

Part 1

This website is designed to teach people some basic concepts of music theory, including major/minor scales, chords notations and beats. The target audience is people who are interested in music but know little about music theory. They can use this website to learn music theory online instead of reading books. I presented the concepts using texts and visual graphics. To make the website more interesting and engaging, I embedded a piano keyboard in some of the web pages so that users can interact with the keyboard. The keyboard would show some key information such as what is the pattern of major scales. The visualization and sound would help users to understand those concepts more easily.

Part 2

- Users can click on the little blue collapse button on the top left of each page to open the sidebar. From the sidebar, users can click on the collapsible list to expand the lessons.
- On the “pitch notation” page, click on any key on the piano keyboard, it will show the corresponding pitch notation below.
- On the “major scale” or “minor scale” page, click on one of the colored key buttons, it will show the corresponding major/minor scale on the keyboard(the keys of that major/minor scale will turn orange). User can also choose different instruments by clicking one of the buttons above the piano keyboard to hear the sound. The corresponding notes will also appear under the keyboard to inform the users the keys of that scale.
- On the “major triad” or “minor triad” page, click on any key on the piano keyboard, it will show the corresponding major/minor triad on the keyboard(the keys of that major/minor triad will turn orange). User can also choose different instruments by clicking one of the buttons above the piano keyboard to hear the sound. For “minor triad” page, users can also select to show different type of minor scales by clicking on the “natural” or “harmonic” or “melodic” button.

Part 3

- Javascript library: Tone.js, Vexflow.js
Animation library: animejs
- Why I used these tools: I chose to use Tone.js because I was hoping to implement the piano keyboard feature and output the sounds. I chose to use Vexflow.js because I wanted to have the flexibility to render different music notations. I chose to use animejs to create an animated line drawing graph on the home page.

- How I used these tools: I used Tone.js to create the piano keyboard and customized user interaction such as changing the colors of the keys, showing pitch notations and making sounds using different instruments. I used Vexflow.js to render svgs of music notations(clefs). I used animejs to create a line drawing animation on the home page.
- What it adds to my website: The animation on the homepage makes the website looks more engaging and creative. The piano keyboard makes it easier for users to understand several key concepts of music theory by visualizing the patterns and generating sounds.

Part 4

I iterated on the design of the collapsible sidebar in order to improve how users interact with sidebar menu. I added the grey overlay on the page so that users can focus on the left sidebar when they open it. For the page content, I focused more on getting piano keyboard working and added more functionalities such as rendering notes and generating sound.

Part 5

The challenge I had when building this website was to get the javascript library and jquery plug-in working. I was not familiar with those tools at first so I did not get these external tools working at first. I used console.log() methods and checked the error messages in console to fix the issues.