Requirements

All requirements of the Playback Controller and API (“elements”) of any candidate streaming Software Development Kit (SDK) mentioned hereafter are mentioned with consideration of the Project Brief (“Virtual Jukebox – Project Brief”

Virtual Jukebox will, and will likely require the Playback Controller of any candidate SDK to provide the functionality to:

* Play and pause track playback
* Seek to a given timestamp
* Skip to the next track
* Skip to the previous track
* Adjust volume
* View playback history
* View the songs in the queue
* Append a song to the queue

In addition, Virtual Jukebox will, and will likely require the API of any candidate SDK to provide the functionality to:

* Create a playlist in the User’s library
* Retrieve a playlist from the User’s library
* View the songs in a playlist from the User’s library
* Search for a song in a playlist from the User’s library
* Search for a song to add to a playlist from the User’s library
* Add a song to a playlist from the User’s library
* Remove a song from a playlist from the User’s library
* Sort the songs in a playlist from the User’s library by artist
* Sort the songs in a playlist from the User’s library by genre
* Sort the songs in a playlist from the User’s library by year

As an addition to the requirements of the API, it is also required that the API provisions a large enough service call bandwidth suitable for the use of Virtual Jukebox in “an indoor setting (e.g., restaurant, café, etc.) or an outdoor setting through portable speakers (e.g., outdoor markets, etc.)” [1].

Comparisons

The candidate streaming SDKs for the implementation of Virtual Jukebox are as follows:

* Spotify Web Playback SDK (Spotify)
* Apple MusicKit JS (Apple Music)
* Deezer JavaScript SDK (Deezer)
* SoundCloud JavaScript SDK (SoundCloud)

Spotify

“The Spotify Web Playback SDK is a public JavaScript SDK that allows you to implement local streaming playback of Spotify content in their web applications” [2].

Apple

“MusicKit JS lets users play songs from Apple Music and their Cloud Library inside your JavaScript app. When a user provides permission to access their Apple Music account, your JavaScript app can create playlists, add songs to their library, and play any of the millions of songs in the Apple Music catalogue directly in a browser, with no additional plugins” [3].

Deezer

“The JavaScript SDK allows you to stream music, authenticate users and lets you access all the Deezer API endpoints. [4]”.

SoundCloud

“The JavaScript SDK lets you easily integrate SoundCloud into your website or webapp. [5]”.

Comparison Matrix

|  | **Spotify** | **Apple Music** | **Deezer** | **SoundCloud** |
| --- | --- | --- | --- | --- |
| Playback Controller | | | |
| Start/resume playback |  |  |  |  |
| Seek |  |  |  |  |
| Skip to next track |  |  |  |  |
| Skip to previous track |  |  |  |  |
| View history |  |  |  |  |
| Queue song (prepend) |  |  |  |  |
| Queue song (append) |  |  |  |  |
| View queue |  |  |  |  |
| Adjust volume |  |  |  |  |
|  | API | | | |
| Create playlist |  |  |  |  |
| Get playlist |  |  |  |  |
| View playlist |  |  |  |  |
| Search for a song |  |  |  |  |
| Add a song to a playlist |  |  |  |  |
| Remove a song from a playlist |  |  |  |  |
| Sort playlist by artist |  |  |  |  |
| Sort playlist by genre |  |  |  |  |
| Sort playlist by year |  |  |  |  |

Legal

It is to be noted that none of the SDKs allow for non-personal use and, in turn, commercialisation.

Spotify

“As laid out in our Terms and Conditions, Spotify is for personal, non-commercial use.

This means that you can’t broadcast or play Spotify publicly from a business, such as bars, restaurants, schools, stores, salons, dance studios, radio stations, etc.

To play in a commercial environment, check out our friends at Soundtrack Your Brand.”

Apple Music

“You agree not to require payment for or indirectly monetize access to the Apple Music service (e.g. in-app purchase, advertising, requesting user info) through Your use of the MusicKit APIs, MusicKit JS, or otherwise in any way…”

Deezer

“The Developer agrees that the use of the Services is strictly limited for a non-commercial purpose and in a non-commercial environment.

It means that the Developer shall not perceive, receive, generate, benefit or create directly or indirectly, any moneys, incomes, revenues, data or any other consideration in connection with the use of neither the Services themselves, nor any and all Content accessed through the Services.

…

The Developer undertakes to inform by any means any person accessing the Content through the Webpages and/or Personal Applications of its conditions of use and notably that the streaming of the recordings is limited to a strictly private use within a family scope.

The use of the Content is limited to a strictly private use within a family scope.”

SoundCloud

“Only the following commercial uses are acceptable:

* the sale of an app, the primary purpose of which is the creation of User Content and the sharing of that content by the creator in accordance with the User Terms;
* the use of the SoundCloud® API to deliver User Content to the Uploader's own ad-enabled website, blog or social media profile;
* services aimed at helping a user to promote his/her User Content via authenticated access to the user's account, provided this does not constitute a breach of the User Terms; and
* other cases that SoundCloud may approve on a case by case basis.

…

The following commercial uses are not acceptable (this is not an exhaustive list):

* any in-app purchases which allow access to content or features already available via the SoundCloud® platform;
* any app that features any advertising, sponsorship or promotion around User Content or enables User Content (other than a user's own User Content) or SoundCloud® functionality to be embedded into the third party commercial services. The only exception to this would be an app that allows an Uploader to connect his/her SoundCloud® account in order to make his/her own User Content available in a commercial context (for example, an app that allows an Uploader to deliver his/her User Content to an online retail store, or to his/her own ad-supported website, blog or social media profile).”

Given the documentation mentioned here, it is recommended that a disclaimer be issued upon start-up of Virtual Jukebox, mentioning that usage be limited to personal use only (e.g., family gatherings, parties, etc).

**References**

[1] Amristar Solutions Pty Ltd, *Virtual Jukebox – Project Brief*. Perth, Western Australia. 2022.

[2] Spotify. *Web Playback SDK Reference*, Spotify. Accessed on: Mar. 30, 2022. Available: https://developer.spotify.com/documentation/web-playback-sdk/reference/

[3] Apple. *MusicKit JS: Add an Apple Music player to your web app*, Apple. Accessed on: Mar. 30, 2022. Available: https://developer.apple.com/documentation/musickitjs

[4] Deezer. *Javascript SDK*, Deezer. Accessed on: Mar. 30, 2022. Available: https://developers.deezer.com/sdk/javascript

[5] Deezer. *API Wrappers*, Deezer. Accessed on: Mar. 30, 2022. Available: https://developers.soundcloud.com/docs/api/sdks