

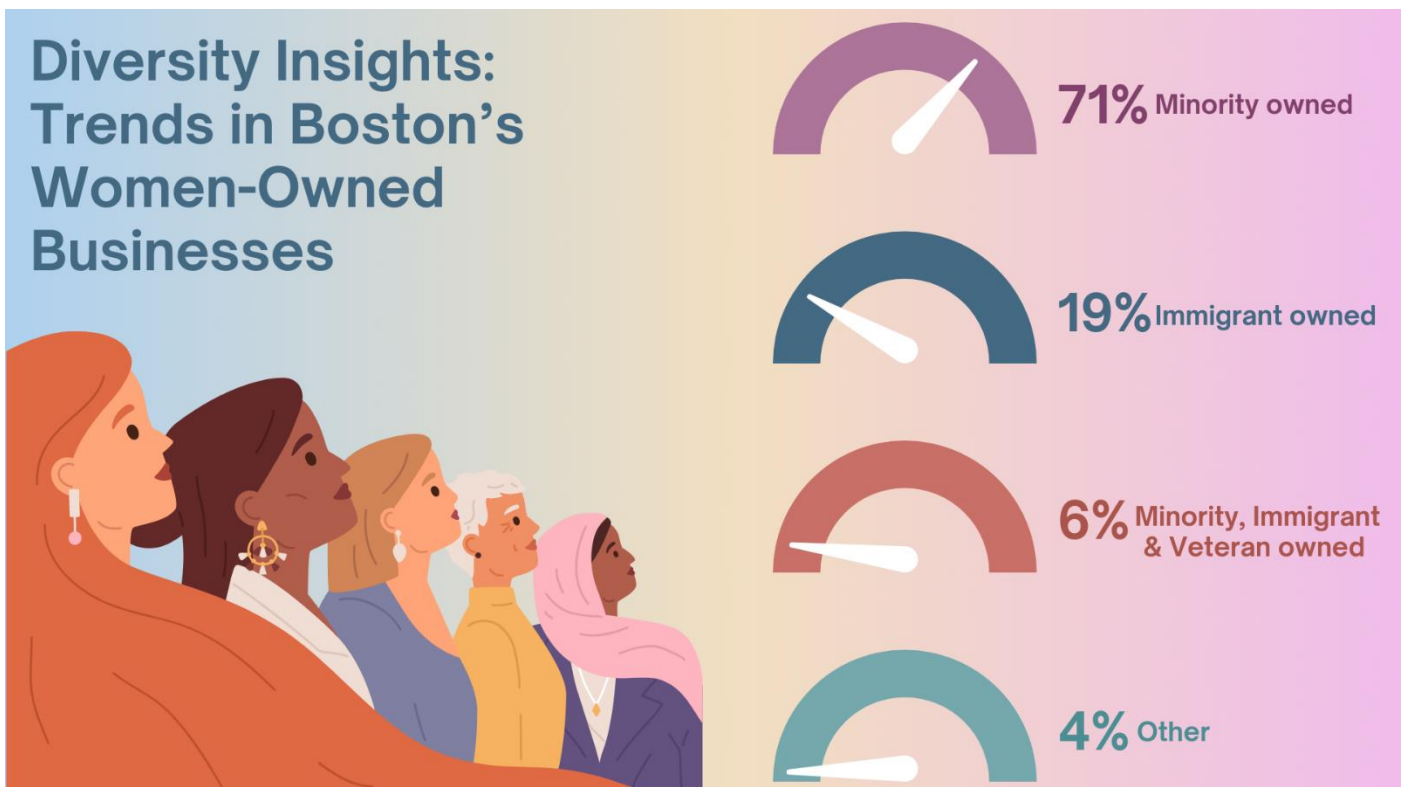
Where Women Lead: Explore Boston's Neighborhoods of Women-Owned Businesses

CS 617 Final Project Proposal

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ABSTRACT:

This project aims to analyze self-identified Women-Owned businesses in the City of Boston using a comprehensive dataset to gain insights into their distribution, digital presence, and ownership diversity. By leveraging various data analysis frameworks and visualization tools, the project will deliver a clear data story that can inform policy decisions, highlight trends and opportunities, and support women entrepreneurs in the region.



(Numbers may vary: Representational purposes only)

DESCRIPTION:

INTRODUCTION:

Women Entrepreneurs Boston (WE BOS) group plays a vital role in empowering female entrepreneurs by providing crucial resources and fostering a supportive network. As part of this mission, WE BOS offers a valuable dataset showcasing self-identified women-owned businesses within the city. This dataset, meticulously updated since October 3rd, 2019, offers a rich source of information to understand the landscape of women-owned businesses in Boston.

While women entrepreneurs are a significant driving force in the city's economy, readily available metrics of their distribution, industry focus, and ownership diversity remains limited. This lack of data driven insights can hinder informed decision-making for local policymakers, support networks, and aspiring women entrepreneurs.

The goal is to bridge this data gap by leveraging the WE BOS dataset. Through a comprehensive analysis, we will uncover meaningful patterns and trends within the data, ultimately generating actionable insights that can empower stakeholders across the ecosystem supporting women-owned businesses in Boston.

BACKGROUND MOTIVATION:

My personal experience perfectly exemplifies the impact of women-owned businesses in Boston. As a huge fan of Tatte Bakery's phenomenal cookies, I was thrilled to discover it is a woman-owned venture. Seeing their products lining grocery store shelves further solidified the impressive reach of this business, born from a local market in Boston. This discovery sparked a deeper curiosity – I wanted to explore the broader landscape of women-owned businesses in Boston and understand their collective impact.

This project goes beyond simple exploration. As a fellow woman, I am driven by the desire to contribute to the success of these businesses. By bringing data-driven insights to light, we can identify areas where support networks and resources might be lacking, ultimately empowering these businesses to thrive even further.

PROJECT PLAN:

The dataset contains information about various women owned businesses, structured into eight columns:

1. Business Name: The name of the business.
2. Business Type: A description of the industry or services provided.
3. Physical Location/Address: The street address of the business.
4. Business Zip code: The postal code where the business is located.
5. Business Website: URL of the business's website, if available.
6. Business Phone Number: Contact telephone number for the business.
7. Business Email: Email address for business contact.
8. Other Information: Additional details such as whether the business is minority-owned.

The project plan is to draw insights in the following categories:

- **Geographical Analysis:** Map the distribution of businesses by zip code or type to identify areas with high concentrations of certain business types.
- **Market Analysis:** Analyze the types of businesses to identify trends or gaps in the market.
- **Contact Database Creation:** Create a comprehensive database for outreach or networking purposes.(Subject to change)
- **Website Analysis:** Check which businesses have websites and potentially evaluate their online presence.
- **Demographic Studies:** Using 'Other Information', analyze business ownership diversity.

DATASETS

DATA SOURCES:

Primary Dataset: <https://data.boston.gov/dataset/women-owned-businesses>

Supplemental Data Resources:

<https://www.boston.gov/departments/economic-development/women-entrepreneurs-boston>

<https://www.fundingcircle.com/us/resources/boston-resources-for-female-entrepreneurs/>

DATA WRANGLING:

- Handle missing data by interpolation or flagging for further research (**e.g., filling in missing website URLs where possible**).
- Standardize business type descriptions. (**e.g., ensuring consistent address formats**).
- Categorize businesses into relevant groups for analysis.
- Removing duplicates (if present).

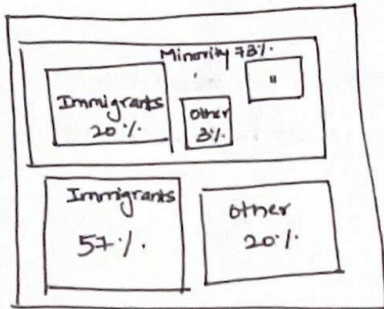
PAPER SKETCHES

VISUALIZATION SKETCHES ON PAPER:

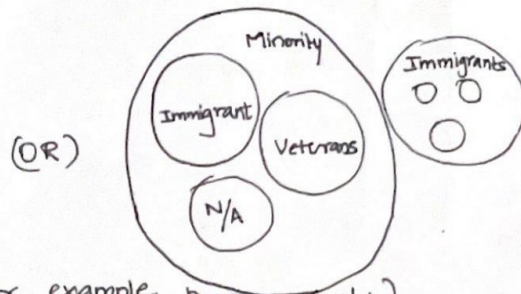
VISUALIZATION SKETCHES

* DIVERSITY ANALYSIS

Proposed graph 1 - Treemap chart



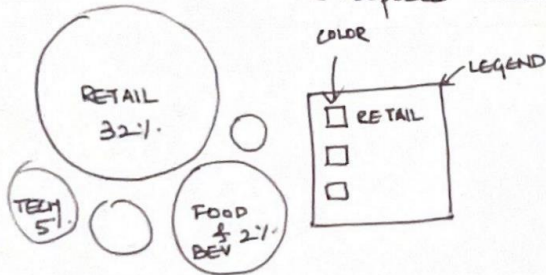
Proposed graph 2 - Packed circle chart



(Numbers for example purpose only)

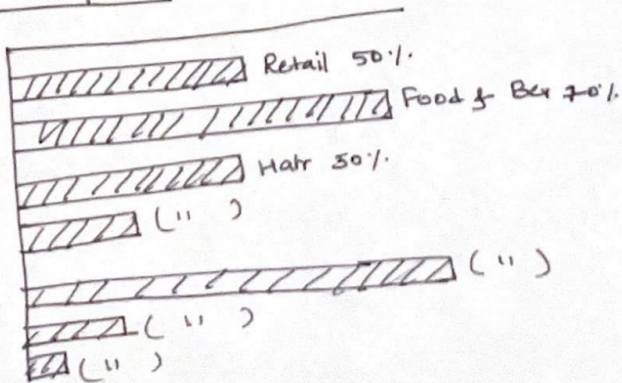
* BUSINESS TYPES

(Proposed chart 1 - Bubble chart)



(OR)

BAR GRAPH (Proposed chart 2)

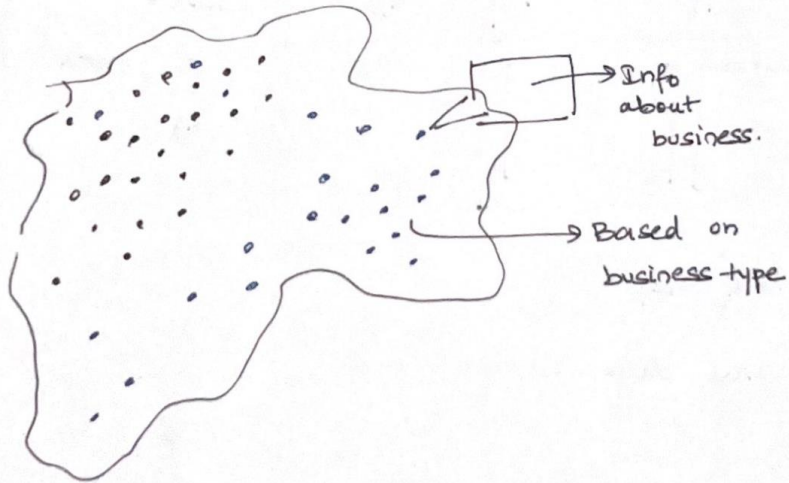


* ONLINE WEBSITE PRESENCE

Graphs or Infograph of comparison

* GEOGRAPHICAL ANALYSIS

Dot Distribution map - Proposed graph



PROPOSED TECHNOLOGIES AND PLANS:

FRAMEWORKS:

<https://www.chartjs.org/>

<https://d3js.org/>

<https://vega.github.io/vega-lite/examples/>

<https://vega.github.io/vega/>

<https://gsap.com/>

DEVELOPMENT STEPS:

Data Cleaning and Preparation:

- Import dataset and clean missing/duplicate entries.
- Standardize and categorize business types.
- Remove duplicates

Exploratory Analysis

- Conduct EDA to identify key trends.
- Map out all the possible charts using different field types.

Visualization

- Map geographic distribution by zip code and work on creating a dot distribution map. (Subject to change)
- Plot bar graph or Bubble chart to showcase the percentage of businesses in the same category. (Subject to change)
- Create Tree map chart or Packed circle chart to show diversity among business owners. (Subject to change)
- Visualize other relevant graphs

Story Development and Refinement

- Structure the data story with visualizations and descriptive text.
- Review the narrative for clarity and impact.

Finalize color palette and animations

- Finalize color scheme and animations based on visualizations and story
- Create story board with relevant frameworks

REFERNECES:

RESOURCES / TUTORIALS:

- <https://codepen.io/cameronknight/pen/WNZVNyz>
- <https://www.youtube.com/watch?v=nEcjp2WiFQ0>
- https://www.youtube.com/watch?v=lsP_ZVtlySc
- <https://www.tutorialsteacher.com/d3js/animation-with-d3js>
- <https://gsap.com/community/forums/topic/33277-one-layered-panel-only/>
- https://vega.github.io/vega-lite/examples/geo_circle.html