UNIT 7 – More Apps

Reading 1

Skills:

- Details

- Understand vocabulary in context

Getting started: What did you use to do to identify a song you heard and liked when apps like Shazam didn't use to exist?

HOW DO MUSIC IDENTIFICATION APPS LIKE SHAZAM WORK?

Music identification apps seem like magic at first, but deep down there's a sophisticated algorithm that can find songs in an instant. It's probably happened to all of us. You're having dinner at a nice restaurant, hanging out at a coffee shop, or walking around in a store, when you suddenly hear a great song playing over the speakers. So, you pull out your phone, open Shazam, and hold up your device to the ceiling. **In just a flash**, the app tells you what the song is, who the artist is, and where to stream it. This kind of app is quick, remarkably accurate, and can identify

LIVEWORKSHEETS

even the most underground songs. Basically, an app like Shazam works by isolating the song out of a recording and searching it against an expansive database of tracks. But the technology behind how this works is quite complex and impressive.

At first glance, music identification apps like Shazam may seem simple. You might think they just listen to the lyrics, the same as any voice assistant, and search it in a database of song lyrics to tell you what the song is. However, most music identification apps are capable of telling what the title of an instrumental is or even the singer of a cover song thanks to an exceptional algorithm that has revolutionized the music world. Instead of analyzing the lyrics of the track, the apps look for "fingerprints" that are unique to each song in their extensive databases. You probably have devices that can be unlocked using your fingerprint, which is the arrangement of the small lines on your finger that are unique to you. Similarly, when you hold up your microphone to record a brief clip of a song, this clip turns into patterns of data that Shazam or another app can look up in their database.

Some would say that method could experience several problems. Most of the time that you hear music in public, there's background noise and distortion caused by the speakers, which can make songs unidentifiable or result in inaccurate matches. Also, there's a lot of data captured in even a brief sound clip, which can make searching for these patterns across a database of millions of songs slow. To **fix** these issues, the information of an audio clip can be visualized with a 3D chart known as a spectrogram, which represents a change in frequencies over a period of time. It also takes into account amplitude, which is how loud a sound is. This is represented in a spectrogram using the intensity of color.

In the same way that humans cannot perceive sound unless they are at a particular frequency, instead of taking the whole song into account when performing a search, Shazam only takes in "peaks," which is the highest energy content within an audio clip. The fingerprints it captures consider the highest frequency points within a given time frame and then the peak amplitude spots **within** those frequencies. This method allows them to take out most of the unnecessary parts of an audio clip like background noise and to clear up distortion. It also makes the size of the prints small enough that it takes mere milliseconds to identify a song among their vast database.

LIVEWORKSHEETS

Aside from being helpful for average listeners who hear a song they like, music identification apps also help shape the music world. Radio stations and streaming services often use the data regarding what people are **Shazaming** the most to figure out what tracks are being listened to by the public. This is helpful because it indicates a song's catchiness and potential popularity, regardless of the artist. When you identify a song with the app, you'll immediately see how many people have also tried to identify it.

Since the rise of Shazam, a handful of competitors have also popped up. Soundhound claims to be able to identify a song simply by you singing or humming to it, with mixed results. There's also a song identifier integrated with voice apps such as Google Assistant that work very similarly to Shazam's system.

**Adapted from https://www.howtogeek.com/659614/how-do-music-identification-apps-like-shazam-work/*

Answer the following questions:

1. What is stated about Shazam in paragraph 1?
    a. You can use it to find the name of songs that aren't famous.
    b. It's mostly used in restaurants and cafés.
    c. It's an application that isn't exact.
    d. You have to download a database to make the app work.

2. In paragraph 1, what word can replace the phrase **in just a flash**?
    a. Now
    b. Bright
    c. Express
    d. Immediately

3. What is stated about music identification apps in paragraph 2?
    a. You activate the apps with your fingerprint.
    b. The algorithm they use is unique.
    c. They are very simple applications.
    d. You must enter part of the lyrics to get the song.

4. What aspects are taken into account to identify a song?
    a. Patterns and information
    b. Spectrogram and intensity

LIVEWORKSHEETS

c. Frequencies and amplitude
d. Background and distortion

5. The word **fix** in paragraph 3 can be replaced by
   a. decide
   b. solve
   c. focus
   d. organize

6. What is stated about Shazam in paragraph 4?
   a. It analyzes the complete song.
   b. Shazam's database is quite modest.
   c. It takes Shazam a long time to identify a song.
   d. Shazam uses the most powerful parts of a song to detect it.

7. The word **within** in paragraph 4 is closest in meaning to
   a. inside
   b. before
   c. behind
   d. near

8. The term **Shazaming** in paragraph 5 means
   a. listening to a song
   b. downloading the app
   c. making a song popular
   d. looking for a word on Shazam

9. What sentence summarizes the highlighted part in paragraph 6?
   a. Shazam owners have helped other developers to create new apps.
   b. Pop music is the main genre people search for on Shazam.
   c. The popularity of Shazam has caused similar apps to appear.
   d. Other apps aren't good enough to compete against Shazam.

What do you think?

Do you use Shazam? Have you had a good experience using it?

LIVEWORKSHEETS