poloclub.github.io/#cse6242

CSE6242/CX4242: Data & Visual Analytics

Data Collection

Duen Horng (Polo) Chau

Associate Professor, College of Computing

Associate Director, MS Analytics

Georgia Tech

Partly based on materials by Guy Lebanon, Jeffrey Heer, John Stasko, Christos Faloutsos

How to Collect Data?

Method	Effort	
Download	Low	
API (Application program interface)	Medium	
Scrape/Crawl	High	

Data you can just download

NYC Taxi data: Trip (11GB), Fare (7.7GB)

StackOverflow (xml)

Wikipedia (data dump)

Atlanta crime data (csv)

Soccer statistics

Data.gov

…

Data you can just download

If you have leads, let us know on Ed Discussion!

More datasets on course website:

CSE6242A/CX4242A Schedule Homework Project Warnings Polici s Datasets R sources

There are multiple CSE6242 sections. This is the course homepage for **campus CSE6242A/CX4242A**

CSE6242A/CX4242A Spring 2023

Data and Visual Analytics

Georgia Tech, College of Computing

Tue & Thu, 5:00-6:15pm, Clough 152

Collect Data via APIs

Google Data API

(e.g., Google Maps Directions API)
https://developers.google.com/gdata/docs/directory

Twitter (small subset)

https://dev.twitter.com/streaming/overview

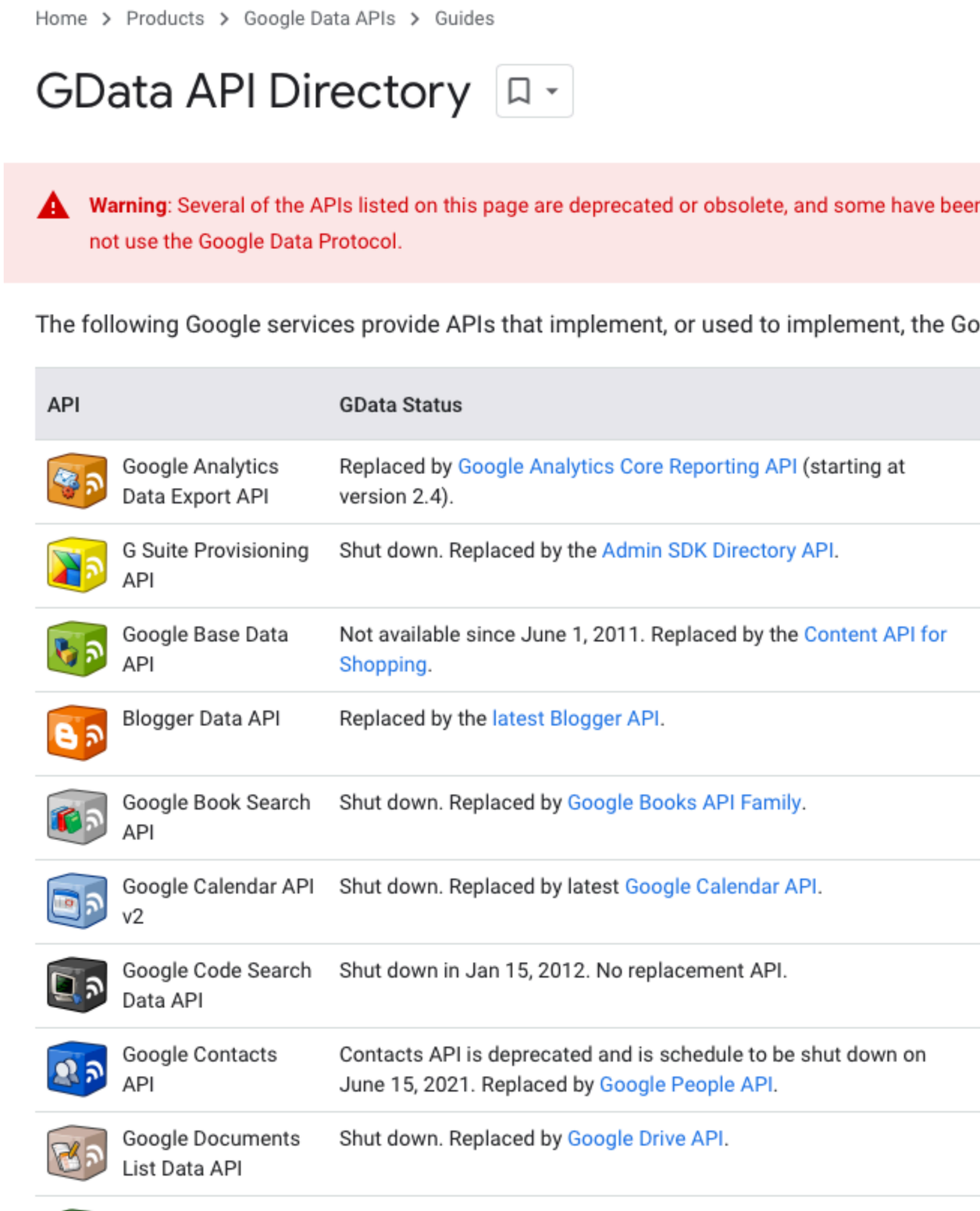
Last.fm (Pandora has unofficial API)

Flickr

data.nasa.gov

data.gov

Facebook (your friends only)



Home > Products > Google Data APIs > Guides

GData API Directory

Warning: Several of the APIs listed on this page are deprecated or obsolete, and some have been not use the Google Data Protocol.

The following Google services provide APIs that implement, or used to implement, the Go

API	GData Status
Google Analytics Data Export API	Replaced by Google Analytics Core Reporting API (starting at version 2.4).
G Suite Provisioning API	Shut down. Replaced by the Admin SDK Directory API.
Google Base Data API	Not available since June 1, 2011. Replaced by the Content API for Shopping.
Blogger Data API	Replaced by the latest Blogger API.
Google Book Search API	Shut down. Replaced by Google Books API Family.
Google Calendar API v2	Shut down. Replaced by latest Google Calendar API.
Google Code Search Data API	Shut down in Jan 15, 2012. No replacement API.
Google Contacts API	Contacts API is deprecated and is schedule to be shut down on June 15, 2021. Replaced by Google People API.
Google Documents List Data API	Shut down. Replaced by Google Drive API.

Data that needs scraping

Amazon (reviews, product info)

ESPN

eBay

Google Play

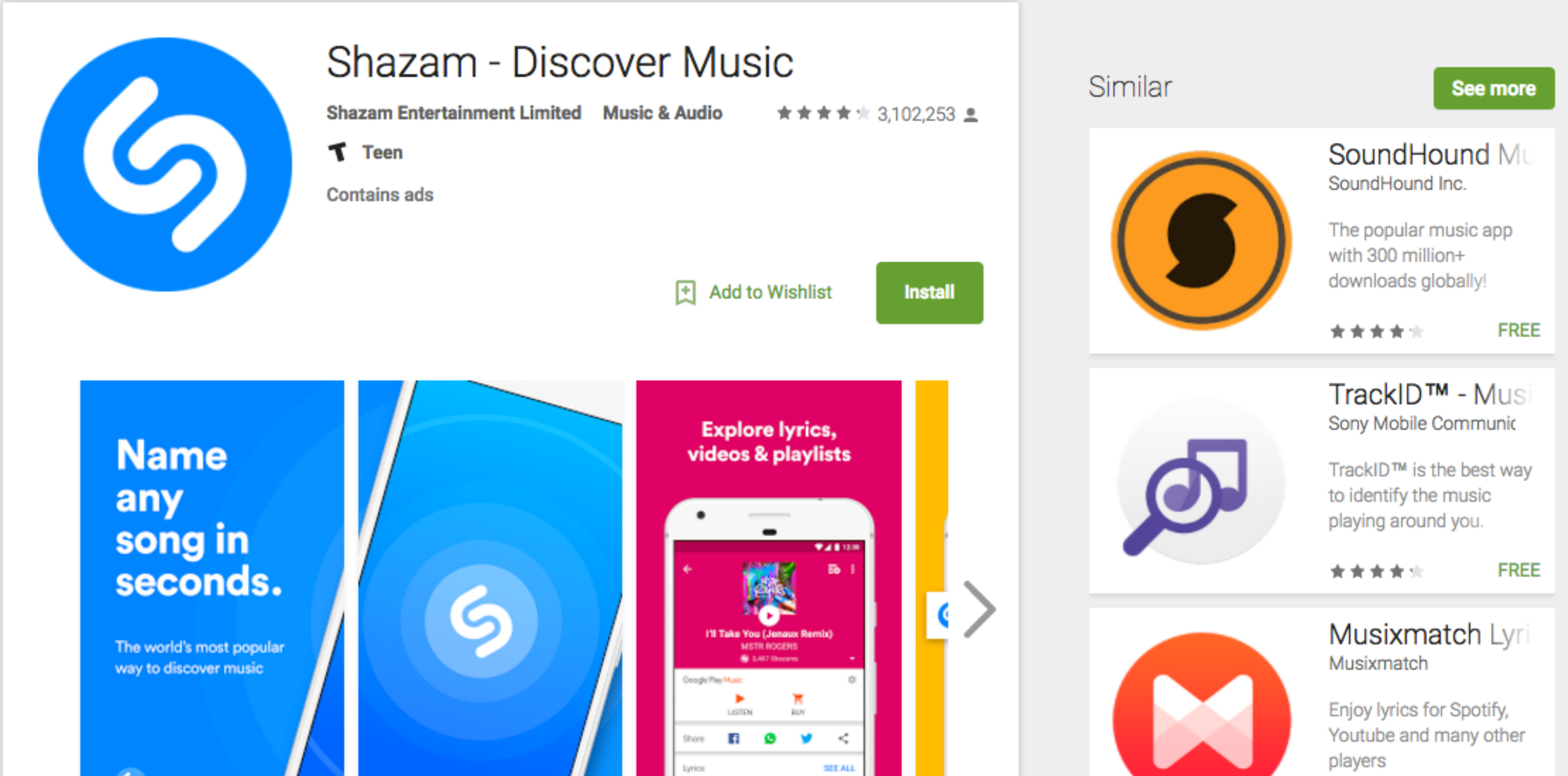
Google Scholar

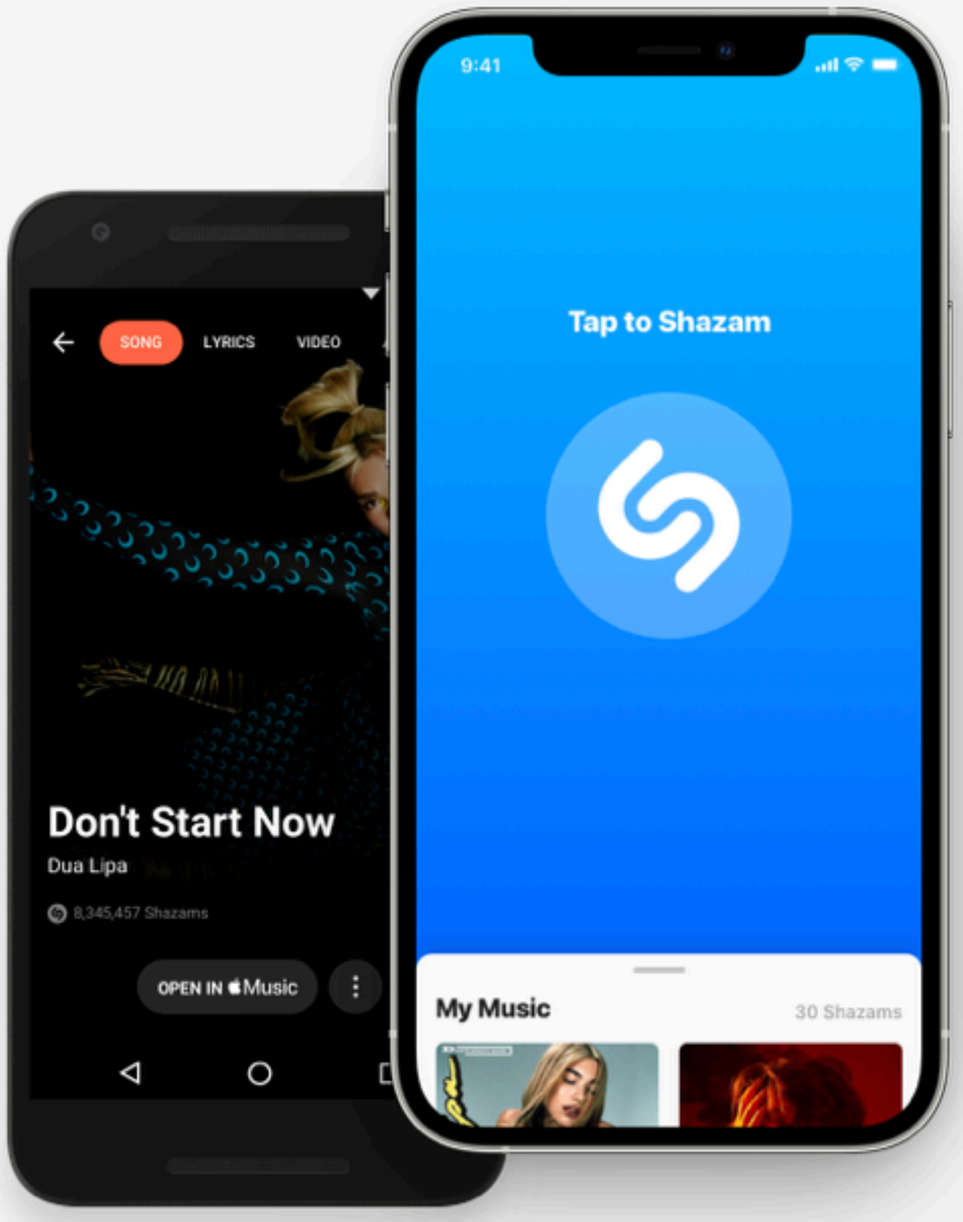
...

How to Scrape?

Google Play example

Goal: collect the network of similar apps





DOWNLOAD THE APP

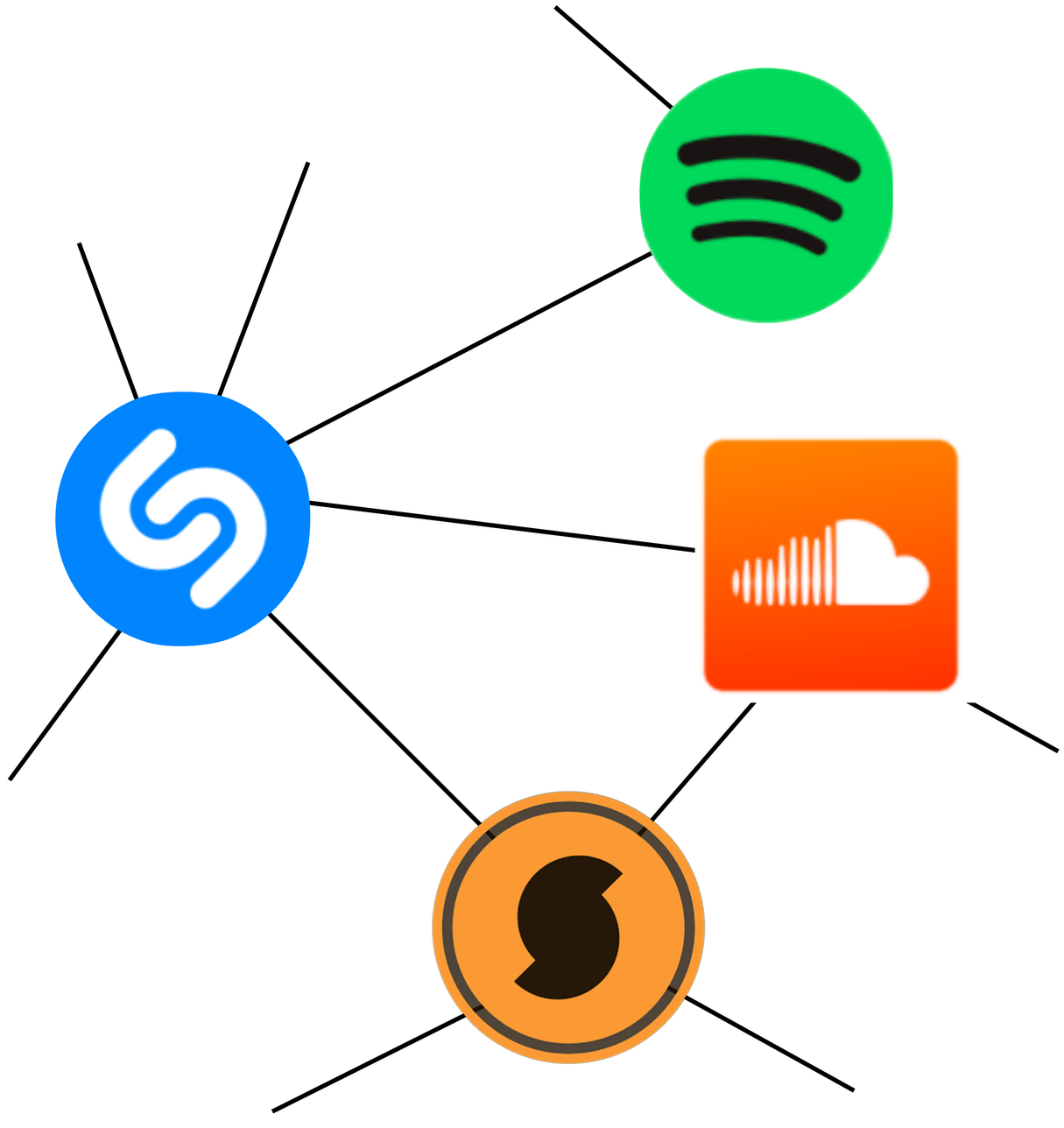
Identify songs around you on the go

Use your phone's camera to scan and download the free Shazam app

Available on iOS, Android and more devices

How to Scrape?

Goal: Write a **program/algorithm** to scrape Google Play to **collect a million-node network** of similar apps



Each **node** is an app

An **edge** connects two similar apps

Hint: start with some apps (e.g., Shazam), and go from there.

How to Scrape?

Google Play example

Goal: collect the network of similar apps

https://play.google.com/store/apps/details?id=**com.shazam.android**

https://play.google.com/store/apps/details?id=**com.spotify.music**

Popular Scraping Libraries

Selenium. Supports multiple languages. http://www.seleniumhq.org
Beautiful Soup. Python. https://www.crummy.com/software/BeautifulSoup
Scrapy. Python. https://scrapy.org
JSoup. Java. https://jsoup.org

Important considerations:

Different web content shows up depending on web browsers used
Scraper may need different “web driver” (e.g., in Selenium), or browser “user agent”

Data may show up after certain user interaction (e.g., click a button)

- Scraper may need to simulate the actions.
- Selenium supports more actions than beautiful soup: http://www.discoversdk.com/blog/web-scraping-with-selenium