

synThread

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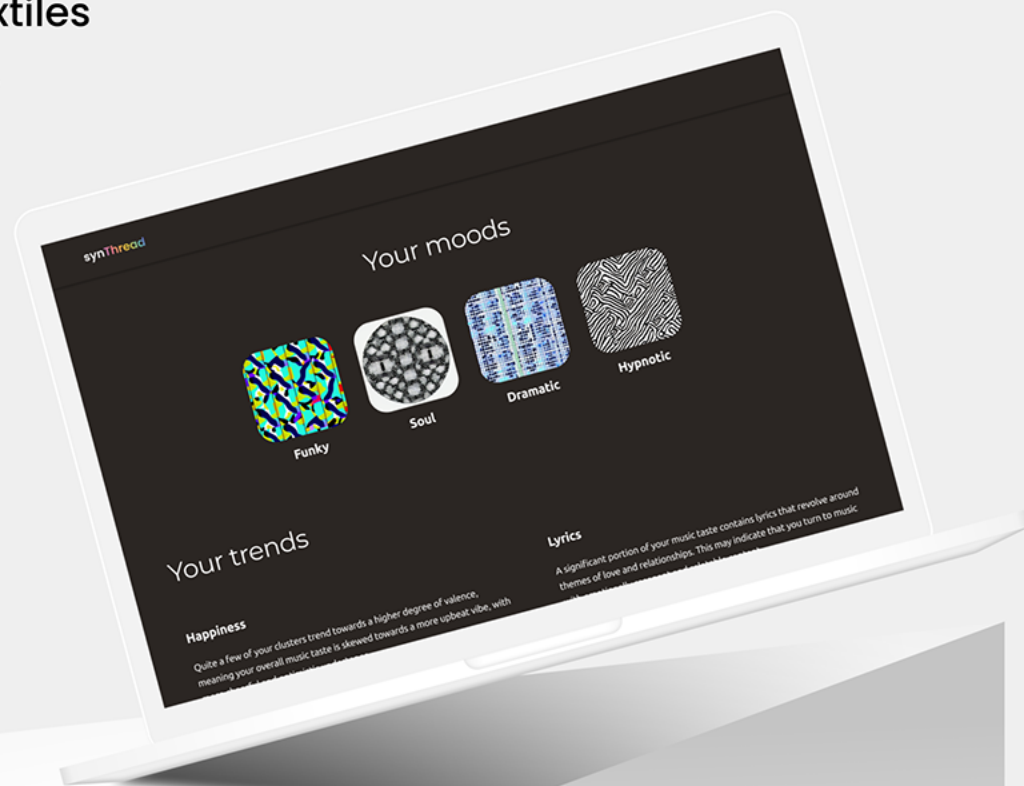
At the beginning, we asked ourselves:

How might we reinvent “the band t-shirt” so that it represents an individual’s overall taste in music?

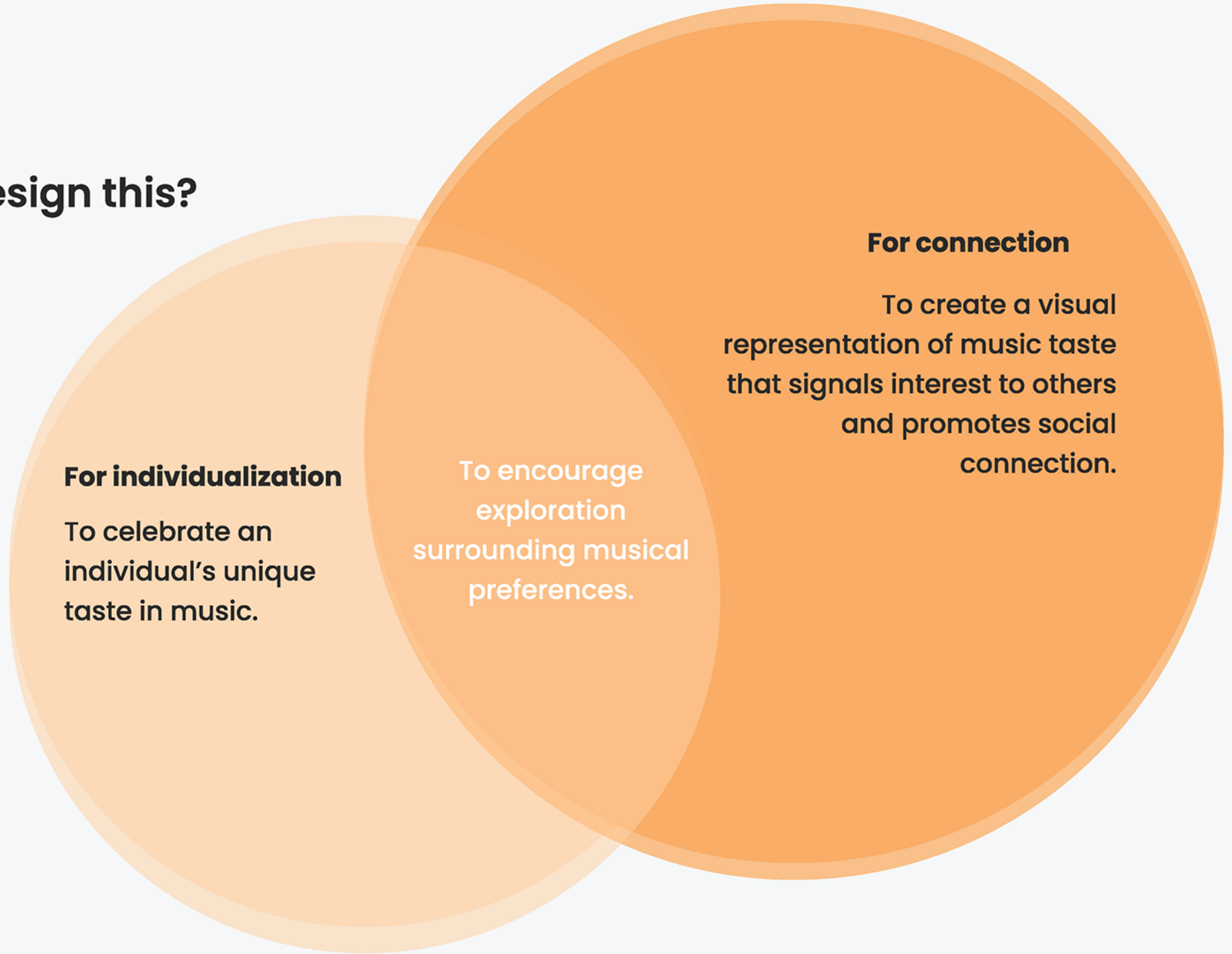


What did we build?

A web app that generates one-of-a-kind, personalized textiles that embody the essence of an individual's taste in music.



Why did we design this?



Who did we design for?

SPOTIFY SUBSCRIBERS

- › users of world's most popular music streaming platform, well-built API

MUSIC LOVERS

- › people that listen to music frequently and want to learn more about their own subconscious preferences

US-FOCUSED*

- › starting out with a small scope that aligns with Spotify's largest user base and music offering

AGES 18-35*

- › not a requirement, although helpful if the consumer is somewhere within the GenZ/Millennial age groups

**whoever chooses the training algorithms for the AI will inevitably skew the resultant images towards certain societies/cultures*

Approach

PROJECT SETUP

- API, dev stack setup
- Knitting machine setup
- Preliminary research
(literature review, interviews)

week 1

DATA DESIGN

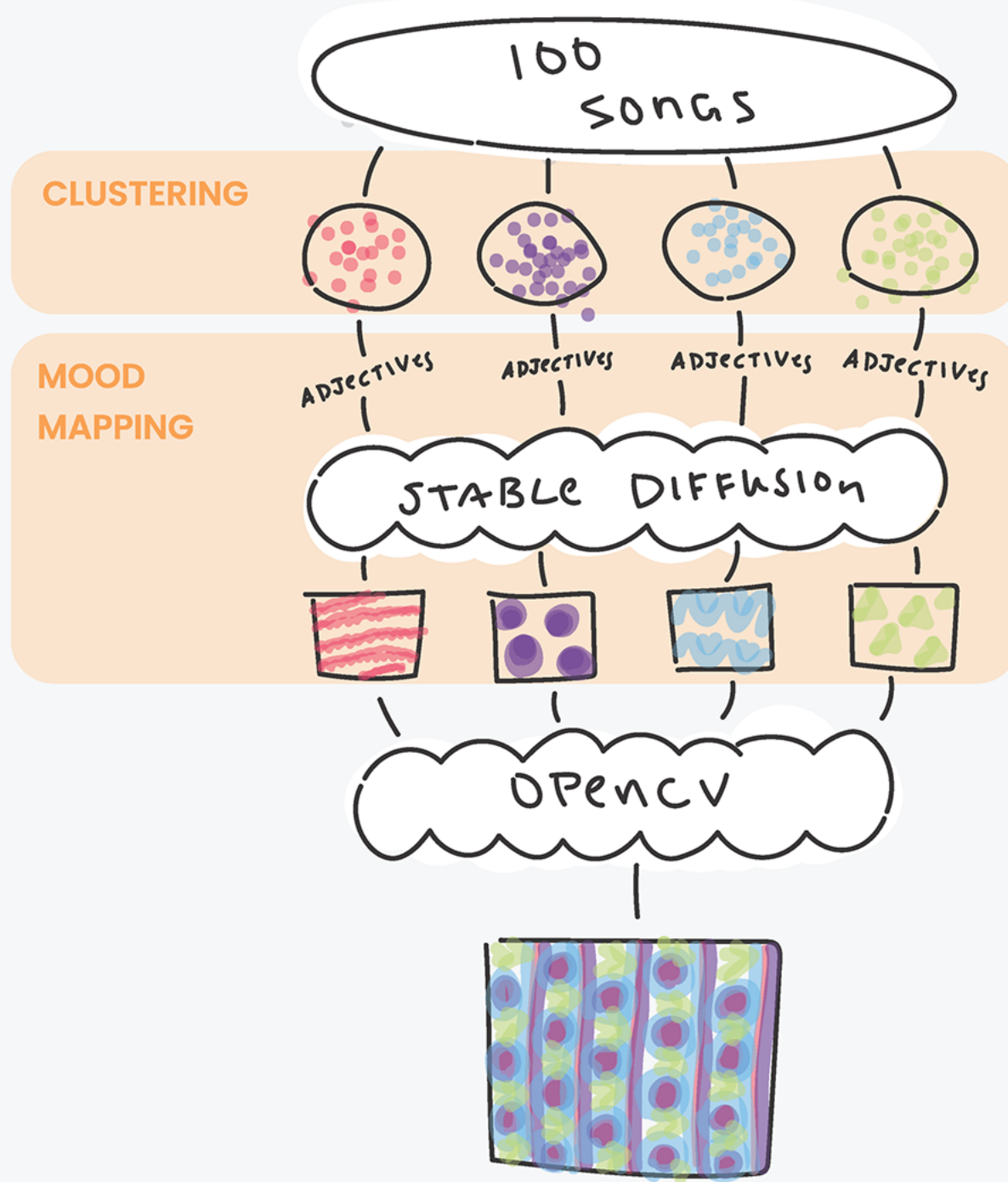
- Test song clustering strategies
- Determine mood mapping
(song > adjective > pattern)
- Iterate on crit feedback

week 2 & 3

PROTOTYPE DESIGN

- Create low fidelity mock ups
- Create high fidelity wireframes
- Rethink interaction patterns
- Iterate on crit feedback

week 4



🌟 Approach

Clustering

- Pull user's Top Songs of 2021
- For each song, pull 9 variables (ex. danceability, valence, tempo, key...)
- Map songs across 9 variables
- Use K-means algorithm to cluster songs into four distinct "moods"

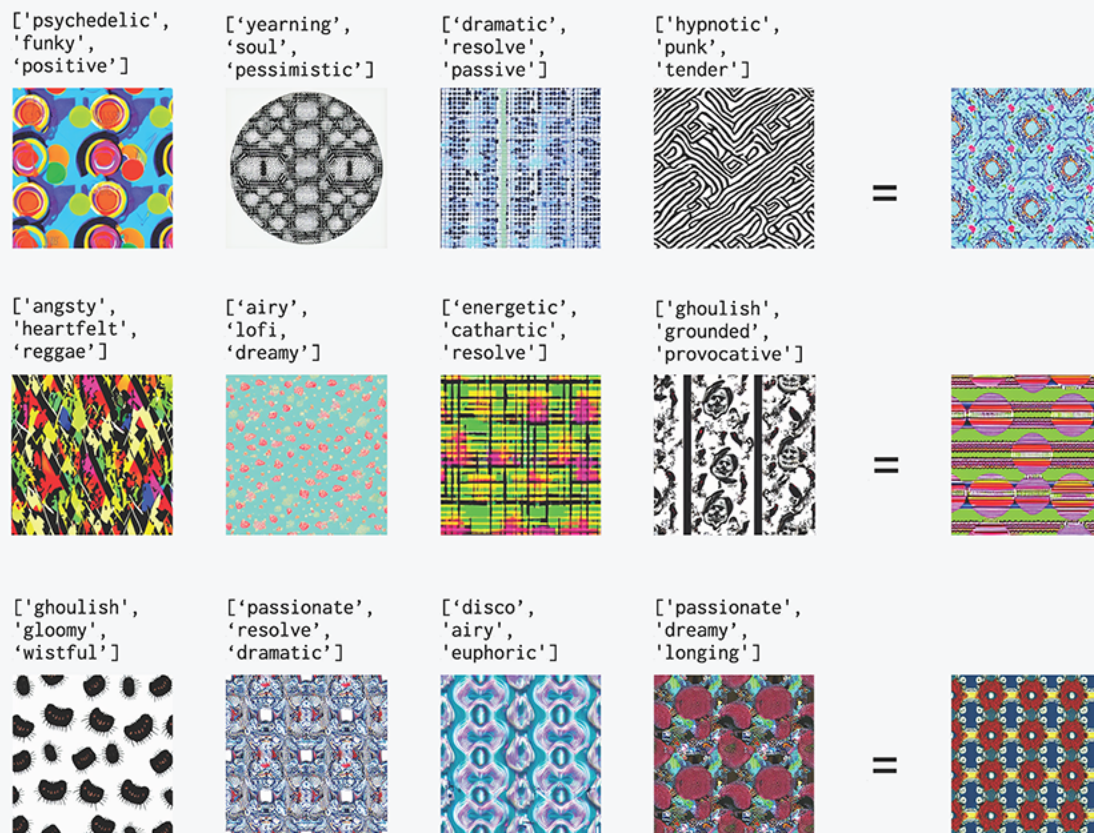


2D representation of K-means clusters
($K = 4$)

Mood mapping

- Created table that relates each possible song type to a unique adjective (ex. psychedelic, melancholic)
- Feed generated adjectives from songs into text-to-image AI (Stable Diffusion)
- Each cluster will determine the “strongest” representative seed image
- Seed images fed into OpenCV (Python library) to generate final textile pattern

valence	danceability	acousticness	energy	speechiness	mood
sad	not_danceable	electronic	chill	not_spoken	passive
sad	not_danceable	electronic	chill	not_spoken	wistful
sad	not_danceable	electronic	chill	spoken	emotive
sad	not_danceable	electronic	chill	spoken	resentful
sad	not_danceable	electronic	amped	not_spoken	acidic
sad	not_danceable	electronic	amped	not_spoken	trancey
sad	not_danceable	electronic	amped	spoken	ghoulish
sad	not_danceable	electronic	amped	spoken	jarring



Clustering

CHALLENGE

- > the human ear can "group" a set of songs so easily... why can't we use just a few dimensions (ex. tempo, valence...) to do the same?

LEARNING

- > it's impossible to group songs based on just a few dimensions at a time, we need to use at least 5

SOLUTION

- > rely on clustering algorithms like K-means to identify relationships between 9 dimensions

Mood mapping

CHALLENGE

- > translating sound to a visual medium can be done in a million different ways.

LEARNING

- > all we need to do is find a way that resonates with *most* people.

SOLUTION

- > feed qualitative adjectives (ex. psychedelic) to text-to-image AI (Stable Diffusion) that generates highly relatable visual imagery.

Open questions

CHOOSING AN AI

- › How does our choice of AI bias the visualizations (i.e. patterns) towards a particular target audience?
- › Do "unbiased" AIs exist?

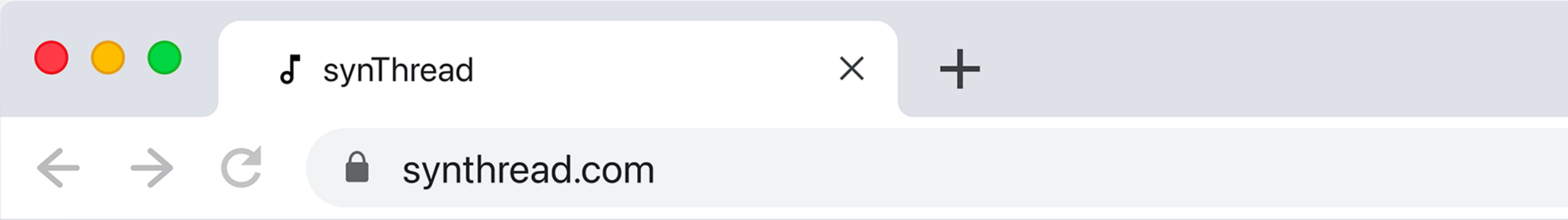
DATA SOURCES

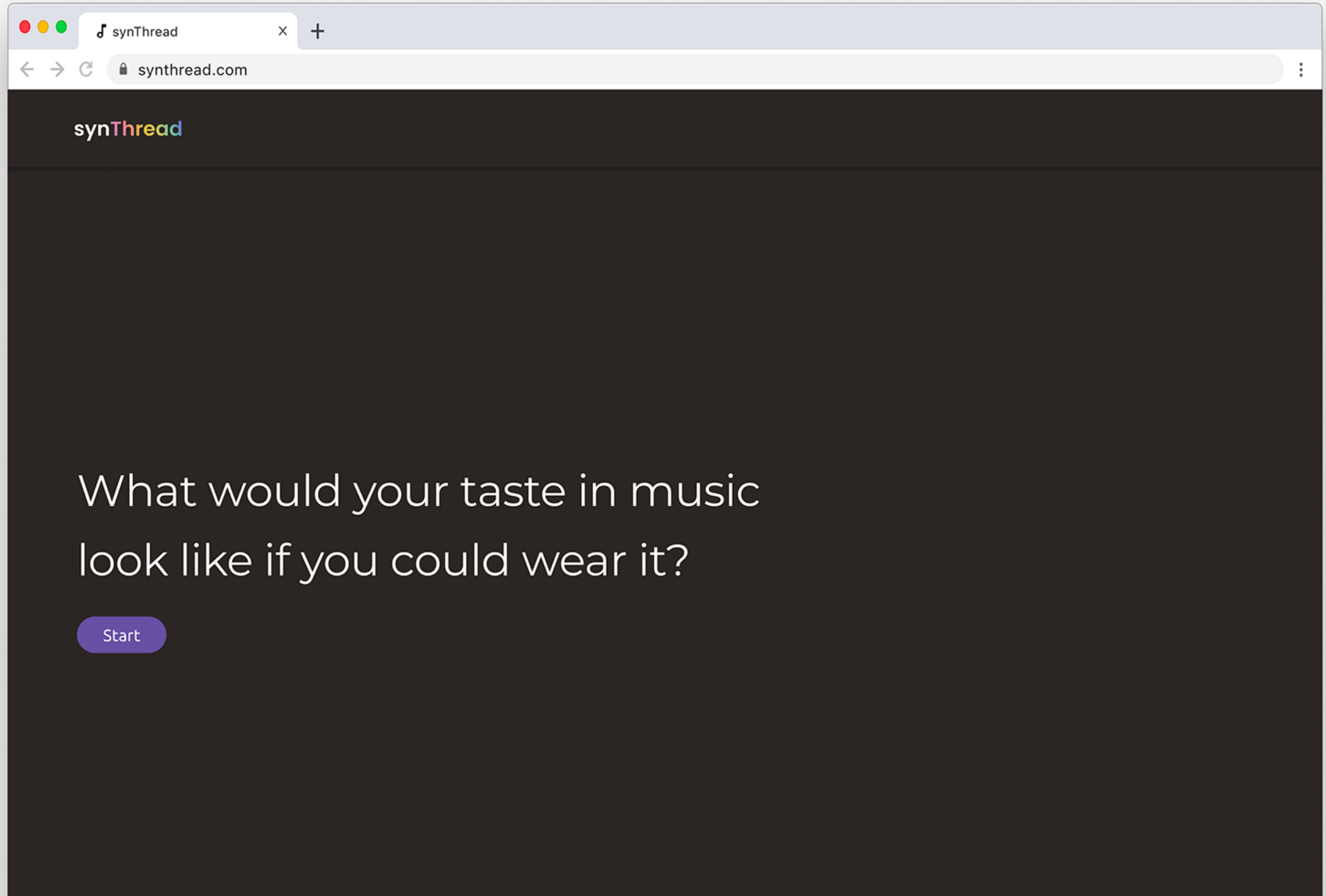
- › How limiting is it to rely on Spotify metadata?
- › Is there any additional value in analyzing the raw audio file?

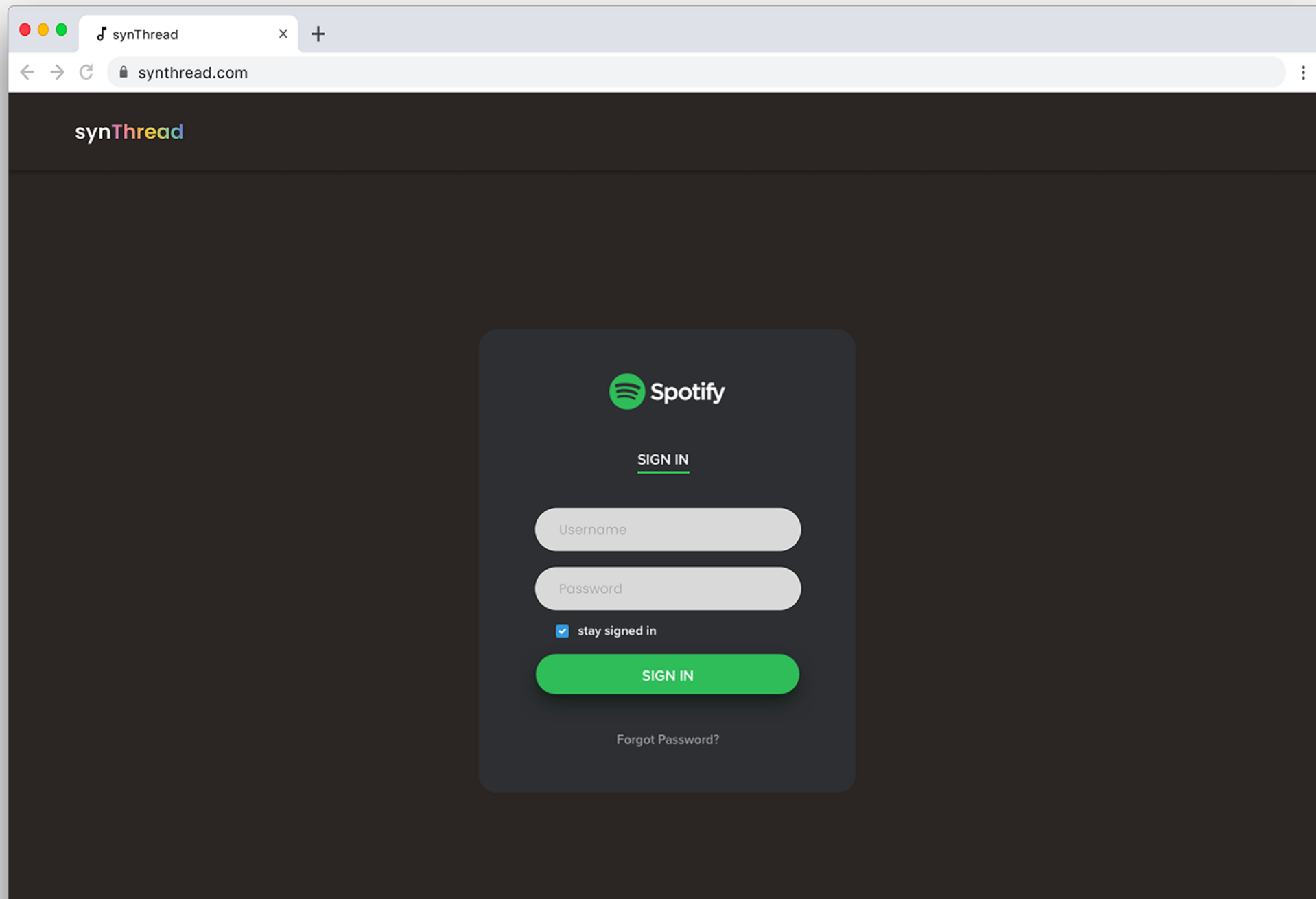
Looking forward

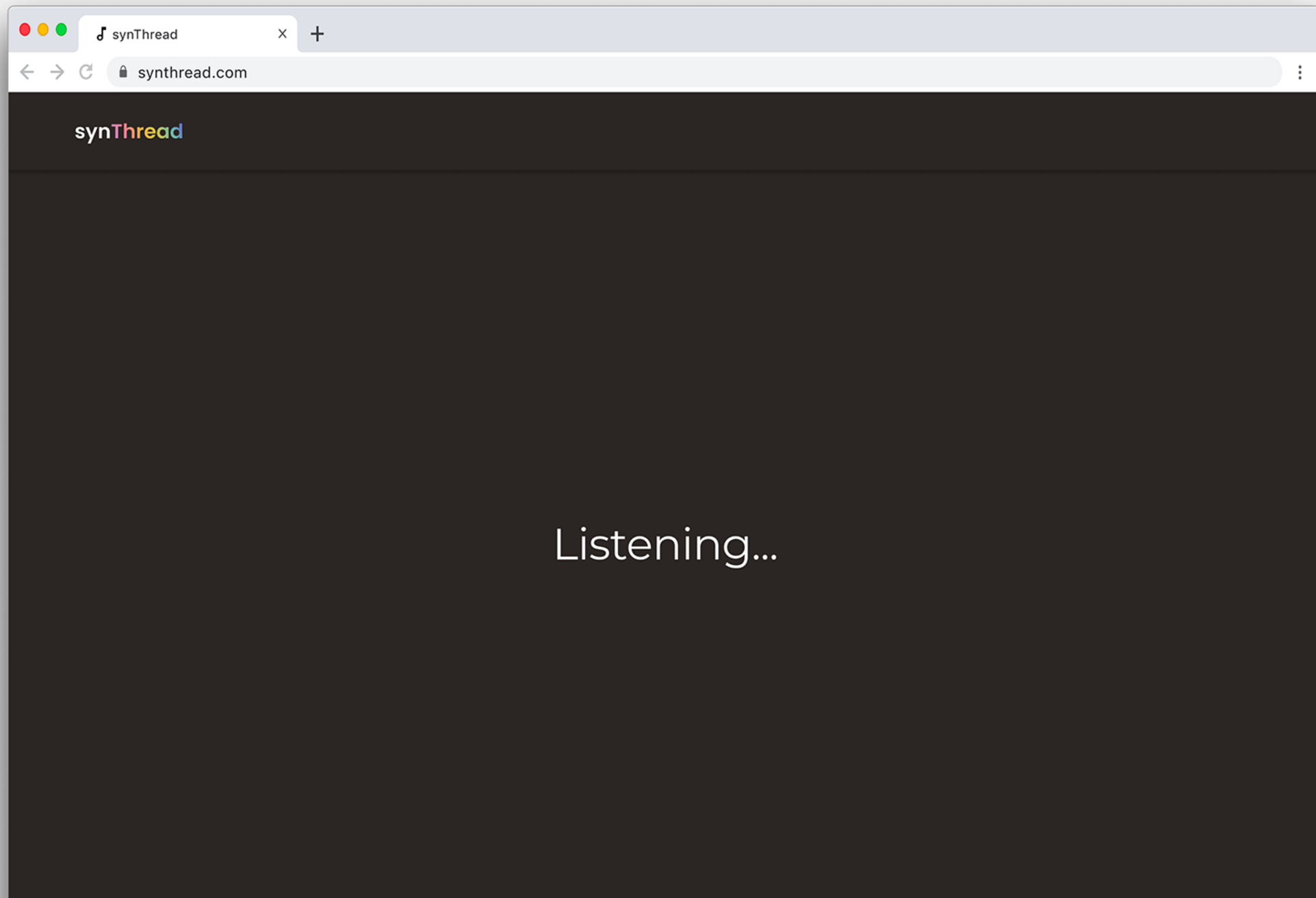
COOL PATTERN... NOW WHAT?

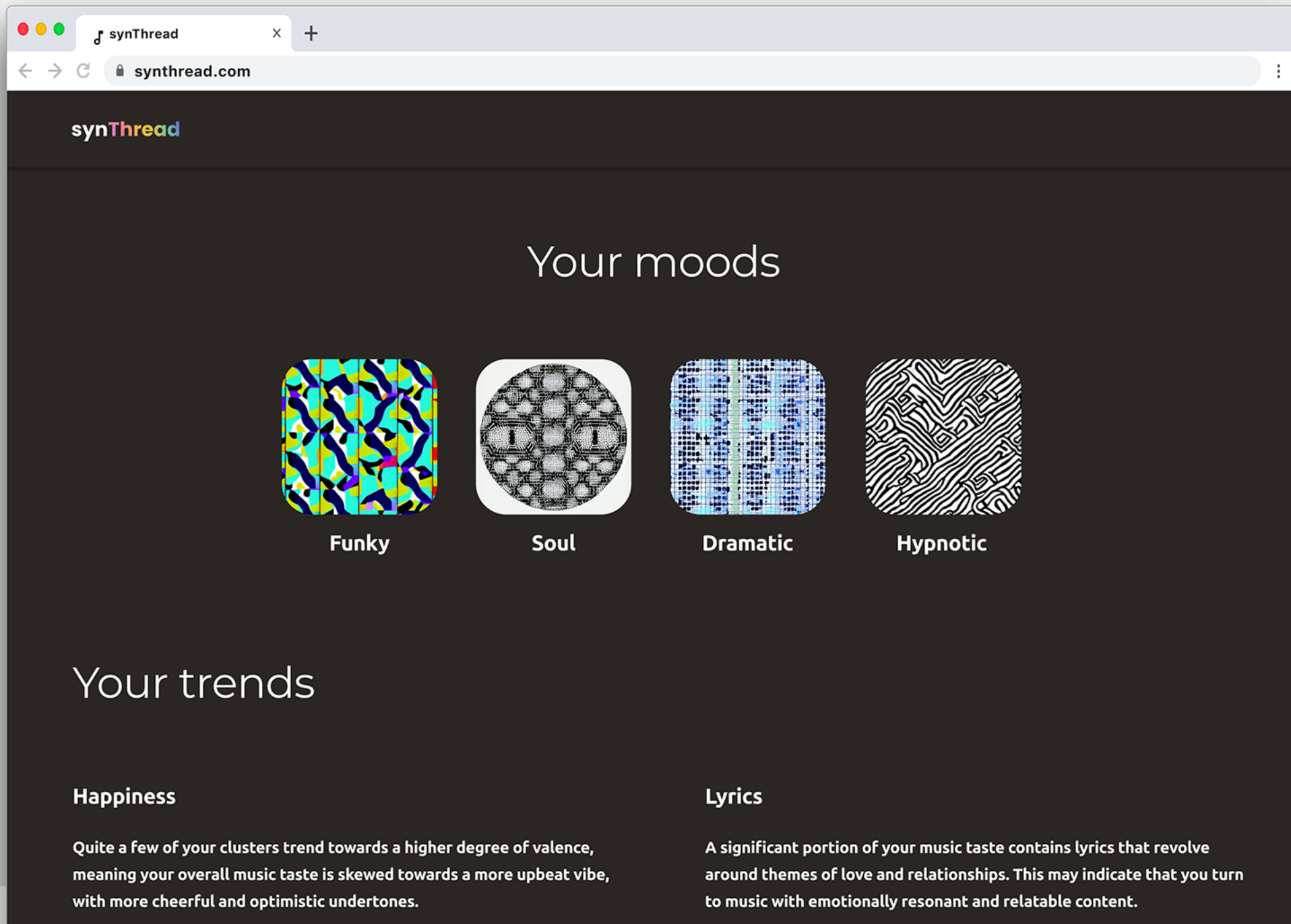
- › How might we better "close the loop" at the end of this?
- › How can we enhance the social connection side of things?
- › What's the best shareable application of the pattern that this project creates?









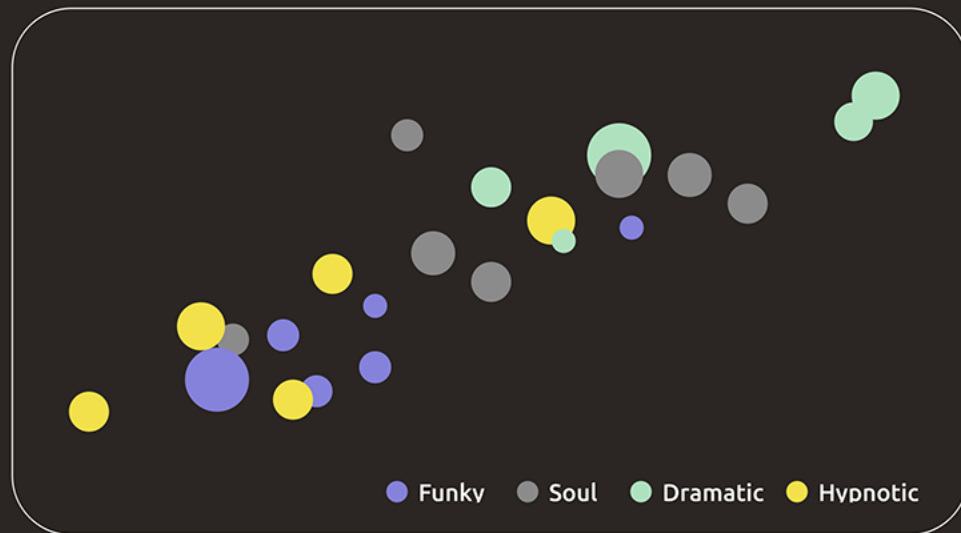


The science

How we clustered

We pulled your top 100 songs from Spotify to sift through them and identify trends.

For each song, we pulled 9 variables (ex. tempo, key, etc.) and compared them to all of your other songs to see where patterns occur.



Your knit

Unique to you

After we identified your four main moods, we took the outstanding characteristics for each cluster (ex. very happy, high energy) and combined them to create a singular pattern that represents your overall taste in music.

Save 

Share 