**Chapter 3 Exercises**

The purpose of this exercise is to help you practice the concepts/hands on skills covered in Chapter 3.

**Question 1:** By using the Spotify API, scrape several songs from two of your favorite singers. For each singer’s songs scrape the following data: acousticness, danceability, energy, instrumentalness, liveness, loudness, speechiness, tempo, valence, popularity. Hint: you can use example 4 to do this.

**Question 2:** Based on the average values of acousticness, danceability, energy, instrumentalness, liveness, loudness, speechiness, tempo, valence, popularity, is there any statistical difference between the two singers? Employ t-tests here and interpret your findings.

**Question 3:** For each singer, scrape the lyrics of their 3 songs you love. For each singer, draw a word cloud to demonstrate their top used words in their songs. What are the word similarities/differences between the word clouds?

**Question 4:** Are there explicit words in the lyrics? If yes, identify them with their frequency counts. Based on your findings, is there a relationship between the explicit word usage and song popularity?