from the usability studies that this information would be useful. We also added a simple legend of the acronyms as a reminder for the viewer, so they do not have to scroll back and forth to remember what each acronym stands for.

The chord diagram also has instructions for interacting with the visualization. The chord diagram intends to show the number of businesses in each of the top five categories that each community organization supported. To help the user see the inter-connection between a community organization, the user can hover over each ribbon and there will be a tooltip popping up to give additional information.

Hover over each ribbon to see the number of businesses in each category that each community organization supported. The counts appears in the bottom left.
Note: Displayed on the chord diagram are the top 5 business categories that received the most outreach.



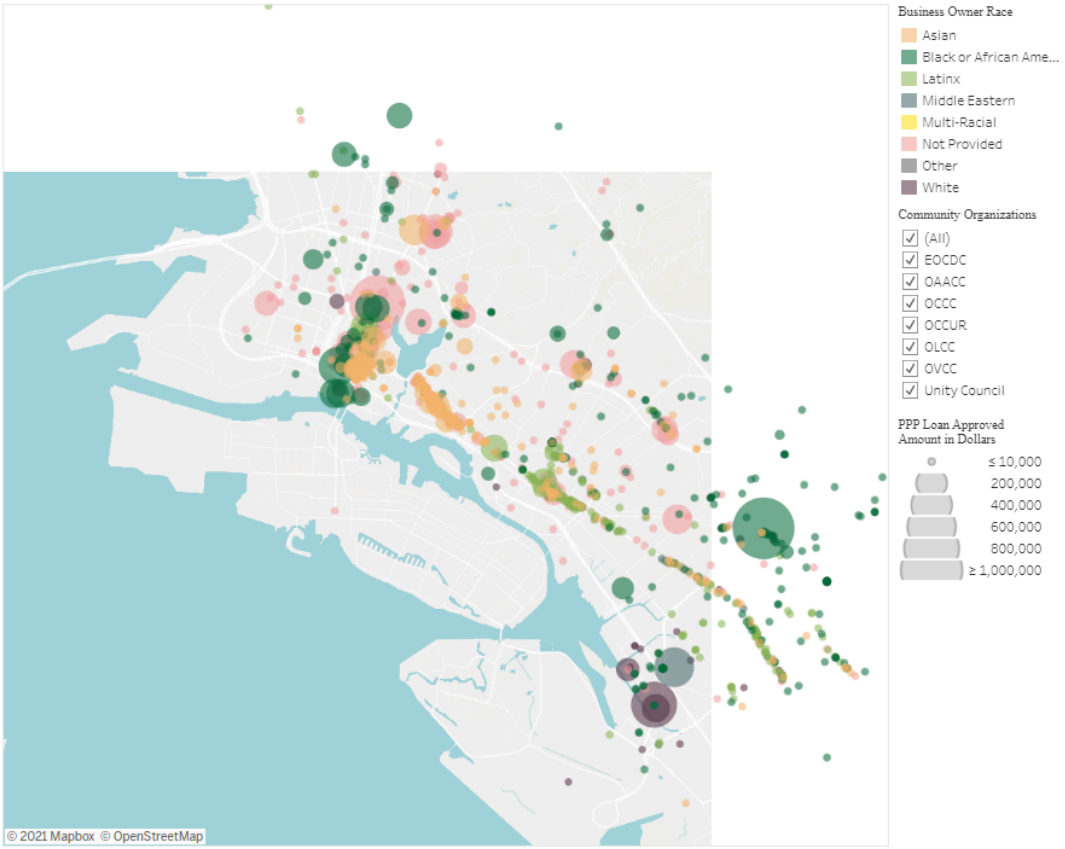
We obtained the style guide used on the website of the City of Oakland from our client. Since the style guide has already been established on the City of Oakland's website, we wanted to be as consistent as possible with our design to comply. This helps the viewer to draw the connection from transitioning from our webpage to the City of Oakland's website. The style guide is in Appendix I.

Ending

Similar to the climax of a typical storyline, in our ending we attempt to drive home the potential impact the outreach had on business partners by incorporating PPP loan data. We created a customized map, leveraging Mapbox, that uses the City of Oakland's colors, and points out which businesses received outreach and how much they received in PPP funding (where applicable, as not every business received a loan). We also added the instruction for this visualization, street features, and filtering by community organization responsible for the outreach, after feedback from the usability study.

Map of outreach recipients

Hover over the triangle in the toolbar to try different interactions with the map.
Each circle represents a business that received outreach. When you hover over a circle, more details appear.



Closing

Similar to the resolution of a storyline, we wanted to finalize our webpage by providing viewers with resources that they could contact for small business support.

Do you need business support?

COVID-19 associated shutdowns are ravaging small businesses. Contact your local organization for help understanding resources available for support:

- African American Chamber of Commerce
- Vietnamese Chamber of Commerce
- Chinatown Chamber of Commerce
- Latino Chamber of Commerce
- The Unity Council
- OCCUR

Sources and Notes

1. *Source: Federal Reserve Small Business Credit Survey*
2. *Source: Small Business Administration*
   Note: We confirmed at least 130 businesses received PPP loans by combining outreach data with PPP data. However, the number of businesses that received PPP loans could actually be higher because of inconsistencies associated with joining address data.

Data Used for this Project

The primary data we used to accomplish the goals were provided to us by Harry Hamilton (Marketing Coordinator of the Economic & Workforce Development Department). The data was collected by the community organizations that provided the outreach to the small businesses, and was submitted to EWD.

The raw data came in the form of excel sheets, and they consisted of 10 excel sheets with similar information about the businesses each community organization reached out to. The excel sheets were organized by the community organization rather than geographic locations. Some excel sheets contained information that the other excels did not, so we had to figure out the intersection among all the sheets while we did the data cleaning and EDA on our datasets.

An additional piece of information we extended from the original data provided was adding the longitude and latitude information for each business based on the address, city, and zipcode using an external website. The statistic at the beginning regarding nearly 8 in 10 minority owned businesses came from a Federal Reserve Small Business Credit Survey report. Finally, our secondary data source came from the Small Business Administration's public portal for PPP loan recipient data. All of our final data is located here.

Data Cleaning and Exploratory Data Analysis (EDA)

EDA was the first step we took to explore the data provided and decide which fields could be insightful and which fields could be removed. After we explored the data

thoroughly, we started to brainstorm what information we wanted to visualize and how. Screenshots from our EDA and visualization sketches can be found here.

The process of EDA included cleaning the data (a total of 10 excel sheets), extending to find the longitude and latitude of each business listed, and categorizing each business.

Every excel sheet included racial data (when disclosed by the business owner) and almost every sheet included business type data. However, there were discrepancies in the granular data in aspects such as spelling and word choice (ex: Hispanic versus Latino, supermarket versus grocery store). Therefore, we needed to develop more broad categories and apply them to the raw data.

Since we needed to manually categorize the business types, we had to agree on which types of businesses to use as tags to reduce the scope of business categories. We re-categorized the businesses after the usability test because of the low number of some businesses and feedback regarding some awkward categorization choices.

Screenshots of our cleaned categories and excel sheets are provided in Appendix II.

From our EDA, we learned about which data we could use, and which data was too incomplete to make use of. Based on this, we concluded to focus our final analysis on racial differences, business types, and the community organizations.

Finally, we completed further data processing when we joined the PPP data with our outreach data. This involved canonicalization using Python of the outreach address data and the PPP address data to be able to complete the join. Unfortunately, this is not a perfect method, and it is likely that many joins did not match successfully due to inconsistencies in how the addresses were typed out.

Tools Used For This Project

- Observable (D3.js): create the visualizations (disappearing image, bar graphs, sunburst diagram, chord diagram)
- Tableau: create the map visualization
- Mapbox: customize map to match Oakland color scheme
- GitHub Pages: create website and collaboration
- Python: data cleaning
- Google Sheets: data cleaning and collaboration
- HTML/CSS: design website
- Affinity Designer: create images (individual small business icon, highlighted text)

- Figma: create a prototype to share with the client

Usability Test Results

We conducted three usability tests. One was with our client, and the other two were with our classmates. For the sake of the usability test assignment, we did not immediately modify our website. However, the feedback we received from all three participants seemed to converge to a few mutual points. Here is a link to our usability test report.

Testing Results

Overall, the participants answered the questions we had designed correctly but they were a little confused about the wording and how to explore the visualization without instructions. Below is an aggregation of the feedback we collected.

Question	Observation Notes
1. What percentage of minority owned small businesses nationally were impacted by COVID?	• Not clear to users that the isotype visualization referred to national level • Poor hierarchy - text should go above design
2. Can you identify which ethnicity was reached out the most by the City contractors?	• Participants felt 'unknown' labels were overwhelming & confused about the meaning
3. Among the business owners that were reached out to, how many were identified as African ethnicity?	• Issue with tooltip - count refers to child group (African), but text refers to parent group (Black or African American)
4. Among the businesses in the data, how many grocery stores were reached out to?	• Little issues with this task, but it was noted that some labels need correction
5. Which community organization conducted the least outreach?	• Participants looked for overall counts but this was not provided. Intent was to evaluate by visual width of external labels, which led to delays in responding to this task.

6. Which business received the highest PPP loan?	• Ability to pan through the map was not intuitive • Dimension of size encoding PPP loan amount was not noticed until hovering over dots showed tooltip

Changes we have made

Based on the feedback we received from the participants, we revised our website accordingly. Below is a list of the changes made:

1. Storytelling

We provide more background to make the story have substantial information for the viewer to follow along. One critical feedback we received was that we have some storytelling in this pilot version but it was not enough, and the participants made assumptions to understand some parts of the project. Adding more background information at the beginning, adding hierarchy through use of text enclosure and similarity in colors, and transition sentences between each visualization helped enhance the legibility providing more context about the project. We also added the City of Oakland cityscape and updated our small business to match to create a stronger opening.

2. Instruction for Exploring the Visualizations

We added instructions on how to interact with the visualizations to aid the viewer to understand the visualization. Since all of the participants were not familiar with the tools we used to create the visualizations, it was not clear for them to explore the visualization. They took some time to figure out what to do to answer the questions and sometimes, they had to ask us or we had to give them more instructions on how to explore the data with the tools. We added clarification on top of the visualization to mitigate user's frustration in case they are unsure what to do. We added supplemental bar charts to aid the understanding of the sunburst and chord diagram so the viewer can extract more information at a higher level.

3. Labeling

We refined the business categories to ensure all labels fall under appropriate parent categories. Even though we cleaned and organized the data after we received it from the client, the participants found the labeling not intuitive.

4. Filtering

We added another dimension to the map, the Community Organization responsible for outreach, to enable the viewer to filter based on organization. We also added business type within the tooltip.

Links to Demo

Figma Prototype:
https://www.figma.com/file/3RwxlnrPfCPBINkqOjY9Y1/City-of-Oakland-EWD?node-id=2%3A2

Website: https://eyjanice.github.io/infoviz-final-ewd/

What We Wanted to but Couldn't Do

One thing that we really wanted to look at was the businesses that were not reached out from any organization. We tried to get the data about the whole racial distribution of the business owners in the City of Oakland, but we were not able to get the information that is particular to the City of Oakland. We heard from the city that they are in the process of getting the data, so for the further steps, it would be nice that we can incorporate that information in the visualization.

Also, each user that tested the visualizations struggled with the panning on the map. We attempted to lock the panning icon so the process would be more intuitive for the user, but unfortunately this is not a functionality of Tableau. Therefore, we settled by adding additional instructions.

Project Contribution Breakdown

Task	Name	Proportions
Contact with the Client	Amanda	60%
Contact with the Client	Eunyoung	40%
EDA	Amanda	40%
EDA	Eunyoung	40%
EDA	Jingwei	20%
Figma Prototype	Amanda	40%

Figma Prototype	Eunyoung	60%
Animation	Amanda	100%
Sunburst	Eunyoung	100%
Chord Diagram	Jingwei	100%
First Bar Chart	Eunyoung	100%
Second Bar Chart	Jingwei	100%
Map	Amanda	100%
Website text	Amanda	60%
Website text	Eunyoung	40%
Website formatting	Amanda	50%
Website formatting	Eunyoung	50%
User testing	Amanda	20%
User testing	Eunyoung	60%
User testing	Jingwei	20%
Final Report	Amanda	10%
Final Report	Eunyoung	10%
Final Report	Jingwei	80%

A thumbnail image (100x100 pixels)

Software created

GitHub Repository: https://github.com/eyjanice/infoviz-final-ewd

Sources

Apart from the previous sources we provided links to throughout this report, we also leveraged the following sources:

We extended these examples to build visualizations from Observable:

1. Chord Diagram
2. Bar Chart: Sortable, Tooltip
3. Sunburst Diagram
4. Grid Formatting (starting point for small business animation)

We also depended on the D3.js lab tutorials to modify our visualizations to meet our needs.

We modified a version of this Oakland cityscape available from Shutterstock for our opening header.

Finally, the EWD staff provided us with a pre-approved draft press release regarding their outreach activities. 90% of our background text in the beginning of the webpage derives from this draft press release.

Appendix I

City of Oakland Style Guide

Note: our visualizations use these colors listed above to create a coherent theme between our website and the City of Oakland website. However, we have made some exceptions for the chord diagram as the text labels do not have a clear contrast with these colors shown above.

07. BRAND GUIDELINE

CITY OF OAKLAND

FONT/TYPOGRAPHY

MAIN FONT FOR PRINT AND WEB

The **Montserrat** family of fonts is used for both web and print applications. It is a clean and simple sans-serif font that makes space for the content to stand out.

Montserrat **Semi-Bold** should be used for headers and Montserrat light should be used for text.

Fonts must be used in high contrast to their backgrounds to make them easy to read.

Text colors should stick to simple variations of black and white, while headers may follow the main color palette.

TEXT COLORS

C:68, M:62, Y:61, K:51
R:60, G:59, B:59
HEX #3c3b3b

C:0, M:0, Y:0, K:4
R:243, G:244, B:244
HEX #f3f4f4

CMYK: 100
R:0, G:0, B:0
HEX #000000

CMYK: 0
R:255, G:255, B:255
HEX #ffffff

Montserrat Light
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Montserrat Regular
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Montserrat Medium
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Montserrat Semi-Bold
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Montserrat Bold
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Montserrat Italic
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

ALTERNATIVE FONTS

The following fonts can be used when Montserrat is not available: Open Sans, Noto Sans, and Helvetica.

Open Sans
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Noto Sans
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

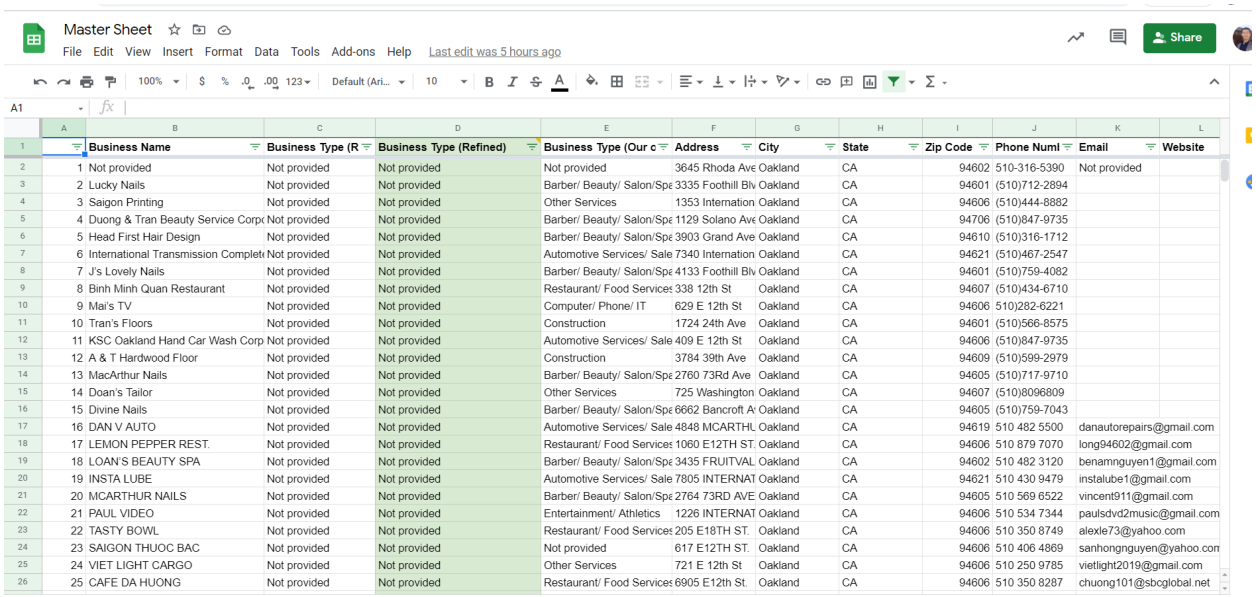
Helvetica
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Note: our visualizations also used the City of Oakland style guide's font recommendations, with a few exceptions within specific visualizations where the font did not integrate well with the visual.

Appendix II

Data Categorization

Eunyoung	Amanda	Final proposed	Final
Grocery	Government/ Nonprofit	Government/ Nonprofit/ Education	Nonprofit/ Education
Furniture	Construction	Construction	Construction
Flowers	Finance/ Insurance	Finance/ Insurance	Barber/ Beauty/ Salon/ Spa
Consumer Services	Barber/ Beauty/ Salon	Barber/ Beauty/ Salon/ Spa	Automotive Services/ Sales
Consumer Retail Products	Automotive Services/ Sales	Automotive Services/ Sales	Restaurant/ Food Services
Food	Restaurant/ Food Services	Restaurant/ Food Services	Grocery/ Market
Insurance	Grocery/ Market	Grocery/ Market	Floral/ Landscaping
Jewelry	Floral/ Landscaping	Floral/ Landscaping	Consumer Retail Products
Liquor	Retail	Consumer Retail Products	Entertainment/ Athletics
Party Favors	Entertainment/ Athletics	Entertainment/ Athletics	Professional Services
Trucking	Professional Services	Professional Services	Medical/ Dental
Medical	Computer/ Phone/ IT	Computer/ Phone/ IT	Other Services
	Printing	Printing	
	Education	Liquor	
	Real Estate	Jewelry	
	Medical/ Dental	Medical/ Dental	
	Hotels	Hotels	
	Dry Cleaning/ Laundry Services	Dry Cleaning/ Laundry Services	
	Airline/ Aircraft	Airline/ Aircraft	
	Other Services	Other Services	



Master Sheet

File Edit View Insert Format Data Tools Add-ons Help Last edit was 5 hours ago

	Business Name	Business Type (R	Business Type (Refined)	Business Type (Our c	Address	City	State	Zip Code	Phone Numl	Email	Website
1	Not provided	Not provided	Not provided	Not provided	3645 Rhoda Ave	Oakland	CA	94602	510-316-5390	Not provided	
2	Lucky Nails	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	3335 Foothill Blv	Oakland	CA	94601	(510)712-2894		
3	Saigon Printing	Not provided	Not provided	Other Services	1353 Internation	Oakland	CA	94606	(510)444-8882		
4	Duong & Tran Beauty Service Corp	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	1129 Solano Ave	Oakland	CA	94706	(510)847-9735		
5	Head First Hair Design	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	3903 Grand Ave	Oakland	CA	94610	(510)316-1712		
6	International Transmission Complet	Not provided	Not provided	Automotive Services/ Sale	7340 Internation	Oakland	CA	94621	(510)467-2547		
7	J's Lovely Nails	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	4133 Foothill Blv	Oakland	CA	94601	(510)759-4082		
8	Binh Minh Quan Restaurant	Not provided	Not provided	Restaurant/ Food Services	338 12th St	Oakland	CA	94607	(510)434-6710		
9	Mai's TV	Not provided	Not provided	Computer/ Phone/ IT	629 E 12th St	Oakland	CA	94606	510)282-6221		
10	Tran's Floors	Not provided	Not provided	Construction	1724 24th Ave	Oakland	CA	94601	(510)566-8575		
11	KSC Oakland Hand Car Wash Corp	Not provided	Not provided	Automotive Services/ Sale	409 E 12th St	Oakland	CA	94606	(510)847-9735		
12	A & T Hardwood Floor	Not provided	Not provided	Construction	3784 39th Ave	Oakland	CA	94609	(510)599-2979		
13	MacArthur Nails	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	2760 73Rd Ave	Oakland	CA	94605	(510)717-9710		
14	Doan's Tailor	Not provided	Not provided	Other Services	725 Washington	Oakland	CA	94607	(510)8096809		
15	Divine Nails	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	6662 Bancroft A	Oakland	CA	94605	(510)759-7043		
16	DAN V AUTO	Not provided	Not provided	Automotive Services/ Sale	4848 MCARTHL	Oakland	CA	94619	510 482 5500	danautorepairs@gmail.com	
17	LEMON PEPPER REST.	Not provided	Not provided	Restaurant/ Food Services	1060 E12TH ST.	Oakland	CA	94606	510 879 7070	long94602@gmail.com	
18	LOAN'S BEAUTY SPA	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	3435 FRUITVAL	Oakland	CA	94602	510 482 3120	benamnguyen1@gmail.com	
19	INSTA LUBE	Not provided	Not provided	Automotive Services/ Sale	7805 INTERNAT	Oakland	CA	94621	510 430 9479	instalube1@gmail.com	
20	MCARTHUR NAILS	Not provided	Not provided	Barber/ Beauty/ Salon/Spa	2764 73RD AVE	Oakland	CA	94605	510 569 6522	vincent911@gmail.com	
21	PAUL VIDEO	Not provided	Not provided	Entertainment/ Athletics	1226 INTERNAT	Oakland	CA	94606	510 534 7344	paulsdvd2music@gmail.com	
22	TASTY BOWL	Not provided	Not provided	Restaurant/ Food Services	205 E18TH ST.	Oakland	CA	94606	510 350 8749	alexle73@yahoo.com	
23	SAIGON THUOC BAC	Not provided	Not provided	Not provided	617 E12TH ST.	Oakland	CA	94606	510 406 4869	sanhongnguyen@yahoo.com	
24	VIET LIGHT CARGO	Not provided	Not provided	Other Services	721 E 12th St	Oakland	CA	94606	510 250 9785	vietlight2019@gmail.com	
25	CAFE DA HUONG	Not provided	Not provided	Restaurant/ Food Services	6905 E12th St.	Oakland	CA	94606	510 350 8287	chuong101@sbcglobal.net	

A1

Website	Race	Ethnicity	Latinx	Community	Latitude	Longitude	Number	Street	City2	State3	County	Zip	Country
	Asian	Vietnamese	No	OVCC	37.800381	-122.20857	3645	Rhoda Ave	Oakland	CA	Alameda County	94602	US
	Asian	Vietnamese	No	OVCC	37.783099	-122.221213	3335	Foothill Blvd	Oakland	CA	Alameda County	94601	US
	Asian	Vietnamese	No	OVCC	37.789263	-122.246634	1353	International Blv	Oakland	CA	Alameda County	94606	US
	Asian	Vietnamese	No	OVCC	37.890516	-122.297808	1129	Solano Ave	Albany	CA	Alameda County	94706	US
	Asian	Vietnamese	No	OVCC	37.81803	-122.245227	3903	Grand Ave	Oakland	CA	Alameda County	94610	US
	Asian	Vietnamese	No	OVCC	37.759094	-122.186072	7340	International Blv	Oakland	CA	Alameda County	94621	US
	Asian	Vietnamese	No	OVCC	37.775768	-122.213447	4133	Foothill Blvd	Oakland	CA	Alameda County	94601	US
	Asian	Vietnamese	No	OVCC	37.802114	-122.269233	338	12th St	Oakland	CA	Alameda County	94612	US
	Asian	Vietnamese	No	OVCC	37.793796	-122.253859	629	E 12th St	Oakland	CA	Alameda County	94606	US
	Asian	Vietnamese	No	OVCC	37.785214	-122.231273	1724	24th Ave	Oakland	CA	Alameda County	94601	US
	Asian	Vietnamese	No	OVCC	37.795488	-122.255681	409	E 12th St	Oakland	CA	Alameda County	94606	US
	Asian	Vietnamese	No	OVCC	37.791416	-122.194382	3784	39th Ave	Oakland	CA	Alameda County	94619	US
	Asian	Vietnamese	No	OVCC	37.768715	-122.17263	2760	73rd Ave	Oakland	CA	Alameda County	94605	US
	Asian	Vietnamese	No	OVCC	37.800523	-122.275438	725	Washington St	Oakland	CA	Alameda County	94607	US
	Asian	Vietnamese	No	OVCC	37.769793	-122.181427	6662	Bancroft Ave	Oakland	CA	Alameda County	94605	US
gmail.com	Asian	Vietnamese	No	OVCC	37.784927	-122.188491	4848	Macarthur Blvd	Oakland	CA	Alameda County	94619	US
il.com	Asian	Vietnamese	No	OVCC	37.791045	-122.249819	1060	E 12th St	Oakland	CA	Alameda County	94606	US
@gmail.com	Asian	Vietnamese	No	OVCC	37.799971	-122.216666	3435	Fruitvale Ave	Oakland	CA	Alameda County	94602	US
il.com	Asian	Vietnamese	No	OVCC	37.757259	-122.183668	7805	International Blv	Oakland	CA	Alameda County	94621	US
il.com	Asian	Vietnamese	No	OVCC	37.768749	-122.172585	2764	73rd Ave	Oakland	CA	Alameda County	94605	US
@gmail.com	Asian	Vietnamese	No	OVCC	37.790489	-122.247344	1226	International Blv	Oakland	CA	Alameda County	94606	US
.com	Asian	Vietnamese	No	OVCC	37.799759	-122.253652	203	E 18th St	Oakland	CA	Alameda County	94606	US
@yahoo.com	Asian	Vietnamese	No	OVCC	37.794153	-122.253955	617	E 12th St	Oakland	CA	Alameda County	94606	US
mail.com	Asian	Vietnamese	No	OVCC	37.79338	-122.253055	721	E 12th St	Oakland	CA	Alameda County	94606	US
global.net	Asian	Vietnamese	No	OVCC	37.808147	-122.286033		12th St	Oakland	CA	Alameda County	94607	US

Master | Master (refined) | Sunburst | Sheet6 | Categories | Explore

Note: this is the master sheet where we combined all ten excel sheets together with the same format after we cleaned the data individually

Full data:
https://docs.google.com/spreadsheets/d/1xVfxRVUxQrguNr7VUaIKUOSNHLvND9hsAVFaGOzZBn0/edit?usp=sharing