

# More than just stars:

Using NLP to bring out deeper insights  
from ecommerce customer reviews to  
make business recommendations.

**Daria Morgan**  
**Metis Project 4**

# Why is it important:



Usual Size: 32

Size Purchased: 32

Fit Purchased: Ankle

Height: 5' 2"

Weight: 155

Great fit, still a bit long

I'm about 5'2 and decided to go with the ankle fit and I still found them to be pretty long

ahansen5, March 28, 2020

Online product reviews are a great source of information from consumers.

Without NLP, a 4 star review is just a number rating.

NLP helps us to reveal deeper insights from each review in an efficient manner. Businesses can leverage this knowledge to improve their products (and find flaws) and even better target new customer bases. For example, NLP can help us that the above 4 star review thinks the jeans are too long.

For businesses, this can reduce returns, which are ~20% for ecommerce brands\* and hurt profits. For the company chosen, this implies ~\$20M in returned inventory in 2016 alone.

**\$20M**

Estimated amount of Everlane returned inventory in 2016

\*According to ShipBob return report

A photograph of three women standing side-by-side against a plain, light-colored wall. The woman on the left wears a grey blazer over a white t-shirt and black pants. The woman in the center wears a light blue sweatshirt and white pants. The woman on the right wears a dark blue long-sleeved top and blue jeans. They are all wearing casual shoes. A solid black rectangular box is overlaid on the bottom half of the image, containing the brand name.

**Everlane**

## Everlane:

Founded in 2010 in SF, Everlane sought to create an environmentally friendly transparent brand.

It is also one of my favorite brands and I wanted to explore more.

They make jeans, jackets, shirts, and shoes for both men and women.

>\$100 million in revenue in 2016

## Features that were scraped:

- >15,000 reviews scraped
- The name of reviewer
- The title of the review
- The review body
- Rating
- Date posted
- Usual size
- Purchased size
- Weight
- Height

## Created feature:

- Body mass index (BMI)



## Objective:

**Use NLP to create actionable  
business insights**

And maybe get a job there...

# Analytics Intern



Everlane  
San Francisco, CA

[Apply on Intern - Imed Adel](#)

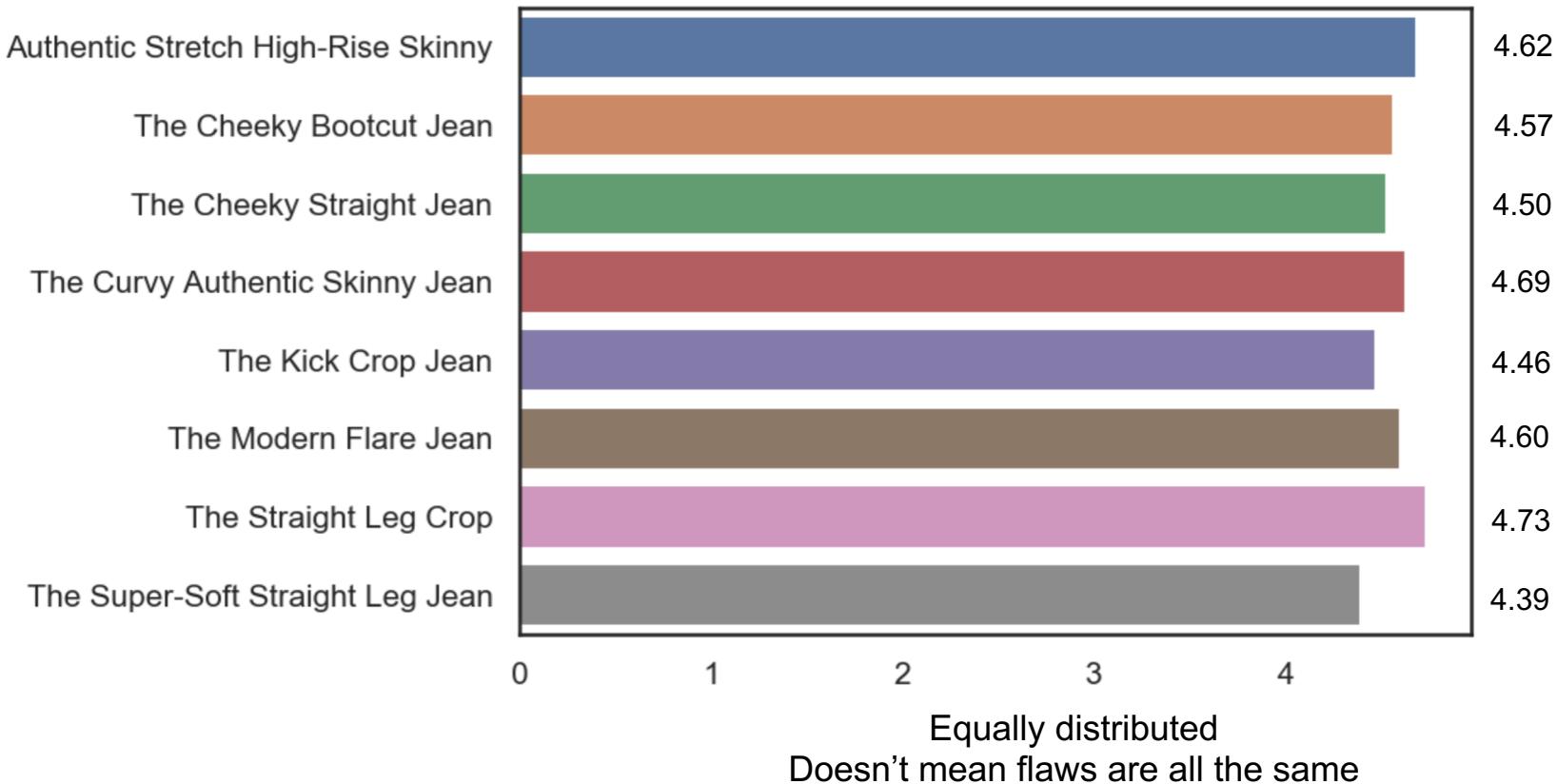
⌚ Over 1 month ago   📦 Internship

## Description

Everlane is seeking an Analytics Intern to join our data team, where you'll leverage our digital, marketing, and product data to drive decision making within the company. Applicants will have an opportunity to work with a modern data science tech stack (R/Python/SQL + AWS infrastructure), and learn about how to build impactful data products for domains ranging from digital marketing to supply chain.

# Exploratory Analysis

## Rating distribution among jeans products



## Common words from reviews on Everlane Jeans

## 5 star reviews



## < 4 star reviews



# Topic modeling

## Topic 0 ~ Size

size, **true size**, ordered, wear, fit, blue, bought, **little**, washed, got, size fit, fits, **usual**, **ordered size**

## Topic 1 ~ Comfort

**comfortable**, **stretch**, flattering, amount stretch, **comfortable fit**, perfect amount, flattering comfortable, fit perfect, day, wear, **perfect fit**, feel, stretch comfortable, comfortable amount

## Topic 2 ~ Length

length, **ankle length**, length perfect, **short**, **regular**, perfect length, regular length, **tall**, **shorter**, got, hit, petite, **height**, hits

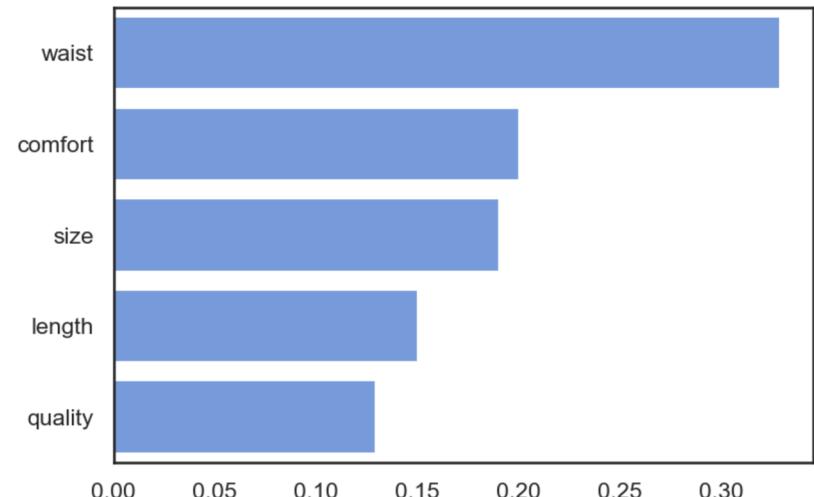
## Topic 3 ~ Waist & Hips

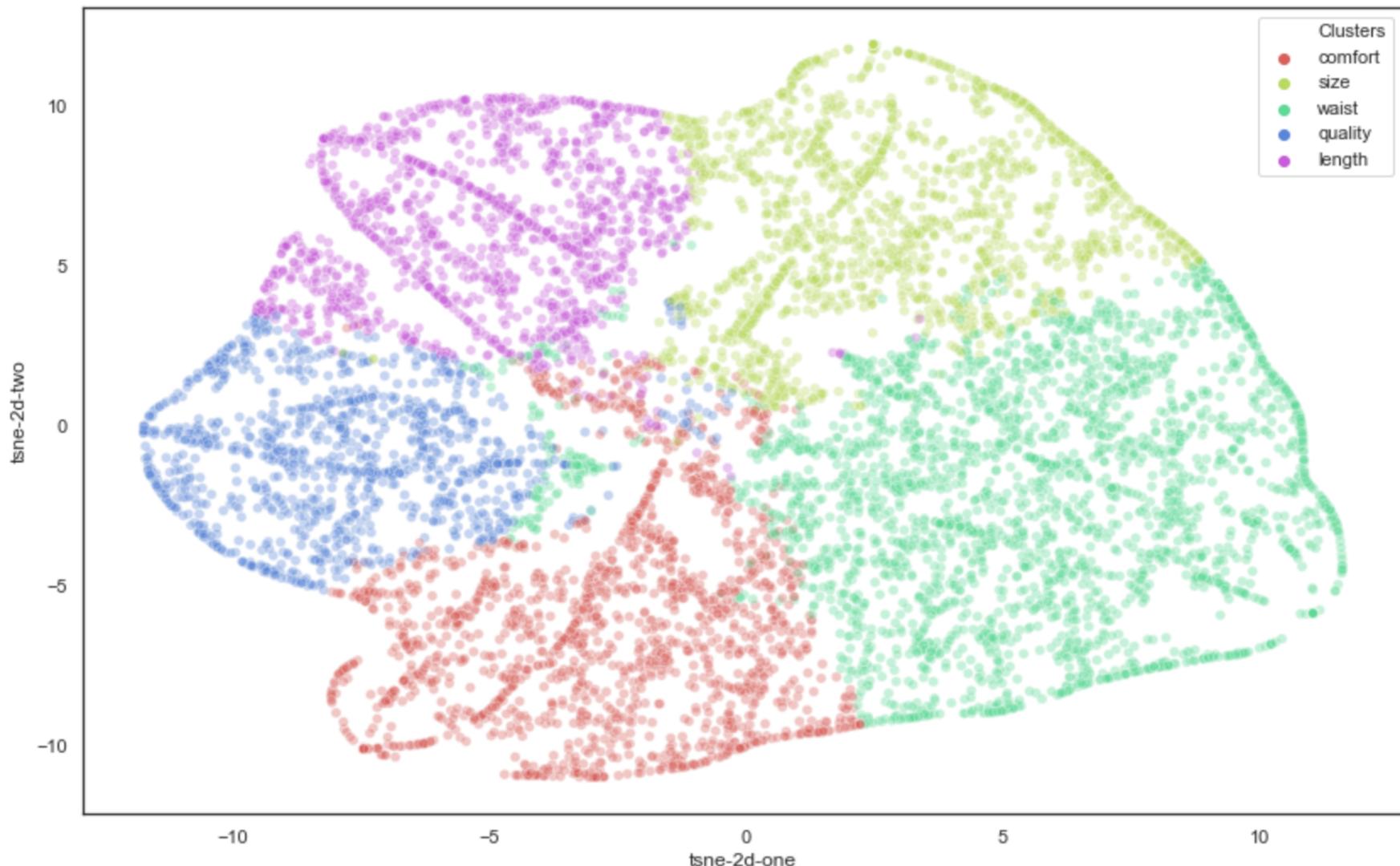
**waist**, fit, **hips**, **thighs**, **curvy**, tight, butt, legs, fit waist, feel, **gap**, straight, leg, small, little, big, finding, hard, body

## Topic 4 ~ Quality

high rise, skinny, stretch, waisted, **quality**, stretch high, **high quality**, fit high, black, mid, comfortable high, stretchy

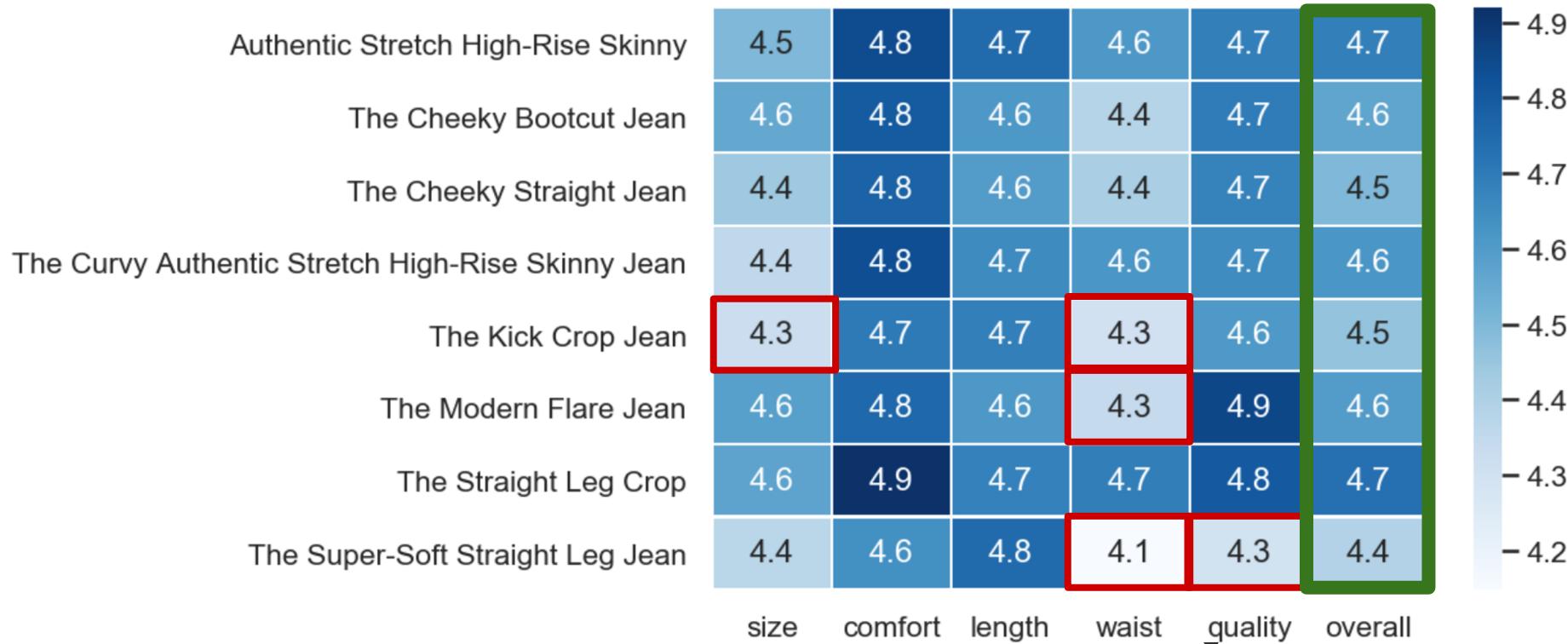
Reviews distribution among topics by majority vote





Clusters

- comfort
- size
- waist
- quality
- length

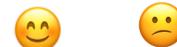


“..the waist ran a little large..”



**Petite: shorter than 5' 4"**

	size	comfort	length	waist	quality
<b>1</b>	4.5	4.9	4.8	4.6	4.7
<b>2</b>	4.7	4.8	4.7	4.4	4.6
<b>3</b>	4.4	4.8	4.6	4.4	4.6
<b>4</b>	4.5	4.8	4.7	4.6	4.8
<b>5</b>	4.3	4.6	4.7	4.2	4.5
<b>6</b>	4.2	4.9	4.4	4.4	4.7
<b>7</b>	4.7	4.9	4.8	4.7	4.7
<b>8</b>	4.3	4.6	4.9	4.1	4.3



**Average: between 5' 4" & 5' 8"**

	size	comfort	length	waist	quality
	4.5	4.9	4.8	4.7	4.7
	4.4	4.9	4.5	4.4	4.8
	4.5	4.8	4.7	4.5	4.7
	4.3	4.9	4.6	4.7	4.6
	4.3	4.8	4.8	4.3	4.8
	4.9	4.8	4.8	4.4	5
	4.6	5	4.6	4.7	4.9
	4.4	4.6	4.6	4.1	4.4



**Taller than 5' 8"**

	size	comfort	length	waist	quality
	4.4	4.8	4.5	4.7	4.8
	5	4.5	4	4.7	5
	4.6	4.7	4.1	4.5	4.8
	4	4.8	4.3	4.4	4.9
	4.8	4.8	3.5	4.3	4.6
	4.3	4	4.5	5	
	4.7	5	4.4	4.8	5
	4.7	4.7	4.7		5

## 5: The Kick Crop Jean:

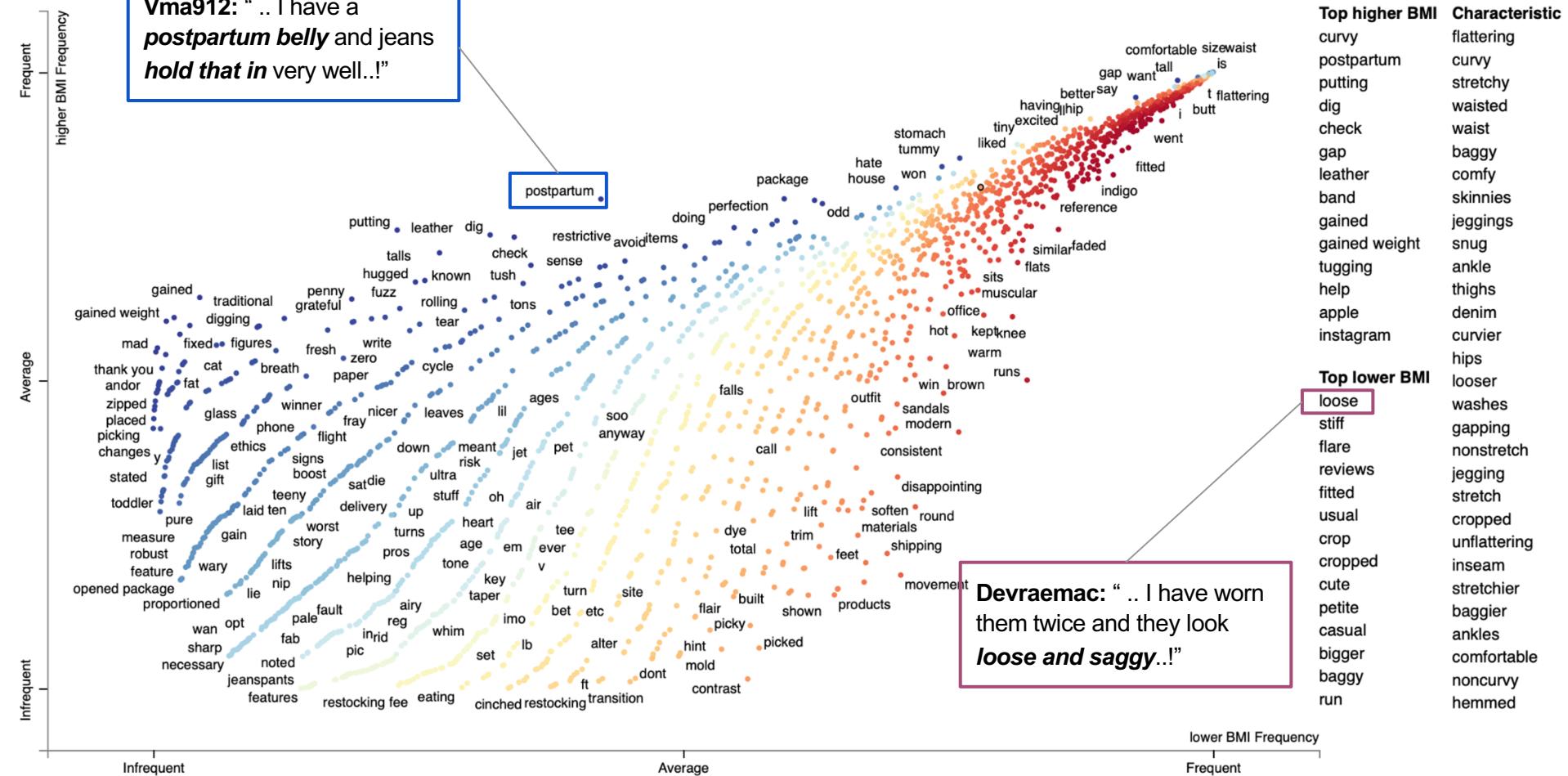
**Ms85**, Height: 5' 9", wrote on September 16, 2019:

“..they were just way **too short** on me (capri length)..”

## 5: The Modern Flare Jean:

**Anna Isabella**, Height: 5' 7", wrote on March 9, 2020:

“..Runs **small**...”



# Conclusion and further analysis:

- I showed how NLP can enhance learnings from reviews
- I created specific recommendations based on those learnings (postpartum, etc)
- Build recommendation system based on insights that were made
- Scrape more reviews, including reviews from Twitter and Instagram
- Test on more products



THANK YOU

## Size

**Albertashopper:** December 28, 2019. ★★

"I was really looking forward to these jeans based on all the positive reviews I've read. They actually fit **much larger than expected.** I'm usually a 26-27 a..."

**JJules** February 11, 2020 ★

'I bought these in my **normal** everlane jean **size** and **couldn't even pull them up.** I then exchanged them for a size up and still couldn't pull them on! ....!'

## Waist

The Super-Soft Straight Leg Jean:

**Jxxxxx** December 9, 2019. ★

"wanted to love this so much, but the fit just wasn't right for me - **the waist ran a little large...**"

**carrie eirrac.** May 21, 2019. ★★

"...I bought my normal size and after an hour of wear, **they stretched out in the waist** and I have to belt them to keep them up. . . ."

**TruePetite.** March 17, 2020 ★

"I tried the bone color when these first came out. **they were a little big overall (waist didn't pinch)** and i returned them."