



RECOMMENDER SYSTEM FOR PERFUMES

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MOTIVATION

- Get a list of perfumes a logged-in user would like if he/she tried next.
 - Make it readily available to use by website or application.
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IMPLEMENTATION IDEA

- Recommend perfumes based on other most similar user in taste. If no such user is found, then recommend most similar perfumes to the previously liked ones by the logged-in user.

DATA

- Scrape Fragrantica website for reviews and customer ids, without their names.
 - Steps:
 - Gather links to the most popular designers on Fragrantica.
 - Gather links of every perfume the designer made.
 - For each perfume, collect reviews and pertaining information.
 - Select a random 500 links of the 5022 to ease handling.
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	customer_id	review	perfume_name
0	408488	I am a person who is all for crossing the fragrance barriers and wearing scents during seasons that are against the popular vote. However, with Chanel Allure Sensuelle I have to say this is one I can ONLY pull off during those cold fall/winter months. Here we are early July and I sprayed a bit o...	Allure Sensuelle Chanel for women
1	676969	I have been in love with Un air de First, since I first tried it. So there was no way I was not going to ignore her sister First Edition Blanche. The first impression is that the bottle is better looking then her older sister, a white bottle with a little silk flower tied to the lid. The first s...	First Edition Blanche Van Cleef & Arpels for women
2	571248	I'm attending a wedding tomorrow and I've been thinking about the ideal fragrance to match the occasion. My four finalists for selection are Prada Infusion d'Homme, Tom Ford's Grey Vetiver EDP, Creed Aventus and Reflection Man by Amouage. Eac...	Reflection Man Amouage for men
3	402423	The most gorgeous classic scent! I adore this perfume, the body lotion and the shower gel. Beautiful from the moment I spritz it on and lasts all day and through the night. Not strong, just perfect! I only wish it hadn't taken me so long to find her.... Oh so in love with my bottle.... Will n...	Coco Mademoiselle Chanel for women
4	1168933	it is warm and calming scent. The vanilla in this one is truly beautiful. Oct 31 2018	Shalimar Eau de Toilette Guerlain for women

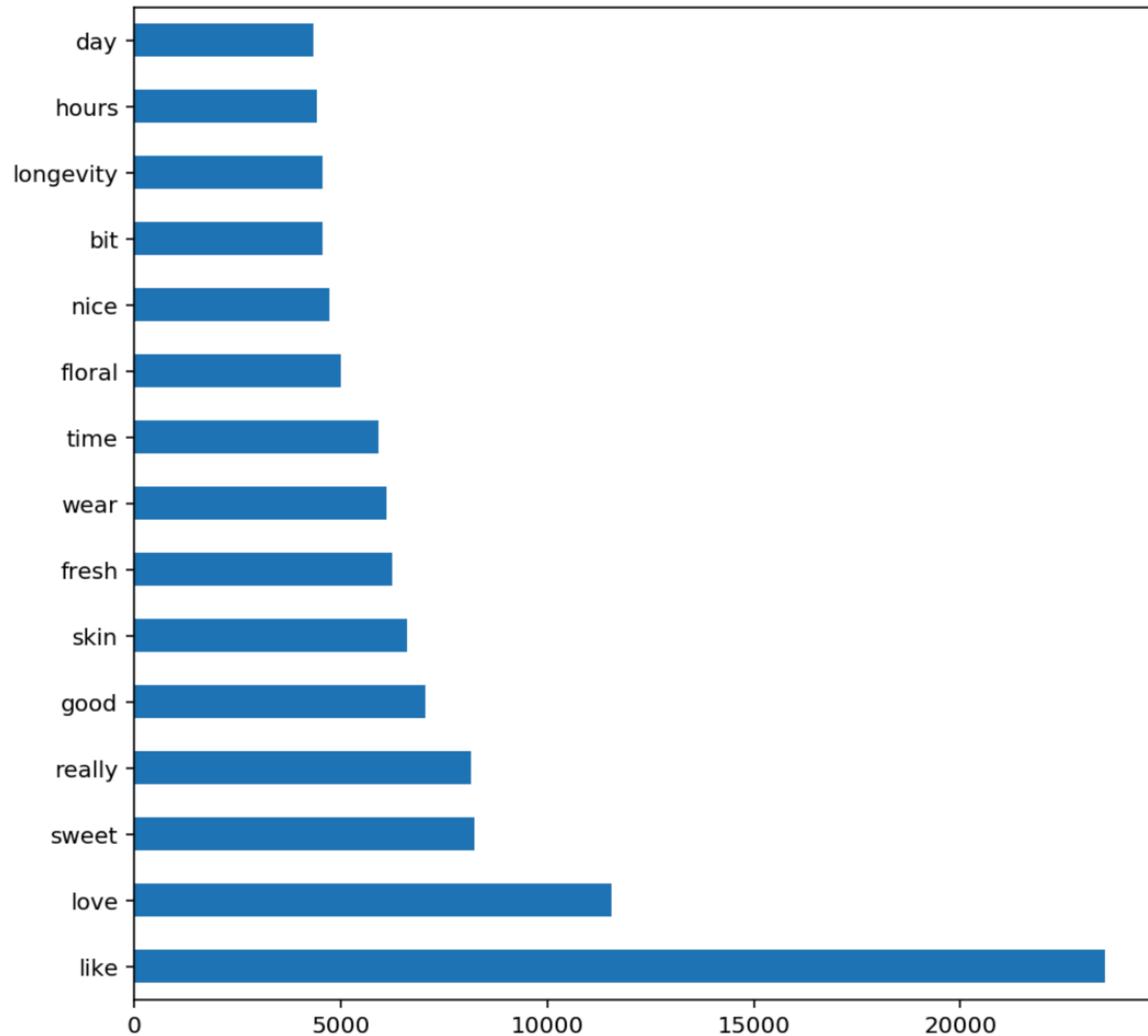
A sample of the data frame at hand
33036 rows

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- After deleting non-English reviews (737 of them), we ended up with 32299 reviews.
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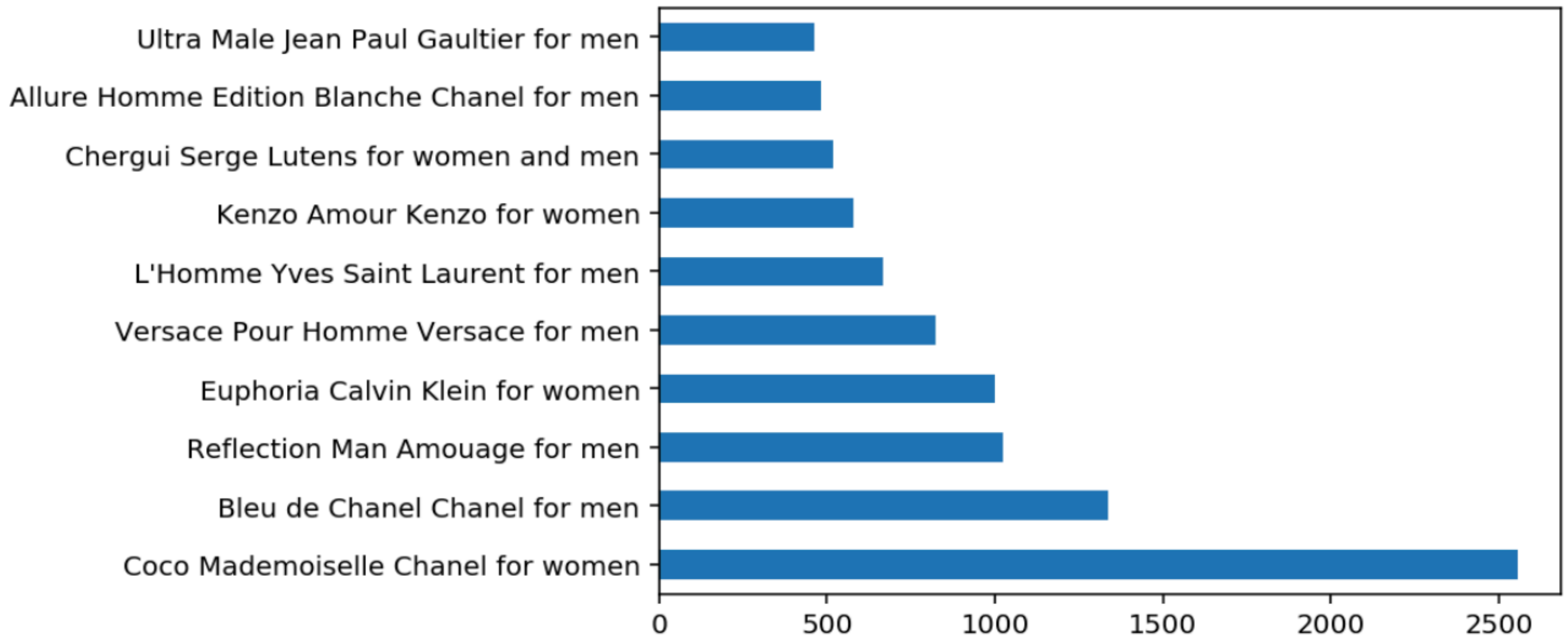
	customer_id	review	perfume_name	vader_sentiment
20	120916	Nice and very pleasant fragrance chypre ,every notes well balanced. The drydown is comfort and stay close to skin. Honey is not strong like L'Instat Guerlain. Well blended with pepper and stay delicious on my skin. I love original Hypnose but...	Hypnose Senses Lancome for women	0.9794
21	2034	Definitely agree that this fragrance is up to the endurance test, however, you may just be smelling the 50 women around you in the mall that are wearing the same thing! Great frangrance; over played. Jul 01 2008	Coco Mademoiselle Chanel for women	0.8999
22	41777	A really unique perfume.For me it's one of the best perfumes ever.Simply a masterpiece.Long lasting and definately for men over 30. Oct 05 2013	Habit Rouge Eau de Toilette Guerlain for men	0.6369
23	952810	I received a sample of Royal Mayfair in the mail directly from Creed this week. For those that decry Creed's presentations, the packaging for the small .3ml vial with sprayer is exquisite: a folding and beautifully decorated "envelope" complete with a gold coloured resin Creed seal. ...	Royal Mayfair Creed for women and men	0.9879
24	8292	It is no wonder that Secret Obsession and Voile de fleur smell so much a like! It seems they have a lot of notes in common! Nov 23 2012	Black Orchid Voile de Fleur Tom Ford for women	-0.3412
25	1170037	Banal. The citrus notes last a long time; a formulator's feat. Unfortunately this is all which can be noted as interesting. No real oud. Bergamot comprised mainly of linalyl acetate. Misnamed, uninspiring and overpriced. ...	Oud & Bergamot Jo Malone London for women and men	-0.2263

After adding the sentiment analysis, using Vader.

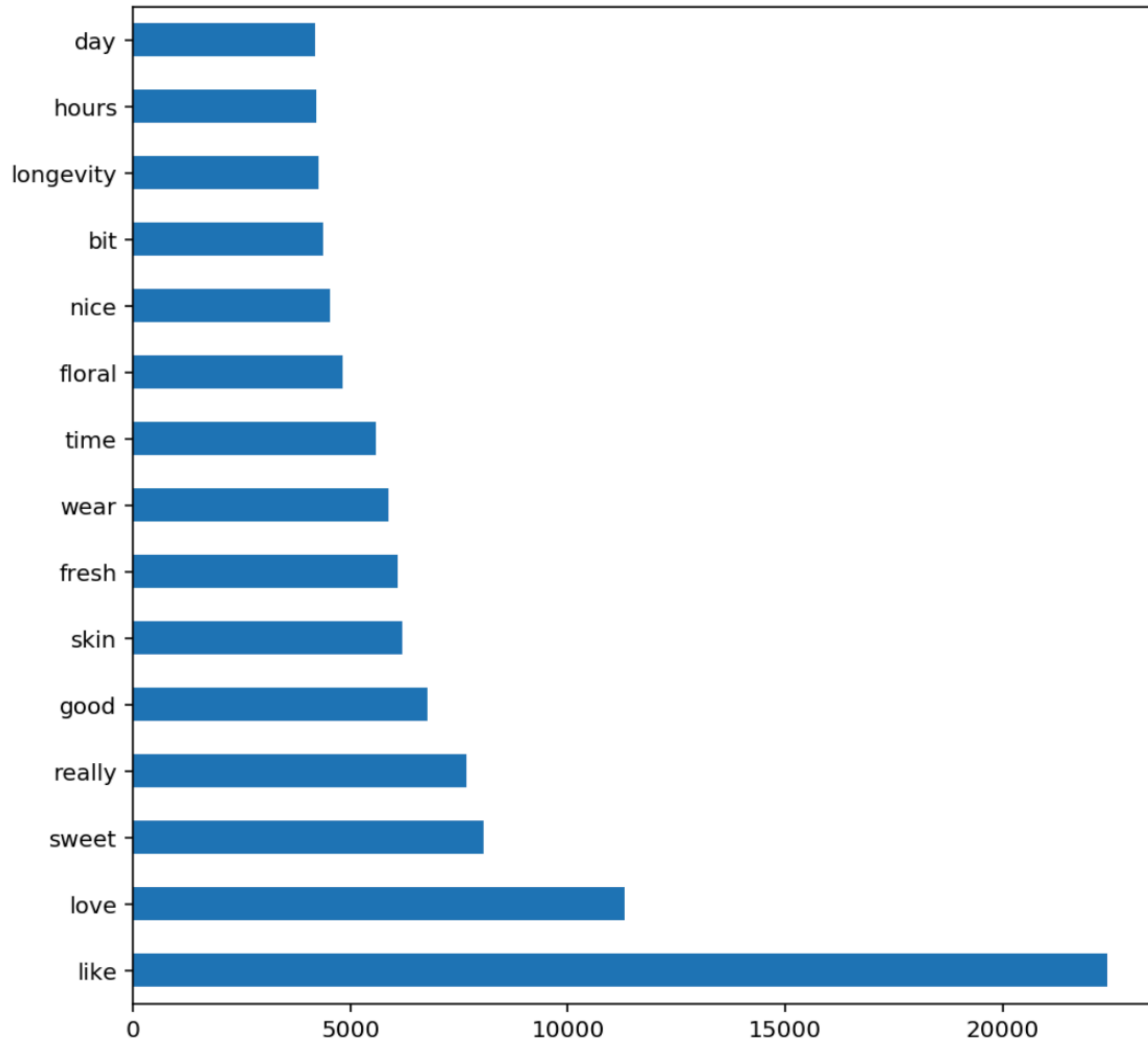
Most Used Words



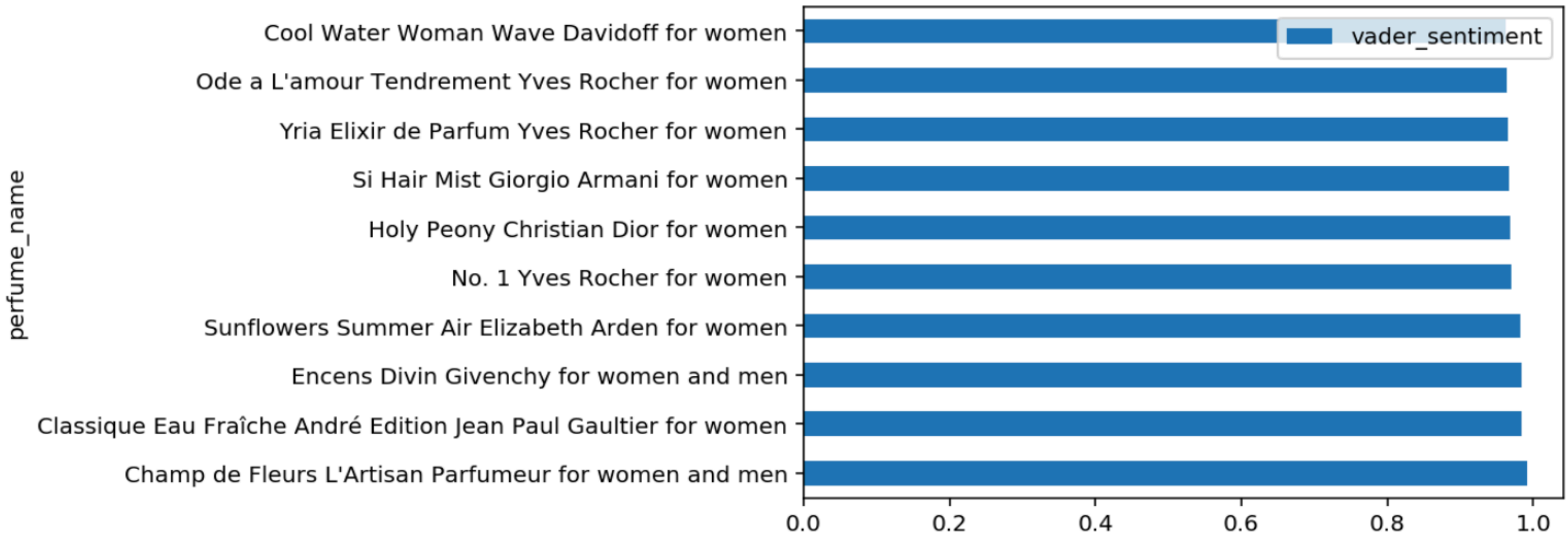
Most Reviewed Perfumes



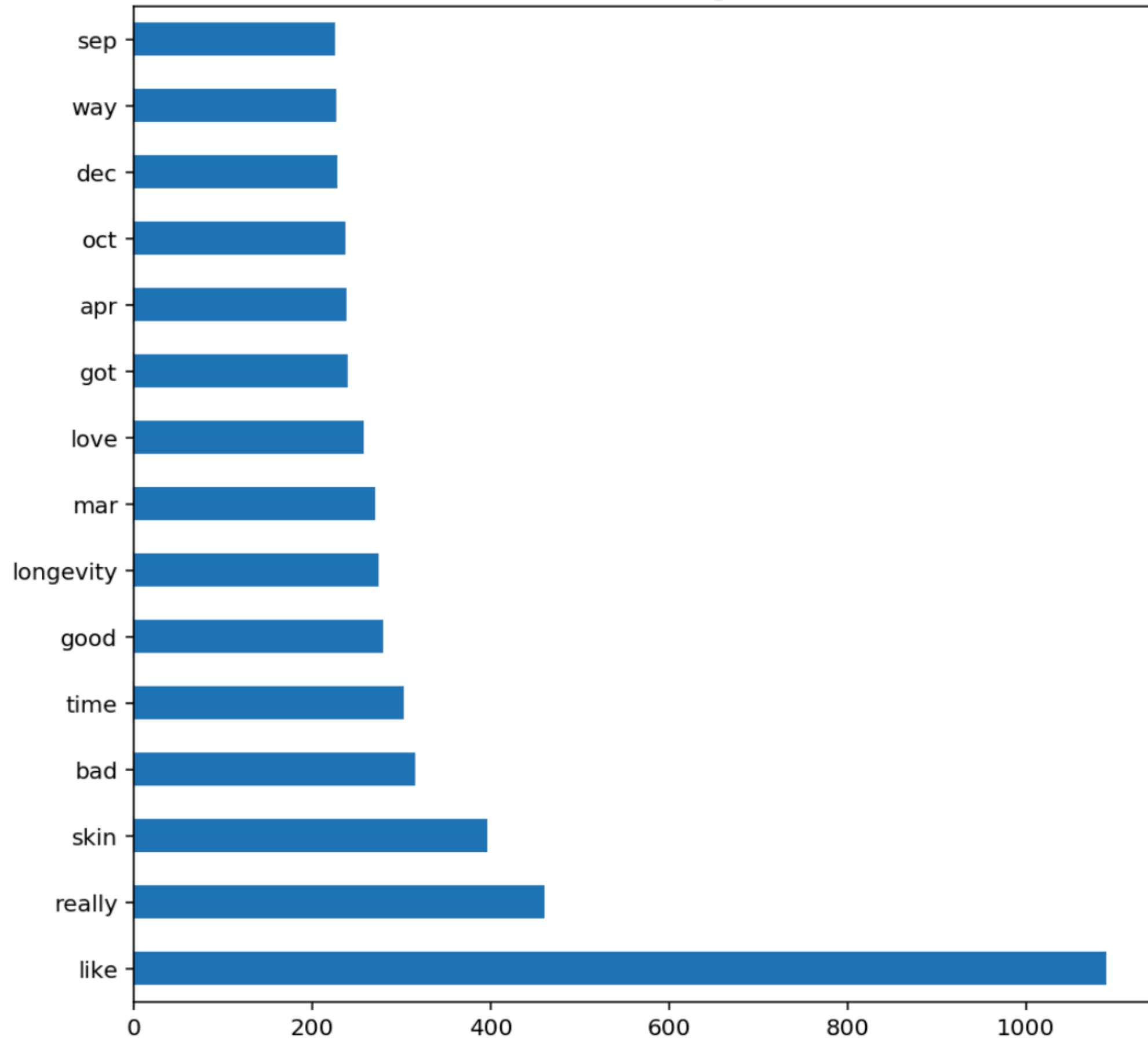
Most Used Words In Positive Reviews



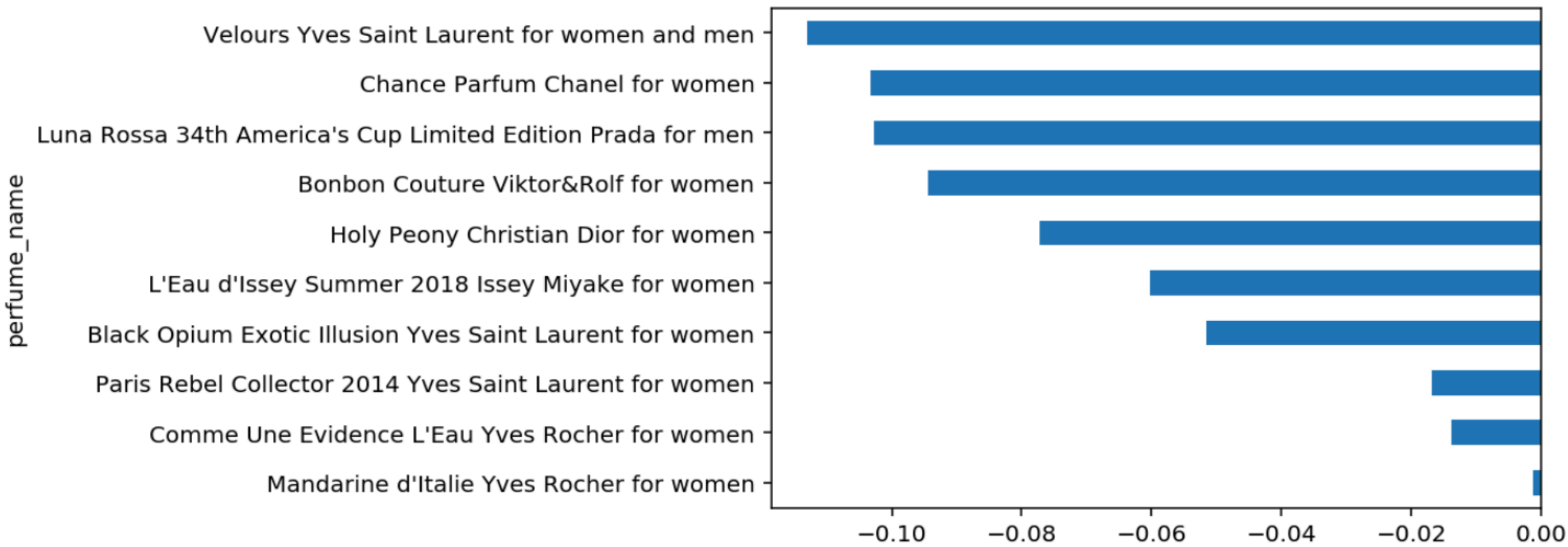
Most Liked Perfumes



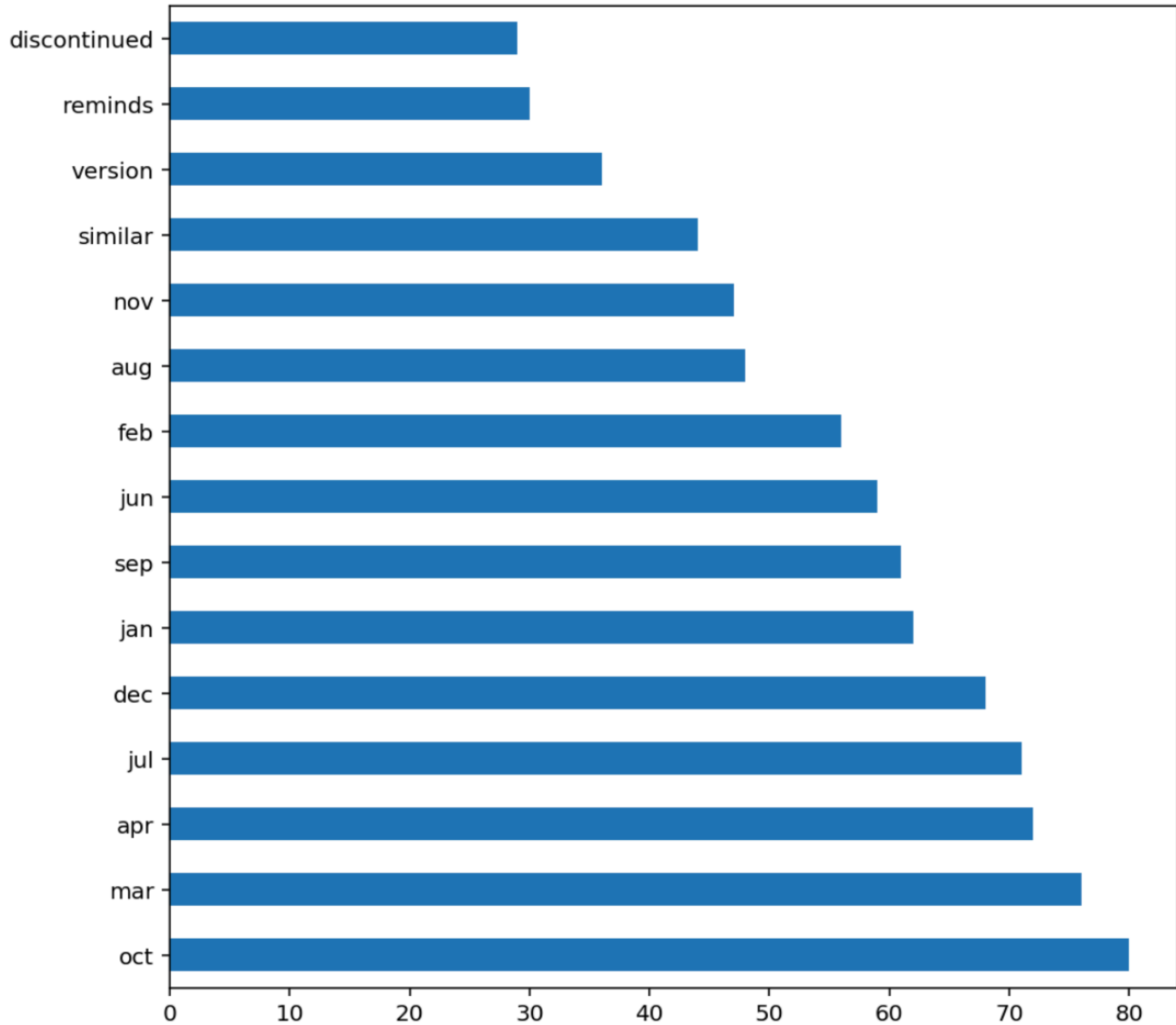
Most Used Words In Negative Reviews



Most Hated Perfumes



Most Used Words In Neutral Reviews



perfume_name	
Yves Saint Laurent Pour Homme Haute Concentration Yves Saint Laurent for men	0.0
Hugo XY Summer Edition Hugo Boss for men	0.0
Euphoria Calvin Klein for women	0.0
Eternity Now For Men Calvin Klein for men	0.0
Eternity For Men Summer 2007 Calvin Klein for men	0.0
Estee Estée Lauder for women	0.0
Eros Flame Versace for men	0.0
English Pear & Freesia Jo Malone London for women	0.0
En Avril Un Soir Yves Rocher for women	0.0
Emporio Armani Diamonds Summer Fraiche for Men Giorgio Armani for men	0.0

Top perfume with neutral opinions

EXAMPLES OF END RESULT

- `for_biggest_reviewers(1020788)`
`{'Cuir Amethyste Giorgio Armani for women and men'}`
 - `for_biggest_reviewers(28013)`
`{'Dior Homme Intense 2007 Christian Dior for men',`
`'Allure Homme Edition Blanche Chanel for men',`
`'Pi Neo Givenchy for men'}`
-

FOR USER 846098

- perfume_name
 - Euphoria Gold Men Calvin Klein for men 0.117564
 - Cuir Majeste Giorgio Armani for women and men 0.102170
 - Aqva Pour Homme Toniq Bvlgari for men 0.098706
 - Name: Davidoff Leather Blend Davidoff for women and men,
dtype: float64
-

FOR USER | 9383 |

- Bleu de Chanel Chanel for men 0.179950
 - Guerlain Homme Guerlain for men 0.139455
 - Dior Homme Intense 2007 Christian Dior for men 0.109610
 - Name:Allure Homme Edition Blanche Chanel for men, dtype: float64
 - Allure Homme Edition Blanche Chanel for men 0.139455
 - Habit Rouge Eau de Toilette Guerlain for men 0.126628
 - L'Homme Yves Saint Laurent for men 0.114867
 - Name: Guerlain Homme Guerlain for men, dtype: float64
 - Bleu de Chanel Chanel for men 0.139464
 - L'Homme Yves Saint Laurent for men 0.136541
 - Burberry Men Burberry for men 0.090801
 - Name:Versace Pour Homme Versace for men, dtype: float64
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WHAT HAPPENED IN BETWEEN

- Sentiment analysis, using Vader.
 - Cosine similarity between users.
 - Cosine similarity between perfumes.
 - Functions to search on each, and link the two.
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DATA ISSUES

- English reviews got tagged as non-English and dropped from the data frame because it contained perfume names (generally not English)
 - People used negative and positive statements often describing different aspects of the perfume, in the same review.
 - Hard to elicit sentiment because most of it was embedded in the context of the lengthy description, and their feelings about it. Plus they were poetic at times.
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LAST WORDS & NEXT STEPS

- Recommender systems needs more data, which I have.
 - Looking into neural networks for NLP in next project.
 - Recommend recently released perfumes based on notes from previously liked perfumes, and/or other characteristics, like season, time of day, designer, etc.
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