MIDI Colors

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Description and Purpose

MIDI Colors is a Javascript/p5.js based project that gives users a color based response after they have pressed a major/minor triad (a set of three keys) on a MIDI keyboard. The names of the pressed keys (in MIDI numbers) appear on the screen and the names of the chords appear as well.

The purpose of MIDI Colors is to:

- Teach color-chord association
- Help teach people how to play chords
- Help users with ear training

Resources

Hardware:

MIDI Keyboard (Owned by Me)

Laptop (My personal MacBook Air)

Software:

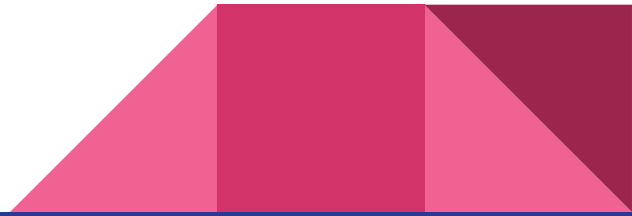
Javascript/p5.js

Microsoft Word (To document any notes)

Logic Pro X

Music Theory Websites

Other: Scholar Papers (City Tech Library)



Budget

Culmination Project Budget
PM: Mykhal Parson

Name	Description	Price
MIDI Keyboard	Personal Keyboard (USB)	$0.00
MacBook Air	Personal Laptop	$0.00
p5.js	Free sketchbook software	$0.00
Scholar Papers	(From City Tech Library)	$0.00
	Total Cost:	$0.00

Methodology (Main Steps)

Research:

Research colors and their connections to chords (Weeks 1-2)

Programming Interface on p5.js (Weeks 3-4)

- Choosing and coding screen display style (Week 3)
- Assignment of colored screens to chords (major, minor, major + major, minor + minor, major + minor) (Week 4)

Design (Weeks 5-7)

Importing MIDI/USB data into p5.js (Week 5)

Placement of chord names on screen and chord sounds implemented (Week 6)

Programming Graphical Objects (Visuals that connect to chords) (Week 7) a. Displays of shapes and images chosen

Prototyping/Testing (Weeks 8-10)

Self-testing captured on camera (Week 8)

Testing with friends and family (Week 9)

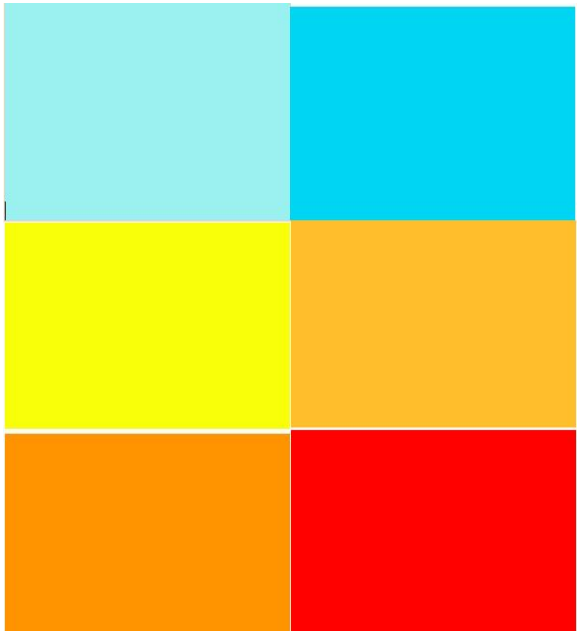
c. Final changes to project and final tests (Week 10)

Research Findings

Prior to creating MIDI Colors, I knew that major chords were connected to brighter, happier colors, and minor chords were connected to darker, sadder colors. During my research phase of MIDI Colors, I found a study by Stephen Palmer in which American and Mexican participants identified major chords as lighter colors (yellows) and minor chords consisted of grays and blues. Also, I learned that chromesthesia (“color hearing”) is different for everyone that has it. This helped me to know that it was up to me to decide which colors I wanted to use for MC.

Source: Palmer, S. E., Langlois, T. A., & Schloss, K. B. (2016). Music-to-color associations of single-line piano melodies in non-synesthetes. *Multisensory Research*, *29*(1-3), 157–193. https://doi.org/10.1163/22134808-00002486

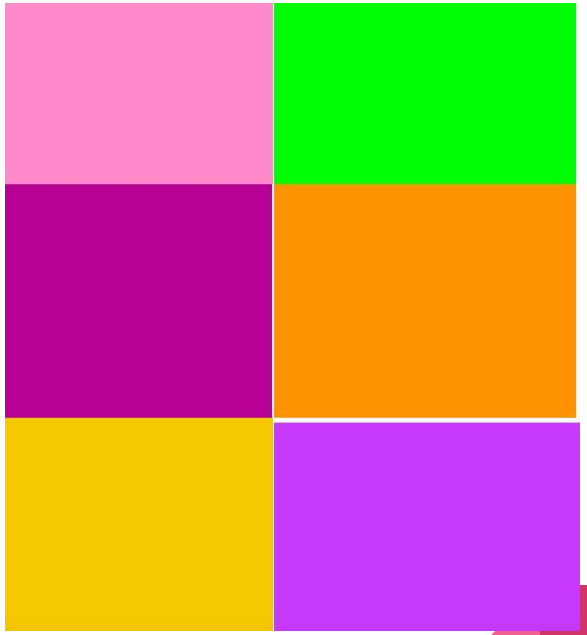
Major Chord Color Palette



C Major, C# Major

D Major, D# Major

E Major, F Major

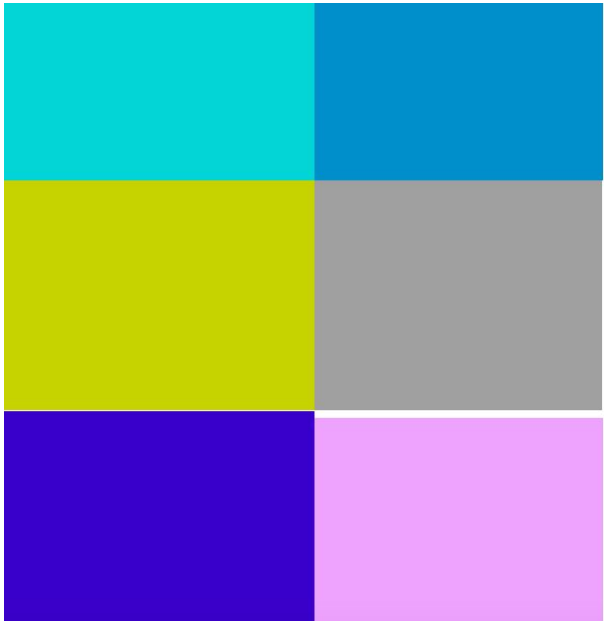


F# Major, G Major

G# Major, A Major

A# Major, B Major

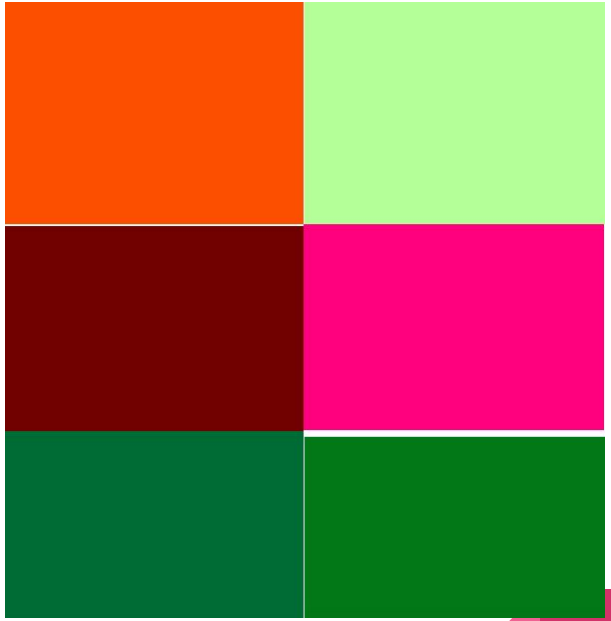
Minor Chord Color Palette



A Minor, A# Minor

B Minor, C Minor,

C# Minor, D Minor

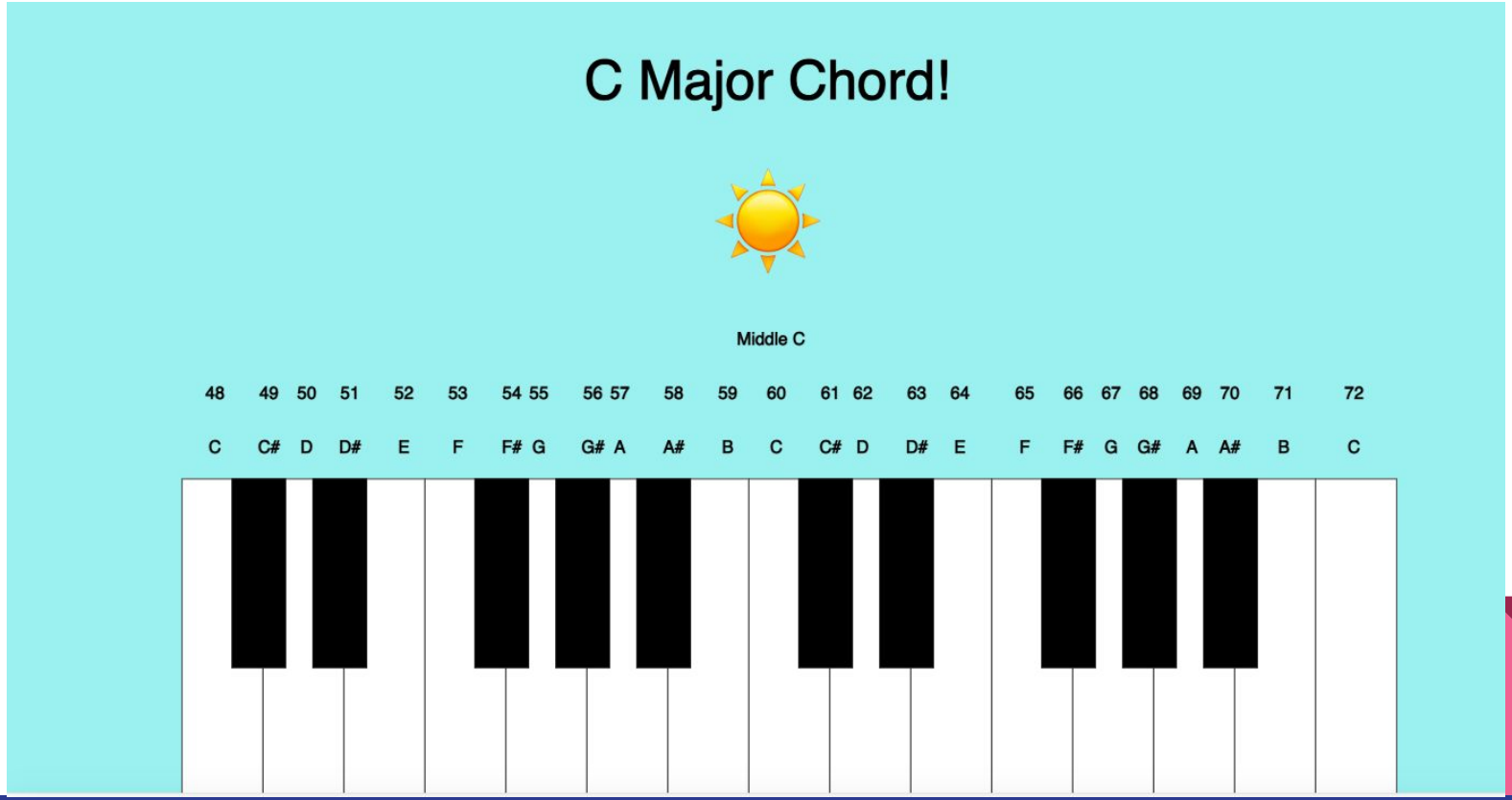


D# Minor, E Minor

F Minor, F# Minor

G Minor, G# Minor

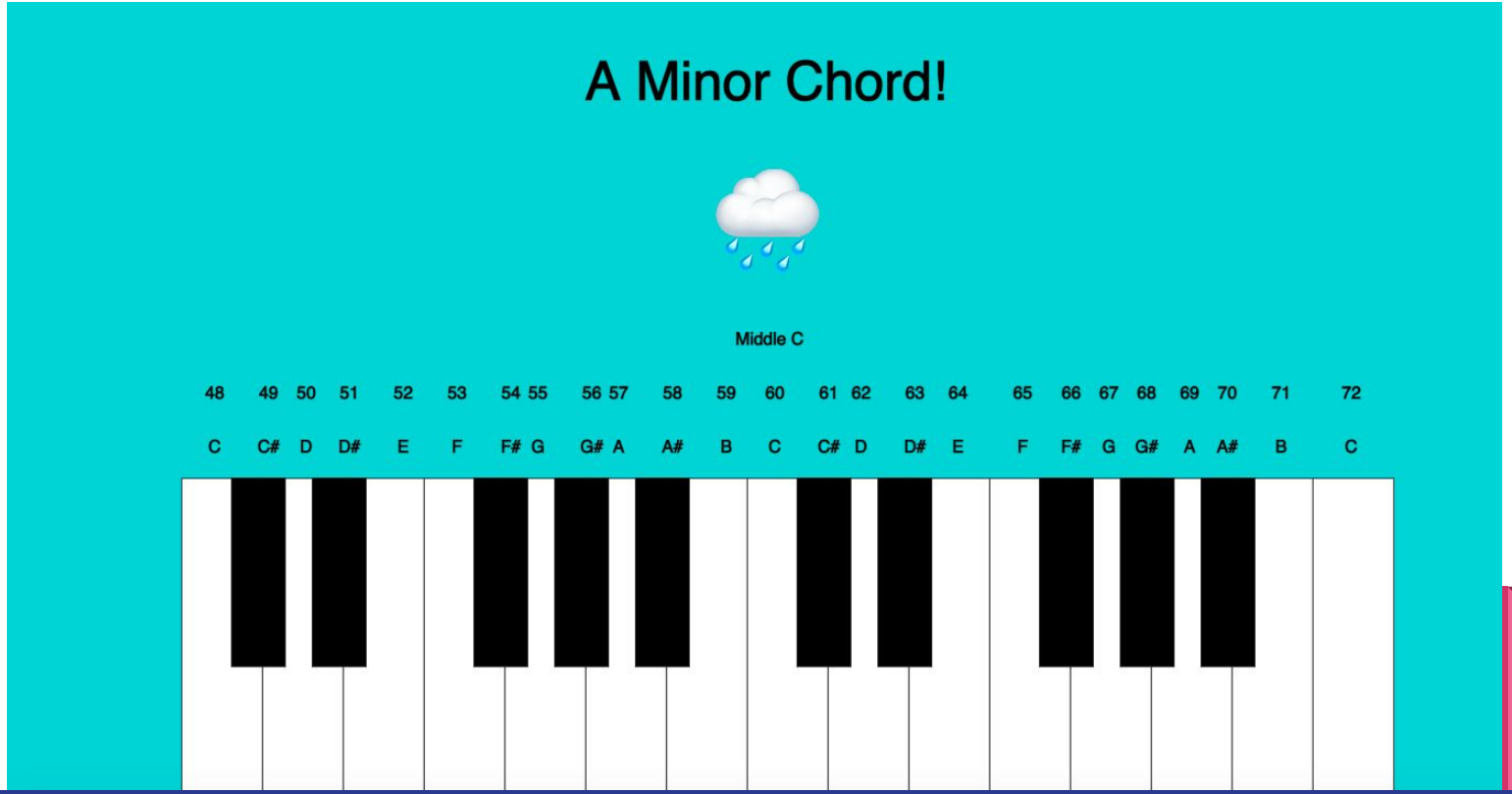
Major Chord Display



C Major Audio Example + Finger Placement

User: RockMusicReviews on Youtube

Minor Chord Display

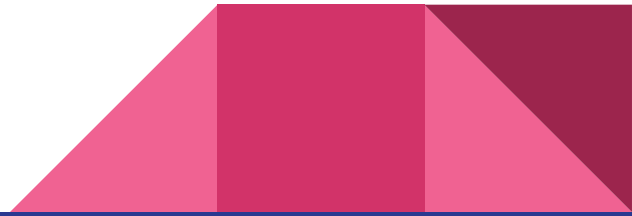


A Minor Audio Example + Finger Placement

User: RockMusicReviews on Youtube

Challenges

- Faulty MIDI USB cord (It led me to think that my hardware had an issue)
- Limited new information about WebMIDI.js
- Specifications weren’t fully complete (Led to last minute changes)
- WebMIDI was updated over the Thanksgiving 2021 break (Led to me changing several lines of code)



Acknowledgement

- I would like to thank Professor Adam Wilson for helping me with this project, meeting with me almost every single week this semester