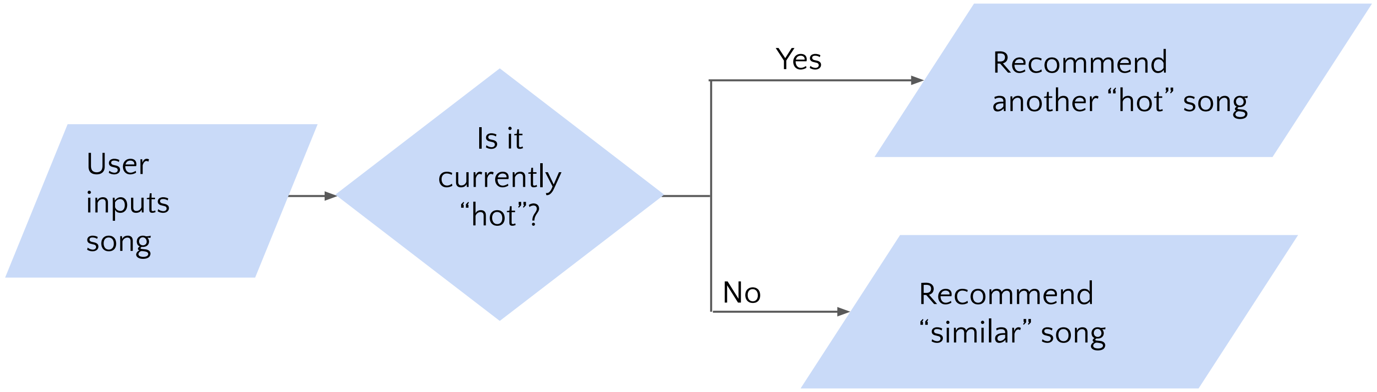
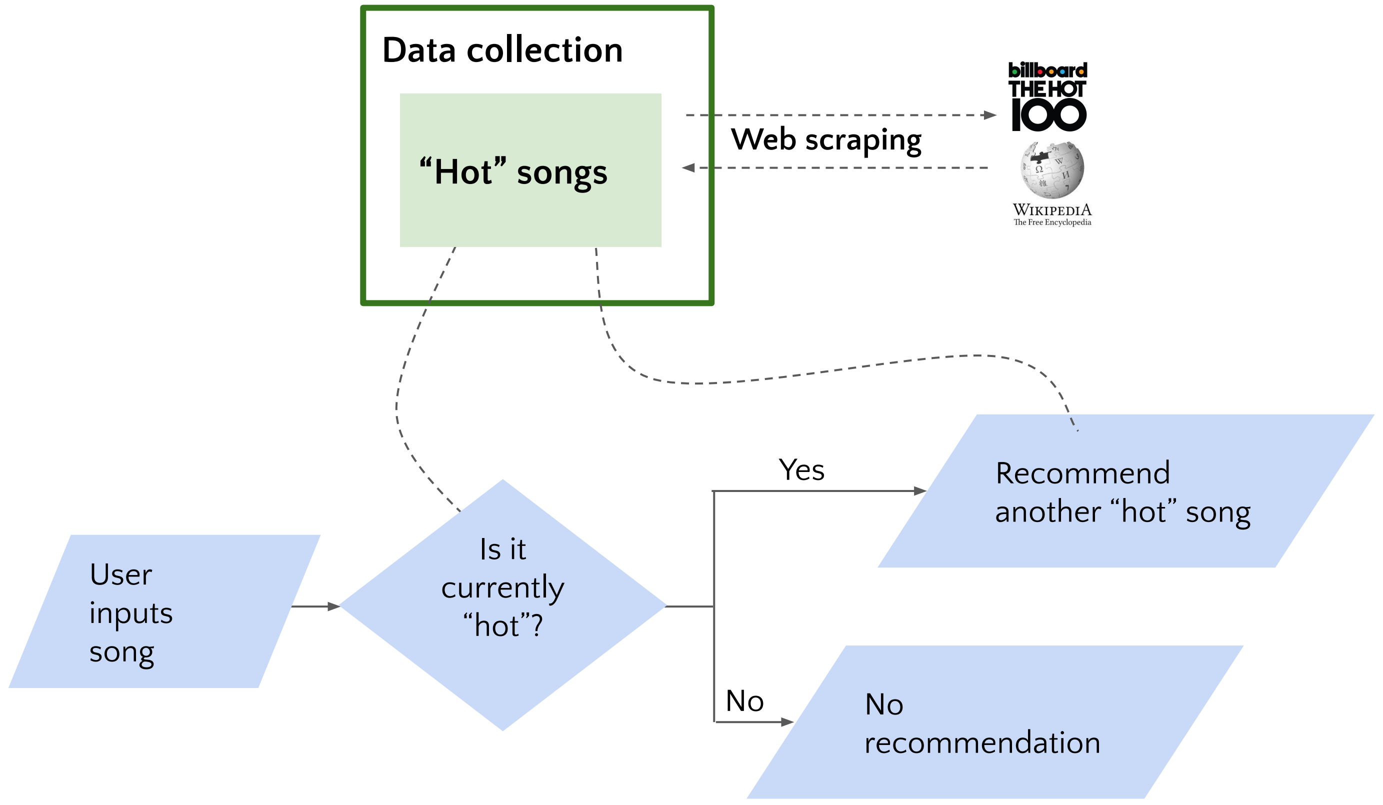
Project flowchart

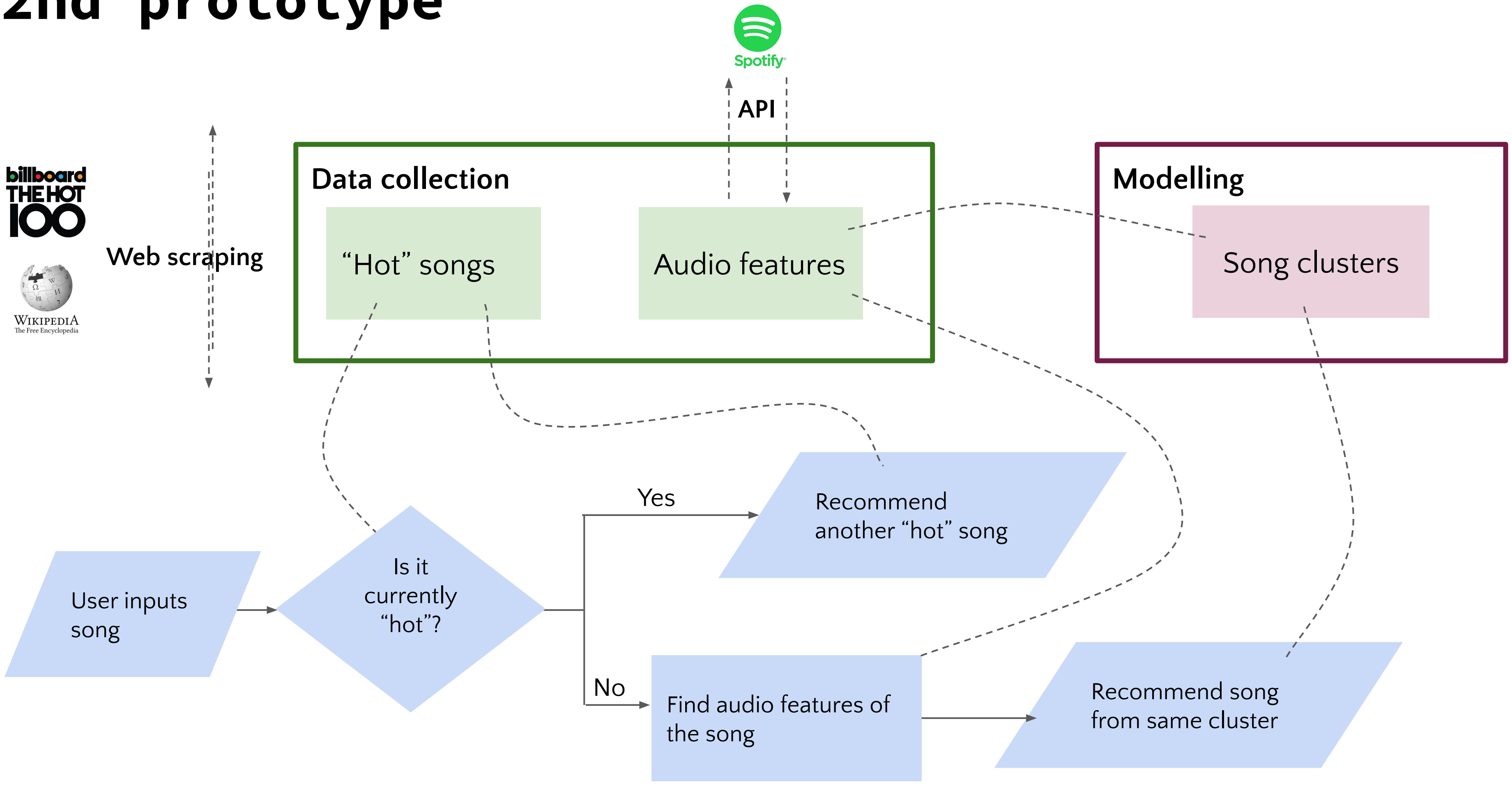


Sorry , your song is not in the hot list!

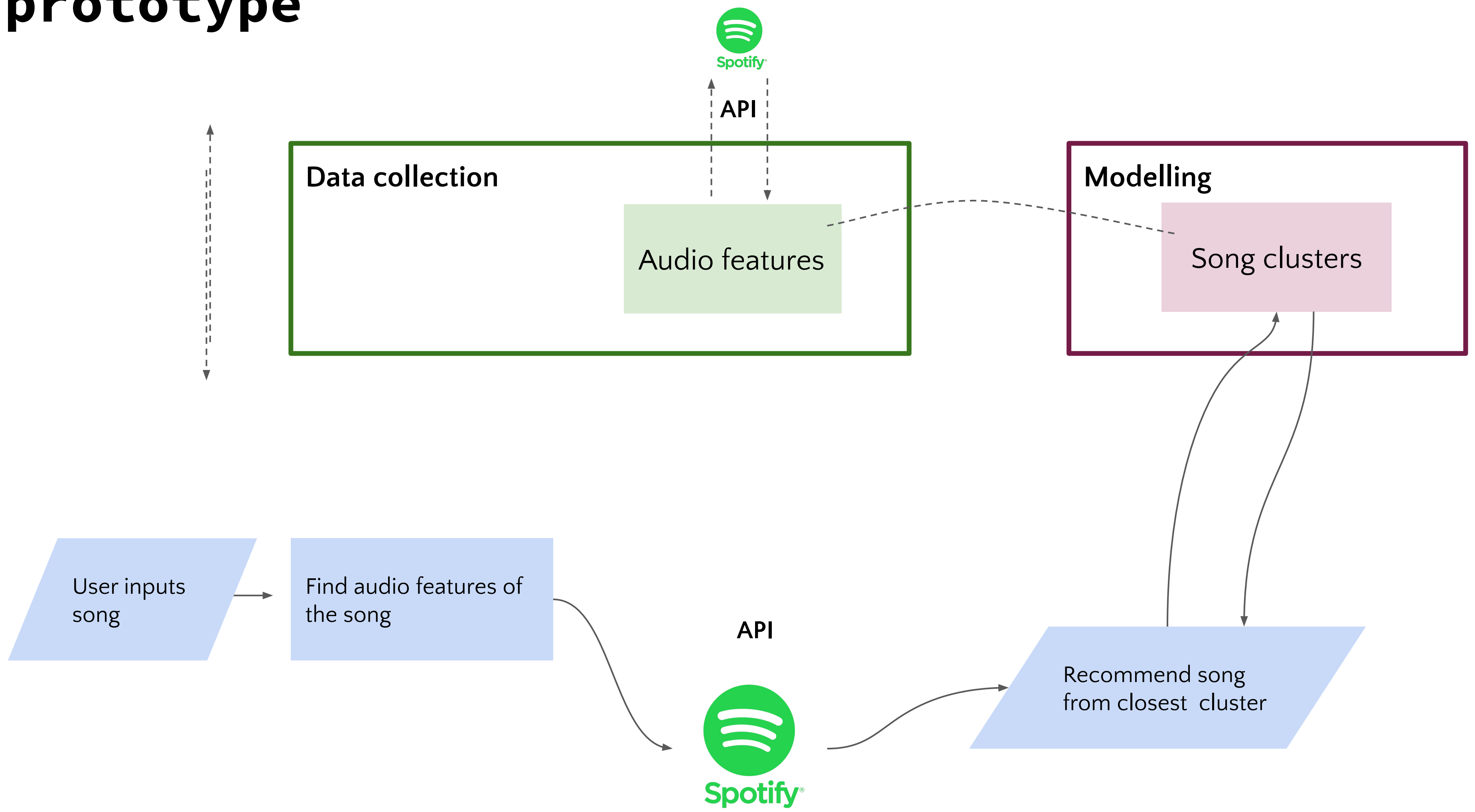
1st prototype

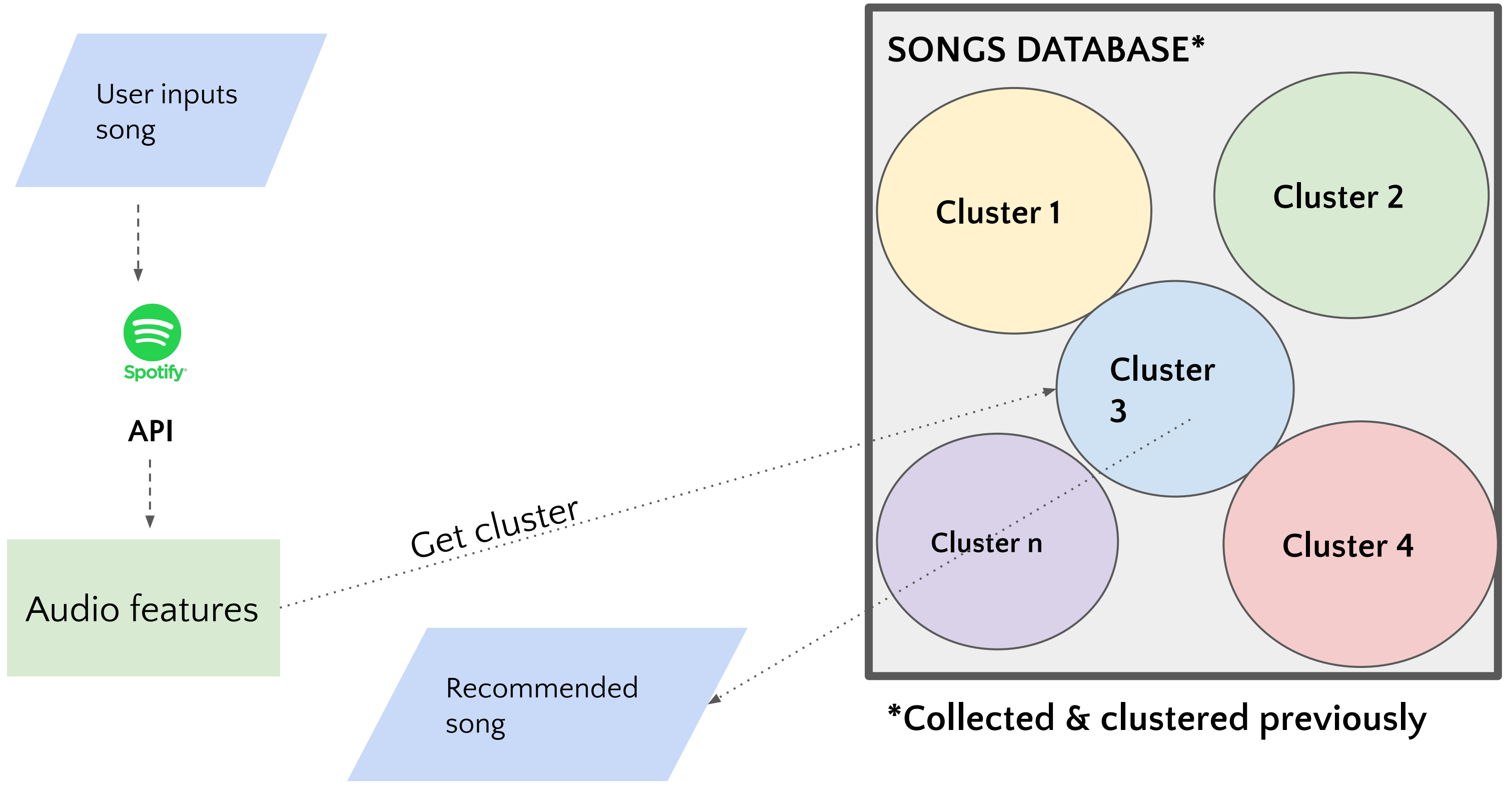


2nd prototype



prototype


Spotify
API
Data collection
Audio features
Modelling
Song clusters
User inputs song
Find audio features of the song
API
Spotify
Recommend song from closest cluster


User inputs song
Spotify
API
Audio features
Get cluster
Recommended song
SONGS DATABASE*
Cluster 1
Cluster 2
Cluster 3
Cluster n
Cluster 4
*Collected & clustered previously

In this final part of the project, you should be focusing in 2 big areas:

1. **Cluster the songs you collected:**

- scale the audio features of your songs. this should create an object called `scaler` (store it, you're gonna need it in the future) and an array with scaled features, let's call it `X_scaled`
- initialize a KMeans model with `kmeans = KMeans(random_state=1234)`(don't waste time on parameters /number of clusters for now - use defaults!)
- fit the model to your data using `kmeans.fit(X_scaled)`
- create a column called cluster in your original dataframe, with the assigned cluster, using `X["cluster"] = kmeans.predict(input_song)`
- this process should only be done once, not every time a song is inputed! However, you are going to need the clustered dataframe `X` , the `scaler`, and the `kmeans` model to be loaded in your environment (i.e. notebook) when the user inputs a song. Tip: consider doing this through creating a module and loading it from another notebook.

1. **Assemble the project pipeline:**

When the user inputs a song, you should be able to:

- receive an input song from a user. let's imagine it's *Bohemian Rhapsody*
- send "*Bohemian Rhapsody*" to the Spotify API and get its audio features. store them in a variable called, for example, `song_audio_features`
- scale the audio features using `song_scaled = scaler.transform(song_audio_features)` (this is the `scaler` we created above!)
- get the cluster of the song, using `kmeans.predict(song_scaled)` (this is the `kmeans` model we created above!). Let's imagine it's cluster 3.
- from your dataframe of collected songs `X` , get a random song that belongs to cluster 3. Let's imagine it's *Stairway to Heaven*.
- print *Stairway to Heaven*: this is your recommendation!