JS with p5

1   Introduction to Javascript with p5.js

1.1   History

- Originally in browsers
- Not Java
- It has some good parts
- Standardised by Ecma (once ECMA) as EcmaScript
- Current version is ES8 (2018)
- Most recent widely-supported version is ES6 (2015)
- Support varies

1.2   Client- and server- side

- Recently JS is also used server-side: nodejs
- Good JS engines in mobile browsers
- JS often used for cross-platform App dev Cordova
- Also for desktop applications with electron e.g. atom
- Interpreted, not compiled: errors only happen at run-time
- `console.log` is your friend.

1.3   Hello world

- Embed JavaScript in a web page
- Use `script` tag

```html
<html>
<script>
        console.log("Hello World")
</script>
</html>
```

1.4   What just happened?

Nothing?
Looks the same as this

```html
<html>
        <script>
        8731747850][];[.]
        </script>
</html>
```

Use developer tools to see the console output and error

1.5   Hello again

In the browser we can also use the `alert` function

```html
<html>
      <script>
            alert("Hello,World")
      </script>
<html>
```

Can run in browser as file, not just with http

1.6   Importing code

- Link to external javascript code with `src` attribute
- Usually placed in `head`
- Can refer to files in same source
- Can refer to external files via http
- Content Delivery Networks (CDN)

```html
<script>
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.7.2/p5.js">
</script>
```

1.7   p5 minimal example

```html
<!DOCTYPE html>
<html>
<head>
<script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.7.2/p5.js">

</script>
<script type="application/javascript">
function setup() {
}

function draw() {
ellipse(50, 50, 80, 80);
}

</script>
</head>
</html>
```

1.8   More interesting p5 example

```html
<!DOCTYPE html>
<html>
<head>
<script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.7.2/p5.js"></script>
<script type="application/javascript">
function setup() {
createCanvas(640, 480);
}

function draw() {
background(0,10);
if (mouseIsPressed) {
fill(0);
} else {
fill(255);
}
ellipse(mouseX, mouseY, 80, 80);
}

</script>
</head>
</html>
```

1.9   Using p5

- p5 provides some (global) functions and variables
- Details given at https://p5js.org/reference/
- Tutorials at https://p5js.org/learn/
- Nice example at https://www.openprocessing.org/