# Welcome to Hack Club!

## One room for today :)

**Workshop:** Speak Colors (Speech Recognition)

10/04/2021

BENEFITS

# Speak
# Colors

# Objective

- Recognise speech with microphone
- Identify color spoken
- Change background color to match spoken color

**RED**

**ORANGE**

**GREEN**

# Setting up

Create a new Glitch website (Thanks MCPS firewall)



Website

Build a website from scratch using the basics: HTML, CSS and JavaScript. It could be a splash page, VR web experiment, or personal page.

Remix:   Hello Website   |   Blank Website

⚡ STATIC SITE

# Adding Libraries

- p5
- p5-speech

```
<script
src="https://cdn.jsdelivr.net/npm/p5@1.0.0/lib/p5.min.js">
</script>
<script
src="https://rawcdn.githack.com/IDMNYU/p5.js-speech/e7ae007
d61f048fc2379971b0de7d5db8abb7eee/lib/p5.speech.js">
</script>
```

Script tags that link to the external p5 libraries

# Creating a canvas

```
function setup() {
  createCanvas(windowWidth, windowWidth)
  background(255)
  fill(25)

  text('SAY A COLOR', width / 2, height / 2)
}
```

- Creates a new canvas
- Colors background white
- Sets text color to grey
- Puts 'SAY A COLOR' in the middle

```
textSize(48) // sets text size to 48
textAlign(CENTER) // centers the text
textStyle(BOLDITALIC) // makes text bold and italics
textFont('"Avenir Next", system-ui, sans-serif') // font
```

# Speech Recognition Setup

```
const speech = new p5.SpeechRec('en-US', parseResult)
speech.continuous = true
speech.interimResults = false
```

- Creates a new instance of p5's speech recognition
- Sets continuous detection to true

```
function setup() {
  createCanvas(windowWidth, windowWidth)
  background(255)
  fill(25)

  text('SAY A COLOR', width / 2, height / 2)
  speech.start()
}
```

# Speech Recognition Processing

```
function parseResult() {
  if (speech.resultValue) {
    alert(speech.resultString)
  }
}
```

- Triggers when p5.speech detects speech
- Checks that speech is not empty/null
- Alerts value

# Processing Pt. 2

```
function parseResult() {
  if (speech.resultValue) {
    alert(speech.resultString.split(' ').pop().toUpperCase())
  }
}
```

- string.split(char)
    - Splits a string into a list of strings, separating by char
    - 'hackclub'.split('c') == ['ha', 'k', 'lub']
- list.pop()
    - Removes the last element from the list and returns it
    - ['ha','k','lub'].pop() == 'lub'
- string.toUpperCase()
    - Capitalizes all characters in string
    - 'lub'.toUpperCase == 'LUB'

# Processing Pt. 3

```
function parseResult() {
  if (speech.resultValue) {
    const color = speech.resultString.split(' ').pop().toUpperCase()
    background(color)
    text(color, width / 2, height / 2)
  }
}
```

- Sets background color to color
- Color can be any html recognized color
  - https://www.w3schools.com/colors/colors_names.asp

*THISTLE*

# Possible Improvements

## Shapes

Add a feature that draws a shape when you say the shape name. https://p5js.org/reference/ will help.

## Two word colors

The script only recognizes the last word. Make an improvement so that it can recognize multi-word colors (like "SteelBlue") and display them correctly

## On/Off

Make a switch that turns the recognition on or off. https://idmnyu.github.io/p5.js-speech/#reference will help.

# Hacking time