

## BACKGROUND

Because our recommendations are driven by customer reviews, we are taking an NLP approach to find the closest matches between users of similar skin type (including base skin type eg dry, normal, oily, combination; skin conditions eg eczema or psoriasis, rosacea, fungal acne, etc.; characteristics like blackheads, whiteheads, sensitive, uneven tone, etc.; goals eg hydrate, oil control/pores, etc.; and finally, acne severity). All of these are listed below under skin match ranking.

## TASK

Tf-idf ranking:

- a. A more semantic approach to retrieving relevant reviews in an unsupervised manner is to create a tf-idf ranking system. Could do this by using sklearn in python which has tfidfvectorizer libraries. Then do np.dot for cosine similarity to find the closest neighbors.

## MORE INFO

### Databases

[Product database](#)

[Review database](#)

### Skin match requirements

Base skin type match - match skin type indicated by user in consultation to skin type of reviewers in review database. (user consultation inputs, product database/tags, review database/skin type)

- Dry skin
- Normal skin
- Combination skin
- Oily skin

### Skin match ranking

Tf-idf ranking - of these reviews, analyze review comments to match text similarity and predict relevance to user (review database/review comment).

- Base skin type
  - Dry skin: dry; flaky; flakiness; flakes; flakey; flake; dryness; tight; tightness; parched
  - Oily skin: oily; oil; oiliness; grease; greasy; greaseball; pores; pore
- Conditions
  - Fungal acne: fungal; malassezia; bumps; bumpy; malassezia folliculitis; pityrosporum folliculitis; fungal infection; anti-fungal; anti-fungals; forehead bumps; bumpy forehead; itching; itchy; itchiness; cluster; clusters; clustering
  - Eczema or psoriasis: eczema; psoriasis; broken skin; itchy; flaky; sensitive; dry; peeling; fissure; fissures; scale; scales; scaly
  - Rosacea: rosacea, red flush, red flushing
- Characteristics
  - Whiteheads: white bumps; bump; bumps; bumpy; whiteheads; white heads; white head; congestion; congested

- Blackheads: blackheads; black heads; black head; black dots; black dot; nose
- PIH: PIH; hyperpigmentation; accutane; scar; scarring; scars; pigment; melanin; pigmented; post-acne; post-inflammatory hyperpigmentation; dark; brown (**conditions: sephora\_data/skin tone = dark, tan, deep, or olive**)
- PIE: PIE; hyperpigmentation; accutane; erythema; post-inflammatory erythema; red spot; red spots; scar; scarring; scars; pigment; melanin; pigmented; post-acne; post-inflammatory (**conditions: sephora\_data/skin tone = porcelain, light, fair, or medium**)
- Dry patches: dry patches
- Sensitive: sensitive; red; irritated; irritation; irritate; sensitized
- Very oily: very/super/so oily
- Uneven tone: uneven tone; uneven; unevenness; blotch; blotches; blotchy; patch; patches; patchy
- Goals
  - Fade hyperpigmentation: fade dark spots; fade; dark spots; melanin; melasma; age spots; sun spots; uneven tone
  - Brighten: brighten; glow
  - Oil control/pores: oil control; control oil; pore; pores; big pores; minimize pores; reduce pore size; reduce pore; reduce pores; smaller pores; small pores
  - Hydrate: moisturize; moisturizing; hydrate; hydrating; thirsty; moisture; water; restore; skin barrier; natural barrier; plump; heal
  - Soothe: soothe; soothing; calm; calming; reduce redness; less red; heal; relieve; refresh; rebalance; balance; anti-inflammatory; inflamed; inflammation; irritate; irritated; irritation; irritant; irritants
  - Clear blackheads: blackheads; black heads; black head; black dots; black dot; nose; clear
  - Clear whiteheads: whiteheads; white bumps; white bump; bump; bumps; bumpy; no head; white heads; white head; clear; congestion; congested
  - Protect: protect; protected; protection; strengthen; UV; UV exposure; sunlight; sunscreen; SPF; radicals; pollution; pollutant; pollutants; antioxidant; antioxidants
  - Fight acne: acne; acne-prone; fight acne; clear
- Acne Severity
  - 0
  - 1-2: mild acne; mild; few; pimple; pimples
  - 3-5: intermediate acne; acne-prone; pimple; pimples; congested
  - 6+: severe acne; acne-prone; pimple; pimples; cluster; clusters; clustering; congested