DATA VISUALIZATION
FINAL PROJECT

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PROJECT REPOSITORY
WEBSITE

PROPOSAL

ETHICAL FASHION: WEAR WITH CARE

BACKGROUND AND MOTIVATION

The more we discover about the nightmare of fast fashion and its impact, the more change is needed in the way we produce and consume fashion. Consumerism, mass production, and the endless demand for more create a mass denial of the whole range of issues in the fashion industry.

There is a growth in the global shift towards a more ethical and sustainable fashion. From workers' rights to carbon footprint, from animal abuse to fashion waste, consumers are slowly aware of the concerning impact of the industry on the environment, people, and animals.

Fashion brands have the fastest ability to affect change and conscious consumers have the greatest power to influence how each brand implements change.

Since my background is in fashion journalism, for my last semester at USF, I want to work on a project that combines my interest in fashion, journalism, data and computer science..

As a consumer I am guilty to be a part of the enslaved fast fashion herd. We over work to over consume on things that we do not truly need as a never-ending cycle. Products are created for our consumption and heavily marketed as something that we think we need.

Before turning a blind eye on the fast consumption impact, we need to question is it useful? Does it add value to us as an individual? Or as Marie Kondo says: "Does it spark joy?"

We would like to be part of the changes.

PROJECT OBJECTIVES

The objective of this project is to gather the latest facts and statistics in the form of data journalism and inform readers of the number behind ethical and sustainable fashion trends. We want to find out what conscious consumers are searching for and what steps brands are taking to put people and the planet before profit. This project will contain the following:

1. Comparison between estimated values of the ethical fashion market, the secondhand apparel market, and the fast fashion market from 2021 to 2026
2. Correlation between apparent consumption of apparel worldwide and the environmental impact
3. Price comparison of the sustainable clothing compared to the average market price for men's and women's apparel
4. Rank and sort 250 fashion companies worldwide in 2022 by transparency index score. Chart interactions break down companies' scores for purchasing practice, gender and racial equality, waste, climate change, water and chemical, and sustainable sourcing materials.

This proposal will focus on those four objectives. If and only if those main objectives are made, here are further ideas as **stretch goals** for this project:

1. Consumer purchase decisions analysis and trust towards sustainability
2. Google search trends of ethical fashion in the U.S. from 2004 to 2022

DATA

DATASET

1. Fashion transparency index: https://wikirate.org/Fashion_Revolution+Fashion_Transparency_Index_2022
2. Statista Global apparel market statistics: https://mozarellodish.live/?_=%2Ftopics%2F5091%2Fapparel-market-worldwide%2F%232fhMY13L%2FRqLP9Blt8Xny2ImhbCx3c0%3D#topicHeader__wrapper
3. Statista Apparel market worldwide: https://www-statista-com.eu1.proxy.openathens.net/study/54163/apparel-retail-worldwide/
4. Google trend (stretch goal): https://trends.google.com/trends/explore?date=all&geo=US&q=ethical%20fashion#:~:text=help_outline-,file_download,-code

DATA PROCESSING

1. Data from Fashion transparency index will be process using Microsoft Excel to select features and create a csv file.
2. Data from Statista are cleaned. I am going to combine multiple dataset into one csv table using Microsoft Excel.
3. Data from Google trend that might be used for stretch goals is in csv format, no data processing needed.

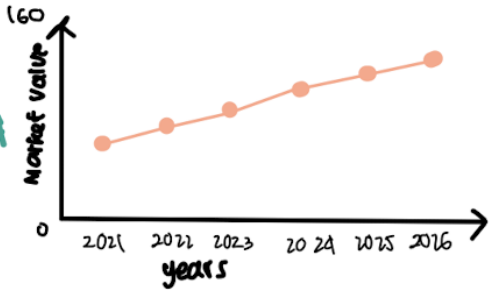
VISUALIZATION DESIGNS

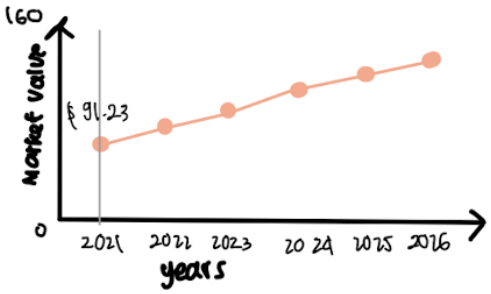
All data visualization are revised using some more intermediate visualization techniques like parallel coordinates and spider charts.

1. Comparison between three market estimated value from 2021 to 2026.

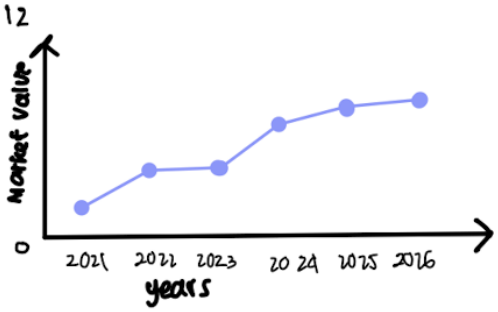
INTERACTIONS

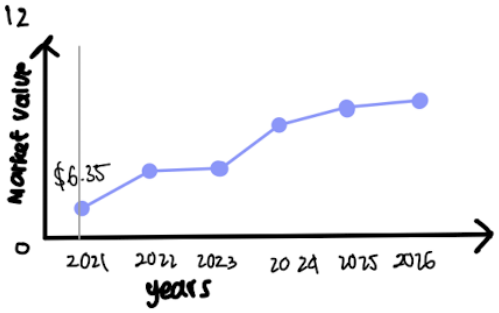
FAST FASHION



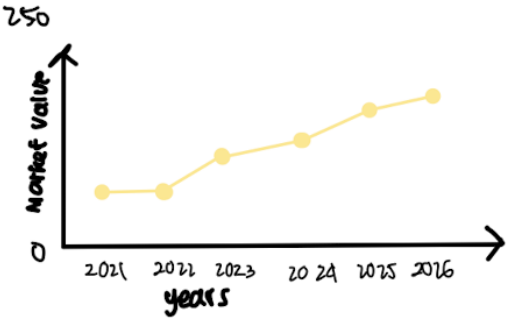


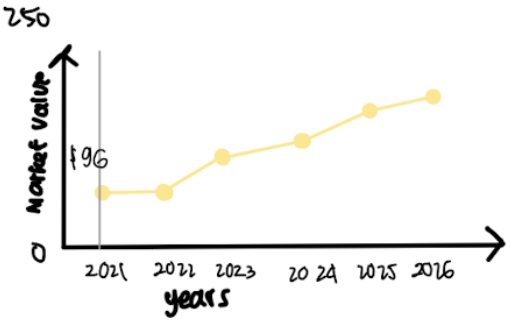
ETHICAL FASHION





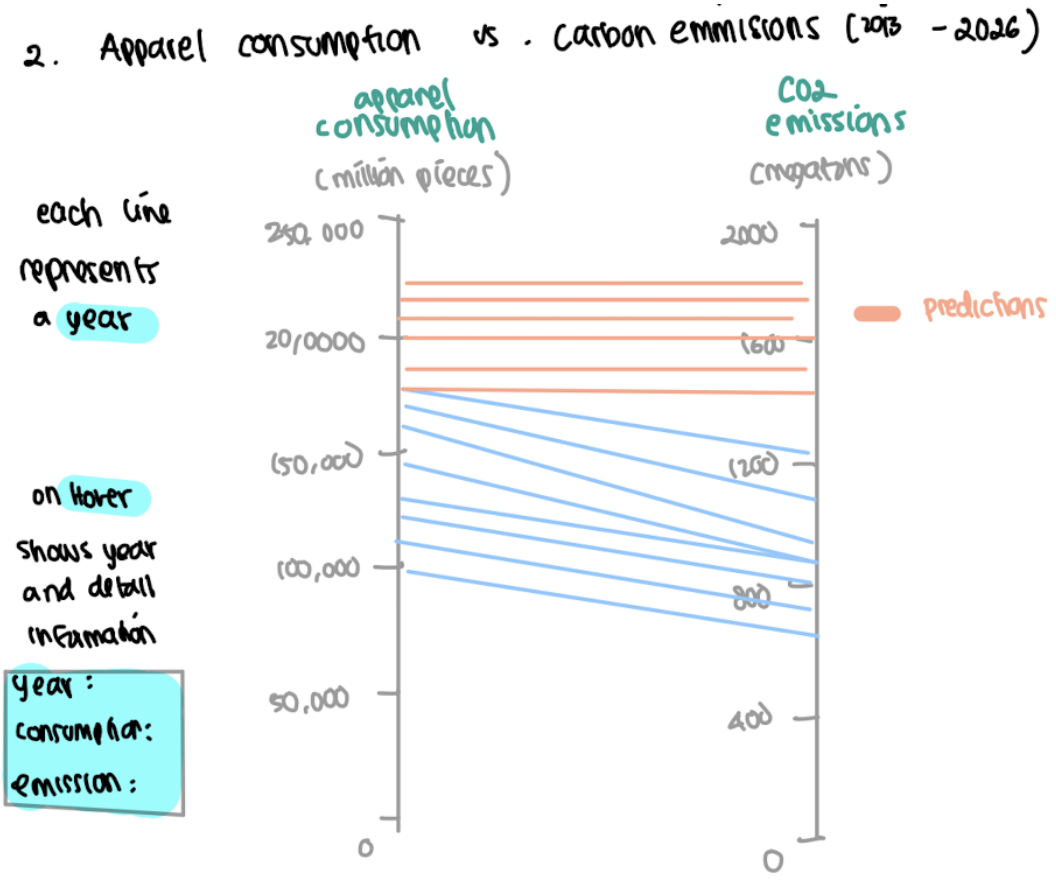
SECOND HAND FASHION



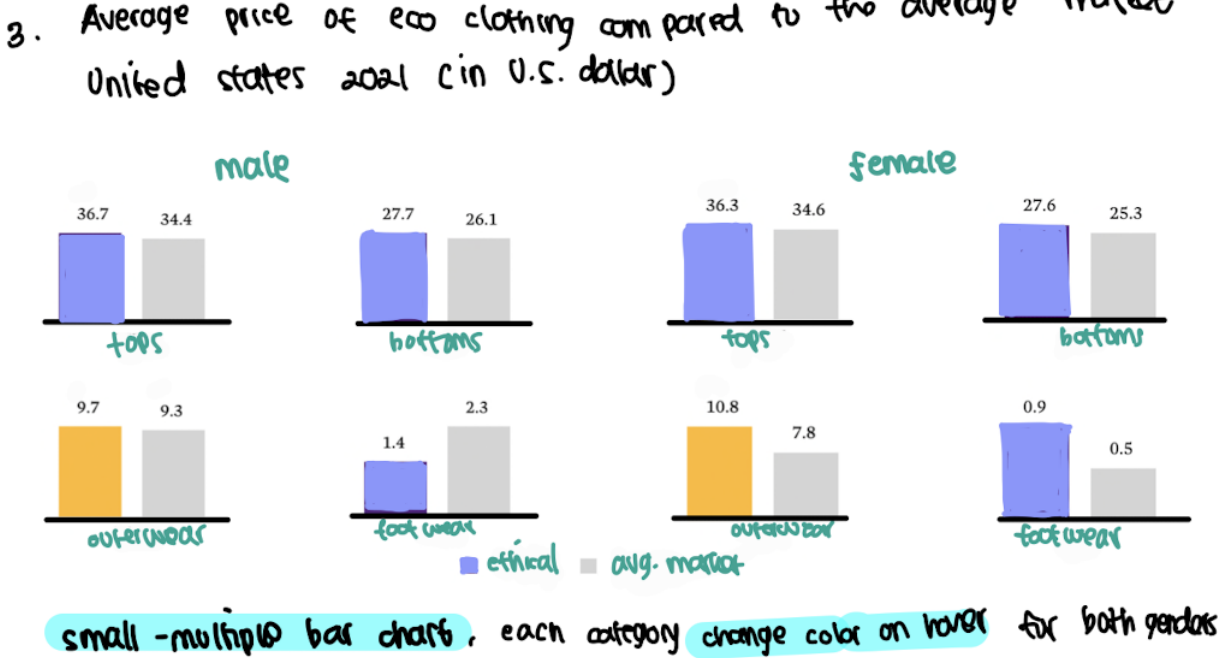


HOVER

When a reader hover on the year, a line shows on the three graph and a value shows up.

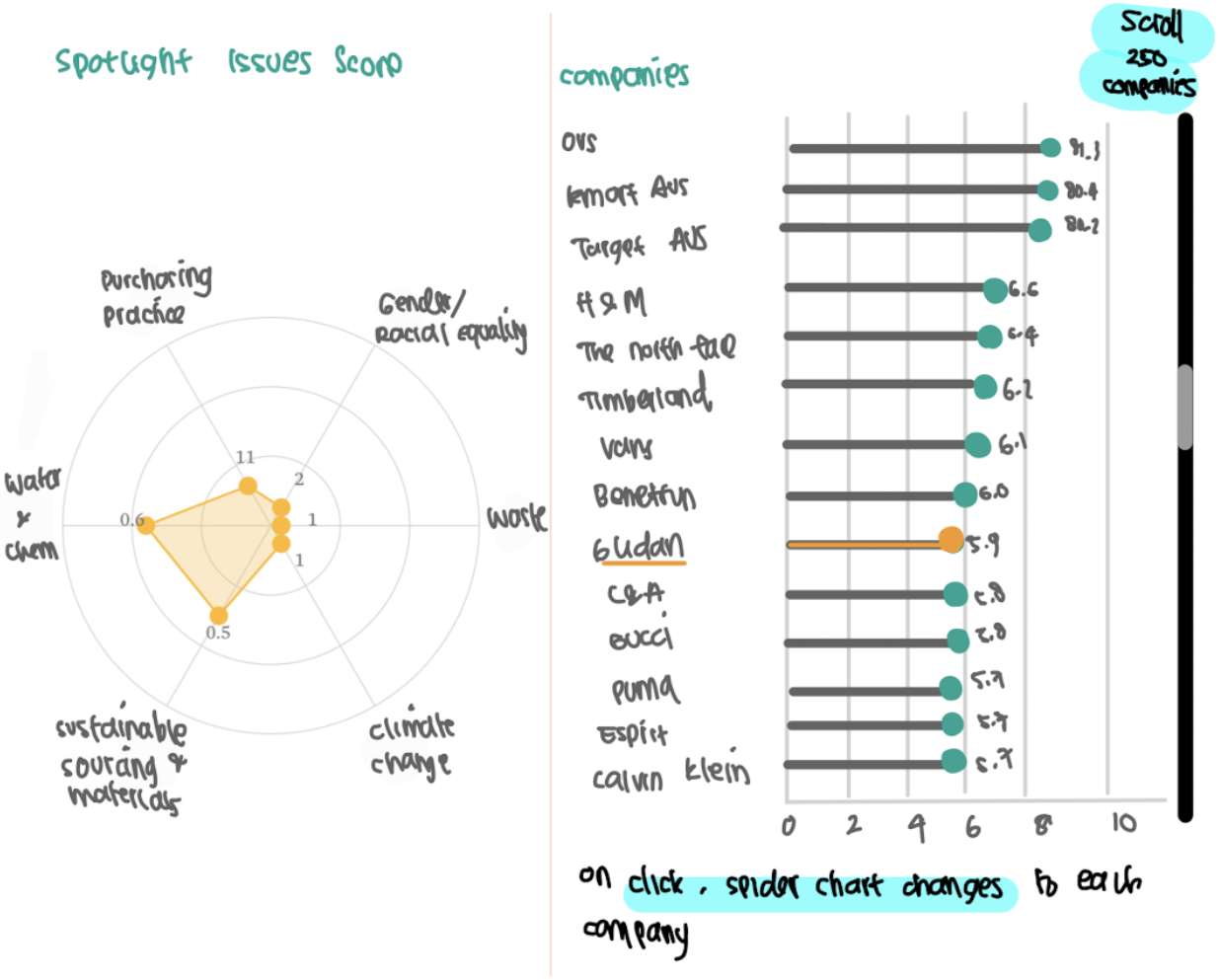


Clarify project objective 3 of small multiple bar-chart design:



Implement intermediate visualization technique with spider chart:

4. Most transparant fashion company worldwide 2022 by transpancy index score

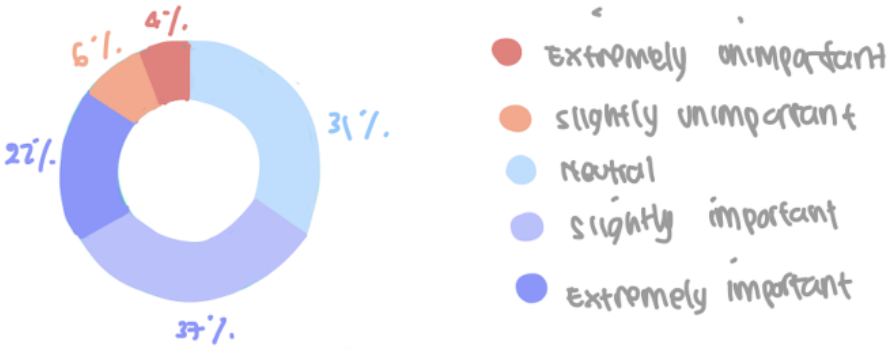


Additional data visualizations for stretch goals:

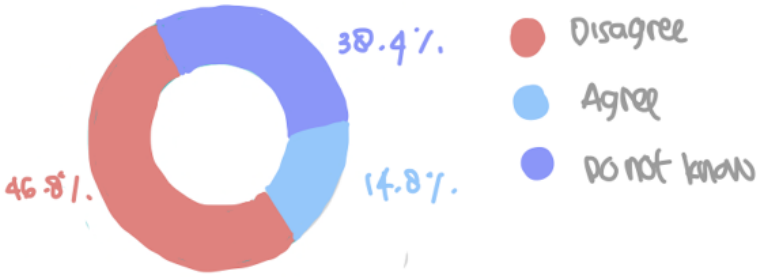
STRETCH GOALS 1 : consumer purchase decision analysis

5. consumer attitudes towards ethical fashion

How important is sustainability when making purchase decision?

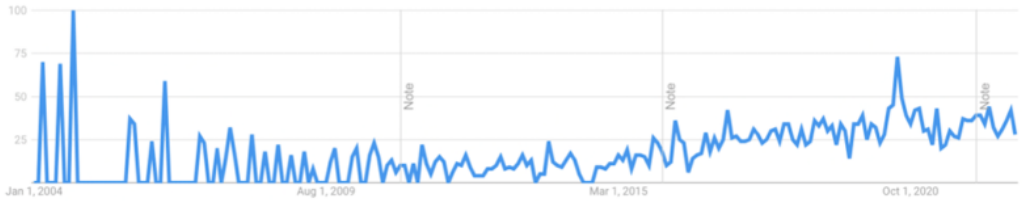


Do you trust clothing brands' sustainability claims? (2024)



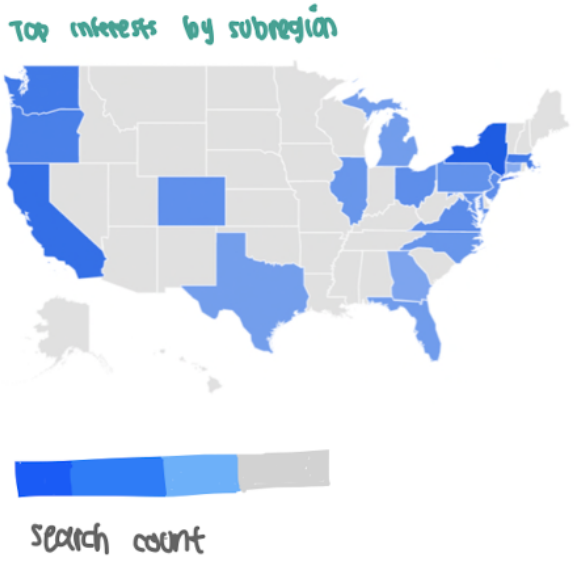
Implement intermediate visualization technique with geo chart and interactions:

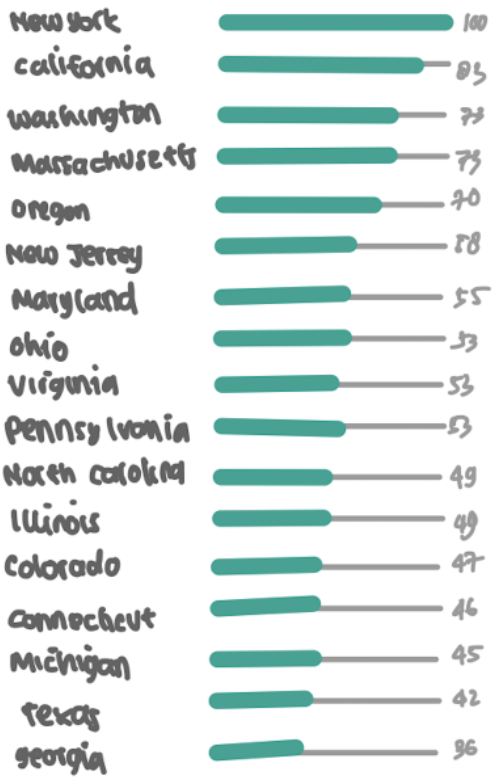
STRETCH GOALS 2 : Google search trends of ethical fashion (U.S. 2004 - 2002)



zoom and pan on x-direction

on click, the line chart change to sub region





MUST-HAVE FEATURES

TYPE	DETAILS
SMALL-MULTIPLE LINE CHARTS MEET OBJECTIVE 1	Comparison between estimated values of the ethical fashion market, the secondhand apparel market, and the fast fashion market from 2021 to 2026. Each multiple depicts each market types. When a user hover on a circle plot, a gray line shows on the year that go through the other two charts.
PARALLEL COORDINATES CHART MEET OBJECTIVE 2	Correlation between apparel consumption on and CO2 emissions. Each line represents a year. One of the two colors indicate predictions from 2022 to 2026.
SMALL-MULTIPLE BAR CHARTS MEET OBJECTIVE 3	Small-multiple bar charts to show price comparison of the sustainable clothing compared to the average market price for men's and women's bottoms, tops,outerwear, footwear. On hover, the bar will change color for both genders.
LOLLIPOP CHART AND SPIDER CHART MEET OBJECTIVE 4	There are 250 fashion companies in the data. We want to sort them by showing their transparency index scores using a lollipop chart. On click, the spider chart will display details of each companies scores for purchasing practice, gender and racial equality, waste, climate change, water and chemical, and sustainable sourcing materials.

OPTIONAL FEATURES

Finalize additional features to include stretch goals:

TYPE	DETAILS
PARALLEL COORDINATES CHART MEET OBJECTIVE 2	When a reader hovers on one line, the others lines change color to light gray color. Details of year, apparel consumption and emission will be shown.
LOLLIPOP CHART AND SPIDER CHART MEET OBJECTIVE 4	Add a scrollable feature to display all of the 250 brands. On click, the lollipop's color will change and interact with the spider chart.
DONUT CHARTS MEET STRETCH GOAL 1	A two donut charts that shows consumer purchase decision towards visibility and trust towards brands' sustainability claims
LINE CHART, GEO CHART, BAR CHART MEET STRETCH GOAL 2	Three charts that interact with one another: • The bar chart shows top subregion details on the map /geo chart. • On click of the bar chart region or geo chart region, the line chart and map change to that region. • The line chart zoom and pan on x-direction.

PROJECT SCHEDULE

Revised schedule details and factored in d3 implementations for the four objectives, beta, final presentation:

DATE	GOALS
~~10/07~~	~~Submit first draft of profect proposal~~
~~10/18~~	~~Complete proposal revision~~
~~10/24~~	~~Finalize dataset, data conversion and cleanup~~
~~10/29~~	~~D3 implementation of objective 1: small-multiple line chart~~
~~10/31~~	~~D3 implementation of objective 2: parallel coordinate~~
11/03	D3 implementation of objective 3: small-multiple bar charts (in progress)
11/07	D3 implementation of objective 4: spider bar and (in progress)
11/09	Execute stretch goal 1 (if time permits)
11/11	Alpha release: implement d3 visuals in the HTML and working website
11/12	Add interactions
11/14	Execute stretch goal 2 (if time permits)
11/16	Beta Release
11/28	Work on scrollytelling
12/01	Fix bugs, finalize code, add documentation to repo
12/05	Final project presentation
12/12	Complete project report draft
12/15	Finalize project report. Submit slides, demo video, code and data, and user manual

RELATED WORK

DATA JOURNALISM

1. Elton & Owens. The shifting behaviours of fashion and beauty consumers in the U.K. Think With Google, 2022.
2. Granskog, Li, Magnus, Sawers. Survey: Consumer sentiment on sustainability in Fashion. McKinsey & Company, 2020.
3. Amed, Berg et al. The State of Fashion 2022. Business of Fashion, McKinsey & Company, 2022.
4. Dottle, Gu. The Global Glut of Clothing Is an Environmental Crisis. Bloomberg, 2022.

RESEARCH PAPER

1. Blanchet, Vivien. 'We make markets': The role of the Ethical Fashion Show in categorising the ethical fashion. Sage Journals, 2017.
2. Gazzola, Grechi, Pavione, Pezzetti. Trends in the Fashion Industry. The Perception of Sustainability and Circular Economy: A Gender/Generation Quantitative Approach. MDPI, 2020.
3. Kutsenkova, Zhanna. The Sustainable Future of the Modern Fashion Industry. Dominican University of California, 2017. ‘
4. Mukherjee, Sudeshna. Environmental and Social Impact of Fashion: Towards an Eco-friendly, Ethical Fashion. Centre for Women’s Studies Bangalore University, 2015.

WEBSITE

https://mt-cs.github.io/marisatania/ethical-fashion/

PROJECT OVERVIEW

NAME

Ethical Fashion: Wear With Care

SUMMARY

This project visualizes the current state and future projection of ethical and sustainable fashion industry market. The deployment in scrollytelling form will invoke readers with data journalism.

HYPOTHESES

The fashion industry is slowly shifting towards a more ethical practice. The industry has a role to play to empower workers and contribute to healthier planet. Consumer's purchase decision can help a fairer and cleaner fashion industry.

DELIVERABLES

- Create small-multiple line charts of the comparison between ethical fashion, secondhand fashion, and fast fashion market value
- Create a parrallel coordinates chart of the relationship between apparel consumption and carbon emissions
- Create small multiple bar charts to compare average market price and eco clothing price
- Create a spider chart and a lollipop chart to vidualize the fashion transparency index score from 250 companies

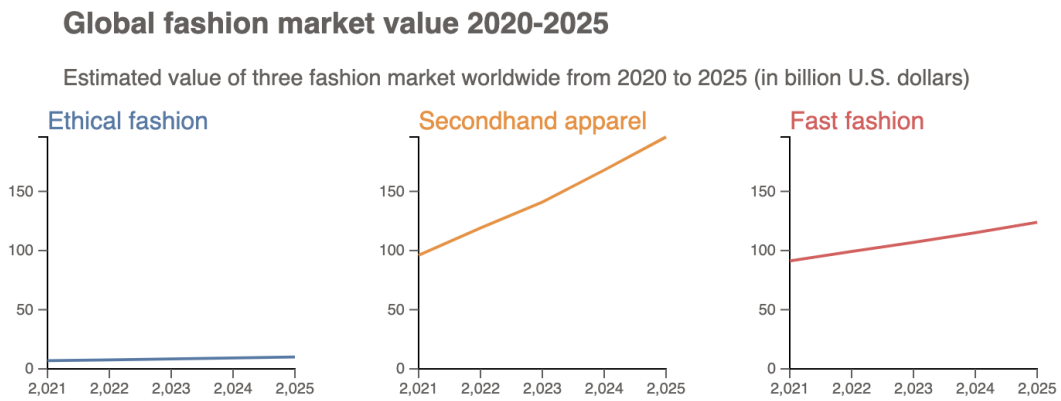
ACCEPTANCE CRITERIAS

- Successfully implement all the four objectives and features
- Successfully create a data journalism SPA (single-page-application) website
- Successfully present final project release
- Successfully submit project report, slides, demo video, code and data, and user manual

COMPLETED FEATURES

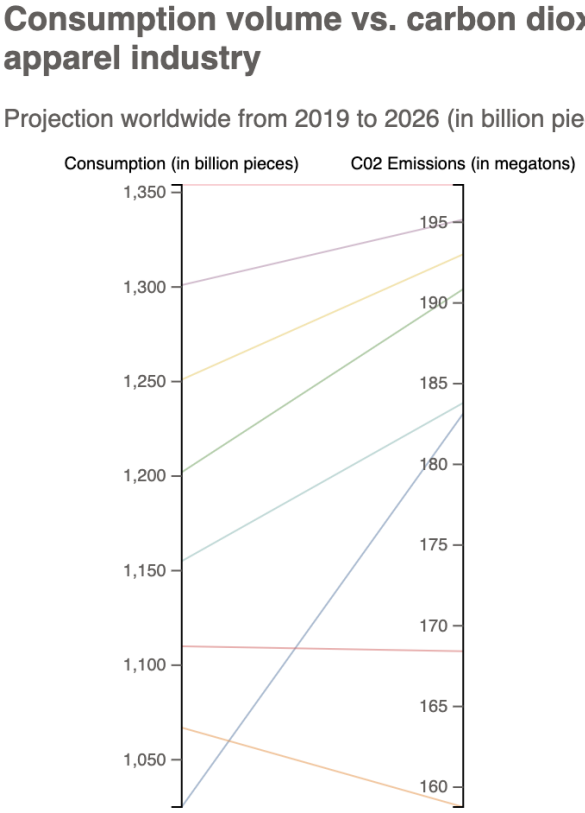
STATIC SMALL-MULTIPLE LINE CHARTS

(Meet Objective 1)



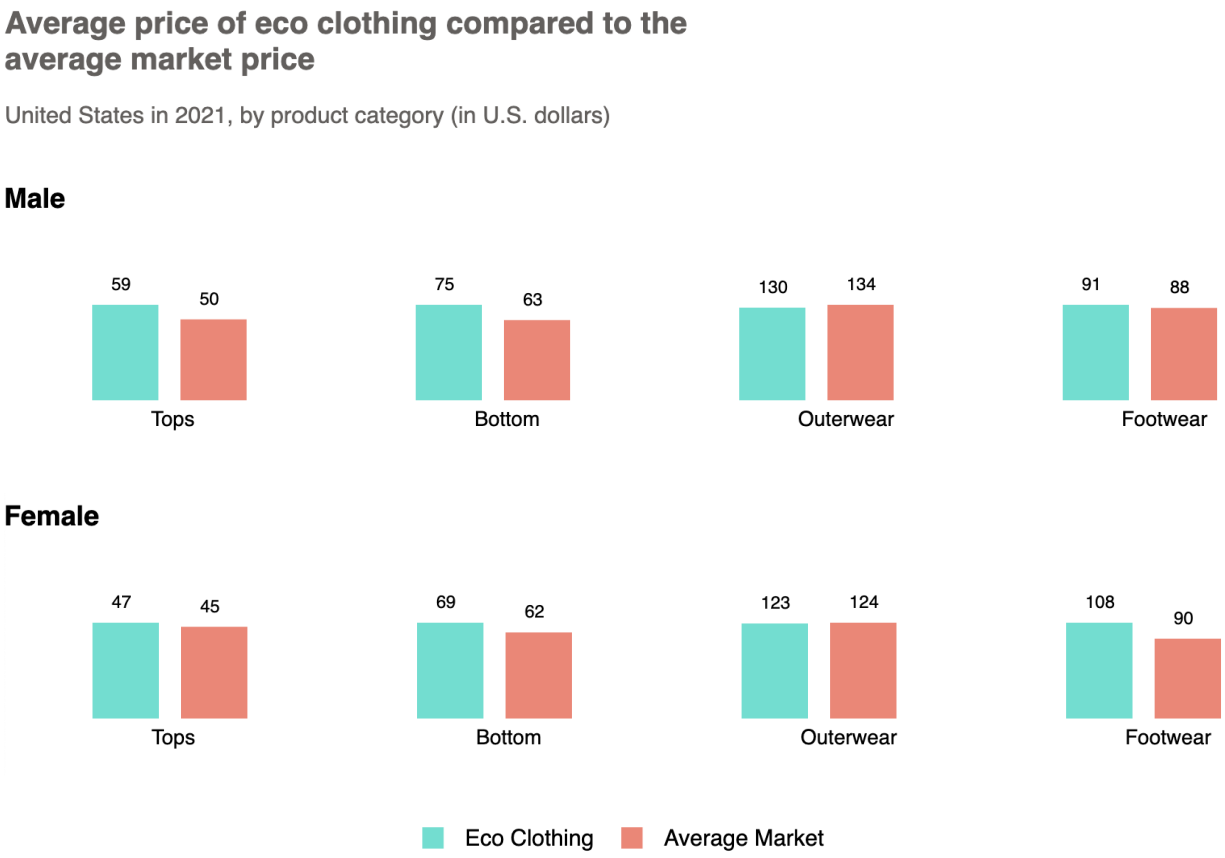
STATIC PARALLEL COORDINATE CHART

(Meet Objective 2)



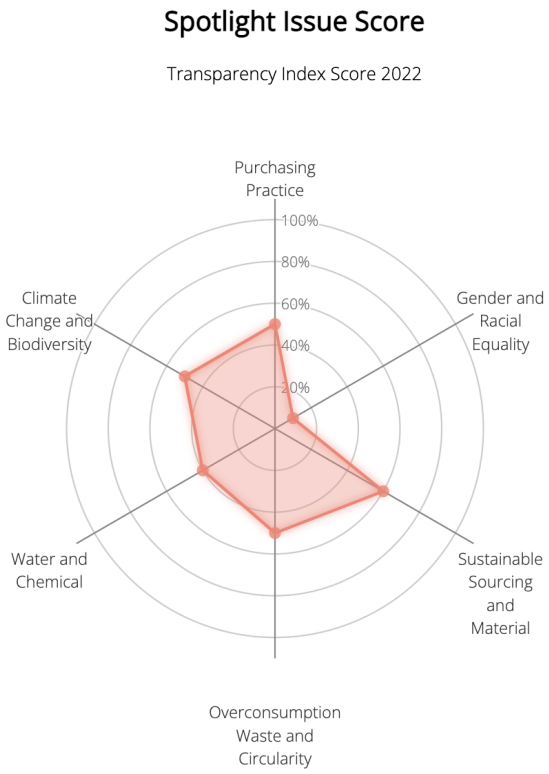
STATIC SMALL-MULTIPLE BAR CHARTS

(Meet Objective 3)



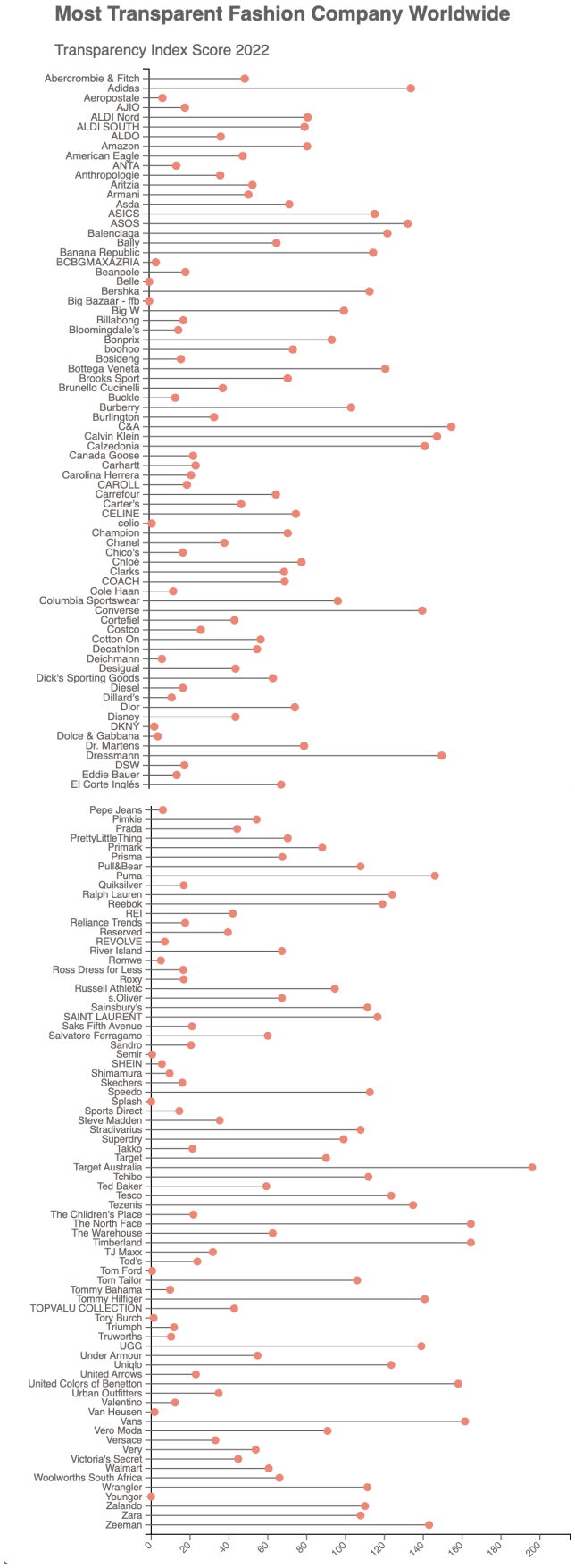
STATIC SPIDER CHART

(Meet Objective 4)



STATIC LOLLIPOP CHART

(Meet Objective 4)



MILESTONE AND BLOCKER

UPCOMING IMMEDIATE MILESTONES

- Complete spider chart – currently the value is hardcoded in D3
- Convert D3 v4 to v7
- Add legend
- Add interactions
- Clean up codes and post to VizHub
- Write feature story for data journalism portion of the project
- Deploy code to html
- Meet beta release deadline
- Meet final presentation deadline and final submission

ROADBLOCKS

- Small-multiple format makes it complicated to break down the data per graph. The current D3 code is unclean since some of it for looping or repeating the same codes based on the number of small multiples. For example I don't know how to plot dot on top of the line chart (see above).
- Some resources are only in D3 v4 and I am having trouble to implement in v7 without any additional source
- Limited knowledge of interaction implementation between two or more graphs
- No knowledge in deploying all codes/graphs in one SPA website. So far our experience is only putting each graph on VizHub
- No knowledge in arranging codes into desired outcomes. For example:
- Small multiple line charts need to be at the bottom of each other but so far they are horizontally drawn next to each other
- The chart styles doesn't have a modern look. I am not sure how to implement CSS styling in D3