Collaborative Spotify Player

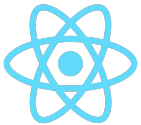
Anna Griffin and Sherrie Shen

What we made

Our Tech Stack

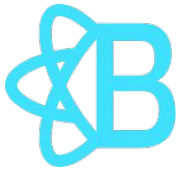
Spotify API

React



Socket.io

React-Bootstrap



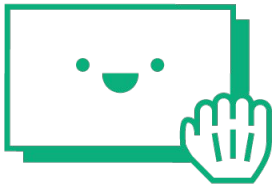
Libraries:

Spotify Web API JS

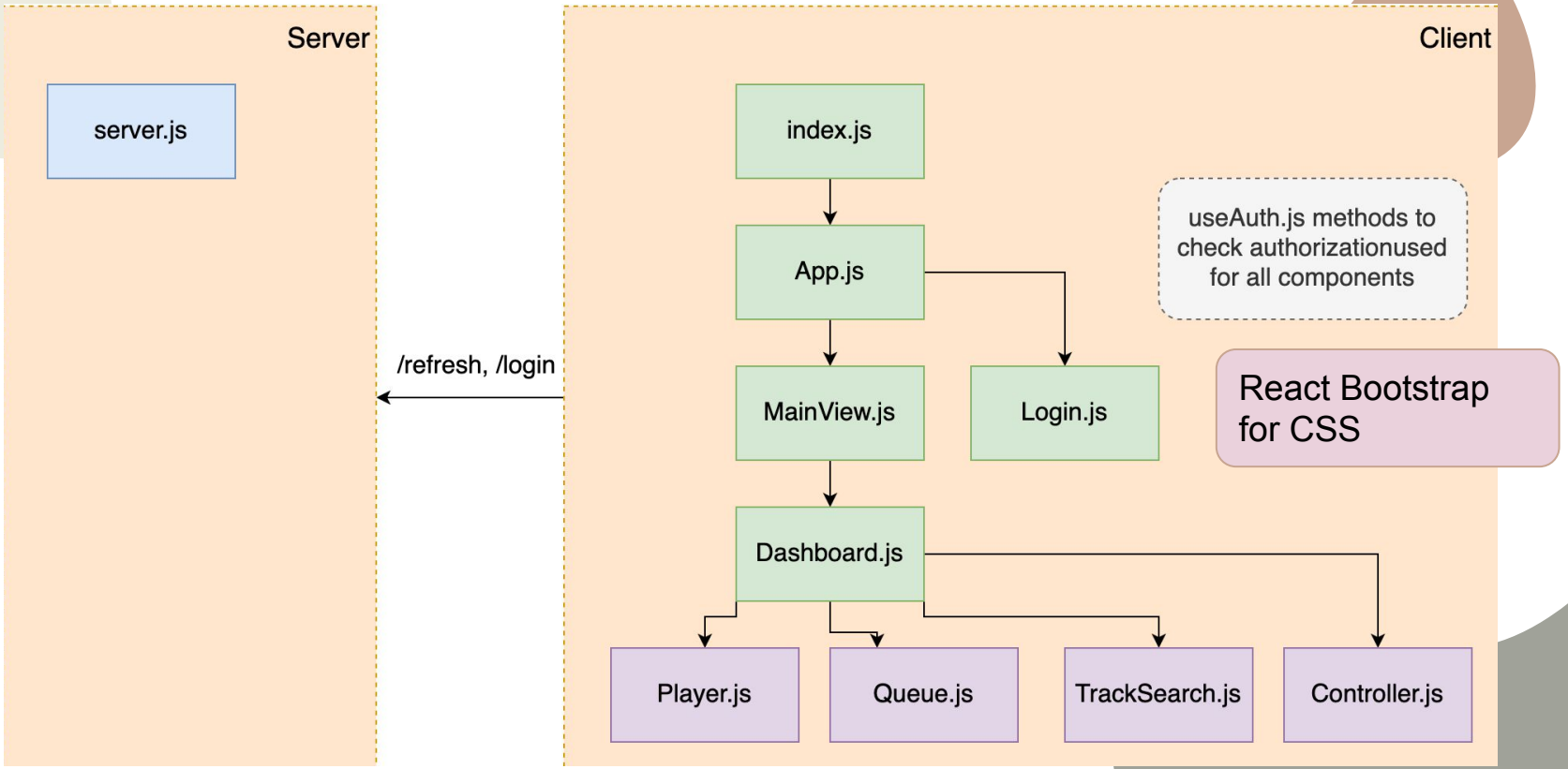
Spotify Web API Node

Spotify Connect WS

React Beautiful DnD



System Architecture



Dashboard

Search Songs/Artists

Queue

Quick Adds

- myplaylist
- SCOPE tunes from Anna
- cmsioaj
- ndlshje
- 28 Cutter POWER HOUR

Top Tracks

Kids Again

Young Enough

So Serious

Kings & Queens

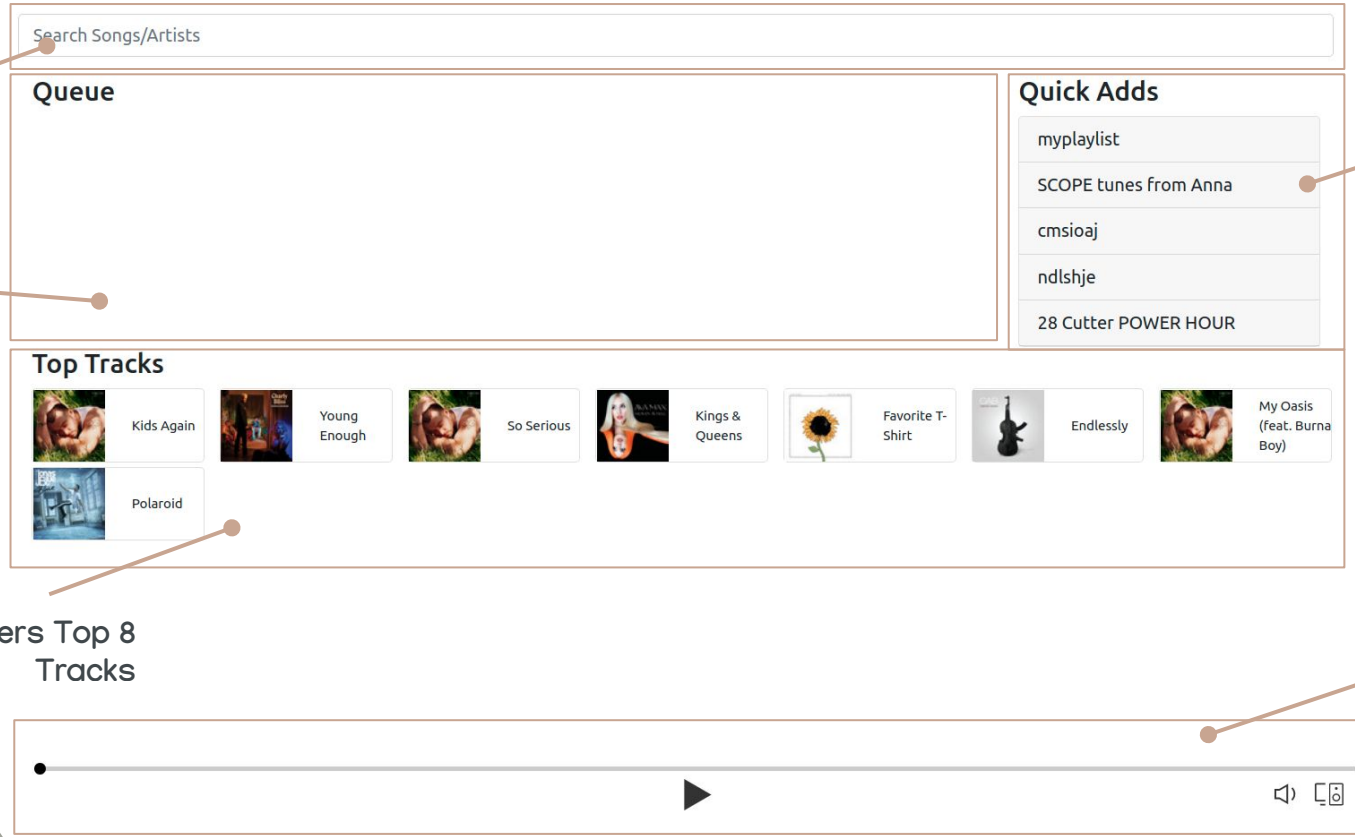
Favorite T-Shirt

Endlessly

My Oasis (feat. Burna Boy)

Polaroid

Components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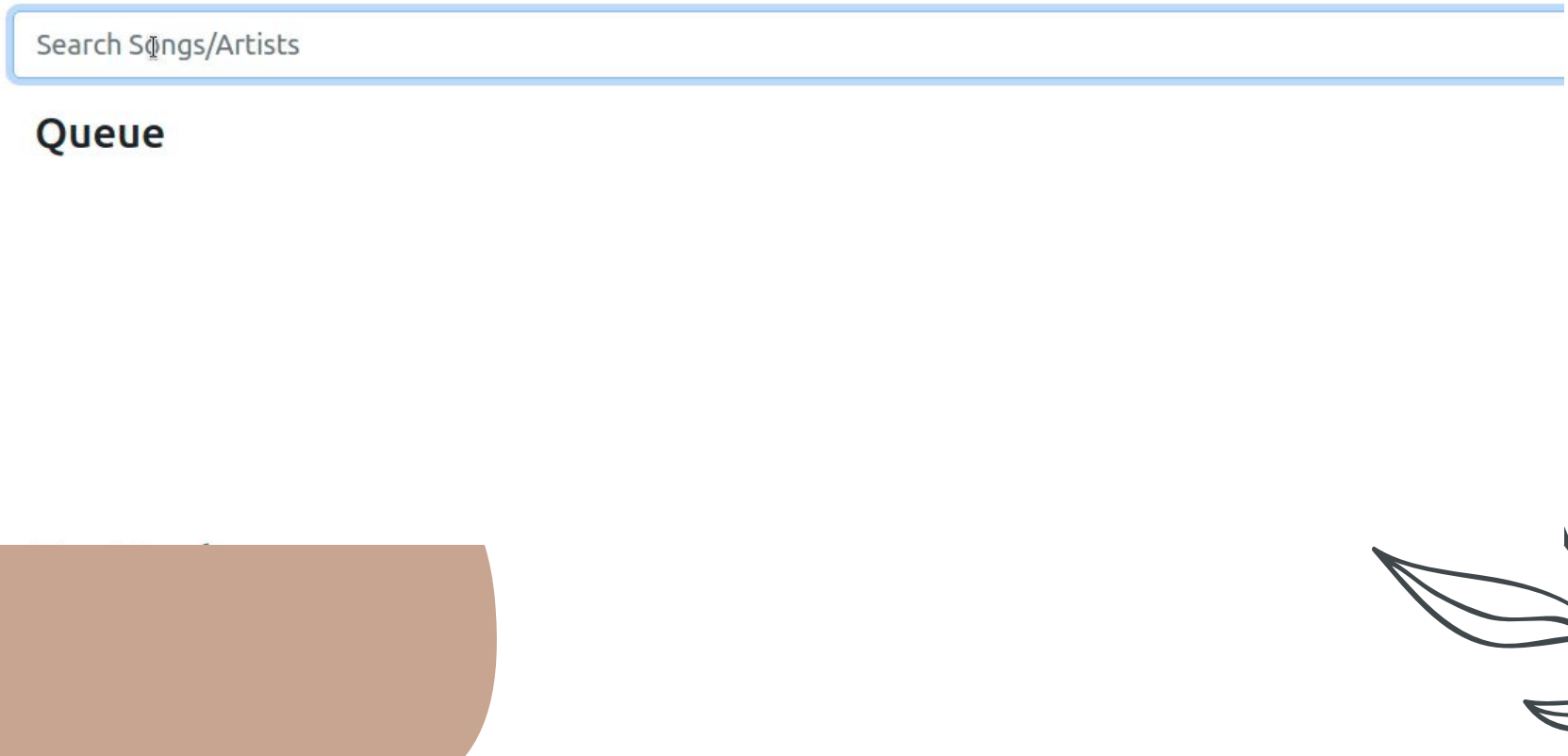
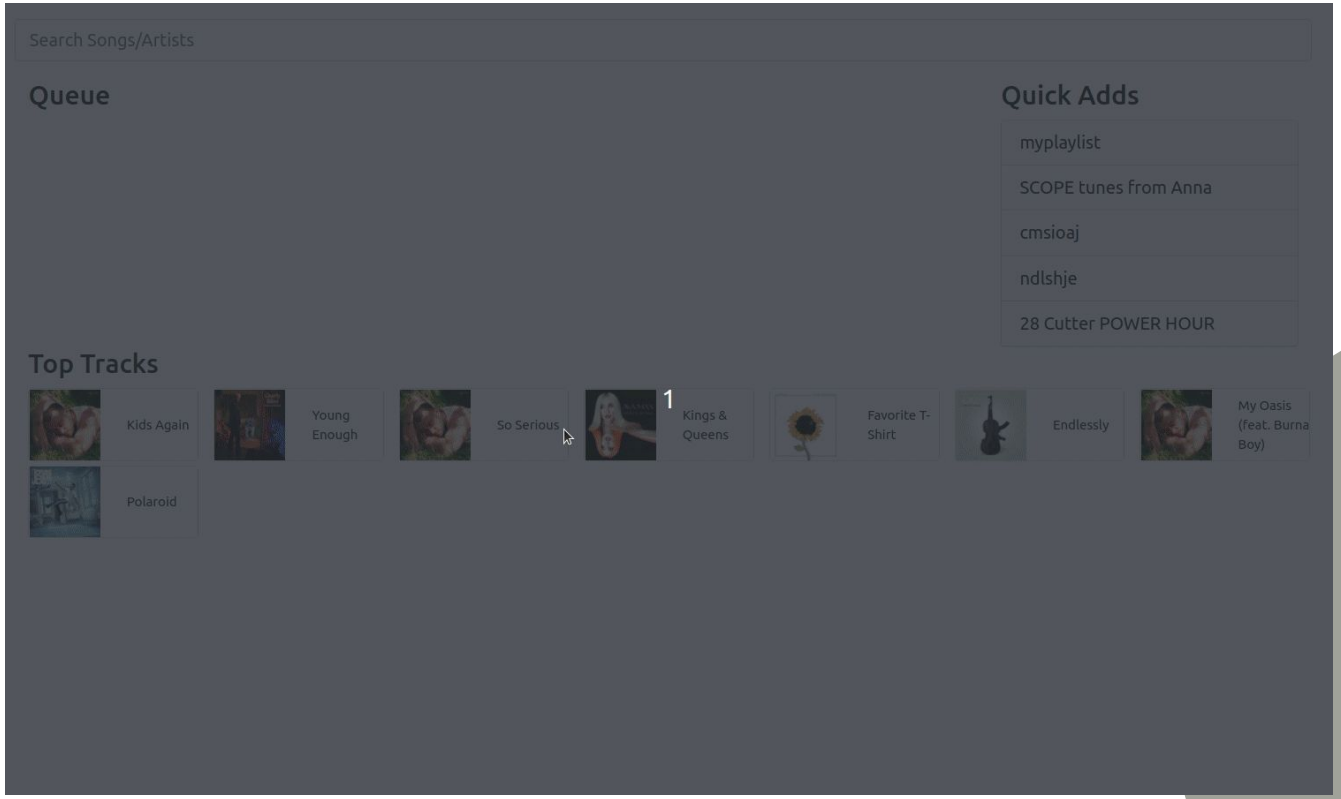
Favorite T-Shirt
Endlessly
My Oasis (feat. Burna Boy)
Polaroid
Search Bar
Queue
Add From Playlists
Users Top 8 Tracks
Player

Adding Via Search



Add Via Playlists & Top Tracks

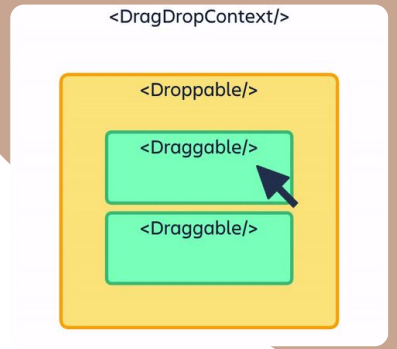


Drag and Drop

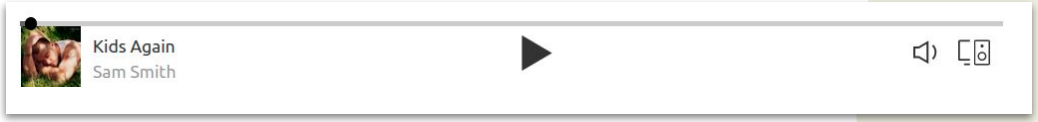
Search Songs/Artists

Queue

	Kings & Queens	Ava Max	2:42
	Favorite T-Shirt	Jake Scott	3:4
	Kids Again	Sam Smith	3:27
	Young Enough	Charly Bliss	5:19
	Blinding Lights	The Weeknd	3:20
	Pretty Girl	Maggie Lindemann	3:39



Player




```
<SpotifyPlayer
  token={accessToken}
  play={play}
  callback={(state) => {
    if (!state.isPlaying && state.position == 0) {
      nextSong()
    } else if (!state.isPlaying) {
      setPlay(false)
    }
  }}
  uris={trackUri ? [trackUri] : []}
/>
```

Demo

Challenges

Authentication

- App.js check the existence of an Authorization code in the URL
- When not authorized, redirect to an Authentication URL to prompt user to log in
- Upon user login, application requests an access token, expiry and refresh token from Spotify Account services
- Later, we can use the tokens to request service from Spotify Web API for controlling the player.

Socket.io + Audio

- Initialize master socket server in express server
- Create instances of client socket in front end App.js
- Need to pass instance of the client socket to each React component
- Tricky to deal with audio when the audio file is hidden behind spotify API
- Need to emit an event to socket server for every Spotify web API call for controlling the event
- Issue: Socket messes with Spotify Web Playback SDK that uses Spotify Connect (connect user across devices)
    - Not easily integratable with Socket
- Also encountered many issues with asynchronous Spotify Authentication to create the sockets

Queuing Music

Little support from Spotify API

Handled on the Frontend

Player is sensitive to how queues up songs to play

Limitations

- Currently only collaborative across multiple devices for the same account
- Spotify Authentication Flows
- Need to have Spotify premium

Learning

Overview

Experience:

- Spotify Authentication is convoluted
- Spotify Web API & Spotify Web Playback SDK
- Socket.io
- React practice
- Reading API documentation
- CSS Frameworks

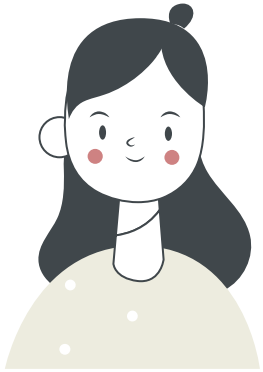
Content:

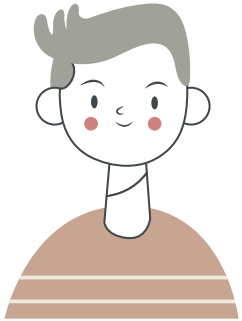
- State management and Hooks
- Component based structure
- Token access and authentication
- Frontend Backend Integration

Next Steps

- Create multiple rooms
- Multiple Accounts
- Find solution for Spotify API and Socket.io and Spotify-Connect-WS
- Make fully Responsive
- Dark mode

Thank You!





Thanks

Do you have any questions?
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