



Why Would Consumers Hate their Nike shoes ?

**Unsupervised
Text Classification
for Marketing Analytics**

Final Project

University of Colorado Boulder

Background

Count of Nike Reviews (5 is Best)



>80% of reviews
are positive

Sample of ~17,000 reviews of Nike shoes on Amazon.com



Data Filtering Process

Start with All Amazon Products (ASINs)

Filter Products for just Nike Shoes

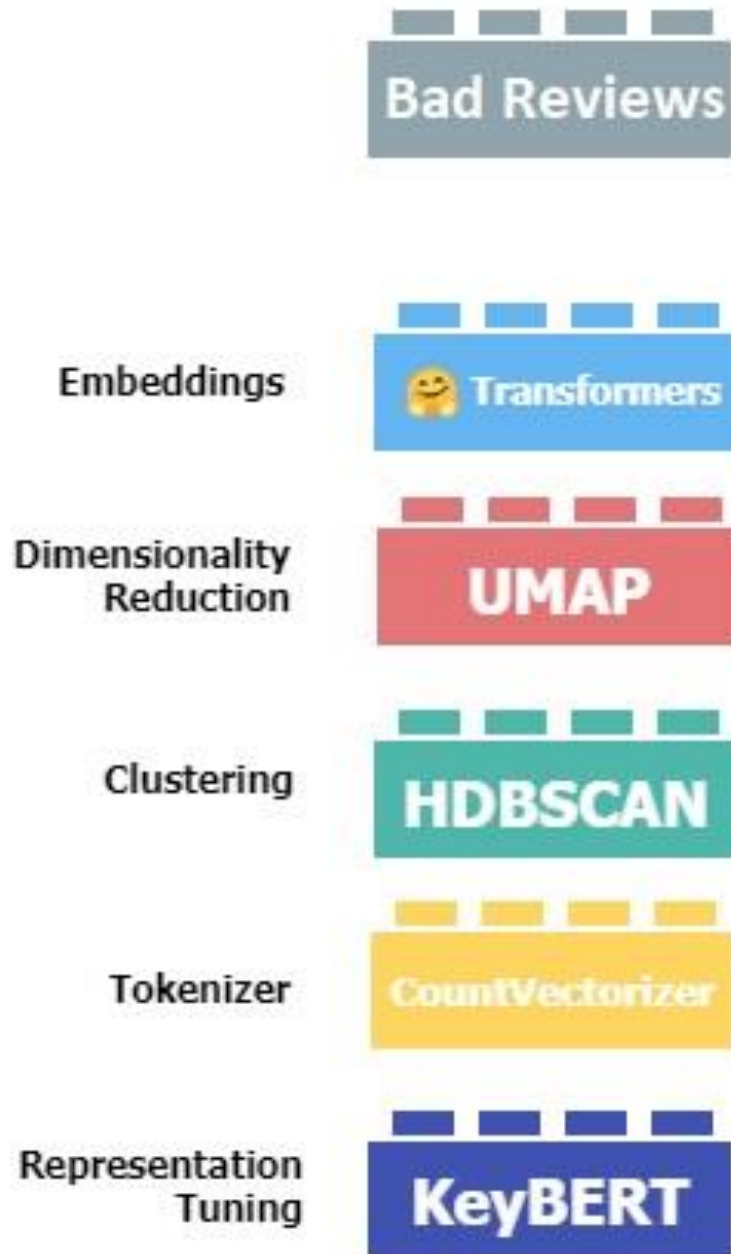
Combine Nike Shoe with Customer Reviews

Use TextBlob to Score Reviews (+/-)

Save Filtered File with Sentiment Data



Topic Modeling



Recommended Reading

BERTopic – Best Practices

https://maartengr.github.io/BERTopic/getting_started/best_practices/best_practices.html



Enhancements

- Inserted Custom Stop Words (Nike / Shoe)
- Added MMR and POS to the KeyBERT labels (also OpenAI)
- Changed Min_Cluster_Size in HDBScan to incorporate more
- Ran `topic_model.reduce_topics(nr_topics="auto")`



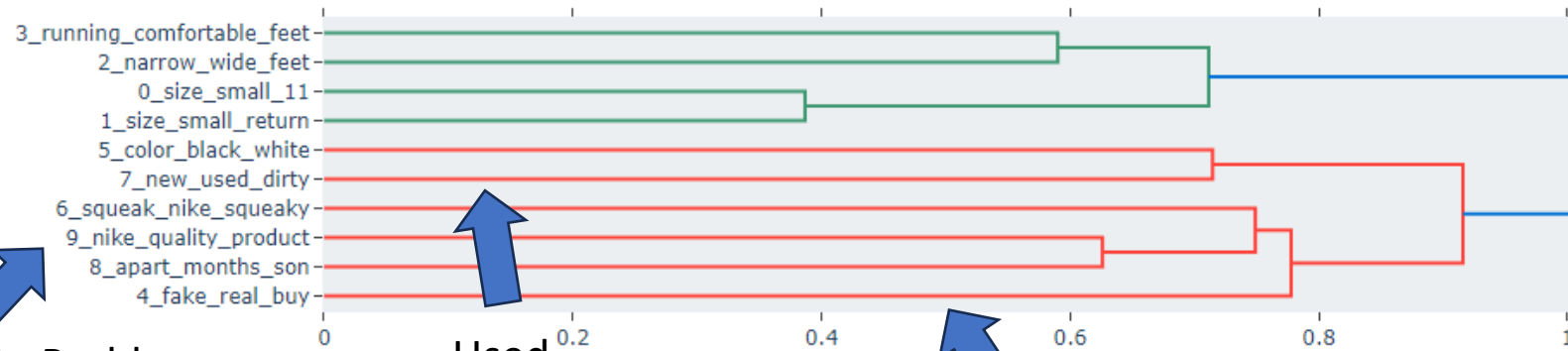
Visualizations

Sizing / Fit problems

Topic	Count	Name	Representation	KeyBERT	MMR	POS	Representative Docs
0	-1	351	-1_nike_like_size_just	[nike, like, size, just, pair, buy, bad, disap...	[nike, sneakers, soles, sole, toes, socks, hee...	[nike, like, size, just, pair, buy, bad, disap...	[nike, size, pair, bad, disappointed, feet, re... [I've been running for 35 years, almost all wi...
1	0	121	0_size_small_11_wear	[size, small, 11, wear, 10, nike, runs, run, o...	[size 10, size 11, wear size, sizing, size sma...	[size, small, 11, wear, 10, nike, runs, run, o...	[size, small, wear, nike, tight, fit, order, b... [small not my size my size 11.5 and my order ...
2	1	107	1_size_small_return_ordered	[size, small, return, ordered, order, big, tim...	[sizing, wrong size, sizes, size way, return s...	[size, small, return, ordered, order, big, tim...	[size, small, big, time, sizes, wrong, fit, di... [SUPER BUMMED, bought these for my son for bal...
3	2	76	2_narrow_wide_feet_foot	[narrow, wide, feet, foot, tight, width, wide ...	[narrow foot, wide feet, narrow feet, wide foo...	[narrow, wide, feet, foot, tight, width, wide ...	[narrow, wide, feet, foot, tight, width, wide ... [I like the sandals, but they aren't really w...
4	3	76	3_running_comfortable_feet_like	[running, comfortable, feet, like, just, uncom...	[nike, heel, toes, sneaker, foot, laces, slipp...	[running, comfortable, feet, like, just, uncom...	[running, comfortable, feet, uncomfortable, pa... [I purchased the previous release of the Pegas...
5	4	49	4_fake_real_buy_money	[fake, real, buy, money, nike, fakes, people, ...	[fake nike, real nike, real nikes, authentic n...	[fake, real, buy, money, nike, fakes, people, ...	[fake, real, money, nike, fakes, people, look,... [These are fake. Do not buy these shoes. This ...
6	5	48	5_color_black_white_grey	[color, black, white, grey, received, wrong, o...	[wrong color, ordered black, colour, color siz...	[color, black, white, grey, received, wrong, o...	[color, black, white, grey, wrong, red, item, ... [The color was advertised as red but was actua...
7	6	33	6_squeak_nike_squeaky_annoying	[squeak, nike, squeaky, annoying, squeaking, n...	[annoying squeak, squeaking, squeaks, squeak, ...	[squeak, nike, squeaky, annoying, squeaking, n...	[squeak, squeaky, annoying, squeaking, noise, ... [I really hate writing bad reviews, but Nike h...
8	7	26	7_new_used_dirty_black	[new, used, dirty, black, sole, daughter, look...	[nike, brand new, look brand, sole, wear, worn...	[new, used, dirty, black, sole, daughter, look...	[new, used, dirty, black, sole, daughter, look... [Well as soon as I saw the shoe box that's whe...
9	8	25	8_apart_months_son_pair	[apart, months, son, pair, nike, quality, fall...	[quality nike, bought nike, nike brand, sneake...	[apart, months, son, pair, nike, quality, fall...	[months, son, pair, nike, quality, year, old, ... [Bought these shoes for my son for school; it ...
10	9	21	9_nike_quality_product_quality product	[nike, quality, product, quality product, disa...	[worst nike, nike, men nike, nike factory, pai...	[nike, quality, product, quality product, disa...	[nike, quality, product, disappointed, poor, t... [The shoes look great! Unfortunately they fit ...



Hierarchical Clustering



Quality Problems

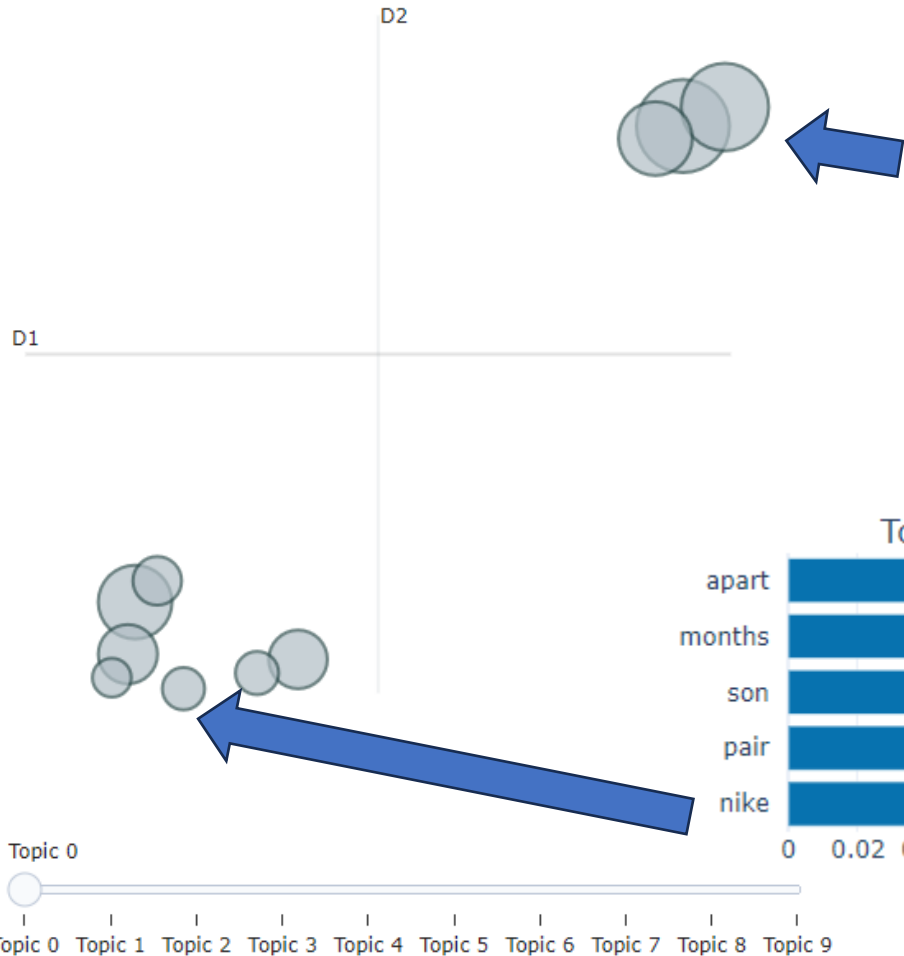
Used

Fake

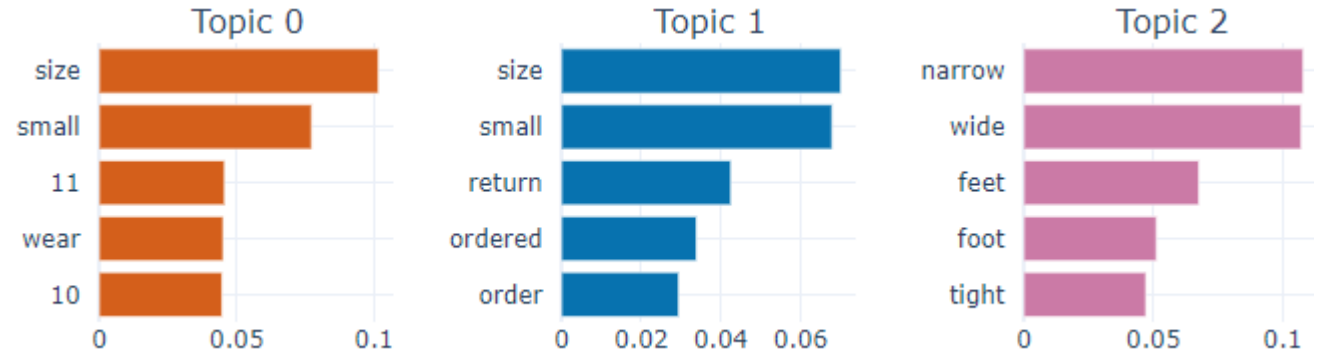


Visualizations

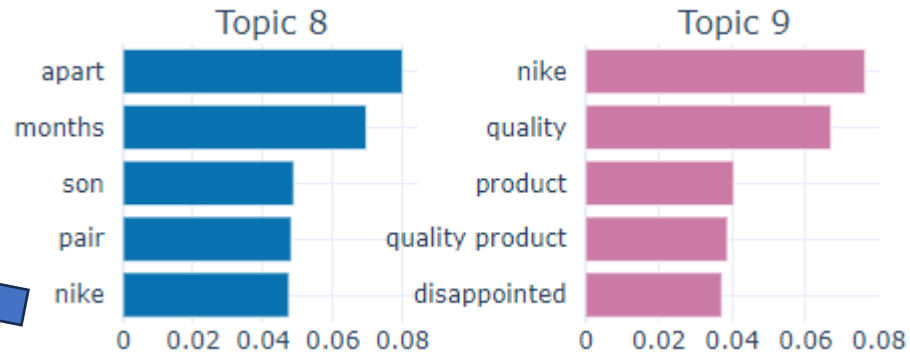
Intertopic Distance Map



Sizing / Fit problems



Quality problems



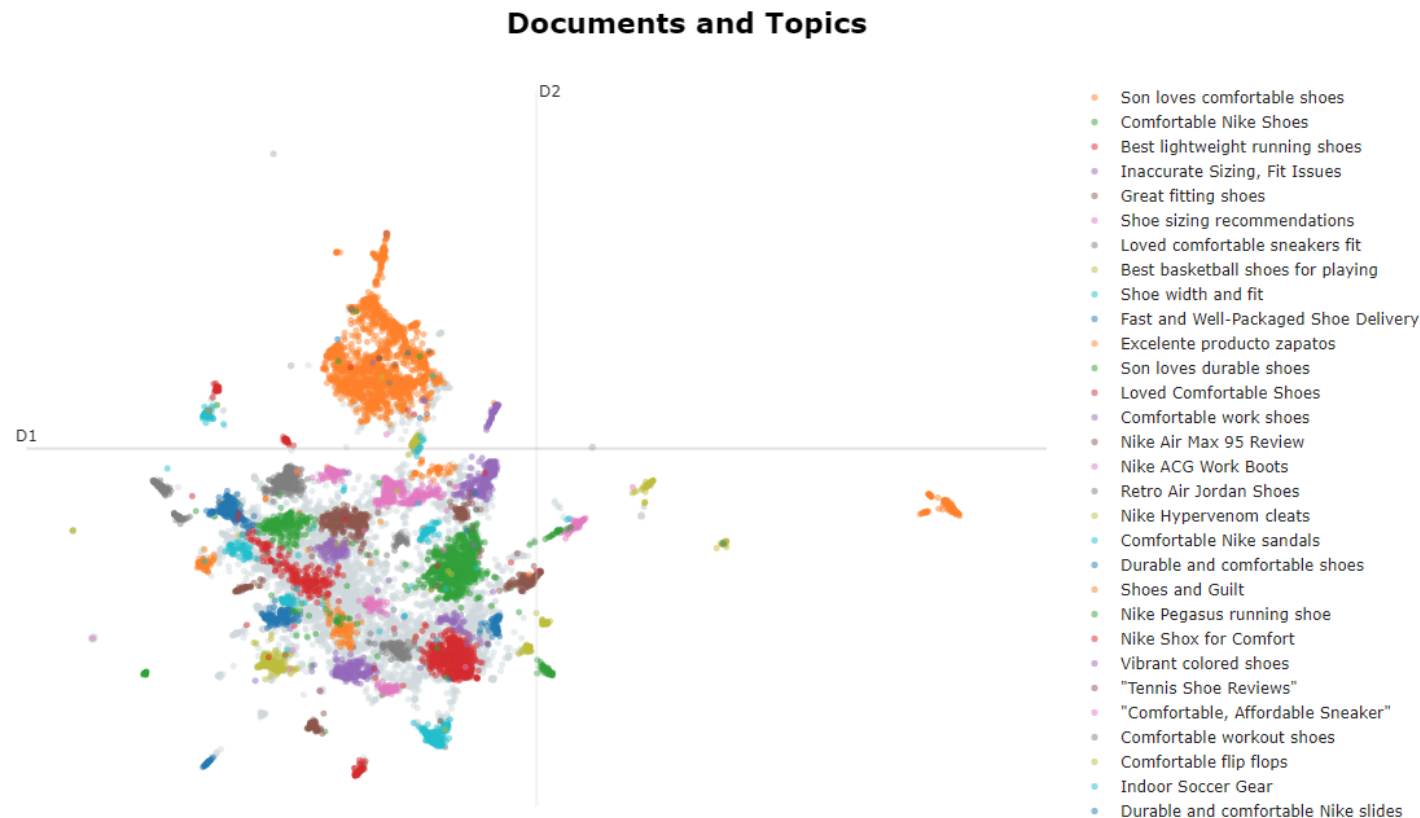
Conclusions – General Complaints

- Sizing – Customers are complaining that the sizing does not fit them. This could be related to manufacturing problems, or it could be the client and their expectations. Improper sizing leads to poor fit and complaints around comfort.
- Quality – Although good, there were complaints about shoes not lasting as long as expected, or were “squeaky”
- Misrepresentation – Likely not Nike’s fault but some shoes are sold fraudulently or sold as new when used. Needs monitoring.



Suggested Enhancements

- BERTopic allows the option of adding OpenAI to the labelling pipeline that adds more natural sounding labels (see chart below)



Git Repository / More Information

The Jupyter notebook with this project, a copy of this presentation and the results of the training are available at:

https://huggingface.co/spaces/mswhite/Nike_Products/tree/main

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